



Government of **Western Australia**
Department of **Mines, Industry Regulation and Safety**
Energy Policy WA

Response to Stakeholder Submissions

Cost Allocation Review – WEM Amending Rules
Exposure Draft

4 October 2024

Working together for a **brighter** energy future.

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Overview

The Cost Allocation Review (CAR) is one of several [Wholesale Electricity Market \(WEM\) evolution reviews](#) undertaken, in consultation with the Market Advisory Committee (MAC), by the Coordinator of Energy under the WEM Rules since the start of 2022. The aim of these reviews is to address the challenges associated with the transformation of the South West Interconnected System (SWIS) in the transition to a low emissions energy system.

The demand profile and electricity supply sources of the WEM are rapidly changing, and the implementation of activities set out under the Electricity Transformation Strategy will see these costs continuing to increase.

The changing generation mix in the WEM has changed the way the Australian Energy Market Operator (AEMO) operates the market. The power system operating environment has become more challenging, with inertia declining, volatility in load and generation increasing, and the potential for Distributed Photovoltaics tripping (in response to a power system disturbance) to exacerbate contingency sizes.

The objective of the CAR was to develop methods to align the allocation of Essential System Services (ESS) costs with the causer-pays principle. That is, that users that are creating the costs on the system should pay for those costs, to the extent practicable and efficient.

Energy Policy WA (EPWA) engaged extensively with stakeholders during the CAR over a two-year period in 2022 and 2023. This included:

- nine dedicated CAR Working Group meetings and 10 MAC meetings;
- a Consultation Paper setting out the proposals for changes to the cost allocation methods in the WEM Rules, followed by an Information Paper; and
- an Exposure Draft of the proposed WEM Amending Rules, which was subject to extensive consultation, including public consultation.

EPWA has now finalised the WEM Amending Rules implementing the outcomes of the CAR, which include changes to the methods used to allocate the costs of Regulation and Contingency Reserve Lower (CRL).

The key outcomes of the CAR included changes to Regulation and CRL cost recovery to provide incentives for Market Participants to minimise the requirements and the costs of these services.

The changes to CRL apply a new method to allocate CRL costs. CRL is required to cover the risk of a material increase in system frequency due to a loss of single large load, or multiple loads on a single network element.

The CRL requirement can be influenced by a facility outage or a network outage. A large load or battery connecting to the SWIS through a single connection could increase the SWIS CRL requirement as it imposes both a Facility and Network Risk, and such a load should bear the additional costs associated with the increased CRL requirements.

The implementation of the outcomes of the CAR are intended to address the risks that will arise with large batteries and other large loads connecting to the SWIS. It is unreasonable to keep the current cost allocation method in place as the requirements for CRL will increase significantly from their current levels.

The CAR Rules will provide certainty regarding costs that will be incurred and allow potential investors to consider the implications of separating loads into component parts to lower their impact on the CRL requirement, rather than connecting large loads through a single connection.

Regarding the Regulation changes, since 2019 AEMO has called for a price signal to incentivise intermittent generators to reduce their volatility¹.

A cost allocation method that reflects system security impacts is required to ensure intermittent Facilities offer generation to a degree of certainty and accuracy, and endeavour to follow dispatch instructions.

Without a reduction in volatility, ESS costs will continue increase as a percentage of total costs with increased penetration of Distributed Energy Resources (DER) and renewable electricity generation, more generally.

The CRL related changes are urgent given that large loads, particularly large storage facilities, are increasingly connecting to the SWIS. The changes are intended to incentivise proponents to reduce the size of prospective loads connected to the SWIS to reduce their exposure to CRL costs.

Without the changes to Regulation, the mechanisms to incentivise facilities to minimise (to the extent possible) the volatility of their generation remain inadequate.

The WEM Amending Rules

EPWA developed and published an Exposure Draft of the WEM Amending Rules to implement the outcomes of the CAR. Stakeholders were invited to provide written feedback by 28 November 2023.

The *Wholesale Electricity Market Amendment (Cost Allocation) Rules 2024* incorporated sections of the CAR Exposure Draft along with some further amendments made in response to stakeholder submissions and ongoing consultation with AEMO.

The [*Wholesale Electricity Market Amendment \(Cost Allocation Reform\) Rules 2024*](#), were approved by the Minister for Energy on 4 June 2024 and published in the Government Gazette on 7 June 2024.

Further changes to refine the cost allocation methodology for Contingency Reserve Raise, were consulted on within the [*Miscellaneous Amendments No 3 Exposure Draft*](#). Stakeholders were invited to provide written feedback with consultation closing on 8 July 2024. EPWA also held a Transformation Design and Operation Working Group session on 18 June 2024 at which it presented the proposed amendments.

