



19 November 2021

Ms Nicola Falcon  
Australian Energy Market Operator  
Level 22, 530 Collins St  
Melbourne VIC 3000

Dear Ms Falcon

## **RE: Draft competition benefits inputs, assumptions and methodology consultation paper**

Shell Energy Australia Pty Ltd (Shell Energy) welcomes the opportunity to respond to the Australian Energy Market Operator's (AEMO) draft competition benefits, inputs, assumptions and methodology consultation paper ("the Paper").

### **About Shell Energy in Australia**

Shell Energy is Australia's largest dedicated supplier of business electricity. We deliver business energy solutions and innovation across a portfolio of gas, electricity, environmental products and energy productivity for commercial and industrial customers. The second largest electricity provider to commercial and industrial businesses in Australia<sup>1</sup>, we offer integrated solutions and market-leading<sup>2</sup> customer satisfaction, built on industry expertise and personalised relationships. We also operate 662 megawatts of gas-fired peaking power stations in Western Australia and Queensland, supporting the transition to renewables, and are currently developing the 120 megawatt Gangarri solar energy development in Queensland. Shell Energy Australia Pty Ltd and its subsidiaries trade as Shell Energy.

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### **General comments**

Shell Energy understands AEMO's motivations to assess the potential competition benefits as part of the benefits claimed in the Integrated System Plan (ISP) cost benefit analysis (CBA). We also note AEMO's conclusion in the ISP Methodology that it will not by default include competition benefits in its CBA in part due to the complexity and uncertainty associated with modelling competition benefits particularly with regards to future benefits.

We are therefore surprised that AEMO has resolved to adopt a simplified approach to assess the potential competition benefits of proposed ISP projects.

Shell Energy considers that competition benefits based on potential future bidding strategies remain too uncertain to properly assess as part of the ISP. While there is certainly a possibility that some level of competition benefits will be delivered, under a limited set of market conditions, we contend that the timing and magnitude of assessing such future outcomes is heavily influenced by the modelling input assumptions and as

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<sup>1</sup> By load, based on Shell Energy analysis of publicly available data

<sup>2</sup> Utility Market Intelligence (UMI) survey of large commercial and industrial electricity customers of major electricity retailers, including ERM Power (now known as Shell Energy) by independent research company NTF Group in 2011-2020.



such the simplified assumptions means that the error bars surrounding the estimated benefits would be too large to be of any real use and certainly not fit to justify large network expenditure.

Shell Energy also considers that this discussion could have formed part of the Australian Energy Market Commission's Transmission Planning and Investment Review rather than having been introduced at such a late stage of the 2022 ISP process with the Draft 2022 ISP due to be published in December. While this consultation relates solely to the ISP, there is a broader interaction with the Regulatory Investment Test – Transmission (RIT-T) process given that impact that the ISP can have on transmission projects.

Our main concern is that these highly uncertain competition benefits will be used to justify network projects that may otherwise not produce a net benefit. While any project published in the ISP would still be subject to a comprehensive cost-benefit analysis, the presence of the project in the ISP allows for the RIT-T process to be shortened. In completing any subsequent RIT-T process the proponent is also allowed to utilise benefit modelling outcomes from the ISP. We reiterate a point we have made in submission to the AEMC and AEMO: the costs of transmission projects are definite and passed onto consumers but the benefits to consumers only accrue in theory over a number of years. Put simply, consumers face certain costs, but may receive uncertain benefits.

The decision to include competition benefits or not, based on the proposed methodology, also appears to create an asymmetry. If preliminary modelling suggests that a material competition benefit exists, it can and would be included. However, if modelling were to show that there was a net market disbenefit from the inclusion of competition benefits, then there is no obligation to include it. In Shell Energy's view, a disbenefit could occur where the commissioning of additional transmission capacity leads to early exit of existing capacity or a change in generation development plans. This kind of optionality undermines the regulatory process surrounding transmission investment. It is unclear whether AEMO proposes to assess material competition benefits for certain candidate development paths (CDPs) only if there are positive benefits or also if there is a negative benefit.

### **Modelling assumptions**

We do not support EY's proposed selection of strategic players and their level of strategic bidding outlined in the Draft Competition Benefits Inputs, Assumptions and Methodology report as there is no defined selection or analysis criteria for their choice or the level of strategic bidding. As such, we do not consider it reasonable to use this generically for the ISP. This is because we observe that there can be strategic players in each market at different times and strategic bidding is not guaranteed to occur at any time. The EY methodology basically considers that the nominal strategic players bid strategically all the time during the nominal critical time periods set out in the report. Based on historically observed outcomes, we do not consider that the EY assumptions represent historically observed behaviour particularly during the critical time periods, (06:00 to 10:00 and 18:00 to 22:00 daily).

Shell Energy also disagrees with the \$500/MWh threshold for capacity not offered at short run marginal cost (SRMC). We argue that a \$300/MWh threshold is more appropriate given this is the strike price for market cap contracts. Generators, especially those who have sold cap contracts (peaking generators) will seek to defend these contracts by bidding in, often to low prices when pre-dispatch indicates regional reference prices outcomes of around \$300/MWh. Those lower SRMC generators that have not sold cap contracts will generally seek to maximise dispatch volume at a price below \$300 to pre-empt the entry of peaking generators.

We observe that EY has determined that \$500/MWh is the break point between cost-based bidding and defence of caps and the higher values adopted for strategic bidding based on data from Frontier Economics. Frontier's Economics' data does show that on average there is very little capacity bid in above \$300, with some peaking generators bid in the \$500-\$15,000 range. However, Shell Energy's analysis suggests these bids above \$500 are reflective of peaking generators avoiding operating as marginal generators during average to slightly above average demand or higher variable renewable generators output periods. In addition, as VRE output including rooftop solar had increased, large coal-fired generators have often been required to operate at



low load for extended periods. In this case bidding to avoid operation as the marginal generator through a generators full output range is often associated with reducing the need for costly mill movements. The choice of \$500/MWh may represent a theoretical inflection point when assessing average bid data, but in practice it is a value of little consequence in the market. We consider that additional analysis concentrated on higher demand or lower VRE output (the nominal critical time) periods will clearly show the changes in bids for unit commitment by peaking generators as well as bids by large coal-fired generators to increase SRMC based output. At other non-critical times of the day, AEMO must ensure that this is not interpreted and counted as strategic bidding and in Shell Energy's view such an outcome during non-critical periods will persist and potentially increase, even in the presence of any of the proposed transmission project.

