

## Attachment A: Consolidated Stakeholder Feedback and AEMO's Response to the Impact and Implementation Report IN019/15 – Calculation of Effective Degree Day

ID	Stakeholder	Clause/Section Ref.	Stakeholder Issue/Comment	Stakeholder Proposed Text	AEMO Response
1	AGL	3.2.2	Make all elements variables and reference them and the actual number in the supporting document.	<p>All data elements should be made variables and published within the reference document.</p> <p>18 Deg – change to <u><math>D_B</math> - Base Temperature</u></p> <p><math>DD = \color{red}{18} - D_B - T</math> if <math>T &lt; D_B</math></p> <p style="padding-left: 40px;"><math>0</math> if <math>T \geq D_B</math></p> <p>T is the average of <del>8 three hourly</del> <u><math>A \times B</math></u> Melbourne Temperature readings ... from <math>T_s</math> to <math>T_e</math></p> <p><u>Where</u></p> <p><u><math>A =</math> the number of readings</u></p> <p><u><math>B =</math> the length of the temperature readings</u></p> <p><u><math>T_s =</math> Start Time</u></p> <p><u><math>T_e =</math> End Time</u></p> <p><del>18 degrees Celcius</del> <math>D_B</math> represents the threshold temperature for</p>	<p>No change, except to section 3.2.4.</p> <p>After considering stakeholder feedback on the Impact and Implementation Report (I&amp;IR), AEMO has decided to amend section 3.2.4 of Attachment 6 – Net System Profile of the Victorian Retail Market Procedures (RMP) to replace the existing reference to 'Laverton' with 'Melbourne Airport'. Noting that AEMO has decided not to make the proposed amendments in the I&amp;IR.</p> <p>This change improves regulatory certainty because it clarifies which weather station location AEMO uses for measuring sunshine hours and addresses the initial issue raised regarding AEMO's non-compliance with section 3.2.4. It is noted that this solution was discussed with the GRCF stakeholders attending the August 2016 meeting. Stakeholders present indicated their support for this approach, refer to the August meeting minutes for further information.</p> <p>AEMO considers that this change is unlikely to have a financial or operational impact since it</p>

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				residential gas heating <a href="#">in degrees Celsius</a> .	<p>proceduralises AEMO’s current operational practice.</p> <p>Given the issues raised by stakeholders, particularly MultiNet’s comments regarding a potential change in a weather station “...can result in 1-2% errors, where this impacts the Retail Market or has the potential to impact retailers within day forecasting and hence wholesale gas price this does impact Multinet.”, AEMO considers the proposed amendments in the I&amp;IR may have a financial or operational impact. Therefore, the proposed amendments in the I&amp;IR are unlikely to be non-material, which is required to expedite those proposed amendments. Noting, AEMO has not analysed MultiNet’s estimated error.</p> <p>Further, AGL, MultiNet and Energy Australia’s submissions proposed amendments that seek further changes to those in the I&amp;IR. These address AEMO’s proposed amendments instead of the issue originally raised by AEMO. Noting the issue was that AEMO could not comply with section 3.2.4. The proposed amendments to remove references to specific weather stations locations in Sections 3.2.2, 3.2.3 and 3.2.4 was to ensure the Victorian RMP had sufficient flexibility to allow AEMO to comply in the unlikely event that the Bureau of Meteorology</p>

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					<p>(BoM) ceased producing data for a weather station AEMO uses.</p> <p>Submissions and discussions with stakeholders about the proposed amendments in the I&amp;IR also indicated stakeholder concern over AEMO having the discretion to change a weather station without further requirements and changes. AEMO considers the proposed amendments to address these issues to be out of scope and unnecessary to address the original issue.</p> <p>Specifically, AEMO does not see value in individually reviewing and amending the EDD calculation, and creating new requirements on AEMO in the Victorian RMP without considering this in the context of other EDD and HDD methodologies and usage. Potentially, doing this prior to the EDD and HDD review would result in inefficient outcomes.</p> <p>Further, as discussed with GRCF stakeholders and also included in AEMO’s responses to stakeholder comments on the Draft I&amp;IR (these were included in the I&amp;IR), stakeholder concerns about the EDD (or Heating Degree Day (HDD)) methodologies AEMO uses should be addressed through AEMO’s Forecasting Reference Group. This will allow changes to the EDD methodology in the Victorian RMP to be</p>

