



Information guide for independent expert reports in the Reserve Capacity Mechanism

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A document for the Wholesale Electricity Market

1. Introduction

An independent expert report (IER) is required for a Certified Reserve Capacity (CRC) application under clause 4.10.3 of the Wholesale Electricity Market Rules (WEM Rules).

This document aims to assist Market Participants and accredited experts to understand the overall requirements for an IER and its purpose in the Reserve Capacity Mechanism (RCM).

References to the WEM Rules within this document are outlined in bold as **clause XX** or in bold and square brackets as [Clause/Appendix XX].

2. Overview

This section provides an overview for the some important aspects of an IER and describes the IER process in the RCM.

2.1 What is an IER?

An IER is a report prepared by an expert accredited by AEMO [Clause 4.11.6] to support CRC applications for any Facility that will be assessed under Appendix 9 (Relevant Level Methodology) of the WEM Rules.

Generally, these Facilities are intermittent Non-Scheduled Generators (INSG), although Scheduled Generators may be assessed under this methodology, subject to certain conditions [Clause 4.11.2(b)].

An IER must include a Facility's expected energy sent-out estimates expressed in megawatt hours (MWh) and a 5% probability of exceedance (POE) value expressed in megawatts (MW) [Clause 4.10.3A].

2.2 What is an IER used for?

AEMO uses the expected energy sent-out estimates in the Relevant Level calculation to assess the CRC level for Facilities under clause 4.11.2(b).

The 5% POE value is used to determine an INSG's Required Level. It is used to assess the eligibility of the return of Reserve Capacity Security (RCS) and for the purpose of the Reserve Capacity refund calculation.

2.3 Who is required to provide an IER?

When applying for CRC under clause 4.11.2(b), a Market Participant must provide an IER for a Facility that [Clause 4.10.3]:

- is yet to enter service;
- is to re-enter service after significant maintenance;
- is to re-enter service after having been upgraded; or

- has not operated with the configuration outlined in clause 4.10.1(dA) of the WEM Rules for the full period of performance assessment identified in step 1(a) of the Relevant Level Methodology.

2.4 What are the key steps in the IER process?

Key steps in the IER process are outlined below:

1. A Market Participant identifies whether an IER is required for the Facility's CRC application (see Section 3.2).
2. The Market Participant selects an AEMO accredited expert to prepare the IER (see Section 3.1).
3. The accredited expert prepares the IER by following the requirements specified in the WEM Rules and the Certification of Reserve Capacity Market Procedure¹ (see Section 3.3). The IER must meet the required format specifications (see Section 3.4).
4. The Market Participant submits the IER in the Facility CRC application through the Wholesale Electricity Market System (WEMS) Market Participant Interface (MPI)² (see Section 3.4).
5. AEMO assesses the IER and accepts the IER if it meets the requirements outlined in Step 3 above (see Section 3.5).
6. The IER is then used by AEMO in the Relevant Level calculation for CRC assignment and to determine the Required Level (see Sections 3.6 and 3.7).

3. The IER process

This section provides further details on the IER process.

3.1 Who are AEMO's accredited experts?

AEMO accredits a minimum of two independent experts to prepare IERs [Clause 4.11.6]. This ensures all accredited experts are familiar with the IER process and are qualified to provide estimates of energy output on new INSGs. An accreditation is valid for two years unless AEMO removes it, which can happen at any time. An accredited expert may apply for re-accreditation where its accreditation has expired.

The current list of accredited experts is provided on AEMO's website³.

3.2 How to determine whether an IER is required

For the Relevant Level calculation, an INSG⁴ is categorised as a new or an existing Candidate Facility based on the Facility's Full Operation Date (FOD). This represents the day the Facility became fully operational under its current configuration.

¹ The Certification of Reserve Capacity Market Procedure, available at: <https://www.aemo.com.au/Electricity/Wholesale-Electricity-Market-WEM/Procedures>.

² WEMS MPI User Guide and WEMS Submission Specifications, AEMO. Available at: <https://www.aemo.com.au/Electricity/Wholesale-Electricity-Market-WEM/Participant-information/Guides-and-useful-information>.

