

# Request for Expressions of Interest for the 2022 Reserve Capacity Cycle

10 January 2022

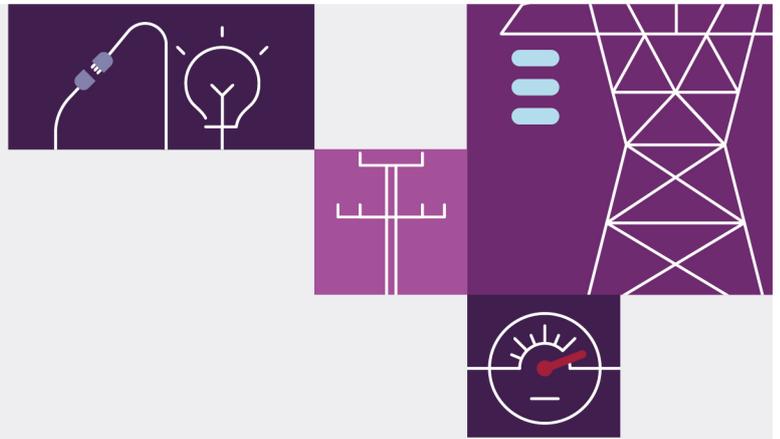
A report for the Wholesale Electricity Market



**AEMO**

AUSTRALIAN ENERGY MARKET OPERATOR





# Important notice

## Purpose

The Australian Energy Market Operator (AEMO) has prepared this Request for Expressions of Interest (REOI) under sections 4.2 and 4.3 of the Wholesale Electricity Market Rules (WEM Rules). The purpose of the REOI is to invite existing and new Market Participants to notify AEMO of the amount of new Energy Producing System and Demand Side Management capacity they intend to make available as Reserve Capacity in the South West interconnected system (SWIS) in the Capacity Year to which the REOI relates.

## Disclaimer

This document or the information in it may be subsequently updated or amended. This document does not constitute legal or business advice and should not be relied on as a substitute for obtaining detailed advice about the Wholesale Electricity Market (WEM), the WEM Rules and the Reserve Capacity Mechanism in Western Australia, or any other applicable laws, procedures or policies. AEMO has made every effort to ensure the quality of the information in this document but cannot guarantee its accuracy or completeness.

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## Version control

Version	Release date	Changes
1	10/1/2022	

# Executive summary

This 2022 *Request for Expressions of Interest* (REOI) invites existing and new Market Participants to provide information to AEMO regarding capacity (new Energy Producing Systems and/or Demand Side Management [DSM] capacity) they intend to make available as Reserve Capacity in the South West interconnected system (SWIS) in the 2024-25 Capacity Year<sup>1</sup>.

A proponent must submit an Expression of Interest (EOI) as a condition of being eligible to seek certification of Reserve Capacity under section 4.8 of the Wholesale Electricity Market Rules (WEM Rules) for any new capacity, which includes an upgrade of a Facility, in the 2022 Reserve Capacity Cycle for the 2024-25 Capacity Year.

The Network Access Quantity (NAQ) framework will commence in the 2022 Reserve Capacity Cycle, which has introduced changes to the 2022 EOI process<sup>2</sup>. If a Market Participant intends to nominate a new Facility or Facility upgrade to be classified as a Network Augmentation Funding Facility (NAFF) in its application for Certified Reserve Capacity (CRC), the Market Participant must first make such a nomination in the EOI. AEMO is required to provide EOI submission details to the relevant Network Operator to assist them in preparing the RCM Limit Advice. AEMO will use the RCM Limit Advice to develop the RCM Constraint Equations for application in the NAQ model to determine each Facility's NAQ for the relevant Reserve Capacity Cycle.

EOIs, including all supporting documentation, must be submitted to AEMO **by 5:00 PM (Australian Western Standard Time [AWST]) on 24 February 2022**<sup>3</sup>.

In addition to submitting an EOI, proponents are encouraged to engage with AEMO to understand the various aspects of the Reserve Capacity Mechanism (RCM), and to commence processes required in a timely manner to secure all necessary approvals. AEMO encourages engagement regarding network access requirements, which are critical to the assignment of CRC.

The RCM ensures sufficient capacity is available to meet future peak demand, plus a reserve margin. An important part of this process is to forecast peak demand for the relevant Capacity Year. For the 2024-25 Capacity Year, the total capacity required to meet the forecast peak demand, plus a reserve margin, is determined through the 2022 Long Term Projected Assessment of System Adequacy (PASA). This will be published in the next WEM Electricity Statement of Opportunities (ESOO) on or before 17 June 2022.

The preliminary Reserve Capacity Requirement (RCR)<sup>4</sup> for the 2024-25 Capacity Year is 4,409 megawatts (MW)<sup>5</sup> based on the 2021 WEM ESOO forecasts. It is estimated that there will be 125 MW of excess capacity for the 2024-25 Capacity Year. This assumes the quantity of Capacity Credits assigned for the 2022-23 Capacity Year remains unchanged and is inclusive of any Facility retirements at 4,534 MW<sup>6</sup>. Based on previous Reserve Capacity Cycles, AEMO expects the entire 4,534 MW of assigned Capacity Credits to be bilaterally traded.

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<sup>1</sup> The 2024-25 Capacity Year is for capacity available on Trading Days from 1 October 2024 to 1 October 2025.

<sup>2</sup> See Section 2 of this document for further information.

<sup>3</sup> Section 1.36B of the WEM Rules modifies the date and time specified in clause 4.1.5 of the WEM Rules for the 2022 Reserve Capacity Cycle.

<sup>4</sup> The preliminary RCR is determined in accordance with clause 4.6.3 of the WEM Rules.

<sup>5</sup> Key references for data in this document can be found in Appendix A2, "References, measures and abbreviations".

<sup>6</sup> Assignment of Capacity Credits since the commencement of the WEM in 2006 is available at <https://www.aemo.com.au/Electricity/Wholesale-Electricity-Market-WEM/Reserve-capacity-mechanism/Assignment-of-capacity-credits>. The

The assignment of Capacity Credits for the 2023-24 and 2024-25 Capacity Years is expected to be finalised in April 2022 and December 2022 respectively. The latest information on the capacity available in the SWIS is from the Capacity Credits assignment for the 2020 Reserve Capacity Cycle (for the 2022-23 Capacity Year)<sup>7</sup>.

This REOI includes information about the three previous Reserve Capacity Cycles (for the 2021-22 and 2022-23 Capacity Year and, to the extent applicable, for the 2023-24 Capacity Year)<sup>8</sup>.

For information on any aspect of the RCM, proponents are encouraged to contact Reserve Capacity (WA) at [wa.capacity@aemo.com.au](mailto:wa.capacity@aemo.com.au).

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total quantity of Capacity Credits assigned for the 2022-23 Capacity Year was reduced due to the retirement of Kwinana Cogeneration Plant (80.4 MW) that was previously assigned Capacity Credits and the anticipated retirement of Muja C unit 6 (193 MW).

<sup>7</sup> See <https://aemo.com.au/energy-systems/electricity/wholesale-electricity-market-wem/wa-reserve-capacity-mechanism/assignment-of-capacity-credits>.

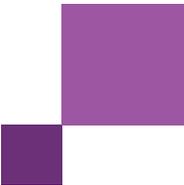
<sup>8</sup> Section 1.36A of the WEM Rules provides for a modified timetable with respect to the 2021 Reserve Capacity Cycle (for the 2023-24 Capacity Year). Based on that modified timetable, some of the information specified in clause 4.3.1(c) is not available for the 2023-24 Capacity Year yet.

