Demand Estimation Sub Committee

Seasonal Normal Review 2020 Update

10th February 2020

Objective

- Provide a recap of Seasonal Normal Review activities completed in 2019 and an update on work completed since the last DESC meeting in December

- Present results of 2019 modelling using new weather basis in order to provide an early indicative view of likely impact to AQs and SOQs from Gas Demand EUC Modelling parameters produced in 2020.

- Provide an overview of modelling activities to be completed throughout 2020 involving the new Seasonal Normal Basis

Seasonal Normal Review - Recap

- The main DESC obligations from the Seasonal Normal Review process were delivered during the majority of 2019 – recap below:

  - Review and revision of the CWV formula – introduction of Solar Radiation
  - Optimisation of the parameters in the revised CWV formula
  - DESC approved the revised CWV formula and parameters at 7th October 2019 meeting

  - Review of current SNCWV basis (shape and level)
  - Use of Climate Change Methodology in the Approach to SNCWV calculation
  - Calculation of revised Seasonal Normal Composite Weather Variables (SNCWV)
  - DESC approved the new SNCWV's to be used effective from 1st October 2020 at 9th December 2019 meeting

- A document detailing all of the above steps undertaken throughout 2019 can be found in the following folder on the secure section of Xoserve's website 'UKLink Docs'

  Folder: 18.NDM Profiling and Capacity Estimation Algorithms > 2020-21 Gas Year > 5. Seasonal Normal 2020 > Seasonal Normal Review 2020.pdf

Updated Material

- Following approval of the new Seasonal Normal basis at December 2019 DESC meeting, the following documents have been published on the secure area of Xoserve's website – 'UKLink Docs' under the following folder:

Folder: 18.NDM Profiling and Capacity Estimation Algorithms > 2020-21 Gas Year > 5. Seasonal Normal 2020

- Revised Pseudo Seasonal Normal Effective Temperature (Pseudo-SNET) for GY 2020/21 **(SN20_SNET20.txt)**

- Revised Pseudo Seasonal Normal Effective Solar (Pseudo-SNES) for GY 2020/21 **(SN20_SNES20.txt)**

- Revised Seasonal Normal Compositive Weather Variable (SNCWV) for GY 2020/21 **(SN20_SNCWV20.txt)**

- Recalculated CWV History spanning Gas Years 1960/61 to 2018/19 inclusive **(SN20_CWV6019.txt)**

Indicative impacts of new CWVs, SNCWVs

- Since DESC agreement in December the CDSP has 'refreshed' the 2019 Gas Demand EUC Modelling using revised weather variables (i.e. CWVs, SNCWVs) in order to provide an early view of the likely impacts to the EUC demand models

- The 3 individual years 2016/17, 2017/18 and 2018/19 used in the 2019 Gas Demand EUC Modelling have been re-run using new weather, followed by Demand Model Smoothing

- The Smoothed Demand Models were then used to derive a set of Annual Load Profiles (ALPs), Daily Adjustment Factors (DAFs) and Peak Load Factors (PLFs)

- Differences when compared to modelling completed throughout 2019 using the old weather basis have been analysed to produce an indication of likely movement as a result of the change in weather basis.

2019 Modelling Results Re-Run: R-Squared (%)

- The tables below show the movement in R-Squared values produced for the 3 years included in the re-running of the 2019 Gas Demand EUC Modelling process.

- Results are shown for i) the Domestic Band 1 Non-PrePayment EUC (c.75% of NDM load) and ii) all other EUCs

- R-Squared values can generally be seen to increase for Domestic Band 1

2016/17	SC	NO	NW	NE	EM	WM	WN	WS	EA	NT	SE	SO	SW
Domestic Band 1 (EUC **01BND)	△ 0.10	△ 0.40	△ 0.40	△ 0.30	△ 0.30	△ 0.40	△ 0.20	△ 0.30	△ 0.10	△ 0.20	△ 0.10	△ 0.10	▽ -0.40
Average of all other EUCs	▽ -0.62	▽ -0.61	△ 0.00	△ 0.21	▽ -0.14	▽ -0.01	△ 0.05	△ 0.10	△ 0.09	▽ -0.17	▽ -0.23	▽ -0.14	▽ -0.36

2017/18	SC	NO	NW	NE	EM	WM	WN	WS	EA	NT	SE	SO	SW
Domestic Band 1 (EUC **01BND)	△ 0.20	△ 0.30	△ 0.40	△ 0.20	△ 0.20	△ 0.20	△ 0.10	△ 0.40	△ 0.10	△ 0.30	△ 0.20	△ 0.30	▽ -0.20
Average of all other EUCs	▽ -0.05	▽ -0.13	▽ -0.14	▽ -0.17	▽ -0.06	△ 0.04	▽ -0.21	▽ -0.51	▽ -0.07	△ 0.06	▽ -0.13	▽ -0.06	▽ -0.30

