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

Meeting Agenda

Meeting Title:	Reserve Capacity Mechanism Review Working Group (**RCMRWG**)
Meeting Number:	2023_02_16
Date:	Wednesday 16 February 2023
Time:	9:30 AM to 11:30 AM
Location:	Online, via TEAMS.

Item	Item	Responsibility	Type	Duration
1	Welcome and Agenda	Chair	Noting	2 min
2	Meeting Apologies/Attendance	Chair	Noting	2 min
3	Minutes of Meeting 2022_02_01	Chair	Decision	2 min
4	Action Items	Chair	Discussion	2 min
5	DSP CRC	RBP	Discussion	60 min
6	IRCR	RBP	Discussion	30 min
7	Applying the IRCR Intervals to Intermittent CRC	RBP	Discussion	15 min
8	Next Steps	Chair	Discussion	5 min
9	General Business	Chair	Discussion	2 min
	Next Meeting: 2 March 2023			

Please note this meeting will be recorded.

Competition and Consumer Law Obligations

Members of the MAC's Reserve Capacity Mechanism Review Working Group (**Members**) note their obligations under the *Competition and Consumer Act 2010* (**CCA**).

If a Member has a concern regarding the competition law implications of any issue being discussed at any meeting, please bring the matter to the immediate attention of the Chairperson.

Part IV of the CCA (titled "Restrictive Trade Practices") contains several prohibitions (rules) targeting anti-competitive conduct. These include:

(a) **cartel conduct**: cartel conduct is an arrangement or understanding between competitors to fix prices; restrict the supply or acquisition of goods or services by parties to the arrangement; allocate customers or territories; and or rig bids.

(b) **concerted practices**: a concerted practice can be conceived of as involving cooperation between competitors which has the purpose, effect or likely effect of substantially lessening competition, in particular, sharing Competitively Sensitive Information with competitors such as future pricing intentions and this end:

- a concerted practice, according to the ACCC, involves a lower threshold between parties than a contract arrangement or understanding; and accordingly; and
- a forum like the MAC's Reserve Capacity Mechanism Review Working Group is capable being a place where such cooperation could occur.

(c) **anti-competitive contracts, arrangements understandings**: any contract, arrangement or understanding which has the purpose, effect or likely effect of substantially lessening competition.

(d) **anti-competitive conduct (market power)**: any conduct by a company with market power which has the purpose, effect or likely effect of substantially lessening competition.

(e) **collective boycotts**: where a group of competitors agree not to acquire goods or services from, or not to supply goods or services to, a business with whom the group is negotiating, unless the business accepts the terms and conditions offered by the group.

A contravention of the CCA could result in a significant fine (up to $500,000 for individuals and more than $10 million for companies). Cartel conduct may also result in criminal sanctions, including gaol terms for individuals.

Sensitive Information means and includes:

(a) commercially sensitive information belonging to a Member's organisation or business (in this document such bodies are referred to as an Industry Stakeholder); and

(b) information which, if disclosed, would breach an Industry Stakeholder's obligations of confidence to third parties, be against laws or regulations (including competition laws), would waive legal professional privilege, or cause unreasonable prejudice to the Coordinator of Energy or the State of Western Australia).

Guiding Principle – what not to discuss

In any circumstance in which Industry Stakeholders are or are likely to be in competition with one another a Member must not discuss or exchange with any of the other Members information that is not otherwise in the public domain about commercially sensitive matters, including without limitation the following:

(a) the rates or prices (including any discounts or rebates) for the goods produced or the services produced by the Industry Stakeholders that are paid by or offered to third parties;

(b) the confidential details regarding a customer or supplier of an Industry Stakeholder;

(c) any strategies employed by an Industry Stakeholder to further any business that is or is likely to be in competition with a business of another Industry Stakeholder, (including, without limitation, any strategy related to an Industry Stakeholder's approach to bilateral contracting or bidding in the energy or ancillary/essential system services markets);

(d) the prices paid or offered to be paid (including any aspects of a transaction) by an Industry Stakeholder to acquire goods or services from third parties; and

(e) the confidential particulars of a third party supplier of goods or services to an Industry Stakeholder, including any circumstances in which an Industry Stakeholder has refused to or would refuse to acquire goods or services from a third party supplier or class of third party supplier.

Compliance Procedures for Meetings

If any of the matters listed above is raised for discussion, or information is sought to be exchanged in relation to the matter, the relevant Member must object to the matter being discussed. If, despite the objection, discussion of the relevant matter continues, then the relevant Member should advise the Chairperson and cease participation in the meeting/discussion and the relevant events must be recorded in the minutes for the meeting, including the time at which the relevant Member ceased to participate.

Government of Western Australia
Energy Policy WA

Minutes

Meeting Title:	Reserve Capacity Mechanism Review Working Group (**RCMRWG**)
Date:	1 February 2023
Time:	9:30 AM to 11:30 AM
Location:	Microsoft TEAMS

Attendees	Company	Comment
Dora Guzeleva	Chair	
Manus Higgins	AEMO	
Toby Price	AEMO	Subject matter expert
Oscar Carlberg	Alinta Energy	
Kiran Ranbir	ATCO Australia	
Dimitri Lorenzo	SSCP Power	Proxy for Daniel Kurz
Geoff Gaston	Change Energy	Subject matter expert
Jake Flynn	Collgar Wind Farm	
Matt Shahnazari	Economic Regulation Authority	
Owen Cameron	Enel X	Subject matter expert
Scott Cornish	Enel X	Subject matter expert
Patrick Peake	Perth Energy	
Tessa Liddelow	Shell Energy	
Paul Arias	Shell Energy	
Noel Schubert	Small-Use Consumer representative	
Andrew Walker	South32 (Worsley Alumina)	
Rhiannon Bedola	Synergy	
Peter Huxtable	Water Corporation	
Mark McKinnon	Western Power	
Tim Robinson	Robinson Bowmaker Paul (**RBP**)	
Ajith Sreenivasan	RBP	
Shelley Worthington	EPWA (**EPWA**)	
Isadora Salviano	EPWA	
Laura Koziol	EPWA	
Stephen Eliot	EPWA	

Apologies	From	Comment
Andrew Stevens	Clear Energy Pty Ltd	
Daniel Kurz		
Dev Tayal	Tesla Energy	
Dale Waterson	Merredin Energy	

Item	Subject	Action
1	**Welcome** The Chair opened the meeting at 9:30am.	
2	**Meeting Apologies/Attendance** The Chair noted the attendance as listed above.	
3	**Minute of RCMRWG meeting 2022_12_15** The draft minutes of the RCMRWG meeting held on 15 December 2022 were distributed in the meeting papers on 27 January 2023. The RCMRWG accepted the minutes as a true and accurate record of the meeting. The Chair noted that the minutes will be provided to the members of the Market Advisory Committee (**MAC**) before their next meeting schedule for 02 February 2023 to inform the discussion.	
	Action: RCMRWG Secretariat to publish the minutes of the 15 December 2022 RCMRWG meeting on the RCMRWG web page as final.	**RCMRWG Secretariat**
	Action: RCMRWG Secretariat to circulate the minutes to the MAC members prior to the next MAC meeting.	**RCMRWG Secretariat**
4	**Action Items** The paper was taken as read.	
5	**Peak IRCR** Mr Robinson presented four identified options for determining the Individual Reserve Capacity Requirement (**IRCR**), a comparison of the options, the outcome of the analysis of historical high system demand intervals and suggestions for the detail of the proposed preferred Option 4. The four options identified are: • Option 1: Equivalent firm capacity; • Option 2: Ex-ante notification by AEMO; • Option 3: Ex-post intervals by reserve margin[1]; and • Option 4: Ex-post intervals by demand. The following was discussed:	

[1] In the context of this meeting, reserve margin describes the quantity of available capacity that is not dispatched in a Trading Interval.