Additional information on the Miscellaneous Amendments No 3 Exposure Draft and CAR can be found on the EPWA's [website](#).

The [*Wholesale Electricity Market Amendment \(Miscellaneous Amendments No 3\) Rules 2024*](#) were approved by the Minister for Energy on 2 October 2024 and published in the Government Gazette on 4 October 2024.

Responses to Submissions

EPWA considered all stakeholder feedback before finalising the WEM Amending Rules and has provided a response to the feedback in the tables below.

¹ [renewable-energy-integration--swis-update.pdf \(aemo.com.au\)](#)

Responses to stakeholder submissions on the Exposure Draft of the CAR WEM Amending Rules

Submission	Comments/Issues Raised	Clause #	Requested Changes/Action	Energy Policy WA Responses
General Comments				
Australian Energy Market Operator (AEMO)	AEMO supports the CAR outcomes that the Amending Rules seek to implement. AEMO note that several areas require further clarification or amendment to address gaps, remove ambiguity, and improve efficiency			Noted.
Western Power	It is Western Power's understanding is that there are no new obligations on Western Power created by the rule changes proposed in the exposure draft.			Noted.
Allocation of Market Fees				
Expert Consumer Panel (ECP)	<p>The ECP support the decision to retain the existing arrangements in relation to market fees and other costs because they are outside the control of small energy consumers.</p> <p>The ECP note that the overwhelming majority of households and small businesses rely on Synergy to manage their electricity supply on their behalf and are not equipped with the information or tools to actively manage their electricity use in real time.</p> <p>The ECP consider that exposing small consumers to a greater share of market fees would not deliver efficiency gains or net benefits, particularly when the administrative cost of reallocating fees that only account for 0.5 per cent of total electricity costs are taken into account.</p>			<p>The current method to allocate market fees will be retained.</p> <p>EPWA considered that while there may be some equity benefits to be gained by changing the method to allocate market fees, but changing the allocation method would:</p> <ul style="list-style-type: none"> • be unlikely to impact on Market Participants' use of the relevant services (i.e. no efficiency benefits); • likely require material implementation costs; • not increase the affordability, reliability, safety or security of supply; and • provide no major identifiable benefit to Market Participants or end customers.
Western Power	Western Power is supportive of the changes which aim to allocate both market fees and Essential System Service (ESS) costs to align them with the causer-pays principal, to the extent practicable and efficient.			Noted.

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Allocation of other Essential System Service costs				
		4.28.4(aA) 4.28.4A and 9.10.27D 9.10.45		<p>The Cost Allocation Review Working Group (CARWG) and the Market Advisory Committee (MAC) supported retention of the current cost recovery methods for System Restart Services and Non-Co-Optimised Essential System Services (NCESS).</p> <p>The current cost recovery methods for System Restart Services and NCESS will be retained.</p> <p>The cost allocation on NCESS contracts for Peak reliability services were amended by the <i>Wholesale Electricity Market Amendment (Miscellaneous Amendments No 3) Rules 2024</i> (Misc 3 Amending Rules).</p> <p>This will allow for fairer distribution of the NCESS costs to large loads and small retailers, who have expressed strong concerns about these upcoming costs.</p> <p>Clauses 4.28.4(aA) and 4.28.4A were introduced to allow AEMO to recover additional capacity procured under NCESS contracts for contracts to maintain Power System Security and Reliability during peak periods for a relevant Reserve Capacity Cycle using the Reserve Capacity Settlement scheme.</p> <p>Clauses 9.10.27D and 9.10.45 were amended to remove from the Essential System Service Settlements Calculations any NCESS contracts procured and recovered under the Reserve Capacity Mechanism, in accordance with the new clauses 4.28.4(aA) and 4.28.4A.</p>
Contingency Reserve Raise Services				
WEM Procedure Runway share calculation Appendix 2A				
ECP	The ECP consider that the new cost recovery arrangements for CRR will better reflect steps Market Participants take to configure their assets and network connections in ways that minimise risks.			Changes to the CRR cost allocation method were implemented in the Misc 3 Amending Rules. The implemented changes still encourage Market Participants to configure their assets and network