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					<p>considered in the context of other uses of EDD and HDD methodologies. Where relevant, changes to the RMPs will also need to be considered.</p> <p>AEMO has therefore decided that the proposed amendments in the I&amp;IR that sought to remove references to specific weather stations locations in Sections 3.2.2, 3.2.3 and 3.2.4 should not be included and expedited. Given this, no new section 3.2.6 is required.</p>
2	Origin	3.2.2 3.2.3 3.2.4 3.2.6		<p>Agree to changes. This is in view of the immediate scope addressing the non-compliance identified by the market auditors.</p>	<p>AEMO notes Origin's agreement to the changes as proposed by AEMO in the I&amp;IR.</p> <p>Refer to AEMO's response in ID 1.</p>
3	AGL	3.2.3		<p>The average wind is the average of the 8 three-hourly Melbourne wind <a href="#">measurements</a> (measured in knots) from <del>T<sub>S</sub> midnight</del> (day-1) to <del>T<sub>E</sub> 9.00pm</del> (day+0) inclusive (<del>day+0</del>) as measured at the Bureau of Meteorology <del>Moorabbin and the Laverton</del> weather stations as <a href="#">published by AEMO in accordance with clause 3.2.6</a>. Average wind is</p>	<p>Refer to AEMO's response in ID 1.</p>

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				<p>represented by the following formula:</p> <p><u>Average wind = 0.604 <math>W_C</math> x average wind at .. ....</u></p> <p><u><math>W_C</math> = wind coefficient</u></p> <p>.....for the same duration of time between <u><math>T_S</math> midnight</u> (day-1) to <u><math>T_E</math> 9.00pm</u> inclusive (day+0).</p>	
4	MultiNet	3.2.3		<p><u>Average wind = 0.604 <math>W_C</math> x average wind at .. ....</u></p> <p><u><math>W_C</math> = wind coefficient</u></p>	Refer to AEMO's response in ID 1.
5	AGL	3.2.6	Station chosen should be best match for demand and not necessarily the one in closest proximity	<p>(c) If the Bureau of Meteorology ceases to publish the relevant data for a weather station published by AEMO for the purposes of clauses 3.2.2, 3.2.3 or 3.2.4, AEMO must determine a replacement weather station <u>which has a similar relationship to demand</u> <del>must be the weather station that is closest in proximity to the weather station that is being replaced</del> for which the</p>	Refer to AEMO's response in ID 1.

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				Bureau of Meteorology does publish the relevant data.	
6	AGL	3.2.6	Need a new clause to cover the various coefficients before obligation to publish	<u>(d) AEMO must determine the relevant coefficients for this calculation which best represent demand and publish those coefficients with the weather station information;</u>	Refer to AEMO's comment in ID 1.
7	AGL	3.2.6	Amend (d) to (e) ..	<del>(d)</del> <u>(e) AEMO must notify Market Participants and Distributors of the name and station number of the replacement weather station as soon as practicable, as well as the relevant coefficients, within 5 business days, once after</u> determined by AEMO under clause 3.2.6(c) and ...	Refer to AEMO's comment in ID 1.
8	AGL	3.2.7	New sub-clause to establish correlation between new data source and gas demand	<u>(f) Within eighteen months of a change of weather station, or every five years, AEMO must publish an assessment of the correlation between gas demand and Effective Degree Day calculation based on the new weather station and the coefficients used</u>	Refer to AEMO's comment in ID 1.

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9	Energy Australia	3.2.6	<p>EnergyAustralia remains unresponsive of the proposal that the closest weather station will be used as a replacement. The closest station may not have the same correlation between weather variables and demand as there can be significant variability in weather between areas, particularly for wind.</p> <p>EA suggest that AEMO conduct analysis to determine the most appropriate replacement stations ahead of time and publish a hierarchy of replacement stations for each weather variable (i.e. if station A closes, AEMO then uses Station B. If this closes, AEMO moves down the hierarchy to Station C etc). This would provide stakeholders with visibility of proposed replacement stations in advance; in the event that an existing primary station is closed, stakeholders and AEMO</p>	<p>(a) For the purpose of clause 3.2.2, 3.2.3 and 3.2.4, AEMO must <u>determine</u> and <i>publish</i> the names of the weather station <u>hierarchy</u> and station numbers on its website.</p> <p>(c) If the Bureau of Meteorology ceases to publish the relevant data for a weather station published by AEMO for the purposes of clauses 3.2.2, 3.2.3 or 3.2.4, AEMO must determine a replacement weather station <del>which must be the weather station that is closest in proximity to the weather station that is being replaced for which the Bureau of Meteorology does publish the relevant data.</del> <u>by referring to the published station hierarchy.</u></p>	Refer to AEMO’s comment in ID 1.