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- Mrs Bedola considered that there should be an IRCR component for the consumption share outside of peak periods. Because the RCM requires facilities to be available all year and not only during peak.

  The Chair considered that the IRCR should provide a signal to reduce the Reserve Capacity Requirement (**RCR**).

  Mr Robinson acknowledged that capacity provides reliability outside of peak. He considered that the overall costs for customers are driven by the RCR that is set based on system peak demand.

  Mr Price considered that the method for setting IRCR aligns well with the first limb of the Planning Criterion (defining a peak demand scenario) but does not reflect the second limb of the Planning Criterion (setting a threshold for expected unserved energy).

  Mr Cameron considered that reducing consumption during system peak load would reduce the need for additional capacity. He considered that 99% of the year system demand is far below the available capacity. Based on supply and demand dynamics it appears appropriate that consumers get the reliability provided by the RCM for free outside of system peak demand.

  The Chair agreed to further assess Mrs Bedola's concern.
- Mr Schubert questioned the benefit of setting the IRCR intervals taking three intervals from each of four days instead of taking the 12 intervals with the highest system demand.
- The Chair noted that Option 1 could result in the IRCR being based on consumption during less Trading Intervals than under the current method. The Chair considered that Option 1 does not send a clear signal to customers to reduce consumption when needed.

  Mr Robinson noted that Option 1 would still reward customers for reducing consumption during high system demand. However, it would be less transparent which intervals drive the IRCR.
- The Chair questioned whether smaller loads would be able to react to the ex-ante declaration of an IRCR interval with only two hours notice.

  Mr Gaston noted that he was able to notify all types of customers but that a two hour notice would not provide enough time for loads to react.

  Mrs Bedola agreed that two hours reaction time would not be sufficient for most loads.
- Mr Arias questioned whether Option 2 would dilute the loads' response to the IRCR mechanism compared with the current IRCR regime.
- Mr Peake considered that Option 3 implies that the transition to renewable generation reduces system reliability. He considered that this is undesirable.

  Mr Gaston agreed with Mr Peake.

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- Dr Shahnazari considered that Option 3 could be amended to exclude the effect of Forced Outages to focus on the volatility of intermittent generators. This would remove uncertainty for consumers when predicting IRCR intervals.

  Mr Carlberg, Mr Price and Mr Peake agreed with Dr Shahnazari that certainty is important.
- Dr Shahnazari suggested to also explore a hybrid option where a part of the IRCR is based on intervals that are set with a long prior notice and another part of the IRCR is based on intervals that are set with very little notice.
- Mr Schubert considered that a shorter notice would be better for AEMO but would likely result in less response to the signal.
- Mr Price suggested that, under Option 3, the IRCR intervals could also be based on the forecast reserve margin.

  Dr Shahnazari supported the suggestion.
- Mr Cameron questioned how Option 3 would align with allocation of Certified Reserve Capacity (**CRC**).

  Mr Robinson explained that CRC is allocated to facilities based on the expectation of the capacity that can be provided during extreme peak demand. IRCR is the means to distribute the cost of Capacity Credits procured to customers even if none of the IRCR intervals represents an extreme peak.
- Mr Cameron suggested that Option 3 could take the dispatch of Frequency Co-optimised Essential System Services (**FCESS**) into account by AEMO in declaring IRCR intervals to commence after the completion of FCESS dispatch.

  Mr Price noted that the obligation for FCESS (Contingency Reserve) is to sustain response for 15 minutes.

  Mr Robinson noted that the mechanisms providing special contracts are NCESS and supplementary reserve capacity. Mr Robinson considered that these mechanisms are a measure of last resort and the need for them should not be built into the RCM.
- Mr Higgins expressed his support for Option 3 because it reflects AEMO's reality. Mr Higgins referred to a recent day with very low wind generation resulting in system stress at only 3700 MW system peak demand.
- Mr Gaston noted that he is against basing IRCR on the reserve margin in an interval. Mr Gaston considered that the IRCR should be aligned with the method for setting the RCR and assigning CRC. Both are based on peak demand.

  Mr Carlberg agreed with Mr Gaston.

  Mr Gaston noted that as a retailer he must forecast the IRCR cost two years in advance when signing contracts with customers. Basing the IRCR on the spare capacity would make the forecasting more difficult. For most loads, consumption during last year's peak

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demand is usually a good predictor for consumption during this year's peak demand.

Because of the need for retailers to forecast a load's IRCR, Mr Gaston considered that Option 1 and Option 3 are not acceptable, and Option 2 and Option 4 are preferable.

- Mr Peake considered that volatility must be addressed on the supply side.
- Mr Schubert considered that the analysis of peak demand (slide 17) should focus on intervals with demand close to the forecast 10% probability of exceedance.

  The Chair agreed that years with low demand should not be used to determine the method for setting the IRCR intervals.

  Mr Robinson clarified that the purpose of the analysis is only to inform the understanding of the characteristics of high demand in different years.
- Mr Schubert suggested to show the relation of peak demand to sunset not to time of day (slide 18).
- Mrs Bedola considered that the IRCR should not be set by intervals that all fall on the same day.

  The Chair agreed with Mrs Bedola and noted that it is not intended to determine IRCR intervals during one day only.
- Mr Schubert considered that the reserve margin can be low in winter because this is the time where most Planned Outages are scheduled. Scheduling of Planned Outages is in the control of AEMO.
- Mr Cameron considered that the increased penetration of distributed energy resources has made peaks shorter and sharper and not longer and flatter (slide 19).

  Mr Price agreed with Mr Cameron.

  Mr Robinson clarified that the system stress analysis forecasts peaks to become flatter and longer from around 2030 because of the expected increase in distributed storage capacity and uptake of electric vehicles.
- Mr Schubert questioned why the characteristics of future high load intervals showed forecast data for August and September which lay outside of the Hot Season (slide 19).

  Mr Robinson noted that the chart will be updated with examples from the Hot Season.
- Mr Robinson suggested that the proposed approach (slide 21) could be amended to allow increasing the amount of IRCR intervals to ensure a number of days is selected.

  Mrs Bedola supported this suggestion.
- In response to a question from Mrs Bedola, Mr Robinson clarified that the selected intervals under the proposed option don't need to

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be restricted to the Hot Season. However, not restricting them to the Hot Season would allow the IRCR intervals to fall into winter during years with low summer system load, which does not align with the setting of the RCR.

- Mr Price suggested to limit the number of IRCR intervals that can be selected.

  Mr Cameron supported the suggestion.

