28 November 2018

Australian Energy Market Operator
GPO Box 2008
Melbourne VICTORIA 3001

energy.forecasting@aemo.com.au

Dear Sir/Madam

National Electricity Market Demand Forecasting Methodology - Issues Paper

Energy Queensland welcomes the opportunity to provide comment to the Australian Energy Market Operator (AEMO) on the National Electricity Market Demand Forecasting Methodology Issues Paper (Issues Paper) for the 2018 Electricity Statement of Opportunities for the National Electricity Market.

Energy Queensland's feedback on the Issues Paper is contained in the attached submission.

Should AEMO require additional information or wish to discuss any aspect of Energy Queensland's submission, please contact me on (07) 3851 6416 or Trudy Fraser on (07) 3851 6787.

In the meantime, Energy Queensland will continue to contribute to this discussion via AEMO's Forecasting Reference Group.

Yours sincerely

Jenny Doyle
General Manager, Regulation and Pricing

Encl: Energy Queensland's feedback on the Issues Paper

Energy Queensland Submission on the NEM Demand Forecasting Methodology

Issues Paper

Energy Queensland Limited

28 November 2018

About Energy Queensland

Energy Queensland Limited (Energy Queensland) is a Queensland Government Owned Corporation that operates a group of businesses providing energy services across Queensland, including:

- Distribution Network Service Providers, Energex Limited (Energex) and Ergon Energy Corporation Limited (Ergon Energy);
- a regional service delivery retailer, Ergon Energy Queensland Pty Ltd (Ergon Energy Retail); and
- affiliated contestable business, Yurika Pty Ltd.

Energy Queensland's purpose is to "safely deliver secure, affordable and sustainable energy solutions with our communities and customers" and is focussed on working across its portfolio of activities to deliver customers lower, more predictable power bills while maintaining a safe and reliable supply and a great customer service experience.

Our distribution businesses, Energex and Ergon Energy, cover 1.7 million km^2 and supply 37,208 GWh of energy to 2.1 million homes and businesses. Ergon Energy Retail sells electricity to 740,000 customers.

The Energy Queensland Group also includes Yurika, an energy services business creating innovative solutions to deliver customers greater choice and control over their energy needs and access to new solutions and technologies. Yurika is a key pillar to ensure that Energy Queensland is able to meet and adapt to changes and developments in the rapidly evolving energy market.

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1 Introduction

Energy Queensland Limited (Energy Queensland) welcomes the opportunity to provide comment to the Australian Energy Market Operator (AEMO) on the National Electricity Market Demand Forecasting Methodology Information Paper and related Issues Paper for the 2018 Electricity Statement of Opportunities for the National Electricity Market.

Energy Queensland is available to discuss this submission or provide further detail regarding the issues raised, should the AEMO require.

2 General comments

Energy Queensland considers that the NEM Demand Forecasting Methodology is a significant improvement on what has been previously available, and the models themselves have a level of sophistication not seen before.

However, the current documentation to the forecasting approach is mainly a paper-based theoretical document, and there is an extended process required to build a functional model from the available material. There is a real industry wide benefit from facilitating replication and innovation. To do this, the model would need to have:

- a fully functional or “live” form
- easy access to input data and key assumptions
- a standardised or “template” based format which would allow users to exchange ideas and models

Replication can achieve a number of objectives:

- Enables robust testing of the results/predictions
- Increases industry understanding/capability
- Fosters innovation by spurring the development of other forecasting models

The innovation component can yield a number of benefits in itself. While AEMO states its objectives as being transparency, accountability & accuracy, the methodology can achieve (and already has) another objective of facilitating model innovation *outside* of AEMO.

Developing this capability further would enable:

- Industry participants to update forecasts following significant developments via changes in input assumptions
- Widespread development of scenarios and the exchange of associated ideas
- Development of more granular models to capture underlying trends of subcomponents
- Development of models for related industries.

3 Specific comments

Model type and specification

Energy Queensland notes that some of the models specified in the methodology use dummy variables to capture events like the Global Financial Crisis. While this increases the "goodness" of fit of the model to the historical data, it does not provide insights for the future use of the dummy variable. If dummy variables are used, it would be useful to document the assumptions surrounding specifically what that dummy variable is being used to capture (for example: change in business confidence; investment horizons; technology adoption), and the expectations for that assumption in the future. Otherwise, it becomes a case of an expectation that the future will be uneventful compared to history.

Survey based assumptions

Energy Queensland notes that some of customer segment forecasts are based on survey responses. While there are some methodological shortcomings involved in a process based on survey responses, from a strict documentation perspective, it is important to know what assumptions were used for those forecasts.

For example, forecasts of future coal mine activity would consider global production, export volumes, trading partner growth, exchange rates, competition, and port openings. It can be expected that the full picture of these assumptions may not be available to outsiders, but (wherever possible) it is important to check the extent to which those assumptions are in line with the assumptions used elsewhere in creating forecasts for sectors like manufacturing or the overall state of the economy.

Use of the term "weather normalisation"

Energy Queensland notes that the term "weather normalisation" is used almost interchangeably with the National Electricity Rules' (NER) "Probability of Exceedance" (POE) concept. However, the NER do not specify that POE is exclusively weather dependent. While this is a very complex area, Energy Queensland has taken an approach which:

- specifies the POE benchmark seasons directly (i.e. 50 POE season, 10 POE season)
- bases modelling on a number of factors (including the weather variables of temperature & solar radiance), and
- considers how the POE is impacted by combinations and interactions between a number of factors (e.g. how the 50 and 10 POE peak demand growths will be differentially impacted by electric vehicles and storage batteries).

As such, it may be worthwhile to clarify “weather normalisation”, and or differentiate it from POE.

Minimum demand forecasting

Energy Queensland considers that it is important to note that the impact of minimum demand differs depending on location within the network. At the national level, it is a matter of scheduling of generators and capacity, whereas at the distribution level the challenges are very different. For example: voltage issues; transformer tap settings; and redesigning metering to capture reverse flows. As such, it should be recognised that the timing, types of challenges, and the modelling and forecasting required as a result of minimum demand are quite different for different levels of the network.