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# 1 Introduction

This *Request for Expressions of Interest (REOI)* relates to the Wholesale Electricity Market (WEM), which operates in the South West interconnected system (SWIS). The SWIS covers the south-west of Western Australia (WA), extending north to Kalbarri, south to Albany, and east to Kalgoorlie, as shown in Figure 1.

All data in this section is presented in Capacity Years unless otherwise specified.

**Figure 1** Map of the SWIS



## 1.1 Reserve Capacity Mechanism

The SWIS is an isolated system with a high summer peak demand relative to the average load. The WEM features a capacity market called the Reserve Capacity Mechanism (RCM) to ensure sufficient Energy Producing Systems and Demand Side Management (DSM) capacity is available to meet future peak demand in the SWIS.

The RCM is built around the concept of a 'Capacity Credit', a notional unit of capacity that can be traded via bilateral contracts among Market Participants, and between Market Participants and AEMO. Capacity Credits are assigned to Energy Producing Systems and Demand Side Programmes (DSPs), and are valid

for a single Capacity Year<sup>9</sup>. Any Energy Producing System and Demand Side Management (DSM) capacity, regardless of technology type, that can meet the timelines and requirements outlined in the Wholesale Electricity Market Rules (WEM Rules)<sup>10</sup> may participate in the RCM.

Under the WEM Rules, obligations are imposed on Capacity Credit holders in return for receiving payments for Capacity Credits. The most significant obligation is that capacity must be offered into the WEM at all times, unless the Facility is subject to an approved Planned Outage. If this obligation is not met, the Capacity Credit holder is required to pay a Reserve Capacity refund to AEMO, which is redistributed to other Market Participants under the WEM Rules.

Market Customers must purchase Capacity Credits based on their consumption at system peak times in the previous year, through the Individual Reserve Capacity Requirement. Market Customers can purchase Capacity Credits either through bilateral contracts with capacity providers or through AEMO at the administered Reserve Capacity Price (RCP).

Each year, AEMO forecasts the Reserve Capacity Target (RCT)<sup>11</sup> required to meet forecast peak demand while ensuring system reliability criteria are met for the following 10 years. This RCT is determined based on the peak demand forecast of 'one-in-10-year' conditions<sup>12</sup> or 10% probability of exceedance (POE)<sup>13</sup>, plus a margin to cover any unplanned Facility outages and provide frequency stability.

A summary timeline for the process of the 2022 Reserve Capacity Cycle is shown in Figure 2.

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<sup>9</sup> A Capacity Year is defined in Chapter 11 (Glossary) of the WEM Rules as a period of 12 months commencing at the start of the Trading Day which commences on 1 October and ending on the end of the Trading Day ending on 1 October of the following calendar year.

<sup>10</sup> Available at <https://www.wa.gov.au/government/document-collections/wholesale-electricity-market-rules>.

<sup>11</sup> AEMO's estimate of the total amount of generation or DSM capacity required in the SWIS to satisfy the Planning Criterion.

<sup>12</sup> One-in-10-year demand conditions are a common benchmark in electricity markets when considering reserve margin levels. They are used in the National Electricity Market as well as in major US electricity markets, such as those operated by PJM (regional transmission organisation for all or parts of 13 states and the District of Columbia), the New York Independent System Operator, and the New England Independent System Operator.

<sup>13</sup> POE means the likelihood a peak demand forecast will be met or exceeded. A 10% POE peak demand forecast is expected to be exceeded, on average, only one year in 10. A 10% POE forecast assumes more extreme weather.

Figure 2 Timeline for bringing new capacity to the SWIS for the 2024-25 Capacity Year



## 1.2 Existing energy producing and DSM capacity

The number of Market Participants participating in the WEM has more than tripled since the commencement of the WEM in 2006<sup>14</sup>.

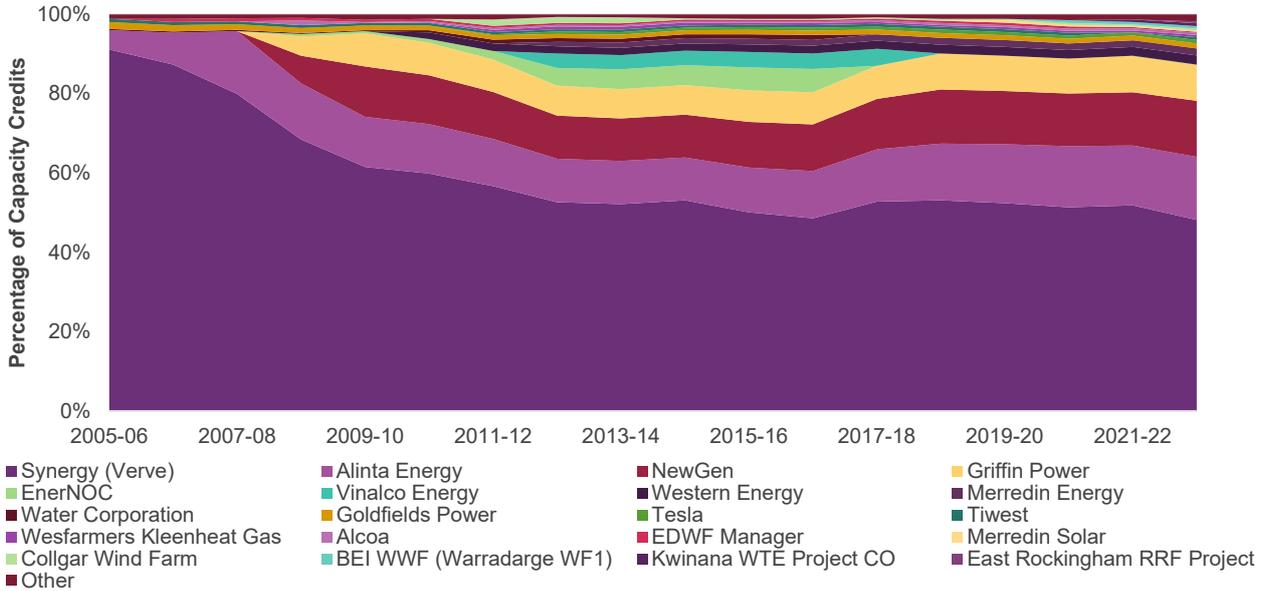
The proportion of capacity of the total SWIS capacity provided by Synergy<sup>15</sup> has fallen from 91% in the 2005-06 Capacity Year to 48% in the 2022-23 Capacity Year, as shown in Figure 3.

With the retirement of Muja C unit 5 and Kwinana Cogeneration Plant, Synergy's share of Capacity Credits reduced by 7.1% compared to the 2021-22 Capacity Year. TiWest Cogeneration was assigned Capacity Credits in the 2022-23 Capacity Year (0.8% of total capacity), and the East Rockingham waste-to-energy Facility was assigned Capacity Credits equivalent to 0.5%. For the remaining Market Participants, Capacity Credits have been maintained at about similar quantities in the 2022-23 Capacity Year compared to the previous Capacity Year.

<sup>14</sup> See <https://aemo.com.au/en/energy-systems/electricity/wholesale-electricity-market-wem/wa-reserve-capacity-mechanism/assignment-of-capacity-credits>.

<sup>15</sup> This includes the generation capacity previously provided by Verve Energy and DSM capacity provided by Synergy. The two entities merged on 1 January 2014.

**Figure 3 Proportion of Capacity Credits by Market Participant, 2005-06 to 2022-23 Capacity Years<sup>A</sup>**



A. Capacity Credits since the commencement of the WEM in 2006 up to 2022-23 are available at <https://www.aemo.com.au/Electricity/Wholesale-Electricity-Market-WEM/Reserve-capacity-mechanism/Assignment-of-capacity-credits>.

