



WHOLESALE ELECTRICITY MARKET: REQUEST FOR EXPRESSIONS OF INTEREST

FOR THE 2017 RESERVE CAPACITY CYCLE

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IMPORTANT NOTICE

Purpose

AEMO has prepared this document to invite proponents to provide Expressions of Interest for the provision of new generation and/or Demand Side Management capacity into the Wholesale Electricity Market in Western Australia, as at the date of publication.

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EXECUTIVE SUMMARY

This *Request for Expressions of Interest* (EOIs) invites proponents of new generation and/or Demand Side Management (DSM) capacity that will be available for commercial service for the 2019–20 Capacity Year¹ for the South West interconnected system (SWIS).

EOIs with supporting documentation are due to be submitted to the Australian Energy Market Operator (AEMO) by **5:00 PM on 1 May 2017**.

The main purpose of this *Request for EOIs* is to inform prospective investors about the Reserve Capacity Mechanism (RCM) and allow proponents to provide information to AEMO regarding projects under consideration for the 2017 Reserve Capacity Cycle for the 2019–20 Capacity Year. Submitting an EOI ensures the proponent receives all information and updates relating to the RCM process.

In addition to submitting an EOI, project proponents are encouraged to engage with AEMO to understand the various aspects of the RCM cycle, and to commence processes required to secure all relevant approvals, particularly network access and environmental approvals. These processes are critical to the assignment of Certified Reserve Capacity (CRC).²

The RCM ensures sufficient CRC is available to meet future peak demands, plus a reserve margin. An important part of this process is to forecast peak demand for the relevant Capacity Year. For the 2019–20 Capacity Year, the total capacity required to meet the forecast peak demand, plus a reserve margin, is determined through the Long Term Projected Assessment of System Adequacy, which is expected to be published in the upcoming *Electricity Statement of Opportunities* (ESOO) for the Wholesale Electricity Market (WEM) in June 2017.

Because of the deferral of Year 1 of the 2016 Reserve Capacity Cycle (for the 2018–19 Capacity Year),³ the latest information on the capacity available in the SWIS is from the Capacity Credit allocations for the 2015 Reserve Capacity Cycle⁴ (for the 2017–18 Capacity Year). Hence, the information about the three previous Reserve Capacity Cycles required for inclusion in this report (according to clause 4.3.1(c) of the Wholesale Electricity Market Rules (WEM Rules)⁵ are for the 2015–16, 2016–17, and 2017–18 Capacity Years.

Please note that the auction date for the 2016 Reserve Capacity Cycle has been deferred by one year from 15 September 2016 to 15 September 2017.

Based on the Deferred 2015 ES00⁶ for the WEM (2015 ES00) forecasts, it is estimated that there will be a surplus capacity of 524 megawatts (MW) for the 2019–20 Capacity Year as shown in Table 1 below. This is assuming the level of Capacity Credits assigned for the 2017–18 Capacity Year remains unchanged.

The Western Australian (WA) Government announced in April 2016 that Synergy will reduce 380 MW of plant generation capacity by 1 October 2018.⁷ This would reduce the estimated capacity surplus for the 2019–20 Capacity Year to 144MW. In response to the Federal Government's Renewable Energy

¹ The 2019–20 Capacity Year is for capacity available from 1 October 2019 to 1 October 2020.

² AEMO. *Reserve Capacity Mechanism*. Available at: <https://www.aemo.com.au/Electricity/Wholesale-Electricity-Market-WEM/Reserve-capacity-mechanism>.

³ AEMO. *2016 Extension Notice*. Available at: <https://www.aemo.com.au/Electricity/Wholesale-Electricity-Market-WEM/Reserve-capacity-mechanism/Reserve-capacity-timetable>.

⁴ AEMO. *Assignment of Capacity Credits*. Available at: <https://www.aemo.com.au/Electricity/Wholesale-Electricity-Market-WEM/Reserve-capacity-mechanism/Assignment-of-capacity-credits>.

⁵ *Wholesale Electricity Market Rules – 10 December 2016 (WA)*, Available at: <https://www.erawa.com.au/about-us/legislation/wem-rules>.

⁶ AEMO. 2016. *Deferred 2015 Electricity Statement of Opportunities for the WEM*. Page 2 and Page 3. Available at: <https://www.aemo.com.au/Electricity/Wholesale-Electricity-Market-WEM/Planning-and-forecasting/WEM-Electricity-Statement-of-Opportunities>.

⁷ WA Parliament, 2016. *Electricity Corporations Act 2015 – Ministerial Direction*. Available at: [http://parliament.wa.gov.au/publications/tables/papers.nsf/displaypaper/3914903a6b61c1cde6d034044825806e0027dedb/\\$file/4903.pdf](http://parliament.wa.gov.au/publications/tables/papers.nsf/displaypaper/3914903a6b61c1cde6d034044825806e0027dedb/$file/4903.pdf). Viewed: 20 January 2017.

Target⁸ it is expected that new renewable generation will connect to the SWIS which will counter this reduction by an amount presently unknown.

Table 1 Estimated Reserve Capacity Requirement for the 2019–20 Capacity Year

2015 ESOO	Reserve Capacity Requirement (MW)*	Capacity Credits for the 2017–18 Capacity Year (MW)**	Estimated surplus (MW)***
2019–20 Capacity Year	4,670	5,194	524

* AEMO. 2016. *The Deferred 2015 Electricity Statement of Opportunities for the WEM*. Page 60.

Available at: <https://www.aemo.com.au/Electricity/Wholesale-Electricity-Market-WEM/Planning-and-forecasting/WEM-Electricity-Statement-of-Opportunities>.

** AEMO. 2016. *Capacity Credits since market start up to 2017–18*. Available at: <https://www.aemo.com.au/Electricity/Wholesale-Electricity-Market-WEM/Reserve-capacity-mechanism/Assignment-of-capacity-credits>.

*** Estimated capacity surplus includes Capacity Credits assigned for Synergy's 380 MW capacity, which was announced to be reduced by 1 October 2018.

According to the 2015 ESOO forecast, energy consumption in the SWIS is expected to grow at approximately 1.0% per annum between 2016–17 and 2025–26, while peak electricity demand is forecast to grow around 1.4% per annum under the 10% Probability of Exceedance scenario for the same period.⁹

AEMO will update the demand forecasts and publish the Reserve Capacity Requirement for the 2019–20 Capacity Year in the Deferred 2016 ESOO, due to be published by 19 June 2017.

For information on any aspect of the RCM, proponents are encouraged to contact System Capacity (WA) directly at wa.capacity@aemo.com.au.

Electricity Market Review

Since 2014, the WA Government has been considering changes to the WEM through the Electricity Market Review (EMR). At the time of publishing this *Request for EOIs*, the EMR is currently in the implementation phase, where changes to the WEM Rules and Market Procedures have an impact on the 2015 and future Reserve Capacity Cycles.

The Public Utilities Office (PUO) published a Final Report on 7 April 2016,¹⁰ outlining proposed reforms and transitional changes to the RCM under the EMR. The Final Report outlines several reforms and transitional arrangements that have already been introduced to the RCM for the 2015 Reserve Capacity Cycle, including:

- Modifying the capacity price formula for a transition period prior to the auction that involves introducing a steeper pricing curve, and a different pricing arrangement for DSM capacity.
- Harmonising DSM availability requirements with requirements for conventional generators.

The Final Report proposes a design for an auction mechanism¹¹ to replace the current method for setting the Reserve Capacity Price to ensure the RCM is more responsive to market conditions by:

- Adopting a three-year ahead auction as the basis for procurement and pricing of capacity, with the first auction likely to occur if excess capacity falls below 5–6% or a fixed date of 2021, whichever is earlier.
- Introducing stronger commercial incentives for all forms of capacity to be made available for dispatch.

⁸ Australian Government. *The Renewable Energy Target (RET) scheme*. Available at: <https://www.environment.gov.au/climate-change/renewable-energy-target-scheme>. Viewed: 23 January 2017.

