UNC Workgroup Report	At what stage is this document in the process?

UNC 0659S:

Improvements to the Composite Weather Variable

01 Modification
02 Workgroup Report
03 Draft Modification Report
04 Final Modification Report

Purpose of Modification:

This Modification seeks to amend the Composite Weather Variable (CWV) to include additional parameters to complement wind speeds and temperature, leading to improvements in the Weather Correction Factor (WCF).

The Workgroup recommends that this modification should be:

- Returned to Workgroup for further assessment.

The Panel will consider this Workgroup Report on 15 November 2018. The Panel will consider the recommendations and determine the appropriate next steps.

High Impact:

NA

Medium Impact:

Transporters, Shippers, CDSP

Low Impact:

NA

Contents

Timetable

The Proposer recommends the following timetable:

Initial consideration by Workgroup	22 May 2018
Amended Modification considered by Workgroup	03 October 2018
Workgroup Report presented to Panel	21 February 2019
Draft Modification Report issued for consultation	21 February 2019
Consultation Close-out for representations	14 March 2019
Final Modification Report available for Panel	18 March 2019
Modification Panel decision	21 March 2019

Any questions?

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1 Summary

What

During the development of '0644 - Improvements to nomination and reconciliation through the introduction of new EUC bands and improvements for the ALP and DAF' it was determined that enhancing the Composite Weather Variable (CWV) (as part of the Weather Correction Factor (WCF)) could require lengthy independent development compared to other aspects of the Modification; the End User Categories (EUC), Daily Adjustment Factors (DAF) and Annual Load Profiles (ALP).

This modification proposes to develop the CWV to incorporate more than just wind speeds and temperature to provide further stability and build on the EUCs developed as part of 0644[1].

Why

The benefit of making this change would be improvements to nominations and subsequently reconciliation because the profiled volume would be closer to the actual consumer consumption. It is also anticipated that Unidentified Gas (UIG) would be less volatile as a result, making energy purchasing less volatile for all Shippers. It is expected that the benefits of Improving nominations ahead of and on the day, and reconciliation after close out would outweigh any costs from this revised approach.

The proposed amendments would also improve the shaping of the EUC band profiles. There could be different shapes per profile, each being more reflective of the actual usage of the site.

How

To expand the data items included in the CWV to improve the WCF applied to all EUCs (including those proposed by Modification 0644) which is likely to require amendments to Section H 5.1.1.

2 Governance

Justification for Self-Governance Direction

The Modification Panel determined that this Modification should follow Self-Governance procedures as this change is looking to amend elements of demand forecasting which will further improve UIG. The Modification Panel noted the topic is currently of material impact to some parties, however this change is just looking to amend the weather elements used within the calculation, therefore it should not have a material impact on Shippers.

The Workgroup agreed with the Panel assessment of Self-Governance for the reasons set out above.

Requested Next Steps

This modification should:

- be returned to Workgroup for further assessment for the following reasons:

[1] Implementation is being progressed through CDSP change document 'XRN 4665 – Creation of new EUCs'

The Workgroup notes that the changes proposed in this Modification could be implemented by amendments to the Demand Estimation Methodology (DEM) subject to approval by DESC. Amendments to DEM will be presented to DESC at its meeting on 08 November 2018 and if approved this Modification could be withdrawn.

3 Why Change?

Why Change the Composite Weather Variable / Weather Correction Factors?

The CWV/WCF only takes into consideration two elements currently (wind speeds and temperature), however, consumer behaviour in all EUC bands, that are not process load based, are sensitive to more than just these elements. For example, on two consecutive days you may have the same temperature but one day is overcast with rain and the other day is dry and bright. It is acknowledged that behaviours change because on the greyer day you would see increased energy consumption because it is perceived to be colder. Fluctuations like these are not agnostic to the time of year and can occur at any time other than the peak of summer. Scenarios such as these are not catered for currently and it is our belief that expanding the CWV to incorporate further variable elements will improve accuracy.

Although Modification 0644 and subsequently XRN 4665 is delivering a pragmatic improvement this modification is seen as allowing a more analytical solution that should future proof the demand estimation process. The timing of this Modification would allow the results to feed into the seasonal normal revisions that DESC will be determining through 2019 for implementation in October 2020. Delivery any later may exclude the results from being used in this process.

4 Code Specific Matters

Reference Documents

NDM Demand Estimation Methodology

TPD Section H

Knowledge/Skills

These would include UIG, statistical analysis and demand modelling, nomination process and the reconciliation process.

5 Solution

Expand the data items included in the CWV to improve the WCF applied to all EUCs (including those proposed by XRN 4665) which would require amendments to Section H 5.1.1 which extends the Transporter contact already in place for wind speed and temperature.

Solution to include:

- Solar Radiation in j/cm2 for each weather station
- Precipitation in mm for each weather station

This solution requires the data to be obtained from standard weather stations which align to the data already received for temperature and wind speed where the data will be stored by the CDSP in the same way as the current data. This data is likely to require use in Gemini but just builds on what is already in place.

There is also a one-off requirement to obtain at least 12 months historic information to assist with DESC analysis and 2020 modelling. The period of 12 months would ideally be 01/10/2018 to 30/09/2019 if the implementation date was 01/10/2019. Data is to be provided to the CDSP within 30 days of the implementation date.

This modification is to act as an enabler for the provision of the data to the CDSP so it is available for central analysis rather than individual Shipper analysis. The modelling for which the data will be used for will be developed via DESC and will be updated within the NDM Demand Estimation Methodology document for use in gas year 2020/21 with analysis starting in 2019 as per DESC timetables.

