

Determination of the Ancillary Service Margin Peak and Margin Off-Peak parameters for the 2016/17 financial year

31 March 2016

Economic Regulation Authority

WESTERN AUSTRALIA

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DETERMINATION

1. Pursuant to clause 3.13.3A of the *Wholesale Electricity Market Amending Rules (Market Rules)*, the Economic Regulation Authority (**Authority**) has determined the values for the Margin_Peak and Margin_Off-Peak parameters (**Margin Values**) for the 2016/17 financial year to be 24 per cent and 35 per cent, respectively.

REASONS

Background

2. The values for the Margin_Peak and Margin_Off-Peak parameters are used in the Ancillary Service settlement calculations under clause 9.9.2 of the Market Rules for the compensation of costs incurred by Synergy as the default provider of the Spinning Reserve Ancillary Service. Spinning reserve is reserve that is synchronised to the system that can respond almost immediately and provide frequency or voltage support for a short duration. These parameters reflect the margins applied to the Balancing Price in the settlement calculations of the availability costs to be paid to Synergy for the provision of Spinning Reserve Ancillary Services. The Market Rules also allow other generators to provide such services through an Ancillary Service Contract provided it is a less expensive alternative.¹
3. Under the Market Rules², the Australian Energy Market Operator (**AEMO**)³ must submit a proposal for the Margin Values to the Authority by 30 November of the year prior to the start of the financial year, and the Authority must determine the Margin Values for each financial year by 31 March, prior to the start of that financial year.⁴
4. The Market Rules require the Margin Values to take account of:
 - the margin Synergy could reasonably have been expected to earn on energy sales forgone due to the supply of Spinning Reserve Service; and
 - the loss in efficiency of Synergy's scheduled generators that System Management has scheduled to provide Spinning Reserve Service that could reasonably be expected due to the scheduling of those reserves.
5. In making the determination on the Margin Values, the Market Rules⁵ require the Authority to undertake a public consultation process and take into account the Wholesale Market Objectives and the proposal submitted by AEMO.

¹ Clause 3.11.8(b) of the Market Rules.

² Clause 3.13.3A(a).

³ Market operation functions were transferred from the Independent Market Operator to AEMO on 30 November 2015.

⁴ Required by clause 3.13.3A.

⁵ Clause 3.13.3A.

6. AEMO⁶ submitted its proposal on the Margin Values for the 2016/17 financial year on 27 November 2015.⁷ AEMO engaged Jacobs Group (Australia) Pty Ltd (**Jacobs**) to assist in deriving the Margin Values and provided the Authority with a confidential report prepared by Jacobs on the key modelling assumptions used in deriving the Margin Values.
7. The Margin Values proposal (with a public version of Jacobs' report as an attachment) is available on the Authority's website.⁸
8. The table below shows AEMO's proposed Margin Values for the 2016/17 financial year compared with those approved for 2015/16. The table also shows other parameters used in deriving the Margin Values.

Margin Values and other parameters used in deriving the Margin Values

Margin Values	Proposed 2016/17	Approved 2015/16
Margin Off-Peak (%)	35	51
Margin Peak (%)	24	36
Average Annual Spinning Reserve Capacity_Off-Peak (MW)	191.9	178.4
Average Annual Spinning Reserve Capacity_Peak (MW)	218.1	208.8
Estimated Annual Availability Cost (\$M)	10.55	8.32
System Marginal Price_Off-Peak (\$/MWh)	36.17	32.98
System Marginal Price_Peak (\$/MWh)	52.97	47.23

Public Consultation

9. The Authority must undertake a public consultation process, which must include publishing an issues paper and issuing an invitation for public submissions.⁹ On 31 December 2015, the Authority published a notice and an Issues Paper inviting public submissions on the Margin Values proposal. The period for public submissions closed on 1 February 2016. Submissions were received from Synergy and Community Electricity.
10. Synergy's submission noted that Jacobs' 2015/16 Margin Values report explicitly identifies the cost of providing Load Rejection Reserve services.¹⁰ However, the expected costs of providing Load Rejection Reserve was not specifically outlined in

⁶ Market operation functions were transferred from the Independent Market Operator to AEMO on 30 November 2015.

⁷ Jacobs' 2016/17 Margin Peak and Margin Off-Peak Review confidential final report (23 November 2015) is included as an attachment to AEMO's proposal of the Margin Values.

⁸ See ERA website, https://www.erawa.com.au/electricity/wholesale-electricity-market/determinations/ancillary-services-parameters/spinning-reserve-margin_peak-and-margin_off-peak

⁹ Required by clause 3.13.3A(b) of the Market Rules.

