15 November 2021

Submitted via email: ISP@aemo.com.au

Dear AEMO

AEMO's Consultation Paper – Draft Competition Benefits Inputs, Assumptions and Methodology

Hydro Tasmania appreciates the opportunity to provide a response to AEMO's *Draft Competition Benefits Inputs, Assumptions and Methodology* consultation paper.

The Integrated System Plan (ISP) has become a critical tool to inform a smooth transition of our National Electricity Market (NEM). Since its inception, a series of iterative improvements have been made to the ISP, providing increasingly valuable insight to governments, policy makers, market bodies, regulators, Transmission Network Service Providers (TNSPs) and market participants alike.

Hydro Tasmania has long held the view that major transmission projects and strengthening of interconnection between NEM regions offers an opportunity to deliver significant competition benefits for customers in the NEM. While we recognise the limits and complexities associated with modelling competition benefits, we are concerned that an oversimplified approach may understate competition benefits to the detriment of some (ISP) projects.

Seeking to understand and quantify competition benefits is firmly in the interests of Australian energy consumers and will be an important input to inform the ISP. The assessment of competition benefits must reach a pragmatic balance between being simplistic, yet realistic and at the same time be forward looking in its function. Where this balance can be reasonably reached, it remains unclear what the relationship will be between the identification of competition benefits in the ISP and individual RIT-T assessments. We encourage AEMO to provide further clarity on this issue.

Observations regarding AEMO's proposed modelling approach are provided as **Attachment A.** These comments relate to the importance of:

- balancing historical market trends, with reliable expectations of future market conditions;
- acknowledging the changing role of flexible generation in driving competition benefits;
- specific consideration of competition benefits and strategic bidding during periods of resource scarcity;
- benchmarking between observed outcomes and changing market dynamics; and
- setting demand elasticity to calculate realistic producer and consumer surpluses.

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If you have any queries regarding this submission, please contact me on 03 8612 6443 or Colin.Wain@hydro.com.au.

Yours sincerely,

Colin Wain
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Attachment A – Hydro Tasmania comments on the proposed modelling approach

Methodology can be informed by the past, but must have an eye to the future

Hydro Tasmania notes that the proposed methodology focuses on past market trends and performance as an indicator of strategic bidding. We consider this approach risks producing unrealistic results as it does not appropriately consider changing market dynamics (and commensurate response/behaviour).

We recommend that AEMO/Ernst & Young (EY) employ an approach which is cognisant of evolving market trends and ownership portfolios of dispatchable capacity when selecting the list of "strategic players" for the strategic bidding analysis. For example, Figure 1 below shows the projected share of generation capacity by owner in NSW from 2021 to 2030 using AEMO's Forecasting and Planning data.

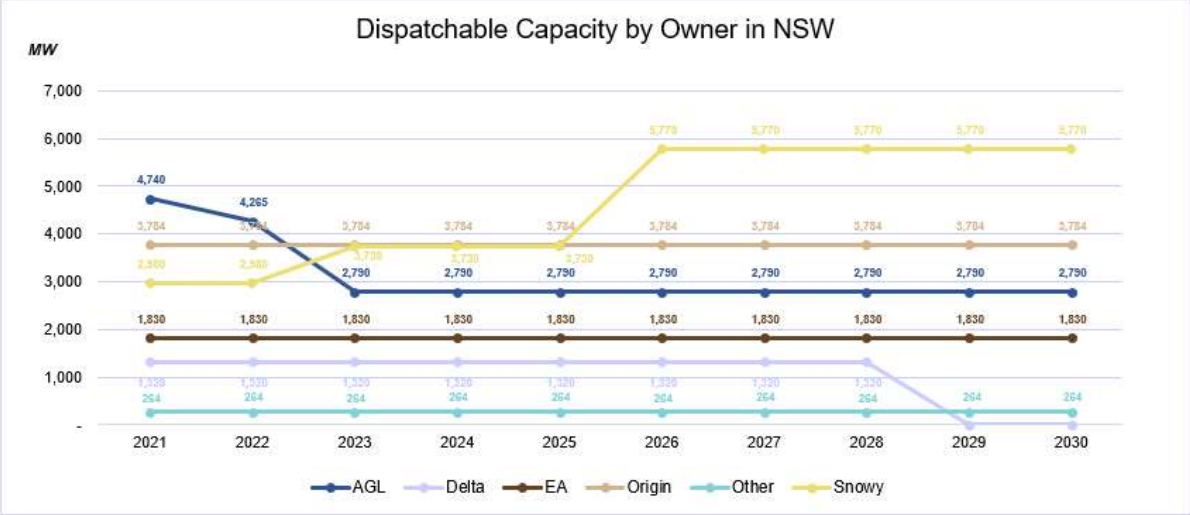

Figure 1: Dispatchable Capacity by Owner in NSW, AEMO Forecasting and Planning data.