In addition, the changing nature of the electricity market is not represented in the way competition benefits are proposed to be assessed. The increasing volume of variable renewable energy (VRE) with a zero short run marginal cost, along with the prospect of pumped hydro or battery energy storage systems (BESS) operating as firming or peaking generation or flexible load is largely absent from EY's consideration of competition benefits. BESS and pumped hydro technologies are likely to play an increasingly important role in the market, particularly once Snowy 2.0 becomes operational in the late 2020s and additional coal fired generation commences retirement. However, we acknowledge that even greater uncertainty exists as to how these bidirectional resources and limited fuel resource hydro generators will operate in the future. Given this we support AEMO's decision to exclude them from modelling as strategic players.

Shell Energy is concerned that large and unrealistic competition benefits could be calculated simply based on the choice of input assumptions. We do not consider that the 40 per cent or indeed the 70 per cent strategy options for Bayswater, Mt Piper, Stanwell and Tarong and the 80 per cent strategy for Loy Yang A are likely outcomes. This would represent a significant change to our understanding of the broad strategies used by these generators based on historically observed bids. We consider that AEMO should discard these options as they will create an artificially high estimate of competition benefits. In particular, it is questionable if Bayswater would engage in strategic bidding at all post the closure of Liddell.

To assist AEMO's consideration on SRMC bidding strategies, Shell Energy has graphically presented bid information for most of the generating units set out in the EY report as strategic parties as an attachment to this submission. We recommend AEMO undertake additional consultation and analysis regarding input assumptions prior to commencement of any modelling of competition benefits. The choice of strategic participants and the level of strategic choice allowed is a critical part of competition benefits modelling and must be subject to rigorous and transparent consultation.

Shell Energy also believes that greater attention needs to be paid to the interaction between variable renewable energy (VRE) and pumped hydro energy storage (PHES) or battery energy storage systems (BESS). In the discussion on the selection of generation development plans EY's methodology states:

*"It also includes making trade-offs between zero fuel cost variable renewable energy (VRE) generation, and alternatives such as batteries and pumped storage hydro which can reduce the build of VRE plant but must pay the cost of cycling inefficiency from storing and releasing the generation."<sup>3</sup>*

In our view this fails to reflect that PHES and BESS are likely to be used as firming options to VRE generation enabling greater 'flexibility' and certainty for VRE output rather than an alternative. Indeed, BESS and PHES will likely be critical to facilitate the increased roll out of VRE generation and allow the NEM's reliability standard to be met. While PHES and BESS can store output from VRE for later use, albeit with round trip losses, unlike normal storages hydro or gas turbines, PHES and BESS don't produce electrical energy in their own right and

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<sup>3</sup> EY, Market Consultation Competition benefits inputs, assumptions and methodology, p14



rely on energy input from an external source, as such, they should not be considered as a direct alternative to VRE. Rather, they are complementary technologies for VRE.

We are also concerned that with the scale and rate of change in the NEM at the moment, it is increasingly challenging to make assumptions regarding potential generator bidding strategies for the purposes of determining competition benefits into future years. Bidding outcomes following the recent change to five-minute settlement remain in a state of flux with the impact of this change still to be fully understood by participants. Very low demand outcomes during October and November (to date) in NSW, South Australia and Victoria may have resulted in a delay in the emergence of any meaningful change in bidding strategies post this change. In the medium term, the prospect of a capacity mechanism of some description, be it a physical Retailer Reliability Obligation or another model, would completely change the economics of generation and generators' bidding strategies. The simplified models that EY has proposed could be obsolete within as little as 12-24 months.

Further, there are complexities surrounding the longer-term impacts of lower wholesale prices and the relationship between wholesale and retail prices. While we agree that lower wholesale prices through competition benefits could provide a benefit to consumers, this is unclear. If wholesale prices hold at low levels, this may precipitate the early exit or temporary mothballing of existing thermal generation. This could lead to a rebound in wholesale prices until new generators enter the market. In addition, short-term lower wholesale spot price outcomes may not result in lower prices to consumers in a market where a minimal level of consumer demand is spot facing, significant supply side capacity is forecast to retire and where future prices to consumers will be dominated by the costs of replacement supply side or demand response resources and the costs of firming variable renewable generation output with firm standby capacity or flexible load.

We observe that EY outlined that having calculated the respective Nash Equilibrium based on the chosen number of theoretical strategic combinations, it proposes using the same Nash Equilibrium for critical time periods in the full 25-year study period. In effect, the effective Nash Equilibrium has not been investigated for each hour independently, or for each year independently. We accept that a full set of modelling using half-hourly or hourly bids (noting that the NEM now operates on a 5-minute trading interval) would be prohibitively expensive for the purposes of the ISP. Yet, we consider that there are alternative options that would provide a more robust estimate. This could include the use of monthly or seasonal Nash Equilibrium which potentially change based on observable market events, such as the proposed date for commissioning of network assets. This would better reflect the broad scope of strategies that generators can choose to employ in a fast-changing NEM environment.

EY also suggests inclusion of benefit due to a demand response, or as more commonly referred to as the "elasticity of demand to price outcomes". In this case EY has proposed calculating a benefit from an increase in all classes of consumer demand driven by wholesale prices reduction due to a reduction in strategic bidding. The EY report quotes a number of studies undertaken on electricity markets to calculate the elasticity of demand,<sup>4</sup> however it should be noted that these studies are generally associated with reductions in electricity demand due to electricity price increases, as opposed to increases in demand due to lower prices. We are concerned that the assertions set out in the EY report are not supported by factual evidence supporting the proposed outcome particularly with regards to demand increases for lower wholesale prices.

Shell Energy is of the view that elasticity of demand is not necessarily symmetrical. Responses to higher electricity prices such as plant augmentations to improve productive efficiency or rooftop solar PV are not removed due to a fall in electricity prices. Where possible these savings are retained as improved margins or for households, lower electricity bills which then allows spending on other items which may not be electricity consumption related. This is further supported by interaction with our customer base where electricity consumption is primarily

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<sup>4</sup> Ernst and Young - AEMO Competition benefits inputs, assumptions and methodology report, p 15.



set by their technology and its asset life, as well as consumer demand for the product they offer. A reduction in electricity prices does not often result in an opportunity to expand consumption. Similarly, when C&I or larger SME consumers consider whether to replace or expand their technology/production assets, electricity price is just one of many factors that vary in importance depending on the consumer. Shell Energy is yet to be convinced that sufficient rigour has been applied to analysis in this area to warrant its inclusion.

