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Ms Sara O'Connor
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PO Box 8469
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via email: publicsubmissions@era.com.au

Dear Ms O'Connor

ANCILLARY SERVICES PARAMETERS

Thank you for the opportunity to provide a submission on proposed parameters for calculating payments to Synergy for spinning reserve, load rejection reserve and system restart services.

Synergy is fundamentally concerned that the proposed parameters would under-remunerate Synergy for the services it provides. The modelling that has been used to calculate the ancillary services parameters is materially flawed. Furthermore, the recent entry of Alinta into the LFAS markets, while not anticipated in the modelling, will result in significant and further under-compensation of Synergy for its ongoing provision of load rejection and spinning reserve services.

Considering the clear deficiencies in the modelling and the process for determining Synergy's remuneration, the proposed ancillary services parameters **ought not** to be accepted. While still sub-optimal, the parameters currently in force should remain until the modelling issues can be addressed. Synergy is intending to pursue changes to the WEM Rules to address areas where the rules are unclear, ambiguous or inequitable.

Modelling issues

Synergy's concerns with the modelling include the reliance on historical offer information, some questionable aspects of the results, the methodology used to calculate availability cost and the general level of disclosure of both the results and important related quantities. Each of these issues is briefly discussed below. Further detail can be provided to the ERA, AEMO or EY upon request.

Reliance on historical offer information

In Synergy's view, the assumption that historical offer information can be used to derive likely future offers is fundamentally flawed. Generation costs are more complex than can be represented in a series of monotonically increasing price-quantity pairs, and the process by which market participants prepare their offers necessarily results in a loss of information: costs cannot be re-created from offers.

Start costs, particularly for thermal generating units, are significant and can exceed $100,000 per start. When deciding which facilities to commit, generation businesses take a forward view of load forecasts over several days and price to recover start costs accordingly. Hence market participants' offers are intrinsically linked with expectations of future load, and especially with intra-day load shape.

The EY model assumes future bidding profiles will reflect past profiles, they implicitly assume load profiles will remain constant. Synergy finds it implausible that historical offer data could accurately predict unit commitment in a period two years hence given the significant disruption resulting from the uptake of distributed solar PV and planned large scale non-scheduled generation.

Co-optimisation of ancillary services

As flagged in the issues paper, the model does not co-optimise all ancillary services.[1] Without co-optimising load rejection constraints, the model is likely to produce infeasible and inaccurate dispatch outcomes.

Synergy facility outage assumptions

Synergy notes that no outage information beyond December 2020 for any of Synergy's facilities was provided to EY, which has unfortunately rendered the model's results inaccurate. This omission appears to have materially decreased the Cost L component in FY 2020/21 and FY 2021/22 and Synergy is concerned that it will have impacted the model's dispatch outcomes more generally.

Discrepancy between modelling assumptions and AEMO practice

When AEMO uses Synergy's LFAS capacity in real time, it also dispatches (and may commit) additional Synergy capacity to maintain load rejection and spinning reserve, thus incurring additional costs.

Further, AEMO uses more of Synergy's LFAS capacity, more frequently, when compared to IPP facilities providing LFAS, regardless of Synergy's cleared LFAS quantity. This occurs because AEMO does not have a control process to ensure the dispatch of Synergy's LFAS facilities is proportional to Synergy's cleared LFAS quantities.

The model does not recognise these issues. The assumption that Synergy's cleared LFAS quantities always contribute to contingency reserves again results in under-compensation of Synergy.

