



## **Demand Estimation Sub Committee**

Seasonal Normal Review 2020:

22<sup>nd</sup> July 2019

# Overview - Milestones

- At the 10<sup>th</sup> 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 (1<sup>st</sup> April 2019)
- **MILESTONE:** DESC define proposed **CWV** formula for next period i.e. GY 2020/21 onwards (8<sup>th</sup> July 2019)
- **MILESTONE:** DESC confirm parameters for use in proposed **CWV** formula for Gas Year 2020/21 (7<sup>th</sup> October 2019)
- **MILESTONE:** DESC decide whether to revise existing **SNCWV** (1<sup>st</sup> April 2019)
- **MILESTONE:** DESC confirm revised **SNCWV** values (9<sup>th</sup> December 2019)

# Recap on DESC Decision – CWV Formula

- DESC voted unanimously on 8th July to approve the following CWV formula definition for 2020/21 onwards:

$$CW_t = I_1 * E_t + (1.0 - I_1) * S_t - I_2 * \max(0, W_t - W_0) * \max(0, T_0 - AT_t) + S_0 * SR_t$$

where  $SR_t$  is measured as the log difference between actual solar observations ( $AS_t$ ) and a seasonal normal ( $SNS_t$ )

where  $S_0$  - is a new parameter for the 'Solar Radiance' effect

Units: Joules per cubic centemetre ( $J/cm^2$ )

Incorporating summer cut-offs, transition and cold weather upturn then gives the final form of the CWV:

$$CWV_t = V_1 + q * (V_2 - V_1) \quad \text{if } V_2 \leq CW_t \quad \text{(summer cut-off)}$$

$$CWV_t = V_1 + q * (CW_t - V_1) \quad \text{if } V_1 < CW_t < V_2 \quad \text{(transition)}$$

$$CWV_t = CW_t \quad \text{if } V_0 \leq CW_t \leq V_1 \quad \text{(normal)}$$

$$CWV_t = CW_t + I_3 * (CW_t - V_0) \quad \text{if } V_0 > CW_t \quad \text{(cold weather upturn)}$$

# Future proofing CWV formula

- The Demand Estimation Methodology (DEM) document was recently changed by DESC to include precipitation as well as solar radiation
- Analysis during this CWV formula review has concentrated on solar which on occasion will also work as a proxy for precipitation, however may not capture all scenarios
- Change proposal XRN4772 will be amending the CWV formula, whilst performing these system changes it may be sensible to include a precipitation term
- During discussions on 8<sup>th</sup> July DESC accepted that without the detailed precipitation / demand analysis it cannot be sure of exactly how the final precipitation term may look, however felt it would be prudent to include it during the changes associated with XRN4772

# Follow up proposal for CWV Formula

- Proposed CWV formula definition for 2020/21 onwards:

$$CW_t = I_1 * E_t + (1.0 - I_1) * S_t - I_2 * \max(0, W_t - W_0) * \max(0, T_0 - AT_t) + S_0 * SR_t + P_0 * P_t$$

where  $P_t$  is measured as the sum of daily precipitation (based on an weighted average)

where  $P_0$  - is a new parameter for the 'Precipitation' effect (will be set to 0 from Gas Year 2020/21)

Units: Millimeters (mm)

*Note: Summer cut-offs, transition and cold weather upturn parameters will remain in place in the final form of the CWV*

- Are DESC happy with additional changes to the CWV formula – vote required
- Results will here will feed directly into XRN4772 system updates

# Next Steps – Seasonal Normal Review

- CWV Formula Review:
  - Based on agreed formula, optimise the coefficients for all LDZs , publish final values and present to TWG/DESC in Q3 2019
- Setting SNCWV:
  - Provide an update to DESC on Met Office view of Climate Change Methodology (CCM) output produced in 2014 and its relevance to more recent studies/projects
  - Prepare a draft approach for deriving the SNCWV in Q4 2019

# Seasonal Normal Review Meeting Timetable 2019

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							
Update on review of CWV formula (TWG)						10th Jun						
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

- 2 more DESC meetings scheduled for remainder of the year, may be necessary to schedule in another 1 or 2 meetings/T.cons to cover Seasonal Normal Review topic