Wholesale Electricity Market Rule Change Proposal Submission

RC_2019_03
Draft Rule Change Report: Method used for the assignment of Certified Reserve Capacity to Intermittent Generators

Submitted by

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Submissions on Rule Change Proposals can be sent by:

Email to: support@rcpwa.com.au

Post to: Rule Change Panel
Attn: Executive Officer
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Collgar Wind Farm (Collgar) appreciates the opportunity to comment on this Rule Change Proposal. In general, Collgar supports the proposed approach and believes it best meets the Wholesale Electricity Market (WEM) Objectives compared to the current Relevant Level Method (RLM) and method proposed by the Economic Regulation Authority (ERA).

1. Please provide your views on the proposal, including any objections or suggested revisions.

Collgar agrees with the Rule Change Panel's (RCP) assessment of the deficiencies in the existing RLM and therefore supports using a different approach to assign Certified Reserve Capacity (CRC) to intermittent generators.

Collgar supports an approach that values the capacity contribution of an intermittent facility based on its Effective Load Carrying Capability (ELCC), noting the benefits of this approach as outlined in the Draft Rule Change Report. It is also encouraging to see that other Market Participants support the use of an ELCC-based method, and that such methods are widely used in other jurisdictions.

Comparison of the ERA and Delta Methods

Collgar prefers the Delta Method compared to the ERA's method because it is best aligned with the purpose of the Reserve Capacity Mechanism (RCM). This is because it:

- values generators within the fleet by taking into account the correlation of their generation with other intermittent facilities to more accurately value the contribution of an individual facility to meet demand in periods of highest system stress; and
- provides appropriate locational price signals for investment, facilitating efficient entry to the market and decreasing costs for all Market Participants.

Collgar also notes that the world's largest energy capacity market, PJM, is working to implement the Delta Method.

Collgar supports adjusting for the contribution from Distributed Energy Resources (DER) prior to calculating the ELCC because this best reflects operational demand for which the RCM is procuring.

Allocation of Facility ELCC

Collgar supports the Delta Method's approach to allocating the ELCC to individual facilities.

There can be differences in performance of intermittent facilities across the network, as identified by the RCP and AEMO.[1] Collgar supports the RCP's view that, given varying weather conditions between regions, it is inappropriate to assume that conditions in different locations would be similar at a period of high system stress.

In general, facilities in the north have a higher capacity factor, in part due to different weather conditions. However, the value of the combined fleet of the northern facilities is lower than the sum of their individual contributions due to their output being highly correlated. This correlation increases the risk that a high proportion of the wind fleet is unavailable at a peak period where there is high system stress.

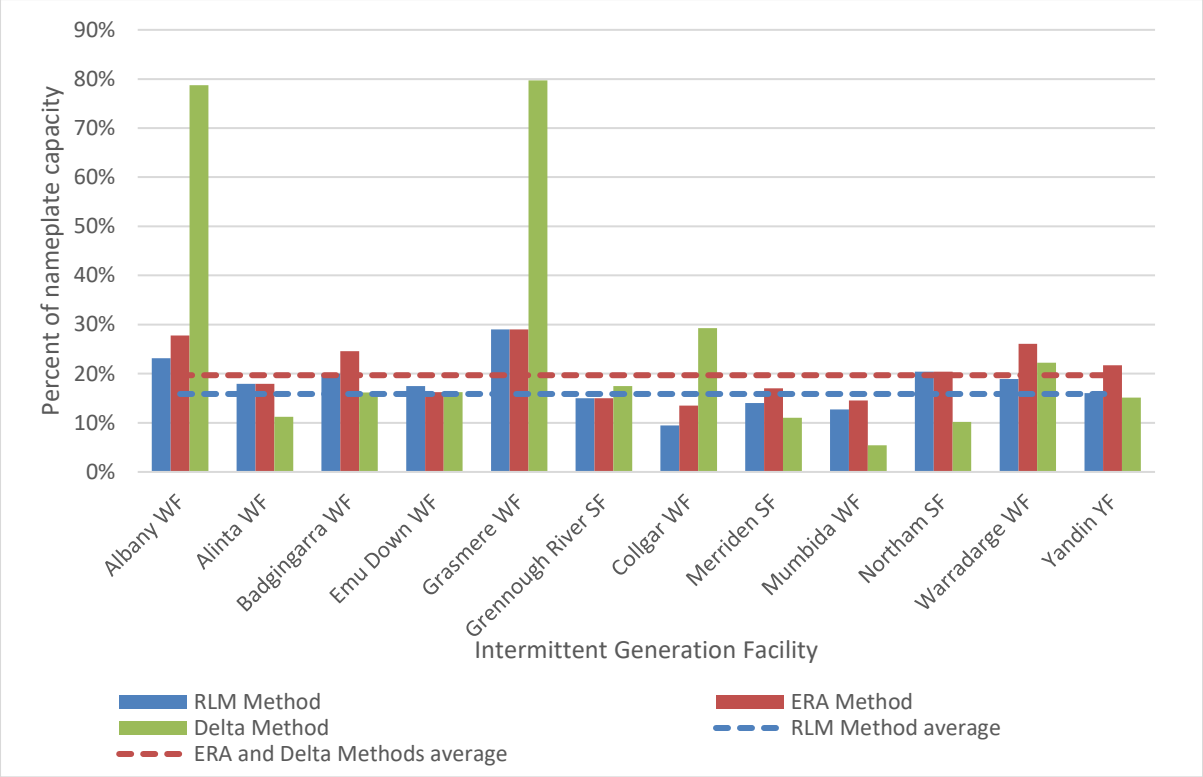
Collgar supports that the Delta Method calculation includes the correlation of intermittent facilities' output to reflect the value of an individual facility.