³ Certification of Reserve Capacity, AEMO. Available at: <https://www.aemo.com.au/Electricity/Wholesale-Electricity-Market-WEM/Reserve-capacity-mechanism/Certification-of-reserve-capacity>.

⁴ No Market Participants have elected to use the Relevant Level Methodology for a Scheduled Generator in previous Reserve Capacity Cycles. For simplicity, the information provided in this document focuses on INSGs.

If a Facility has not been in full operation for the entire five-year period ending at 8:00 am on 1 April of Capacity Year 1 of the relevant Reserve Capacity Cycle, the Facility is a new Candidate Facility [Appendix 9] and an IER is required for its CRC application [Clause 4.10.3]. Otherwise, the Facility is considered an existing Candidate Facility and actual meter data for the entire five-year period will be used in the Relevant Level calculation.

A Market Participant has the following opportunities to provide and revise a FOD:

1. In the Facility's CRC application under clause 4.10.1(c)(iii)(7). This is when the Facility or Upgrade is expected to have completed a Commissioning Test and be capable of meeting all Reserve Capacity Obligations.
2. In a progress report provided under clause 4.27.11A (this is still likely to be an expected date).
3. In the Facility's CRC application under clause 4.10.1(k). This can only be provided once the Facility has become fully operational.
4. A Market Participant can view the Facility's Full Operation Date (FOD) in WEMS Reserve Capacity Standing Data⁵.

If a Facility is being upgraded and applying for certification in a relevant Reserve Capacity Cycle, the Upgrade is required to apply for CRC separately from the parent Facility. This is to ensure the certification outcome of the Upgrade does not adversely impact the parent Facility's certification outcome. If the Upgrade is assigned Capacity Credits, it will be merged into the parent Facility to apply for certification as a combined Facility in subsequent Reserve Capacity Cycles. The combined Facility's FOD will reflect the date that the Upgrade provides under

clause 4.10.1(c)(iii)(7) or clause 4.27.11A given the change in configuration to the parent Facility. When the Upgrade becomes operational, the combined Facility's FOD will reflect the date provided under clause 4.10.1(k).

Box 1: Determining whether an IER is required

A Market Participant has applied for CRC for three INSG Facilities for the 2020 Reserve Capacity Cycle – INSG-1, INSG-2, and INSG-3. INSG-3_UPG is an Upgrade to INSG-3.

In accordance with step 1(a) of Appendix 9 of the WEM Rules, the 5-year period identified for the 2020 Reserve Capacity Cycle starts from 8:00 am on 1/04/2015 and ends at 8:00 am on 1/04/2020.

Example 1

INSG-1 is a new Facility and the expected date for it to complete all Commissioning Tests and be capable of fully meeting its Reserve Capacity Obligations is 1/05/2022.

As the date of 1/05/2022 is later than 1/04/2020, INSG-1 is a new Candidate Facility for the Relevant Level calculation and an IER is required.

Example 2

INSG-2 is an existing Facility with a FOD of 30/08/2015.

Although INSG-2 is an existing Facility, it has not been fully operational for the entire five-year period and is therefore considered a new Candidate Facility for the Relevant Level calculation. An IER is required.

Example 3

INSG-3 is an existing Facility with a FOD of 30/01/2015.

Full operation date (FOD) – the day the Facility became fully operational under its current configuration. If a Facility is upgraded, the FOD is updated to the day the Upgrade became fully operational.

⁵ WEMS MPI User Guide, AEMO. Available at: <https://www.aemo.com.au/Electricity/Wholesale-Electricity-Market-WEM/Participant-information/Guides-and-useful-information>.

The Facility has been in full operation for the entire 5-year period and is therefore considered an existing Candidate Facility for the Relevant Level calculation. An IER is NOT required.

Example 4

INSG-3_UPG is an Upgrade to the existing Facility INSG-3. The expected date to complete all Commissioning Tests and be capable of meeting Reserve Capacity Obligations in full is 29/09/2022.

