



**Energy Transformation
Implementation Unit**

Allocation of Capacity Credits in a constrained network

Design Proposal

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Abbreviations

The following table provides a list of abbreviations and acronyms used throughout this document. Defined terms are identified in this document by capitals.

Term	Definition
AEMO	Australian Energy Market Operator
BRCP	Benchmark Reserve Capacity Price
DSOC	Declared Sent Out Capacity
ERA	Economic Regulation Authority
ETIU	Energy Transformation Implementation Unit
MW	Megawatt
PoE	Probability of Exceedance
RCM	Reserve Capacity Mechanism
RCP	Reserve Capacity Price
RCR	Reserve Capacity Requirement
RLM	Relevant Level Methodology
SWIS	South West Interconnected System
WEM	Wholesale Electricity Market

Executive summary

Introduction

The Wholesale Electricity Market (WEM) in the South West Interconnected System (SWIS) is a capacity plus energy market with capacity procured through the Reserve Capacity Mechanism (RCM). Generator access to the Western Power Network in the SWIS currently operates on the principle of unconstrained access. This means facilities connecting to the network are obliged to fund network augmentations to maintain the unconstrained access of incumbents.¹ This current unconstrained access arrangement is to be changed to a constrained network access model in 2022. This will remove the obligation for new entrants to fund augmentations, reducing barriers to entry and increasing the utilisation of the network. Several aspects of the WEM design will need to be amended as a consequence.

Specifically, changes to the allocation of Capacity Credits under the RCM are required so that under the new constrained model, the RCM continues to achieve its intended purpose of incentivising the investment needed to ensure a reliable power system. Without reform, uncertainty around how network constraints affect facilities' Capacity Credits would undermine the RCM's ability to achieve this purpose.

The Energy Transformation Taskforce (Taskforce) has recently provided its in-principle support for a Capacity Credit Rights regime. This approach builds on an earlier proposal presented by the then Public Utilities Office in 2018, termed Capacity Priority Rights, but is simpler and is expected to be less costly to implement.

This paper describes the proposed design of the Capacity Credit Rights regime. It has been developed by the Energy Transformation Implementation Unit (ETIU) as a basis for consultation with industry participants on how the Capacity Credit Rights regime might work. The paper draws on specialist advice from Oakley Greenwood, working in conjunction with The Lantau Group. Feedback from the consultation process will be incorporated into the design of the Capacity Credit Rights regime and the Taskforce intends to release the final design in an Information Paper in December 2019.

Capacity Credit Rights

What are they?

A Capacity Credit Right is an instrument, allocated to a generation facility and measured in megawatts (MW), that establishes a preferential right to receive Capacity Credits. A facility that has been allocated Capacity Credit Rights will receive Capacity Credits up to the amount of Capacity Credit Rights that it holds with limited exceptions as discussed in this paper.

Capacity Credit Rights have two functions.

- They provide a cap on the amount of Capacity Credits a facility can receive for its Certified Reserve Capacity,² based on the physical network capacity available at the relevant connection point or network element. Capacity Credits Rights are allocated to a facility *up* to the amount of network

¹ In recent years, interim arrangements, including runback schemes and the Generator Interim Access Arrangement, have allowed generators to avoid funding augmentations by agreeing to reduced levels of access. However, opportunity to connect generators under these interim arrangements has been exhausted.

² For intermittent generators, this is the figure based on the Relevant Level Method. For scheduled generators, this is the figure based on an assessment of the facility's output calculated at air temperature of 41 degrees Celsius.

capacity determined to be available to accommodate the facility's Certified Reserve Capacity at peak times or other periods of low reserve, ensuring that Capacity Credits are not allocated beyond the physical transfer capability of the network.

- Once allocated, the level of Capacity Credit Rights held by a generation facility will remain constant provided the facility maintains its Certified Reserve Capacity and continues to make capacity available at that level. This means that, provided it performs, a Capacity Credits Rights *holder* is protected against the otherwise unhedgeable risk of losing access to Capacity Credits merely because a new entrant facility has located in the same constrained region of the network.

Once Capacity Credit Rights are allocated in a given region of the network, subsequent facilities seeking to connect in that constrained region can only receive Capacity Credit Rights up to the residual physical capacity of the network in that region, net of the Capacity Credit Rights that have already been allocated.

Capacity Credit Rights will have no bearing on dispatch or settlement of the energy or essential system services markets. These markets will operate under the new co-optimised security constrained economic dispatch design. To be clear, a new facility can locate in a constrained area for the purpose of competing in the energy or essential system services markets, but will not be able to participate in the RCM unless or until it is able to obtain Capacity Credit Rights through network augmentation, retirement of existing capacity in that location, or through a negotiated and approved transfer of Capacity Credit Rights from an existing Capacity Credit Rights holder.

How long do they last? (Tenure)

Capacity Credit Rights are performance-based instruments and are not time-limited – i.e. they have no pre-determined term or expiry. Once allocated, a facility's Capacity Credit Rights will be preserved subject to its on-going performance as a capacity resource, based on a 'Use It Or Lose It' regime and a set of conditions under which a facility's allocation of Capacity Credit Rights may be reduced.

These conditions may include situations where a facility is not assigned (or assigned a lower amount of) Certified Reserve Capacity³ or the facility is retired. In these circumstances, the amount of Capacity Credit Rights that a facility is allocated will be adjusted to reflect the revised amount of its assigned Certified Reserve Capacity.

How are they allocated?

In the first Reserve Capacity Cycle of the Capacity Credit Rights regime, Capacity Credit Rights will be allocated first to existing facilities that have previously held Capacity Credits based on their Certified Reserve Capacity. Facilities seeking new or additional rights will then be allocated Capacity Credit Rights up to the lesser of their Certified Reserve Capacity and the residual capacity in the region network where they are connecting, net of any Capacity Credit Rights that have been allocated.

In subsequent capacity cycles, Capacity Credit Rights held by facilities will be adjusted consistent with their Certified Reserve Capacity. Capacity Credits Rights will then be allocated to facilities seeking new or additional rights after any necessary adjustments.

³ These conditions will be developed in consultation with industry and will be consistent with existing criteria in the WEM Rules. For example, one condition could be related to poor performance, such as where a facility has a forced outage rate or a combined planned and forced outage rate greater than a prescribed threshold, and the facility is not assigned Certified Reserve Capacity or is assigned a lower quantity of Certified Reserve Capacity.

The relationship between Certified Reserve Capacity, Capacity Credit Rights and Capacity Credits is illustrated below in Figure 1.

Figure 1: Relationship between Certified Reserve Capacity, Capacity Credit Rights, and Capacity Credits



The residual capacity of the network will be determined through a ‘capacity modelling’ exercise conducted annually by the Australian Energy Market Operator (AEMO). This process will assess the capability of facilities to generate at the 10 per cent probability of exceedance (PoE) demand forecast for the relevant Capacity Year, subject to network constraints.^{4 5}

The allocation process is described in more detail in section 5.

Transferring Capacity Credit Rights

While not strictly necessary for the implementation of the Capacity Credit Rights regime, it is proposed that Capacity Credit Rights should be transferrable. Capacity Credit Rights may be transferred between different facilities where a facility with Capacity Credit Rights (the rights holder) makes a commercial decision to accept a payment from a new entrant or existing rival facility (the rights seeker) to relinquish its Capacity Credit Rights to that participant.

From the perspective of the WEM, this should enhance efficiency as the rights seeker will need to be a more efficient plant (i.e. it will have to make a gain on the purchase). The most efficient plant for that location will have an incentive to acquire access to capacity payments through purchase of the Capacity Credit Rights held by another generator – particularly if the latter is facing increasing operation and maintenance expenditure to maintain availability.

The number of Capacity Credit Rights gained by the rights seeker may not be the same as the number relinquished by the rights holder. This could occur as a result of differences in the constraint coefficients calculated for each generator because the ‘new’ facility is not connected at the same location but is still within the same broad region. This would affect the amount of electricity that each generator is able to transfer into the network.

⁴ This represents a similar approach to existing method of capacity allocation in the SWIS which is that firm access facilities are allocated Capacity Credits up to their DSOC and GIA facilities are allocated Capacity Credits up any residual network capacity as determined by Western Power in accordance with Appendix 11 of the WEM Rules.