This will require amendment to any internal CWV calculations to enable use of the additional parameter in the base CWV calculation.

For example:

Current CWV calculation is $CWt = I_1 * E_t + (1.0 - I_1) * S_t - I_2 * \max(0 , W_t - W_0) * \max(0 , T_0 - AT_t)$

Incorporating summer cut-offs, transition and cold weather upturn then gives the final form of the CWV:
$CWV_t = V_1 + q * (V_2 - V_1)$ if $V_2 <= CW_t$ (summer cut-off)
$CWV_t = V_1 + q * (CW_t - V_1)$ if $V_1 < CW_t < V_2$ (transition)
$CWV_t = CW_t$ if $V_0 <= CW_t <= V_1$ (normal)
$CWV_t = CW_t + I_3 * (CW_t – V_0)$ if $V_0 > CW_t$ (cold weather upturn)

The revisions would amend CWt in the form similar to

$CWt = I_1 * E_t + (1.0 - I_1) * S_t - I_2 * \max(0 , W_t - W_0) * \max(0 , T_0 - AT_t) + I_3 * Solar + I_4 * Precipitation$

Note this additive form is likely, but the final parameters and impacts of cut offs will be determined by DESC.

New weather data items would be added to the model the NDM Demand Estimation Methodology document (3.2.1) and Section H (5.1.1). Sections 3.2.1 a) and b) of the NDM Demand Estimation Methodology document explicitly lists temperature and wind speed and the solution would be to extend this data set to include other variables (e.g. rain) to introduce improved accuracy in profiling.

6 Impacts & Other Considerations

Does this modification impact a Significant Code Review (SCR) or other significant industry change projects, if so, how?

None

Consumer Impacts

No direct impacts identified – although improved allocation will ensure a closer match between Transporters invoiced charges and customer actual demand, minimising reconciliation flows and improving volatility in energy purchasing.

Cross Code Impacts

No direct SPAA impacts have been identified by the Workgroup. However, there may be IGT UNC changes required to complement this Modification, should this be the case an IGT UNC Modification will be raised to ensure alignment between the Codes.

EU Code Impacts

None

Central Systems Impacts

Changes would be required to central systems to introduce the new weather variables and Gemini would need amending for CWV changes and the ROM details are set out below. In addition, the CDSP will need to procure the additional weather items, as such we expect the initial analysis may need to be done by Shipper organisations who have the data available.

Workgroup Impact Assessment

The Workgroups has assessed the Modification and agree that proposals should have a positive although this would be marginal impact on the allocation of UIG, and therefore Self-Governance is appropriate.

Rough Order of Magnitude (ROM) Assessment

Insert text here

OR

Rough Order of Magnitude (ROM) Assessment *(Workgroup assessment of costs)*	
Cost estimate from CDSP	Insert text here
Insert Subheading here	Insert text here

7 Relevant Objectives

Impact of the modification on the Relevant Objectives:	
Relevant Objective	Identified impact
a) Efficient and economic operation of the pipe-line system.	None
b) Coordinated, efficient and economic operation of (i) the combined pipe-line system, and/ or (ii) the pipe-line system of one or more other relevant gas transporters.	None
c) Efficient discharge of the licensee's obligations.	None
d) Securing of effective competition: (i) between relevant shippers; (ii) between relevant suppliers; and/or (iii) between DN operators (who have entered into transportation	Positive

arrangements with other relevant gas transporters) and relevant shippers.	
e) Provision of reasonable economic incentives for relevant suppliers to secure that the domestic customer supply security standards… are satisfied as respects the availability of gas to their domestic customers.	None
f) Promotion of efficiency in the implementation and administration of the Code.	None
g) Compliance with the Regulation and any relevant legally binding decisions of the European Commission and/or the Agency for the Co-operation of Energy Regulators.	None

The Workgroup agrees that this Modification is likely to improve accuracy in nominations and therefore reduces reconciliation and UIG, while noting this will not be a significant change to the current levels of UIG. However, as a result it should promote more accurate cost targeting and improve effective competition and thereby further relevant objective d).

8 Implementation

No implementation timescales are proposed. However, it would be beneficial if implementation coincided with the the start of gas year 01 October 2019, with the provision of the historic data being within 30 days of the implementation date.

9 Legal Text

Text Commentary

To be provided by the Transporters but an initial suggestion for enduring text is:

5.1 Weather forecasting

5.1.1 Transporters will obtain (from a reputable meteorological services provider) at certain times within each Day:

(a) forecasts of temperatures and wind speeds at a number of weather stations at intervals during the remainder of that Day and the following Day;

(b) details of the temperatures and wind speeds recorded at such weather stations at intervals during that Day and the preceding Day;

(c) details of solar radiation in j/cm2 at such weather stations at intervals during that Day and the preceding Day;

(d) details of the precipitation in mm at such weather station at intervals during that Day and the preceding Day.

5.1.2 The times at which each Transporter will obtain weather data under paragraph 5.1.1 include the following approximate times: 11:30 hours, 15:15 hours and 23:30 hours on the Preceding Day and 07:30 hours, 11:30 hours and 15:15 hours on the Gas Flow Day.

10 Recommendations

Workgroup's Recommendation to Panel

The Workgroup asks Panel to:

- Return this Modification to Workgroup for further assessment for the following reasons:

  The Workgroup notes that the changes proposed in this Modification could be implemented by amendments to the Demand Estimation Methodology (DEM) subject to approval by DESC. Amendments to DEM will be presented to DESC at its meeting on 08 November 2018 and if approved this Modification could be withdrawn.