In this example the two strategic bidders selected by AEMO/EY (AGL [Bayswater] and EA [Mt Piper]) have materially lower NSW market shares than Snowy and Origin from 2026. Thus, excluding those portfolios is likely to result in highly conservative modelled estimates of competition benefits.

Hydro Tasmania encourages AEMO to explore opportunities to strengthen the proposed methodology by placing a greater focus on forward looking/market evolution, and implications for competitive outcomes across the NEM.

Greater competition in flexible generation will increasingly deliver competition benefits

As the NEM continues to integrate higher shares of variable renewable energy (VRE), the role of flexible capacity will become increasingly important in driving competitive outcomes for consumers. As underlying variability in our power system increases, it will more regularly swing from periods of over-supply to periods of resource scarcity – which will subsequently be reflected in spot price volatility. In this regard, Hydro Tasmania views that the role of flexible capacity in delivering

competition benefits may overtime outperform the role of strategic bidding by inflexible, base load energy provision.

Analysis conducted by Hydro Tasmania[1] in 2019 found that, even though *'…flexible generation sources[2] only set the spot price in Victoria 25% of the time, this accounted for 60% of the cost in the Victorian market.'* With the expectation that this trend will continue, Hydro Tasmania's analysis concluded that introducing competition for flexible supply is likely to have a substantial impact on the price in the Victorian market, driving better pricing outcomes for consumers. To this end, Hydro Tasmania does not consider it appropriate for the proposed methodology to be backwards looking or to limit the strategic participation in game theory models to coal-fired generators only.

Competition benefits during high-priced events/resource scarcity

Figure 2 below shows the capacity offered at different price bands across different generator types during tight supply/demand conditions[3] (Lack of Reserve (LOR) periods from 2020 to 2021). Across the NEM overall, gas and hydro generators offered a much high proportion of their capacity at prices above SRMC than coal-fired generation. Gas bid in 20% of capacity at or near the price cap, while hydro bid in 6% at or near the price cap.

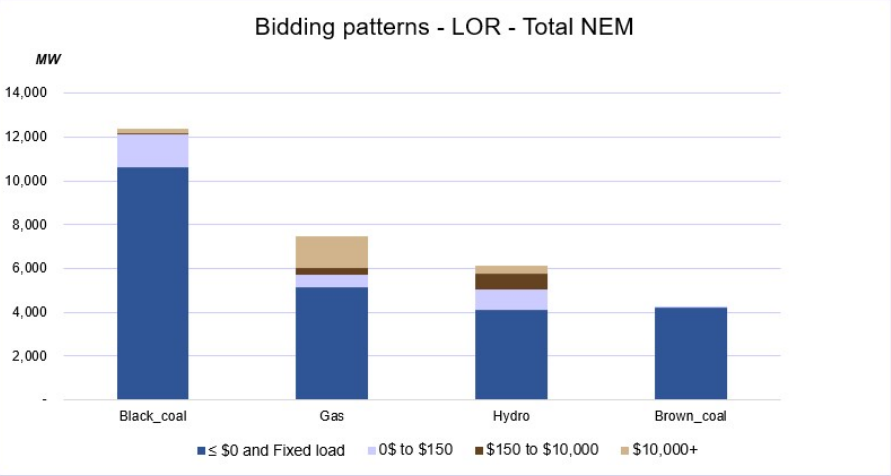

Figure 2: Bidding patterns by generation type across the NEM during Lack of Reserve notices (2020-21).

We note that high-priced bids from gas and hydro may not materially change the merit order (one proposed aspect of estimating the competition benefit), however this bidding structure and its impact on price is relevant for estimating the competition benefit arising from demand response. We recommend that AEMO/EY consider the observed behaviour of non-coal generators in their analysis of strategic bidding, particularly given the changing NEM resource mix over the modelling period. Given the complexity of including more strategic players in the modelled approach, this may require

[1] *How Battery of the Nation can contribute to Victoria's energy needs and objectives, Hydro Tasmania, 2019.*
[2] For the purpose of this analysis, flexible generation included conventional hydropower generation and open cycle gas turbines.
[3] Bidding filtered to focus on periods when Lack of Reserve (LOR) notices are in place.

an out-of-model assessment during periods of resource scarcity, including consideration of recent bidding practices of gas and hydro during these periods, and the likely impact of interconnection on bid profiles of dispatchable resources.

Demand elasticity and market responsiveness to shifts in wholesale pricing outcomes

Hydro Tasmania supports EY's overall approach to determining the competition benefits due to demand response. We also agree with EY's proposed elasticity of demand value of -0.05 and the approach to converting a retail price elasticity to an equivalent demand response at the wholesale price level.

