PROPOSED PROCEDURE CHANGE (PPC)

Summary Section

Issue Number	IN001/20		
Impacted Jurisdiction(s)	Victoria, NSW/ACT		
Proponent	Gareth Morrah (AEMO)	**Company**	AEMO
Proponent e-mail	gareth.morrah@aemo.com.au	**Proponent phone #**	0421792554
Affected Gas Market(s)	• Retail	**Date proposal sent to AEMO**	Tuesday, 12 September 2017
Short Issue Title	Remove specific weather observation station locations from Retail Market Procedures (RMP) in Victoria and NSW/ACT.		
Other key contact information	grcf@aemo.com.au		

VERSION #	PRESENTED TO	DATE
1.0	GRCF	13 July 2020

PROPOSED PROCEDURE CHANGE (PPC)

1. DESCRIPTION OF CHANGES AND REASONS FOR CHANGES

Having completed a consultation process with participants in mid-2019, AEMO approved changes to Retail Market Procedures (RMP) South Australia (SA) that removed the "hard coding" of weather station location in the RMPs, and instead, committed to maintaining and publishing a separate register of weather station locations in a guide.

The changes described in this Proposed Procedure Change (PPC) effectively leverages the changes made to the RMP (SA) and (largely) apply the same RMP changes to the Victoria and NSW/ACT RMPs. The amendments involve removing specific weather observation station locations and adding a new clause that places an obligation on AEMO to maintain and publish on its website a register of weather observation station locations.

The main reason that AEMO has proposed these changes is to improve efficiency so that a list all retail market weather observation station locations can be placed in a centralised register which can easily maintained and updated. This will negate the need to facilitate a full RMP consultation should a station location change. The proposed changes in this PPC will also bring the Vic and NSW/ACT RMP's into line with South Australia RMPs (See attachment A, B and C).

2. REFERENCE DOCUMENTATION

Retail Market Procedures (Vic) – V.14

Retail Market Procedures (NSW/ACT) – V.24

Register of Weather Observation Stations V.2

3. HIGH LEVEL OVERVIEW OF THE CHANGES TO THE EXISTING PROCEDURES

Proposed amendments to the RMP (Vic), RMP (NSW/ACT), and Register of Weather Observation Stations guide are as follows:

Victoria:

- Add new definition in clause 1.1.1 called "Register of Weather-Related Information".

- For Attachment 6 of the RMPs, add new clause 2.5.1A that requires AEMO to maintain and publish a register. Also amend clauses.3.2.2 (average temperature), 3.2.3 (average wind) and 3.2.4 (sunshine hours) to change the reference from an individual weather station(s) to instead refer to the Register of Weather Related Information.

NSW/ACT:

- Add new definition in clause 1.2.1 called "Register of Weather Related Information".

- For Attachment 2 of the RMPs, add new clause A2.3.(a) (i) and (ii) that requires AEMO to maintain and publish a register. Also amend clauses A2.3(b)(ii) (average temperature),(iii) (average wind),(iv) (sunshine hours); A2.3(c)(ii(average temperature),(iii) (average wind) ,(iv) (sunshine hours); and A2.3(d) to change the reference from an individual weather(s) station to instead refer to the Register of Weather Related Information.

4.   CONSEQUENCES FOR MAKING OR NOT MAKING THE CHANGES

Changes to weather stations by the Bureau of Meteorology (BoM) are rare, however when they do make changes these often happen on short notice. Continuing with the status quo requires AEMO to undertake a RMP consultation whenever the BoM makes changes to a weather observation station. Not making the change to the RMP will mean that AEMO would be potentially non-compliant with current requirements of the RMP each time a weather observation station is changed.

If this initiative is not implemented, procedures may not refer to a functioning weather station for a period.

5.   EXPLANATION REGARDING THE ORDER OF MAGNITUDE OF THE CHANGES

AEMO's considers this initiative will require minor RMP changes by referring to a separate register containing a list of weather observation stations (Register of Weather Observation Stations V.xx). This document is already in use for South Australia.

AEMO considers the order of magnitude of this change is 'non-material'.