The FOD is later than 1/04/2020 and therefore the Upgrade will be considered a new Candidate Facility for the Relevant Level calculation. An IER is required.

When INSG-3_UPG has been assigned Capacity Credits for the 2020 Reserve Cycle, the FOD of INSG-3 (parent + Upgrade) will reflect the FOD of the INSG_UPG provided in the 2020 certification or a progress report. The date that the Upgrade becomes fully operational will be the combined Facility's final FOD.

As demonstrated above, where the FOD of a Facility falls within or is later than the relevant five-year period, an IER is required. This may require a Facility to provide up to eight IERs for CRC applications. Once the expected energy output estimates provided in an IER cover the entire period that falls prior to the FOD in the Relevant Level calculation (generally the third or fourth IER provided), this IER together with actual meter data will be sufficient for future Relevant Level calculations. If the Facility has one or more Upgrades, more IERs would be required. Please see Appendix A1 for further information and examples.

3.3 What factors should an accredited expert consider when preparing an IER?

An accredited expert must follow the requirements specified in the WEM Rules [Clause 4.10.3A] when preparing an IER and consider the following factors (outlined in step 6.3 of the Certification of Reserve Capacity Market Procedure):

1. The configuration of the Facility proposed in the CRC application [Clause 4.10.1(dA)].
2. The level of network access available, or expected to be available, to the Facility [Clauses 4.10.1(bA)(ii) and 4.11.1(bA)]. Energy output estimates provided in an IER should reflect the Facility's existing or expected Declared Sent Out Capacity (DSOC) limit.
3. The observed sent-out generation of similar Facilities, if applicable.
4. Any restrictions on the availability of the Facility, as specified by the CRC applicant under clause 4.10.1(g).

The timestamp of an AEMO Trading Interval (TI) is defined by the point in time that the TI begins, which may differ from the typical convention of meteorological data suppliers defining the timestamp⁶. For consistency and accuracy purposes, accredited experts should endeavour to make sure the development and presentation of energy sent-out estimates for CRC applications is consistent with the AEMO TI timestamp to avoid any misalignment of data.

For a biogas Facility, it is important to provide sufficient information and supporting evidence on fuel availability and how this affects the Facility's expected energy sent-out estimates. The IER should confirm the level of fuel supply available to the Market Participant as if the Facility had been in operation for the relevant period. The expected energy sent-out estimates must be consistent with fuel supply information.

⁶ For example, Solargis uses centre of summarization interval as default. This means that time intervals 00:00-01:00 and 01:00-02:00 are represented by timestamps 00:30 and 01:30. See: <https://solargis.com/docs/product-guides/time-series-and-tmy-data/data-format>

Box 2: How should an accredited expert consider a Facility's DSOC when estimating the Facility's expected energy sent-out?

In general, a Facility's expected energy sent-out estimates should be capped at the Facility's DSOC.

For an Upgrade, when the combined Facility's (parent + Upgrade) configuration exceeds its DSOC, the accredited expert should cap the Upgrade's expected sent-out estimates to ensure that the combined Facility's sent-out does not exceed the DSOC. This applies regardless of whether the parent Facility is an existing or new Candidate Facility.

Example

A Market Participant has applied for CRC in respect of a Facility (INSG-3) and its Upgrade (INSG-3_UPG) for the 2020 Reserve Capacity Cycle. The combined Facility has a DSOC of 80 MW.

INSG-3 is an existing Candidate Facility and an IER is not required. The Facility's actual meter data will be used for the Relevant Level calculation.

INSG-3_UPG is a new Candidate Facility and requires an IER. The accredited expert should consider the DSOC of 80 MW and cap the Upgrade's expected energy sent-out estimates to ensure that the combined Facility (INSG-3 + INSG-3_UPG)'s total sent-out does not exceed the DSOC.

3.4 IER modelling assumptions

Before CRC can be assigned to an Intermittent Component, or Facility, there must be 5 years of historical energy output data available for the application of the Relevant Level methodology to the Component or Facility.

