



Demand Estimation Sub Committee
EUC Modelling Approach – Spring 2018

11th December 2017

Background – Demand Estimation

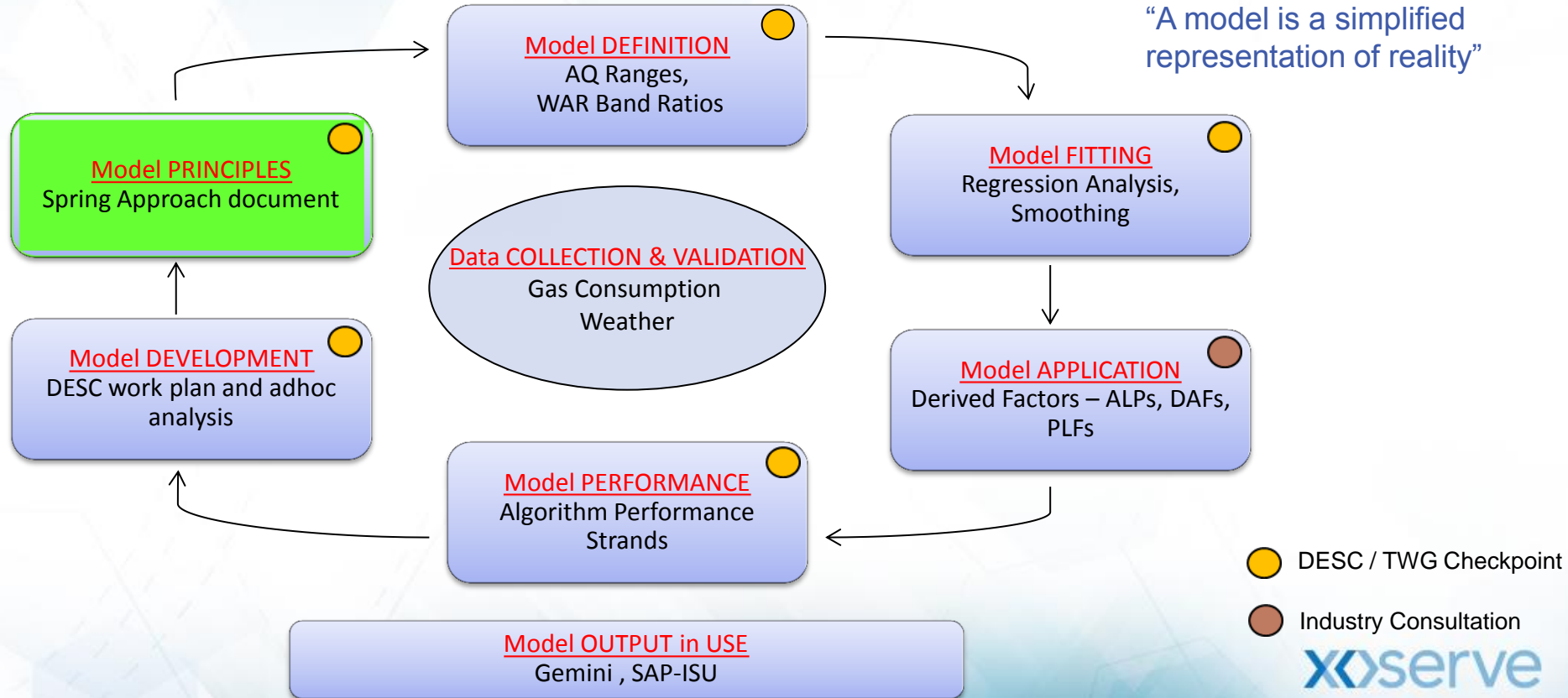
- Key industry processes require various types of gas demand estimation at NDM Supply Points. These processes include:
 - Determining Supply Point Capacity
 - Daily Nominations and Allocations i.e. NDM Supply Meter Point Demand Formula
 - Determining Annual Quantities (AQs)
- To achieve this estimation, each NDM Supply Point belongs to an End User Category (EUC)
- EUCs are used to categorise NDM Supply Points in an LDZ and are defined by reference to variables which are maintained in the Supply Point Register
- Each EUC requires an associated Demand Model which represents its gas usage characteristics e.g. weather sensitivity, consumption profile etc
- Demand Models are mathematical models which provides an estimate of gas demand for each EUC by reference to variables determined by DESC

Background – Demand Estimation cont.