Although not set out in the consultation paper, we note AEMO's verbal information at the workshop on 26 October that AEMO does not intend to calculate the change in competition benefits as part of the take one out at a time (TOOT) analysis. When eventually the proposed methodology is developed sufficiently via analysis and consultation to be suitable for its inclusion in the benefits analysis, should this class of benefits be shown to be material, Shell Energy would encourage the inclusion of the calculation of changes in competition benefits as part of the TOOT analysis.

Lastly, we note the scenarios set out in Appendix A1 of the consultation paper, which outline several approaches to calculating competition benefits. From our perspective, there is no single response that can be used to calculate competition benefits with a reasonable and acceptable level of accuracy for the proposed 10-year period. In fact, in the fast-changing world of the NEM we doubt such modelling would be shown to accurately represent actual outcomes over the next 12 months, let alone the proposed 10-year period over which competition benefits are intended to be included. We understand that modelling requires assumptions to be made, and we accept that this necessitates simplifications. However, the overly simplified nature of assumptions to determine benefits associated with the complexity of competitive market dynamics means that we consider the error range of any modelling outcomes would be too great to produce a meaningful result.

## **Conclusion**

Shell Energy understands AEMO's desire to see the full range of benefits included in the ISP to determine the optimal development path for transmission projects. Competition benefits have typically been excluded from this process and from RIT-Ts for transmission projects more generally unless there is a demonstrated material impact. In part this is due to the complexity in modelling the competition benefits and the need for the input assumptions to be robustly consulted on. AEMO has thus developed, in conjunction with EY, a simplified model to determine competition benefits.

Shell Energy considers that the simplified nature of this analysis is unlikely to produce a robust enough estimate of competition benefits to deliver a result that gives consumers confidence in the modelling outcomes. Currently the proposed input assumptions appear to be inconsistent with observed historical outcomes and in some cases risk double counting benefits already included. Consumers ultimately pay for transmission projects, and while the costs are certain, the benefits are dependent on a range of factors and may or may not accrue to consumers. Based on the evidence presented, we would be concerned if a transmission project was deemed to have a net benefit only after the inclusion of competition benefits calculated using the proposed methodology.

We do not support the inclusion of competition benefits in the 2022 ISP. Should AEMO maintain its preference to include them, we would like an assurance from AEMO as to whether they would be included in all cases or only where there is a material benefit, as opposed to a material disbenefit, or cost. If scenarios where there was a negative net competition benefit were excluded this would create an asymmetry, to the detriment of consumers.

All told, we consider that there has been insufficient consultation to warrant the inclusion of competition benefits in the 2022 ISP as there is too much uncertainty in the short term to be able to establish a reasonable estimate of the potential competition benefits achieved through new transmission infrastructure projects. With further detailed analysis and additional supporting arguments combined with improved stakeholder consultation in this area it may be possible to develop a robust framework for their consideration in future ISPs. However, AEMO



will need to undertake sufficient work to justify the inclusion of competition benefits in modelling of benefits for future years in the CBA due to the significant uncertainty in their calculation.

Shell Energy looks forward to working with AEMO to see if a robust methodology can be developed for calculating competition benefits with a lower level of uncertainty to the methodology currently proposed for use in the future.

For more information on this submission, please contact Ben Pryor (0437 305 547 or [ben.pryor@shellenergy.com.au](mailto:ben.pryor@shellenergy.com.au)).

Yours sincerely

[signed]

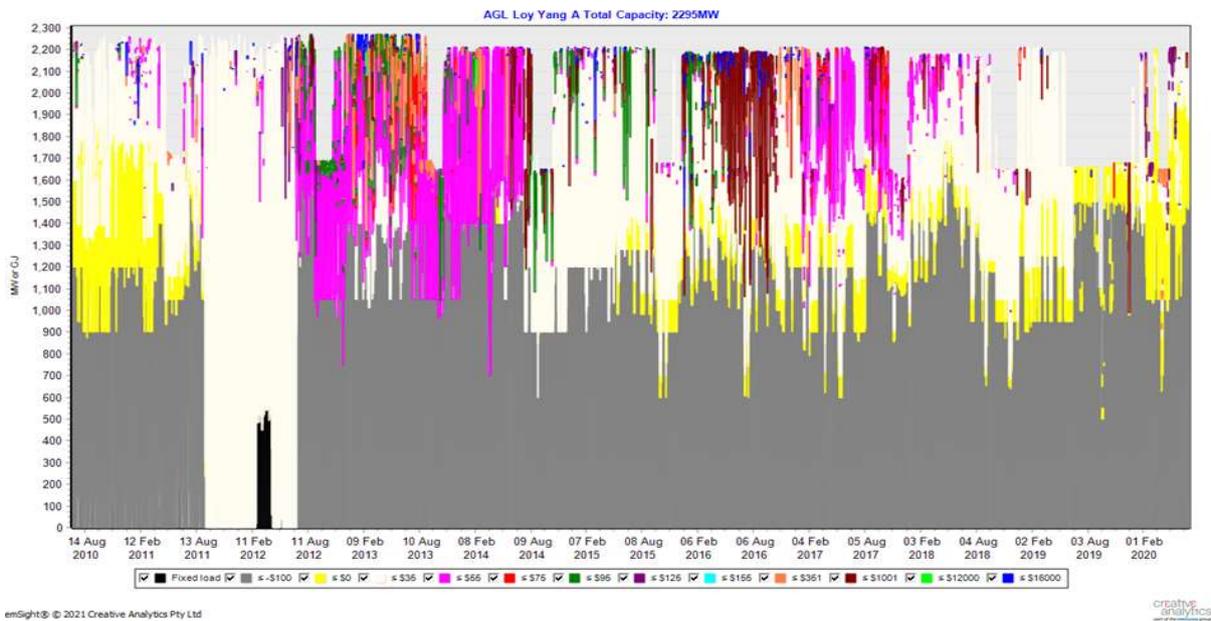
Libby Hawker  
GM Regulatory & Compliance