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				connections in ways that reduce their contribution to CRR requirements.
AEMO	<p>AEMO considers the changes required by clause 2.6 of Appendix 2A could be simplified to reduce implementation costs, while achieving the same policy outcomes, and would be pleased to work with EPWA on this matter.</p> <p>AEMO requests that Appendix 2A be updated throughout to specify how to treat electricity producing systems separately in accordance with clause 1.4, including clarifying how electricity producing units of a non-registered Facility will be treated in settlement calculations.</p> <p>In addition AEMO considers rule changes should be considered with respect to Registration and Standing Data requirements for such electricity producing units to enable AEMO to perform the calculations.</p>	Appendix 2A		<p>The proposed amendments to Appendix 2A in the CAR exposure draft were not included in the final CAR Amending Rules.</p> <p>Instead, the changes to the CRR cost allocation method in the Misc 3 Amending Rules include changes to address the CRR issue raised in the CAR, i.e. that the current cost allocation method does not work appropriately if a Registered Facility contains independently dispatchable energy producing units with separate network connections, so that the Credible Contingency risk associated with the Facility is less than its Dispatch Target/Dispatch Forecast.</p> <p>The CRR cost allocation method changes in the Misc 3 Amending Rules were developed in close consultation with AEMO to ensure that AEMO's concerns and suggestions were taken into account.</p>
Synergy	Synergy considers that the drafting in section 1.4 contains a long sentence with multiple Rule references. This is difficult to read and may be unclear for Rule Participants to interpret.	Appendix 2A, section 1.4	Synergy suggests that Appendix 2A, section 1.4 is redrafted for clarity and that separating section 1.4 into subsections may assist Rule Participants with interpretation.	See above.
Synergy	Synergy suggest that "this" is added to the sentence and "2A" deleted for clarity.	Appendix 2A, section 2.5	<p>Suggested redrafting:</p> <p>Subject to AEMO's assessment and determination in accordance with section 2.7(a) of this Appendix, one or more electricity producing units in an Energy Producing System that is part of a Facility may be treated separately for the purposes of allocating Contingency Reserve Raise costs under this Appendix, provided that the units meet the following criteria:</p>	See above.

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			...	
Synergy	<p>Synergy notes that the criteria listed at section 2.6 doesn't include the requirement that each dispatchable unit (or set of inverters) have its own onsite electrical distribution system (or set of inverters).</p> <p>Synergy notes that Section 5.1 of the Information Paper published 15 June 2023 included this requirement. Synergy queries whether the requirement should be included in the Amending Rules at Appendix 2A, section 2.6 for consistency with the Information Paper.</p>	Appendix 2A, section 2.5		<p>Under the CRR cost allocation method in the Misc 3 Amending Rules, AEMO will determine the method for calculating Single Facility Raise Risks (previously Facility Risks) for each Scheduled Facility, Semi-Scheduled Facility and Non-Scheduled Facility on a case-by-case basis. This approach will more accurately reflect the actual risk posed by the failure of each Facility. AEMO will also be required to document how it determines Single Facility Raise Risks in a WEM Procedure.</p> <p>It is expected that AEMO will consider the requirement suggested by Synergy if it affects the risk posed by a failure of the Facility or its associated network.</p>
Synergy	Synergy suggests that "separate" is removed from section 2.6 for drafting clarity and consistency with 2.5 and the rest of Appendix 2A.	Appendix 2A, section 2.6	<p>Suggested redrafting:</p> <p>A Market Participant that wants the separate an electricity producing unit (or set of units) within an Energy Producing System to be treated separately for the purposes of Appendix 2A must:</p> <p>...</p>	See above.
Regulation				
Expert Consumer Panel (ECP)	<p>The ECP also consider that the proposed changes to the arrangements for Contingency Reserve Lower (CL), and Regulation Services will better align actual performance with cost recovery.</p> <p>The ECP support the implementation of the WEM deviation method, as proposed for the allocation of costs of providing Regulation Services for maintaining System Frequency, as a pragmatic approach for now.</p>			Noted.

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	<p>The ECP consider that the WEM approach to Regulation Services cost allocation could be reviewed at an appropriate time if the more sophisticated NEM approach proves to be sufficiently better.</p>			
Western Power	<p>Western Power notes that the cost allocation methodology for the Essential System Services (ESS) of Regulation Raise and Lower proposes to use existing data available to AEMO that is sourced from the “SCADA system operated by AEMO or the network operator (as applicable)”. It is Western Power’s understanding that the methodology utilises SCADA data in AEMO’s databases rather than processing the SCADA data in real time.</p> <p>Western Power is aware that the methodology proposed is based on an approach adopted in the NEM on equivalent SCADA data. The NEM arrangement indicates that AEMO’s systems take into account some of the complexities of TNSP SCADA data such as latency, unavailable/missing data and quality of data.</p> <p>Western Power requires that similar considerations are accommodated for and are documented in a relevant AEMO WEM procedure.</p> <p>Western Power, whilst working on the principal that the methodology proposed in the exposure draft is using existing systems and data available to AEMO, looks forward to collaborating on the implementation with EPWA and AEMO should any matters require further input.</p>			<p>EPWA has investigated the concerns raised regarding SCADA data and included several provisions in the CAR Amending Rules to account for them. These include:</p> <ul style="list-style-type: none"> • the introduction of a new defined term, “SCADA-Derived Quantity”, for the quantities derived by AEMO from SCADA data for use in Appendix 2D (for Regulation cost allocation) and Appendix 2E (for CRL cost allocation); • requirements on AEMO under new section 7.16 to: <ul style="list-style-type: none"> • identify and exclude from its calculations any spurious values in the SCADA data it uses to prepare SCADA-Derived Quantities; and • determine that a Facility is an Unavailable SCADA Facility for a period if warranted by the extent of spurious or missing SCADA data values for the period (which will result in the use of an alternative cost allocation method for that Facility/period); and • a revised process for estimating the “actual” MW level of Injection or Withdrawal for a Facility from SCADA data, which accounts for the inconsistencies in time stamps for actual SCADA readings across Facilities, and for missing and spurious SCADA data values.
Calculation of regulation shares for Regulation cost recovery				
Synergy	<p>Synergy considers that the Interpretation clause at section 1.1 could be refined for drafting clarity and consistency with the</p>	Appendix 2D, clause 1.1	Suggested redrafting:	<p>Synergy’s suggestion has been incorporated into the CAR Amending Rules.</p>

