Ref. **A4618134**

1 February 2021

Attention: Dr Alex Wonhas

Australian Energy Market Operator (AEMO)

By Email: *forecasting.planning@aemo.com.au*

Dear Alex

POWERLINK QUEENSLAND RESPONSE TO 2021 DRAFT IASR

Powerlink Queensland (Powerlink) welcomes the opportunity to provide input to the Australian Energy Market Operator's (AEMO's) 2021 Draft Inputs, Assumptions and Scenario Report (IASR). Powerlink acknowledges the fundamental importance of fit for purpose inputs as the basis of analysis. Powerlink routinely provides feedback as an active member of the joint planning processes with AEMO, including participation in workshops and reference groups. This public submission focusses on 3 key inputs:

1. Rooftop PV
2. Capital cost of transmission
3. Transmission modelling

These matters are addressed in more detail in the attached submission.

If you have any questions in relation to this submission or would like to meet with Powerlink to discuss this matter further, please contact Cameron McLean.

Yours sincerely

Stewart Bell

Stewart Bell

Exec GM Strategy & Business Development

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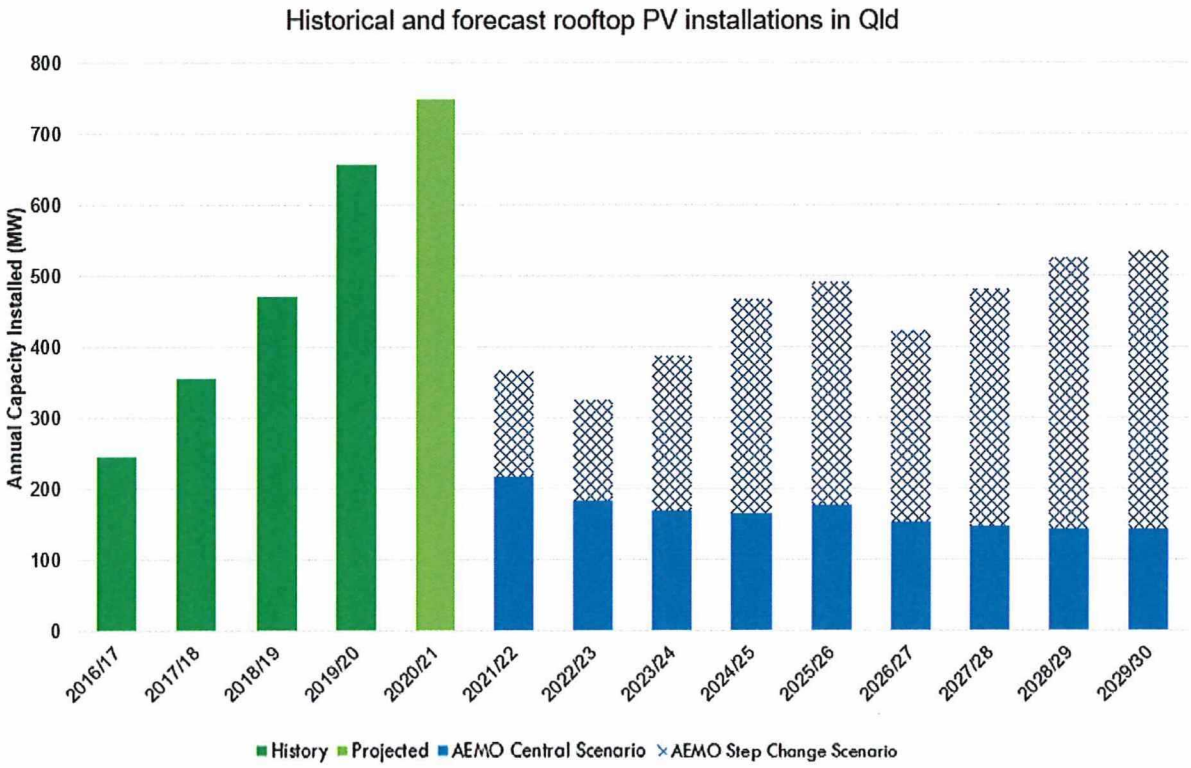
1. Rooftop PV

The ever-reducing levels of minimum demand pose a key challenge to the power industry. As those in the sector are aware, demand is not really reducing but rather it is being supplied by behind-the-meter sources, predominantly rooftop PV.