- In response to a question from Mr Arias, Mr Robinson clarified that:
  - The proposed new metrics for setting IRCR for new loads can only apply from the time that information is available; and
  - He considered that the current method for assigning IRCR to new loads does not provide a clear incentive for these loads to adjust consumption because their IRCR will be based on relative consumption during the 12 peak trading intervals in the next year.
- Mr Gaston supported the removal of Non Temperature Dependent Load (**NTDL**) status.

  Mr Carlberg considered that the NTDL concept allows to reward flat loads which don't contribute to the need for capacity.

  Mr Robinson noted that a flat load would not incur any costs from the flexibility product which may remove the need for the NTDL concept altogether.

  Mrs Bedola commented that the NTDL and temperature dependent load (**TDL**) multipliers are used to uplift the IRCR from observed system peak demand to the Reserve Capacity Requirement (**RCR**).

  Mr Robinson noted that the questions to be explored are whether:
  - to apply different multipliers to TDLs than to NTDLs in general; and
  - different multipliers should be applied only to the Capacity Credits acquired in excess of the RCR.

  The Chair noted that the impact of removing the NTDL status will be further assessed.
- Mr Gaston considered that, apart from removing the NTDL status, the current method does not need to be amended. Mr Gaston considered that using the maximum allowed network offtake capacity is inappropriate because it may be unrelated to the actual consumption.
- Mr Huxtable supported the general principles of the proposed option.

6	**Flex IRCR** Mr Robinson presented the two options identified for determining IRCR for the new flexible capacity product (slides 26 and 27).	

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The two options identified were:

- Option 1: Use the peak IRCR
- Option 2: Base the flex IRCR on a load's expected contribution to the steepest ramp

The following was discussed:

- In response to a question from Mr Huxtable, Mr Robinson clarified that a load with a flat consumption profile does not contribute to the steepness of the system load ramp. Therefore, it does not contribute to the need for flexibility and the method should reflect that.
- Mrs Bedola expressed concerns with allocating the cost of the flexible capacity to the loads who cause the ramp under Option 2. She noted that:
  - the least flexible loads will pick up the costs; and
  - distributed photovoltaics (**DPVs**) have shifted the system peak demand without getting capacity under the RCM and the flex IRCR under Option 2 will penalise them for it.
- Mr Robinson clarified that there is currently no signal to DPV to reduce the contribution to the steepness of the system demand ramp.

  Mr Arias considered that Option 2 aligns with the causer pays principle.
- Mrs Bedola considered that the evening ramp is an issue most days of the year. She suggested to use more days to set the IRCR.

  Mr Robinson noted that the analysis indicates that the ramping need will be set by more than one but less than 10 days which should be the basis for the flex IRCR.

  The Chair noted that the requirement for the flex product will be set by a defined scenario.
- Mr Robinson invited RCMRWG members to provide feedback after the meeting.

7 DSP CRC

Mr Robinson presented the three options identified for determining CRC for Demand Side Programmes (**DSP**s):

- Option 1: Using an ELCC approach;
- Option 2: Based on load in historical IRCR intervals; and
- Option 3: Nomination of the CRC by the DSP proponent with provision of evidence.

The following was discussed:

- Mr Robinson explained that the current method for determining CRC for DSPs favors loads with a flat load profile. Variable loads with a strong correlation between consumption and system load will receive less CRC than a load with a flat load profile, even if its

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consumption during system stress is higher than that of the load with the flat profile.

- The Chair noted that, in the future, loads responding to market signals will have a bigger role to play. Therefore, signals must be strong and sustainable.
- The Chair suggested that the option of a minimum demand service for DSPs should be considered. Mr Robinson noted that this could be possible, given that DSPs are managed under contract.
- Mrs Bedola considered that DSP dispatch should be preferred over loads responding to the IRCR mechanism because AEMO has more control over the dispatch than over a load's voluntary reaction to the IRCR mechanism.

  Mr Price agreed with Mrs Bedola's comment.

  Mr Gaston considered that for a customer it can be more lucrative to reduce IRCR than register as a DSP. He expressed his preference for assigning CRC to DSPs based on consumption during the IRCR intervals to prevent double dipping. Mrs Bedola agreed.

  The Chair noted that the preference for reduction of IRCR over registering as a DSP may change based on cost and scenarios of oversupply or undersupply of capacity.

  Mrs Bedola considered that in any situation IRCR reduction would be more beneficial for the customer than registering as a DSP.

  Mr Robinson considered that a removal of the NTDL status (considered under agenda item 5) may also affect the customers' preference between IRCR reduction and registering as a DSP.
- Mr Schubert suggested to test whether the IRCR incentivises Synergy to manage consumption considering tariff restrictions.

  Mrs Bedola noted that dealing with the Notional Wholesale Meter includes more complexities than only IRCR.
- Mr Gaston supported the idea of determining CRC for DSPs based on consumption during reserve margin stress event instead of the IRCR intervals. He commented that this can provide an opportunity for loads to react to both peak demand, and reserve stress scenarios.
- Mr Huxtable considered that a DSP should not have to operate at its Relevant Demand outside of the IRCR intervals which are the basis for the DSP's payment for Capacity Credits. This is because when it is operating below its Relevant Demand it is de facto delivering a load reduction even if it is by accident.

  Mr Robinson considered that it is important for AEMO to know the quantity by which a DSP can be dispatched. However, the dynamic baseline would allow AEMO to dispatch a set quantity throughout the year while allowing for variable overall consumption if not dispatched.

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	• Mr Higgins expressed his preference for the dynamic baseline. It would help AEMO to assess the available value of DSP for dispatch. Mr Carlberg asked if AEMO could obtain that same transparency without changing the mechanism for assigning CRC to DSPs (i.e. through telemetry or offers like those provided by generators). • Mr Schubert considered that for measuring performance, the dynamic baseline works better and for allocating CRC, the static baseline works better. Mr Carlberg agreed with Mr Schubert. • Mrs Bedola's considered that, regarding the incentives for the provision of capacity, it is important to ensure that facilities are paid fairly.	
8	**Next Steps** The RCMRWG agreed that the discussion about assigning CRC to DSPs should be continued at the next RCMRWG meeting (scheduled for 16 February 2023). The Chair invited RCMRWG members to provide comments on the presented slides via email.	
	ACTION: RCMRWG members are to provide any further feedback and comments on the Peak IRCR, Flex IRCR and DSP CRC.	**RCMRWG members**
9	**General Business** No general business.	

The meeting closed at 11:40am

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Agenda Item 4: RCMRWG Action Items

Reserve Capacity Mechanism Review Working Group (**RCMRWG**) Meeting 2023_02_16

Shaded	Shaded action items are actions that have been completed since the last MAC meeting.
Unshaded	Unshaded action items are still being progressed.
Missing	Action items missing in sequence have been completed from previous meetings and subsequently removed from log.

Item	Action	Responsibility	Meeting Arising	Status
14	RCMRWG Secretariat to publish the minutes of the 15 December 2022 RCMRWG meeting on the RCMRWG web page as final.	RCMRWG Secretariat	2023_02_01	**Closed** Minutes published 1 February 2023
15	RCMRWG Secretariat to circulate the minutes of the 15 December RCMRWG meeting to the MAC members prior to the next MAC meeting.	RCMRWG Secretariat	2023_02_01	**Closed** Minutes sent to MAC members on 1 February 2023
16	RCMRWG members are to provide any further feedback and comments on the Peak IRCR, Flex IRCR and DSP CRC.	RCMRWG Members	2023_02_01	**Closed** No further feedback was received.

