

FORECASTING REFERENCE GROUP

FORECAST ACCURACY DASHBOARD

SEPTEMBER 2017

PRESENTED BY ENERGY FORECASTING



AGENDA

1. Purpose
2. Rule requirement
3. Energy Forecast dashboard
4. Forecasts to be assessed
5. Forecast Accuracy Metrics
6. Update frequency
7. Next steps

In August 2017 we updated FRG on our progress on AEMO's intention to move the Forecast Accuracy Report metrics to a dashboard.

Today we aim to discuss the scope of the Forecasting Performance Dashboard and to consult on:

- What forecasts AEMO will assess
- How to measure performance
- The update frequency

Under 3.13.3(u) of the National Electricity Rules AEMO is required to:

(u) by 1 November each year, prepare and provide a report to the Reliability Panel on:

- (1) the accuracy of the demand forecasts to date in the most recent statement of opportunities; and
- (2) any improvements made by AEMO or other relevant parties to the forecasting process that will apply to the next statement of opportunities.

- AEMO is intending to move its key forecasts and forecast performance metrics onto a forecasting dashboard that will display data in a way that is more relevant to industry
- The Forecast Accuracy Report to meet the rule requirement, will be informed by this dashboard

The Forecast Performance Dashboard will assess the forecast performance of AEMO's long term electricity forecasts (NEFR), including:

- Annual energy consumption
- Maximum demand

These will be assessed for:

- forecast accuracy (how the forecasts perform against actuals), and;
- model accuracy (how the forecasts perform against actuals using actuals as inputs into the models)

AEMO will provide performance information for directly observable forecast components and outputs, including:

- Weather (temperature and solar irradiance)
- Number of meter connections
- Rooftop PV installed capacity
- Economic data (GSP)
- Major load segment demand
- Other significant factors

Maximum demand forecasts:

- Actual maximum demand with adjustments for known load shedding
- Actual maximum by temporal (season, year, quarter) vs maximum demand Probability of Exceedance (POE) distribution
- Comparison between conditions driving actual maximum demand and conditions for the relevant POE of maximum demand
- Weather adjusted actual maximum demand values

AEMO intends to include the following metrics to assess forecast accuracy:

- mean percentage error (MPE) to measure forecast bias
 - $MPE = \frac{1}{n} \sum_{t=1}^n \frac{a_t - f_t}{a_t}$
- mean absolute percentage error (MAPE) to measure overall forecast accuracy
 - $MAPE = \frac{1}{n} \sum_{t=1}^n \left[\frac{a_t - f_t}{a_t} \right]$
- POE forecasts (maximum demand, weather POE)
 - Comparison of forecast POE and actual POE

The forecast accuracy dashboard will be updated as needed based on new forecast components and AEMO's forecast publications

The dashboard will provide KPI's for the following time periods:

- Annual (365 day rolling average)
- Quarterly (90 day rolling average)
- Monthly (30 day rolling average)

NEXT STEPS



- October 2017 FRG – AEMO will provide a draft dashboard concept.
- Early 2018 estimated go-live date for the new dashboard.

Questions?