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Demand Estimation Sub Committee

Review DESC Representations
2024/25 NDM Algorithms
3 July 2024

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OVERVIEW

Demand Estimation Cycle



- An overview of the Demand Estimation process and output can be found [here](#)
- Annual modelling cycle of activities are represented in diagram opposite
- This presentation relates to the Industry Consultation phase of the Demand Model cycle

CDSP / DESC Obligations and Timetable: October 2023 to September 2024

Milestone	UNC H Ref	2023			2024								
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
DESC Membership confirmed	1.12	✓		✓									
NDM Sampling: Data Collection and Validation	1.6	✓						✓					
NDM Algorithm Performance for Gas Year 2022/23	1.8			✓								✓	
DESC Adhoc Workplan	1.7	✓		✓			✓				✓		
DESC Modelling Approach – EUCs and Demand Models	1.7			✓			✓						
Single Year EUC Demand Modelling	1.7								✓				
Model Smoothing and Draft Gas Demand Profiles	1.7									✓			
Industry Consultation	1.8									✓	✓		
Gas Demand Profiles finalised and Core systems updated	1.9											✓	
Seasonal Normal Review 2025	1.4	✓		✓			✓		✓		✓		

Objectives

- For DESC members to consider and review all DESC representations received and observations noted by Demand Estimation Team
- To gain DESC support for proposals prior to submitting for wider industry consultation

Approval
Required

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MODELLING APPROACH

Modelling Approach – Basis of 2024 Modelling (1 of 3)

Key aspects of DESC's [Modelling Approach 2024](#) are summarised below:

- Demand Modelling runs and the principles of aggregation where necessary, were agreed by DESC in April (see slide 9)
- The Composite Weather Variable (CWV) definitions and Seasonal Normal basis (SNCWV), effective from 1st October 2020, will be used for the last time
- All gas demand modelling is data driven – if the modelling results indicate, then Holiday & Weekend Factors, Summer Reductions & Cut-Offs will be applied (see slide 10)
- Holiday Factors are determined by an agreed set of Holiday Code Rules set out in Appendix 5 of the Modelling Approach document
- Holidays are excluded from all core regression models, including Domestic EUCs

Modelling Approach – Basis of 2024 Modelling (2 of 3)

Sample Data Aggregation

- The optimum result is always to model an EUC based on Individual LDZ analysis
- Sometimes this is not feasible due to low sample counts and in these cases, aggregations are required
- Where aggregations are required, we take the following approach
 - Use sample data for LDZs which share weather data e.g. NW and WN
 - Use sample data for bordering LDZs, adding more as required
 - Group sample data into North (7 LDZs) and South (6 LDZs) regions
 - Group all sample data for the EUC together

Modelling Approach – Basis of 2024 Modelling (3 of 3)

- **Warm weather cut-offs** are not applied to EUC Models <293 MWh p.a. This means no cut-off is placed on warm weather demand reduction, in EUC models representing nearly 80% of NDM load
 - Any cut-offs are based on modelling results over all 3 years
- **Summer reductions** can apply to EUC models over the period from the Sunday before Spring Bank Holiday Monday to last Sunday in September
 - i.e. 25 May 2025 to 28 September 2025
 - This applies along with the more general summer holiday period in July and August
 - Any summer reductions are based on modelling results over 3 years
- Modelling Methodology is covered in the NDM Algorithms Booklet Sections 3 and 4

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SUMMARY OF MODELLING PROGRESS TO DATE

Summary of Modelling Progress to Date

- Data Aggregations and WAR Band Thresholds for latest Single year models agreed at 24 April DESC Meeting
- Single year modelling approved at 22 May DESC Meeting
- Some modelling changes were made after the 22 May DESC meeting
 - Amended treatment of the King's Coronation Bank Holiday to be in line with the Modelling Approach Document
 - Sample Data aggregation amended for Band 5 WAR Bands for NO to no longer include SC
- 3-year Model Smoothing process completed followed by production of Gas Demand Profiles (i.e. ALPs, DAFs and PLFs)
 - Published for review 10 June
 - Smoothed Model outcomes on following slides