Government of **Western Australia**
Energy Policy WA

Reserve Capacity Mechanism Review Working Group

Meeting 2023_02_16

16 February 2023

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

Meeting Protocols

- Please place your microphone on mute, unless you are asking a question or making a comment
- Please keep questions relevant to the agenda item being discussed
- If there is not a break in discussion and you would like to say something, you can ‘raise your hand’ by typing ‘question’ or ‘comment’ in the meeting chat
- Questions and comments can also be emailed to EPWA - Energy Markets energymarkets@dmirs.wa.gov.au after the meeting
- The meeting will be recorded and minutes will be taken (actions and recommendations only)
- Please state your name and organisation when you ask a question
- If you are having connection/bandwidth issues, you may want to disable the incoming and/or outgoing video

Agenda

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1	Welcome and Agenda	Chair	Noting	2 min
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3	Minutes of meeting 2023_02_01	Chair	Decision	2 min
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5	DSP CRC	RBP	Discussion	60 min
6	IRCR	RBP	Discussion	30 min
7	Applying the IRCR Intervals to Intermittent CRC	RBP	Discussion	15 min
8	Next Steps	Chair	Discussion	5 min
9	General Business	Chair	Discussion	2 min

5. DSP CRC

DSP CRC – Current Approach

Currently each DSP is allocated CRC based on the lower of:

- the aggregate IRCRs of its Associated Loads; or
- its historical 95% POE consumption during the 200 intervals with the highest generation.

The CRC allocation needs to be performed ahead of time (so AEMO can be sure of having sufficient capacity), as it is for generators, rather than being assessed during the capacity year.

The same value is used as the benchmark for DSP dispatch. That is, a DSP is required to reduce its consumption from its “Relevant Demand”, which is the 95% POE consumption during the top 200 intervals.

Participants can request that intervals where the load was out for maintenance are excluded from the calculation by submitting a “consumption deviation application”.

This method favours a flat load profile, significantly muting the incentive for loads with a variable profile to participate in the market, as noted in RC_2019_01.

DSP CRC – Options

There are three options for allocating DSP CRC that align with the IRCR and intermittent generation CRC methods identified to date:

1. Using an ELCC approach (either by fleet or individually);
2. Basing the CRC on load in historical IRCR intervals;
3. Having the DSP proponent nominate a CRC, accompanied by evidence that there is sufficient load associated with the programme to deliver that CRC at expected dispatch times.

Option 1: Determining DSP CRC by ELCC

Using an approach similar to the ELCC approach that is to be used for intermittent generators could allow more effective participation by a wider range of loads, while increasing consistency of incentives to perform across all types of participant.

The ELCC could be calculated for each DSP individually, or as a fleet with fleet ELCC allocated to individual DSPs based on their available curtailment in the same intervals used for IRCR.

- A fleet approach may be less appropriate given the different operating constraints of loads vs generators.

The overall contribution of registered DSPs to system reliability can be assessed in the same way as intermittent generators:

1. Using historical load and historical intermittent fleet output (adjusted for DER penetration, DSP dispatch, *and NCESS dispatch (if in place)*), find the load at which EUE is at a pre-set level.
2. For each DSP, identify available curtailment in each interval in the previous capacity year.
3. Adjust historical load trace to subtract available DSP curtailment.
4. Increase load until EUE is the same as it was in step 1.
5. Added load (MW) = DSP ELCC.

Option 2: Determine DSP CRC based on IRCR Intervals

Set DSP CRC levels based on median consumption in the same intervals used to determine IRCR.

- In the language of RC_2019_01, this is an “X of Y” method, where the Y is the previous capacity year (a single year lookback is sufficient for the same reasons as for IRCR) and the X is the intervals selected from that year.

This approach would mean a direct balance between a participant’s incentives to minimise IRCR (by having low load at times of system stress) and maximise DSP CRC (by having high load at times of system stress that can then be curtailed).

This approach would not account for synergies or antagonisms between the load profiles of different DSPs.

This approach is most suited where historical consumption is a reliable indicator of future consumption – such as for large industrial loads. Where a DSP’s associated loads are likely to change from year to year, this method is open to potential gaming by selecting loads based on their performance in the previous year only.

Option 3: Participant Nominated CRC

The responsible participant would nominate a performance level for the DSP – the MW of load response it commits to provide, when called.

- Historical load data would not be used to directly set the CRC level, but the participant would need to show evidence that it has sufficient associated load to deliver the nominated reduction – this would be confirmed through reserve capacity testing.
- On failure to provide the nominated level when dispatched or tested, immediate refunds would provide incentive to ensure the programme can deliver the nominated reduction.

This method would be appropriate for aggregations of multiple small loads – particularly where the associated loads are likely to change from year to year – and would allow programme owners more leeway to manage their fleet of Associated Loads over time.

DSP Dispatch – Static Baseline

When it is dispatched, a DSP's performance is currently measured against a static baseline called the Relevant Demand.

- Relevant Demand is set in advance, and represents the level of demand against which the programme is curtailed.

This approach could be continued under options 2 or 3, as there is a specific quantity of demand expected in specific intervals.

Option 1 could potentially see a load credited for good performance weighted outside the specific highest demand intervals, so there is no longer a direct mapping from CRC to dispatch baseline.

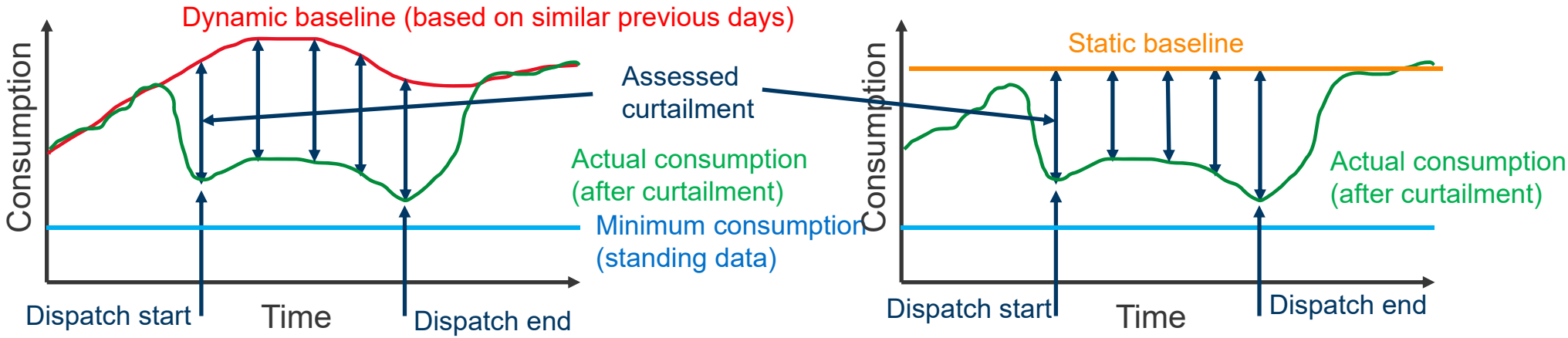
- In some intervals the expected load will be lower, but the overall contribution to system reliability remains at the higher level.