⁵ In the future, the link to peak demand may change for the allocation of both Capacity Credits and Capacity Credit Rights if changes in technology further decouple peak demand and lowest reserve.

1. Purpose of this paper

The Taskforce has endorsed the establishment of Capacity Credit Rights as a means of ensuring that the RCM, operating under a constrained network access model, continues to achieve its intended purpose of supporting a reliable power system.

The ETIU is developing the design of a Capacity Credit Rights regime. This paper describes the proposed design of the Capacity Credit Rights regime for allocating Capacity Credits in a constrained network as a basis for consultation with industry participants on the design. Consultation will occur primarily through the Transformation Design and Operations Working Group meetings and through individual meetings with stakeholders.

It is noted that all aspects of the final design have not yet been determined and the design will require further development and refinement as implementation progresses. Design elements that require further development include the conditions under which a facility's Capacity Credit Rights allocation will be reduced, how Capacity Credit Rights may be transferred between market participants, and the treatment of storage, embedded generation, and demand response under the proposed arrangements.

This paper commences the first stage of consultation with stakeholders to develop the design of the Capacity Credit Rights regime. The aim of this stage is to establish a high-level design of the regime for endorsement by the Energy Transformation Taskforce (Taskforce) in December 2019.

Once the Taskforce has endorsed the high-level design, the Electricity Transformation Implementation Unit (ETIU) will commence consultation with stakeholders to develop the amendments to the Wholesale Electricity Market (WEM) Rules to implement the Capacity Credit Rights regime. This stage of consultation will include development of the design in more detail.

The anticipated timeline is:

- October 2019 – ETIU will present the design of the Capacity Credit Rights regime to the Transformation Design and Operations Working Group.
- October to November 2019 – Consultation with industry participants on the high-level design of the Capacity Credit Rights regime.
- November 2019 – ETIU will present to the Transformation Design and Operations Working Group on how the design of the Capacity Credit Rights regime has developed through consultation.
- December 2019 – Taskforce endorsement of the high-level design and release of an Information Paper for the design of the Capacity Credit Rights regime.
- January 2019 to mid-2020 – Development of, and consultation on draft market rules to implement the Capacity Credit Rights regime.
- Mid-2020 – Amendments to the WEM Rules to implement the Capacity Credit Rights regime are made.

2. The need for reform

2.1 The purpose of the RCM

A well-functioning electricity market should attract and retain the mix of generation capacity resources with the lowest overall cost of supply to ensure system reliability. Reliability in the context of electricity markets means having enough generation, demand-side,⁶ and transmission capacity available to meet electricity demand, particularly during periods of peak demand.⁷

The purpose of capacity mechanisms like the Reserve Capacity Mechanism (RCM) in the WEM is to provide consumers with a reliable electricity supply by incentivising investment in sufficient generation and demand-side capacity to meet demand.

Electricity markets with capacity mechanisms aim to ensure reliability by providing investors with a stream of expected revenues (in the form of capacity payments) that, when complemented by expected revenues from energy dispatch and essential system services, resolve what would otherwise be a 'missing money' problem. Missing money occurs when wholesale spot markets for energy and essential system services do not of themselves produce prices that are high enough to support investment in an efficient portfolio of generation capacity. For example, wholesale energy prices are generally capped as a way of mitigating market power or to prevent unacceptable price volatility. The resulting missing money would – unless sourced from a capacity market – disincentivise investment (or the right type and timing of investment) and thereby imperil the market's ability to meet the reliability target.

Capacity mechanisms de-couple payments for capacity and energy by providing generators with a separate revenue stream for making capacity available to complement revenue from the sale of electricity and essential system services. This de-risks new investment, providing investors with confidence that the market will provide revenue adequacy.⁸

Energy markets with capacity mechanisms can accommodate lower short-term energy price caps and thereby avoid the price volatility that would otherwise be required by facilities that run only occasionally for short periods (generally at times of peak) to recover their costs. Without an effective capacity market, volatility can be exacerbated (and market power increased) in a small isolated system such as the SWIS, particularly as its peak demand is large relative to its average demand.

2.2 The current Capacity Credit allocation approach

The RCM uses Capacity Credits as a basis for determining capacity revenue. The Capacity Credit is the capacity product traded between capacity buyers and sellers in the RCM. Where such a trade does not occur bilaterally, the Australian Energy Market Operator (AEMO) acquires the Capacity Credit at the administered Reserve Capacity Price (RCP) and recovers this cost from Market Customers.

⁶ Demand-side capacity is capacity provided by electricity consumers reducing their demand when called upon to do so.

⁷ Electricity markets aim to achieve reliability up to a defined standard, noting that seeking 100 per cent reliability is prohibitively costly. The reliability standard in the SWIS is defined by the Planning Criterion in the WEM Rules.

⁸ Importantly, capacity mechanisms do not completely de-risk investment in capacity. In the RCM, the yearly capacity price is a function of the level of capacity excess for that Capacity Year. Where there is a high capacity excess, the capacity price falls to incentivise efficient exit of capacity.

A Capacity Credit is a notional construct that reflects a key principle of the RCM – that one Capacity Credit is equal to one MW of physical generation (or demand-side management) capacity that can be provided during peak demand periods. Capacity Credits have performance obligations and expose the Capacity Credit holder to a Capacity Cost Refund regime if it does not meet these obligations. AEMO may also assign a lower level of Certified Reserve Capacity to a facility that fails to meet the level of performance on which the allocation of Capacity Credits was based in a previous Reserve Capacity Cycle.

Each year, AEMO sets a Reserve Capacity Requirement (RCR) based on its estimate of the highest level of electricity demand ('peak demand') that may occur for a given Capacity Year⁹ in two years' time. AEMO estimates peak demand assuming a 10 per cent chance of its estimate being exceeded, often referred to as a one-in-ten year, or 10 per cent probability of exceedance (PoE), peak demand forecast. The RCR also includes an allowance for certain essential system services and a reserve margin that is designed to ensure there is enough capacity to cover for a worst-case scenario – that is, failure of the system's largest generator; or, a capacity buffer of up to 7.6% of forecast peak demand (whichever results in the larger capacity requirement).¹⁰

AEMO allocates Capacity Credits to a facility based on its reasonable expectation of how many megawatts (MW) of capacity the facility can provide at peak times. This expectation is a function of both the technical performance capability of the facility¹¹ and the capability of the network to accept the output of the facility during peak times.

For generators under the unconstrained network access model, AEMO would allocate Capacity Credits up to the Declared Sent Out Capacity (DSOC) of the facility after considering the reasonableness of the assumption that the facility's DSOC is the amount of network injection capacity available under normal system conditions, including during peak demand periods.

Market Customers (typically retailers and large industrial loads) are required to secure capacity (in the form of Capacity Credits) based on AEMO's estimate of how much they contribute to peak demand. This is their Individual Reserve Capacity Requirement. The allocation of capacity costs to power consumers provides an incentive for consumers to avoid these costs by reducing their consumption during peak times. Market Customers may purchase Capacity Credits from AEMO at an administered price; or bilaterally from facilities that have been accredited and allocated Capacity Credits by AEMO.

2.3 Potential issues in transition to constrained access

Changes are required to the RCM to allow it to operate efficiently and fulfil its role in a constrained network access model.

When the SWIS transitions to a constrained network access model, facilities will be able to connect to the network without having to fund network augmentations to increase the transfer capability of the system and maintain the unconstrained access of incumbents.

As a result, under a constrained network access model, facilities do not have an inherent or guaranteed level of access in the network; including during peak demand (or other predictable low

⁹ A Capacity Year is the period beginning 1 October and finishing 30 September in the following year for which the RCR is set.

¹⁰ This reliability standard is referred to in the WEM Rules as the 'Planning Criterion'. The Planning Criterion also requires accredited capacity to be sufficient to limit energy supply shortfalls to 0.002 per cent of the total demand forecast. However, historically this part of the Planning Criterion has not set the RCR. The Planning Criterion is subject to review every five years, but it has not been reviewed since 2012.

¹¹ Intermittent generators are accredited based on their expected output during periods when there is peak demand on scheduled generation, de-rated for the expected variance of their output.

reserve) periods. Instead, facilities will be subject to constraints based on the marginal cost of them being dispatched relative to others and a given facility might not be able to dispatch to its full capacity during peak periods (and other low reserve times) due to network constraints.