For Facilities or components that have not generated 5 years of actual historical energy output data, an Independent Expert (IE) needs to supplement all, or some of those five years with modelled historical energy output estimates. For example, if the Facility has been operational for two years and has accumulated two years' worth of operational data, then the Market Participant will need to supplement the historical data with three years of modelled historical energy output estimates.

The modelled historical energy output estimates developed by an Independent Expert should include all energy losses on the Facility side of the grid connected meter. In addition:

- The IE should consider all applied losses that are representative of the Facility's actual/projected age (rounded down to nearest whole year) at the commencement of the Capacity Year in question.
 - *For example, if at the commencement of a Capacity Year, an asset's age will be two years and three months, losses should be applied for the whole five-year energy time series that are representative of the asset at an age of two whole years.*
- The Independent Expert report should clearly detail all losses that are accounted for within the time series data including but not limited to:
 - On-site transformers, inverters, cable losses, efficiency losses, etc.

Some energy losses may be variable or intermittent in nature and the IE should apply the loss value that is statistically most likely to occur during the specific Capacity Year in question, for every data point in the 5 -year energy time series.

- The IEs may exclude the following losses:
 - Outages resulting from network downtime (consequential losses); and
 - Curtailment instruction from the Network or Market Operator.

3.5 How do Market Participants provide an IER to AEMO?

An IER must be included in a Facility or an Upgrade's CRC application. An IER must be comprised of a CSV file and written report.

The CSV file must contain the expected energy output expressed in MWh for each TI for the entire five-year period identified. The file should be prepared using the template⁷ provided and follow the format requirements outlined below:

1. Provide expected energy output by the TI start time (the first TI starts from 01/04/XXXX 08:00).
2. Expected energy output should include at least four decimal places.
3. If the Facility is already in full operation, provide the expected energy output up to 8:00 am of the FOD.
4. For all TIs after and including 8:00 am of the FOD, enter zeros (not null). AEMO will use the Facility's actual meter data in the Relevant Level calculation.
5. Replace negative energy output estimates with zeros.

The written report (Adobe PDF or Microsoft Office Word) contains:

1. Sufficient information for AEMO to understand how the expected energy sent-out estimates are developed, including:
 - A Facility description that includes the Facility's technical specifications, location, the available network access level, and any operating restrictions. Note that AEMO must be informed of any changes to these details after Capacity Credits have been assigned [Clause 4.10.4].
 - A methodology description that provides information on the credibility of the method and tool applied for developing the estimates.
 - The data sources that are used as inputs for the estimates, including information on the credibility of the data sources.
 - If the Facility is a biogas Facility, sufficient information on the fuel availability and its impact on the estimates.
2. 5% POE value(s):
 - For a Facility that is not an Upgrade: a value expressed in MW that must equal the 5% POE of expected generation output for the Facility for all TIs that occurred within the last three years up to, and including, the last Hot Season (commencing at 8:00 am on 1 December and ending at 8:00 am on 1 April) [Clause 4.10.3A(b)].
 - For an Upgrade: two values expressed in MW:
 - One for the Upgrade that must equal the 5% POE of expected generation output for the Upgrade for all TIs that occurred within the last three years up to, and including, the last Hot Season; and
 - One for the combined Facility (parent plus Upgrade) that must equal the 5% POE of expected generation output for the combined Facility for all TIs that occurred within the last three years up to, and including, the last Hot Season.
3. If an alternative value to the 5% POE value is proposed [Clauses 4.10.3A(c) and 4.10.3A(d)]:
 - For a Facility that is not an Upgrade: an alternative value expressed in MW must be proposed and the reasons for the proposed alternative value must be provided.

⁷ The template is available under the Relevant Level Methodology section on the AEMO Certification of Reserve Capacity webpage: <https://www.aemo.com.au/Electricity/Wholesale-Electricity-Market-WEM/Reserve-capacity-mechanism/Certification-of-reserve-capacity>.

- For an Upgrade: two alternative values expressed in MW must be proposed, one for the Upgrade, and the other for the combined Facility (parent plus Upgrade). The reasons for the proposed alternative values must be provided.