Nevertheless, the expected level of demand could be set using the CRC level, on the assumption that ELCC performance aligns with DSP load at expected dispatch times.

- This will not always be the case, so the programme may not be able to deliver its full CRC of reduction in the dispatched intervals, and in others dispatching for the CRC level only would underestimate the reduction assumed in the ELCC calculation.

DSP Dispatch – Dynamic Baseline

All three options would work with a dynamic baseline, where curtailment is measured against a counterfactual derived from consumption in similar surrounding intervals, calculated closer to real time. The diagrams show examples of a curtailment.



- A dynamic baseline more accurately reflects the actual curtailment delivered by the DSP compared to if it were not called.
- Each DSP would have a specified minimum load. Under all three options, dispatched curtailment would be restricted by the minimum load level. Under options 2 and 3 AEMO would also restrict dispatch to the MW of CC held.

DSP Testing and Refunds – Current Rules

The current Reserve Capacity testing regime requires:

- An annual Reserve Capacity test (4.25.1(c)) between December and March, showing that the DSP can deliver a level of reduction from its static baseline equal to its assigned CCs for two trading intervals.
  - A DSP gets two chances to pass the test. On failing twice, its CCs are reduced to the level of reduction achieved.
- An annual verification test (4.25A) in October/November, showing that the DSP can deliver a level of reduction from its static baseline of at least 10% of its assigned CCs for at least one trading interval.
  - Failing once gets CCs reduced to zero until the test is repeated. Failing twice gets CCs reduced to zero for the year.

If, in a capacity year, a DSP fails all tests and does not demonstrate an ability to curtail by at least 90% of its CCs, it forfeits its DSM reserve capacity security (25% of expected annual capacity payments).

DSPs are also subject to refunds if:

- When dispatched, they fail to deliver the requested demand reduction; and
- When required to be available, measured consumption less minimum demand is less than the MW of CCs held.

DSP Testing and Refunds – Proposed

Testing would need to be adjusted to deal with a dynamic baseline:

- Measuring performance against the new baseline, calculated from similar (but non-curtailed) intervals in recent historical data.
- Ensuring that testing is scheduled at times when DSPs are most likely to be dispatched, to ensure the dynamic baseline is as close as possible to what it would be in times of system stress.

Failure of a test would be treated like a forced outage, rather than enduring unavailability of capacity, meaning that the participant would incur refunds until it passed a retest.

Other amendments to the refund regime would include:

- Applying the same dynamic multiplier as used for other refunds.
- Including the DSM Reserve Capacity Security in the maximum refund amount rather than having it forfeited in one lump sum
- If option 1 is used:
  - prorating non-performance refunds (4.26.2D) by the ratio of dispatched MW to CC (to recognise that the full CRC level is not always available).
  - Removing under-procurement refunds in 4.26.1A(a)(ii)(6) and 4.26.6(d)(ii), with under-procurement of load instead managed by Reserve Capacity testing and subsequent reduction in CRC level (either in the current year or in the following CRC allocation process).
- If option 2 or 3 is used, it would be reasonable to retain under-procurement refunds.

Consumption Deviation Applications

The current DSP CRC allocation approach allows participants to nominate specific intervals as being affected by an AEMO instruction, or by maintenance, and to have those intervals excluded from the CRC assessment.

- This is roughly equivalent to how generation facilities are assessed an RCOQ of zero when on an approved planned outage.

Under any of the DSP CRC approaches:

- Any assessment using historical load for CRC must remove the effects of AEMO dispatch from historical data, similar to adjustment of intermittent facility output data to remove the effects of AEMO-directed curtailment.
- Excluding maintenance intervals from consideration is inconsistent with the treatment of other facilities. Planned outages of schedulable generation are not approved to occur at times of expected system stress, and intermittent generation is assessed on all intervals. DSP associated loads should also be measured on their actual consumption during periods of system stress.

EPWA proposes to remove consumption deviation applications for DSPs, and instead adjust consumption records where necessary using AEMO records of DSP dispatch (including testing).

Hybrid Facilities

Some facilities may have load co-located with generation or storage. Generally a NMI will only be an Associated Load of a DSP if its generation or storage is smaller than the de-minimis registration threshold.

- Where a participant has both load and storage at a single location, the site could choose to participate as part of a DSP if the storage were small enough to not require registration. Otherwise it could participate in the RCM as a Capability Class 2 Facility.
- Where a participant has both load and intermittent generation at a single location, the magnitude of potential injection would determine whether the site could participate in the RCM as part of a DSP or whether it would need to be registered as a Capability Class 3 facility.

Rules will be needed to ensure that a class 2 facility with collocated load and storage cannot self-discharge its storage so as to reduce its IRCR exposure while also receiving capacity credits for that capability.

Assessing the Options (1)

Goal	1. ELCC	2. IRCR intervals	3. Nomination
Ensures that the system reliability objective is met	◕	◕	●
Adequately assesses facilities' contribution to system reliability	◕	◕	●
Minimises year-to-year volatility for investors	◑	◕	●
Is simple and easy to understand	◑	◕	●
Ideally can be replicated by potential investors and other stakeholders	◑	●	●
Aligns with CRC methodology for intermittent generators	◕	◕	◑

Assessing the Options (2)

- All options ensure system reliability is met, although options 1 and 2 only if historic data is a good indicator of future performance.
- Options 1 and 2 could overestimate the quantity of reduction that is available from a DSP if future load is not correlated with past load.
- Option 3 gives participants the control over changes in CRC from year-to-year
- Option 3 is the easiest to understand and replicate, while option 1 is the most complex and difficult to replicate.
- Options 1 and 2 are closer to the method to be used for intermittent generation CRC, while option 3 is more like the approach used for schedulable generation.
- All options would rebalance the incentive for participants to make demand flexibility available for dispatch via a DSP rather than just controlling it themselves via IRCR.

DSP CRC Assessment – Proposal

Two methods for DSP CRC allocation, with application dependent on the number and characteristics of Associated Loads.

1. Option 2 for DSPs made up of a small number of large industrial loads where the same Associated Loads are retained from year-to-year.
2. Option 3 for DSPs made up of a large number of smaller loads (including residential and commercial), and where the Associated Loads change from year-to-year.

This approach allows historical data to be used where it can be relied on, while putting the onus on aggregators to “overfill the programme” to provide evidence that they have sufficient load to curtail when needed.

DSPs assessed under Option 3 may need to be tested more than twice annually, and would need to be subject to refunds on failure, up to a maximum of the total capacity payments plus its DSM Reserve Capacity Security.

6. IRCR

IRCR Interval Selection Rules

Feedback at the previous RCMRWG meeting generally supported retention of a peak demand focused metric (with some exceptions), and this consensus was reflected at the MAC. EPWA concurs that this is the most appropriate option.

Matters discussed included whether a minimum number of days should be required, and whether the selection horizon should be restricted to the summer period.

