7 February 2020

Ms Audrey Zibelman
Chief Executive Officer
Australian Energy Market Operator
GPO Box 2008
MELBOURNE VIC 3001

forecasting.planning@aemo.com.au

Dear Ms Zibelman

**Key Forecasting Inputs in 2020**

Energy Queensland Limited (Energy Queensland) welcomes the opportunity to provide comment to the Australian Energy Market Operator (AEMO) on the *Consultation Paper on Key Forecasting Inputs in 2020* (consultation paper). Energy Queensland's comments on the questions raised in the consultation paper are provided in **Attachment A**.

This submission is provided by Energy Queensland, on behalf of its related entities Energex Limited, Ergon Energy Corporation Limited, Ergon Energy Queensland Limited and Yurika Pty Ltd.

Should AEMO require additional information or wish to discuss any aspect of this submission, please contact me on (07) 3851 6787 or Charmain Martin on (07) 3664 4105.

Yours sincerely

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**Manager Regulation**

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# Responses to issues raised in AEMO Consultation Paper on Key Forecasting Inputs in 2020

| Question | EQL Response |
|---|---|
| **ANNUAL ENERGY CONSUMPTION** | |
| Are the assumptions contained within this report or the Consultant reports reasonable - Deloitte, Strategy Policy Research, and DER Consultants, CSIRO and Energeia? What alternatives (with evidence) could provide an improvement to the current assumptions? | The assumptions contained in the reports are in line with assumptions made by Energy Queensland with respect to annual energy consumption and maximum demand forecasts.<br>With regard to the energy forecasting model, Energy Queensland considers that:<br>• if the small to medium sized enterprise (SME) model is "'per customer" based, it is easier to determine the impact of new SME customers on energy consumption;<br>• there are limited numbers of residential customers with half hourly meters - therefore a robust methodology needs to be used to choose a sample that is representative of the entire residential customer population;<br>• expected electricity consumption should include only photo voltaic (PV) internal energy usage rather than PV gross generation;<br>• the collinearity between population numbers and dwelling numbers in the regression models needs to be accounted for; and<br>• baseload should not include temperature sensitive load – refer to the "Base load" link to the "MWh per year that is assumed for a 50th percentile weather year" (table 4 on page 12).<br>Energy Queensland also considers that further clarity is required on the following:<br>• whether PV internal usage is added back into the daily consumption model - if not, an explicit PV driver should be considered in the regression model; and<br>• whether there is a long-term residential regression model and how growth in customer connections and increases in electricity prices will impact on the annual consumption forecasts. |

| Question | EQL Response |
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| **Price elasticity assumptions** | |
| Are these price elasticities reasonable for electricity consumption for the scenarios defined? | The relationship between the network delivered price and energy and peak demand has become more complicated. For example:<br>• consumers can lock in prices for different periods of time with their retailer, distorting the timing of the impact of network price changes;<br>• consumers can invest in PV to produce their own electricity, making their relevant price a combination of the network delivered price and the per unit investment cost of their PV system;<br>• price increases have historically reduced consumption, but they may now trigger PV investment, ***increasing*** consumption as homes with PV have higher consumption and growth;<br>• upcoming tariff changes are designed to change consumer behaviour – however, their impact may be distorted by retailers' final offerings to consumers; and<br>• the elasticity of price varies significantly between energy consumption, a 50 Probability of Exceedance (POE) event, and a 10 POE event. |
| Are other factors appropriate to consider for the business segment? | No comment. |
| How can sustained high prices impact on energy consumption in the long term, and captured in forecasts? | No comment. |
| **MAXIMUM AND MINIMUM DEMAND** | |
| Are the assumptions presented in these reports reasonable? If not, what alternatives (with evidence) could provide an improvement to the current values? | Energy Queensland recommends the following should be taken into consideration by AEMO with respect to maximum and minimum demand forecasting models:<br>• forecasts by connection point should account for the occurrence of local constraints by including load predictions for times of regional coincidence; |

| Question | EQL Response |
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| | • individual connection point forecasts need to account for regional aspects (for drivers such as population, geospatial science and weather);<br>• POE demand adjustments should be based on local weather stations, rather than stations that provide the best R^2 regression;<br>• a detailed database of those block loads which can have a significant impact on expected connection point demand forecasts is required and block loads should account for uncertainties of probability of proceeding, timing, size, and duration of ramp up;<br>• the first impacts of minimum demand on low levels of distribution networks should be accounted for at the feeder and substation levels well before they are seen at higher levels, such as system or state aggregations; and<br>• extreme events (such as the Townsville floods or cyclone events) should be removed from the dataset of the lowest 40 half hours when conducting the minimum demand forecasts. |
| **SUPPLY MODELLING INPUTS** | |
| Are the inputs and assumptions presented in these reports reasonable? If not, what alternatives (with evidence) could provide an improvement to the current values? | No comment. |
| **Additionally, AEMO and CSIRO have specific questions related to the GenCost report:** | |
| Do the new global electricity scenarios outlined in the GenCost 2019-20 Draft Report explore the plausible range of outcomes with regard to technological change of known technologies? | No comment. |
| Are the updated current capital cost assumptions reflective of current project costs? | No comment. |

| Question | EQL Response |
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| Are the inputs and assumptions for the capital cost projection model reasonable? | No comment. |
| Are the inputs and assumptions for the levelized cost of electricity calculations reasonable? | No comment. |
| **ADDITIONAL FEEDBACK** | |
| Can stakeholders provide evidence to help guide development of future inputs, and illustrate where current inputs are no longer appropriate, for:<br>Annual energy consumption forecasting of: – Residential consumption and its components<br>− Business consumption and its components<br>− Trends and impacts affecting both sectors, including climate change impacts and DER<br>• Maximum and minimum demand forecasting, including<br>− Energy efficiency saturation<br>− Demand trace assumptions<br>• Modelling the energy supply, including: – Generation costs and technical parameters<br>− Future costs of new generation technologies<br>− Demand side participation that may avoid the | ***Electric Vehicles***<br>Electric vehicles in both the personal and commercial use sectors will have different impacts on the network and may need to be modelled separately. For example, it is anticipated that electric buses may provide the most significant load for the electrification of transport by the end of the forecast horizon. Therefore, the impact of electric buses should be considered from both an energy and a demand perspective.<br><br>***Distributed energy resources (DER) and battery assumptions***<br>The DER scenarios appear to have been constructed on the basis of speed of uptake of all DER categories without having regard to the individual categories diverging. This creates scenarios where the DER impacts can offset each other, leading to an underestimation of their potential load volatility impact. AEMO should also consider the impacts on peak and minimum demand for scenarios where the impacts of DER increase the POE demand volatility.<br>Battery storage is an important area with little associated data. AEMO should clarify its assumptions on battery storage in terms of demographics, commercial applications and size of units.<br>The solar PV premium feed-in tariff is scheduled to end in 2028 in Queensland, which will impact a vast number of households who have been unable to change / upgrade their PV systems without losing their tariff. AEMO's forecasts should therefore consider changes in the uptake of battery storage that will take place in the lead up to and following this date. |

| Question | EQL Response |
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| development of physical supplies<br>− Reliability settings appropriate for existing and new generation technologies<br>− Operational characteristics of existing and new generation technologies | |