## Attachment 1 – Historically Observed Bidding Strategies

Loy Yang A – July 2010 to 9 November 2021

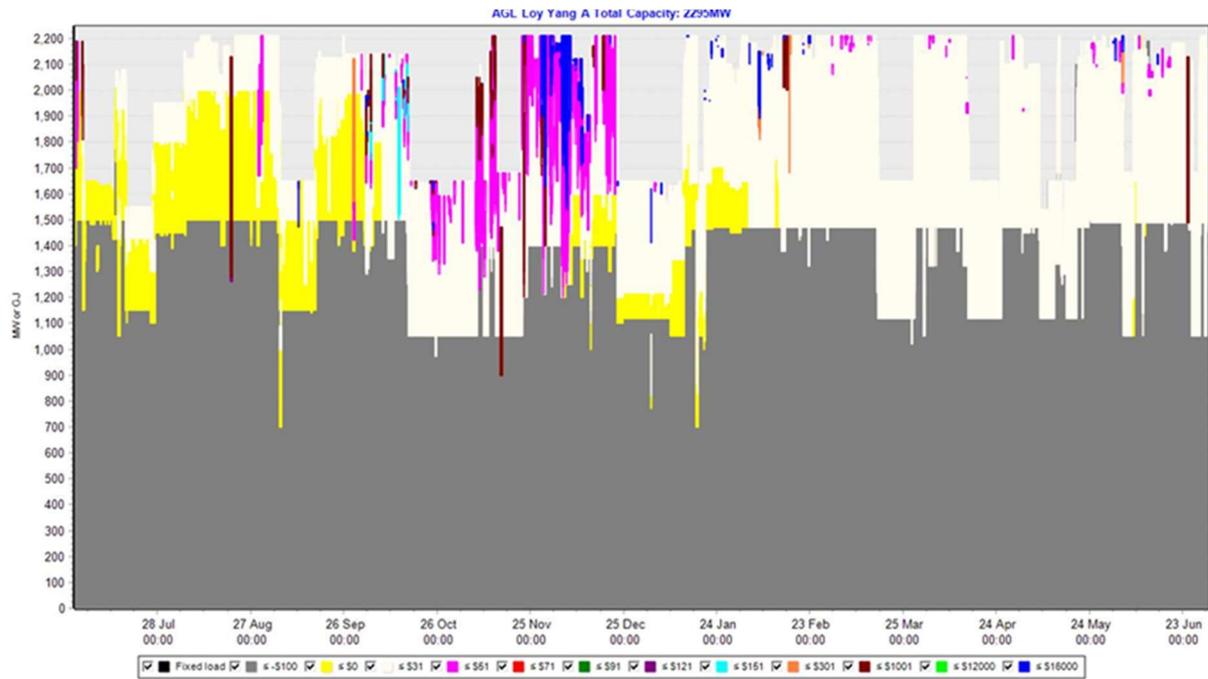
July 2010 to June 2020



Higher priced bids during winter 2016 reflected issue with poor quality coal and a coal dredger failure as opposed to strategic bidding



June 2020 to July 2021

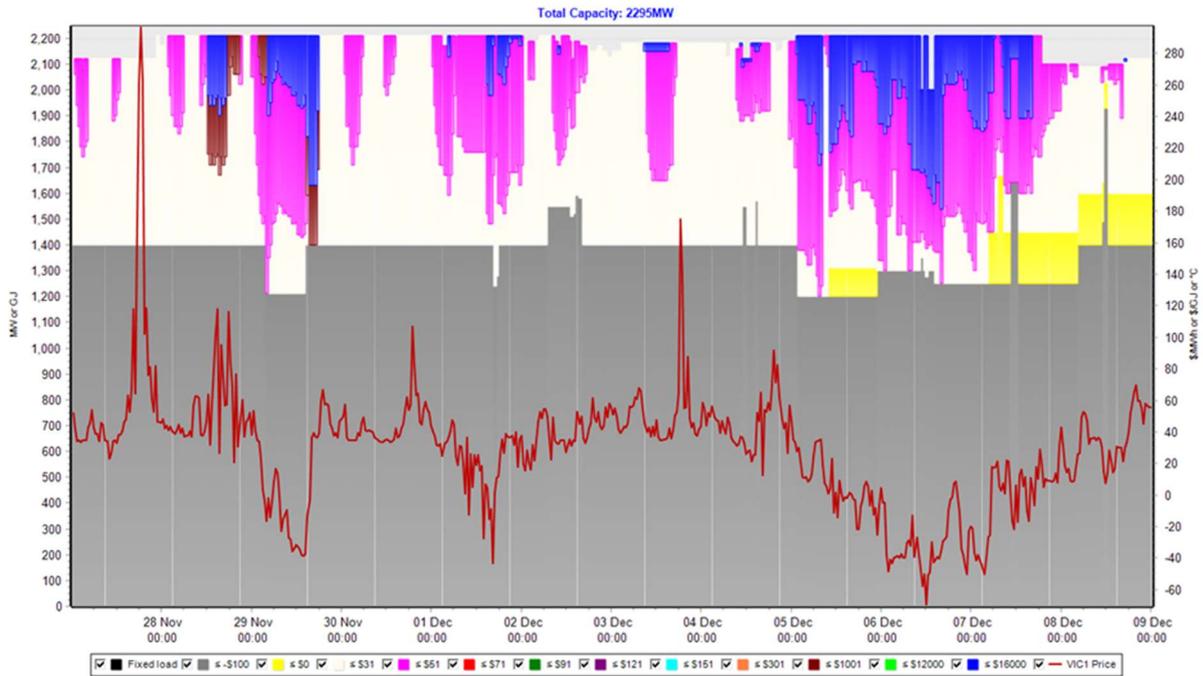


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Higher priced bids during late November and early December 2020 were primarily aligned with weekend periods and/or plant issues including periods of plant testing. Rebids during the period appear to be primarily to return low priced volume where increasing demand warranted additional output. Regional Reference Prices (RRP) during the periods were often negative. Shell Energy does not consider this indicative of strategic bidding pricing outcomes.