This has two implications for how Capacity Credits are currently allocated under the RCM.

Firstly, it means that AEMO can no longer assume a level of network access for a specific facility based on the facility's access contract with Western Power and will require a mechanism to account for the transfer capability of the network as part of the Capacity Credit allocation process. This will ensure that Capacity Credits are not allocated beyond the physical capacity of the network and that the system as a whole is capable of meeting the 10% PoE demand forecast.

Secondly, the level of congestion in a particular region of the network could change from Capacity Cycle to Capacity Cycle due to new entrant facilities. This would render generators' output during peak times difficult to predict and subject to transient variables. As result, the allocation of Capacity Credits would become uncertain and subject to year on year volatility, creating a risk for existing and new investments in generation capacity.

The resulting uncertainty around how network constraints might affect the output of individual facilities during peak times (and hence their allocation of Capacity Credits) can undermine the intended purpose of the RCM as a means to incentivise the investment needed to ensure a reliable power system. If capacity resources have no way to determine how they might be affected by network constraint created by the entry of new facilities, the associated risk cannot be hedged. New investment in capacity may not occur (or may occur only at much higher costs) if this risk is seen to be substantial. In this case, investment in capacity would likely cease until the administered RCP increases to a level that allows capacity providers to recover resultant missing money in a significantly shorter period. At the very least, it would result in a higher hurdle rate for new investment which would ultimately be recovered from customers.

Allowing new entrants to displace the Capacity Credits of existing facilities would also allow new entrants to earn capacity revenue in excess of the marginal contribution to reliability they provide to the system. This could lead to inefficient outcomes whereby new entrants locate in congested parts of the network for the purpose of securing Capacity Credits previously assigned to incumbent capacity, yet the new investment contributes little, if anything, to overall system reliability.

2.4 Design principles

The design of the Capacity Credit Rights regime has been developed with the following key principles in mind:

- Efficiently rations available network capacity to maximise the access of connected parties and therefore the economic benefit of the network.
- Respects the value of existing assets on the system and allows those assets to retain economic value under the RCM as long as facility performance is maintained.
- Provides locational signals to new entrants so they can make informed decisions about risk and opportunity.
- Minimises barriers to entry and exit.
- Is simple, transparent, and can be readily implemented in the WEM with minimal changes to existing processes.

3. Proposed solution

3.1 Capacity Credit Rights

A Capacity Credit Right is an instrument that:

1. Protects a facility's allocation of Capacity Credits from displacement, in specific circumstances. A Capacity Credit Right establishes a preferential right to receive a Capacity Credit and facilities must hold Capacity Credit Rights before they can be allocated Capacity Credits.
2. Defines the network capacity, in MW, available to a capacity resource for the purpose of calculating the Capacity Credits that can be allocated to the facility up to the amount of the facility's Certified Reserve Capacity.¹²

The primary purpose of Capacity Credits Rights is to protect an existing facility's quantity of Capacity Credits from the otherwise unhedgeable risk of being displaced by new entrant facilities connecting in constrained sections of the network where that capacity is not needed for system reliability – but is simply replacing existing performing capacity. This would result in capital inefficiency and add risk to new capacity investment.

Capacity Credit Rights protect the investment in facilities that continue to serve the market by meeting all their performance obligations. A facility that, for reasons related to its own poor performance, continually fails to provide its capacity to the RCM when required by the system will be required to surrender its rights. A facility that retires will also relinquish its rights.

Because Capacity Credit Rights are a function of network capacity, they cannot be allocated beyond the physical limits of the network. Hence, they serve as a cap on the amount of Capacity Credits that can be allocated in specific regions of the network. Capacity Credits Rights will be allocated to a facility up to the amount of network capacity that can accommodate the facility's Certified Reserve Capacity at peak times or other periods of low reserve. This will ensure that the total amount of Capacity Credit Rights allocated in specific network regions, (and in aggregate for the network as a whole), does not exceed the transfer capability of the network.

Once Capacity Credit Rights are allocated, new facilities seeking to connect in a specific region of the network can only receive Capacity Credit Rights up to the residual capacity of the network in that region, after accounting for the Capacity Credit Rights that have already been allocated.¹³

Capacity Credit Rights have no role in dispatch or settlement of the energy or essential system services markets, which will operate under the new co-optimised security constrained economic dispatch design that is being implemented for the WEM.

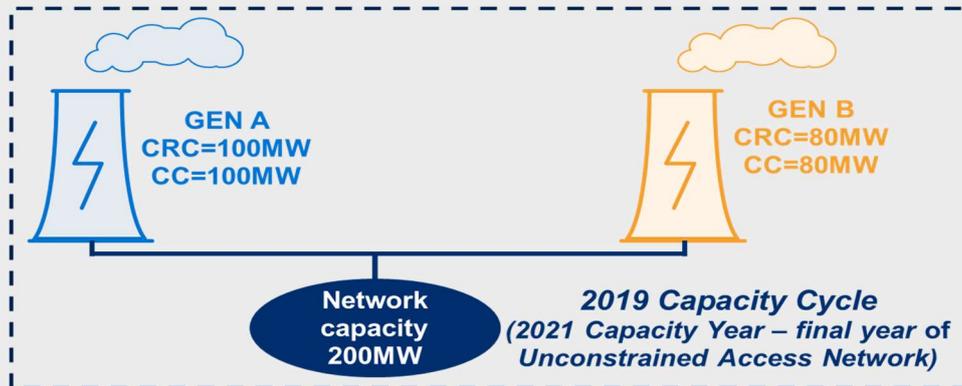
A simple example to illustrate the operation of Capacity Credit Rights is provided in Figure 2 below.

¹² For intermittent generators, this is the figure based on the Relevant Level Method. For scheduled generators, this is the figure based on an assessment of the facility's output calculated at air temperature of 41 degrees Celsius.

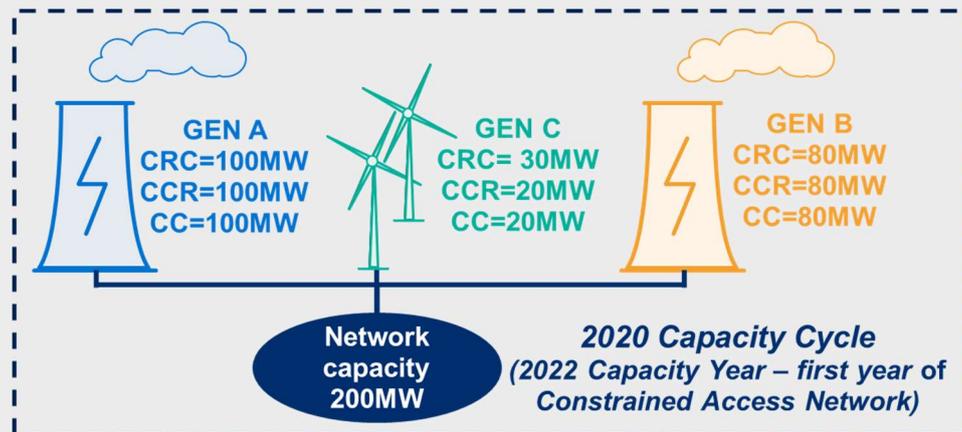
¹³ This represents a similar approach to existing method of capacity allocation in the SWIS which is that firm access facilities are allocated up to their DSOC and facilities connected under the Generator Interim Access solution are allocated any residual as determined by Western Power in accordance with Appendix 11 of the WEM Rules.