6.   LIKELY BENEFITS FOR INDUSTRY AS A WHOLE

The benefit of maintaining a register as opposed to "hard coding" weather observation station locations in the RMPs is that it will provide AEMO with the flexibility to respond to any future changes made by the Bureau of Meteorology (BoM) in a timely manner without having to run a RMP consultation which can be unnecessarily costly and time consuming.

7.   IMPLEMENTATION IMPACTS

Implementation of this initiative will not require any changes to the systems or processes for Victoria or NSW/ACT participants.

8.   TESTING REQUIREMENTS

This is a procedural change only.

9.   SUPPORTING DOCUMENTATION

Refer to Attachment A (Proposed amendments to the RMP Victoria) and Attachment B (Proposed amendments to the RMP NSW/ACT).

10.   PROPOSED EFFECTIVE DATE FOR THE PROPOSED CHANGED PROCEDURES TO TAKE EFFECT

AEMO proposes the following consultation timeline:

- Issue Proposed Procedure Change (PPC) on 13 July 2020.
- Submission on PPC closes 7 August 2020.
- Issue Impact and Implementation Report (IIR) on 24 August 2020.
- Submissions on IIR close 18 September 2020.
- Publish Notice of Decision 12 October 2020.

ATTACHMENT A – DOCUMENTATION CHANGES (SEE SECTION 3)

Blue underline represents additions ~~Red~~ and strikeout represents deletions – Marked up changes

- Retail Market Procedures (Victoria)

Definitions section:

Register of Weather Related Information, ~~i~~Is an industry reference document that specifies which weather station data must be used.

Attachment 3

2.5.1A AEMO must:

(a) maintain and publish a *Register of Weather Related Information* used to measure weather data; and

(b) at least 10 *business days* prior to making any amendment to the list of weather observation stations described in the *Register of Weather Related Information*, inform the Gas Retail Consultative Forum (GRCF) of the change.

3.2.2 The degree day is calculated as follows:

DD =	18 – T if T < 18
	0 if T ≥ 18

Where:

- DD is degree day;

- T is the average of 8 three-hourly ~~Melbourne~~ temperature readings (in degrees Celsius) from midnight to 9.00 pm inclusive as measured ~~at the Weather Bureau Melbourne Station:~~, at the weather observation station(s) specified for this purpose in the *Register of Weather Related Information*;

3.2.3 The average wind is the average of the 8 three-hourly Melbourne wind (measured in knots) from midnight (day-1) to 9.00pm inclusive (day+0), at the weather observation station(s) specified for this purpose in the *Register of Weather Related Information*. The average wind is represented by the following formula:~~as measured at the Bureau of Meteorology Moorabbin and the Laverton weather stations. Average wind is represented by the following formula~~:

Average wind =	0.604 x average ~~(Moorabbin, Laverton)~~ wind across	specified stations

3.2.4 Sunshine hours is the number of hours of sunshine above a standard intensity ~~as measured at the Bureau of Meteorology Melbourne Airport weather station~~ for the same duration of time between

midnight (day-1) to 9.00 pm inclusive (day+0), as measured at the weather observation station(s) specified for this purpose in the *Register of Weather Related Information.* -

Insert here

ATTACHMENT B – DOCUMENTATION CHANGES (SEE SECTION 3)

Blue underline represents additions ~~Red~~ and strikeout represents deletions – Marked up changes

- Retail Market Procedures (NSW/ACT)

Definitions

Register of Weather Related Information	Is an industry reference document that specifies which weather station data must be used.

A2.3 Calculation of EDDs

(a) Purpose of Effective Degree Day

Effective degree days are required for the calculation of the sensitivity factor. The effective degree day is used to measure coldness which is directly related to gas demand for area heating. The effective degree day is a composite measure of weather coldness incorporating the effect of temperature, wind, sunshine and day of the year.

(a1) AEMO must maintain and publish a *Register of Weather Related Information* used to measure weather data.

(a2) At least 10 *business days* prior to making any amendment to the list of weather observation stations described in the *Register of Weather Related Information,* AEMO must inform the Gas Retail Consultative Forum (GRCF) of the change.

