MEETING RECORD

MEETING:	WEM Electricity Statement of Opportunities (ESOO) Forecasting Reference Group (FRG)
DATE:	Wednesday, 13 April 2022
TIME:	11.00 AM AWST
LOCATION:	Microsoft Teams

1. Welcome and Introduction

Grace Liu (AEMO) opened the meeting and welcomed participants to the WEM ESOO FRG, discussed the agenda, provided some background, and noted the 2022 WEM ESOO delivery timeline and publication date of 17 June 2022.

Stakeholder Questions

Julian Fairhall (ERA): Many of the market mechanisms are going to change with the new market. Is ESOO going to make some predictions about Essential System Service (ESS) requirements (including frequency control service and other income streams)? It is useful information for potential investors as well as for people who have already invested.

- AEMO: The Reserve Capacity Target does include allowance for keeping the frequency within the normal range. The latest value approved by the ERA is around 100 MW.

- System Management does ESS projections. ESOO is mostly relevant to RCM.

2. Draft Consumption and demand forecasts

Greg Staib (AEMO) presented the draft consumption and Adrian Grantham (AEMO) presented maximum and minimum demand forecast for the 2022 WEM ESOO.

Stakeholder Questions and feedback

Julian Fairhall (ERA): In relation to the CSIRO high decarbonisation vs low growth scenarios, is this tied to policy settings such as a carbon price and how that might affect the likelihood one scenario might switch from one forecast expectation to another. For example, currently there are no interim targets and a modest abatement target. In preparing the abatement forecasts and technology uptake scenarios that obviously affect demand and the exit of carbon intensive generation from the market, how closely tied to policy mechanisms or policy settings are the forecasts? How do they account for different policy settings? are the generic or tied to abatement targets and mechanisms?

If the Commonwealth government changes and start taking more aggressive policy setting to decarbonize the Australian economy, this might change the assessment of whether we are likely to be in low uptake vs. a high uptake.

We are heading into the election and two major parties have different views on managing decarbonization of the Australian economy. Depending on who gets in May, the government may take on a more aggressive approach than the current. It takes a couple of years to get something in place but will affect long term investment views of potential investor and will affects kinds of revenues they can earn in the market.

- AEMO: We have five scenarios from each consultant to consider the breadth of forecasts. If policies do change, they do list the current policies for which each scenario is based on in their report.

- Short term time series trend analysis. Long term we have a more consumer update model like traditional less curve.
- Having the different scenarios capture the different breadth. We could probably provide a bit of documentation afterwards and some references other material and how we approached this issue.

Natalie Robins (ERA): Was there much difference between consultants' views on the 'expected' WEM scenario in which the average was taken? Would the median be more suitable given there were wider differences? Just some statistical consideration.
- AEMO: Not much difference, because AEMO only has two consultants, if we did put in any weighting that would add-in complexity. AEMO put much attention to short-term trends (i.e. what is being observed from CER) to ensure we get the short-term calibration quite tight.

Mark Riley (AGL): Has the impact of the installation of SAPS been included? (SAP that remove load from the SWIS). It is still early days for SAPS but could start looking at how much load is being provided by SAP solutions vs SWIS solutions because the demand is still there from a retailer perspective, but the generation is quite different. This needs to be factored in in some ways so we can see what generation requirements we have versus customer demand requirements we have now.
- AEMO: Agree and it is something that will become more prevalent, we will need to keep on pulse with that. AEMO will be in contact with Synergy/Western Power to see if we can gather information for future WEM forecasts on SPS customer numbers and monthly consumption figures.

Natalie Robins (ERA): What type of regression analysis is used with 12 data points
- AEMO: Regression analysis used 12 data points. The data is monthly, and we will probably actually use 36 data points. AEMO looks for correlation with two variables – cooling degree days and heating degree days. The challenge is that the longer time series, we have the accuracy and relevance trade-off. If we are regressing on data that is 5-6 years old, the kind of behaviour with temperature that we would have been seen then would not be so relevant today. If it is too short, we run the risk of recency. We use linear regression.