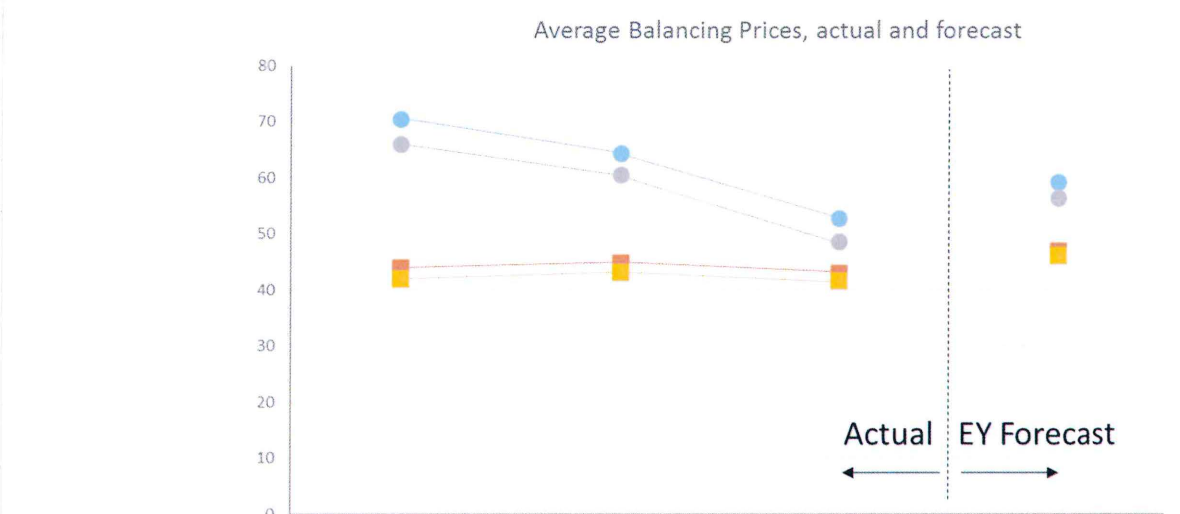
Balancing price forecast results

Synergy is concerned that the balancing price forecast in the model is implausible. The model forecasts that peak-period balancing prices in 2019/20 will increase by more than 10% over the levels observed year-to-date in 2018/19. This finding contradicts both recent trends (refer

[1] The issues paper notes that "…the modelling was not optimised to provide load rejection service, but was configured to concurrently optimise spinning and load following reserve services…" and "…EY's model does not appear to use a constrained optimisation technique."

Figure 1 below) and the likely effects of the increasing penetration of both small-scale and large-scale renewable generation. The price forecast has a direct, material impact on Synergy. If the assumptions in the model were adopted and balancing prices in 2019/20 were merely to stay the same as in 2018/19 without further decline, Synergy would under-recover its availability costs by around $1.2m.

Figure 1: *Average balancing prices, actual and forecast (source: AEMO data, Synergy analysis; EY Margin Values Review for 2019/20.*



	1617	1718	1819 YTD	1920 (EY)
Load-weighted average, peak	70.46	64.39	52.74	59.23
Load-weighted average, off peak	44.03	44.78	42.94	47.04
Arithmetic average, peak	65.97	60.47	48.59	56.48
Arithmetic average, off peak	42.08	43.27	41.77	46.08

Spinning reserve capacity results

The average off-peak spinning reserve capacity requirement is implausibly high. The proposed value for 2019/20 of 236.4MW appears to be 70% of the maximum generation capacity of the Newgen Power Kwinana CCGT (NPK), implying that NPK operates at or very close to maximum capacity during off-peak periods. In fact, NPK consistently reduces its output and is a regular provider of LFAS raise service in off-peak periods.

Synergy notes that the approved level from the 2018/19 review was 189MW. In 2017/18, the spinning reserve requirement in off-peak periods based on the "largest generator" criterion was 164.7MW and in 2018/19 to the end of February, it was 158.8MW. Synergy considers that a change of the order of 25% in this parameter requires further explanation.

Back-casting results

Given that the back-casting exercise consisted of using historical offer data to reproduce historical dispatch and price outcomes for the same period, Synergy would expect a very high level of correlation between back-cast and actual results to be achievable.

During peak periods, the back-cast model over-estimated prices by up to $20/MWh around 25% of the time. During off-peak periods, the model under-estimated prices by up to $30/MWh around 15% of the time. Synergy considers this magnitude of error is problematic.

Methodology used to calculate availability cost

Synergy has reviewed the recommendations provided by the ERA in its 2018/19 margin values determination relating to the method for calculating the opportunity cost of reserve provision.[2] Synergy does not believe the ERA's analysis holds true when the characteristics of real generators are considered.