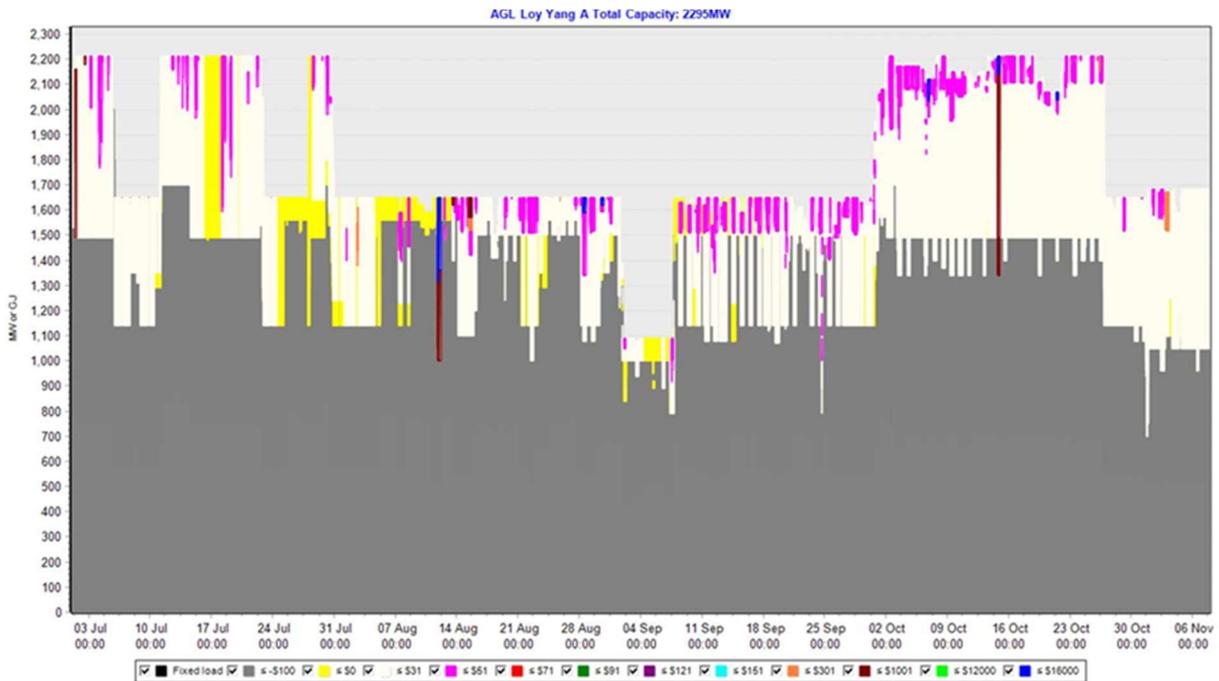
28 November to 9 December 2020



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July 2021 to 9 November 2021



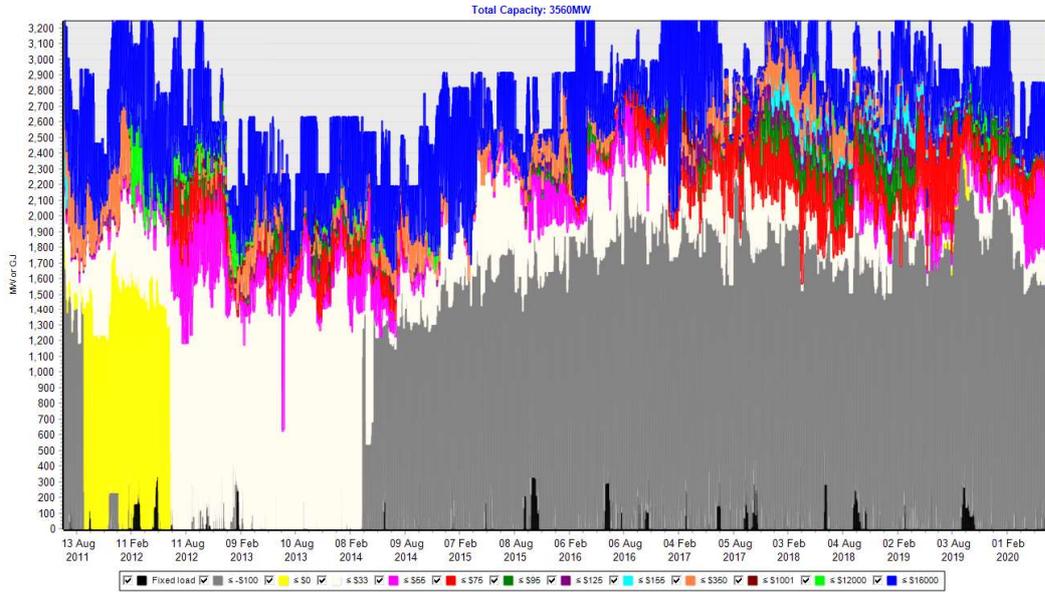
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## Stanwell Coal Portfolio - Stanwell, Tarong and Tarong North July 2011 to 9 November 2021