In Powerlink's submission[1] to the 2020 Planning and forecasting consultation on scenarios, inputs and assumptions, the significant disconnect between actual and forecast rooftop PV installation levels was highlighted. In the 2020 Draft ISP submission[2] Powerlink recommended that studies be conducted assuming the ongoing strong installation of rooftop PV.

AEMO's most up-to-date DER forecasts included in the Draft 2021-22 Inputs and Assumptions Workbook are still not fully addressing this disconnect. AEMO has recognised this in its December 2020 Forecast Accuracy Report that '*short-term trends in installations and output are still problematic*'. Powerlink is pleased that the data is flagged as '*Interim*' and '*to be updated through consultancy*' in Table 6 of the 2021 IASR consultation report.



Sources: Clean Energy Regulator (CER) Small Generation Unit Solar capacity[3], 2021 Inputs and Assumptions Workbook[4]

[1] At https://aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2019/2020-inputs-and-assumptions/submissions/2020-forecasting-inputs-an-assumptions---powerlink-submission.pdf?la=en

[2] At https://aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2020/draft-2020-isp/submissions/powerlink-submission-draft-2020-isp.pdf?la=en

[3] Accessed from http://www.cleanenergyregulator.gov.au/RET/Forms-and-resources/Postcode-data-for-small-scale-installations on 29 January 2021.

[4] At https://aemo.com.au/-/media/files/electricity/nem/planning_and_forecasting/inputs-assumptions-methodologies/2021/draft-2021-22-inputs-and-assumptions-workbook.xlsx?la=en

Powerlink would like to stress the importance that the new forecasts developed for rooftop PV do not underestimate the installation rates. The rooftop PV uptake assumption is a crucial input when assessing the revenue adequacy and operation of existing generators and when evaluating the urgency and economic viability of energy storage and mix of large scale renewables. All have a significant impact on the ISP outcomes.

Given that these forecasts are also used in other AEMO analysis focussing on the stability and security of the power system over the next few years, it is even more critical to have forecasts that span the full range of credible rooftop solar uptakes in the near term, as well as over time.

Powerlink acknowledges the uncertainty in the forecast for rooftop PV installations. There are many variables (such a potential tariff reforms) that impact the future rooftop PV decisions of consumers. Hence, Powerlink considers that this uncertainty would be best accommodated by testing a sufficiently wide spread of potential rooftop PV futures. At a minimum the ISP should have some scenarios that reflect the ongoing growth and/or stabilisation of rooftop PV installations for the next few years, in order to understand the implications of this credible future, and to stress test the ISP development path.

Continuing to only forecast at the reduced levels increases the risk that resulting power system issues and consequences will first be observed in the operational rather than the planning timeframes. This denies the timely identification of efficient solutions.

2. Capital cost of transmission

Powerlink agrees with the importance of appropriate capital costs as inputs to allow the fair trade-off of network and non-network solutions. To this effect, Powerlink is in support of Integrated System Plan (ISP) preparatory activities. It is appropriate for projects which may become future actionable ISP projects to require a greater level of rigour to minimise the risk of a RIT-T contradicting the ISP outcomes. Early works in activities such as corridor and route selection can play a large part in reducing uncertainty of cost estimates. To support this Powerlink is undertaking preparatory activities for:

- Gladstone Grid Reinforcement
- Central to Southern Queensland Transmission Link, and
- QNI Medium and Large.

3. Transmission modelling

Powerlink is pleased to see the inclusion of a more granular capacity outlook model representation. This allows greater alignment with the physical characteristics and limitations of the network.

Further to the initiatives already proposed by AEMO, Powerlink makes the following comments and recommendations.

- In Powerlink's experience the modelling of losses has a material impact on the least-cost generation planting and transmission development path. The inclusion of zones presents an opportunity to model these with more accurate inter-zonal loss flow equations rather than the current approach of a single static MLF invariant with respect to future system conditions. The incorporation of a more accurate loss model captures benefits improving the case for certain transmission alternatives (for example HVDC) which would otherwise appear less competitive.
- Including capacity constraints across zones provides the ability to have a more accurate representation of transmission capacity than the current group constraint method.

Although, as mentioned in the consultation report, the zonal model adds computational complexity to the PLEXOS model, it may save time overall. The zonal model avoids the iterative process between the short term and long term solver to refine the group constraints relevant to the zones that ensures transmission capacity limits are well represented. Powerlink encourages further use of zones to reduce dependence on constraints expressed in terms of generation rather than transfers.

Powerlink acknowledges and appreciates the current discussions with AEMO on improvements to capacity definitions of inter-zones, inter-regions and Renewable Energy Zones (REZ).