Box 3: Why an Upgrade's IER must include two 5% POE values

If an Upgrade is assigned Capacity Credits, the Upgrade will be merged into the parent Facility when its Reserve Capacity Obligations commence (usually 1 October for the relevant Capacity Year). For the following CRC application, the Facility will be assessed under its new configuration (parent + Upgrade). Therefore, the 5% POE value for the combined Facility will be used to calculate the Required Level for the entire Facility for the relevant Capacity Year.

Example

A Market Participant has applied for CRC for INSG-4 and INSG-4_UPG (an Upgrade to INSG-4) for the 2020 Reserve Capacity Cycle. The parent Facility (INSG-4) is an existing Candidate Facility with a nameplate capacity of 100 MW. The Upgrade (INSG-4_UPG) is a new Candidate Facility with a nameplate capacity of 30 MW. The combined Facility has a DSOC of 150 MW.

As an existing Candidate Facility, the parent Facility (INSG-4) does not need an IER.

As a new Candidate Facility, the Upgrade (INSG-4_UPG) requires an IER. In the IER, two 5% POE values must be provided as follows:

1. The first value is estimated as 29.685 MW for INSG-4_UPG, calculated based on INSG-4_UPG's expected energy sent-out estimates for the period between 8:00 am on 1/04/2017 and 8:00 am on 1/04/2020.
2. The second value reflects the combined Facility's (INSG-4 + INSG-4_UPG) 5% POE and is estimated as 129.547 MW. This value should be calculated based on the combined Facility's expected energy sent-out estimates for the period 8:00 am on 1/04/2017 to 8:00 am on 1/04/2020.

When the Reserve Capacity Obligations of INSG-4_UPG commences in the 2022-23 Capacity Year, the quantity of the Reserve Capacity Obligations will be rolled into the Reserve Capacity Obligations of the parent Facility INSG-4 (parent Facility and the Upgrade do not have separate metering points). INSG-4 will have a new configuration of 130 MW. The Required Level of INSG-4 will be updated based on the 5% POE value of 129.547 MW for the 2022-23 Capacity Year.

For CRC for the 2021 Reserve Capacity Cycle, the Market Participant is required to provide an IER with expected energy output and one 5% POE value estimated based on INSG-4's new configuration of 130 MW.

3.6 How does AEMO assess a submitted IER?

AEMO assesses the completeness and accuracy of an IER in line with the requirements outlined in Sections 3.3 and 3.4 of this document. If AEMO considers an IER to be incomplete, it will request the Market Participant to provide further information.

If AEMO considers the IER to be inaccurate, it may determine alternative estimates of the expected energy that would have been sent out by the Facility had it been in operation with the configuration proposed in the CRC application. These estimates will be used in the Relevant Level Methodology in line with step 6.3.2 of the Certification of Reserve Capacity Market Procedure.

3.7 How is an IER used to assign CRC?

The expected energy sent-out estimates provided in an IER are used to calculate the Facility's Relevant Level in accordance with the Relevant Level Methodology [Appendix 9].

For an INSG with unconstrained network access and a DSOC higher than the Relevant Level, the Relevant Level calculated for the Facility sets the quantity of CRC that is assigned to the Facility [Clauses 4.11.2(b)].

If an INSG is a Constrained Access Facility (e.g. a Generator Interim Access Facility⁸) that is not entitled to unconstrained network access, the Facility's CRC level is set by the lesser of the Relevant Level and the Constrained Access Entitlement (CAE) [Clauses 4.11.1(bA)]. The CAE is determined by Western Power as the MW level of network access expected to be available to the Facility for at least 95% of the generation dispatch scenarios to meet the Peak Demand in the SWIS for the relevant Capacity Year [Appendix 11].

3.8 How is an IER used to determine Required Level?

The 5% POE value provided in an IER sets the Facility's initial Required Level. As the 5% POE is calculated from the expected energy sent-out estimates, it corresponds to the Facility's level of CRC assigned. The Facility's Adjusted Required Level is calculated using the formula below:

$$\text{Required Level}_{Adjusted} = \text{Required Level}_{Assigned} \times \frac{\text{Capacity Credits}}{\text{CRC}_{assigned}}$$

A Market Participant can view the Facility's Adjusted Required Level in the Facility Management dashboard in the WEMS RCM portal⁹.

