Demand Estimation Technical Work Group

Review of draft 2018/19 NDM Algorithms

9th July 2018

Agenda

- Background & Timetable
- Summary of 2018 Modelling and Smoothed Model Outcomes
- Summary of TWG responses to proposed Algorithms and Xoserve clarifications
- Conclusions and Next Steps

Background, Timetable and Objectives of Meeting

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

- 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 proposed EUC definitions and how the modelling shall be performed, including a reference to the sample data required in order to produce the relevant demand models
- DESC approved the latest version of the Spring Approach after its meeting in February, which included the possibility of deriving additional EUCs in Bands 1 and 2
- Section H of UNC and the NDM Demand Estimation Methodology document provides more detail of the Demand Estimation process

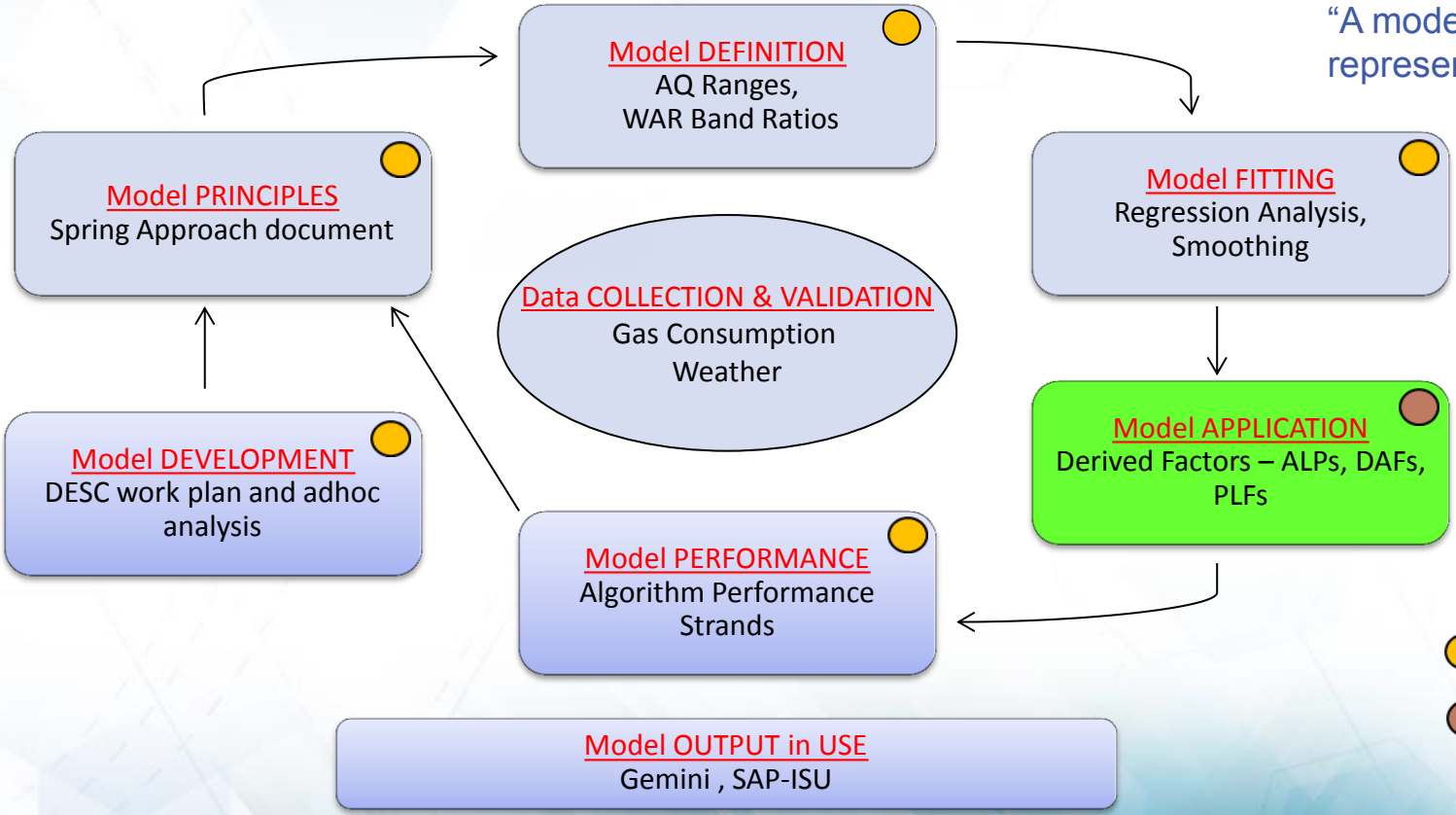
Background – Demand Modelling Framework

- DESC's obligation of producing a set of End User Categories and Demand Models for the next gas year has 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 each year, as there is not time in the Spring/Summer to make fundamental modelling decisions and gain agreement from all DESC members

Background - EUCs and Demand Model Lifecycle

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

"A model is a simplified representation of reality"



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