⁹ AEMO. 2016. *The Deferred 2015 Electricity Statement of Opportunities for the WEM*. Page 2 and Page 3. Available at: <https://www.aemo.com.au/Electricity/Wholesale-Electricity-Market-WEM/Planning-and-forecasting/WEM-Electricity-Statement-of-Opportunities>.

¹⁰ PUO. 2016. *Final Report: Reforms to the Reserve Capacity Mechanism*. Available at: http://www.finance.wa.gov.au/cms/uploadedFiles/Public_Utility_Office/Electricity_Market_Review/Reforms-to-the-Reserve-Capacity-Mechanism-Final-Report.pdf.

¹¹ The Final Report notes that rules relating to the capacity auction will be developed at a later stage following a more detailed evaluation of an auction design.



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1. INTRODUCTION

This *Request for Expressions of Interest (EOIs)* 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 (Figure 1).

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 average load. To ensure sufficient generation and Demand Side Management (DSM) capacity is available to meet future peak demand in the SWIS, the WEM includes a capacity market, the Reserve Capacity Mechanism (RCM).

The RCM is built around the concept of a 'Capacity Credit', a notional unit of capacity that can be traded among Market Participants, and between Market Participants and the Australian Energy Market Operator (AEMO). Capacity Credits are assigned to individual generation and DSM Facilities and are valid for a single Capacity Year.¹² All types of generation and DSM capacity that can meet the timelines and requirements outlined in the WEM Rules¹³ may participate in the RCM.

In return for receiving payments for Capacity Credits, a number of obligations are imposed on Capacity Credit holders. The most significant obligation is that certified capacity must be offered into the SWIS at all times, unless the Facility is undergoing an approved outage. If capacity is not offered into the SWIS, such as during a Forced Outage, the Capacity Credit holder is required to pay Reserve Capacity refunds to the market.

¹² A Capacity Year is 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.

¹³ *Wholesale Electricity Market Rules – 10 December 2016 (WA)*, Available at: <https://www.erawa.com.au/about-us/legislation/wem-rules>.

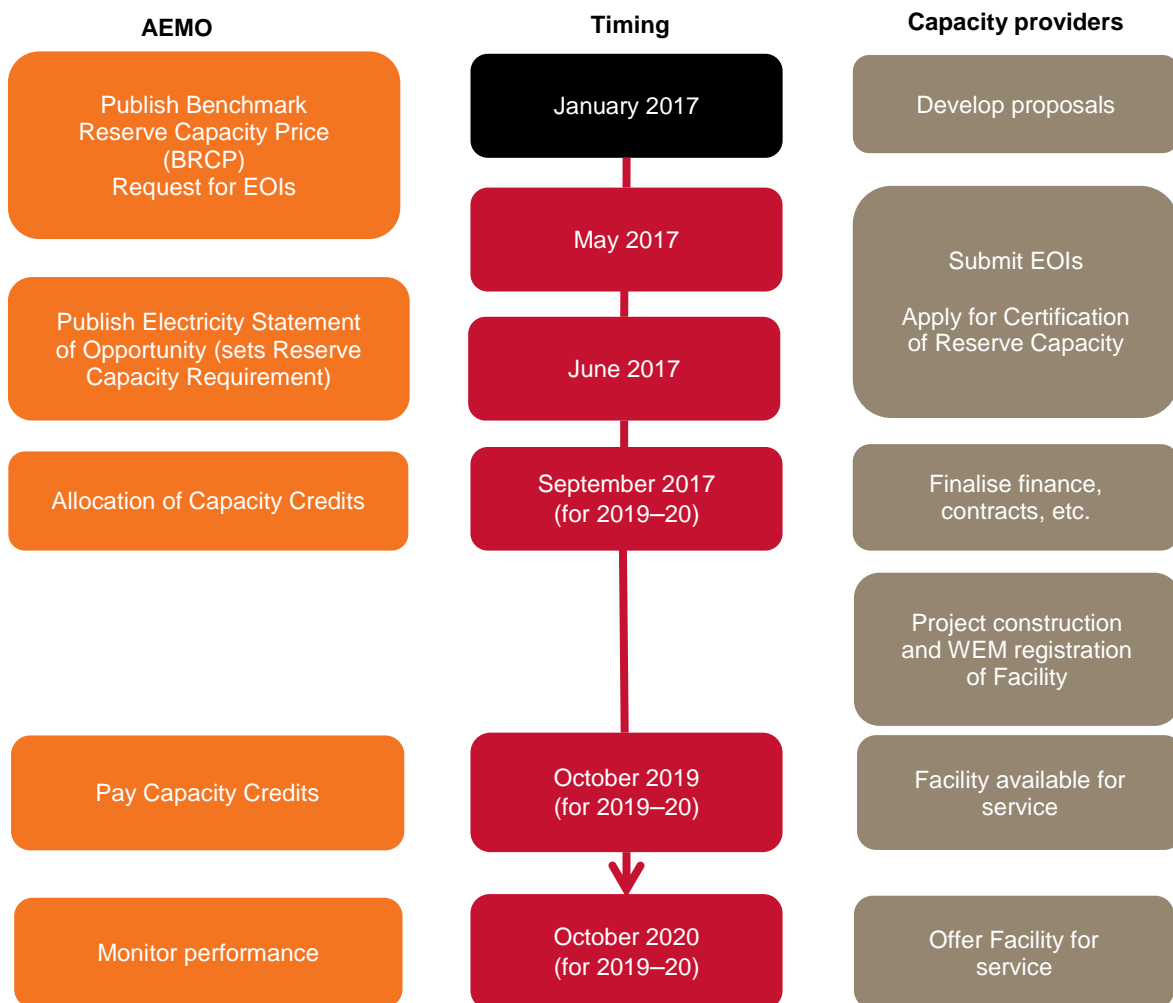
Market Customers must purchase Capacity Credits, based on their consumption at system peak times in the previous year, through the Individual Reserve Capacity Requirement (IRCR). Market Customers can either purchase Capacity Credits through bilateral contracts with capacity providers or through the AEMO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

If the level of capacity offered through bilateral trades is insufficient to meet the Reserve Capacity Requirement (RCR), AEMO will conduct a Reserve Capacity Auction to procure additional capacity.

Each year, AEMO forecasts the level of capacity required to meet forecast peak demand while ensuring system reliability criteria are met for the following 10 years. This RCR is calculated as the peak demand forecast of ‘one-in-10-year’ conditions¹⁴, plus a margin to cover any unplanned Facility outages and provide frequency stability.¹⁵

A summary timeline for the process of the 2017 Reserve Capacity Cycle is shown in Figure 2.

Figure 2 Timeline for bringing new capacity to the SWIS for the 2019–20 Capacity Year



Assuming there are no further deferrals, the RCR for the 2019–20 Capacity Year will be published in the upcoming ES00 by 19 June 2017.

