Review Group 280

Action 004:

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- Annual NDM Proposals Output:

Key Outputs	Data Source for DESC	Published	Calculation
Annual Load Profile (ALP)	ALPDAF*yy* .txt	June	SNDt / (∑SNDt / no.of days)
Daily Adjustment Factor (DAF)	ALPDAF*yy*. txt	June	WSENSt / SNDt (for EUC) WSENSt / SNDt (for agg.NDM in LDZ)
Load Factors (LF)	LF*yy* .txt	June	**Small NDM:** Agg AQ from EUC Model 1 in 20 peak demand from EUC model *365 **Large NDM:** 1 ALPt (1+WCFp * DAFt)
EUCs	*SSC* 01.PN000009.EUC	August	

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- Annual Load Profile (ALP):

Key Outputs	Calculation / Detail	Data Source for DESC	Published
Annual Load Profile (ALP)	SNDt / (∑SNDt / no.of days)	ALPDAF*yy* .txt	June
SNDt for the EUC is derived from smoothed EUC demand model	SNDt = Pt *(C1 + C2 * SNCWV)	SNCWV: SNCWVyy.txt C1 & C2 parameters: EUCPARyyL.txt / EUCPARyyS.txt Pt parameters: EUCWKyyS.txt / EUCWKyyL.txt / EUCHOLyyL.TXT / EUCHOLyyS.txt (average of 3 years holiday factors) Holiday Codes: WKHOLDEFyy.txt	June
Appendix 4 - EUC Model Smoothing Methodology	Detailed document explaining process for applying EUC model smoothing	Appndx04.doc	June
Single year EUC model parameters (x3) i.e constants, weekend factors	Results from single year analysis	Example Data for '09/10 NDM Proposals: MDLPAR07.doc MDLPAR08.doc MDLPAR09.doc Note: Holiday Factors for individual years not currently provided	June
Single year EUC models (x3)	Calculate single year model parameters via regression analysis as described in Appendix 3	Data required: CWVs: cwv*mmyy* n.txt Holiday Codes: WKHOLDEFyy.txt Demand Data: Sample Data	June
Appendix 3 - Demand Modelling Structure	Detailed document explaining process for defining regression analysis	Appndx03.doc	June
Sample Demand Data	Daily demand data either by supply point level or by aggregation depending on sample size	*Example Files:* *SCSM_DL1.TXT* *SCSM_DR1.TXT* *LGNDM_0A.TXT*	On Request - June

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- Daily Adjustment Factor (DAF):

Key Outputs	Calculation / Detail	Data Source for DESC	Published
Daily Adjustment Factor (DAF)	WSENSt / SNDt (for EUC) WSENSt / SNDt (for agg.NDM in LDZ)	ALPDAF*yy* .txt	June
WSENSt (for EUC)	WSENSt = Pt * C2	C1 & C2 parameters: EUCPARyyL.txt / EUCPARyyS.txt Pt parameters: EUCWKyyS.txt / EUCWKyyL.txt / EUCHOLyyL.TXT / EUCHOLyyS.txt	June
SNDt (for EUC)	SNDt = Pt *(C1 + C2 * SNCWV)	SNCWV: SNCWVyy.txt C1 & C2 parameters: EUCPARyyL.txt / EUCPARyyS.txt Pt parameters: EUCWKyyS.txt / EUCWKyyL.txt / EUCHOLyyL.TXT / EUCHOLyyS.txt Holiday Codes: WKHOLDEFyy.txt	June
WSENSt (for agg.NDM)	WSENSt	WSENSt values have been obtained from historical models of aggregate NDM demand derived using a separate but equivalent methodology to EUC demand modelling. Aggregate NDM demand data not currently provided to DESC but available on Gemini and on National Grid data item explorer. WSENSt is provided to DESC for all days of the target gas year. File: SNDWSENSyy.txt	June
SNDt (for agg.NDM)	SNDt	SNDt values have been obtained from historical models of aggregate NDM demand derived using a separate but equivalent methodology to EUC demand modelling. Aggregate NDM demand data not currently provided to DESC but available on Gemini and on National Grid data item explorer. SNDt is provided to DESC for all days of the target gas year. File: SNDWSENSyy.txt	June

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- Load Factor (LF):