### 1.3 Future electricity demand and supply-demand balance

The historically assigned Capacity Credits and the forecast RCT are shown in Figure 4. Excess capacity is expected to decrease from 7.5%<sup>16</sup> for the 2023-24 Capacity Year to 2.8% for the 2024-25 Capacity Year. This is a result of the scheduled retirement of 193 MW of generation capacity for the 2024-25 Capacity Year.

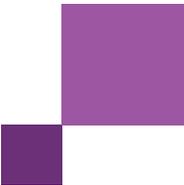
Figure 4 also shows that the Reserve Capacity Requirement (RCR) decreased between the 2022-23 and 2023-24 Capacity Years. The decrease is attributed to a lower 10% POE peak demand forecast in the 2021 WEM Electricity Statement of Opportunities (ESOO)<sup>17</sup>.

The estimated preliminary RCR for the 2024-25 Capacity Year is 4,409 MW, as reported in the 2021 WEM ESOO<sup>18</sup>.

<sup>16</sup> Adjusted to reflect the retirement of Kwinana Cogeneration Plant from 1 December 2021.

<sup>17</sup> See chapter 5 of the 2021 WEM ESOO for further information, at [https://www.aemo.com.au/-/media/files/electricity/wem/planning\\_and\\_forecasting/esoo/2021/2021-wholesale-electricity-market-electricity-statement-of-opportunities.pdf](https://www.aemo.com.au/-/media/files/electricity/wem/planning_and_forecasting/esoo/2021/2021-wholesale-electricity-market-electricity-statement-of-opportunities.pdf).

<sup>18</sup> The preliminary RCR is determined in accordance with clause 4.6.3 of the WEM Rules.



**Figure 4 Assigned Capacity Credits<sup>A</sup> and the RCR<sup>B</sup>, 2007-08 to 2024-25**



A. Included in accordance with clause 4.3.1(c)(iv) of the WEM Rules.  
 B. Included in accordance with clause 4.3.1(c)(i) of the WEM Rules.

Approximately 4,534 MW of capacity is expected to be in service for the 2024-25 Capacity Year, including 4,448 MW<sup>19</sup> of energy producing capacity and 86 MW of DSM capacity. This follows the retirement of:

- Kwinana Cogeneration Plant from 1 December 2021 (80.4 MW of Capacity Credits assigned for the 2022-23 Capacity Year and 116 MW nameplate capacity).
- Muja C unit 6 from 1 October 2024 (193 MW of Capacity Credits assigned for the 2022-23 Capacity Year and 193.6 MW nameplate capacity).

Assuming there are no changes to the current quantity of installed and committed capacity, and considering the Facility retirements mentioned above, excess capacity is forecast at 125 MW for the 2024-25 Capacity Year (2.8% of the preliminary RCR), which indicates no additional capacity is expected to be required from new Facilities<sup>20</sup>.

However, the excess capacity quantity is likely to differ from the preliminary value, due to changes in forecast electricity demand, new Energy Producing Systems and DSM capacity being considered, and retirements of Facilities assigned with Capacity Credits.

Both the historical and the 10% POE forecast peak demand for different demand growth scenarios are shown in Figure 5. The low, expected, and high scenarios reflect different economic growth forecasts, as well as changes in distributed energy resources (DER)<sup>21</sup> assumptions. In accordance with clause 4.5.9 of the WEM Rules, 10% POE peak demand is forecast to grow around 0.2% per annum under the expected demand growth scenario, from 3,917 MW in the 2021-22 Capacity Year to 4,000 MW in the 2030-31 Capacity Year.

<sup>19</sup> Expected to be traded bilaterally in accordance with clause 4.3.1(d) of the WEM Rules.

<sup>20</sup> In accordance with clause 4.3.1(e) of the WEM Rules.

<sup>21</sup> DER means small-scale embedded technologies including behind-the-meter photovoltaic, battery storage, and electric vehicles.

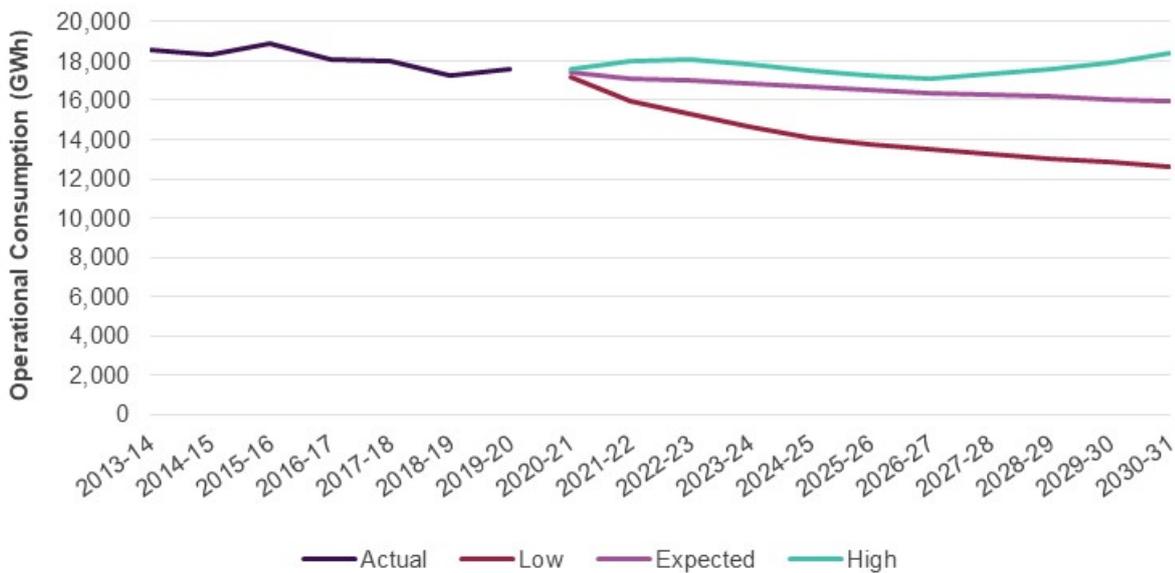
**Figure 5** 10% POE forecast peak demand under different demand growth scenarios and compared to actuals, 2013-14 to 2030-31 Capacity Year



Source: 2021 WEM ESOO.

The operational consumption forecasts under different demand growth scenarios are presented in Figure 6. The 2021 WEM ESOO forecasts suggest that operational consumption supplied by the SWIS in the expected demand scenario will decrease by 0.8% between the 2021-22 Capacity Year and the 2030-31 Capacity Year, from 17,127 gigawatt hours (GWh) in the 2021-22 Capacity Year to 15,987 GWh in the 2030-31 Capacity Year. The operational consumption is forecast to be 16,667 GWh in the 2024-25 Capacity Year.

**Figure 6** Operational consumption<sup>A</sup> forecasts under different demand growth scenarios



A. Operational consumption refers to electricity used over a period of time that is supplied by the transmission grid.  
Source: 2021 WEM ESOO.

## 1.4 Capacity Credit payment

Information on the RCP signals can be found on Energy Policy WA's website<sup>22</sup>.

Table 1 outlines the Benchmark Reserve Capacity Prices (BRCP)<sup>23</sup>, the RCPs, the Facility Monthly Reserve Capacity Prices, and the corresponding quantities of Capacity Credits for the previous Capacity Years, where available. There are no Fixed Price Facilities for the 2021-22 and 2022-23 Capacity Years.