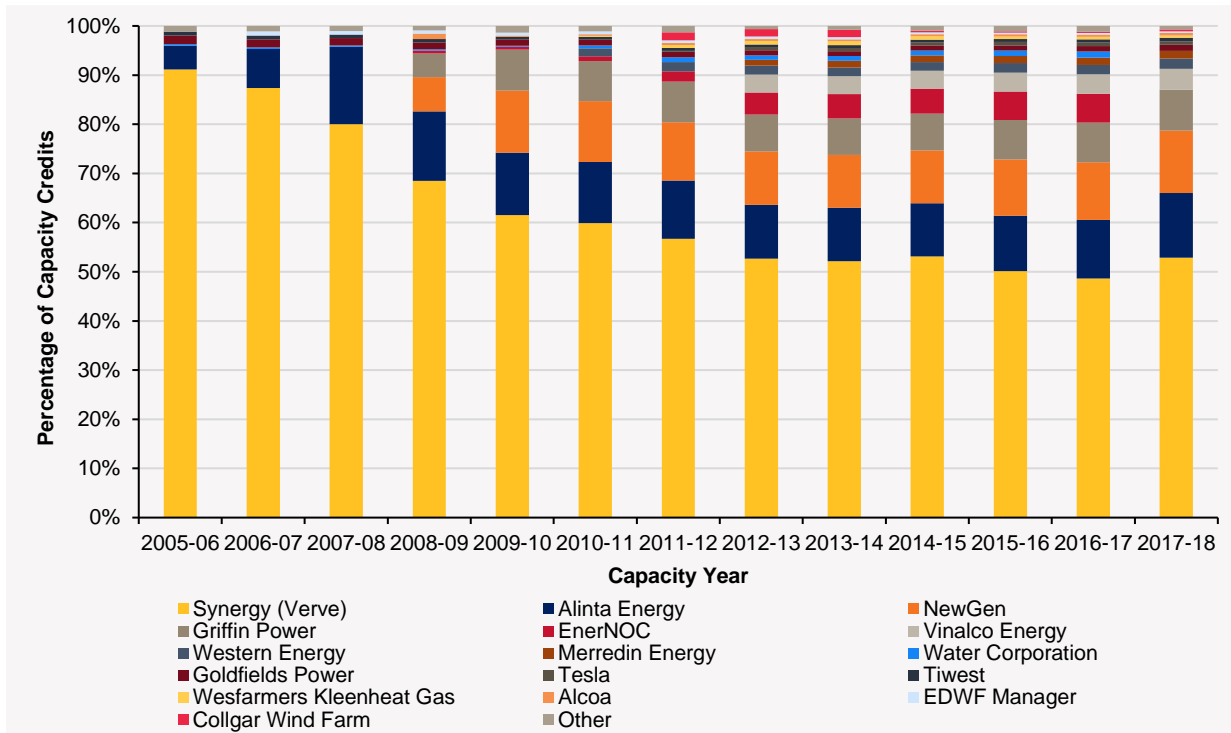
¹⁴ One-in-ten-year demand conditions are a common benchmark in electricity markets when considering reserve margin levels, including in the National Electricity Market (NEM) and major US electricity markets including PJM, New York Independent System Operator, and New England Independent System Operator.

¹⁵ As specified in clause 4.5.9 of the WEM Rules.

1.2 Existing generation and DSM capacity

The number of Market Participants has increased three-fold since the commencement of the WEM. Figure 3 shows the proportion of capacity provided by Synergy¹⁶ has fallen from 88% in 2005–06 to approximately 53% of the total SWIS capacity in 2017–18.

Figure 3 Proportion of Capacity Credits by Market Participant, 2005–06 to 2017–18 Capacity Years



Source: AEMO, 2016. *Capacity Credits since market start up to 2017–18*. Available at: <https://www.aemo.com.au/Electricity/Wholesale-Electricity-Market-WEM/Reserve-capacity-mechanism/Assignment-of-capacity-credits>.

Capacity has increased for all fuel types, with the exception of dual-fuelled coal and gas Facilities and DSM Facilities. Dual-fuelled coal and gas capacity reduced to zero following the retirement of Synergy's Kwinana G5, 177.5 megawatts (MW) in 2014 and Kwinana G6, 184 MW in 2015. DSM capacity has reduced from 560 MW in the 2016–17 Capacity Year to 106 MW in the 2017–18 Capacity Year.

The changes to certification requirements and payments for DSM capacity introduced in 2016 as part of the Electricity Market Review (EMR) have caused some DSM capacity to discontinue participating in the RCM, as shown in Figure 3 and Figure 4. The exit of DSM capacity has contributed to Synergy's share of Capacity Credits increasing from 49% in the 2016–17 Capacity Year to 53% in the 2017–18 Capacity Year.

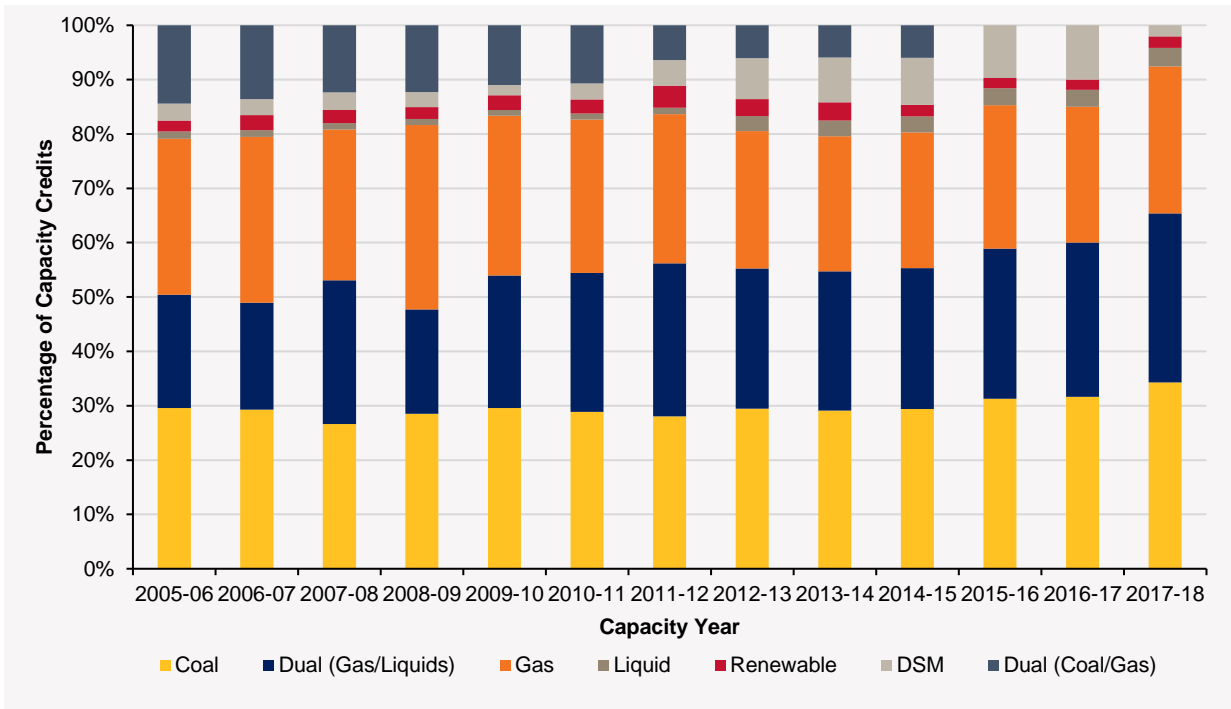
In April 2016, the WA Government announced that Synergy will reduce 380 MW of SWIS generation capacity by 1 October 2018.¹⁷ The details on which facilities are to be retired has not been announced.

More information on generation and DSM capacity in the SWIS is available in the *Deferred 2015 Electricity Statement of Opportunities for the WEM* (2015 ESOO).

¹⁶ This includes the generation capacity previously provided by Verve Energy and DSM capacity provided by Synergy. The two entities merged on 1 January 2014.

¹⁷ Government of Western Australia, 2016. *Electricity reforms ensure fairer system for all*. Available at: <https://www.mediastatements.wa.gov.au/Pages/Barnett/2016/04/Electricity-reforms-ensure-fairer-system-for-all.aspx>. Viewed: 10 January 2017.