Objectives of this meeting

- The final objective of the “Model Application” phase is for TWG, DESC and the industry to review the Derived Factors – ALPs, DAFs and PLFs in order to approve final versions to be used in Gemini and SAP-ISU for the new Gas Year

- Objective of today’s meeting is:

  - For TWG to consider and review all representations raised and CDSP’s responses

  - To gain TWG support for proposals prior to DESC review and discussion

Summary of 2018 Modelling and Smoothed Model Outcomes

Summary of modelling

- Data aggregations & WAR Band thresholds agreed at April TWG meeting (24th)
- Single year modelling approved at May TWG meeting (15th)
- Model smoothing process followed in second half of May along with production of draft Derived Factors
  - Smoothed model outcomes summarised on slides 12 and 13
- Note: All modelling / output parameters produced using Composite Weather Variable (CWV) definitions and Seasonal Normal (SN) basis effective 01/10/2015

Small NDM: Smoothed Model Outcomes

	2018	2017
Straight Models	81	63
Cut-Off Only	42	39
Summer Reductions Only	68	43
No Slope	0	0
Cut-Off and Reductions	4	11
Total Number of EUCs	195	156

- Small NDM represents approx. 89% of current NDM AQ
- 39 extra smoothed models in 2018 due to request for additional EUCs

Large NDM: Smoothed Model Outcomes

	2018	2017
Straight Models	168	173
Cut-Off Only	39	41
Summer Reductions Only	44	38
No Slope	21	20
Cut-Off and Reductions	1	1
Total Number of EUCs	273	273