The ERA document states:

> *"As Equation A2 shows, the marginal cost of reserve provision is independent from the market clearing price in the scenario without the provision of reserve, ie p0 in Figure A1. The principle applied also shows that the opportunity cost of reserve provision by a generator in a portfolio of generators owned by a single market participant is independent from changes in cost and benefits for other generators in the same portfolio."* (Synergy emphasis)

The underlined point only holds true on the assumption that, as in the ERA's worked examples,[3] spinning reserve is always provided by an infra-marginal generator. However, where a supra-marginal generator (G2) must be committed to provide spinning reserve, it displaces another infra-marginal generator (G1) to at least the level of its minimum stable generation. If Synergy owns both generators, this results in an additional loss of the foregone infra-marginal rent on G1, in addition to the out-of-merit costs of dispatching G2.

This situation currently arises in the SWIS most of the time because all existing coal units have limited spinning reserve response. Consequently, it is frequently necessary to commit gas units out-of-merit to meet spinning reserve requirements, and to turn down Synergy coal units to accommodate their minimum generation. Since Synergy is cleared in the balancing market as a portfolio, it is always a Synergy unit that is turned down when a Synergy gas unit must be dispatched out of merit because the total portfolio energy provision must remain the same.[4] The foregone infra-marginal rent on the displaced generator arises not as a consequence of any lack of competition, but because of Synergy's bidding arrangements. It is a real cost to Synergy and Synergy considers that it should be appropriately compensated for that out-of-merit generation cost and lost infra-marginal rent.

Transparency of results

Synergy considers that sufficient details of the modelling results should be published to allow comparison with other similar work. The published results should have included at least the following fundamental market outcomes:

- Dispatch metrics by facility, such as capacity factors, operating hours and start events.
- Annual plant availability statistics broken down into planned and forced outages.
- Provision of ancillary services by facility.
- A load-duration curve for system load net of non-scheduled generation.
- A forecast balancing price duration curve.

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[2] Determination of the 2018-19 margin values for spinning reserve ancillary service, Appendix 2, section A2.1.1.
[3] Ibid., figures A1 to A3.
[4] A similar issue exists with respect to the ERA's assumption that the balancing price would not change between the case where Synergy provides spinning reserve, and a counterfactual where some other party provides it. The commitment of a unit out-of-merit will necessarily result in the movement of another unit, but whether it is a Synergy unit (Case 1) or an IPP (Case 2) that was committed determines which unit must move to accommodate it. In Case 2 the marginal unit would be displaced, possibly resulting in a reduction in the clearing price. In case 1, the most expensive Synergy unit would be expected to move, which might result in a decrease or an increase in price. Again, the level of competition is not what drives this result, but the portfolio bidding construct.

Entry of Alinta into the LFAS market

Alinta's recent entrance into the LFAS market invalidates the assumptions in the model about IPP participation. As a result, the modelled results would under-compensate Synergy for providing load rejection and spinning reserve.

Synergy's facilities providing LFAS simultaneously provide load rejection and spinning reserve. By contrast, IPPs providing LFAS do not provide contingency reserves.

For ancillary services parameters purposes, Synergy capacity assumed to be cleared in the LFAS market is excluded from compensation via the ancillary services parameters. Conversely, IPP displacement of Synergy LFAS capacity increases the volume of load rejection and spinning reserve capacity that must be compensated via the ancillary services parameters.

The model assumes LFAS participation by NPK, but not by Alinta. If this omission is not addressed, Synergy would be significantly under-compensated for its provision of spinning and load rejection reserve.

Synergy recognises that the modelling cannot be expected to account for all market activity that occurs between its completion and the ancillary services parameters taking effect. However, it is problematic that the model is as sensitive to such market behaviour and that Synergy is consequently exposed to such a large risk to its revenue for the provision of a regulated service.

Synergy considers that the issues with this review are material. In the absence of a more appropriate and reliable means of determining Synergy's appropriate remuneration for the services it provides, Synergy recommends the ancillary services parameters currently in force remain so until these issues can be addressed. This work and other recent market behaviour also highlights several areas of concern with the WEM Rules that Synergy is intending to address through the formal rule change process.

Should you wish to discuss these matters further, please contact Oscar Carlberg, Policy Advisor, on [redacted] or [redacted].

Yours sincerely

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