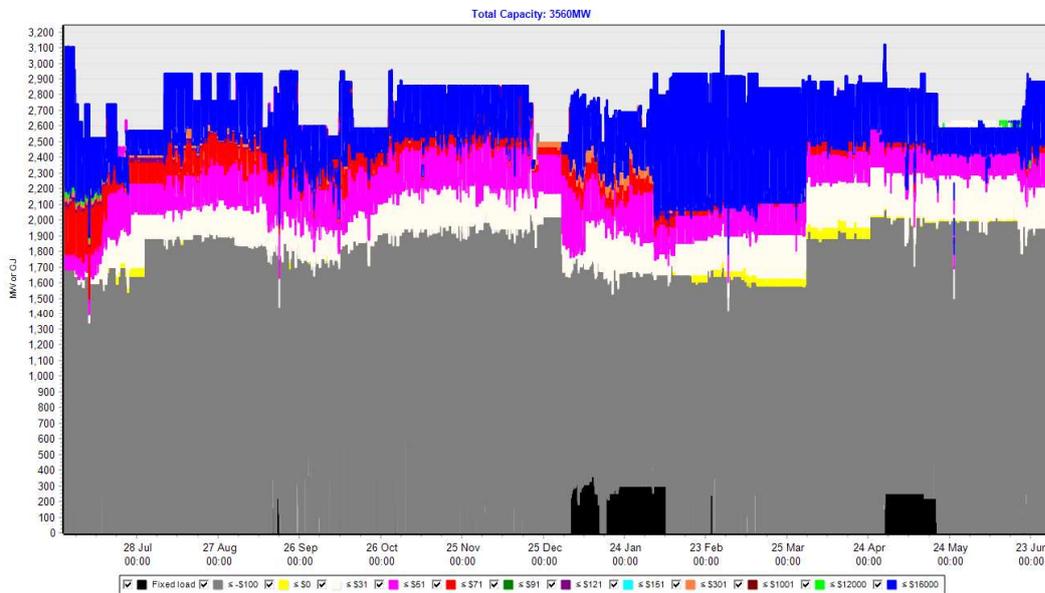
July 2011 to June 2020



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July 2020 to June 2021

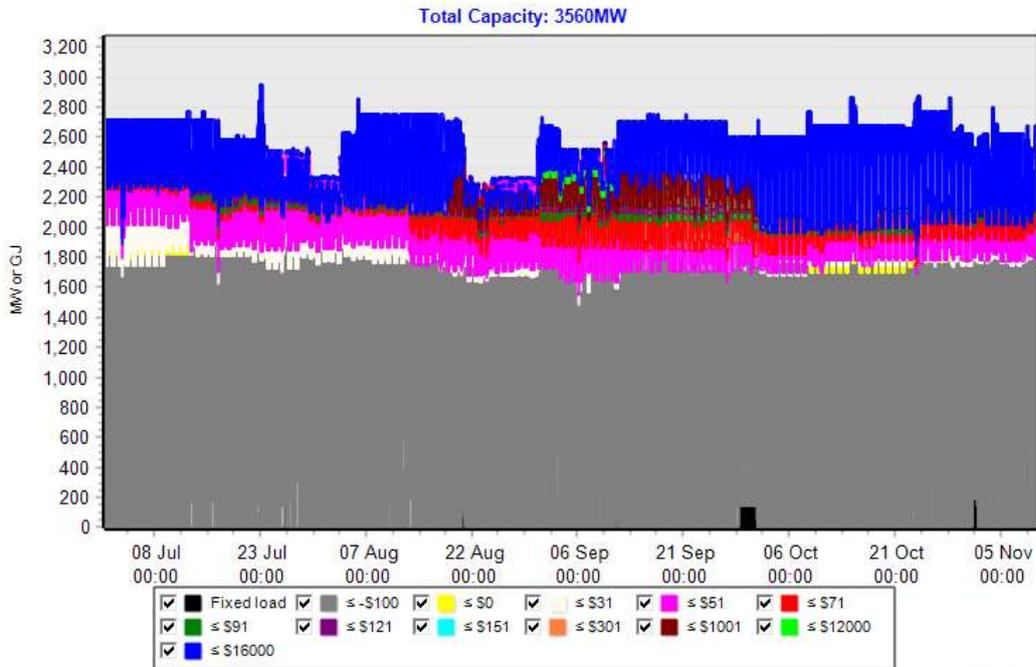


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June to 9 November 2021



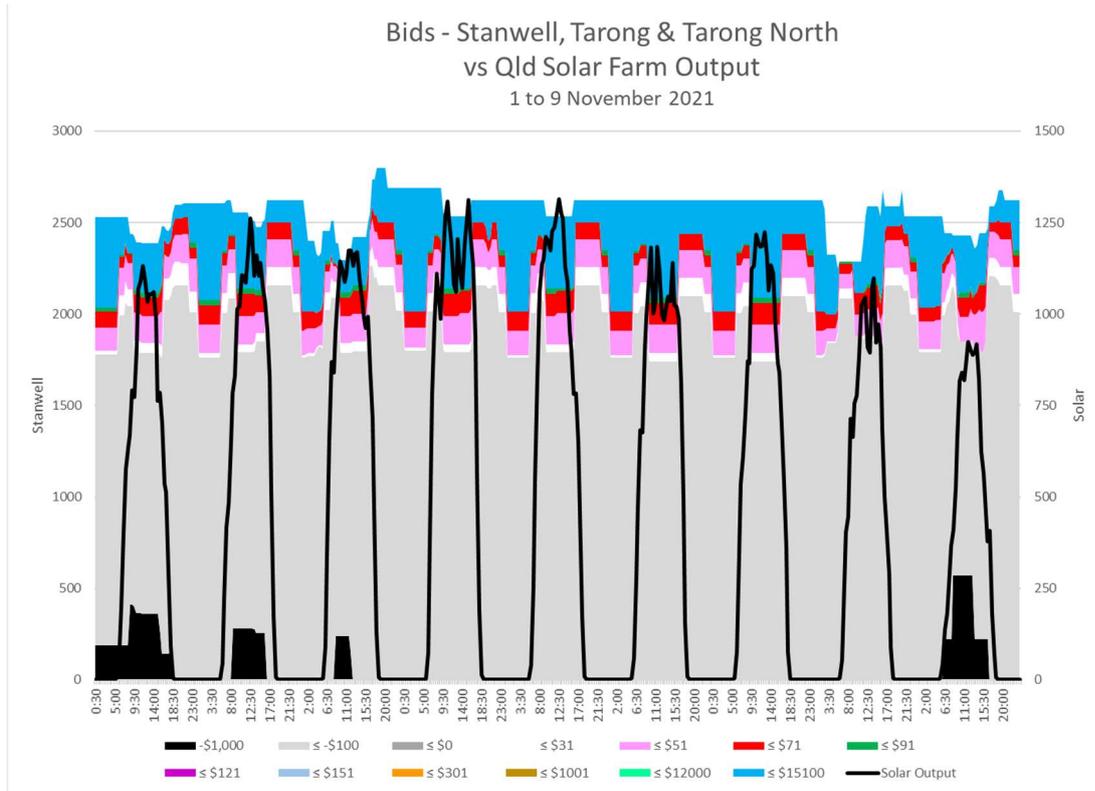
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Despite recent data for the Stanwell portfolio indicating sustained bidding at high prices at times, potentially supporting the use of a 75% strategic bidding strategy, further analysis at specific times is warranted to ensure that the data is not misrepresented. In the following graph we consider the daily bid profile in closer depth. At times of lower demand and high VRE output in Queensland whilst Stanwell bids blocks of volume out of the way to minimise mill movements, it still leaves considerable volume available for response during these high VRE periods. At the critical higher demand and lower VRE output, little volume is presented by Stanwell in what would normal be considered a strategic bidding profile.



