

7 October 2026

Ms Dora Guzeleva
Director
Wholesale Markets
Department of Energy and Economic Diversification
Email: energymarkets@deed.wa.gov.au

Dear Ms Guzeleva,

OPERATIONAL FORECASTING IN THE WEM – EXPOSURE DRAFT

Thank you for the opportunity to provide feedback on the Department of Energy and Economic Diversification's (DEED's) Operational Forecasting Review Exposure Draft (the Exposure Draft). Accurate operational forecasting is an important part of delivering low-cost and reliable electricity to consumers in Western Australia. The Australian Energy Market Operator's (AEMO's) development of these capabilities will be a positive outcome, with accurate, centrally produced forecasts supporting efficient dispatch decisions in the Wholesale Electricity Market (WEM).

Electricity Market Advisory Services (EMAS) is a specialist consulting firm providing bespoke modelling of the WEM across all time horizons, from long-term investment planning and policy development, through to short-term forecasting and dynamic offer construction. Our suite of short-term forecasting tools includes capabilities that overlap with those set out in the changes proposed under the Operational Forecasting Review, including forecasts of unconstrained injection by renewable generators. Our comments in this correspondence are based on our experience in developing and using these analytical tools in the WEM.

In this correspondence we propose a minor change to the wording of clause 7.3A.2 to clarify the information publication obligations of AEMO in relation to the Unconstrained Injection Forecast.

PROPOSED CHANGE TO THE DETERMINATION OF FORECASTS FOR CENTRALLY FORECASTED FACILITIES

We propose a minor amendment to the Exposure Draft wording that would specify AEMO's publication obligations more precisely and better reflect the challenges of operating with uncertainty identified in the Information Paper. The Exposure Draft includes the following wording:

[7.3A.2] Each CFF Unconstrained Injection Forecast prepared by AEMO must represent AEMO's **best estimate of the expected MW level** of Injection for the Centrally Forecasted Facility at the end of the Dispatch Interval or Pre-Dispatch Interval (as applicable), assuming that the Facility will not be subject to a Dispatch Instruction or direction from AEMO that limits its Injection, and allowing for expected conditions, the quantity of In-Service Capacity for Injection specified in the relevant Real-Time Market Submission for the Facility, and any other relevant information available to AEMO.

We propose that clause 7.3A.2 be modified to reflect the inherent uncertainty associated with real time forecasting, with the proposed amendment highlighted in red:

[7.3A.2] Each CFF Unconstrained Injection Forecast prepared by AEMO must represent AEMO's **best estimate, the 5th percentile estimate, and the 95th percentile estimate of the ~~expected~~ MW level** of Injection for the Centrally Forecasted Facility at the end of the Dispatch Interval or Pre-Dispatch Interval (as applicable), assuming that the Facility will not be subject to a Dispatch Instruction or direction from AEMO that limits its Injection, and allowing for expected conditions, the quantity of In-Service Capacity for Injection specified in the relevant Real-Time Market Submission for the Facility, and any other relevant information available to AEMO.

Similar wording is applied to clause 7.3A.3 to which the same change would be applied.

For clarity, the proposed percentile estimates are quantiles of the forecast distribution. They are not the confidence bounds on the expected forecast.

The proposed amendment clarifies AEMO's obligation to provide real-time insights on the range of likely outcomes, which is not present with a single point forecast. Even with state-of-the-art forecasting techniques and the most reliable weather data, forecasts remain subject to irreducible uncertainty. The points below set out our reasoning for the proposed amendment:

- The additional information will communicate the potential range of outcomes, which has implications for clearing prices and quantities, to market participants. In our experience, the range between the 5th and 95th percentile estimates varies materially over time and independently of the expected value. For example, similar weather forecasts can yield the same expected value but materially different 5th and 95th percentile unconstrained injection estimates. With comparable weather inputs, the difference arises from epistemic uncertainty, reflecting how well the forecast model is supported by historical data for those conditions. A point forecast conceals this difference.
- The least-cost market outcome depends on the degree of uncertainty, not only the expected value, because the costs associated with low-generation events are asymmetric. For example, an Electric Storage Resource facing a wide range of potential outcomes would rationally retain more stored energy for later intervals than when facing a narrow range, even where the expected value is unchanged. Publishing percentile estimates allows participants to make these adjustments efficiently.
- The language of "percentile estimate" has a common and generally accepted meaning in forecasting. The amendment does not mandate the use of a specific methodology by AEMO, and it is expected that whichever forecasting approach AEMO adopts, the additional cost associated with calculating these values in addition to the "best estimate" will be minimal.

- We do not propose any further changes that would require AEMO to use the 5th and 95th percentile estimates in the pre-dispatch process as set out in the proposed clause 7.2.4(cB) which would increase cost and complexity to AEMO.
- Much of the commentary in the Information Paper regarding uncertainty is associated with the need for ex-post analysis to identify the contribution of exogenous inputs such as weather on forecast accuracy, and implemented in the proposed clause 7.3C.2. While quantification of the source of forecast variance is important, it does not address the need to quantify forecast uncertainty in real time.
- The change would bring the WEM into alignment with forecast information publication obligations adopted by system operators in other jurisdictions, as noted in DEED's Consultation Paper.

The proposed amendment clarify AEMO's obligations and align with the conclusions published in DEED's Consultation Paper and Information Paper, without any material increase in cost or complexity to AEMO.

CONCLUDING REMARKS

To discuss the amendments set out in this correspondence further, please contact our team via contact@electricitymarketadvisory.com

Yours sincerely,



Peter Shardlow
Principal Economist