**Table 1** BRCPs<sup>A</sup>, RCPs<sup>B</sup> and Facility Monthly Reserve Capacity Price<sup>C</sup> in the WEM

Capacity Year	BRCP (\$/MW/year)	RCP (\$/MW/year)	Facility Monthly Reserve Capacity Price (\$/MW/month)	Capacity Credits assigned (MW)	Transitional RCP (\$/MW/year)	Transitional Monthly Reserve Capacity Price (\$/MW/month)	Capacity Credits assigned (MW)
2018-19	\$159,800	\$138,760.39	\$11,563.37				
2019-20	\$149,800	\$126,683.47	\$10,556.96				
2020-21	\$153,600	\$114,134.15	\$9,511.18	4,965.551			
2021-22	\$154,200	\$78,573.33	\$6,547.78	117.500	\$114,000.00	\$9,500	4,716.947
2022-23	\$141,900	\$85,294.19	\$7,107.85	144.134	\$115,425.00	\$9,619	4,663.103
2023-24	\$151,700			To be determined			
2024-25	\$165,700			To be determined			

A. Included in accordance with clauses 4.3.1(c)(v) and 4.3.1(f) of the WEM Rules.

B. Included in accordance with clause 4.3.1(c)(vi) of the WEM Rules.

C. Included in accordance with clause 4.3.1(c)(vii) of the WEM Rules.

<sup>22</sup> Improving Reserve Capacity Pricing Signals, at <https://www.wa.gov.au/government/document-collections/improving-reserve-capacity-pricing-signals>.

<sup>23</sup> From 1 July 2021, the Economic Regulation Authority (ERA) must determine the value of the BRCP consistent with the method specified in the WEM Rules. The ERA has determined the 2022 BRCP, applicable to the 2024-25 Capacity Year, to be \$165,700 MW/ year, see: <https://www.erawa.com.au/electricity/wholesale-electricity-market/annual-price-setting/benchmark-reserve-capacity-price>.

## 2 Key CRC requirements

AEMO undertakes an annual certification process to assess and certify the level of Reserve Capacity that an existing Facility, a new Facility, or an upgrade of an existing Facility will be able to deliver to the SWIS by 1 October, at the latest, in the Capacity Year it is due to start operating.

All Market Participants (new and existing) wishing to receive Capacity Credits must apply for certification of their Facilities during the CRC application window. The principles applied by AEMO when assessing the quantity of CRC to be assigned to a Facility are outlined in clause 4.11.1 of the WEM Rules.

The Network Access Quantity (NAQ) framework<sup>24</sup> will commence as part of the 2022 Reserve Capacity Cycle. The NAQ framework<sup>25</sup> serves two purposes:

- It establishes a process for determining network capacity at peak demand periods. The NAQ, calculated in MW, represents AEMO's forecast of a Facility's network access level.
- It provides investment certainty for capacity providers who contribute to the reliability of the system, by establishing a priority order for the assignment of NAQ to Facilities. In any given year, existing Facilities will be assessed for and assigned NAQ ahead of new Facilities, with new Facilities receiving NAQ up to the residual capacity of the network.

The quantity of Capacity Credits assigned to a Facility is equal to the sum of the NAQ and the CC Uplift Quantity, where applicable, as determined in accordance with clause 4.20.5B of the WEM Rules<sup>26</sup>. Capacity Credits are assigned in accordance with clause 4.20.5A of the WEM Rules<sup>27</sup>.

An existing or a new Market Participant may apply to AEMO for CRC for the 2024-25 Capacity Year and must refer to the dates prescribed in the Reserve Capacity timetable published on the AEMO website<sup>28</sup> for the latest information. To be eligible for CRC, new Facilities must be capable of meeting Reserve Capacity Obligations by no later than 1 October 2024 for the 2024-25 Capacity Year.

Sections 4.9 to 4.11 of the WEM Rules describe the CRC application process and the process for determining the quantity of CRC to be assigned to Facilities. Information that must be provided for the CRC application process<sup>29</sup> is listed in clause 4.10.1 of the WEM Rules and the WEM Procedure: Certification of Reserve Capacity<sup>30</sup>.

Details of changes in the EOI process and the introduction of a new Network Augmentation Funding Facility (NAFF) concept as a result of implementing the NAQ framework are provided in the sections below. These

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<sup>24</sup> See <https://www.wa.gov.au/system/files/2021-05/Information%20Paper%20Reserve%20Capacity%20Mechanism%20-%20Changes%20to%20support%20the%20implementation%20of%20constrained%20access%20and%20facilitate%20storage%20participation.pdf>.

<sup>25</sup> Amended section 4.15 and Appendix 3 of the WEM Rules (original amending rules in Schedule C of the Wholesale Electricity Market Amendment (Tranches 2 and 3 Amendments) Rules 2020 and further amendments in Schedule F of the Wholesale Electricity Market Amendment (Tranche 5 Amendments) Rules 2021) will come into operation on 1 September 2022.

<sup>26</sup> An amended clause 4.20.5B of the WEM Rules (an amending rule in Schedule F of the Wholesale Electricity Market Amendment (Tranche 5 Amendments) Rules 2021) will come into operation on 1 September 2022.

<sup>27</sup> An amended clause 4.20.5A of the WEM Rules (an amending rule in Schedule C of the Wholesale Electricity Market Amendment (Tranches 2 and 3 Amendments) Rules 2020) will come into operation on 1 September 2022.

<sup>28</sup> See *Reserve Capacity timetable*, available at <https://aemo.com.au/en/energy-systems/electricity/wholesale-electricity-market-wem/wa-reserve-capacity-mechanism/reserve-capacity-timetable>.

<sup>29</sup> See *Certification of Reserve Capacity*, available at <https://www.aemo.com.au/Electricity/Wholesale-Electricity-Market-WEM/Reserve-capacity-mechanism/Certification-of-reserve-capacity>.

<sup>30</sup> The *WEM Procedure: Certification of Reserve Capacity for the 2022 Reserve Capacity Cycle* will be published on or before 1 March 2022 at <https://aemo.com.au/en/energy-systems/electricity/wholesale-electricity-market-wem/procedures-policies-and-guides/procedures>.

sections are followed by an overview of the Market Participant requirements for registration, network access, and environmental approvals.

## 2.1 EOI Process

From the 2021 Reserve Capacity Cycle, proponents must submit an EOI to be eligible to apply for CRC for new Facilities and Facility upgrades. The commencement of the NAQ framework has introduced further changes to the EOI process for the 2022 Reserve Capacity Cycle.

AEMO is required to provide details of EOI submissions and Facilities that are intended to cease operation permanently by 1 October of Year 3 of the relevant Reserve Capacity Cycle to the relevant Network Operator in accordance with clause 4.4B.2 of the WEM Rules<sup>31</sup>. This enables the relevant Network Operator to provide RCM Limit Advice that AEMO will then use to develop RCM Constraint Equations in the NAQ model for the NAQ determination.

AEMO has updated the 2022 EOI submission template to allow proponents to provide more detailed locational and network connection information. This information will assist the relevant Network Operator to include new connections of Facilities that have submitted EOIs to develop RCM Limit Advice under clause 4.4B.3 of the WEM Rules.

If a Market Participant intends to nominate a new Facility or Facility upgrade to be classified as a NAFF in the CRC application, it must include this nomination in the EOI. This enables the relevant Network Operator to provide the relevant RCM Limit Advice to AEMO for the RCM Constraint Equations development.

## 2.2 Network Augmentation Funding Facility

Market Participants who fund the cost of network augmentation to support the access of a new Facility or Facility upgrade will be assigned a NAQ in priority over other new Facilities that are not funding network augmentation.