¹⁰ ERA website, 2015/16 Margin Peak and Margin Off-Peak Review Final Report – Public, 24 February 2015, p.31, [https://www.erawa.com.au/cproot/13378/2/Revised%20submission%20under%20Clause%203.13.3A\(a\)%20-%2025%20February%202015%20.PDF](https://www.erawa.com.au/cproot/13378/2/Revised%20submission%20under%20Clause%203.13.3A(a)%20-%2025%20February%202015%20.PDF)

Jacobs' 2016/17 Margin Values report and this should be included as per the 2015/16 report.

11. Community Electricity's submission noted that the Bluewaters and Simcoa Spinning Reserve contracts will expire on 30 June 2016 and sought clarification on why they are not continuing. Community Electricity also queried the forecast increase in the System Marginal Price.

Assessment

12. The Authority has assessed the proposed Margin Values against the factors set out in the Market Rules¹¹ by taking into account:
 - The Wholesale Market Objectives.
 - Whether the proposed values by AEMO reflect what Synergy could reasonably have been expected to earn on energy sales forgone due to the supply of Spinning Reserve Services; and the loss in efficiency of Synergy's scheduled generators that System Management has scheduled to provide Spinning Reserve Service that could reasonably be expected due to the scheduling of those reserves.
 - Issues raised in the public submissions.
13. The Authority has considered whether the proposed Margin Values are consistent with the Wholesale Market Objectives. The Authority notes that the calculations of Margin Values are based on Spinning Reserve being provided by Synergy's facilities or through Ancillary Service contracts. As noted in previous determinations, the Authority considers that this current arrangement may not produce an efficient outcome for the market as a whole, and that the introduction of a co-optimised energy and Ancillary Services market would better promote the Wholesale Market Objective under clause 1.2.1(b) of the Market Rules.¹²
14. Under a co-optimised energy and Ancillary Services market, separate markets would exist for each Ancillary Service as well as for energy. Market Participants would be able to offer their facilities into the markets in which they were willing and able to participate, and the co-optimisation process would use the offers received for the different markets to determine the optimal dispatch. The Authority acknowledges that the introduction of a co-optimised energy and Ancillary Services market is being considered by the Electricity Market Review which is currently underway.
15. The Authority has examined AEMO's proposed Margin Values for the 2016/17 financial year, and the supporting information including Jacobs' Margin Values assumptions report, Margin Values Final Report and Jacobs' model and results.
16. Consistent with previous years, in deriving the Margin Values, Jacobs estimated the availability cost that could reasonably be expected to be incurred by Synergy for providing Spinning Reserve for the 2016/17 financial year, by undertaking market simulations that compare the revenue and generation cost outcomes with and without Spinning Reserve provision.

¹¹ Clause 3.13.3A

¹² The Wholesale Market Objective under clause 1.2.1(b) is to encourage competition among generators and retailers in the South West Interconnected System, including by facilitating efficient entry of new competitors.

17. The difference in generation costs between the two cases addresses Synergy's loss in efficiency. Synergy's loss of revenue is calculated as the difference in Synergy's generation multiplied by the price from the simulation including reserve provision. As noted in Jacobs' report, the choice of price for this part of the calculation is important because if Synergy was not providing Spinning Reserve, some other party would have to. The price must therefore be the market price with Spinning Reserve requirements being met and energy demand being satisfied.
18. Consistent with last year's review, Jacobs has also taken into account the impact of Synergy being required to provide Load Rejection Reserve¹³ in addition to Spinning Reserve Ancillary Services. Jacobs considers there is an interaction cost effect between the cost of providing Spinning Reserve and the cost of providing Load Rejection Reserve, with the cost of providing both forms of reserve generally higher than the sum of providing each reserve separately. The difference between these two quantities has been labelled as the Interaction Cost. The availability cost of providing Spinning Reserve is the base availability cost¹⁴ plus the Interaction Cost. The Interaction Cost is allocated proportionally to Spinning Reserve and Load Rejection Reserve requirements.¹⁵
19. As set out in its determination last year, the Authority considers it reasonable to include the interaction cost effect in calculating the availability cost that could reasonably be expected to be incurred by Synergy for providing Spinning Reserve. These modifications serve to enhance the accuracy of Jacob's model and fulfil the requirements under the Market Rules.

Assumptions

20. The Authority notes that AEMO and Jacobs undertook the following measures to improve the quality of the modelling assumptions:
 - System Management reviewed Jacobs' draft assumptions report¹⁶ and provided feedback on the network modelling assumptions used in the study.
 - AEMO sought and received clarification from Western Power in relation to a change in the demand profile of a major load.
 - AEMO published a public version of the draft assumptions report¹⁷ which excluded confidential Market Generator assumptions, and invited stakeholders to either request a meeting to consult directly with AEMO and Jacobs or to provide written submissions on the report.