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	wording in Interpretation section 1 of the existing Appendix 2A, 2B and 2C.		If anything is to be determined, calculated or done in this Appendix, then except if otherwise stated, AEMO will determine, calculate or do that thing , as the case may be, those things. ...	
	<p>Synergy suggest that “may” be replaced with “must” in the sentence:</p> <p>Synergy’s rationale for this is if a facility is being directed or is providing ESS, then it should not be charged.</p> <p>For drafting clarity, Synergy suggest that it becomes its own section, instead of being within section 2.1(g). and accordingly, (g) be amended to refer to AEMO’s WEM Procedure developed under section 2.1 of Appendix 2D.</p>	Appendix 2D, clause 2.1(g) and i	<p>Suggested redrafting:</p> <p>Scheduled Facilities and Semi-Scheduled Facilities providing ESS may not be able to minimise the 4-second Deviation values when they provide Regulation services, frequency response or are subject to AEMO directions; in which case AEMO must may reduce or set the Deviation value to zero for that 4-second period, in accordance with the WEM Procedure developed under section 2.1 of this Appendix;</p> <p>...</p>	<p>The cost allocation method for Regulation has been amended to exempt a Regulation Facility from Regulation costs for a Dispatch Interval if it is a Deviation Facility in the Dispatch Interval. A Regulation Facility will be a Deviation Facility if:</p> <ul style="list-style-type: none"> it is enabled for (and provides) Regulation Raise or Regulation Lower in the Dispatch Interval; it is a Frequency Response Deviation Facility in the Dispatch Interval – this will be the case if AEMO: <ul style="list-style-type: none"> determines that the Dispatch Interval is a Frequency Excursion Dispatch Interval (because SWIS Frequency deviated outside of the Normal Operating Frequency Excursion Band during the Dispatch Interval) under new clause 7.15.1(a); and determines that the Facility provided a beneficial response to the frequency excursion in the Dispatch Interval under new clause 7.15.1(b); or it is a Direction Deviation Facility in the Dispatch Interval – this will be the case if AEMO determines under new clause 7.15.1(c) that the Facility was subject to a direction from AEMO that required the Facility to deviate from its Dispatch Instruction.
4-second deviation calculation				
AEMO	AEMO notes that under clause 2.1 of Appendix 2D, AEMO is required to calculate the 4-second deviation as:	Appendix 2D	AEMO recommends that trajectories be set according to Dispatch Targets for Scheduled Facilities and Semi-Scheduled Facilities providing FCESS.	See above response.