The following slides compare the current IRCR intervals for each of the past six years with the intervals selected under variations of the rule below, with variations in bold:

1. Identify the 12 intervals from the **[previous year OR previous hot season (December-March)]** with the highest total sent out generation (SOG).
2. Identify the trading days on which those intervals fell.
3. **[If fewer than four days are identified in step 2, identify additional days with the highest SOG outside the top 12 intervals to make a total of 4 days]**
4. For each identified day, select:
    a. The interval with the highest SOG;
    b. All other intervals that are in the top 12 intervals;
    c. All intervals between the intervals selected in steps 3a and 3b; and
    d. If fewer than three intervals have been selected, select the next highest SOG intervals on either side of the selected intervals to make up to three intervals.

Exploring Interval Selection Rules (1)

Date	Time	Capacity year	TT30GEN (MW)	New method- All year/ only summer, no minimum days	New method - all year - 4 days min	New method - Only summer - 4 days min	Current IRCR intervals
8/02/2016	3:30 pm	2015	3823		x	x	
8/02/2016	4:00 pm	2015	3919		x	x	
8/02/2016	4:30 pm	2015	3978	x	x	x	x
8/02/2016	5:00 pm	2015	3990	x	x	x	x
8/02/2016	5:30 pm	2015	3995	x	x	x	x
8/02/2016	6:00 pm	2015	3942	x	x	x	
8/02/2016	6:30 pm	2015	3921	x	x	x	
8/02/2016	7:00 pm	2015	3845		x	x	
8/02/2016	7:30 pm	2015	3807		x	x	
9/02/2016	4:00 pm	2015	3831		x	x	
9/02/2016	4:30 pm	2015	3889		x	x	x
9/02/2016	5:00 pm	2015	3886		x	x	x
9/02/2016	5:30 pm	2015	3861		x	x	x
9/02/2016	6:00 pm	2015	3799		x	x	
10/02/2016	4:30 pm	2015	3776		x	x	x
10/02/2016	5:00 pm	2015	3773		x	x	x
10/02/2016	5:30 pm	2015	3759		x	x	x
14/03/2016	2:30 pm	2015	3787		x	x	
14/03/2016	3:00 pm	2015	3817		x	x	
14/03/2016	3:30 pm	2015	3868		x	x	
14/03/2016	4:00 pm	2015	3935	x	x	x	
14/03/2016	4:30 pm	2015	3990	x	x	x	x
14/03/2016	5:00 pm	2015	3966	x	x	x	x
14/03/2016	5:30 pm	2015	3967	x	x	x	x
14/03/2016	6:00 pm	2015	3927	x	x	x	
14/03/2016	6:30 pm	2015	3948	x	x	x	
14/03/2016	7:00 pm	2015	3941	x	x	x	
14/03/2016	7:30 pm	2015	3870		x	x	

Date	Time	Capacity year	TT30GEN (MW)	New method- All year/ only summer, no minimum days	New method - all year - 4 days min	New method - Only summer - 4 days min	Current IRCR intervals
21/12/2016	3:00 pm	2016	3406		x	x	
21/12/2016	3:30 pm	2016	3475	x	x	x	
21/12/2016	4:00 pm	2016	3483	x	x	x	
21/12/2016	4:30 pm	2016	3497	x	x	x	x
21/12/2016	5:00 pm	2016	3516	x	x	x	x
21/12/2016	5:30 pm	2016	3503	x	x	x	x
21/12/2016	6:00 pm	2016	3432	x	x	x	
21/12/2016	6:30 pm	2016	3380		x	x	
4/01/2017	4:00 pm	2016	3337			x	x
4/01/2017	4:30 pm	2016	3345			x	x
4/01/2017	5:00 pm	2016	3339			x	x
1/03/2017	3:30 pm	2016	3363			x	
1/03/2017	4:00 pm	2016	3431	x	x	x	
1/03/2017	4:30 pm	2016	3504	x	x	x	x
1/03/2017	5:00 pm	2016	3512	x	x	x	x
1/03/2017	5:30 pm	2016	3510	x	x	x	x
1/03/2017	6:00 pm	2016	3460	x	x	x	
1/03/2017	6:30 pm	2016	3436	x	x	x	
1/03/2017	7:00 pm	2016	3410		x	x	
1/03/2017	7:30 pm	2016	3389		x	x	
3/03/2017	4:00 pm	2016	3315			x	x
3/03/2017	4:30 pm	2016	3348			x	x
3/03/2017	5:00 pm	2016	3329			x	x
5/07/2017	5:30 pm	2016	3303		x		
5/07/2017	6:00 pm	2016	3366		x		
5/07/2017	6:30 pm	2016	3334		x		
9/08/2017	6:00 pm	2016	3336		x		
9/08/2017	6:30 pm	2016	3368		x		
9/08/2017	7:00 pm	2016	3301		x		

Date	Time	Capacity year	TT30GEN (MW)	New method- All year/ only summer, no minimum days	New method - all year - 4 days min	New method - Only summer - 4 days min	Current IRCR intervals
15/02/2018	5:00 pm	2017	3172			x	x
15/02/2018	5:30 pm	2017	3196			x	x
15/02/2018	6:00 pm	2017	3165			x	x
12/03/2018	4:30 pm	2017	3200			x	
12/03/2018	5:00 pm	2017	3224			x	
12/03/2018	5:30 pm	2017	3248		x	x	x
12/03/2018	6:00 pm	2017	3251		x	x	x
12/03/2018	6:30 pm	2017	3249		x	x	x
12/03/2018	7:00 pm	2017	3242		x	x	
13/03/2018	2:00 pm	2017	3198			x	
13/03/2018	2:30 pm	2017	3253		x	x	
13/03/2018	3:00 pm	2017	3300		x	x	
13/03/2018	3:30 pm	2017	3381	x	x	x	
13/03/2018	4:00 pm	2017	3452	x	x	x	
13/03/2018	4:30 pm	2017	3536	x	x	x	
13/03/2018	5:00 pm	2017	3586	x	x	x	x
13/03/2018	5:30 pm	2017	3609	x	x	x	x
13/03/2018	6:00 pm	2017	3566	x	x	x	x
13/03/2018	6:30 pm	2017	3561	x	x	x	
13/03/2018	7:00 pm	2017	3552	x	x	x	
13/03/2018	7:30 pm	2017	3496	x	x	x	
13/03/2018	8:00 pm	2017	3373	x	x	x	
13/03/2018	8:30 pm	2017	3267		x	x	
21/03/2018	3:00 pm	2017	3197			x	
21/03/2018	3:30 pm	2017	3248		x	x	
21/03/2018	4:00 pm	2017	3267		x	x	
21/03/2018	4:30 pm	2017	3344	x	x	x	x
21/03/2018	5:00 pm	2017	3382	x	x	x	x
21/03/2018	5:30 pm	2017	3360	x	x	x	x
21/03/2018	6:00 pm	2017	3288		x	x	
21/03/2018	6:30 pm	2017	3270		x	x	
21/03/2018	7:00 pm	2017	3251		x	x	
6/08/2018	5:30 pm	2017	3144		x		
6/08/2018	6:00 pm	2017	3227		x		
6/08/2018	6:30 pm	2017	3191		x		

Exploring Interval Selection Rules (2)