2018/19	SC	NO	NW	NE	EM	WM	WN	WS	EA	NT	SE	SO	SW
Domestic Band 1 (EUC **01BND)	△ 0.30	△ 0.90	△ 0.60	△ 0.40	△ 0.40	△ 0.40	△ 0.20	△ 0.80	△ 0.30	△ 0.20	△ 0.30	△ 0.20	△ 0.90
Average of all other EUCs	▽ -0.14	▽ -0.47	▽ -0.12	▽ -0.18	▽ -0.07	▽ -0.01	▽ -0.14	▽ -0.28	▽ -0.15	△ 0.03	▽ -0.33	▽ -0.36	△ 0.07

2019 Modelling Results Re-Run: EUC Ratios

- In September 2020 the first AQ calculations effective from 1st October will be performed. To ensure that the AQ population is on a consistent Seasonal Normal basis all those Supply Meter Points that fail to calculate an AQ will have a ratio applied to the existing AQ

- The ratios will be calculated for each EUC by comparing the $\sum SND_t$ from the New Demand model with the $\sum SND_t$ from the Existing Demand model

- This has been performed using the 2019 Gas Demand EUC Modelling output in order to provide an indicative view of the likely movement in AQs as a result of the new CWVs and SNCWVs

- The table below shows the EUC ratios associated to EUC 01BND for all LDZs and the average EUC ratio for all EUCs excluding 01BND. Note: These are INDICATIVE values only

	SC	NO	NW	NE	EM	WM	WN	WS	EA	NT	SE	SO	SW
Domestic Band 1 (EUC **01BND)	0.993	1.005	0.995	0.993	0.992	0.995	0.994	0.994	0.993	0.992	0.993	0.987	0.998
Average of all other EUCs	0.997	1.002	0.999	0.995	0.994	0.999	0.996	0.996	0.995	0.996	0.996	0.991	0.999

- Ratios for EUC 01BND are between 0.987(SO) and 1.005(NO) across all EUCs

- Average ratios excluding EUC 01BND lie between 0.991 and 1.002

2019 Modelling Results Re-Run: Peak Load Factors

- One of the key outputs from DESC's processes is the Peak Load Factor (PLF)

- Using the revised 2019 Smoothed Demand Models the PLFs have been calculated for all LDZ and EUC combinations

- The table below shows the change in PLF value percentage points when moving from the old to the new weather basis. Included are the values for EUC 01BND and an average view of all EUCs excluding 01BND for all LDZs

	SC	NO	NW	NE	EM	WM	WN	WS	EA	NT	SE	SO	SW
Domestic Band 1 (EUC **01BND)	+0.8%	+0.1%	-0.1%	-0.5%	-0.3%	-0.4%	+0.4%	-0.7%	-0.2%	+0.9%	+0.5%	-0.7%	-1.0%
Average of all other EUCs	+0.7%	+0.0%	+0.1%	-0.5%	-0.1%	-0.2%	+0.5%	-0.2%	-0.2%	+0.7%	+0.7%	-0.1%	-0.4%

- PLFs for Band 1 Domestic sites across all LDZs have changed by less than 1 percentage point, this is in line with the average movement across all other EUCs at an LDZ level

2019 Modelling Results Re-Run: Conclusions

- The re-run of the 2019 Gas Demand EUC Modelling using the latest view of CWV and SNCWVs was mainly to obtain indicative movement in some of the key calculations which use the Demand Estimation Gas Demand Profiles

- The 'real' values will be produced once we complete the 2020 Gas Demand EUC Modelling, however the indicative 2019 results shown here suggest there will not be significant changes in AQs and SOQs as a result of the change approved by DESC as part of the 2020 Seasonal Normal Review

- Any movement in AQs and SOQs due to normal changes in consumption for reasons such as conservation is not captured here

Next Steps

- Q1 2020:
  - Re-run 2 of the 3 single years due to be used in the 2020 Gas Demand EUC Modelling process (2017/18 and 2018/19) using the new weather (CWV and SNCWV)

- Q2 2020:
  - Single year dataset for 2019/20 will be collected and validated in April this year
  - Draft Gas Demand Profiles (ALPs, DAFs and PLFs) using the new weather to be published in early June

- Q3 of 2020:
  - Following completion of industry consultation, produce revised WAALPs for all EUCs using new ALPs, DAFs, CWVs and SNCWVs to support AQ calculations in September 2020
  - Produce 'Seasonal Normal Ratios' for each EUC which will be applied to those Supply Points which fail to calculate in the September 2020 AQ calculation run