Sam Lei (Alinta): For the minimum demand, was a LIL on outage which caused the record low? How do you factor outages into forecasts? I believe that there was a 100 MW outage during the minimum demand day last year. So, if we reduce the minimum demand based on what we saw last year and that large load or another large load doesn't go on the outage, then we might not reach the minimum load we saw last year with that makes sense.
- AEMO: We let history guide us, but history is not necessarily an accurate indication of the future. Look at recent history to look at LILs to guide us with different behaviour. The way LILs behave is a function of high demand which is a function of high temperature. We do consider how they are at minimum demand and how they are behaving at maximum demand. Only a handful of Trading Intervals but there are still a lot of variability.

Julian Fairhall (ERA): With climate change affecting the frequency and duration of heatwaves over summer, can you advise how you are accounting for the changes to the forecasts?
The temperature distribution is expected to shift into the future. What we had in the past may not be a good indicator for the future.
- AEMO: While we model using actual temperature data, we do simulate and expose that model to climate change data into the future. AEMO have previously collaborated with BOM and CSIRO to help in this process. The climate change data comes from https://www.climatechangeinaustralia.gov.au/en/. Basically, we warm up history to reflect a particular climate change view in the future. So, the further out into the forecast, the higher the temperature.

- Generally, higher temperatures are increasing more than average, we try to maintain that. The methodology adopts a quantile matching algorithm to statistically downscale the public daily minimum, mean, and maximum temperature. Now that poses a challenge because we have only got three data points for a data to try and figure out what is going on for every half hour. That's where we use quantile-quantile to guide us here. More details are in one of the appendixes of our forecasting methodology document.

Oscar Carlberg (Alinta): Adding onto Julian's question on climate change regarding the increasing frequency of consecutive days. What would these consecutive hot days do to the demand, and whether it would be picked up in forward view of climate change?

- AEMO: We only have daily targets of climate change and we do downscale to half hour. In the slide, we arbitrary chose 36.1 degree Celsius this year. Could use a different temperature in previous years. Where days are consecutive then coefficient of how they impact demand would increase. We are using some machine learning smarts to help guide us on what is the best way to capture demand drivers. We look at various aspects of rolling average (e.g., 3-hour, 6-hour, or 12-hour) to model the heat wave effect. Technique called lasso. From a statistical perspective, use to determine the best way to capture heat wave to improve model performance. Also need to ensure the model capture periods when we are not in heat wave. We need to make sure we get a good balance as well.

Patrick Peake (AGL): Do you add in the industrial customers who probably turned down to minimise their IRCR back into the total demand when doing the forecast for coming years? The loads that were tripped off because of IRCR reasons will probably expect to continue in the future.

- AEMO: Do we want to have a conservative view? Fundamentally that is why we generate probabilistic forecast to capture a range not just for weather but also behavioural changes with Large Industrial Loads (LILs). AEMO issues a survey to LILs to collect load responses to IRCR, more information would be collected to help us to make a more informed decision in the forecasts.

Mark Riley (AGL): Solar curtailment question – with the new Rule that allows inverters to be controlled and switched off by the network under direction, it is important that we start managing how much of that is available and then when it does occur, how much is actually used because we are now effective load shedding at a particular part of network. It is worth considering issues such as SAT in future ESOO. The network should be able to help because if the solar is curtailed, the export channel should clearly show zero solar export on the metering.

- AEMO: It is very good point, that has been on our radar, and it will be a challenge to accurately capture this curtailment in the future. There will be differences in the SWIS compared to other regions in the NEM. It will be part of our improvement process as we expect its potential to become more material.

  There are some challenges with that because of the way metering is done across the different jurisdictions to make it so it can be a globally adopted strategy for adjustment our PV generation trajectory.

3. Reliability assessment methodology

Sue Paul (RBP) presented the reliability assessment, covering a review of the regulatory context and discussed the approach including, an overview on unserved energy simulation, EUE assessment and availability class requirements.

4. Meeting Close

Grace Liu (AEMO) closed the meeting and noted any further feedback and suggestions to improve the forecasts can be sent to wa.capacity@aemo.com.au.

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Disclaimer - This document provides an overview of the main points of discussion at an industry forum convened by AEMO on 13 April 2022 to provide information and invite perspectives and feedback on matters relating to WEM ESOO Forecasting Reference Group (FRG). Readers, please note that:

- This document is a summary only and is not a complete record of discussion at the forum.
- For presentation purposes, some points have been grouped together by theme and do not necessarily appear in the order they were discussed.
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