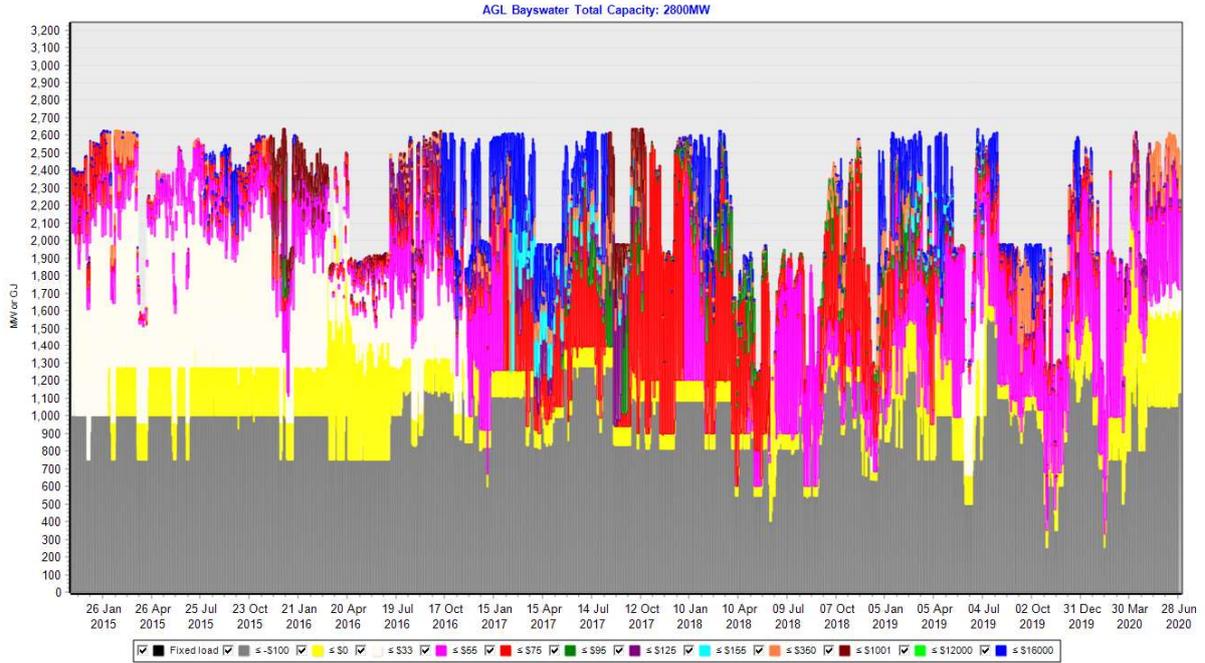
1 to 9 November 2021





Bayswater - December 2014 (post sale to AGL) to 9 November 2021

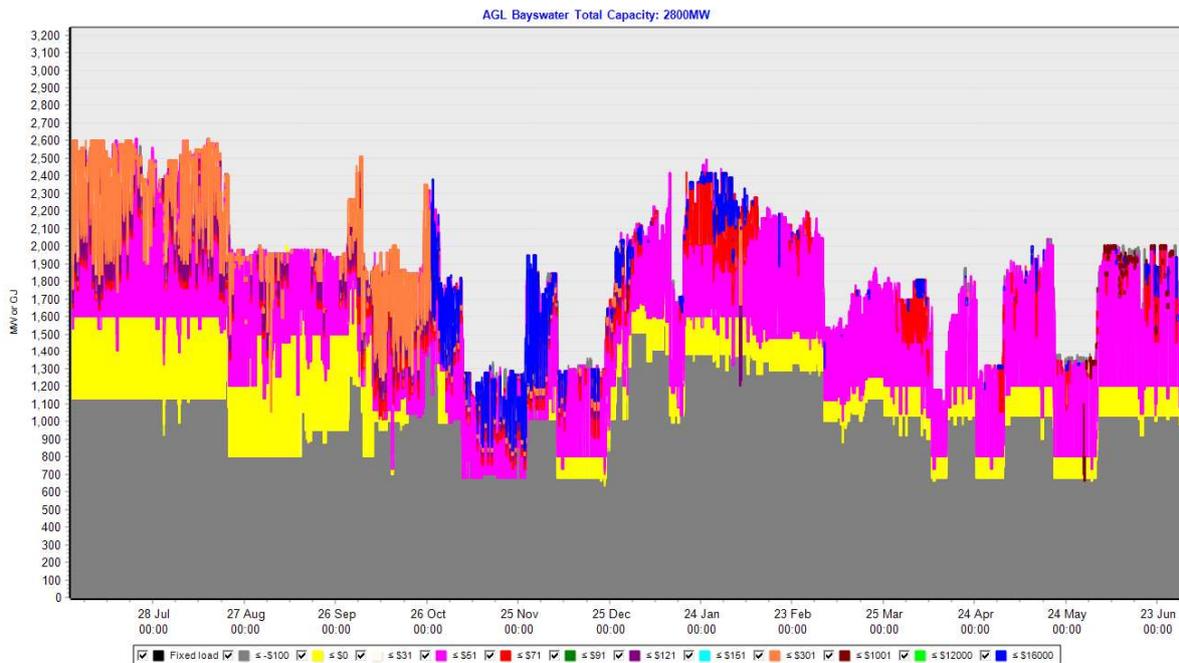
Bayswater December 2014 to July 2020



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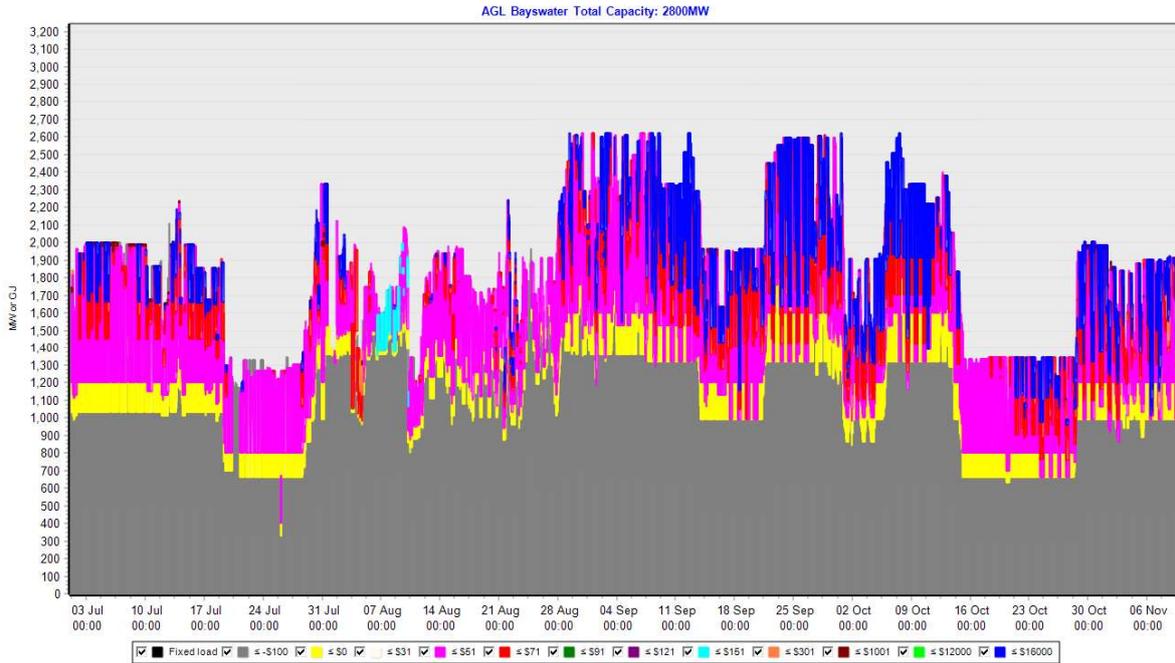
July 2020 to June 2021