In accordance with clause 4.10A.2 of the WEM Rules<sup>32</sup>, a Market Participant may only nominate a Facility or Facility upgrade to be classified as a NAFF in respect of a Reserve Capacity Cycle if:

- the Facility or Facility upgrade is an Energy Producing System;
- the Market Participant for the Facility has committed to funding Network Augmentation Works;
- the Network Augmentation Works are expected to be in-service (which includes having completed all required commissioning tests) by 1 October of Year 3 of the Reserve Capacity Cycle to which the application for certification of Reserve Capacity for the Facility relates; and
- where an EOI submission is required, the EOI for the Facility specified that the Facility was expected to be nominated to be classified as a NAFF.

<sup>31</sup> Clause 4.4B.2(c) of the WEM Rules also requires AEMO to provide “details of each Facility for which AEMO has received an Early Certified Reserve Capacity application and whether the Facility has nominated to be classified as a Network Augmentation Funding Facility” to the relevant Network Operator. AEMO has not received any Early Certified Reserve Capacity applications for the 2022 Reserve Capacity Cycle.

<sup>32</sup> An amended clause 4.10A.2 of the WEM Rules (the original amending rule in Schedule C of the Wholesale Electricity Market Amendment (Tranches 2 and 3 Amendments) Rules 2020 and further amendments in Schedule C of the Wholesale Electricity Market Amendment (Tranche 5 Amendments) Rules 2021) will come into operation on 1 March 2022.

A Market Participant will need to provide information as part of the CRC application to support its nomination of a Facility or a Facility upgrade being classified as a NAFF. AEMO will follow a series of processes outlined under section 4.10A of the WEM Rules<sup>33</sup> to verify the information with the relevant Network Operator and, if verified, to classify a Facility or a Facility upgrade as a NAFF.

## 2.3 Indicative Facility Class and indicative Facility Technology Type

Where a proponent submits an EOI for a new Facility or a Facility upgrade, AEMO must assign an indicative Facility Class and an indicative Facility Technology Type to the new Facility or Facility upgrade in accordance with the WEM Procedure: Indicative Facility Class and RCM Facility Class Assessment<sup>34</sup>. AEMO may request additional information from the proponent to make this assessment.

AEMO must assign the indicative Facility Class and indicative Facility Technology Type before the CRC application window opens. Refer to the Reserve Capacity timetable published on the AEMO website<sup>35</sup> for the dates associated with key Reserve Capacity processes.

## 2.4 Market Participant Registration and Facility creation

A summary of the eligibility requirements for CRC<sup>36</sup> follows:

- The CRC applicant must be registered as a Market Participant in the WEM. The Market Participant registration process, including the application for Wholesale Electricity Market System (WEMS) access, is outlined in the WEM Rules and the Rule Participant Registration and De-Registration WEM Procedure<sup>37</sup>.
- The Facility must have been created in WEMS. It is important to note that Facility creation is different from Facility registration. Facility creation merely creates a Facility name in WEMS and reflects the Market Participant's intention to register a Facility under the WEM Rules in the future. The Facility creation process is outlined in section 3.1 of the Facility Registration, De-Registration- and Transfer WEM Procedure<sup>38</sup>.

Satisfying these registration conditions, from the lodgement of an application for WEMS access to the creation of a Facility, generally takes between 15 and 30 business days. However, this process can take longer, depending on the completeness of the information provided. AEMO encourages existing or new Market Participants who intend to apply for CRC for a new Facility to contact the Market Operations (WA) team at [wa.operations@aemo.com.au](mailto:wa.operations@aemo.com.au) as early as possible to ensure they can satisfy these requirements prior to submitting a CRC application.

<sup>33</sup> An amended section 4.10A of the WEM Rules (the original amending rules in Schedule C of the Wholesale Electricity Market Amendment (Tranches 2 and 3 Amendments) Rules 2020 and further amendments in Schedule C of the Wholesale Electricity Market Amendment (Tranche 5 Amendments) Rules 2021) will come into operation on 1 March 2022.

<sup>34</sup> See *WEM Procedure: Indicative Facility Class and RCM Facility Class Assessment*, available at <https://www.aemo.com.au/-/media/files/electricity/wem/procedures/indicative-facility-class-and-rcm-facility-class-assessment-wem-procedure.pdf?la=en&hash=5CB4D84AA2BC13524ED4631F9753FEB4>.

<sup>35</sup> See *Reserve Capacity timetable*, available at <https://aemo.com.au/en/energy-systems/electricity/wholesale-electricity-market-wem/wa-reserve-capacity-mechanism/reserve-capacity-timetable>.

<sup>36</sup> See sections 4.8, 4.9, 4.10 and 4.11 of the WEM Rules.

<sup>37</sup> See <https://www.aemo.com.au/Electricity/Wholesale-Electricity-Market-WEM/Procedures>.

<sup>38</sup> See *Market Procedure: Facility Registration, De-Registration and Transfer*, available at [https://www.aemo.com.au/-/media/files/stakeholder\\_consultation/consultations/wa\\_wem\\_consultation\\_documents/2020/aepc\\_2020\\_03/pcr/market-procedure--facility-registration-de-registration-and-transfer.pdf?la=en&hash=08FD1C7FA7FF4627823DB46C4A7F9AF5](https://www.aemo.com.au/-/media/files/stakeholder_consultation/consultations/wa_wem_consultation_documents/2020/aepc_2020_03/pcr/market-procedure--facility-registration-de-registration-and-transfer.pdf?la=en&hash=08FD1C7FA7FF4627823DB46C4A7F9AF5).

## 2.5 Network access

A CRC applicant is required to provide evidence of network access from the relevant Network Operator for each Facility covered by the CRC application.

Clause 4.10.1(bA) of the WEM Rules<sup>39</sup> requires the application to include documented evidence of (among other things) an entitlement to network access from a specified date. The specified date must be before the date when the Facility will be subject to Reserve Capacity Obligations.

In general terms, documented evidence of an entitlement to network access from a specified date is typically a signed Electricity Transfer Access Contract and, for a new Facility, a signed Interconnection Works Contract or connection contract.

Clause 4.10.1(bA) also requires information regarding the Declared Sent Out Capacity for the Facility at the relevant connection point (except where the Facility is a DSP)<sup>40</sup>.

The timeframe to receive network access for a new Facility varies with the type of generation, location, and existing queue of applicants. Network access is a critical pre-condition for CRC. In many cases, access to the network may take longer than the two-year time horizon of the RCM. For this reason, AEMO encourages existing or new proponents who intend to apply for CRC for a new Facility to contact the relevant Network Operator as early as possible to ensure that their project can progress through the RCM process.

## 2.6 Environmental Approvals

Clause 4.10.1(c)(ii) of the WEM Rules requires a CRC application to include evidence with respect to any necessary Environmental Approvals.

As the first step in securing Environmental Approvals, developers of Energy Producing Systems must conduct environmental impact assessments and determine whether referrals to the Environmental Protection Authority (EPA) are required for their projects. The EPA provides information that may help in making this assessment on its website. Proponents are encouraged to read this information and to allow enough time to obtain any necessary Environmental Approvals<sup>41</sup>.

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<sup>39</sup> An amended clause 4.10.1(bA) of the WEM Rules (amending rule in Schedule C of the Wholesale Electricity Market Amendment (Tranches 2 and 3 Amendments) Rules 2020) will come into operation on 1 March 2022.

<sup>40</sup> See network access requirements, at <http://aemo.com.au/Electricity/Wholesale-Electricity-Market-WEM/Reserve-capacity-mechanism/Certification-of-reserve-capacity>.

<sup>41</sup> See <http://www.epa.wa.gov.au>.