- For each Gas Year, DESC will develop or revise the definitions of the EUCs for the LDZ and the Demand Models for each EUC. The CDSP will then implement these decisions
- The annual process for determining the EUCs and Demand Models for the following gas year begins with the production of a document called the “Spring Approach”
- The Spring Approach provides an overview of the EUC definitions and how the modelling shall be performed, which DESC is asked to formally approve at its meeting in February each year
- Prior to this, DESC’s Technical Workgroup (TWG) are sent a draft of the document to review and comment on
- Section H of UNC and the NDM Demand Estimation Methodology document provides more detail of the Demand Estimation process

Development of EUCs and Demand Models

The purpose of the **EUC Demand Model** is to represent the behaviour and reactions of the **EUC Population**



Demand Modelling Framework

- DESC's obligation of producing a set of End User Categories and Demand Models for the next gas year have to be delivered within certain timescales:
 - The sample data collected for analysis must include the most recent Winter period (December to March), meaning the sample data collation and validation cannot start until **early April**
 - The Final EUCs and Demand Models must be approved and submitted to the Authority and loaded to CDSP's systems **by 15th August**
 - In between April and August is when the sample data validation results are reviewed, WAR Band ratios are set, single year models are developed and reviewed, model smoothing is applied, draft Derived Factors are produced and reviewed, followed by an industry consultation **commencing early June**
- The above explains why it is necessary to agree modelling principles and methodologies in February, as there is not time in the Spring/Summer to make fundamental modelling decisions and gain agreement from all DESC members

Objective

- The final objective of this phase is to produce a Spring Approach document for the derivation of EUCs and Demand Models effective for Gas Year 2018/19, which is approved by DESC
- Objective of today's session is to formally launch the process for determining the EUCs and Demand Models for Gas Year 2018/19 by providing a high level overview of what's included in the initial draft of the Spring Approach document
- In addition we shall provide a high level view of the demand estimation timetable for the production of Demand Models for Gas Year 2018/19

Spring Approach 2018 – Industry Changes

- Spring Approach 2018 is required ultimately to deliver a set of Derived Factors for use in Gemini and SAP-ISU for Gas Year 2018/19
- Implementation of UNC Modification 0432 on 1st June 2017 resulted in changes to the NDM Supply Meter Point Demand Formula and the introduction of Unidentified Gas as the balancing figure in daily processes such as Nominations and Allocations
- Since then a number of industry discussions have taken place to discuss the impacts of these changes
- The Demand Estimation team continue to monitor these discussions in order to understand any potential industry impacts to the Spring Approach 2018

Spring Approach 2018 – Demand Estimation Changes

- Last Spring there were 2 changes of note to the modelling approach:
 - Following analysis presented during Winter 2017, DESC approved the change of modelling approach for EUC 01B which resulted in holiday periods being modelled separately
 - The ‘consultation window’ was amended to allow more time for TWG and DESC to review the draft proposals
- This year any changes to the modelling approach will depend on the results from the Algorithm Performance conclusions and any potential interim recommendations from Review Group 631
- As discussed with DESC previously, the current modelling system which creates the Demand Models and Derived Factors has some inflexibilities which are being addressed via an internal project to replace the processes and systems Xoserve use

Spring Approach 2018

- The initial first draft of the Spring Approach document for the 2018 analysis has been published on the Joint Office website: “Modelling Approach Spring 2018_Draft”
- The next few slides summarise the current End User Category definitions and high level modelling principles from the draft document

Spring Approach 2018 – End User Categories

- Current EUC Categories – 33 per LDZ

EUC Band	AQ Range From: (Kwh pa)	AQ Range To: (Kwh pa)	WAR Bands W01 to W04	No. of Demand Models req'd
01	0	73,200	x	1
02	73,201	293,000	x	1
03	293,001	732,000	✓	5
04	732,001	2,196,000	✓	5
05	2,196,001	5,860,000	✓	5
06	5,860,001	14,650,000	✓	5
07	14,650,001	29,300,000	✓	5
08	29,300,001	58,600,000	✓	5
09	58,600,001		x	1

Spring Approach 2018 – Modelling Approach 1

- Consumption Data:
 - For Spring 2018 analysis, daily consumption will be required for the period 25th March '17 to 7th April '18 (main analysis period 1st April '17 to 31st March '18)
 - Thirty party (e.g. Shipper) supplied sample data is welcome (and needed), subject to Xoserve receiving it in the required format and it passing the standard validation criteria, see document located on DESC's homepage on the Joint Office website
 - Last Spring Xoserve pointed out that for the first time, the numbers of 01B sample sites available for modelling each LDZ dipped below 200 for the first time. We are expecting the numbers for Spring 2018 to be lower again
 - If Shippers are able to provide us with daily consumption data for domestic 01B sites it would be very much appreciated and would ensure that robust models for the biggest sector of the NDM population can continue