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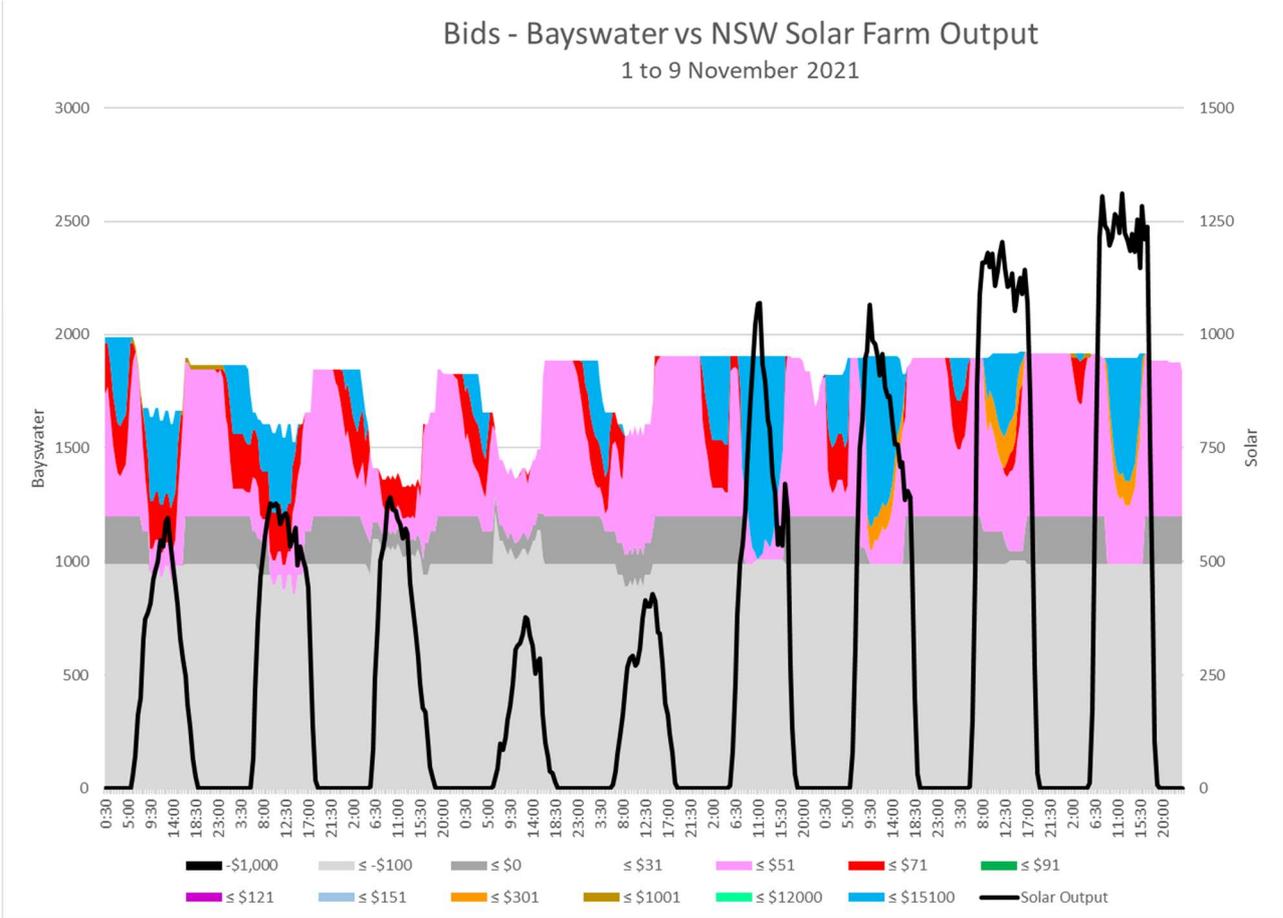
July to 9 November 2021



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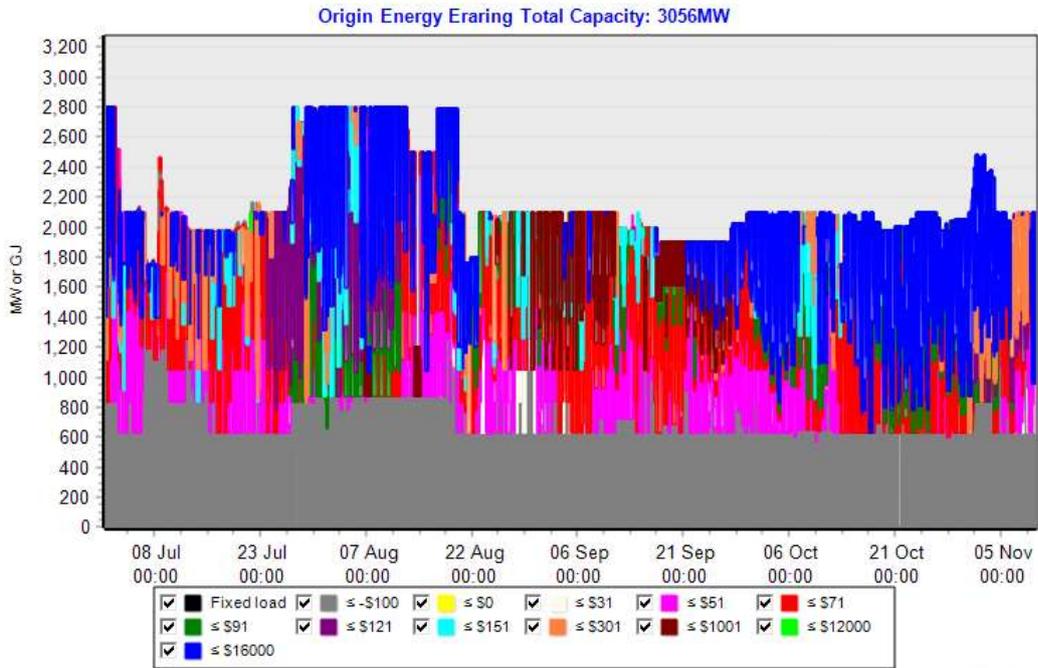
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Similar to the Stanwell portfolio, simply looking at the average outcomes it could be assumed Bayswater is being bid strategically, however, when again the data is looked at in detail a different point of view is achieved.





A similar outcome can also be determined for bids at Eraring  
 Eraring June to 9 November 2021



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Bids - Eraring vs NSW Solar & Wind Farm Output  
1 to 9 November 2021