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	<ul style="list-style-type: none"> • $Deviation(f,s) = SCADA_Quantity(f,s) - Trajectory_Quantity(f,s)$. <p>AEMO considers that clause 2.1(g) of this appendix, requiring AEMO to make the assessment for each 4-second period separately, would lead to increased complexity and cost.</p> <p>AEMO believe it would be sufficient to exempt set facilities' deviations to zero on a Dispatch Interval granularity (where they meet relevant criteria).</p>		<p>AEMO recommend that treatment of all reasonable deviations associated with droop, regulation response via AGC, directions and other reasons for deviation may be best managed through processes outlined in the WEM Procedure under 2.1(g).</p> <p>For clause 2.1(a) and clause 2.1(e) and other references to SCADA, AEMO advises that it will need to ensure sufficient flexibility is available for AEMO to interpolate, replace, and cleanse SCADA data to manage SCADA unavailability and other data quality issues. This includes a need for AEMO to manage Facilities with high SCADA latency, long-duration SCADA outages or Facilities with poorer granularity than 4-seconds.</p>	
Implied Forecast Quantity				
AEMO	<p>With respect to the calculation of Implied Forecast Quantity in clause 2.1(j), AEMO considers there is a high likelihood that the sum of the forecasts of the Scheduled, Semi-Scheduled and Non-Scheduled Facilities do not represent a reasonable Final Reference Value for the Residual Loads.</p> <p>For example, if the sum of the Dispatch Targets and the Injection Forecasts (which may be equal to the unconstrained dispatch targets) is substantially higher than the forecast demand. AEMO also considers that, clause 2.1(j)(i) does not include NDLS with SCADA metering.</p>		<p>AEMO recommends adjusting the definition of Implied Forecast Quantity to be similar to the definition of Implied Metering Quantity, but for the end of the interval instead of the start (or, equivalently, equal to the Implied Metering Quantity for the following interval).</p> <p>AEMO considers this is also more consistent with the definition of Final Reference Value for NDLS with SCADA, which is based on actual end-of-interval consumption.</p> <p>AEMO recommends adding a new clause 2.1(j)(i)(3) to address such loads for consistency with the definition of Implied Metering Quantity and 2.1(j)(iii).</p>	<p>Appendix 2D has been extensively amended to more clearly define the entities involved in Regulation cost allocation and refine the method used to determine the expected and actual Injection/Withdrawal traces for each Regulation Entity.</p>

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Calculation of the contribution factor for each Regulation Entity				
AEMO	Regulation Entity is defined as including the Facility representing Residual Load. Residual Load is included in clause 2.4 of Appendix 2D.	2.4	AEMO recommends either changing the definition of Regulation Entity or excluding Residual Load from clause 2.3 of Appendix 2D to prevent double counting.	See above. Under the revised drafting, Regulation costs are allocated to Facilities on an individual basis if suitable SCADA data is available to determine estimates of their actual MW level of Injection or Withdrawal for each "Assessment Time" in the Trading Interval (i.e. each 4 seconds). These Facilities are classified as Regulation Facilities. The "Regulation Entities" for a Trading Interval comprise the Regulation Facilities and a notional entity (the "Residual Load") representing all other Facilities.
Metered Quantity parameters				
AEMO	Clause 2.4(b) states the Metered_Quantity(L,DI) is the metered consumption by loads L in the Residual Load in Dispatch Interval DI. AEMO requests a clearer description of this clause. Metered consumption is not a defined term, making this calculation ambiguous.	2.4(b)	AEMO considers that the intention of this clause may be the following: $\min(0, \text{SOMS}(L, \text{DI}))$, where $\text{SOMS}(L, \text{DI})$ is the Sent Out Metered Schedule of L in DI	See above. Under the revised drafting, the share of Regulation Costs attributed to the Residual Load is allocated to Market Participants on the basis of their $\text{RLContributionFactor}(p,t)$ values for the Trading Interval, which are calculated using the absolute values of the Metered Schedules of non-Regulation Facilities.
Determining the metering connection points for loads				
AEMO	Clause 2.4(c) refers to LEP which is the set of metering connection points for loads L in the Residual Load.	2.4(c)	AEMO requests the definition of Residual Load be changed to enable AEMO to determine which connection points to include in this set and to specify which Market Participant owns the Residual Load.	See above. The Residual Load is deemed to comprise all Facilities (including the Notional Wholesale Meter but excluding Scheduled Facilities) that are not Regulation Facilities in the relevant Trading Interval.
Synergy	Synergy suggests redrafting to section 3.3 for clarity.	Appendix 2D, section 3.3	Suggested redrafting: A Market Participant for a Semi-Scheduled Facility that does not provide ESS or a registered Non-Scheduled Facility is registered may notify AEMO that it requires AEMO to use the Unconstrained Injection and	This clause has been removed from Appendix 2D. Under the revised drafting, the "expected" level of Injection or Withdrawal at the end of a Dispatch Interval for a Semi-Scheduled Facility (that is not issued a Dispatch Target) or a Non-Scheduled Facility is the Facility's Dispatch Forecast. In most cases, this value will be the Unconstrained Injection or Withdrawal