The adjustment to the initial Required Level is necessary because a Market Participant could withdraw some capacity in an INSG's bilateral trade declaration, resulting in lower assigned Capacity Credits compared to the level of CRC. This decrease in Capacity Credits should be reflected by a decrease in the Facility's Required Level.

The Required Level serves two purposes for an INSG in the RCM – return of RCS and the capacity payment refund calculation.

For the return of RCS, the Capacity Credits applied in the calculation is the initial level of Capacity Credits assigned by AEMO [Clause 4.20.5A].

For capacity payment refunds, the Capacity Credits applied in the calculation is the level of Capacity Credits currently held by the Facility. Any change in the level of Capacity Credits due to a Market Participant's voluntary reduction will be taken into account [Clause 4.25.4A].

A Market Participant may provide AEMO with a report before the end of the relevant Capacity Year under clause 4.13.10C. This report must be prepared by an AEMO accredited expert and specifies the accredited

expert's best estimate of the level to which the Facility can operate. This best estimate must be expressed in MW as a sent-out value. This report can be used for the return of RCS and the refund calculation. It allows an INSG to demonstrate its sent-out capability by providing an accredited expert's best estimate, where the INSG cannot meet its Required Level due to non-operational factors (e.g. insufficient sun or wind in the first month of operation).

3.8.1 Return of RCS

For RCS to be returned for a new Facility or Upgrade before the end of the Capacity Year, the Facility must:

1. Be considered by AEMO to be in Commercial Operation [Clause 4.13.13].
2. Operate at a level equivalent to its Required Level, adjusted to 100 percent of the level of Capacity Credits specified in clause 4.20.5A, in at least two TIs prior to the end of the relevant Capacity Year.

For a new Facility or Upgrade to receive its RCS at the end of the Capacity Year, it must be considered by AEMO to be in Commercial Operation and [Clause 4.13.10]:

⁸ The Generator Interim Access (GIA) Facilities are under the GIA arrangement. It was developed to facilitate new generation connections on a constrained basis. It is not scalable and was intended as an interim solution. Generators connected under the GIA arrangement will be migrated to the new security- constrained dispatch engine as part of the implementation of constrained access, and the GIA tool will be decommissioned. There is currently concern that the GIA arrangement will limit the entry of some renewable facilities that may have otherwise connected prior to 2022 if the GIA arrangement had no capacity restriction.

⁹ WEMS MPI User Guide, AEMO. Available at: <https://www.aemo.com.au/Electricity/Wholesale-Electricity-Market-WEM/Participant-information/Guides-and-useful-information>.

- Operate at a level which is at least equivalent to its Required Level, adjusted to 90 percent of the level of Capacity Credits specified in clause 4.20.5A, in at least two TIs before the end of the relevant Capacity Year; or
- Provide AEMO with a report under clause 4.13.10C, which specifies that the Facility certified under clause 4.11.2(b) can operate at a level which is at least equivalent to its Required Level, adjusted to 90 percent of the level of Capacity Credits specified in clause 4.20.5A.

A Market Participant may request AEMO to determine that a Facility is in Commercial Operation in accordance with clause 4.13.10A when the Facility has [Clause 4.13.10B]:

1. Completed an approved Commissioning Test under clause 3.21A and subsequently produced energy for at least two TIs; and
2. Provided a formal advice that it has completed an approved Commissioning Test under clause 3.21A and is commercially operational.

3.8.2 Capacity payment refund calculation

An INSG must be in Commercial Operation and meet its Required Level in at least two TI, adjusted to 100 percent of Capacity Credits currently held in the first month that its Reserve Capacity Obligations apply to avoid paying refunds [Clauses 4.26.1(b) and 4.26.1A(a)ii.3].

If an INSG is not in Commercial Operation, it will pay refunds on the full amount of Capacity Credits assigned until it gains Commercial Operation status.