Key Outputs	Calculation / Detail	Data Source for DESC	Published
Load Factors (LF)	Small NDM: Agg AQ from EUC Model 1 in 20 peak demand from EUC model *365 Large NDM: $\frac{1}{ALPt\ (1+WCFp * DAFt)}$	LFyy.txt	June
Small PLF	Agg. AQ from EUC Model 1 in 20 peak demand from EUC model * 365	Aggregate model derived AQ for each EUC sample is the sum of model derived SND for that EUC sample for all days of a 365 day year. 1 in 20 peak demand for each small NDM EUC sample derived from simulation - not currently provided to DESC. Simulation as per NG Gas Demand Forecasting Methodlogy	June
Large PLF	$\frac{1}{ALPt\ (1+WCFp * DAFt)}$	ALPt: ALPDAFyy.txt DAFt: ALPDAFyy.txt WCFp: Provided in NDM report	June
WCFp	(PDN / SNDNm) - 1	PDN: Derived from simulation of historical model of aggregate NDM demand - not currently provided to DESC Simulation as per NG Gas Demand Forecasting Methodlogy SNDNm: Maximum agg.NDM SND value - can be obtained by DESC from set of all SND and WSENS values provided for each LDZ.	June

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- Non Annual process:

Process	Data Required
CWV Review	CWVs: cwv*mmyy* .txt / SIS Agg. NDM Demand Data (for non-holiday Mondays to Thursdays): Gemini / National Grid data item explorer
Optimisation of CWV Parameters	Daily Temperatures and Windspeeds: Not currently provided - Met Office / Metoegroup (TBC) Agg.NDM Demand Data (for non-holiday Mondays to Thursdays): Gemini / National Grid data item explorer Maximum potential demand data (cold weather upturn): Not currently provided to DESC Erroneous days of DM or other data is required: Provided to DESC via presentation Corrections to aggregate NDM demand data when required/feasible (for example past instances of offtake measurement errors - notified to industry via other means).
SNCWV	Daily Temperatures and Windspeeds: Source depends on final agreed industry solution CWV Parameters: Appndx12.doc / Presentation

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- Annual NDM Modelling process - Single Year only
- Input: Three tranches of validated sample data
  - Small NDM Logger
  - Large NDM Logger
  - Small NDM Recorder
- Analysis: Done in sets to reflect deployment of data to EUCs:
  - Small NDM Logger is for Bands 03 and 04 (WAR Bands in these Bands)
  - Large NDM Logger is for Bands 05, 06, 07, 08 and 09 (and where applicable WAR bands)
  - Small NDM Recorder is for Band 01 and 02 (when combined with some Small NDM Logger)
- Analysis: Numbers have to be assessed to understand what level of aggregation across LDZs is potentially feasible for each EUC model that is required.

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- Analysis: Demand data is aggregated across the various groups of LDZ that are deemed to be necessary – Different data files have to be created for each case.

- Analysis: Demand data is then combined with applicable weather data in to sets of data files. When data is aggregated across LDZs, the demand data is modelled against each applicable CWV in turn (one of these for each LDZ grouping).

- Input: Modelling system requires the following as an input –
  - Demand and Weather data
  - Define which days are weekends and which have assigned holiday codes
    - Holiday codes are not assessed each year – stable and unchanged for some time
  - Model run definitions, for example:
    - Consider summer reductions or not and associated trigger criteria
    - Apply cut-off or not and associated cut-off trigger criteria
    - Various weather statistics to enable calculation of indicative load factors

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- Analysis: Modelling system then produces a substantial volume of output files for each EUC

- Analysis: Model Smoothing
  - Previous years data aggregations are not revisited but previous years models are re-run to make sure all models that go into model smoothing are on the same basis.
  - For each EUC in each LDZ there will be will be models with and without summer reductions

- Input: Model Smoothing system requires:
  - Individual year model outputs
  - Definition of model smoothing process
  - Holiday codes, CWV intercepts, Criteria for cut offs / summer reductions etc

- Analysis: Model Smoothing system produces:
  - Outputs for Appendix 6 and 7
  - Data items required for creation of ALPs and DAFs
  - Data items required for creating fallback ALPs and DAFs

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- Analysis: Once models confirmed, ALPs and DAFs can be generated for the new gas year as well as Load Factors.

- Input: Load Factor calculations require:
  - Historical aggregate NDM demand models (Large NDM)
  - Various weather statistics required for simulation process (Small NDM) – some details in Gas Demand Forecasting Methodology

- Analysis: Finally there is various performance evaluation analysis carried out as well as putting together the remainder of the NDM report and supporting files