Figure 2: Simple example one

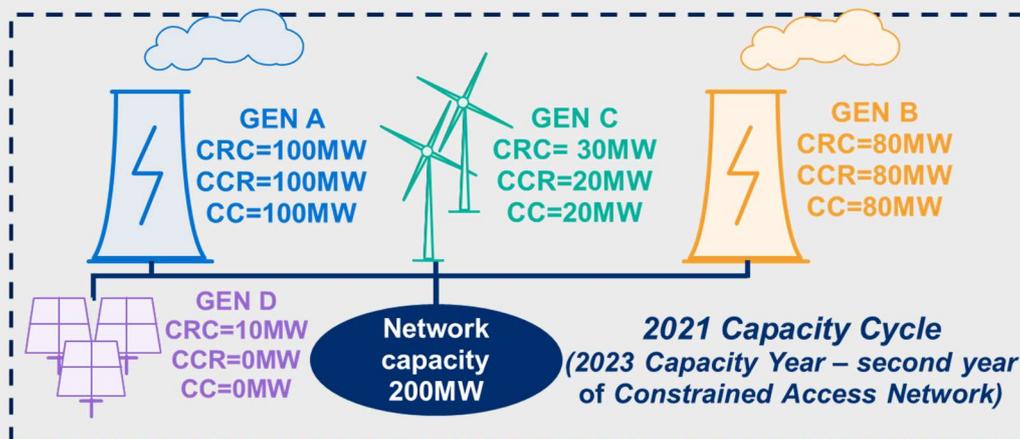
- In the 2019 Capacity Cycle, which allocates Capacity Credits for the 2021 Capacity Year (the final year of the unconstrained access network regime), Gen A and Gen B receive Capacity Credits up to their Certified Reserve Capacity.



- In the 2020 Capacity Cycle, which allocates Capacity Credits for the 2022 Capacity Year (the first year of the constrained access network regime), Gen A and Gen B receive Capacity Credit Rights equal to their Capacity Credit allocation for the 2021 Capacity Year, assuming they can provide the equivalent quantity of Certified Reserve Capacity. As a result, they receive the same amount of Capacity Credits as previously.
- New entrant, Gen C has a Certified Reserve Capacity of 30MW but may only receive Capacity Credit Rights (and therefore Capacity Credits) up to the residual network capacity remaining after accounting for the Capacity Credit Rights of Gen A and Gen B – i.e. 20MW.



- In the 2021 Capacity Cycle, which allocates Capacity Credits for 2023 (the second year of the constrained access network regime), there is no residual network capacity after accounting for the Capacity Credit Rights of Gen A, Gen B, and Gen C. As a result, new entrant, Gen D does not receive Capacity Credit Rights nor Capacity Credits, despite having 10MW of Certified Reserve Capacity.



3.2 Pros and Cons

The main advantage of Capacity Credit Rights is that they will provide existing and new market participants with a high-level of market revenue certainty by preserving a facility's allocation of Capacity Credits. This is important in a small, isolated, and peaky system such as the SWIS as it will incentivise private investment in generation capacity to meet electricity demand when required by the system.

Capacity Credit Rights mitigate against the otherwise unhedgeable risk of new entrants choosing to inefficiently locate in constrained parts of the network by restricting the allocation of Capacity Credits beyond the physical limitation of the network in any given location across the grid.¹⁴ As a result, new entrants will not be able to earn capacity revenue in excess of the marginal capacity value they provide to the system. The Wholesale Energy Market does not have different prices for energy and capacity based on location. The Capacity Credit Rights regime aims to reflect the outcomes expected to occur if there were locational energy and capacity prices compelling providers to make investment decisions based on the marginal value they are providing to the market.

Adoption of a Capacity Credit Rights regime could be perceived to favour incumbency over new entrants seeking access to the network, as the presence of existing capacity providers in a congested region of the network will reduce the ability of lower cost new entrants to gain Capacity Credit Rights (and therefore Capacity Credits) until network capacity becomes available.¹⁵

The ETIU, however, considers that allocating Capacity Credits to facilities based on their marginal capacity value is consistent with the function and purpose of the RCM. The RCM rewards capacity resources for their availability and contribution to reliability, particularly during peak demand periods. If the RCM allowed new entrant capacity to displace existing certified capacity, there will be no net improvement in power system reliability and from a capacity perspective the new investment would be of little, if any, value. It would also create a stranding risk which will lead to higher prices to customers.

Conversely, Capacity Credit Rights will limit the capacity revenue that is available to facilities where the capacity of the network is unable to support additional generation capacity in a manner that contributes to a reliable system. Capacity Credit Rights therefore send important locational signals to the market about the value of generation capacity across the SWIS. This will discourage capacity providers from locating in regions where existing capacity providers are already providing the capacity that the network is able to carry. Capacity Credit Rights do not limit opportunities for generation technologies to connect in constrained regions of the network where they are able to access value in the energy and essential system services markets.

Economic efficiency would be further enhanced by permitting prospective investors seeking to locate in congested parts of the network (and for whom capacity revenue is important) to purchase Capacity Credit Rights held by incumbent capacity resources in that area. This would allow for an outcome where new capacity would be built in that location if it is more expensive to maintain existing capacity than invest in new capacity. This process would be supported by providing market participants with timely information about network capacity (including planned investments), expected retirements¹⁶, and trading opportunities.

¹⁴ Other jurisdictions have more complicated mechanisms to manage this risk, such as financial transmission rights and more granular pricing, but a simpler more tailored version is appropriate for the WEM.

¹⁵ For example, through the retirement of existing capacity or network augmentation.

¹⁶ The proposed RCM pricing WEM Rules changes will introduce an obligation on Market Participants to advise AEMO of any planned retirements three years prior to the intended retirement date. This information will be published by AEMO.

3.3 Comparison with the proposal presented by the Public Utilities Office in 2018

Capacity Credit Rights build on a proposal developed by the then Public Utilities Office in 2018 – Capacity Priority Rights – which is a purely financial construct entitling a facility to receive revenue associated with the Capacity Credits for which it had been allocated.

Whereas Capacity Credit Rights ‘hard-code’ the allocation of Capacity Credits to a facility, Capacity Priority Rights allowed the Capacity Credits of a facility to be displaced by new entrants. However, the new entrant was required to financially reimburse the holders of Capacity Priority Rights for the revenue loss associated with the displacement.¹⁷

The Taskforce considered the Capacity Priority Rights model would be complex and costly to implement. Greater operational complexity (and perceived uncertainty) of the approach could also deter financiers of new projects. More specifically, Capacity Priority Rights may:

- interfere in obligations to trade Capacity Credits under existing bilateral contracts, which may result in an incumbent generator being ‘out-of-the-money’. This could occur where the price that a facility receives for its Capacity Credits under its bilateral contract does not match the price at which it receives compensation (which would be linked to the Reserve Capacity Price);
- create compensation and refund obligations in excess of a generator’s revenue from Capacity Credits. This could occur where a new entrant facility is accredited and allocated Capacity Credits by displacing the Capacity Credits of an existing facility and the new entrant facility fails to deliver the capacity in the required Capacity Year (for example due to delays in construction). The new entrant could be required to pay a refund to AEMO (representing the revenue it receives for the Capacity Credits) and to provide compensation to the facility that it has displaced;
- require a potentially complex modelling process to determine compensation obligations where multiple generators in a meshed grid contribute to a constraint; and
- make it difficult for investors to forecast the capacity revenue of a given generation project, considering the potential complexity of the model required to determine who is liable to pay compensation for displacing incumbents’ Capacity Credits.

Accordingly, the Taskforce has provided its in-principle support for the simpler Capacity Credit Rights approach in which the Capacity Credit Right is expressed in terms of MW of network capacity available under the same conditions that will be used to determine Capacity Credits.

¹⁷ For a description of the Capacity Priority Rights proposal, please refer to the consultation paper released by the Public Utilities Office in February 2018 here https://www.wa.gov.au/sites/default/files/2019-08/Consultation-Paper-Allocation-of-capacity-cred_0.pdf

4. Key design elements

4.1 Tenure

The tenure, or duration, of rights is a crucial element of the design of Capacity Credit Rights.

The selected tenure must not prevent efficient entry and exit of facilities, and it should also not result in inefficient and wasteful “churn” of investments that provide the same level of reliability as existing resources connected to the grid.

New investment in generation capacity may not occur if the tenure does not provide the certainty required by investors of long-lived assets. New investment, once made, becomes incumbent investment and is exposed to the risks to which incumbent investments are exposed. Investment decisions may be impaired if these risks are arbitrary.

The ETIU has considered two options for the tenure of rights: a tenure linked to performance; and a tenure that is time-bound. For the reasons discussed below, the ETIU is proposing a performance-based tenure for the design of Capacity Credit Rights.

4.1.1 Performance-based tenure

A key feature of the RCM is that it rewards a capacity resource for its availability and contribution to meeting the Planning Criterion.