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			Withdrawal Forecast that the Market Participant provided in the Real-Time Market Submission for the Facility under clause 7.4.1 instead of the Injection Forecast developed by AEMO under section 3.1 of this Appendix.	Forecast for the Facility, as adjusted by AEMO under clause 7.2.4A. New clause 7.2.5(bA) requires AEMO to document in a WEM Procedure how and under what circumstances AEMO will determine alternative forecast quantities under clause 7.2.4A to the Unconstrained Injection and Withdrawal Forecast values provided in Real-Time Market Submissions for use as inputs to the Dispatch Algorithm.
Synergy	Synergy notes that the heading in section 4 contains a typo, referring to CRL instead of Regulation Cost Recovery.	Appendix 2D, section 4	Suggested redrafting: Contingency Reserve Lower Regulation Cost Allocation Procedure	The section heading has been removed from Appendix 2D.
Contingency Reserve Lower Services				
Synergy	Synergy notes that there is a typo in the calculation for The CL amount recoverable from Market Participant p for Dispatch Interval DI.	9.10.32	Suggested redrafting: The CL amount recoverable from Market Participant p for Dispatch Interval DI is: $CL_Recoverable(p,DI)=CL_Payable(DI)\times ParticipantCLShare(p,DI)$	The CRL cost allocation settlement calculations have been redrafted and the formula mentioned by Synergy no longer exists. The CRL amount recovered from a Market Participant for a Trading Interval now has two components: <ul style="list-style-type: none"> the first component (CL_Facility_Recoverable(p,t)) reflects the impact of any high (>120 MW) Withdrawal levels of the Market Participants CL Facilities, and is based on the output of Appendix 2E; and the second component (CL_GL_Recoverable(p,t)) reflects the Market Participant's share of the impact of Withdrawals of all Facilities up to the 120 MW level, including CL Facilities ("Generic Load"). The relevant calculations are set out in clauses 9.10.32 to 9.10.32G.
Synergy	Synergy considers that the Interpretation clause at section 1.1 could be refined for drafting clarity and consistency with the wording in Interpretation section 1 of the existing Appendix 2A, 2B and 2C.	Appendix 2E, clause 1.1	Suggested redrafting: If anything is to be determined, calculated or done in this Appendix, then except if otherwise stated, AEMO will determine, calculate or do that	Synergy's suggestion has been incorporated into the CAR Amending Rules.

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			thing, as the case may be, those things.	
Determining Contingency Reserve Lower Entities' Dispatch Instructions				
AEMO	<p>Clause 2.3 of Appendix 2E states NDL are below the CL_Threshold, and clause 2.4 of Appendix 2E states NDLs are not in Applicable_CL_Entities.</p> <p>Clause 2.1(c) will involve determining sets for each Dispatch Interval containing approximately 70,000 interval meters, then these interval meters are removed from the sets to perform section 3 of the calculation.</p>	Appendix 2E, clause 2.3	<p>AEMO suggests amending the determination of sets CL_Entities and Applicable_CL_Entities so as to reduce computational requirements and storage costs.</p> <p>Under the proposed drafting, the determination of the NDL Facilities in the set Applicable_CL_Entities is based purely on whether the NDLs have SCADA. AEMO considers that a more appropriate determiner would be whether the Metered Schedule is over 120 MW equivalent.</p>	<p>Appendix 2E has been amended to refine the method used to determine which entities are allocated CRL costs on an individual basis for a Dispatch Interval. Under the revised drafting:</p> <ul style="list-style-type: none"> a "CL Facility" is a Facility that is a: <ul style="list-style-type: none"> Scheduled Facility; Semi-Scheduled Facility; Non-Scheduled Facility monitored by AEMO's SCADA system; or Major Load (i.e. a Non-Dispatchable Load that is individually monitored by AEMO's SCADA system, not included in the Notional Wholesale Meter and, in AEMO's reasonable opinion, capable of a level of Withdrawal greater than 120 MW). ApplicableCLFacilities(DI) is the set of CL Facilities with a Facility Lower Risk > 120 MW in the Dispatch Interval. <p>Only members of ApplicableCLFacilities(DI) are assigned a share of the CRL costs using the runway method.</p> <p>The relevant calculations (including the determination of Facility Lower Risk) do not use interval meter data.</p>
Determining Applicable Contingency Reserve Lower Entities				
AEMO	Both clause 2.3 and 2.4 use operators that do not include "equal to" CL_Threshold.	Appendix 2E, clause 2.3	<p>AEMO considers there may be a formula error in clause 2.3 of Appendix 2E and queries whether the formula should state \leq CL_Threshold rather than $<$ CL_Threshold.</p> <p>AEMO notes that CL_Threshold is also sometimes used to describe "the MW value which is the threshold for</p>	<p>The relevant drafting has been removed from Appendix 2E.</p> <p>"CL_Threshold" is now defined as "120 MW" in the Glossary.</p>