Figure 1 shows lower values assigned to facilities that are co-located on the network and therefore have a greater correlation in output.[2] A higher value is assigned to facilities that have complementary resource profiles that support system reliability.

[1] Rule Change Panel, 2021, *RC_2019_03 Draft Rule Change Report*, https://www.erawa.com.au/cproot/21873/2/RC_2019_03-Draft-Rule-Change-Report.pdf; Australian Energy Market Operator, 2021, *Submission to RC_2019_03*, https://www.erawa.com.au/cproot/21771/2/RC_2019_03----P1-Submission----AEMO.pdf

[2] For example, the colocation of several windfarms in the north of the network decreases aggregate contribution of these facilities to meet demand in periods of high system stress, and this should be reflected in the assignment of CRC (as occurs in the Delta Method).

Figure 1: Allocation of Certified Reserve Capacity to Wind and Solar Facilities



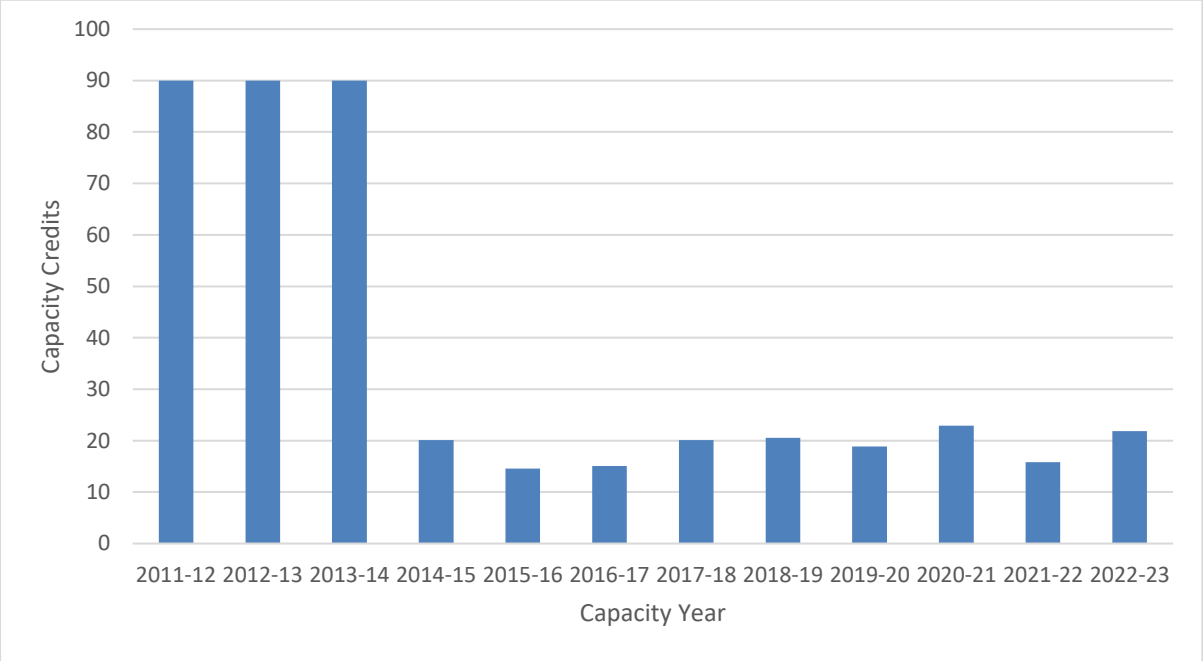
Source: Collgar, using data from the RCP[3] and AEMO[4]

Collgar notes that it would benefit from an increase in CRC under the Delta Method. However, this reflects its higher value contribution due to its location and hence generation being less correlated with the rest of the intermittent generation fleet. This is demonstrated by the RCP[5], where an additional 206MW wind farm in the east adds more than 50MW to the Fleet ELCC, while the addition of a larger 214MW wind farm in the north only marginally increases the Fleet ELCC. The allocation of CRC to each of these new facilities must reflect their contribution to the ELCC, as is achieved with the Delta Method.