(b) Calculation for NSW

(i)   The effective degree day (EDD) **for NSW** is calculated as follows:

EDD = DD (temperature effect)

+ 0.0092 x DD x average wind (wind chill factor)

- 0.0628 x sunshine hours (warming effect of sunshine)

+ 5.0805 x Cos ((2π(day-198)) / 365) (seasonal factor)

Where:

- EDD is the effective degree day;

- DD is the degree day and is described in paragraph (ii);

- average wind is described in paragraph (iii);

- sunshine hours is described in paragraph (iv);

- Cos is cosine and is described in paragraph (v); and.

- day is the day number of a calendar year where 1st January is 1.

EDD will be 0 if the calculated value is negative.

(ii)   The degree day (DD) is calculated as follows:

DD =   21.0578 − T if T < 21.0578

0 if T ≥ 21.0578

Where:

- DD is degree day;

- T is the average of 8 three-hourly ~~Sydney~~ temperature readings (in degrees Celsius) from 3.00am to midnight inclusive, at the weather observation station(s) specified for this purpose in the *Register of Weather Related Information*~~as measured at the~~ *~~Sydney Airport Weather Station~~* ~~(Location ID 66037)~~;

Note: The *gas day* is defined as 6:00am day-1 to 6:00am AEST day+0 so the effective degree day formula implies a 3 hour lag in demand to changes in ambient temperature.

- 21.0578 degrees Celsius represents the threshold temperature for residential gas heating.

The colder the average temperature the higher the degree day and, accordingly, effective degree day.

(iii)   The average wind is the average of the 8 three-hourly ~~Sydney NSW~~ wind (measured in knots) from 3:00 am (day-1) to midnight inclusive (day+0), at the weather observation station(s) specified for this purpose in the *Register of Weather Related Information*. The average wind is represented by the following formula: ~~as measured at the~~ *~~Sydney Airport weather station~~* ~~(Location ID 66037). Average wind is represented by the following formula:~~

Average wind   =   1.000 x average ~~(Sydney Airport)~~ wind.

(iv)   Sunshine hours is the number of hours of sunshine above a standard intensity ~~as measured at the~~ *~~Sydney Airport weather station~~* ~~(Location ID 66037)~~ for the same duration of time between 3:00am (day-1) to midnight inclusive (day+0), at the weather observation station(s) specified for this purpose in the *Register of Weather Related Information*.

(v)   The cosine term models seasonality in *Customers'* response to different weather. Residential *Customers* more readily turn on the heaters or leave heaters on in winter than in other seasons (early spring, late autumn) for the same change in weather conditions. This change in *Customers'* behaviour is captured in the cosine term in the effective degree day formula, which implies that for the same weather conditions heating demand is higher in winter than in the shoulder seasons or in summer.

(c) Calculation for ACT

(i)   The effective degree day (EDD) **for ACT** is calculated as follows:

EDD = DD (temperature effect)

+ 0.0163 x DD x average wind (wind chill factor)

- 0.1326 x sunshine hours (warming effect of sunshine)

+ 3.1277 x Cos ((2π(day-195)) / 365) (seasonal factor)

Where:

- EDD is the effective degree day;

- DD is the degree day and is described in paragraph (ii);

- average wind is described in paragraph (iii);

- sunshine hours is described in paragraph (iv); and

- day is the day number of a calendar year where 1st January is 1

- Cos is cosine and is described in paragraph (v).

EDD will be 0 if the calculated value is negative.

(ii)   The degree day (DD) is calculated as follows:

DD = $14.6057 - T$ if $T < 14.6057$

              0 if $T \geq 14.6057$

Where:

- DD is degree day;

- T is the average of 8 three-hourly ~~Canberra~~ temperature readings (in degrees Celsius) from 3.00am to midnight inclusive, *at the weather observation station(s) specified for this purpose in the Register of Weather Related Information.* ~~as measured at Canberra Airport (Location ID 70351)~~;

  Note: The *gas day* is defined as 6:00am day-0 to 6:00am AEST day+0 so the effective degree day formula implies a 3 hour lag in demand to changes in ambient temperature.

- 14.6057 degrees Celsius represents the threshold temperature for residential gas heating.

The colder the average temperature the higher the degree day and, accordingly, effective degree day.