¹³ Load Rejection Reserve is the service of holding capacity associated with a Scheduled Generator or Dispatchable Load in reserve so that the Scheduled Generator can reduce output rapidly or the Dispatchable Load can increase consumption rapidly in response to a sudden decrease in SWIS load.

¹⁴ Base availability cost is the availability cost of providing Spinning Reserve only, with no provision of Load Rejection Reserve.

¹⁵ Jacobs' model determines a Spinning Reserve requirement for every interval. As Jacobs is apportioning a 'total cost' it is apportioned using the average of the Spinning Reserve requirement over all relevant intervals.

¹⁶ AEMO website, 2016/17 Margin Peak and Margin Off-Peak Review Assumptions Report – Public, 18 September 2015, <http://wa.aemo.com.au/docs/default-source/rules/other-wem-consultation-docs/assumptions-report--v1-3-public-clean.pdf?sfvrsn=0>

¹⁷ AEMO website, 2016/17 Margin Peak and Margin Off-Peak Review Assumptions Report – Public, 18 September 2015, <http://wa.aemo.com.au/docs/default-source/rules/other-wem-consultation-docs/assumptions-report--v1-3-public-clean.pdf?sfvrsn=0>

- AEMO requested feedback from Synergy in relation to a full extract of the key assumptions for their facilities. AEMO notes it received feedback from Synergy suggesting that the assumptions proposed were appropriate.
 - Jacobs used the feedback provided by stakeholders to update input assumptions.
21. Jacobs notes the key changes to input assumptions for the 2016/17 review include:
- Removal of the North Country node, as the completion of the Mid-West Energy Project has strengthened the northern section of the WEM and removed the transmission constraint that previously existed between the Muja node and the North Country node.
 - Relaxation of the synchronous stability constraints, which have increased the maximum Goldfields generation from 130 MW to 155 MW.
 - Removal of the Worsley cogeneration unit as it is being closed.
22. AEMO noted in its submission to the Authority that no requests for consultation or written submissions were received during the formal consultation period. One Market Generator requested a meeting after the end of the consultation period and subsequently provided AEMO with an update to an assumption in relation to a facility under its control.
23. Jacobs' Final Report stated that Summit Southern Cross Power provided a submission in response to the assumptions report. Summit Southern Cross Power advised its intention to activate the frequency response functionality of its NewGen Kwinana Combined Cycle Gas Turbine (**CCGT**) by 1 July 2016, noting the unit would therefore be capable of providing Spinning Reserve indirectly through its provision of Load Following Ancillary Service (**LFAS**). As a result, Jacobs counted NewGen Kwinana CCGT's LFAS provision towards the Spinning Reserve requirement in its Final Report.
24. Subsequent to AEMO submitting its Margin Values proposal and Jacobs' final report, AEMO advised the Authority that Summit Southern Cross Power had withdrawn its intention to activate the frequency response functionality of its NewGen Kwinana unit. As such, the assumption of the NewGen Kwinana CCGT contributing towards Spinning Reserve through its LFAS provision is no longer accurate.
25. In any case, the Authority notes that NewGen Kwinana's LFAS provision could only have been counted as contributing to Spinning Reserve if it had a contract in place with System Management, which was not the case. The Authority recommends in future that AEMO should seek confirmation first from System Management before changing any assumptions as a result of its public consultation.
26. The Authority has reviewed the input assumptions to Jacob's model and is satisfied that these are reasonable with the exception of its assumption that LFAS provided by NewGen Kwinana CCGT also contributed to the Spinning Reserve service. The impact of this incorrect assumption is discussed further below.
27. In the event that Synergy provides Spinning Reserve in excess of the levels assumed in the modelling, it will be paid for those additional spinning reserve services. The only concern therefore in relation to the incorrect inclusion of NewGen Kwinana in the modelling is the impact it may have on the Margin Values, i.e. the price Synergy is paid for each unit of Spinning Reserve provided.