## 3 Changes to the RCM

### 3.1 WA Government's Energy Transformation Strategy

In December 2020, the Wholesale Electricity Market Amendment (Tranches 2 and 3 Amendments) Rules 2020<sup>42</sup> (2020 Amending Rules) were published in the WA Government Gazette. The 2020 Amending Rules affect the 2021 and 2022 Reserve Capacity Cycles as follows:

- 2021 Reserve Capacity Cycle – includes changes to the registration framework and introduces certification methodologies for Electric Storage Resources.
- 2022 Reserve Capacity Cycle – includes the introduction of NAQ and associated provisions (such as NAFF and the NAQ model).

Further information about these changes can be found in the 2020 Amending Rules.

### 3.2 RCM Review

The Energy Policy WA (EPWA)<sup>43</sup> is leading a review of the RCM. The RCM Review scope of work<sup>44</sup> published by EPWA describes a wide-ranging number of complex activities to be undertaken that may lead to significant changes to the RCM and other connected mechanisms and functions within the WEM.

On 2 November 2021, the Market Advisory Committee established an RCM Review working group<sup>45</sup> to support the RCM Review. The RCM working group is made up of several contributing entities including AEMO, Western Power and other stakeholders who will participate in the RCM Review by providing advice and relevant analysis. Outcomes from the RCM Review are expected to be implemented during the 2023 calendar year.

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<sup>42</sup> See <https://www.wa.gov.au/system/files/2021-05/Wholesale-Electricity-Market-Amendment-Tranches-2-and-3-Amendments-Rules-2020%20%281%29.pdf>.

<sup>43</sup> See <https://www.wa.gov.au/government/announcements/was-energy-sector-governance-arrangements-are-changing>.

<sup>44</sup> See <https://www.wa.gov.au/system/files/2021-11/RCM-Review-2021-Scope-of-works.PDF>.

<sup>45</sup> See [www.wa.gov.au/government/document-collections/reserve-capacity-mechanism-review-working-group](http://www.wa.gov.au/government/document-collections/reserve-capacity-mechanism-review-working-group).

## 4 EOI requirements

### 4.1 Submitting an EOI for the 2022 Reserve Capacity Cycle

A proponent must submit an EOI as a condition of being eligible to seek certification of Reserve Capacity under section 4.8 of the WEM Rules for the 2022 Reserve Capacity Cycle for a new Facility or Facility upgrade. Facility upgrades that require an EOI to be submitted include an increase in capacity due to works:

- completed since the date and time under clause 4.1.11 of the previous Reserve Capacity Cycle that increased the nameplate capacity of the Facility; or
- expected to be completed that will increase the nameplate capacity or available capacity of the Facility, which is yet to be demonstrated through normal market operations or a Reserve Capacity Test.

To submit an EOI for the 2022 Reserve Capacity Cycle, a current or new proponent is required to complete the 2022 EOI application form available under the 2022 Expressions of Interest section<sup>46</sup>.

A proponent must email the completed 2022 EOI application form and additional documentation to AEMO by **5:00 PM (Australian Western Standard Time (AWST)) on 24 February 2022**<sup>47</sup> at [wa.capacity@aemo.com.au](mailto:wa.capacity@aemo.com.au).

Any queries in relation to this REOI may be addressed to the Reserve Capacity team on (08) 9469 9800 or at [wa.capacity@aemo.com.au](mailto:wa.capacity@aemo.com.au).

### 4.2 Certified Reserve Capacity applications

CRC applications for the 2022 Reserve Capacity Cycle may be submitted through WEMS from 8 April 2022 and **must be lodged by 5:00 PM (AWST) on 8 July 2022**<sup>48</sup>. A Market Participant applying for CRC must provide all the information specified in clause 4.10.1 of the WEM Rules before the CRC window closes.

An application for a Facility, or component of a Facility, that will be assessed using the Relevant Level Methodology and has not operated for the full period specified in step 1(a) of Appendix 9 of the WEM Rules (or that otherwise meets the criteria specified in clause 4.10.3 of the WEM Rules) must include an independent expert report<sup>49</sup>. This includes components of Semi-Scheduled Facilities and Scheduled Facilities that are Intermittent Generating Systems, and Non-Scheduled Facilities<sup>50</sup>.

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<sup>46</sup> Available at <https://www.aemo.com.au/energy-systems/electricity/wholesale-electricity-market-wem/wa-reserve-capacity-mechanism/expressions-of-interest>.

<sup>47</sup> Section 1.36B of the WEM Rules modifies the date and time specified in clause 4.1.5 of the WEM Rules for the 2022 Reserve Capacity Cycle.

<sup>48</sup> Section 1.36B of the WEM Rules modifies the dates and times specified in clause 4.9.1 of the WEM Rules (and, by extension, the dates and times specified in clauses 4.1.7 and 4.1.11 of the WEM Rules) for the 2022 Reserve Capacity Cycle.

<sup>49</sup> See Relevant Level Methodology information. AEMO. *Certification of Reserve Capacity*, available at <https://www.aemo.com.au/Electricity/Wholesale-Electricity-Market-WEM/Reserve-capacity-mechanism/Certification-of-reserve-capacity>.

<sup>50</sup> Except for Non-Scheduled Facilities comprising only an Electric Storage Resource that has not been in operation for the period specified in step 1(a) of Appendix 9 of the WEM Rules.

The current timetable for the 2022 Reserve Capacity Cycle is shown in Table 2 below. Refer to the dates published on the AEMO website<sup>51</sup> for the latest information.

This timetable is intended to confirm dates for Year 1 of the 2022 Reserve Capacity Cycle only. Please refer to section 4.1 of the WEM Rules for key events occurring in Years 2, 3, and 4 of this Reserve Capacity Cycle. AEMO may amend certain dates in the Reserve Capacity timetable under clause 4.1.1C of the WEM Rules.

**Table 2 2022 Reserve Capacity Cycle timetable<sup>A</sup> for the WEM<sup>B</sup>**

Date	Time	Action
<b>Monday 10 January 2022</b>	5:00 pm	AEMO publishes the Request for EOI and Benchmark Reserve Capacity Price.
<b>Thursday 24 February 2022</b>	5:00 pm	EOI submissions close.
<b>Thursday 3 March 2022</b>	5:00 pm	AEMO provides information about EOIs, Facility retirements, and Early CRC applications to Western Power.
<b>Monday 28 March 2022</b>	5:00 pm	AEMO publishes a summary of the results of the EOI.
<b>Friday 8 April 2022</b>	9:00 am	Market Participants may apply for CRC.
<b>Friday 15 April 2022</b>	5:00 pm	Western Power must develop and provide the following information to AEMO: <ul style="list-style-type: none"> <li>• Estimated proportion of peak demand at each Electrical Location on the network.</li> <li>• Thermal Network Limits.</li> <li>• Electrical Location and identity of new loads larger than 10 MW.</li> </ul> RCM Limit Advice and an explanation of any changes from previous RCM Limit Advice.
<b>Friday 3 June 2022</b>	5:00 pm	AEMO publishes information from Western Power and the Preliminary RCM Constraint Equations.
<b>Friday 17 June 2022</b>	5:00 pm	AEMO publishes the 2022 WEM ESOO and Reserve Capacity Information Pack.
<b>Friday 8 July 2022</b>	5:00 pm	CRC applications close.
<b>Tuesday 6 September 2022</b>	5:00 pm	AEMO advises assignment of CRC.
<b>Tuesday 20 September 2022</b>	5:00 pm	Market Participants who hold CRC must notify AEMO as to how their Reserve Capacity will be dealt with as follows: <ul style="list-style-type: none"> <li>• Advise the total amount of Reserve Capacity they intend will be traded bilaterally; or</li> <li>• Advise the total amount of Reserve Capacity that they have decided will not now be made available to the market.</li> </ul> If required, Market Participants must provide Reserve Capacity Security (RCS) or DSM RCS. Market Participants may nominate an eligible Facility as a Candidate Fixed Price Facility.
<b>Monday 3 October 2022</b>	5:00 pm	AEMO confirms the quantity of CRC that can be traded bilaterally.
<b>Tuesday 4 October 2022</b>	5:00 pm	AEMO publishes CRC for each Facility.
<b>Monday 5 December 2022</b>	5:00 pm	AEMO: <ul style="list-style-type: none"> <li>• Assigns Capacity Credits and Network Access Quantities.</li> <li>• Determines whether the RCR has been met or exceeded with the Capacity Credits for which no RCS was required.</li> </ul>

<sup>51</sup> Available at <https://aemo.com.au/energy-systems/electricity/wholesale-electricity-market-wem/wa-reserve-capacity-mechanism/reserve-capacity-timetable>.