Figure 4 Proportion of Capacity Credits by fuel, 2005–06 to 2017–18 Capacity Years

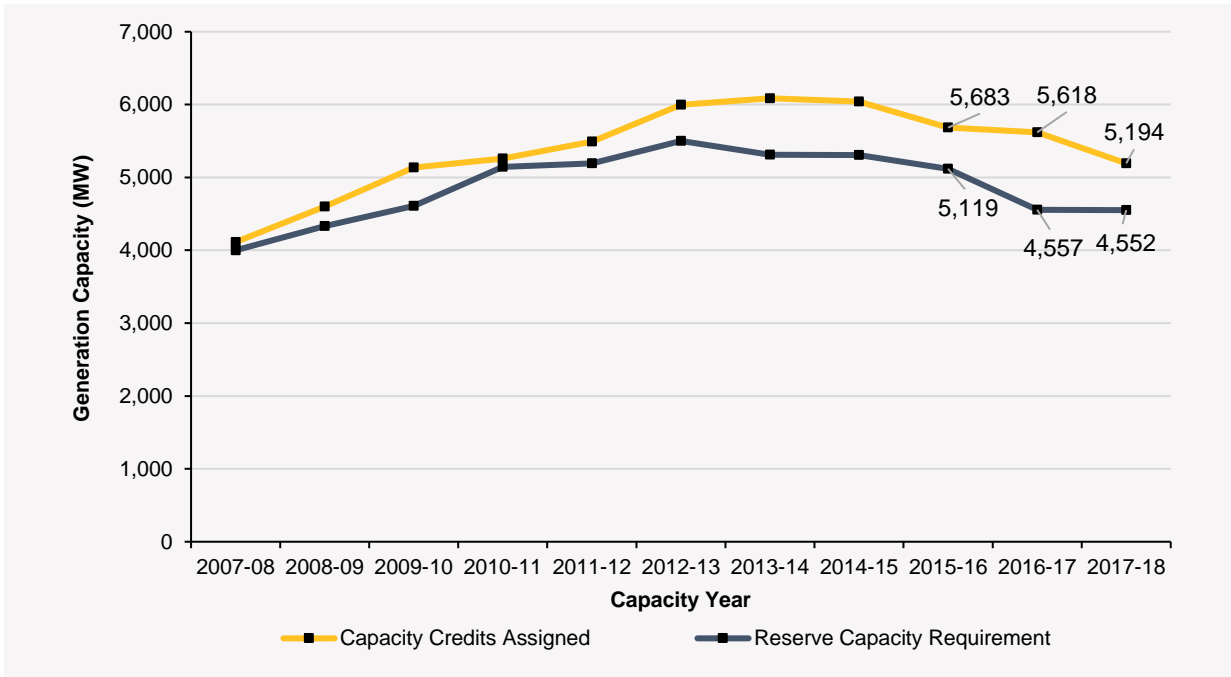


Source: AEMO. 2016. *Capacity Credits since market start up to 2017-18*. Available at: <https://www.aemo.com.au/Electricity/Wholesale-Electricity-Market-WEM/Reserve-capacity-mechanism/Assignment-of-capacity-credits>. Generation plant fuel type is based on facility registration information with AEMO.

1.3 Future electricity demand and supply-demand balance

The historical assigned Capacity Credits and the forecast RCR are shown in Figure 5.

Figure 5 Assigned Capacity Credits and the RCR, 2007–08 to 2017–18 Capacity Years



Source: 2005–2015 ES00. Capacity Credits may be reduced from the originally assigned level due to certain circumstances, such as Reserve Capacity Tests or a voluntary Capacity Credit reduction request.

Figure 5 shows excess capacity in the WEM grew from 113 MW (3% of the RCR) for the 2007–08 Capacity Year to 1,061 MW (23% of the RCR) for the 2016–17 Capacity Year.

This is due to:

- The outcomes of Government policy decisions, such as the Synergy displacement tender, the refurbishment of Muja AB, and the solar feed-in tariff.
- Downward revisions to peak demand forecasts.
- The limited responsiveness of the RCP to market conditions.

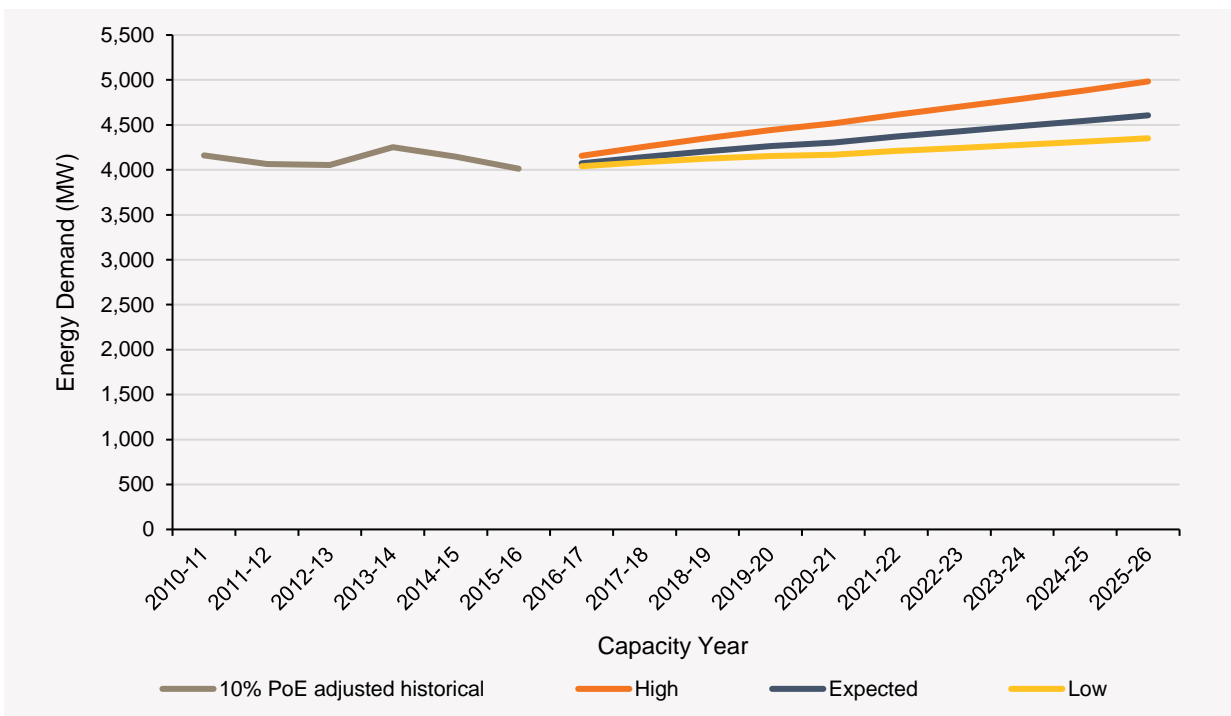
However, total capacity in the SWIS is expected to decline over the next two years due to the continued exit of DSM capacity and the Ministerial Direction¹⁸ regarding the reduction of Synergy’s 380 MW generation capacity (by 1 October 2018). This is likely to be offset by an amount that is presently unknown due to new renewable generation connecting to the SWIS in response to the Federal Government’s Renewable Energy Target.¹⁹

In particular, the exit of DSM capacity is the primary factor contributing to a reduction of excess capacity in the WEM for the 2017–18 Capacity Year to 642 MW, or 14% of the RCR of 4,552 MW.

As displayed in Figure 5, there has been a reduction in the RCR in the SWIS over the last five years. Lower demand growth in the SWIS has been driven by increased rooftop photovoltaics (PV) penetration, behavioural changes associated with electricity consumption, lower than expected population growth, and business investment and retail price increases.

Historical and the 10% Probability of Exceedance (POE) forecast peak demand for different demand growth scenarios are shown in Figure 6.

Figure 6 Historical and forecast peak demand, 10% POE, under different demand growth scenarios



Source: 2015 ES00.

¹⁸ WA Parliament. 2016. *Electricity Corporations Act 2015 – Ministerial Direction*. Available at: [http://parliament.wa.gov.au/publications/tabledpapers.nsf/displaypaper/3914903a6b61c1cde6d034044825806e0027dedb/\\$file/4903.pdf](http://parliament.wa.gov.au/publications/tabledpapers.nsf/displaypaper/3914903a6b61c1cde6d034044825806e0027dedb/$file/4903.pdf). Viewed: 20 January 2017.