Due to the application of the flawed RLM, Collgar has received very low Capacity Credits over nine years, representing nearly one-third of its economic life (Figure 2). Collgar was allocated 21.847 Capacity Credits in the 2020 capacity cycle, representing just 9.8 per cent of its 222MW nameplate capacity. In contrast, the average allocation for wind and solar generation facilities was 17 per cent, with some facilities receiving as high as 29 per cent of their nameplate capacity (Figure 1).

[3] Rule Change Panel, 2021, *RC_2019_03 Draft Rule Change Report*, p. 46, Figure 5, https://www.erawa.com.au/cproot/21873/2/RC_2019_03-Draft-Rule-Change-Report.pdf
[4] Australian Energy Market Operator, 2021, *Facilities*, http://data.wa.aemo.com.au/#facilities
[5] Rule Change Panel, 2021, *RC_2019_03 Draft Rule Change Report*, p. 64, Figure 11, https://www.erawa.com.au/cproot/21873/2/RC_2019_03-Draft-Rule-Change-Report.pdf

Figure 2: Historical allocation of Capacity Credits to Collgar



Source: AEMO[6]

The Delta Method sends appropriate investment signals about the location of new facilities to support generation diversity across the network. The absence of these signals decreases the value the entire intermittent fleet provides to the market and therefore decreases the contribution to system reliability.

Using the ERA's method would be inconsistent with the design principles of capacity credit rights, as outlined by the Energy Transformation Taskforce (Taskforce): 'The design of the Capacity Credit Rights regime… provides locations signals to new entrants so they can make informed decisions about risk and opportunity'.[7]

Muted locational price signals pose an unhedgeable risk[8] for incumbent generators by not sufficiently incentivising new generators to locate on other areas of the network. This also risks an increase in costs paid by all Market Participants due to increased system costs (for example, locational ESS or Uplift Payments) or network augmentation.

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[6] Australian Energy Market Operator, 2020, *Assignment of Capacity Credits*, https://aemo.com.au/en/energy-systems/electricity/wholesale-electricity-market-wem/wa-reserve-capacity-mechanism/assignment-of-capacity-credits

[7] Energy Transformation Taskforce, 2019, *Allocation of Capacity Credits in a constrained network: Design proposal*, p. 12, https://www.wa.gov.au/sites/default/files/2019-10/Allocation%20of%20Capacity%20Credits%20in%20a%20constrained%20network%20-%20Design%20Proposal.pdf

[8] This risk manifests not only in assignment of capacity credits (for future facilities without NAQ) but also in real-time dispatch due to the increased risk of being subject to a network constraint.

2. Please provide an assessment whether the change will better facilitate the achievement of the Wholesale Market Objectives.

Collgar agrees with the RCP's assessment that a calculation method based on ELCC best meets the WEM Objectives compared to the existing RLM.

Collgar believes the Delta Method better meets the WEM Objectives compared to the ERA's method. The Delta Method promotes economically efficient market entry and electricity generation by providing clear price signals for investment in diverse generation technologies across the network. This will improve reliability by minimising concentration of generators in a single location and decreasing costs (including ESS costs and Uplift Payments, and potential network augmentations). Improved reliability and lower generation costs are in the long-term interest of customers.

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3. Please indicate if the proposed change will have any implications for your organisation (for example changes to your IT or business systems) and any costs involved in implementing these changes.

Collgar does not anticipate any material costs to implement a new method to assign CRC.

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4. Please indicate the time required for your organisation to implement the change, should it be accepted as proposed.

Collgar can implement the change immediately.

Collgar agrees with submissions from other Market Participants that this proposal should be implemented immediately. This will allow for it to be used to allocate CRC for the 2021 Capacity Cycle.

Given the widely acknowledged deficiencies of the RLM, it would not be appropriate to use the RLM for the allocation of CRC in the 2021 Cycle, particularly given it will allocate Network Access Quantities (NAQ) for incumbent generators. If the RLM is to be used for allocation of NAQ, it would embed the effects of the substantially-flawed RLM in the allocation of CRC for the coming decades. This would have unacceptable implications for the achievement of the WEM Objectives, not be consistent with the reforms undertaken by the Taskforce, add to costs borne by all Market Participants, increase system reliability risk and therefore not be in the long-term interest of consumers.