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			being considered in the runway methodology” and other times separate terms are used for each description for clarity and consistency.	
Ranking of Contingency Reserve Lower Entities				
AEMO	The CL_Entity with the highest Facility Risk is currently being assigned a rank of n, where n is the number of CL_Entities in the set Applicable_CL_Entities. This will result in the CL_Entity being assigned a rank of 1. However, the “CL_Threshold” entity is also assigned a rank of 1, which breaks the calculation.		To avoid this issue, AEMO requests that the CL_Entity with the highest Facility Risk should be assigned a rank of n+1 rather than n.	The runway method in section 3 of Appendix 2E has been amended so that only CL Facilities with a Facility Lower Risk greater than 120 MW are included in the calculation. Additionally, FacilityMW(0,DI) is set to the CL Threshold (i.e. 120 MW) instead of zero, which effectively removes the first 120 MW of each Facility Lower Risk from the calculation. If n CL Facilities are included in the runway calculation then the CL Facility with the largest Facility Lower Risk will be assigned a rank of n.
Calculation of the Runway Share for the Notional Wholesale Meter and Contingency Reserve Lower Entities				
AEMO	AEMO queries whether the calculation in Appendix 2E clause 2.3 should also depend on the calculation in Appendix 2E clause 3.3 to calculate FacilityRisk(f,DI). If so, AEMO recommends updating clause 2.3 to reflect this and updating clause 3.3(b).	Appendix 2E, clause 2.3 and 3.3(b)	AEMO recommends updating clause 3.3(b) to state the RunwayShare(f,DI) = 0 for CL_Entities with FacilityRisk(f,DI) ≤ CL_Threshold.	Under the revised drafting for Appendix 2E, if a CL Facility is not a member of ApplicableCLFacilities(DI) (i.e. its Facility Lower Risk is ≤ 120 MW) then it is not included in the runway share calculation and, under clause 5.3, is assigned a zero share of the Facility Lower Contingency component of the CRL cost.
Synergy	Synergy considers that it is unclear what “1” in this section is referring to. CL_EntityMW(1,DI) is the CL_Threshold;	Appendix 2E, clause 3.2(a)	Synergy suggests that Appendix 2E, section 3.2(a) is redrafted to provide clarity and to assist Rule Participants with interpretation of this section.	The relevant drafting has been removed from Appendix 2E.
Synergy	Synergy considers that the formulas in section 3.2(b) and section 6.5(c) i uses “x” as an index. “x” may potentially be misread as multiply.	Appendix 2E, clause 3.2(b) and Appendix 2E, clause 6.5(c) i	Synergy suggests that another index is used to avoid misinterpretation of these sections.	While the updated runway calculation in clause 3.4 still uses an index “x” in the description of FacilityMW(i,DI), the index is not used in any place where it could be interpreted as a multiplication sign.

Submission	Comments/Issues Raised	Clause #	Requested Changes/Action	Energy Policy WA Responses
Contingency Reserve Lower Threshold and Runway Share				
AEMO	<p>AEMO notes that there is a potential inconsistency in sign convention in clause 3.3. If CL_Threshold is 120 MW, it is implied that this is consumption, but CL_Threshold is not formally defined. Metered Schedule treats injection as positive.</p> <p>The clause indicates that RunwayShare = 0 for any CL_Entity with metered schedule less than 120 MW, i.e. any NDL Injecting less than 120 MW (including any NDL that is Withdrawing).</p>	Appendix 2E, clause 3.3	AEMO requests clause 3.3 be reworded to remedy the inconsistency.	Under the revised drafting, the relevant quantities (Facility Lower Risk, Network Lower Risk and Network Facility Lower Risk) are not based on interval meter data and are defined in a way that clarifies that they are non-negative quantities.
Determining the Threshold Share Contingency Reserve Lower Entity Quantity				
AEMO	<p>AEMO notes that the formula for MeteredQuantity(f,DI) in clause 4.1(d) is different to the formula used in clause 3.3(b). AEMO notes that the term "MeteredQuantity(f,DI) is used in clauses 3.3 and 4.1 of Appendix 2E with different definitions.</p>	Appendix 2E, clause 3.3 and 4.1	<p>AEMO requests clarification on whether clause 4.1 is treating all NDLs without SCADA metering and the Notional Wholesale Meter as a single entity, and if so, requests clarification on which Market Participant owns this entity.</p> <p>AEMO believes there should be an explicit formula for calculating FacilityRisk(f,DI) for each relevant entity which replaces the use of MeteredQuantity(f,DI).</p> <p>AEMO requests that clauses 3.3 and 4.1 of Appendix 2E be updated for consistency, or two different terms be used. The term used in 4.1 should also be more precisely defined to avoid ambiguity, for example, around sign convention.</p>	The relevant clauses have been removed from Appendix 2E, which no longer uses interval meter quantities.
Network Contingency Shares				
AEMO	AEMO notes that clause 6.5(a) refers to a union of sets, clause 6.5(a) only refers to one of the sets: Applicable_CL_Entities(D).		AEMO recommends updating clause 6.5(a) and queries whether the clause is intended to state "where Causer_Facilities(nc,DI) is a subset of	The CRL cost allocation method in Appendix 2E has been amended to prevent the potential perverse outcomes identified by AEMO.