We note that while individual consumers or businesses may not exhibit a demand response from changes to price, EY has provided strong empirical evidence that the electricity market, in aggregate, has a downward sloping demand curve. We consider that *Wholesale Demand Response Mechanism Rule 2020*[4] recently introduced by AEMC is likely to make consumers more price sensitive in the future and therefore, EY's proposed elasticity demand value of -0.05 is likely to be conservative and should be reviewed as the market changes. Overall, we support EY's approach to accounting for additions to producer and consumer surplus in the competition benefits analysis.

Benchmarking of results

Given the complexity of the modelling task and the uncertainty about overall market concentration in the longer-term, Hydro Tasmania views benchmarking/calibration of the modelled benefits against historical observations as an essential component of this assessment process. We suggest that this analysis could be included in the published results and include:

- **Historical benchmarking** - this would involve back-casting the AEMO/EY competitive bidding model to historical years and comparing the modelled market outcomes with actual outcomes. This would indicate whether the modelled competitive bidding approach is successfully mimicking competitive behaviour or whether further tuning of the competitive bidding model is required.

- **Future market concentration** – for more near-term and certain results, over which AEMO can account for ownership of coal-fired generator and committed dispatchable capacity, AEMO/EY should analyse modelled portfolio shares of dispatchable capacity to determine whether market concentration is likely to increase or decrease under ISP scenarios. This should be done on a portfolio basis rather than focussing on individual generators.

- **Modelled bid structure** – under the proposal, Nash equilibrium is used to derive alternate bid structures for a small selection of strategic players. We suggest modelled competitive bid structures should be compared/benchmarked against historical observations across a full cycle to determine whether modelled bidding reflects typical bidding behaviour. An example

[4] AEMC, Wholesale demand response mechanism, Rule determination, 11 June 2020

of this is shown in Figure 3 below - which shows the bid structure of black coal-fired generation in NSW between 2016 -2021[5]:

- In this example, the amount of coal capacity bid well above SRMC varies from year-to-year from 161 MW to 1,108 MW (the highest amount occurring following closure of Hazelwood which resulted in reduced competition from Victorian imports).
- If a modelling result produced bids beyond the thresholds from previous years (approximately below 150 MW or above 1,100 MW in this example) then the modelling result should potentially be revisited due to not aligning with 'typical' behaviour.

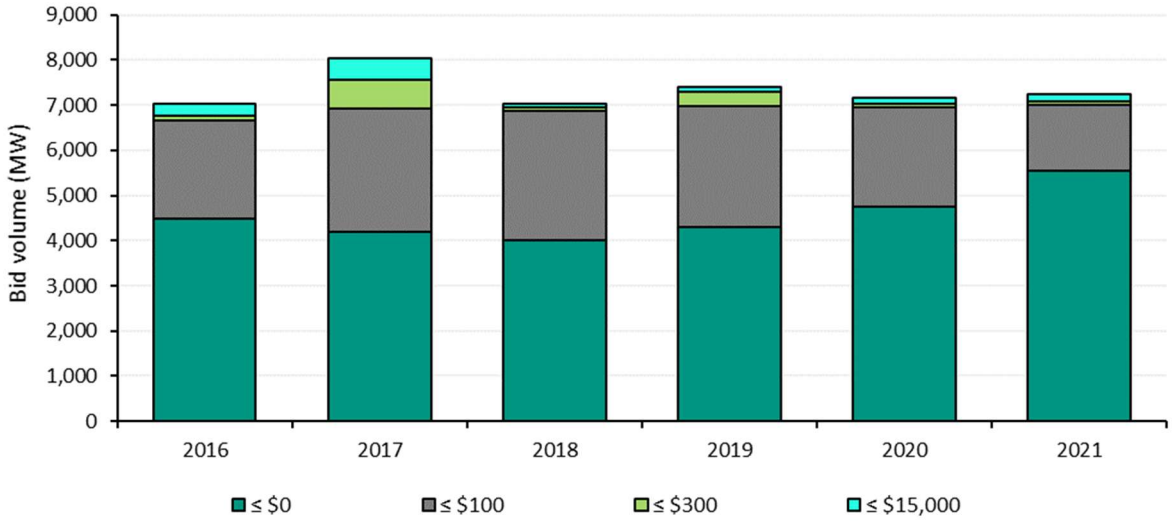

Figure 3: NSW black coal bid structure during high prices (>$100/MWh) – 2016 to 2021

[5] Here bid data is analysed during high priced periods (>$100/MWh) to avoid including coal bidding at high prices to avoid being dispatched during low daytime prices.