Demand Estimation Sub Committee

Seasonal Normal Review 2020:

Review of CWV Formula

1st April 2019

Overview

- During 2019 DESC are reviewing / revising the Composite Weather Variable (CWV) formula **AND** the basis for deriving the Seasonal Normal Composite Weather Variable (SNCWV)

- Why ? - Reminder of DESC's UNC Section H obligations:

  – *"1.4.3 The Committee will, at appropriate frequencies determined by it, **review** and where appropriate **revise** (with effect from the start of a Gas Year) the **formula** by which the **Composite Weather Variable** for an LDZ will be determined."*

  – *"1.5.3 The Committee will, at appropriate frequencies determined by it, after consultation with the Uniform Network Code Committee, **review** and where appropriate **revise** (with effect from the start of a Gas Year) the **seasonal normal value** (for each Day in a year) of the **Composite Weather Variable** for an LDZ."*

Overview - Milestones

- At the 10th December 2018 meeting DESC approved the following high level approach and work plan for performing this analysis - major milestones below:

- **MILESTONE:** DESC to decide whether to consider a revision to the existing **CWV** formula and confirm the template for its 'benchmark' results (1st April)

- **MILESTONE**: DESC define proposed **CWV** formula for next period i.e. GY 2020/21 onwards (8th July)

- **MILESTONE**: DESC confirm parameters for use in proposed **CWV** formula for Gas Year 2020/21 (7th October)

- **MILESTONE:** DESC decide whether to revise existing **SNCWV** (1st April)

- **MILESTONE:** DESC confirm revised **SNCWV** values (9th December)

Overview - DESC / TWG meeting Timetable 2019

High Level View of Seasonal Normal Review in 2019 - Key Checkpoints

PHASE	JAN'19	FEB'19	MAR'19	APR'19	MAY'19	JUN'19	JUL'19	AUG'19	SEP'19	OCT'19	NOV'19	DEC'19
TWG REVIEW CWV and SNCWV												
Update on Seasonal Normal Review (DESC)		11th Feb										
DESC MILESTONE												
DESC to confirm plan to Review CWV and SNCWV Review				1st Apr								
TWG REVIEW OPTIONS FOR CWV FORMULA												
Update on review of CWV formula (TWG)				24th Apr								
Update on review of CWV formula (TWG)					13th May							
DESC MILESTONE												
DESC define proposed CWV Formula (DESC)							8th Jul					
TWG COMPLETE CWV OPTIMISATION												
Adhoc Meetings												
DESC MILESTONE												
DESC confirm parameters in CWV formula (DESC)										7th Oct		
TWG CALCULATE SNCWV												
Adhoc Meetings												
DESC MILESTONE												
DESC confirm SNCWV values (DESC)												9th Dec

CWV Formula Review Analysis

- At the last DESC meeting, Xoserve advised that due to time/resource constraints it would require support in completing the CWV formula review from either DESC members/TWG representatives or potentially via an external analytics provider

- Since the last meeting we are pleased to confirm that British Gas DESC member Jason Blackmore has confirmed that British Gas has the necessary time and resource available to commit to lead on this analysis and has agreed to the following:

  - perform review of existing formula and provide benchmarking figures
  - prepare analysis around new formula options utilising additional weather data
  - produce optimised values for each LDZ for final formula that DESC agree upon

CWV Formula Review Analysis

- Xoserve shall work closely with British Gas to oversee the process and ensure the relevant milestones are met and focus on preparations for the review of the seasonal normal basis (SNCWV) and system updates required to SAP-ISU

- DESC members and TWG representatives will still be required to support the process with guidance and analysis and of course ultimately DESC will have to approve any decisions on the future of both CWV and SNCWV

- Xoserve are now no longer considering using an external analytical provider for performing the review of the CWV formula, however will ensure that recommendations made by the UIG Task Force relating to this topic are considered

- Are you in agreement with this planned approach ?

Objectives for today

- DESC to review the latest analysis of the re-optimised CWV values using existing CWV formula (proposed approach for ‘benchmark results’) – presented by British Gas DESC member
  - DESC to decide upon ‘template’ for benchmark results
  - DESC to decide upon the number of years to be used in optimisation process
- DESC to review thoughts on how additional weather variables can be used within a new CWV formula – presented by British Gas DESC member

  MILESTONE: DESC to decide whether to consider a revision to the existing CWV formula and confirm the template for its ‘benchmark’ results (1st April)

CWV Formula Review

Update from British Gas

CWV Formula Review Conclusions

- DESC to review the latest analysis of the re-optimised CWV values using existing CWV formula (proposed approach for ‘benchmark results’)
- DESC to decide upon ‘template’ for benchmark results
- DESC to decide upon on the number of years to be used in optimisation process
- DESC to review thoughts on how additional weather variables can be used within a new CWV formula

Seasonal Normal Basis

- The Seasonal Normal Composite Weather Variable (SNCWV) is a parameter which represents a typical daily view of weather. Demand models use the SNCWV and are expressed on this basis

- The SNCWV provides a benchmark to compare to actual weather experienced (CWV), also referred to as the Weather Correction Factor (WCF)

- UNC Section H 1.4.6 allows DESC the opportunity to utilise the output from the “Climate Change Methodology” (CCM)