If an INSG is in Commercial Operation but has not met its Required Level, refunds will apply to the difference between the Required Level and the Facility's second highest value of the output achieved or the value provided in the report under clause 4.13.10C since the Facility gained Commercial Operation status.

An Upgrade's Reserve Capacity status does not impact the parent Facility's Commercial Operation status in the capacity payment refund calculation. Note the refund calculation is based on the Required Level of the combined Upgrade and parent Facility.

A1. Appendix

A1.1 How many new IERs a Facility would be required to provide over its lifetime?

For a Facility that does not change its configuration, the number of IER's required will depend on the FOD of the Facility. Generally, for CRC purposes, an INSG will be required to provide a new IER for the first three or four Reserve Capacity Cycles. Subsequent Reserve Capacity Cycles may use a combination of a previous IER and actual meter data until the Facility has been in operation for the full 5 years of the Relevant Level calculation period.

Box 4: For how many Reserve Capacity Cycles does a new Candidate Facility need a new IER?

Example

INSG-1 is a new Facility that is expected to complete all Commissioning Tests and be capable of fully meeting its Reserve Capacity Obligations on 1/05/2022. The relevant Market Participant has applied for CRC for the 2020 Reserve Capacity Cycle.

The Market Participant is required to submit an IER for INSG-1 for each of the eight Reserve Capacity Cycles between 2020 and 2027 (see table below). From the 2028 Reserve Capacity Cycle, actual meter data is available for the entire relevant 5-year period for the Relevant Level calculation, so an IER is not required.

IER #	Reserve Capacity Cycle	Relevant Level period	FOD	IER required?	New IER required?	RequiredLevel period
1	2020	1/04/2015 – 31/03/2020		Yes	Yes	1/04/2017 – 31/03/2019
2	2021	1/04/2016 – 31/03/2021		Yes	Yes	1/04/2018 – 31/03/2021
3	2022	1/04/2017 – 31/03/2022		Yes	Yes	1/04/2019 – 31/03/2021
4	2023	1/04/2018 – 31/03/2023		Yes	Yes	1/04/2020 – 31/03/2022
		1/04/2019 – 31/03/2024	1/05/2022			
5	2024			Yes	No	As above
6	2025	1/04/2020 – 31/03/2025		Yes	No	As above
7	2026	1/04/2021 – 31/03/2026		Yes	No	As above
8	2027	1/04/2022 – 31/03/2027		Yes	No	As above

The first four Reserve Capacity Cycles require a new IER each year to cover the Relevant Level calculation period. In the 2023 Reserve Capacity Cycle for the first time the Facility's FOD falls in the Relevant Level calculation period. From the 2025 Reserve Capacity Cycle onwards, the previous year's IER combined with the Facility's actual meter data from the FOD now covers the entire period. This IER together with actual meter data will be sufficient for all future Relevant Level calculations.

A1.2 How many additional new IERs is a Market Participant required to provide for an upgraded Facility?

An Upgrade changes the configuration of the parent Facility. The date that the Upgrade completes Commissioning Tests and is capable of meeting Reserve Capacity Obligations in full will be the new FOD applied to the combined Facility. This new FOD will determine how many IERs are required for the Facility.

If the Facility's FOD occurs no earlier than 1 April, the Market Participant is required to provide up to four additional IERs. This is similar to examples presented in Box 4. The first IER provided for an Upgrade must present the expected energy sent-out separate to the parent Facility. All subsequent IERs must determine the expected energy sent-out for the Facility under its new configuration (parent + Upgrade).

Abbreviations and glossary

ABBREVIATIONS

Abbreviation	Expanded names
CAE	Constrained Access Entitlement
CRC	Certified Reserve Capacity
DSOC	Declared Sent Out Capacity
FOD	Full Operation Date
IER	Independent Expert Report
INSG	Intermittent Non-Scheduled Generators
MPI	The Market Participant Interface for the WEMS
MW	Megawatt
MWh	Megawatt hour
POE	Probability of exceedance
RCM	Reserve Capacity Mechanism
RCS	Reserve Capacity Security
SWIS	South West Interconnected System
WEM	Wholesale Electricity Market
WEMS	Wholesale Electricity Market System

GLOSSARY

This document uses many terms that have meanings defined in the Wholesale Electricity Market Rules (WEM Rules). The WEM Rules meanings are adopted unless otherwise specified.