Smoothed Model Outcomes: Description

- The following slides show a summary count of models by modelling results:
 - **Straight Models:** Are models with no cut-off and no summer reduction (see below)
 - **Cut-Off Only:** These are models which either require a cut off before the CWV reaches it's maximum to avoid forecasting very low or negative volumes or where demand levels off during the warmest days
 - **Summer Reductions Only:** These are models where the demand does not flatten off at warm temperatures but rather falls away to lower than expected values
 - **No Slope:** These models have no weather sensitivity and therefore no seasonality
 - **Cut-Off and Reductions:** Applies where models have both a cut-off and a summer reduction
- Details of the criteria used for determining Cut-offs and Summer Reductions is in Section 3 of the NDM Algorithms Booklet, parts 2.2 and 2.3

Smoothed Model Outcomes: Small NDM

Smoothed Model Outcome	2024	2023
Straight Models	31	27
Cut-Off Only	9	17
Summer Reductions Only	177	181
No Slope	0	0
Cut-Off and Reductions	17	9
Total Number of EUCs	234	234

- Small NDM meters are 0 to 2,196 MWh p.a. and represent approx. 87% of current NDM AQ

Smoothed Model Outcomes: Large NDM

Smoothed Model Outcome	2024	2023
Straight Models	140	158
Cut-Off Only	20	12
Summer Reductions Only	76	63
No Slope	30	33
Cut-Off and Reductions	7	7
Total Number of EUCs	273	273

- Large NDM meters are > 2,196 MWh p.a. and represent approx. 13% of current NDM AQ

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DESC RESPONSES AND DEMAND ESTIMATION TEAM OBSERVATIONS

Analysis

- Email sent on 10 June asked DESC members for feedback by no later than close of play 25 June in order to prepare for today's meeting
- No feedback has been received from DESC members at time of publication
- Summary of Representation topics to be covered
 - Topic 1: Domestic Peak Load Factors – Demand Estimation Team

Topic 1: Domestic Peak Load Factors

- The Peak Load Factor inversely influences the SOQ (Supply Offtake Quantity)

$$\text{SOQ} = \text{AQ} / (\text{PLF} \times 365)$$

- A lower PLF means a higher SOQ and could mean higher charges
- In the past the PLF for 01BPD has been higher than 01BND for all LDZs, meaning prepayment meter charges are no higher than non-prepayment
- This year the PLF for SW 01BPD has calculated slightly lower than 01BND
- DESC may wish to consider using the 01BND value for 01BPD
- Approval for any changes will be included in the final approval of Gas Demand Profiles at the 24 July DESC

LDZ	01BND	01BPD	Difference
EA	0.304	0.306	0.002
EM	0.303	0.313	0.010
NE	0.317	0.332	0.015
NO	0.343	0.354	0.011
NT	0.311	0.314	0.003
NW	0.306	0.327	0.021
SC	0.336	0.347	0.011
SE	0.292	0.302	0.010
SO	0.272	0.275	0.003
SW	0.283	0.281	-0.002
WM	0.291	0.314	0.023
WN	0.303	0.318	0.015
WS	0.297	0.310	0.013

Conclusions

- Topic 1: Domestic Peak Load Factors
 - The 01PBD PLF is lower than the 01BND PLF for one LDZ
 - A decision on any action will be requested with final approval at the 24 July DESC
- Are DESC happy to approve the smoothed EUC Demand Models and Gas Demand Profiles for wider industry review (ahead of finalising the profiles)?
 - If not, need to confirm actions required to progress ahead of wider industry consultation (5-day window)

Next Steps



Gas Demand Profile Update Timeline

Industry Review of
Gas Demand
Profiles

8 to 12 July

DESC consider any
further comments
received prior to
finalisation of the
profiles

24 July

Systems updated
with new profiles for
Gas Year 24/25

August

New Profiles live

1 October