28. The Authority has reviewed Jacobs' modelling to establish the level of NewGen Kwinana's LFAS provision it has calculated as contributing to Spinning Reserve and the potential impact of removing it. Jacobs' modelling shows NewGen Kwinana contributes to around 10 per cent of the total Spinning Reserve modelled for 2016/17. For more than half of this, sufficient surplus Spinning Reserve is available from other generators, and there would, therefore, be no change to the Margin Values if NewGen Kwinana was excluded from contributing to Spinning Reserve. In relation to the remaining instances (less than five per cent of total Spinning Reserve for 2016/17), the Authority does not consider the impact on the Margin Values would be material.
29. The Authority notes that, consistent with last year, the Cockburn CCGT facility has been disqualified from providing Spinning Reserve through its provision of Load Following Up service by System Management.¹⁸ This is due to technical limitations of this unit (i.e. timeliness of automatic generator control response or the ramp rate being too slow to provide Spinning Reserve). The IMO noted last year that, as the settlement system makes no distinction between qualifying and non-qualifying Load Following Up when calculating the quantity of Spinning Reserve for which Synergy is paid,¹⁹ this results in the settlement quantity for which Synergy is paid being too low.²⁰
30. To ensure Synergy is not underpaid, AEMO has adjusted the Margin Values to ensure Synergy receives the correct payment. While this approach ensures that Synergy is correctly compensated, the Authority considers it is unsatisfactory for the long term as it understates the actual Spinning Reserve provided by Synergy and overstates the Margin Values. However, the Authority notes the impact on the Margin Values is minor (less than one per cent). The Authority notes that AEMO identified options to address this issue for the longer term at the Market Advisory Committee meeting on 18 March 2014, and will explore these options after the outcomes of the Electricity Market Review are known.
31. The Authority notes that Jacobs has included 50% of the fixed cost component of the gas transport cost in the marginal costs for gas-fired generators in its dispatch modelling. This approach is consistent with modelling assumptions used in previous years. However, as noted in its last two Margin Values determinations, it is not clear to the Authority why any element of the fixed cost has been included in formulating the marginal cost for gas-fired generators. The Authority requested that AEMO address this issue for this review. Jacobs reviewed this particular assumption this year at the request of AEMO and concludes that it is still an appropriate assumption. Jacobs has detailed its reasoning in the confidential version of its Final Report.
32. The Authority considers dispatch modelling should generally be based on marginal costs. However, as the gas transport costs form only a very small element of total cost for a limited number of generators, the Authority does not consider that inclusion of these costs has had a material impact.

¹⁸ Clause 2.2.13 of the Power System Operation Procedure: Ancillary Services provides that System Management may revise from time to time the quantity of Spinning Reserve that a Scheduled Generator, Dispatchable Load or Interruptible Load is certified to provide based on the Facilities response to actual system events and, or changes to standing data or control system settings.

¹⁹ The settlement system assumes that all Load Following Up capacity is considered to be Spinning Reserve and deducts that capacity from the quantity paid for Spinning Reserve. This is reflected in Clause 3.10.2 and clause 9.9.2 of the Market Rules.

²⁰ The Margin Values are applied to the Balancing Price in the settlement calculation of the availability cost to be paid to Synergy for Spinning Reserve provision.

33. The Authority notes that Jacobs' Margin Values report for 2014/15 included a back-casting exercise which compared previous modelled outcomes with actual results. AEMO advised that this exercise was not conducted for this year's review due to significant methodological changes last year, such that the applicability of any back-casting findings based on earlier periods to future reviews would be questionable. Although not required by the Market Rules, the Authority considers AEMO should undertake a back-casting exercise next year to demonstrate the robustness of the modelling.

Public Submissions

34. Synergy considers that the modelled cost of Load Rejection should also be reported in Jacobs' Margin Values report. This is because the methodology used by Jacobs to model the cost of Spinning Reserve explicitly takes into account of the cost of Load Rejection. The Authority concurs with Synergy's view and considers that including details of the cost of Load Rejection in the report is necessary to enable a proper understanding of the results of the modelling and improve transparency.
35. In relation to Community Electricity's concern regarding the termination of the Simcoa and Bluewater Spinning Reserve contracts, the Authority notes these contracts expire on 30 June 2016. The Market Rules provide that System Management may contract with alternate providers where this provides a less expensive alternative than Synergy in providing Spinning Reserve services.²¹ The Authority agrees that System Management should give consideration to contracts with other parties where possible to reduce the cost of Spinning Reserve services. However, the Authority acknowledges that success in procuring such contracts will depend on the progression of the Electricity Market Review and any potential changes to Ancillary Services procurement.²²
36. In relation to the forecast system marginal price increases, the Authority notes the closure of Worsley co-generation unit will impact on prices. The Authority considers a back-casting exercise next year is necessary to validate the accuracy of the model in relation to forecast system marginal prices.

CONCLUSION

37. The Authority is satisfied that in proposing the Margin Values, AEMO has taken into account:
- the margin Synergy could reasonably have been expected to earn on energy sales forgone due to the supply of Spinning Reserve Service; and
 - the loss in efficiency of Synergy's scheduled generators that System Management has scheduled to provide Spinning Reserve Service that could reasonably be expected due to the scheduling of those reserves.
38. Based on the assessment provided above, the Authority determines that the values for the Margin_Peak and Margin_Off-Peak parameters for the 2016/17 financial year are 24 per cent and 35 per cent, respectively.

²¹ Clause 3.11.8 of the Market Rules.

²² AEMO website, Ancillary Services Report 2015, Western Power, 12 August 2015, p.19, <http://wa.aemo.com.au/docs/default-source/System-Management-Reports/final-2015-ancillary-services-report-for-imo-website.pdf?sfvrsn=0>