A facility’s availability and contribution to reliability is linked to its performance and its capacity has a value under the RCM for so long as the facility is capable of delivering its certified capacity.

If a facility is unable to deliver the capacity for which it has been certified, then that capacity does not contribute to reliability and should have no value under the RCM. As a consequence, the facility’s capacity value must be capable of being adjusted downward, either by reducing the amount of Capacity Credits the facility receives under the RCM, or by requiring the facility to refund capacity payments. This is consistent with the existing performance framework of the RCM.

On this basis, the ETIU considers that Capacity Credit Rights should continue for as long as the underlying asset is capable of providing capacity and contributing to the reliability of the power system. This is consistent with the fundamental design of the RCM and the underlying principle of rewarding capacity where it adds value to the system.

Figure 3: Simple example two

Consider that there is an imaginary form of capacity that, once built, can (and will) provide equivalent and reliable capacity “services” forever at no additional cost. Such a form of capacity would merit a right that never expires. It would not be economically efficient to spend additional money to replace such capacity.

Allowing for rights to be “recompeted” after the expiry of an arbitrary period would create risk to the initial investment and result in an inefficient wealth transfer should a new entrant suddenly find itself with an opportunity to build un-needed capacity simply because it can now access a capacity value that was previously allocated to capacity that will still be available forever.

This simple example highlights three key points:

- There is no theoretical requirement to define an expiry date for any given set of Capacity Credit Rights as the right is tied to a physical ability to support that right.
- However, if the underlying capacity cannot physically meet the obligations and performance requirements of the RCM, then the value of its capacity should be reduced accordingly (either through refunds or by reducing its allocation of Capacity Credits).
- Permitting the transfer of Capacity Credit Rights would facilitate an outcome where new capacity would be built in that location, if it is more expensive to maintain existing capacity.

4.1.2 The difficulty with a tenure linked to time

A Capacity Credit Right that is time-based is problematic because it may:

- cause current and effective capacity providers to be churned out of the market to be replaced by assets that do not add significantly to the effectiveness of the RCM; and
- attract new entrants to seek access to parts of the network that are constrained rather than seek access to unconstrained parts of the network.

Selecting a logical period for a time-based tenure of Capacity Credit Rights is also difficult.

A short tenure may fail to encourage new investment in some types of generation technologies as it may not provide a sufficient amount of time for investors to recover their capital costs under the RCM. On the other hand, a long tenure (which is not conditional on facility performance) may fail to encourage the efficient retirement of facilities. This may present a barrier to new entry by more efficient capacity resources by reducing the commercial opportunities available to new facilities under the RCM.

Of relevance here is what is meant by “more efficient capacity resources”. Participation in the RCM is not related to the thermal efficiency or any other operating characteristic of a facility beyond whether the resource meets the requirements of a capacity resource. Other components of the WEM such as the energy and essential system services markets are more appropriate mechanisms for these considerations.

One option is to link the tenure of rights to the calculation of the Benchmark Reserve Capacity Price (BRCP), specifically the 15-year period over which the cost of capital is annualised. The WEM Rules places responsibility on the Economic Regulation Authority (ERA) for setting the method used to calculate the BRCP, with the method to be published in a market procedure.

Linking the tenure of rights with the calculation of the BRCP, however, has some difficulty as the BRCP method also adopts time periods other than 15 years (for example 10-year annualised values for Commonwealth Government bonds and forecast average rate of inflation). Linking tenure with the calculation of the BRCP would also subject the tenure to change should the underlying method of calculating BRCP change. More importantly however, the BRCP has no relationship with the performance of a facility, yet it is performance that matters from the perspective of the RCM.

Another option would be to link the tenure of Capacity Credit Rights to the estimated economic life of each capacity resource. The difficulty with this approach is how the economic life of a generator should be defined. All capacity resources will have different economic and technical life characteristics. Assessments of economic life are particularly sensitive to assumptions and the complexity and arbitrariness of this approach would inevitably invite lengthy dispute over legitimate points of detail.

4.1.3 Preferred approach to tenure

In selecting a tenure that is linked to the performance of a facility, the ETIU has considered the underlying purpose of the RCM and the rationale behind the concept of Capacity Credit Rights, which is to reward capacity where it adds value to the system and to avoid the unhedgeable risk created for existing capacity providers by new entrants connecting in congested areas of the grid. Selecting a time-bound tenure would introduce an inherently arbitrary definition or process when assigning value to capacity resources.

Performance-based rights greatly reduce the risk of new entry into congested areas simply for the purpose of displacing capable capacity that is already able to provide the services for which the RCM is designed. Any form of time-bound rights creates windows where capable capacity can be challenged by new entry in an area that is already subject to congestion.

4.2 The performance assessment

Tenure that is linked to ongoing performance requires that Capacity Credit Rights are clearly linked to ongoing performance of the facility in terms of its availability at times of peak demand or other periods of low reserve.

To ensure that efficient entry and exit signals are provided to the market, the existing performance framework under the RCM will be reviewed to ensure that it is fit-for-purpose with a performance-based tenure for Capacity Credit Rights. A stringent 'Use It Or Lose It' approach will be adopted, where a rights holder whose facility fails to meet defined performance criteria will be exposed to potentially stricter financial penalties (or capacity refunds) that could also result in rights being surrendered if reduced performance issues are not reversed within a predetermined period.

To discourage inefficient hoarding of rights, the refunds and testing and compliance regimes need to be sufficiently 'sharp', particularly with respect to refunds for poor performance under system stress conditions.¹⁸ Inefficient hoarding of rights could arise if the cost of an owner maintaining capacity and paying refunds for poorer performance is less than the value lost to the system associated with that poor performance.

A robust 'Use It Or Lose It' approach would also improve the operation of the RCM more broadly by encouraging the transfer of rights where capacity is unable to meet the performance criteria under the RCM (otherwise rights holders would face the prospect of surrendering their rights). Permitting the transfer of rights would ensure that the expenditures required to maintain the performance of a capacity resource is efficient.

4.2.1 A 'Use It Or Lose It' approach

A 'Use It Or Lose It' approach would require facilities to demonstrate that the underlying capacity resource (to which the Capacity Credit Rights are attached) is capable of providing capacity up to its allocation of Capacity Credit Rights.

In most cases, this will be demonstrated if the Capacity Credit Rights holder has been assigned Certified Reserve Capacity at a level equal to their Capacity Credit Rights allocation. In a situation where a facility's Certified Reserved Capacity is lower than its quantity of Capacity Credit Rights, then, in general, their Capacity Credit Rights will be reduced to the corresponding amount.

¹⁸ These conditions will be developed in consultation with industry and will be consistent with existing criteria in the WEM Rules. For example, one condition could be related to poor performance, such as where a facility has a forced outage rate or a combined planned and forced outage rate greater than a prescribed threshold, and the facility is not assigned Certified Reserve Capacity or is assigned a lower quantity of Certified Reserve Capacity.

The possible circumstances that could result in a facility's Certified Reserve Capacity being less than the Capacity Credit Rights include:

- **Failing to apply for Certified Reserve Capacity.** If a Capacity Credit Rights holder fails to apply for Certified Reserve Capacity during a Capacity Cycle, then any Capacity Credit Rights will be immediately forfeited and will become available for allocation to other existing or new facilities.
- **Failing to be assigned Certified Reserve Capacity.** If a facility has applied for Certified Reserve Capacity but fails to be certified (either in full or in part), then its Capacity Credit Rights will be immediately reduced to a corresponding amount and any excess Capacity Credit Rights will become available for allocation to other existing or new facilities.
- **Failing to commit to providing Certified Reserve Capacity.** If a facility nominates less Certified Reserve Capacity for trading (in its trade declaration) than its allocation of Capacity Credit Rights, then the quantity of Capacity Credit Rights allocated to the facility will be reduced to the corresponding amount of Certified Reserve Capacity nominated in the trade declaration and any excess Capacity Credit Rights will become available for allocation to other existing or new facilities.

The ETIU acknowledges that there are circumstances that justify a facility not applying for or failing to be assigned Certified Reserve Capacity. The ETIU proposes to develop the performance criteria in consultation with industry to ensure that facilities holding Capacity Credit Rights are not unreasonably penalised for performance issues that may arise outside of the control of the facility.