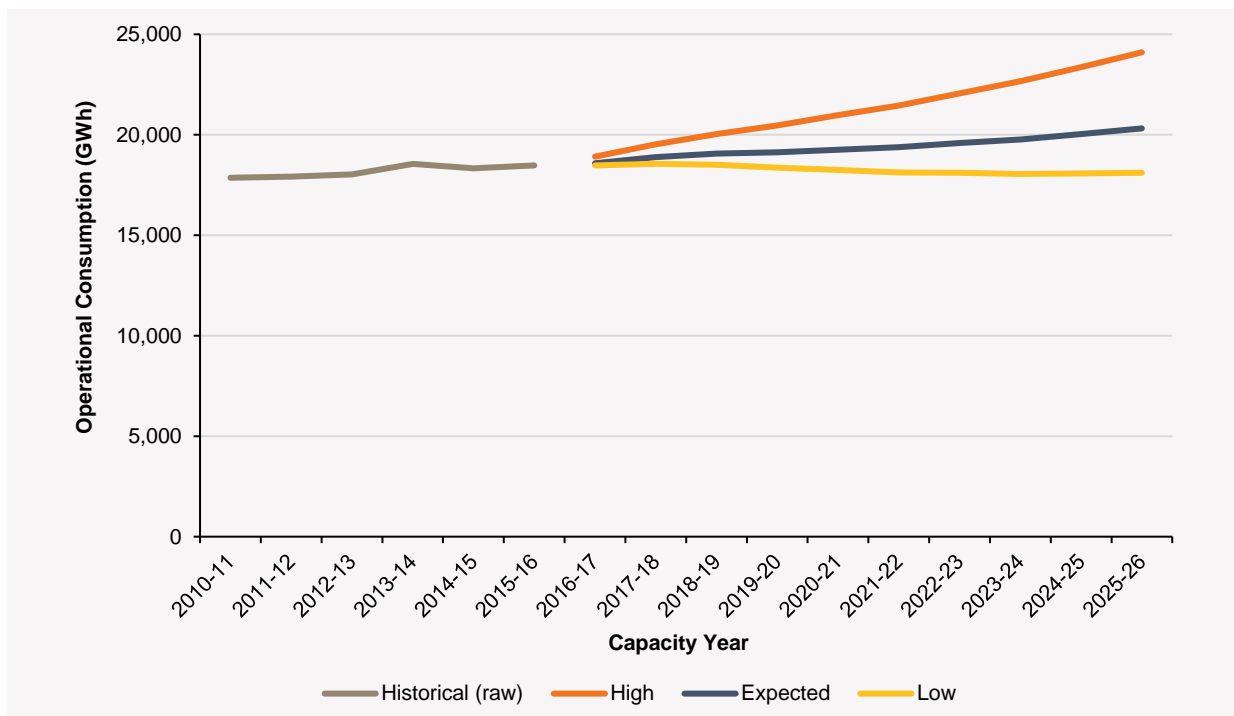
¹⁹ Australian Government. *The Renewable Energy Target (RET) scheme*. Available at: <https://www.environment.gov.au/climate-change/renewable-energy-target-scheme>. Viewed: 23 January 2017.

The 2015 ESOO forecast that the 10% POE peak demand will increase at an average annual rate of 1.4% for the next 10 years, 2016–17 to 2025–26. The growth rate reflects different economic growth forecasts, including changes in rooftop PV and battery storage assumptions.

The forecast 10% POE peak demand increases from 4,073 MW in 2016–17 to 4,606 MW in 2025–26, a 13% increase over the 10-year forecast period. For 2019–20, the peak demand is forecast to be 4,263 MW.

The operational consumption forecasts under different demand growth scenarios are presented in Figure 7. The 2015 ESOO forecasts suggest that annual operational consumption is projected to grow at a rate of 1.0% per annum on average for the 2016–17 to 2025–26 period.

Figure 7 Operational consumption^a 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: 2015 ESOO.

The 2015 ESOO forecast that energy output supplied by the grid will increase 9% over the forecast period, from 18,584 gigawatt hours (GWh) in 2016–17 to 20,318 GWh in 2025–26. The energy output is forecast to be 19,135 GWh in 2019–20.

The 2015 ESOO forecasts of operational consumption are lower than those presented in the 2014 ESOO. These reductions were primarily driven by several factors including:

- New large loads (principally mining loads) not coming online as forecast.
- The moderation of demand growth due to increases in domestic regulated tariffs, continued growth in solar PV uptake, energy efficiency programs, and potential battery storage in the future.
- Lower economic growth projections for Western Australia due to lower forecast commodity prices in the medium term.

The preliminary estimate for the 2019–20 Capacity Year in the 2015 ESOO reported that the RCR will be 4,670 MW.²⁰ Assuming the level of Capacity Credits assigned for the 2017–18 Capacity Year

²⁰ AEMO. 2016. *Deferred 2015 Electricity Statement of Opportunities for the WEM*. Page 60. Available at: <https://www.aemo.com.au/Electricity/Wholesale-Electricity-Market-WEM/Planning-and-forecasting/WEM-Electricity-Statement-of-Opportunities>.



remains unchanged for the 2019–20 Capacity Year, approximately 5,194 MW of capacity is expected to be in service in that Capacity Year. This includes 5,088 MW of generating capacity and 106 MW of DSM capacity.

AEMO anticipates that all of the 5,194MW of Reserve Capacity expected to be in service in the 2019–20 Capacity Year will be traded bilaterally between Market Participants.

The RCR reported in the 2015 ESOO indicates an estimated capacity surplus of 524 MW for the 2019–20 Capacity Year. The reduction of 380 MW of Synergy’s generation capacity due to a Ministerial Direction is estimated to reduce the capacity surplus from 14% of the RCR in the 2017–18 Capacity Year to 3.1% of the RCR in the 2019–20 Capacity Year.

The quantity of excess capacity is likely to differ from the preliminary value presented in this document due to changes in forecast electricity demand, new generation and DSM capacity being considered, retirement of Facilities, or a reduction of DSM capacity by Market Participants.

Proposed projects will be included in future supply-demand balance determinations based on data gathered through this *Request for EOIs* process, to be summarised in the upcoming ESOO to be published in June 2017.

2. KEY REQUIREMENTS FOR THE CERTIFICATION OF RESERVE CAPACITY

AEMO undertakes an annual certification process to confirm that:

- A Facility is capable of delivering the capacity (in MW) that the Market Participant has applied for.
- A new Facility (or additional capacity at an existing Facility) that is yet to commence operation can provide capacity to the SWIS by 1 October, at the latest, in the Capacity Year it starts operating.

All Market Participants (new and existing) wishing to receive Capacity Credits must apply for Certification of their Facility during the Certification period. The principles AEMO applies to assess the level of Certified Reserve Capacity (CRC) assigned to a Facility are outlined in clause 4.11.1 of the WEM Rules.

Typically, the Capacity Credits assigned to a Facility are equal to the quantity of CRC assigned by AEMO to a Facility, through either the trade declaration process or the Reserve Capacity Auction if one is held.

From 1 May 2017 until 30 June 2017, a Market Participant may apply to AEMO to have the capacity of its Facility certified for the 2019–20 Capacity Year. The Market Participant must demonstrate its Facility will be able to deliver capacity into the SWIS for that Capacity Year. To be eligible for CRC, new Facilities must be in commercial operation no later than 1 October 2019 for the 2019–20 Capacity Year.

Sections 4.9 to 4.11 of the WEM Rules describe the application process and the setting of CRC. Information that must be provided for the CRC process²¹ is listed in clause 4.10.1 of the WEM Rules and provided in the Guideline for Certification of Reserve Capacity.²² Details of Participant Registration with AEMO, transmission network access, and environmental approvals are provided in the following sections.

Table 2 outlines Maximum Reserve Capacity Prices (MRCP) for Capacity Credits for the 2014–15 to 2016–17 Capacity Years and the Benchmark Reserve Capacity Prices (BRCP) for the subsequent three Capacity Years. Prior to 1 June 2016, the BRCP was referred to as the MRCP.