- Large NDM represents approx. 11% of current NDM AQ

Summary of TWG responses to proposed Algorithms and Xoserve clarifications

TWG Responses / Comments on Proposals

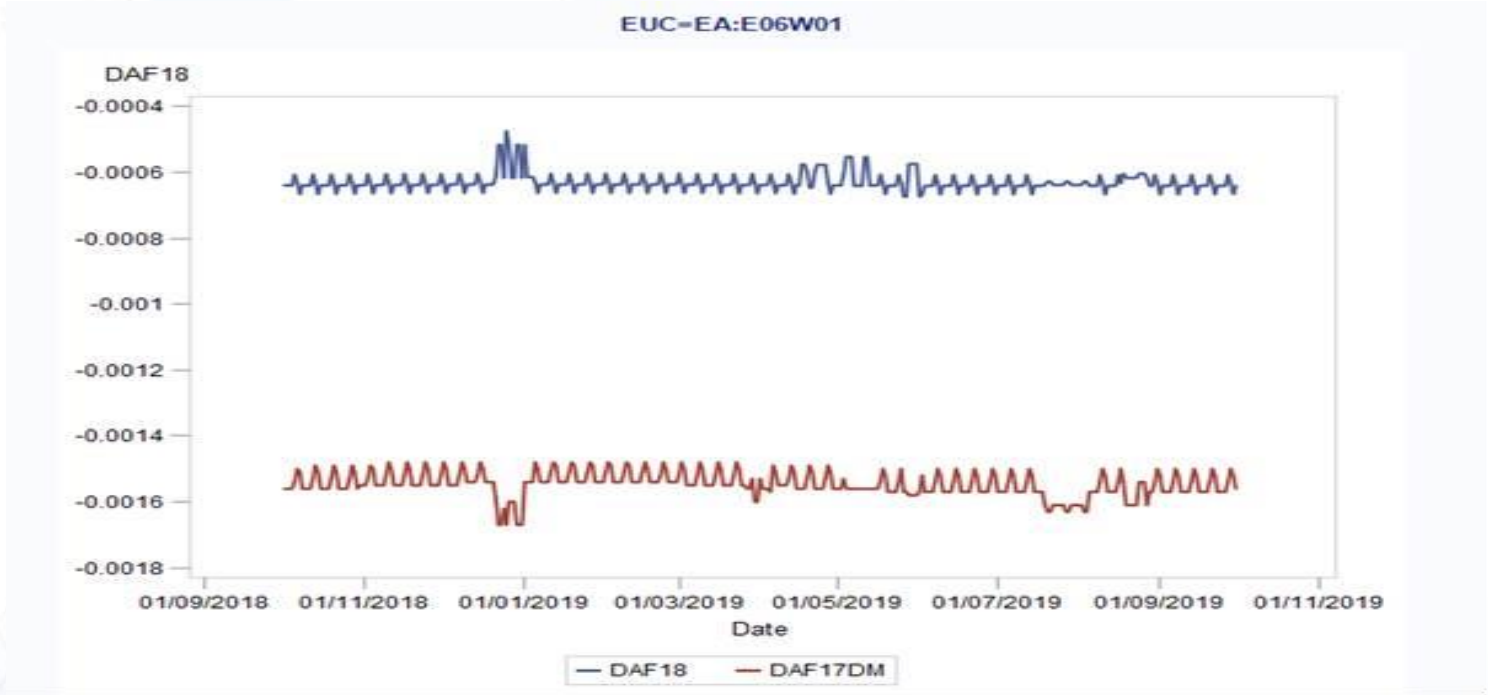
- Email sent on 1st June asked TWG representatives and DESC members for feedback by no later than close of play 22nd June in order to prepare for meeting on 9th July

- There has been no feedback on the new 39 EUC profiles and factors requested for Bands 1 and 2

- One response was received (from E.ON) with comments on the proposals
  - This was for an existing EUC – namely Band 06 W01 (covered on slides 16 & 17)

EON – DAF 1: EA:E06W01

- *"For the EUC EA:E06W01 we see an increased DAF which we haven't seen across other EUCs is there any reason for this?"*



EON – DAF 1: EA:E06W01 - Response

- The DAF for 2018/19 shows that compared to last year it is closer to zero, which implies that the smoothed model for this EUC is less weather sensitive. This information is confirmed in the EUCPAR18L.txt file. The WSENs for 2018/19 is -0.9 and for 2017/18 was -1.9.

- The behaviour of the sample in the 3 years is what determines the smoothed model outcome. The C2 (slope) in the individual year files provided for these models, found in: MDLPAR16_18L, MDLPAR17_18L and MDLPAR18_18L, shows zero weather sensitivity for the latest two years. In the equivalent files last year there was more weather sensitivity for these models which meant the DAF was further from zero.

  Below is a table comparing the C1 and C2 results for the last 2 years:

	C1	C2		C1	C2
MDLPAR16_18	1663	-3	**MDLPAR15_17**	1628	-5
MDLPAR17_18	1242	0	**MDLPAR16_17**	1663	-3
MDLPAR18_18	1417	0	**MDLPAR17_17**	1242	0

Next Steps

Next Steps

- Are TWG happy to recommend this year's full set of NDM Algorithm proposals for Gas Year 2018/19 to DESC?