EE Response to the Questions for consultation in relation to AEMO's 2018 Demand Forecasting Methodology Information Paper:

1 Does it help improve transparency of AEMO's approach to forecasting annual consumption, maximum demand and minimum demand in the NEM? What more could practically be done to ensure the forecasting process is well understood, and build greater confidence in the forecasts for decision-makers?

EE Response:
The Information Paper helps us understand the AEMO forecasting methodologies for annual energy and maximum demand. The methods involve the use of a lot of assumptions in the forecasting processes, However, AEMO should provide more verifications detail on the assumptions used in the methods. Examples are those for rooftop PV generation forecast and energy efficiency in the post model adjustment.

2 Does it adequately explain and justify the choice of inputs and drivers used for each forecast component?

EE Response:
The information paper attempts to explain the choice of inputs and driver used for each forecast component. However, the justifications of the choice of inputs are usually limited and do not provide a detailed explanation in the Paper. The choice of inputs may be dependent on the quality of the data inputs, confidence on the assumptions used and the forecast methodologies.

3 Is the level of detail provided sufficient to allow you to understand the methodologies applied?
• Is the annual energy consumption forecasting approach adequately explained?
• Are the maximum and minimum demand forecasting approaches adequately explained?
If not, what additional information/explanations are required?

EE Response:
Page 42 the sentence after the formula for CDD
"where T is average 30 minute temperature between 9:00 PM to 9:00 PM the following day"
What is the reason for using 9:00 PM to 9:00 PM the following day temperatures? How do the following day temperatures impact the today's energy consumption?

Page 14 Energy efficiency adjustment
"Based on calibration against estimated energy efficiency savings and observed metered consumption, AEMO only applied 60% of the forecast savings"

If the calibration results show a large discrepancy between the estimated energy efficient savings and metered consumption, does it mean that there is something wrong in the method used by the consultants for energy efficiency adjustment.

It appears that there are not many details regarding energy efficiency impacts on peak demand in the consultant report by Strategy. Policy. Research. Pty Ltd.

Has AEMO conducted some studies on peak demand impacts from the replacement of old air conditioner by energy efficient air conditioner of same kW capacity operated on hot summer days? These results, if available, would be very useful for energy efficiency adjustment for maximum demand.

Page 34: Section 5.3 Model development and selection

Table 11 List of Variables included for minimum/maximum demand model

Variable	Description
Public holiday	Dummy flag for public holiday
Weekend dummy	Dummy flag for weekend
Month factor	A factor variable with values for each months of the year
Dry temperature CD	Half-hourly dry temperature with a CD cut off
Dry temperature HD	Half-hourly dry temperature with a HD cut off
Dry temperature CD^2	Half-hourly dry temperature with a CD cut off squared
Dry temperature HD^2	Half-hourly dry temperature with a HD cut off squared
Dry temperature 3-day rolling average CD	Three-day rolling average of dry temperate with a CD cut off
Dry temperature 3-day rolling average HD	Three-day rolling average of dry temperate with a CD cut off
Dry temperature 2-day rolling average CD	Two-day rolling average of dry temperate with a CD cut off
Dry temperature 2-day rolling average HD	Two-day rolling average of dry temperate with a CD cut off
Dry temperature 1-day rolling average CD	One-day rolling average of dry temperate with a CD cut off
Dry temperature 1-day rolling average HD	One-day rolling average of dry temperate with a CD cut off

As the Models were trained on the previous 3-4 years of historical data, does it require variables to explain the variation of demands between years?

Are there any multicollinearity issues using CD, HD, CD^2 and HD^2 in the model?

Any consideration to split the model into two: one for summer and one for winter to improve the mode performance? As HD has little impact on summer demand and CD has little impact on winter demand.

Page 35: Section 5.4 Simulate base year (weather normalisation), Second paragraph

A synthetic weather-year was constructed by randomly selecting 26 fortnightly weather patterns ("weather blocks"), ensuring that a weather block was assigned to the corresponding time of the year.

Does AEMO have any adjustment to address the issue of temperature discontinuity between two weather blocks? There could be unrealistic sudden step change of temperatures at the boundary between two blocks.

Page 35: Section 5.5 Forecast probability of exceedance
"The forecast process grows half-hourly demand by economic conditions such as price and GSP, demographic conditions such as connections growth, and technological conditions such as electric vehicle uptake to derive an annual growth index."

It appears that he Paper does not explain how the forecast process for half hourly demand is actually done?

Does AMEO assume that maximum demand is growing at the same rate as that of annual energy consumption?

If this is the case, AEMO needs to justify this is a valid assumption.

How does AEMO apply the energy efficiency adjustment for maximum demand, which is not mentioned in the Paper?

How is the electricity price impact incorporated in the Maximum Demand forecasts?

Any consideration of the future price impact on residential and commercial customers to adjust their usage patterns?

4 Does it adequately capture any recent issues or influences affecting each forecast component? Are there any data quality or data latency issues with the data sources used?

EE Resonse:
AEMO is required to continuously get the data for verifying the assumptions used in the energy efficiency adjustment, solar generation and battery storage and emerging electric vehicles, etc.

The studies on solar battery charge and discharge profiles and electric vehicle charge and discharge profiles, their penetration rate and battery size will be useful in the forecast.