Table 2 The BRCPs and Capacity Credit prices in the WEM

Start date	End date	Reserve Capacity Auction Requirement	MRCP/BRCP (\$/MW/year)	RCP (\$/MW/year)	Monthly Reserve Capacity Price (\$/MW/month)
1 October 2014	1 October 2015	No Auction	\$163,900	\$122,427.87	\$10,202.32
1 October 2015	1 October 2016	No Auction	\$157,000	\$120,199.31	\$10,016.61
1 October 2016	1 October 2017	No Auction	\$176,800	\$121,888.94	\$10,157.41
1 October 2017	1 October 2018	No Auction	\$164,800	To be determined	To be determined
1 October 2018	1 October 2019	Not Applicable	\$159,800	To be determined	To be determined
1 October 2019	1 October 2020	Not Applicable	\$149,800	To be determined	To be determined

Capacity Credit payments not traded bilaterally are made in 12 monthly payments, equal to the number of Capacity Credits granted to a Market Participant multiplied by the monthly Reserve Capacity Price.

²¹ AEMO. *Certification of Reserve Capacity*. Available at: <https://www.aemo.com.au/Electricity/Wholesale-Electricity-Market-WEM/Reserve-capacity-mechanism/Certification-of-reserve-capacity>.

²² The Market Procedure: Certification of Reserve Capacity is being developed to reflect the changes to the WEM Rules. For the time being, for more information please refer to the Guideline for Certification of Reserve Capacity, available at: <https://www.aemo.com.au/Electricity/Wholesale-Electricity-Market-WEM/Reserve-capacity-mechanism/Certification-of-reserve-capacity>.

2.1 Participant Registration with AEMO and Facility creation

To be eligible for CRC:

- The proponent must be registered as a Market Participant in the WEM.
- The Facility must have been created in the Wholesale Electricity Market System (WEMS). It is important to note that Facility creation is different from Facility registration – Facility registration merely creates a Facility name in WEMS and reflects the Market Participant’s intention to register a Facility in the future.

Market Participant registration and Facility creation must be completed before applying for CRC.

Satisfying these registration conditions, from the lodgement of an application for WEMS access to the creation of a Facility, usually takes between 15 to 30 business days. However, this process can take much longer, depending on the information provided by the proponent. AEMO encourages project proponents to contact the Market Operations (WA) team at wa.operations@aemo.com.au as early as possible to ensure they can satisfy these requirements prior to submitting a CRC application.

The Market Participant registration process, including the application for WEMS access, is outlined in the Market Procedure: Rule Participant Registration and De-Registration. The Facility creation process is outlined in Section 4.1 of the Market Procedure: Facility Registration, De-Registration and Transfer. These procedures are available on the AEMO website.²³

2.2 Transmission Network Access

For certification of a scheduled or intermittent generator, a proponent is required to provide evidence of network access for each Facility granted by Western Power.

The documentation must outline the terms of access and details of any constraints, such as runback schemes or Declared Sent Out Capacity arrangements that apply, as required by clause 4.10.1(bA) of the WEM Rules. It must contain information that validates the ability of the network to accommodate the connection of the Facility to the SWIS grid.

The timeframe for a proponent to receive network access varies with the type of generation, location, and existing queue of applicants. In many cases, access to the transmission system may take longer than the two-year time horizon of the RCM. AEMO encourages project proponents to contact Western Power as early as possible to ensure their project can progress through the RCM process.

2.3 Environmental approvals

Clause 4.10.1(c)(ii) of the WEM Rules specifies the environmental approvals that must be in place before applying for CRC.

Developers of generation Facilities must refer their projects to the Environmental Protection Authority (EPA) as the first step in securing environmental approvals. The EPA provides information on its website, and proponents are encouraged to read this and to allow for adequate time to complete the required approval processes for CRC.²⁴

2.4 Key steps following the Certification of Reserve Capacity

2.4.1 Assignment of Capacity Credits

Following the CRC process, AEMO assigns Capacity Credits to Facilities after the trade declaration process. Market Participants with Facilities other than DSM that have been assigned CRC must declare whether they intend to secure bilateral contracts for their CRC, withdraw their capacity, or offer it into

²³ AEMO. *Procedures*. Available at: <https://www.aemo.com.au/Electricity/Wholesale-Electricity-Market-WEM/Procedures>.

²⁴ EPA. *Environmental Protection Agency, Government of Western Australia*. Available at: <http://www.epa.wa.gov.au>. Viewed: 9 January 2017.

the Reserve Capacity Auction. Market Participants with DSM Facilities assigned CRC must declare the amount of CRC they intend to supply to AEMO, or withdraw.

Once trade declarations are complete, AEMO assigns Capacity Credits to Facilities in accordance with Appendix 3 of the WEM Rules.

Capacity Credits are first assigned to all committed or operating capacity intended to be bilaterally traded or supplied to AEMO.

If the total quantity of committed or operating capacity is sufficient to meet the RCR, no additional Capacity Credits are assigned.

However, if the RCR level has not been met, AEMO will assign Capacity Credits to proposed Facilities (not yet committed) where the Market Participant has indicated its intention to trade bilaterally or supply capacity to AEMO.

If further capacity is required for a Capacity Year, AEMO will run a Reserve Capacity Auction in accordance with sections 4.15 to 4.19 of the WEM Rules. No Reserve Capacity Auction has been required since the commencement of the WEM.

Applicants must submit trade declarations by 1 September 2017. When submitting trade declarations, Market Participants are only required to declare whether they intend to trade Capacity Credits and are not required to have bilateral contracts in place. Market Participants must register new Facilities prior to the Capacity Year in which their Reserve Capacity Obligations commence.

2.4.2 Payment for Capacity Credits

If more Capacity Credits are assigned than the RCR, AEMO sets the price for all uncontracted Capacity Credits using the following formula (clause 4.29.1 of the WEM Rules as amended²⁵):

$$RCP = \text{MIN} \left\{ \left(\frac{BRCP \times 1.126}{1 - ((surplus + 0.03) \times -4.2)} \right), BRCP \times 1.1 \right\}$$

where

- BRCP is the Benchmark Reserve Capacity Price determined in accordance with section 4.16 of the WEM Rules; and
- surplus is the pro rata excess capacity calculated as follows

$$surplus = \frac{CC - RCR}{RCR}$$

- where
 - CC is the total number of Capacity Credits assigned by AEMO in accordance with clause 4.20.5A for the Reserve Capacity Cycle; and
 - RCR is the Reserve Capacity Requirement for the Reserve Capacity Cycle.

Proponents should note that this exact formula only applies to the 2019–20 Capacity Year.²⁶ Changes to the RCP formula include a progressively steeper price curve, making the RCP more responsive to the level of Capacity Credits, resulting in improved signals for investment in new capacity.

2.4.3 DSM Dispatch Quantity and Activation Price

The EMR has introduced a separate pricing mechanism for DSM Facilities. This requires AEMO to calculate the Expected DSM Dispatch Quantity and the DSM Activation Price. These are then used to determine the DSM RCP as follows:

²⁵ The amendment to clause 4.29.1 of the WEM Rules will commence at 8:00 am (WST) on 1 October 2017.

²⁶ Economic Regulation Authority. *WEM Rules - Schedule B Part 3 (Reserve Capacity Administered Price Table)*. Available at: <https://www.erawa.com.au/cproot/14650/2/WEM%20Rules%20-%20schedule-b-part-3.pdf>. Viewed: 9 January 2017.

$$DSM\ RCP = \left(\frac{\text{Expected DSM Dispatch Quantity}}{\text{Capacity Credits assigned to DSM}} + 0.5 \right) \times \text{DSM Activation Price}$$

AEMO must develop a Market Procedure which documents the calculation of the Expected DSM Dispatch Quantity and the DSM Activation Price. Until AEMO develops this procedure, the Expected DSM Dispatch Quantity will be based on clause 4.5.14E of the WEM Rules. The DSM Activation Price will be \$33,460/MWh as per clause 4.5.14F of the WEM Rules.