- During 2013/2014 DESC engaged with the Met Office to deliver a CCM including a series of weather variable predictions (upto 2025) which were used in the derivation of the current SNCWV values

Seasonal Normal Basis

- The CCM considered 6 weather variables – temperature, wind speed, precipitation, solar radiation, relative humidity and wind direction

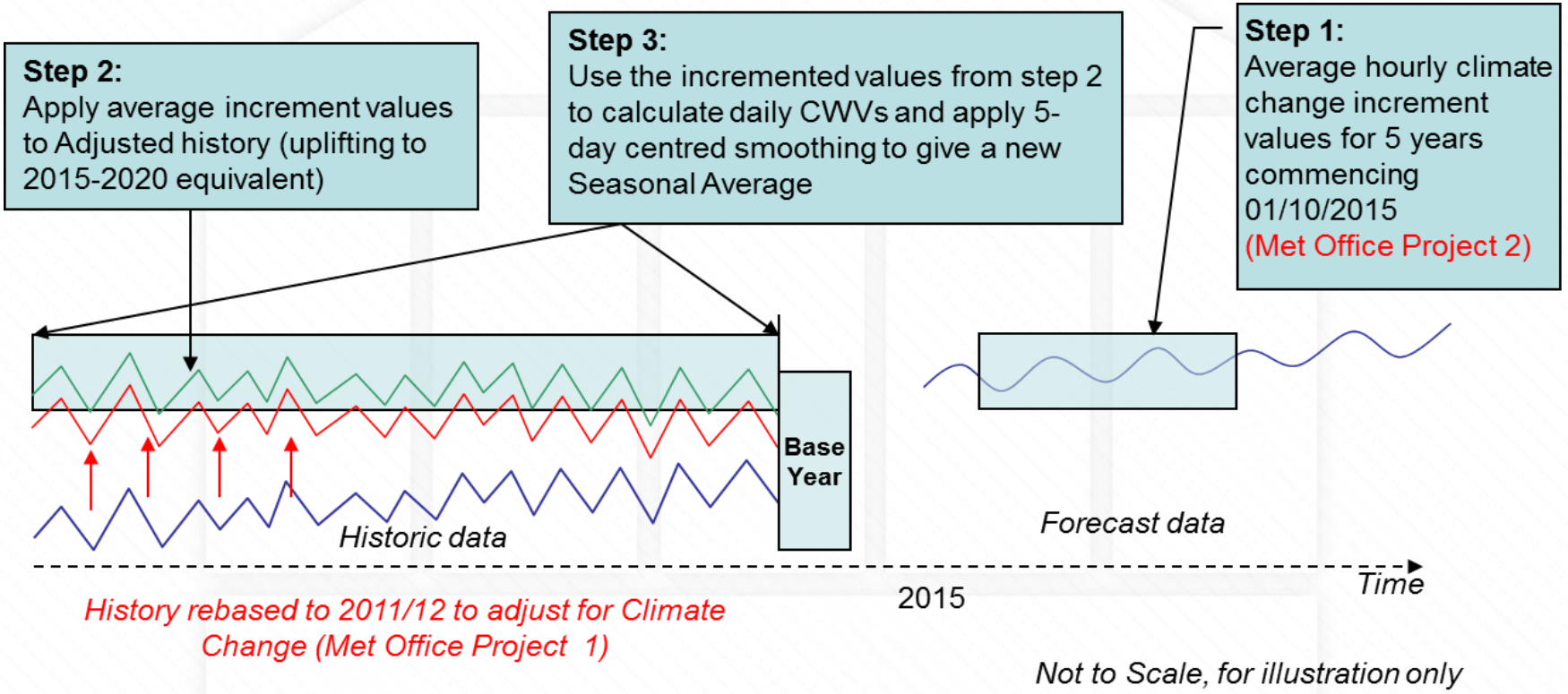
- The CCM analysis and scientific literature concluded that only temperature showed a long-term trend

- Reminder: DESC, at its meeting of 21st November 2017 has already approved the use of the existing CCM output in the derivation of the SNCWV values for Gas Year 2020/21 onwards

- The CCM and output are available on the secure area under folder: "Climate Change Methodology" in Folder 18. NDM Profiling and Capacity Estimation Algorithms

Seasonal Normal Basis – Current Approach (1)

- The current approach, agreed by DESC in 2014, to deriving the SNCWV using the CCM output is summarised below:



Seasonal Normal Basis – Current Approach (2)

- The detailed approach document explaining the step by step process for deriving the new SNCWV can be viewed in Folder 18. NDM Profiling and Capacity Estimation Algorithms / 2015-16 Gas Year / 6. SN 2015 Data

- The main features of the approach are:

  - CCM temperature increments over the period 2015/16 to 2019/20 are averaged
  - Apply average increment values to CCM adjusted history (1960/61 to 2011/12)
  - Using CCM adjusted history for temperature (with increments added) and wind speed (no increments) calculate a CWV for each day in the period 1st October 1960 to 30th September 2012
  - In order to create a single CWV value for each day average the CWV values and then smooth using a 5 day centered moving average

- All source data used in the process is available to all industry parties

Next Steps

- At the meeting on 8th July 2019 DESC will be asked to confirm the new CWV formula for the next period, between now and then there are 2 TWG meetings which will be used to provide further updates and discussion

- Xoserve to review output from CCM to start preparing for impacts of CWV formula conclusions