Date	Time	Capacity year	TT30GEN (MW)	New method- All year/ only summer, no minimum days	New method - all year - 4 days min	New method - Only summer - 4 days min	Current IRCR intervals
12/12/2019	5:30 pm	2019	3588	x	x	x	x
12/12/2019	6:00 pm	2019	3571	x	x	x	x
12/12/2019	6:30 pm	2019	3550	x	x	x	x
3/02/2020	5:30 pm	2019	3555	x	x	x	x
3/02/2020	6:00 pm	2019	3577	x	x	x	x
3/02/2020	6:30 pm	2019	3597	x	x	x	x
4/02/2020	4:00 pm	2019	3602	x	x	x	
4/02/2020	4:30 pm	2019	3719	x	x	x	
4/02/2020	5:00 pm	2019	3828	x	x	x	
4/02/2020	5:30 pm	2019	3919	x	x	x	x
4/02/2020	6:00 pm	2019	3903	x	x	x	x
4/02/2020	6:30 pm	2019	3902	x	x	x	x
4/02/2020	7:00 pm	2019	3873	x	x	x	
4/02/2020	7:30 pm	2019	3874	x	x	x	
4/02/2020	8:00 pm	2019	3819	x	x	x	
4/02/2020	8:30 pm	2019	3701	x	x	x	
14/02/2020	5:00 pm	2019	3546		x	x	x
14/02/2020	5:30 pm	2019	3576		x	x	x
14/02/2020	6:00 pm	2019	3537		x	x	x

Date	Time	Capacity year	TT30GEN (MW)	New method- All year/ only summer, no minimum days	New method - all year - 4 days min	New method - Only summer - 4 days min	Current IRCR intervals
23/12/2020	5:30 pm	2020	3575	x	x	x	x
23/12/2020	6:00 pm	2020	3608	x	x	x	x
23/12/2020	6:30 pm	2020	3618	x	x	x	x
23/12/2020	7:00 pm	2020	3559	x	x	x	
24/12/2020	5:00 pm	2020	3502		x	x	x
24/12/2020	5:30 pm	2020	3546		x	x	x
24/12/2020	6:00 pm	2020	3491		x	x	x
8/01/2021	4:30 pm	2020	3653	x	x	x	
8/01/2021	5:00 pm	2020	3695	x	x	x	
8/01/2021	5:30 pm	2020	3779	x	x	x	x
8/01/2021	6:00 pm	2020	3789	x	x	x	x
8/01/2021	6:30 pm	2020	3731	x	x	x	x
8/01/2021	7:00 pm	2020	3636	x	x	x	
8/01/2021	7:30 pm	2020	3596	x	x	x	
8/01/2021	8:00 pm	2020	3571	x	x	x	
23/02/2021	5:00 pm	2020	3473			x	x
23/02/2021	5:30 pm	2020	3536			x	x
23/02/2021	6:00 pm	2020	3501			x	x
22/06/2021	5:30 pm	2020	3463		x		
22/06/2021	6:00 pm	2020	3537		x		
22/06/2021	6:30 pm	2020	3511		x		

Date	Time	Capacity year	TT30GEN (MW)	New method- All year/ only summer, no minimum days	New method - all year - 4 days min	New method - Only summer - 4 days min	Current IRCR intervals
19/01/2022	5:30 pm	2021	3951	x	x	x	x
19/01/2022	6:00 pm	2021	3984	x	x	x	x
19/01/2022	6:30 pm	2021	3976	x	x	x	x
21/01/2022	5:30 pm	2021	3940	x	x	x	x
21/01/2022	6:00 pm	2021	3953	x	x	x	x
21/01/2022	6:30 pm	2021	3952	x	x	x	x
3/02/2022	6:00 pm	2021	3959	x	x	x	x
3/02/2022	6:30 pm	2021	3970	x	x	x	x
3/02/2022	7:00 pm	2021	3906	x	x	x	x
14/02/2022	5:30 pm	2021	3931	x	x	x	
14/02/2022	6:00 pm	2021	3941	x	x	x	
14/02/2022	6:30 pm	2021	3889	x	x	x	
15/02/2022	5:30 pm	2021	3950	x	x	x	
15/02/2022	6:00 pm	2021	3940	x	x	x	
15/02/2022	6:30 pm	2021	3891	x	x	x	
16/02/2022	5:30 pm	2021	3957	x	x	x	x
16/02/2022	6:00 pm	2021	3972	x	x	x	x
16/02/2022	6:30 pm	2021	3957	x	x	x	x

Exploring Interval Selection Rules (3)

The current IRCR excludes some high demand intervals in favour of lower demand intervals.

If there is no minimum number of days restriction, from 2015-2020 the selected intervals all appear in summer months.

If a minimum of 4 days is required, peak intervals in winter are captured in half the years, unless there is a restriction on choosing just summer periods.

In capacity year 2021, all the new method variations capture the same intervals because the 12 peak intervals fall on 6 different summer days.

Restricting IRCR Intervals to the Summer Season

In mild years, with a relatively low summer peak demand, or in years where there is a single high demand event, it is possible that some of the top intervals may fall in winter.

- These intervals do not represent stress events, and the demand is not reflective of a 1-in-10 year peak.
- The SWIS currently experiences extreme peak demand only in the summer period, therefore facility generation or consumption in the summer period is the most important factor. Focusing generation and load incentives on this period also increases predictability.

EPWA therefore proposes to retain the restriction on IRCR intervals to the December-March period.

- This restriction should be revisited if winter peak values start to approach the extremes seen in summer in a 1-in-10 peak year.

Peak IRCR – Proposal

Feedback at the previous RCMRWG meeting generally supported retention of a peak demand focused metric (with some exceptions) .

EPWA proposes the following rule:

1. Identify the 12 intervals from the previous hot season (December-March) with the highest total sent out generation (SOG).
2. Identify the trading days on which those intervals fell.
3. If fewer than two days are identified in step 2, identify additional days with the highest SOG outside the top 12 intervals to make a total of two days
4. For each identified day, select:
    a. The interval with the highest SOG;
    b. All other intervals that are in the top 12 intervals;
    c. All intervals between the intervals selected in steps 4a and 4b; and
    d. If fewer than three intervals have been selected, select the next highest SOG intervals on either side of the selected intervals to make up to three intervals.

Flex IRCR – Proposal

1. For each day in the previous capacity year:
    a. Find the trading interval with the highest ramp up rate;
    b. Select the interval adjacent to the interval identified in step a with the highest ramp rate;
    c. Repeat step b until [eight] intervals have been selected; and
    d. Find the difference between the total system load at the start of the earliest selected trading interval and the load at the end of the latest selected trading interval.
2. Find the [four] days with the highest total difference in MW in step 1d.
3. For each participant load portfolio, and each day selected in step 2, calculate the facility ramp contribution as the difference between consumption at the start of the earliest selected trading interval and the end of the latest selected trading interval.
4. Calculate scaling factor R as the Flex RCR divided by the sum of all facility ramp contributions.
5. For each participant load portfolio, set the Flex IRCR as the facility ramp contribution multiplied by the scaling factor.

The flex IRCR could be recalculated daily to account for switching and new loads.