The preliminary results of this calculation are shown in Table 3. AEMO has assumed that 106 MW of Capacity Credits assigned to DSM for the 2017–18 Capacity Year will stay the same throughout the forecast period to calculate the values in Table 3.

Table 3 Expected DSM Dispatch Quantity and DSM RCP

Reserve Capacity Cycle	Capacity Year	Expected DSM Dispatch Quantity (MWh)*	Estimated DSM RCP (\$/MW)
2015	2017–18	6.1	18,656
2016	2018–19	9.1	19,603
2017	2019–20	13.7	21,055
From 2018	2020–21	22.2	23,738

* Government of Western Australia. 2016. *Gazette notice: Wholesale Electricity Market Amending Rules 2016*. Available at: https://www.finance.wa.gov.au/cms/Public_Utility_Office/Electricity_Market_Review/Electricity_Market_Review_Documents.aspx. Viewed: 10 January 2017.

2.4.4 Reserve Capacity Security

When a Market Participant seeks assignment of Capacity Credits for a Facility that has not entered service, is being upgraded or will undergo significant maintenance, it must provide AEMO with Reserve Capacity Security (RCS).

RCS covers the risk of new capacity not coming online by 1 October of each Capacity Year. RCS can be provided in the form of a bank guarantee, a bank undertaking, or a cash deposit, and is set at 25% of the BRCP for each Capacity Credit assigned to that Facility.

RCS is required at the time of:

- Bilateral Trade Declarations, for capacity that will be traded bilaterally or supplied to AEMO.
- Offers being submitted for the Reserve Capacity Auction, for capacity offered into the auction.

RCS is returned to the Market Participant:

- If the Facility fails to secure Capacity Credits.
- During the Capacity Year, if the Market Participant applies for the return of the RCS, and the Facility has been assessed to be in commercial operation by reaching 100% of the required output level, thus satisfying its capacity obligations; or
- At the end of the Capacity Year, if the Facility has been assessed as in commercial operation by achieving 90% of the required output.

Alternatively, the RCS may be drawn upon by AEMO if the Facility fails to achieve 90% of the required output. If AEMO draws on the RCS, it is used to offset the cost of any Supplementary Reserve Capacity required. The remainder is refunded to Market Customers in proportion to their IRCR. Information on RCS is in section 4.13 of the WEM Rules and in the Market Procedure: Reserve Capacity Security.²⁷

2.4.5 Obligations on Facilities receiving Capacity Credits

All certified Facilities that have been assigned Capacity Credits must make their capacity available during the periods specified at the time of certification. Facilities (with the exception of DSM) are

²⁷ AEMO. *Procedures*. Available at: <https://www.aemo.com.au/Electricity/Wholesale-Electricity-Market-WEM/Procedures>.



required to demonstrate this by offering their capacity into the Short Term Energy Market (with the exception of intermittent generators) and the Balancing Market.

The allocation of Capacity Credits does not guarantee that a Facility will be dispatched in the energy market.

A Facility that fails to meet its availability obligation (except for approved Planned Outages) will be required to pay Reserve Capacity refunds to the market in accordance with section 4.26 of the WEM Rules.

In addition, Facilities holding Capacity Credits are required to:

- Submit to regular Facility tests undertaken by or on behalf of AEMO.
- Participate in the centralised outage planning arrangements, where applicable.
- Respond to Dispatch Instructions from System Management.

3. ELECTRICITY MARKET REVIEW AND POTENTIAL RULE CHANGES

On 6 March 2014, the Minister for Energy launched the WA Government's EMR. The EMR examines the structures of the electricity generation, wholesale, and retail sectors in the SWIS, and the incentives for industry participants to make efficient investments and minimise costs.

The EMR has three objectives:

- Reducing costs of production and supply of electricity and electricity related services, without compromising safe and reliable supply.
- Reducing the WA government's exposure to energy market risks, particularly focusing on encouraging future electricity generation built by the private sector without government investment, underwriting, or other financial support.
- Attracting private sector participants to the electricity market, which are of a scale and capitalisation to facilitate long-term stability and investment.

The EMR is being undertaken in two phases. Phase 1 of the EMR focusing on an assessment of the WEM and an examination of options for a reform is now complete. Phase 2 was launched on 24 March 2015. It has now commenced with the implementation of detailed design work on a selected set of reforms identified in Phase 1.

Amendments to the WEM Rules to implement transitional reforms to the RCM were gazetted²⁸ on 31 May 2016. The amendments apply to the 2015 and future Reserve Capacity Cycles. The amendments specify transitional arrangements until an auction design (for Capacity Credit allocation) is implemented by 2021. These include:

- Modifying the RCP formula.
- Harmonising DSM availability requirements with scheduled generators.
- Introducing a new price for DSM capacity based on expected dispatch and the value of customer reliability.
- Providing stronger commercial incentives for all capacity to be made available for dispatch.

These measures are intended to reduce the cost of procuring capacity to meet the RCR and reduce the excess capacity in the WEM. Other proposed changes include modifications to the energy and ancillary services markets, including the Balancing Market and the Short Term Energy Market.

AEMO advises all prospective capacity providers (new and existing) to consider proposed changes to the RCM outlined in the Final Report²⁹ released by the Public Utilities Office (PUO) in April 2016.

For more information on the proposed changes to the RCM, proponents are encouraged to refer to the Department of Finance website³⁰ or contact the PUO³¹ directly.

²⁸ Government of Western Australia. 2016. *Gazette notice: Wholesale Electricity Market Amending Rules 2016*. Available at: https://www.finance.wa.gov.au/cms/Public_Utillities_Office/Electricity_Market_Review/Electricity_Market_Review_Documents.aspx. Viewed: 10 January 2017.

²⁹ PUO. 2016. *Final Report: Reforms to the Reserve Capacity Mechanism*. Available at: https://www.finance.wa.gov.au/cms/uploadedFiles/Public_Utillities_Office/Electricity_Market_Review/Reforms-to-the-Reserve-Capacity-Mechanism-Final-Report.pdf. Viewed: 11 January 2017.

³⁰ Department of Finance. 2017. *Electricity Market Review*. Available at: https://www.finance.wa.gov.au/cms/Public_Utillities_Office/Electricity_Market_Review/Electricity_Market_Review.aspx. Viewed: 17 January 2017.

³¹ Department of Finance. *Contact Us*. Available at: http://www.finance.wa.gov.au/cms/Contact_Us/Contact_Us.aspx. Viewed: 17 January 2017.

4. PROPONENT REQUIREMENTS

4.1 Submitting an Expression of Interest for the 2017 Reserve Capacity Cycle

To submit an EOI for each respective Reserve Capacity Cycle, the proponent is required to develop an outline of a proposal for a specific generation Facility or a specific DSM Facility for the Capacity Year in which the Facility is expected to commence.

The proponent's EOI must be submitted **by 5:00 PM (Australian Western Standard Time) on 1 May 2017**, as required by clause 4.1.5 of the WEM Rules.

The EOI submission must include:

- A completed EOI form for each Facility, available in Appendix A of this Request and also in Microsoft Excel format on the AEMO website.³²
- Relevant supporting documentation.

Proponents who wish to submit an EOI are advised to read the Important Notice in Appendix A of this Request.

EOI forms must be submitted:

- a) Electronically to wa.capacity@aemo.com.au; or
- b) Via mail to

Team Leader, System Capacity (WA)

Australian Energy Market Operator

PO Box 7096

Cloisters Square

PERTH WA 6850

AUSTRALIA.

4.2 Certification of Reserve Capacity

The timeline for the 2017 Reserve Capacity Cycle is shown in Table 4 and on the AEMO website.³³

Applications for CRC with respect to the 2017 Reserve Capacity Cycle must be lodged with AEMO **from 1 May 2017 until 30 June 2017** in accordance with clause 4.9.1 of the WEM Rules.

A Market Participant applying for CRC must provide the information specified in clause 4.10.1 of the WEM Rules.

An application for an intermittent generator that is yet to enter service must also be accompanied by an independent expert report as described in clause 4.10.3 of the WEM Rules.