4.2.2 Transferring Capacity Credit Rights

Permitting Capacity Credit Rights to be transferred between market participants under commercial arrangements can provide for efficient outcomes.

For example, older facilities could transfer Capacity Credit Rights where the cost to maintain the facility (to meet performance criteria) is greater than the revenue received for the Capacity Credit under a commercial contract for the transfer.

Transfers of Capacity Credit Rights would occur 'off-market', subject to conditions. These conditions would, at a minimum, require that one Capacity Credit is equal to one MW of physical generation capacity that can be provided during peak demand periods and that the allocation of Capacity Credit Rights is subject to available network capacity. This will mean that one MW of Capacity Credit Rights for capacity at a particular location may not be accredited as one MW at another location within a constrained region of the network. This could occur as a result of differences in the constraint coefficients calculated for each generator because the 'new' facility is not connected at the same location but is still within the same broad region. This would affect the amount of electricity that each generator is able to transfer into the network.

4.3 Accounting for changes in network capacity

The Reserve Capacity Cycle commences two years in advance. It will therefore be necessary for the calculation of Capacity Credit Rights to be based on the expected network configuration for the relevant Capacity Year. Network capacity would be reviewed ahead of each Capacity Cycle to determine if there are any expected increases or decreases that would require Capacity Credit Rights allocations to be amended as part of the Capacity Cycle.

The ETIU considers that it would only be necessary to account for permanent changes in network capacity when determining whether existing allocations of Capacity Credit Rights need to be amended.

If there are transient changes in the network that result in a temporary reduction in the capability of the network to accept the output of facilities, then a facility's Capacity Credit Rights should not be affected provided the facility is still technically able to generate up to the level of the Capacity Credit Rights. This would also apply in the event that an expected network augmentation is delayed but Capacity Credit Rights and Capacity Credits have already been allocated for the associated Capacity Year.

Where network assets are retired by Western Power resulting in a decrease in network capacity, the allocation of Capacity Credit Rights will be reduced using the same process outlined in section 5, unless there was enough network capacity to accommodate the Capacity Credit Rights of existing facilities.¹⁹ This is consistent with the principle that Capacity Credit Rights are not to be allocated beyond the physical limits of the network.

4.3.1 Participant funded network augmentation

Project proponents that fund the cost of augmenting the shared network will be granted Capacity Credit Rights over the additional network capacity created by the augmentation. Once granted, these Capacity Credit Rights will have the same tenure as other Capacity Credit Rights and their holders will be subject to the same performance conditions as other holders of Capacity Credit Rights.

4.4 Treatment of facility upgrades

Facilities that are upgraded will be able to apply for an increased allocation of Capacity Credit Rights. The additional capacity will be assessed in the same way that new entrant capacity is assessed.

4.5 Temporary increases during critical periods

If one or more participants cannot fulfil their obligations to the RCM during critical periods, whether due to plant outages or temporary network outages, other participants that can provide capacity but have not been awarded Capacity Credits under the Capacity Credit Rights allocation process could be considered for a temporary increase in remuneration for capacity.

There are three potential approaches to the temporary increase that will require further development.

- **Temporary transfers.** Participants could be allowed to transfer Capacity Credit Rights and the associated Capacity Credits for a defined period to cover the shortfall in the RCM. This would require that the participants held accreditation for their output and had capacity to increase the Capacity Credits that are made available to the RCM.
- **Temporary allocation of Capacity Credit Rights and Capacity Credits.** Under this approach, AEMO would determine the lengths and impacts of the outages and the impact on the RCM. Plants able to assist, that is where its Capacity Credit Rights are below their determined capacity, would be able to apply for additional Capacity Credits and Capacity Credit Rights. These would be allocated using the same process outlined in section 5.
- **Negative Refunds.** Recognising that parties that have failed to provide the capacity to the level of their Capacity Credits will be subject to refunds, the cash flow from those refunds could be used to remunerate other parties who provide substitute capacity but do not hold Capacity Credits because they have not secured Capacity Credit Rights.

These matters will be further developed in consultation with participants.

¹⁹ For example, because of increase in behind the meter solar photovoltaic installations that will have the effect of decreasing local use from the main grid and increasing export potential from local generation which would then be limited by network capacity.

4.6 Information available to project proponents

It is important that intending participants have appropriate information to support their investment planning. The levels of likely congestion, and therefore availability of Capacity Credit Rights and capacity revenue, at various locations in the network will be an important part of that information.

Publication of system loadings and forecasts of congestion will be a necessary as part of the suite of information available to participants and intending participants. Two public sources of information will be available to new entrants:

- **The Whole of System Plan.** The Whole of System Plan will show the current and forecast network requirements and the least cost solutions that are required to maintain a secure and reliable power system over a 20-year horizon. This will provide a guide to likely system congestion as well as expected network augmentations to relieve congestions. It is expected that the plan will be published at least every two years.
- **The Annual Planning Report.** The Western Power Annual Planning Report contains information on expected system developments. The change to the network and the indications of future congestion will be a guide to intending participants.

Other information will also be available to some parties:

- Information on binding constraints. Binding constraints will be available to market participants in near real time through AEMO's Market Management System and published regularly on the AEMO website.
- Connection inquiries. New capacity seeking to participate in the WEM will also be able to access specific information about likely network capacity by making a connection inquiry. Western Power's response should contain the expected transfer capability at the proposed connection point with and without network augmentations to support the connection.

5. Proposed allocation process

5.1 Overview

The proposed allocation process for Capacity Credit Rights and Capacity Credits firstly verifies the physical capacity of a facility²⁰ and then assesses the physical capacity of the network to accept the output of the facility based on projected network access considerations during a peak demand event.

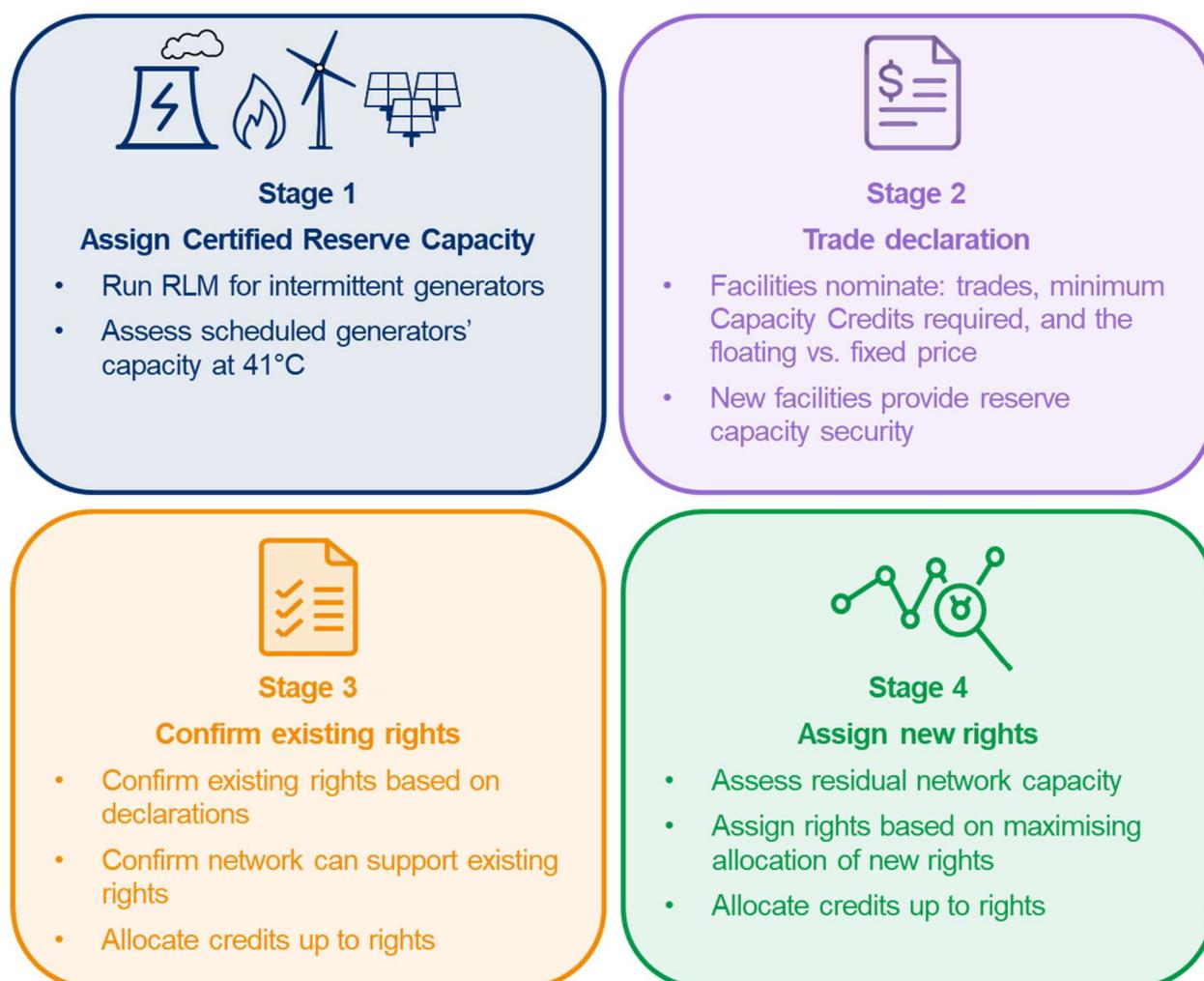
The objective of the allocation process is to allocate the available network capacity to facilities seeking Capacity Credit Rights in a way that maximises the amount of Capacity Credits (and hence generation capacity) to be available to meet the RCR, while ensuring that the quantity of Capacity Credits allocated to market participants does not exceed the network's capability.