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			will be able to immediately identify the replacement station using the hierarchy.		
10	Energy Australia	3.2.6	As noted in our earlier submission, AEMO should advise stakeholders as soon as they become aware that a station has closed. This will give stakeholders advance warning that a change in weather station will be published imminently.	(d) AEMO must notify <i>Market Participants and Distributors</i> <a href="#">that data for a weather station is no longer available as soon as practicable after notification from the Bureau of Meteorology.</a>	Refer to AEMO's comment in ID 1.
11	MultiNet	3.2.6	Need a new clause to cover the various coefficients before obligation to publish	<a href="#">(d) AEMO must determine the relevant coefficients for this calculation which best represent demand and publish those coefficients with the weather station information;</a>	Refer to AEMO's comment in ID 1.
12	AGL	3.2.6	New clause to require assessment process to be established and published	<a href="#">AEMO must establish, maintain and publish the process for assessing correlation between gas demand and Effective Degree Day calculation based on the new weather station and the coefficients used.</a>	Refer to AEMO's comment in ID 1.

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13	AGL	<p>As the Bureau can change weather stations unilaterally, AGL supports this change and sees it akin to a regulatory change, and as such, does not believe that there is a need to undertake a cost benefit, but rather ensure the outcome is an efficient and correct process.</p> <p>In reference to both the MultiNet and AGL comment regarding co-efficients, AGL supports that MultiNet proposal that the co-efficient be made generic and published in the reference document. A change to weather stations could lead to the same input data with the old co-efficient generating EDDs inconsistent to a previous EDD, which will lead to impacts on customer allocations.</p> <p>Has AEMO undertaken any analysis of data from other sites (ie a close one and a far one) to determine if what impact the location may have on the coefficients and outcomes.</p> <p>If coefficients change, then a process is needed by AEMO to identify the coefficients and publish them to the market.</p> <p>AEMO and market participants need to update their systems with new coefficients.</p> <p>Energy Australia’s proposal meets and supports the positions proposed by MultiNet and AGL in ensuring integrity of the EDD calculation and its relationship to demand.</p>	<p>AEMO notes AGL’s comments. Refer to AEMO’s comment in ID 1.</p>
14	MultiNet	<p>Where the BOM change weather stations, Multinet acknowledge that AEMO will need to adopt another weather station that has the same data available. It is a nonsense to limit the scope of the change to just AEMO’s discretion to change weather station. There is currently no workplan/timeframe to address the other issues raised by participants regarding the impacts on the adjustment coefficients and the materiality.</p> <p>The uses of EDD across the market and the impacts should be fully understood before the changes are made in the Retail Market Procedure. AEMO should share the analysis of the % impacts on data for near by weather stations and provide this</p>	<p>Refer to comments in ID 1.</p> <p>AEMO notes MultiNet’s comments particularly regarding limiting the scope of this change to a change in weather station and AEMO not having a work plan or timeframe to address the other issues raised in this consultation. AEMO will be addressing this concern in the EDD and HDD review.</p>

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		<p>to participants as part of the consultation process to verify the no impacts on participants or wholesale market price. Where retailers forecast for within day gas and are short on gas then this has the potential to impact on wholesale price for the day and UAFG costs to Multinet.</p> <p>Multinet reconfirm that notification to participants of a change in weather station and the new adjustment coefficients should be made in a timely manner eg within 5 business days.</p> <p>AEMO acknowledge that EDD may be used for forecasting and calculation of estimated meter reads and hence where there is a step change in the weather station that the estimated data created today may not be consistent with what was created yesterday and this does impact the Victorian Retail Market.</p> <p>Multinet advised that the change of weather station can result in 1-2% errors, where this impacts the Retail Market or has the potential to impact retailers within day forecasting and hence wholesale gas price this does impact Multinet. This change can build in a systemic error which could be higher/lower than the 1-2% and without the development of the adjustment coefficient there is no contiguous dataset.</p> <p>EDDs do impact all participants and both the change of weather station and amendment of the adjustment coefficient must be notified in a timely manner.</p>	<p>AEMO agrees with MultiNet that the uses of EDD across the market should be understood and has therefore decided to only address the compliance issue it raised as this will have no financial or operational impact. Noting that it is AEMO's current practice to use Melbourne Airport weather station for sunshine hours in the calculation of EDD.</p>