Term	Definition
Candidate Facility	Facilities that have applied for certification of Reserve Capacity under clause 4.11.2(b) of the WEM Rules for a given Reserve Capacity Cycle.
Capacity Credit	A notional unit of Reserve Capacity provided by a Facility during a Capacity Year, where each Capacity Credit is equal to 1 MW of capacity.
Capacity Year	A period of 12 months commencing on 1 October and ending on 1 October of the following calendar year. It is the period that Reserve Capacity Obligations apply (generators must provide the capacity they committed to when certified).
Certified Reserve Capacity (CRC)	The quantity of Reserve Capacity that AEMO has assigned to the Facility for the Reserve Capacity Cycle in accordance with clauses 4.11 or 4.28B of the WEM Rules.

Term	Definition
Commercial Operation	The status determined by AEMO under clause 4.13.10B of the WEM Rules that a Facility is operating in the Wholesale Electricity Market.
Demand Side Management (DSM)	A type of capacity that can reduce its consumption of electricity from the SWIS in response to a dispatch instruction. Usually made up of several customer loads aggregated into one Facility.
Demand Side Programme (DSP)	A Facility registered in accordance with clause 2.29.5A of the WEM Rules.
Facility	Any of the facilities described in clause 2.29.1 of the WEM Rules, including a distribution, transmission, generation, load, or Demand Side Programme.
Full Operation Date (FOD)	The date that represents the Facility became fully operational under its current configuration as determined in accordance with Appendix 9 of the WEM Rules.
Individual Reserve Capacity Requirement (IRCR)	The proportion of the total cost of Capacity Credits acquired through the RCM paid by each Market Customer. Determined based on each Market Customer's contribution to peak demand during 12 peak trading intervals over the previous summer period (December to March).
Intermittent Generator	A generator that cannot be scheduled because its output level is dependent on factors beyond the control of its operator (for example, wind speed).
Long Term Projected Assessment of System Adequacy (PASA)	A study conducted in accordance with clause 4.5 of the WEM Rules to determine the Reserve Capacity Target for each year in the Long Term PASA Study Horizon and prepare the WEM ES00.
Long Term PASA Study Horizon	The 10-year period commencing on 1 October of Year 1 of a Reserve Capacity Cycle.
Non-Scheduled Generator (INSG)	A generation system that can be self-scheduled by its operator (with the exception that System Management can require it to decrease its output subject to its physical capabilities) and which is registered as a Non-Scheduled Generator in accordance with clauses 2.29.4(a) or 2.29.4(d) of the WEM Rules.
Relevant Level	The MW quantity determined by AEMO to represent the quantity of Certified Reserve Capacity for an Intermittent Generator or in accordance with the Relevant Level Methodology.
Relevant Level Methodology	The method of determining the Relevant Level specified in Appendix 9
Required Level	The level of output (expressed in MW) required to be met by a Facility as determined in clause 4.11.3B of the WEM Rules.
Reserve Capacity Cycle	A four-year period covering the cycle of events described in clause 4.1 of the WEM Rules.
Reserve Capacity Mechanism (RCM)	The capacity market in the SWIS that ensures sufficient capacity is available to meet peak demand which is regulated under Chapter 4 of the WEM Rules.
Reserve Capacity Obligations	The obligations that a Market Participant is required to meet for holding Capacity Credits.
Reserve Capacity Price (RCP)	The price for capacity paid to Capacity Credit holders and determined in accordance with clause 4.29.1 of the WEM Rules.
Reserve Capacity Security (RCS)	A security deposit with AEMO by a Market Participant when it seeks Capacity Credits for a Facility that has not yet entered service.
Reserve Capacity Target (RCT)	AEMO's estimate of the total quantity of generation or DSM capacity required in the SWIS to satisfy the Planning Criterion.