Spring Approach 2018 – Modelling Approach 2

- Consumption Data continued:
 - The historical LDZ aggregations plus the additional ones created in Spring 2014 will ensure several combinations are available when individual LDZ analysis is not possible
 - Model Re-runs to be performed using approved datasets from 2015/16 and 2016/17. This is required for the model smoothing process
- Weather Data:
 - Weather data to be used will mainly be based on the output derived from the Weather Station Substitution Methodology (WSSM) project (upto 30th Sept 2012), UK Link and SAP-ISU data thereafter
 - The EUC demand modelling to use the CWVs and SNCWVs based on the parameters and Seasonal Normal basis effective from 1st October '15

Spring Approach 2018 – Modelling Approach 3

- Modelling Principles:
 - Band 01 modelled as a single band - 0 to 73.2 MWh with Domestic only supply points
 - Band 7 & 8 consumption and WAR bands to be merged for modelling purposes only, as per DESC decision in Spring 2014
 - Holiday code rules to be the same as used in Spring '17, which for the Christmas and New Year holiday period will be those agreed by DESC in November 2011
 - Warm weather analysis in order to identify those models which exhibit 'Summer Reductions' and / or 'Cut-Offs'
 - Analysis performed to assess if 'Weekend and/or Holiday effects' are necessary
 - 3 year model smoothing applied along with existing weightings for each individual year (i.e. 33:33:34)

Spring Approach 2018 – Modelling Approach 4

- Derived Factors (ALP, DAF and PLF):
 - The Annual Load Profile (ALP) formula remains unchanged
 - The Daily Adjustment Factor (DAF) formula no longer requires the computations from an agg. Demand model following the implementation of UNC Modification 0432
 - The Peak Load Factor (PLF) formula remains unchanged, including the methodology for deriving the estimate of peak day demand for Small NDM and Large NDM EUCs i.e. simulation
- Fall-back position:
 - In the event the NDM proposals derived from the Spring 2018 analysis are rejected by DESC, the underlying demand models from Spring 2017 would be used - referred to as 'fall-back' proposals (UNC Section H)

Spring Approach 2018 – Modelling Approach 5

- Reporting Output:
 - NDM Algorithms Booklet summarising the process followed, to be produced
 - Parameters for all smoothed models to be published in an Appendix to the 2018 NDM Algorithms Booklet. All other model parameters to be provided in electronic form
 - The performance evaluation summary (Section 12) to reflect the review of Algorithm Performance (Strands 1 to 4) for Gas Year 2016/17
 - The location of all supporting documents and files to be published on Xoserve's secure SharePoint site (UK Link Documentation):
 - 18.NDM Profiling and Capacity Estimation Algorithms / 2018-19 Gas Year

Spring Approach 2018 – Interaction and Timetable

- Spring 2018 will be the 7th modelling cycle with the DESC / TWG collaborative approach to decision making and transparency
- As such please review decision / interactions timetable (Appendix 2 of Spring Approach document) which provides summary of the anticipated DESC / TWG involvement during the modelling cycle
- To ensure that the correspondence during the Spring Analysis period (April to July) between Xoserve and the TWG remains productive, please ensure the TWG representative within your organisation (as displayed on the master list on the Joint Office website) is still the most appropriate contact

Demand Estimation Timetable 2018

High Level View of Demand Estimation Timetable 2018 - Key Checkpoints

PHASE	JAN'18	FEB'18	MAR'18	APR'18	MAY'18	JUN'18	JUL'18	AUG'18	SEP'18	OCT'18	NOV'18	DEC'18
1. MODEL PRINCIPLES												
Spring Approach 2018 Approved (DESC)		13th Feb										
2. Data COLLECTION & VALIDATION												
Sample data validated (CDSP)				13th Apr								
3. MODEL DEFINITION												
Agree Data Aggregations / WAR Band Limits (TWG)				24th Apr								
4. MODEL FITTING												
Small & Large NDM Single Year modelling review (TWG)					15th May							
5. MODEL APPLICATION												
Publication of Draft Derived Factors (CDSP)						1st June						
Derived Factors Approved for wider industry (TWG/DESC)							9th July					
Final Approval of Derived Factors (DESC)							24th July					
6. MODEL OUTPUT IN USE												
SAP-ISU and Gemini updated (CDSP)								15th Aug				
7. MODEL DEVELOPMENT												
Adhoc Work-plan approved (DESC)							24th July					
8. MODEL PERFORMANCE												
Strands 1 to 4 reviewed (DESC)												TBC

Spring Approach 2018 – TWG Review

- The initial first draft of the Spring Approach document for the 2018 analysis is now available for review
- Xoserve invite TWG representatives and other interested parties to review the document and let us know your comments, please email our box account with any queries:

Xoserve.demand.estimation@xoserve.com

- In order to meet the Demand Modelling timetable, DESC will be asked to provide final approval of the Spring Approach document for 2018 at the DESC meeting on 13th February 2018