Submission	Comments/Issues Raised	Clause #	Requested Changes/Action	Energy Policy WA Responses
	<p>AEMO notes that Network Contingency Share is assigned only to Registered Facilities.</p> <p>It is likely that most of the time the Network Contingency that sets the Largest Credible Load Contingency for Contingency Lower will be dominated by consumption from NDLs (unregistered), with no or few Registered Facilities that are withdrawing associated with it.</p> <p>Under the current drafting, it appears likely that this will lead to intervals where significant costs are being attributed to Facilities with small energy withdrawals.</p> <p>For example, where a Network Contingency has a total risk of 240 MW, made up of 239.8 MW from NDLs and 0.2 MW from a Facility's parasitic loads, and there are no other CL_Entities in the system with consumption/Facility Risk > 120 MW, such that the Network Component (from clause 7.1) is 0.5, the facility with 0.2 MW Facility Risk would receive 50% of all Contingency Lower costs in the market.</p> <p>AEMO notes that the implementation of Contingency Raise was a complex undertaking.</p> <p>AEMO considers that the implementation of the Network Contingency Share adds additional complexity to the calculation and requests that further consideration is given to whether the additional complexity outweighs any benefit.</p>		<p>Applicable_CL_Entities(DI) as defined in clause 2.4 of this Appendix".</p> <p>AEMO recommends either removing the Network Contingency share concept for Contingency Lower or adjusting the Network Contingency share concept to assign costs to NDLs in an appropriate manner (noting it would be unrealistic for AEMO to assign every NMI to a Network Contingency).</p>	<p>Under the revised drafting, only Facility Lower Risks and contributions to Network Lower Risks ("Network Facility Lower Risks") that exceed 120 MW in the Dispatch Interval are considered in the Appendix 2E calculations.</p> <p>For the purposes of the appendix, the total CRL cost is divided into two components – a "Facility" component and a "Network" component – based on the relative sizes of the following variables:</p> <ul style="list-style-type: none"> • FacilityComponentMW(DI), which is set to the maximum of the CL Threshold and the size of the largest Facility Lower Risk; and • NetworkComponentMW(DI), which is set to the quantity by which the Largest Credible Load Contingency exceeds FacilityComponentMW(DI). <p>In section 3, CL Facilities with a Facility Lower Risk greater than 120 MW are assigned individual shares of the Facility component using a runway method, which considers the extent by which their Facility Lower Risks exceed 120 MW. The remainder of the Facility component is implicitly assigned to Generic Load.</p> <p>If the Network component is greater than zero, then one or more Network Lower Contingencies must exist with a Network Lower Risk equal to the Largest Credible Load Contingency. Section 4 identifies these Network Lower Contingencies and, for each one, each CL Facility (if any) with an applicable Network Facility Lower Risk exceeding the CL Threshold. Each identified CL Facility is then assigned a share of the Network component on a pro-rata basis, with the remainder of the Network component implicitly assigned to Generic Load.</p> <p>Section 5 uses the values determined in sections 3 and 4 to calculate the CL_Cost_Share(p,DI) values that, in turn, are used to calculate CL_Facility_Recoverable(p,t) amounts under clause 9.10.32A.</p>

Submission	Comments/Issues Raised	Clause #	Requested Changes/Action	Energy Policy WA Responses
Glossary				
AEMO	<p>AEMO notes that the term “Residual Load” is used inconsistently, either to describe “the implied demand for NDLS without SCADA metering”; the NDL itself; or to indicate a single notional entity made up of those Loads.</p> <p>AEMO suggests one way to address this could be to modify the definition to “Residual Load” for the notional entity; “Residual Demand” for the implied demand of the Residual Load; and “loads in the Residual Load” to refer to the individual load.</p>	Glossary		<p>Under the revised drafting, “Residual Load” is explicitly defined in clause 1.4(a) for each Trading Interval t as a notional entity representing all Semi-Scheduled Facilities, Non-Scheduled Facilities and Non-Dispatchable Loads (including Intermittent Loads and the Notional Wholesale Meter) which are not included in the set RegulationFacilities(t) under clause 2.1 of Appendix 2D.</p> <p>Under clause 2.1, RegulationFacilities(t) is the set comprising each Scheduled Facility; Semi-Scheduled Facility; Non-Scheduled Facility monitored by AEMO’s SCADA system; and Non-Dispatchable Load that is individually monitored by AEMO’s SCADA system, not included in the Notional Wholesale Meter and not associated with an Intermittent Load served by a Scheduled Facility or Semi-Scheduled Facility.</p>

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