A process to determine the allocation of Capacity Credit Rights to facilities will be required. This process is intended to be consistent with the proposed process for prioritising the assignment of Capacity Credits to facilities under the new RCM pricing reforms.

5.2 Allocating rights and credits

The allocation of Capacity Credits Rights and Capacity Credits for each Capacity Year would involve the following key stages.

Figure 4: Outline of the proposed allocation process



²⁰ Using the current process for assigning Certified Reserve Capacity.

Stage 1 – Assign Certified Reserve Capacity

Consistent with the existing process, facilities seeking to apply for Capacity Credits must first receive certification for that capacity – i.e. Certified Reserve Capacity. Certification requires a technical review of the performance capability of the facility using the same processes AEMO follows currently. For example, for scheduled generators, AEMO will certify the facility's sent-out capacity calculated at an air temperature of 41 degrees Celsius. For intermittent generators, AEMO will assess the performance of the facility using the Relevant Level Methodology (RLM).

Stage 2 – Trade declarations

As under the current arrangements, facilities meeting the requirements for Certified Reserve Capacity will be required commit to provide all or a portion of this capacity by declaring what quantity of their Certified Reserve Capacity that is intended to be traded as Capacity Credits.

As part of the new RCM pricing reforms, new entrant facilities will be also required to nominate in their trade declarations whether their capacity will be subject to the administered (floating) RCP or the five-year fixed RCP.

As part of these reforms to the allocation of Capacity Credits, facilities seeking new or additional rights will be required to nominate in their trade declaration the minimum quantity of Capacity Credits they require (minimum required Capacity Credits).²¹

At this stage, new entrants and upgrades will also be required to provide their Reserve Capacity Security.

Stage 3 – Confirm Capacity Credit Rights for existing facilities

In this stage, AEMO assesses whether the allocation of Capacity Credit Rights to existing facilities requires adjustment.²²

Firstly, AEMO will verify that existing facilities with Capacity Credit Rights have committed, through their trade declarations, to trade Capacity Credits equal to their allocation of Capacity Credit Rights

If the amount of Certified Reserve Capacity nominated for trading by a facility is lower than its allocation of Capacity Credit Rights (for example due to being certified for less reserve capacity²³), then the quantity of Capacity Credit Rights allocated to the facility will be reduced to the corresponding amount of Certified Reserve Capacity nominated in the trade declaration. This represents one application of the 'Use It Or Lose It' regime.

Secondly, AEMO will confirm that there remains enough network capacity to support the allocation of Capacity Credit Rights that AEMO has confirmed in the previous step. This step is simply to confirm that there have been no permanent and/or material changes in the configuration of the network (e.g. the retirement of a transmission element) that would prevent existing facilities from delivering the capacity associated with their Capacity Credit Rights when required.

²¹ This is simply a financial consideration related to the minimum amount of capacity revenue that a project proponent requires for its project to be considered economic.

²² For the 2022 Capacity Year (i.e. the first Capacity Year of the constrained network access model), existing facilities will be those facilities that have been assigned Capacity Credits in the 2021 Capacity Year.

²³ Under the WEM Rules 4.11.1(h), AEMO can decide not to assign CRC or assign a lesser quantity of CRC, to a facility if it has a forced outage rate or a combined planned and forced outage rate greater than a prescribed threshold outlined in a table 4.11.1D.

If there has been a permanent and material change in the configuration of the network,²⁴ then an existing facility may have its allocation of Capacity Credit Rights reduced to reflect the reduced transfer capability of the network.

Capacity Credits will be allocated up to the quantity of Capacity Credit Rights for each existing facility.

Stage 4 – Allocate Capacity Credit Rights to new facilities and facilities seeking additional rights

Once the Capacity Credit Rights of existing facilities has been confirmed, AEMO will then assess whether the residual capacity of the Network can support the allocation of further Capacity Credit Rights to new facilities or existing facilities seeking additional rights (rights seekers). This will involve a capacity modelling exercise to assess the capability of the network to accept the output of rights seekers under the most recent 10 per cent PoE demand forecast by AEMO for the relevant Capacity Year.²⁵

The capacity modelling exercise will have an objective of maximising the output that can be delivered by rights seekers, and subject to network constraints and the Capacity Credit Rights that have already been allocated in Stage 3. The result is that facilities that support the most capacity – i.e. where their output has the least impact on the constraint during peak times – would receive a higher allocation of rights relative to other facilities. This would allow for the maximum generation capacity to be available to the RCM.

The allocation of Capacity Credit Rights through the capacity modelling exercise is intended to be consistent with the prioritisation process for assigning Capacity Credits under the proposed RCM pricing reforms. The RCM pricing reforms seek to prioritise the allocation of Capacity Credits to facilities that have chosen to be subject to the administered RCP.

The capacity modelling exercise will be run with the following facilities first:

- Existing facilities that have previously been assigned Capacity Credits and Capacity Credit Rights (existing facilities); and
- Committed facilities that are subject to the administered RCP (committed floating price facilities).

The purpose of this step is to determine the amount of additional Capacity Credit Rights that can be supported by the network and available for allocation to committed floating price facilities, given that existing facilities have already been allocated Capacity Credit Rights.

If the capacity modelling exercise indicates that there is sufficient network capacity to accommodate at least the minimum required Capacity Credits of committed floating price facilities, then these facilities will be allocated Capacity Credit Rights as determined through the capacity modelling exercise and will be allocated an equivalent amount of Capacity Credits.

Committed floating price facilities that do not receive the minimum required Capacity Credits will not be allocated Capacity Credit Rights and Capacity Credits.