(iii)   The average wind is the average of the 8 three-hourly ~~Canberra ACT~~ wind (measured in knots) from 3:00am (day-1) to midnight inclusive (day+0), *at the weather observation station(s) specified for this purpose in the Register of Weather Related Information. The average wind is represented by the following formula:* ~~as measured at Canberra Airport (Location ID Average wind is represented by the following formula:~~

Average wind   =   1.000 x average ~~(Canberra Airport)~~ wind.

(iv)   Sunshine hours is the number of hours of sunshine above a standard intensity ~~as measured at Canberra Airport (Location ID 70351)~~ for the same duration of time between 3:00am (day-1) to midnight inclusive, *at the weather observation station(s) specified for this purpose in the Register of Weather Related Information*.

The cosine term models seasonality in *Customers'* response to different weather. Residential *Customers* more readily turn on the heaters or leave heaters on in winter than in other

seasons (early spring, late autumn) for the same change in weather conditions. This change in *Customers'* behaviour is captured in the cosine term in the effective degree day formula, which implies that for the same weather conditions heating demand is higher in winter than in the shoulder seasons or in summer.

(d) Sunshine hours for ACT

Where there is no ~~There is not a~~ physical sensor ~~located in Canberra~~ to obtain sunshine hour values, ~~therefore~~ these are derived from meter and synoptic data based on cloud cover at the specified weather station(s). ~~at *Canberra Airport (Location ID 70351).*~~

~~).~~

ATTACHMENT C – DOCUMENTATION CHANGES (SEE SECTION 3)

Blue underline represents additions ~~Red~~ and strikeout represents deletions – Marked up changes

Register of W~~w~~eather Relation O~~o~~bservation S~~s~~tation locations

1.   PURPOSE AND SCOPE

The National Gas Rules (NGR) allow for AEMO to make Retail Market Procedures (RMPs). RMPs are statutory instruments ~~the approved regulatory standards~~ that regulate retail gas markets. ~~place fundamental obligations on AEMO, Distributors and Retailers.~~ The RMPs describe various obligations of AEMO, distributors, retailers and other parties that facilitate interaction between parties in relation to the supply of gas to end users in those markets~~the market~~.

In relation to meter data, the RMPs contain obligations that apply if meter data is not available or unable to be obtained. These obligations often set out requirements to produce an estimated read. Weather data is often used in the calculation of an estimated read.

This document contains weather related information applicable for each jurisdiction where they are not prescribed in the RMP. ~~Definitions and interpretation~~

2.   RELATED DOCUMENTS

Reference	Title	Location
Ref #1	Retail Market Procedures (RMP) South Australia	Published on AEMO website
Ref #2	Retail Market Procedures (RMP) Victoria	Published on AEMO website
Ref #3	Retail Market Procedures (RMP) (New South Wales and ACT)	Published on AEMO website

5. VICTORIA WEATHER RELATED INFORMATION.

The following is a list of the weather observation stations applicable to Attachment 6 (Net System Profile Methodology) of the Retail Market Procedures (RMP) (Victoria) (Ref#1).

Reference	Service Provider	Observation station
T (Average Temperature)	Australian Government Bureau of Meteorology	Melbourne
Average Wind	Australian Government Bureau of Meteorology	Moorabbin And Laverton weather stations
Sunshine Hours	Australian Government Bureau of Meteorology	Melbourne Airport

6. NSW AND ACT WEATHER RELATED INFORMATION.

The following is a list of the weather observation stations applicable to Attachment 2 (Approved Estimation Methodology) of the Retail Market Procedures (RMP) (NSW and ACT) (Ref#3).

Table 1   Weather Observation Stations

Location	Reference	Service Provider	Observation station
NSW	T (Average Temperature)	Australian Government Bureau of Meteorology	Sydney Airport Weather Station (Location ID 66037)
NSW	Average Wind	Australian Government Bureau of Meteorology	Sydney Airport Weather Station (Location ID 66037)
NSW	Sunshine Hours	Australian Government Bureau of Meteorology	Sydney Airport Weather Station (Location ID 66037)
ACT	T (Average Temperature)	Australian Government Bureau of Meteorology	Canberra Airport (Location ID 70351)
ACT	Average Wind	Australian Government Bureau of Meteorology	Canberra Airport (Location ID 70351)
ACT	Sunshine Hours	Australian Government Bureau of Meteorology	Canberra Airport (Location ID 70351)