³² AEMO. *Expression of Interest*. Available at: <https://www.aemo.com.au/Electricity/Wholesale-Electricity-Market-WEM/Reserve-capacity-mechanism/Expressions-of-interest>.

³³ AEMO. *Reserve Capacity Timetable*. Available at: <https://www.aemo.com.au/Electricity/Wholesale-Electricity-Market-WEM/Reserve-capacity-mechanism/Reserve-capacity-timetable>.

Table 4 2017 Reserve Capacity Cycle Timetable for the WA WEM

Timetable for 2017 Reserve Capacity Cycle (all times are Australian Western Standard Times)			
Tuesday	31 January 2017	5.00 PM	AEMO publishes Request for Expressions of Interest (EOIs).
Monday	1 May 2017	9:00 AM	Participants may apply for Certification of Reserve Capacity.
Monday	1 May 2017	5.00 PM	Close of the EOIs.
Monday	15 May 2017	5.00 PM	Announcement of the results of the EOIs.
Monday	19 June 2017	5.00 PM	AEMO publishes the: <ul style="list-style-type: none"> • Electricity Statement of Opportunities for WA; and • Reserve Capacity Information Pack on the WA AEMO website.
Friday	30 June 2017	5.00 PM	Applications for Certification of Reserve Capacity close.
Friday	18 August 2017	5.00 PM	AEMO advises assignment of Certified Reserve Capacity (CRC).
Friday	1 September 2017	5.00 PM	Market Participants: <ul style="list-style-type: none"> • Provide Reserve Capacity Security for new capacity that they intend to bilaterally trade; • Provide Reserve Capacity Security for new DSP capacity that they intend to trade through AEMO; and • Advise how much of their CRC will be traded bilaterally and how much will be offered into the auction
Monday	4 September 2017	5.00 PM	AEMO confirms to Market Participants the amount of CRC that can be traded bilaterally.
Tuesday	5 September 2017	5.00 PM	AEMO: <ul style="list-style-type: none"> • Publishes the CRC for each Facility; • Advises whether the Reserve Capacity Auction is required or cancelled; and • Assigns Capacity Credits (if Reserve Capacity Auction is cancelled).
Wednesday	6 September 2017	9.00 AM	Lodgement of Reserve Capacity Offers opens (if Reserve Capacity Auction is required).
Thursday	14 September 2017	5.00 PM	Lodgement of Reserve Capacity Offers closes (if Reserve Capacity Auction is required). Market Participants provide Reserve Capacity Security for new capacity entered into the Reserve Capacity Auction.
Friday	15 September 2017	5.00 PM	AEMO runs the Reserve Capacity Auction and publishes the results (if Reserve Capacity Auction is required).
Thursday	21 September 2017	5.00 PM	Market Participants advise AEMO how many Capacity Credits each Facility will provide and of any Long Term Special Price Arrangements to be accepted (if Reserve Capacity Auction is required).
Friday	22 September 2017	5.00 PM	AEMO assigns Capacity Credits (if Reserve Capacity Auction is required). Market Participants may apply to AEMO for a recalculation of the amount of Reserve Capacity Security required to be held for a Facility (applications may be received after this date/time).

This timetable is intended to confirm dates for year 1 of this Reserve Capacity Cycle only. Refer to clauses 4.1.21B to 4.1.30 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 pursuant to clause 4.1.32 of the WEM Rules.



APPENDIX A. EXPRESSION OF INTEREST FORM

Important Note: As part of your EOI submission, please provide additional accompanying documentation and relevant information that supports your project, in addition to the completed EOI form.

Proponent	Response	Option
Application date		
Proponent name		
Contact person		
Contact person's position		
Address of company		
Phone		
Email		
Fax		
Registered in WEMS?		Yes
(Please cross the option which applies)		No

Facility	Response	Option
Facility name		
Location of Facility		
Is the Facility:		An intermittent generator.
(Please cross the option which applies)		A non-intermittent generator serving an intermittent load.
		A non-intermittent generator not serving an intermittent load.
		A form of demand side management.
Primary fuel to be used in the facility		
Quantity of primary fuel expected to be available to the facility (number of days)		
Back-up fuel to be used by the facility (if any)		
Quantity of back-up fuel expected to be available to the facility (if any)		
Hours during a typical week when the facility will not be available to be dispatched		
Maximum capacity available (MW)		
For non-intermittent generators: capacity at 41°C (MW)		
For non-intermittent generators serving an intermittent load: capacity required to serve intermittent load (MW)		
For intermittent generators, anticipated Capacity Credit assignment (MW)		
For demand side management, expected hours of availability per year		
Expected earliest date that the facility will be available to be fully operational		
Offer for network access:		Has been made by Western Power Networks.
(Please cross the option which applies)		Has been applied for and is being processed.
		Has not been applied for.
Environmental approvals:		Have been granted.
(Please cross the option which applies)		Have been applied for and are being processed.
		Have not been applied for.

APPENDIX B. RESULTS FROM PREVIOUS RESERVE CAPACITY CYCLES

The following information is presented in accordance with clause 4.3.1(c) of the WEM Rules. Table 5 shows Availability Curve information.

Changes to the WEM Rules implemented for the EMR, including reducing the number of Availability Classes from four to two, took effect in June 2016.³⁴

Previously, there were four Availability Classes and capacity was allocated on the basis of the maximum number of hours the capacity was available to be dispatched in a Capacity Year. Under the amended WEM Rules, two Availability Classes are defined in accordance with clause 4.11.4 of the WEM Rules, as follows:

- Availability Class 1 assigned by AEMO to CRC that includes all generation capacity, and any other capacity that is expected to be available to be dispatched for all Trading Intervals in a Capacity Year, under clause 4.11.4(a) of the WEM Rules.
- Availability Class 2 assigned by AEMO to CRC 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 5 Availability Curve data for the relevant Capacity Years for the last three Reserve Capacity Cycles

Availability Curve Information	2015–16 (MW) (2013 ESOO)	2016–17(MW) (2014 ESOO)	2017–18(MW) (2015 ESOO)
Clause 4.5.12(c) of the WEM Rules before the amendment			
Capacity associated with Availability Class 1	4,394	3,852	-
Capacity associated with Availability Class 2	0	63	-
Capacity associated with Availability Class 3	59	361	-
Capacity associated with Availability Class 4	666	281	-
Clause 4.5.12(b) of the WEM Rules			
Capacity associated with Availability Class 1	-	-	3,792
Capacity associated with Availability Class 2	-	-	760

The figures presented for each year are those for the relevant Reserve Capacity Cycle. The latest Availability Curve data can be found in the 2015 ESOO.

³⁴ Government of Western Australia. *Gazette notice: Wholesale Electricity Market Amending Rules 2016*. Available at: https://www.finance.wa.gov.au/cms/Public_Utility_Office/Electricity_Market_Review/Electricity_Market_Review_Documents.aspx. Viewed: 10 January 2017.



MEASURES AND ABBREVIATIONS

Units of measure

Abbreviation	Unit of measure
MW	Megawatts
GWh	Gigawatt hours

Abbreviations

Abbreviation	Expanded name
AEMO	Australian Energy Market Operator
BRCP	Benchmark Reserve Capacity Price
CRC	Certified Reserve Capacity
DSM	Demand Side Management
EMR	Electricity Market Review
EOI	Expressions of Interest
EPA	Environmental Protection Authority
ESOO	Electricity Statement of Opportunities
IRCR	Individual Reserve Capacity Requirement
MRCP	Maximum Reserve Capacity Price
POE	Probability of Exceedance
PUO	Public Utilities Office
PV	Photovoltaics
RCM	Reserve Capacity Mechanism
RCP	Reserve Capacity Price
RCR	Reserve Capacity Requirement
RCS	Reserve Capacity Security
SWIS	South West interconnected system
WA	Western Australia
WEM	Wholesale Electricity Market
WEMS	Wholesale Electricity Market System