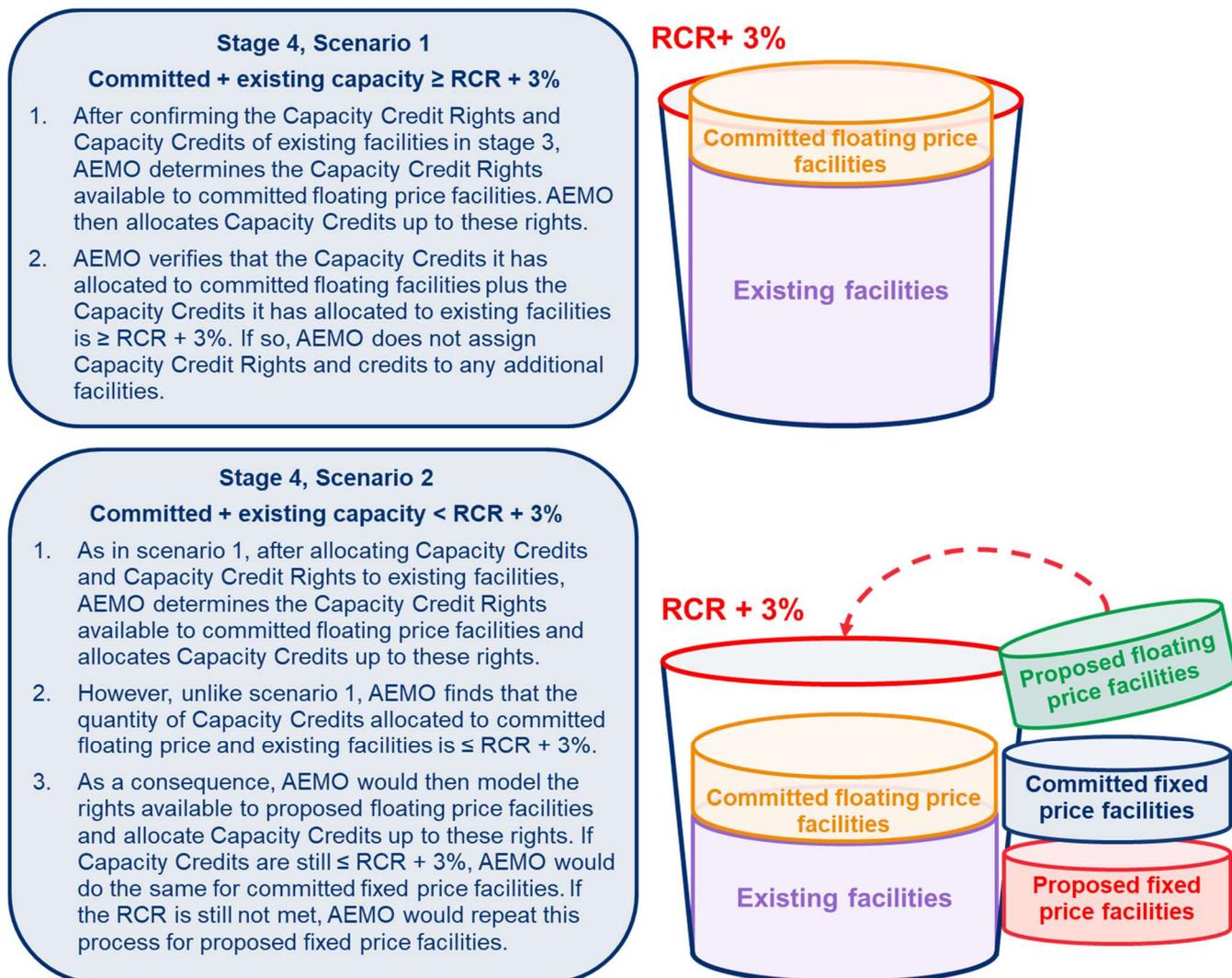
²⁴ ETIU considers that such events would be rare, and that for most Capacity Years an existing facility's Capacity Credit Right allocation would equal the Capacity Credits it received in the previous Capacity Year.

²⁵ This is expected to be similar to the current Constrained Access Entitlement process for allocating Capacity Credits to facilities connecting under the Generator Interim Access solution

At this point, AEMO will determine if the total amount of Capacity Credits that have been allocated is sufficient to meet the RCR plus 3 percent. If there are insufficient Capacity Credits to meet this target, then additional classes of facilities will be selected for inclusion in the capacity modelling exercise in the order of facility classes as proposed under the RCM pricing reforms. This process is illustrated below in Figure 5.

In the event that there is insufficient network capacity to accommodate the minimum required Capacity Credits of multiple and competing facilities seeking new or additional Capacity Credit Rights, and the RCR is not met; then a process for breaking ties will be required. The ETIU proposes to develop this process in consultation with industry.

Figure 5: Allocating Capacity Credits to facilities seeking new or additional rights



5.3 Avoiding iterations

Measures may be required to limit the need for iterations during the allocation process to minimise administrative burden and complexity.

The need for iterations may arise if a project proponent withdraws at a late stage during the capacity allocation process.

To minimise the potential for withdrawals to occur, project proponents would be required to submit their minimum required quantity of Capacity Credits as part of their trade declarations. Project proponents that do not receive their minimum required Capacity Credits during the capacity modelling exercise will be removed from the capacity allocation process.²⁶ Additionally, network information would be provided early in the Capacity Cycle to assist project proponents to accurately estimate the minimum amount of capacity revenue and Capacity Credits to make their project viable. AEMO would also continue to assess applications for certification early in the process so that invalid applications are identified before they are progressed to the more onerous stages of the allocation process.

It is also possible that the RLM may need to be recalculated if the relevant level for facilities is subsequently reduced in the capacity modelling exercise due to the impact of constraints, as this may result in insufficient Capacity Credits to meet the RCR.²⁷

To minimise the need for re-running the RLM, tolerance bands could be applied. For example, the RLM would only be iterated where it is considered the results of the network modelling would materially undermine assumptions and results initially used in the RLM.

²⁶ Note that if there is insufficient Capacity Credits to meet the RCR + 3% under the proposed RCM pricing reforms, then these facilities may be included in the further stages of the capacity allocation process.

²⁷ This assumes that the proposed reform to the RLM is implemented. Under the proposed RLM, the capacity value of a generator depends on the forecast level of excess capacity in the system. Where this forecast excess is reduced due to constraints, the capacity value of the intermittent facilities may need to be recalculated.

6. Transitioning to the new arrangements

A new security-constrained economic dispatch market design will be adopted for the WEM and is intended to take effect from 1 October 2022.

To reflect the new constrained market design on 1 October 2022, new arrangements for the Capacity Credit Rights regime will need to apply for the 2020 Capacity Cycle, which commences in January 2020 with the start of the Expression of Interest process and publication of the Benchmark Reserve Capacity Price. These new arrangements principally involve the following.

- Changes to the WEM Rules and the Access Code.
- Changes to market procedures under the WEM Rules.
- Changes to model instruments under the Access Code (such as the Applications and Queuing Policy and the model access contract).
- Design and implementation of ICT systems.
- The network model for determining residual network capacity.
- Network information (such as constraint equations) to assist intending participants to make informed decisions to support their investment planning.

Ideally, these new arrangements are in place early enough to allow adequate time for market participants to fully understand the changes and accordingly modify their process, procedures, and IT systems.

Changes to the WEM Rules and Access Code to implement the Capacity Credit Rights regime are expected to be made by mid-2020. However, there are significant challenges to deliver the remaining arrangements in time for the commencement of the 2020 Capacity Cycle.

The ETIU considers that the absence of all the necessary arrangements is less problematic for the allocation of Capacity Credit Rights to incumbent generators, relative to prospective generators. This is because the Capacity Credit Rights allocations for existing facilities for the 2022 Capacity Year would be determined using methods similar to those used previously in the unconstrained network.

However, arrangements such as the network model and network information would be necessary to allocate Capacity Credit Rights to any new entrant facilities in the 2020 Capacity Cycle. Allocating Capacity Credit Rights to new entrants will require an assessment of how much residual capacity is left in the network after accounting for incumbents.

Consequently, interim arrangements would be required to accredit any new entrant facilities in the 2020 Capacity Cycle. One option identified by the ETIU is to make a preliminary assessment of the residual capacity available to the new entrants using available information about constraints and provisionally allocating Capacity Credit Rights on this basis. These provisional Capacity Credit Rights would then be subject to correction once the network information is updated in the next Capacity Cycle. The 2021 Capacity Cycle would then include the full suite of changes required to fully integrate constrained network access into the RCM for the 2023 Capacity Year.

An alternative option would be to defer the 2020 Capacity Cycle to the start of 2021. In addition to avoiding the need for interim arrangements, deferring the 2020 cycle would allow project proponents to make use of information to be released in initial Whole of System Plan in mid-2020. This will highlight what opportunity there is for new investment in the electricity system (including if the network requires augmentation, what type of capacity is required and where). Deferring the cycle would also allow investors more time to interrogate and assess the implications of the new arrangements for their investments.

The ETIU will seek feedback on the transition options through the consultation process. The options are to either: accredit new entrant facilities in the 2020 Capacity Cycle based on preliminary assessments of residual capacity; or to defer the 2020 Capacity Cycle until 2021.



Energy Transformation Implementation Unit