Temperature Dependence – Current Approach

The current IRCR methodology provides different treatment for Temperature Dependent Loads (TDL) and Non-Temperature Dependent Loads (NTDL).

To qualify as NTDL, consumption during the 4 peak demand intervals in each of 9 previous months must have a median greater than 1MWh, and must be narrowly distributed around the median.

A NTDL receives a lower IRCR than an otherwise equivalent TDL, on the basis that it has relatively flat load, which has little variation between peak and off-peak periods.

- This could be seen as conceptually similar to the runway method for spinning reserve, associating the ‘first MW’ of capacity with NTDLs, and the ‘last MW’ of capacity requirement to more variable loads.

The NTDL/TDL process is non-trivial for participants and AEMO to manage.

Temperature Dependence – Proposal

EPWA proposes to remove the use of TDL/NTDL multipliers. This is because:

- Each MWh of usage at peak times has an equivalent contribution to the RCR
- The use of multipliers reduces the incentive for a participant to make its consumption flexibility available to market dispatch in a DSP.
- The types of load which can qualify as NTDL are also likely to be the types of load which can adjust their consumption during IRCR intervals, meaning that such load already has an opportunity to manage its exposure to capacity charges.
- The proposed IRCR approach for flexible capacity will inherently allocate low (or no) cost to a load with flat consumption profile without needing a specific NTDL determination process

7. Applying the IRCR Intervals to Intermittent CRC

Reference Period for CRC Allocation

The current IRCR approach uses a single year of data to determine IRCR.

- This contrasts with approaches explored for CRC allocation, in which multiple years of data are assessed to manage volatility and capture infrequent system stress events.
- Use of multiple years of data is appropriate for CRC allocation, where intermittent generators have limited control of their output.

Because loads have more control of their consumption, there is less need to look back multiple years to avoid volatility.

Using multiple years would also smooth out the consequences a participant faces from failing to respond in a single year.

EPWA proposes to use a five year period for CRC allocation and to retain a single year lookback for IRCR determination.

Intermittent CRC results using IRCR Intervals

EPWA intends to align the intervals used for allocating the Fleet ELCC to individual facilities with those used to calculate IRCR. The table shows the results for each facility using the current and proposed IRCR intervals, as well as the current RLM-based CC values.

Using IRCR intervals to distribute a fleet ELCC gives different results than the current RLM, and the selection of more of the highest demand intervals in the proposed method makes a difference.

Collgar has the largest range across the methods (it has volatile output), but the differences are not as large as found in previous analysis for the Delta method.

The year-to-year changes in IRCR are primarily driven by the change in fleet ELCC (2015-19: 271.5, 2016-20: 241.3) than by year-to-year facility performance.

Facility performance does affect year-to-year changes (e.g. Yandin had high expert report estimate in 2015, but low output in 2020).

		Base - 2015 – 2019 less 2018					Base - 2016-2020 less 2018				
Facility	Nameplate capacity (MW)	Current IRCR intervals (MW)	Proposed IRCR intervals (MW)			Historical CC 2021	Current IRCR intervals (MW)	Proposed IRCR intervals (MW)			Historical CC 2022
			New - IRCR - All year - 4 days min	New - IRCR - Only summer - 4 days min	New - IRCR - All Year/Only summer			New - IRCR - All year - 4 days min	New - IRCR - Only summer - 4 days min	New - IRCR - All Year/Only summer	
ALBANY_WF1	21.6	8.6	11.0	10.3	12.9	5.3	8.1	11.4	9.8	12.9	5.5
ALINTA_WWF	89.1	21.7	20.7	20.6	18.5	17.2	19.1	17.8	18.5	18.5	15.5
AMBRISOLAR_PV1	1.0	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2
BADGINGARRA_WF1	130.0	30.3	28.3	28.6	26.6	26.6	30.2	27.2	28.8	29.4	26.2
BIOGAS01	2.0	0.2	0.2	0.2	0.3	1.2	0.2	0.3	0.2	0.3	0.8
BLAIRFOX_BEROSRD_WF1	9.3	0.1	0.0	0.0	-0.1	0.0	0.5	0.4	0.4	0.5	0.0
BLAIRFOX_KARAKIN_WF1	5.0	0.5	0.3	0.3	0.2	0.5	0.4	0.2	0.2	0.2	0.5
BREMER_BAY_WF1	0.6	0.2	0.3	0.2	0.3	0.2	0.2	0.3	0.2	0.3	0.2
DCWL_DENMARK_WF1	1.4	0.6	0.7	0.7	0.7	0.4	0.5	0.7	0.6	0.7	0.4
EDWFMAN_WF1	80.0	12.5	10.5	10.8	10.0	16.2	13.4	11.9	12.4	12.4	14.7
GRASMERE_WF1	13.8	5.8	7.4	7.0	8.9	3.7	5.5	7.8	6.7	9.0	3.9
GREENOUGH_RIVER_PV1	40.0	4.6	4.3	5.6	4.8	7.4	5.3	4.3	5.7	4.8	6.4
HENDERSON_RENEWABLE_IG1	3.0	1.1	1.2	1.2	1.3	1.6	1.0	1.2	1.1	1.3	1.6
INVESTEC_COLLGAR_WF1	206.0	31.7	48.6	40.8	47.6	15.8	23.3	41.9	29.3	31.3	21.8
KALBARRI_WF1	1.6	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2
MERSOLAR_PV1	100.0	27.5	24.4	29.1	28.2	16.3	22.0	20.0	24.9	26.8	13.7
MWF_MUMBIDA_WF1	55.0	11.1	13.3	12.6	13.6	7.0	11.8	14.2	13.4	15.3	7.0
NORTHAM_SF_PV1	9.8	1.9	1.6	1.9	1.5	1.8	1.6	1.3	1.7	1.6	1.6
RED_HILL	3.6	1.9	2.1	2.0	2.2	2.8	1.8	2.1	2.0	2.3	2.8
ROCKINGHAM	4.0	1.3	1.7	1.5	1.8	2.3	1.2	1.6	1.4	1.8	2.2
SKYFRM_MTBARKER_WF1	2.0	0.8	0.9	0.9	1.0	0.5	0.8	0.9	0.8	1.0	0.6
SOUTH_CARDUP	4.2	2.0	2.2	2.2	2.5	3.0	1.7	2.1	1.9	2.3	2.9
TAMALA_PARK	4.8	2.8	3.1	3.0	3.4	4.4	2.6	3.2	2.9	3.4	4.3
WARRADARGE_WF1	180.0	45.5	39.6	39.7	32.7	30.2	43.3	34.0	36.7	28.6	30.2
YANDIN_WF1	214.2	58.2	48.5	51.5	52.0	36.2	46.4	36.4	41.0	36.4	34.1

8. Next steps

Next Steps

- 2 March 2023 meeting – planned agenda:
  - Discussion on penalty thresholds and phase-in;
  - Flexibility service considerations (including refunds);
  - Revisiting the duration gap; and
  - Implications for outages.
- Financial analysis (as part of overall assessment of package)
- Information paper confirming outcome of phase 1 items
- Consultation paper for phase 2 items
- Questions or feedback can be emailed to energymarkets@energy.wa.gov.au

9. General Business

We're working for Western Australia.