Date	Time	Action
		<ul style="list-style-type: none"> <li data-bbox="419 309 884 336">Publishes Reserve Capacity Price information.</li> </ul>
<b>Tuesday 5 December 2022</b>	5:00 pm	Market Participants may apply to AEMO for a recalculation of the amount of RCS or DSM RCS required to be held for a Facility (applications may be made after this date/time).
<b>Wednesday 4 January 2023</b>	5:00 pm	Market Participants must notify AEMO of the number of Capacity Credits that are to be associated with each component of a Facility, where applicable.

A. In accordance with clause 4.3.1(i) of the WEM Rules.

B. Available at [https://aemo.com.au/-/media/files/electricity/wem/reserve\\_capacity\\_mechanism/timetable/2021-and-2022-reserve-capacity-timetables.pdf?la=en](https://aemo.com.au/-/media/files/electricity/wem/reserve_capacity_mechanism/timetable/2021-and-2022-reserve-capacity-timetables.pdf?la=en).

# A1. Results from previous Reserve Capacity Cycles

The following information is presented in accordance with clause 4.3.1(c)(ii) of the WEM Rules.

The capacity required to be provided for each Availability Classes for the last three Reserve Capacity Cycles is given in Table 3.

Two Availability Classes are defined in accordance with clause 4.11.4 of the WEM Rules, as follows:

- Availability Class 1 – all generation capacity, and any other capacity that is expected to be available to be dispatched for all Trading Intervals in a Capacity Year, allowing for Outages or other restrictions on availability, under clause 4.11.4(a) of the WEM Rules.
- Availability Class 2 – other capacity that is not expected to be available to be dispatched for all Trading Intervals in a Capacity Year, under clause 4.11.4(b) of the WEM Rules.

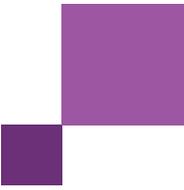
**Table 3 Availability Classes (MW)**

Availability Curve Information Clause 4.5.12(b) of the WEM Rules	2019 Reserve Capacity Cycle (2021-22 Capacity Year)	2020 Reserve Capacity Cycle (2022–23 Capacity Year)	2021 Reserve Capacity Cycle (2023-24 Capacity Year)
Minimum capacity required to be provided from Availability Class 1	3,657	3,371	3,496
Capacity associated with Availability Class 2	825	1,050	900
RCR	4,482	4,421	4,396

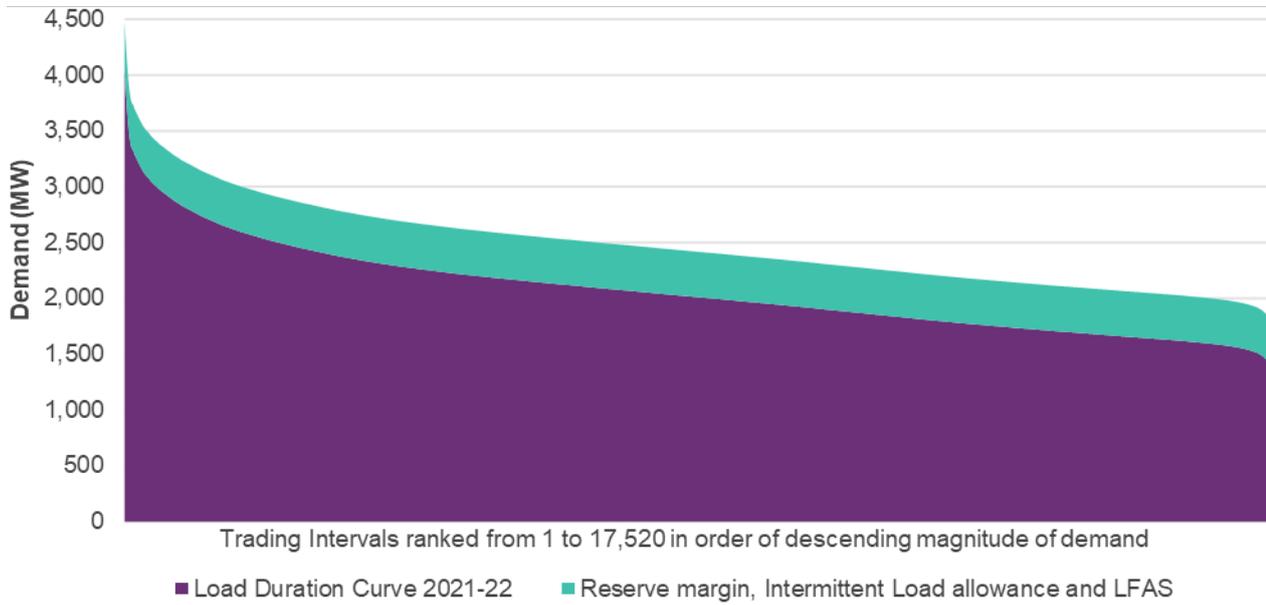
The Availability Curve is a two-dimensional duration curve of the forecast minimum capacity requirement for each Trading Interval over a Capacity Year<sup>52</sup>. The minimum capacity requirement for each Trading Interval is calculated as the sum of the forecast demand for that Trading Interval, reserve margin, and allowances for Intermittent Loads and Load Following Ancillary Service.

The Availability Curves for the last three Capacity Cycles as published in the 2019, 2020 and 2021 WEM ESOO are shown in Figures 7, 8, and 9 respectively.

<sup>52</sup> The Availability Curve (defined in clause 4.5.10(e) of the WEM Rules) shows how demand changes over a Capacity Year, with demand on the vertical axis and time on the horizontal axis. It can be used to determine the number of hours when the capacity requirement exceeds a given level of demand plus an amount of available capacity margin.

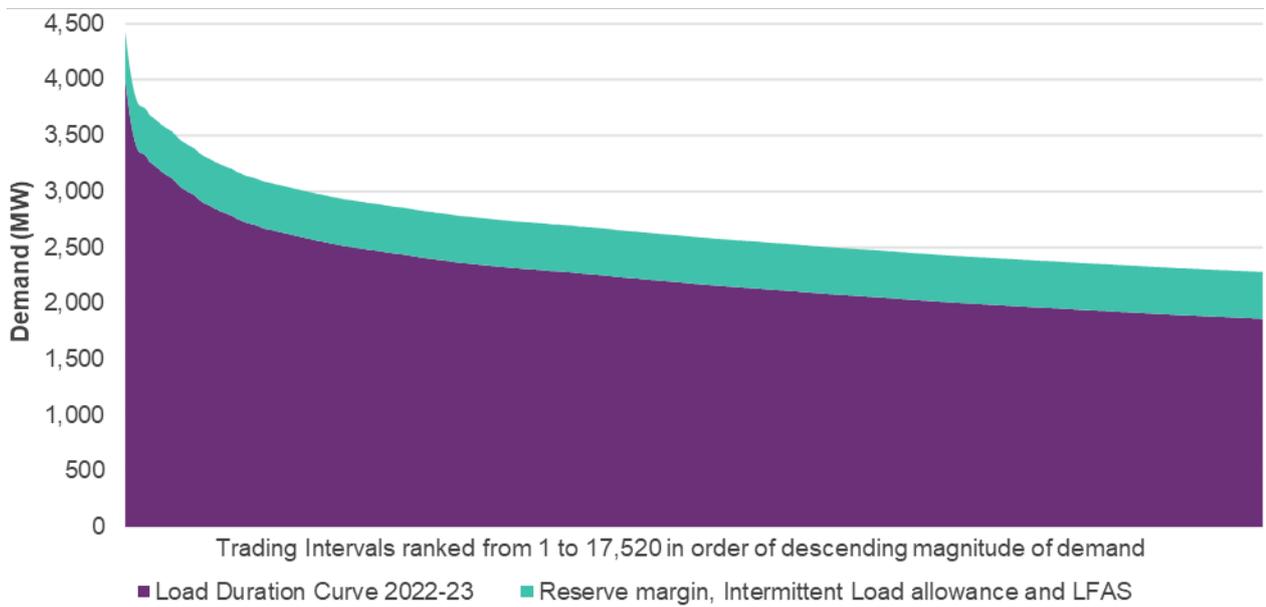


**Figure 7 2021-22 Capacity Year Availability Curve**



Source: 2019 WEM ES00.

**Figure 8 2022-23 Capacity Year Availability Curve**



Source: 2020 WEM ES00.

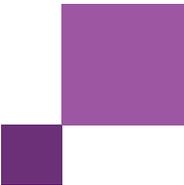
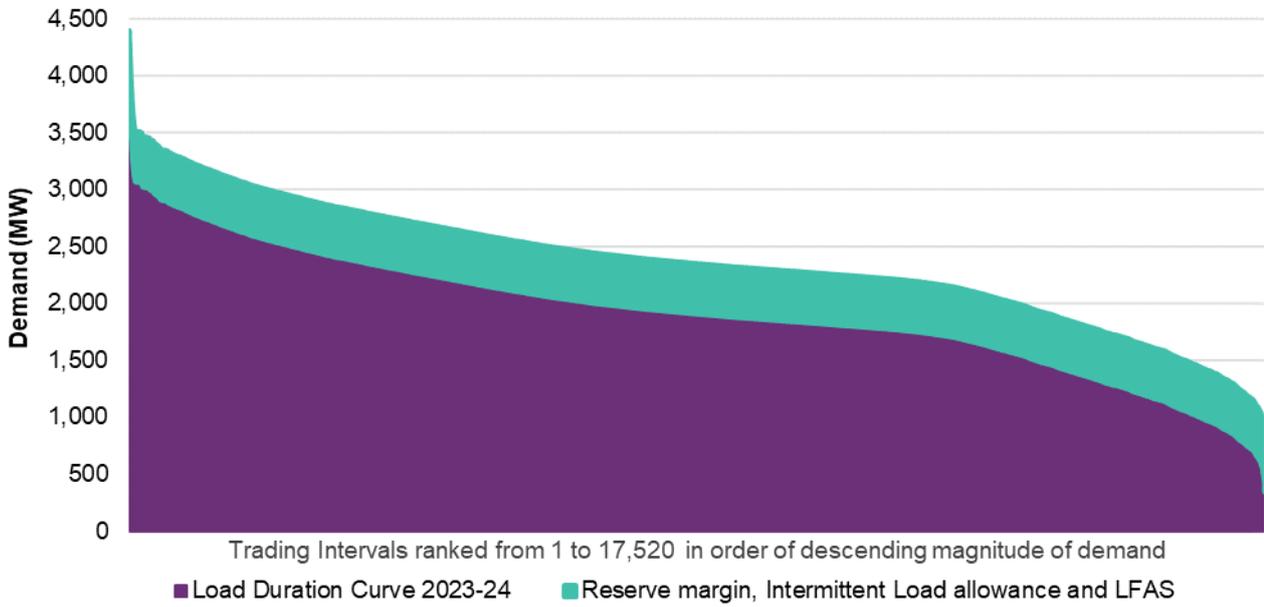


Figure 9 2023-24 Capacity Year Availability Curve



Source: 2021 WEM ES00.

# A2. References, measures and abbreviations

Key references for data in this document

Topic	Source
<b>RCR/RCT</b>	2021 WEM ESOO, p. 62, available at <a href="https://www.aemo.com.au/-/media/files/electricity/wem/planning_and_forecasting/esoo/2021/2021-wholesale-electricity-market-electricity-statement-of-opportunities.pdf">https://www.aemo.com.au/-/media/files/electricity/wem/planning_and_forecasting/esoo/2021/2021-wholesale-electricity-market-electricity-statement-of-opportunities.pdf</a>
<b>Capacity Credits assigned</b>	Capacity Credits since the commencement of the WEM in 2006 up to 2022-23, available at <a href="https://www.aemo.com.au/Electricity/Wholesale-Electricity-Market-WEM/Reserve-capacity-mechanism/Assignment-of-capacity-credits">https://www.aemo.com.au/Electricity/Wholesale-Electricity-Market-WEM/Reserve-capacity-mechanism/Assignment-of-capacity-credits</a>
<b>Energy consumption forecasts for the SWIS</b>	2021 WEM ESOO, p. 53
<b>Peak electricity demand forecasts for the SWIS</b>	2021 WEM ESOO, p. 48
<b>Estimated excess capacity</b>	2021 WEM ESOO, p. 14 and p. 61
<b>RCP and BRCP</b>	2018 WEM ESOO, Tables 16 and 19; 2019 WEM ESOO, Tables 17 & 23; 2020 WEM ESOO, Tables 26 and 27. BRCP data, available at <a href="https://www.erawa.com.au/electricity/wholesale-electricity-market/annual-price-setting/benchmark-reserve-capacity-price">https://www.erawa.com.au/electricity/wholesale-electricity-market/annual-price-setting/benchmark-reserve-capacity-price</a>
<b>Availability Classes data</b>	2019 WEM ESOO, Table 16, p. 58; 2020 WEM ESOO, Table 21, p. 75 and 2021 WEM ESOO Table 13, p. 59
<b>Availability Curves</b>	2019 WEM ESOO, Figure 34, p. 71; 2020 WEM ESOO, Figure 39, p. 77 and 2021 WEM ESOO Figure 40, p. 60

Units of measure

Abbreviation	Unit of measure
<b>GWh</b>	Gigawatt hours
<b>MW</b>	Megawatts

Abbreviations

Abbreviation	Expanded name
<b>AEMO</b>	Australian Energy Market Operator
<b>BRCP</b>	Benchmark Reserve Capacity Price
<b>CRC</b>	Certified Reserve Capacity
<b>DER</b>	Distributed Energy Resource
<b>DSM</b>	Demand Side Management
<b>DSP</b>	Demand Side Programme

## A2. References, measures and abbreviations

Abbreviation	Expanded name
EOI	Expressions of Interest
EPA	Environmental Protection Authority
EPWA	Energy Policy WA
ESOO	Electricity Statement of Opportunities
NAFF	Network Augmentation Funding Facility
NAQ	Network Access Quantity
NSF	Non-Scheduled Facility
POE	Probability of Exceedance
RCM	Reserve Capacity Mechanism
RCP	Reserve Capacity Price
RCR	Reserve Capacity Requirement
RCS	Reserve Capacity Security
RCT	Reserve Capacity Target
REOI	Request for Expressions of Interest
SWIS	South West interconnected system
WA	Western Australia
WEM	Wholesale Electricity Market
WEMS	Wholesale Electricity Market System