



Meeting Agenda

Meeting Title:	WEM Investment Certainty Review Working Group (WICRWG)
Date:	Wednesday 10 October 2023
Time:	9:30 AM – 11:30 AM
Location:	Online, via TEAMS.

Item	Item	Responsibility	Type	Duration
1	Welcome and Agenda <ul style="list-style-type: none">Conflicts of interestCompetition Law	Chair	Noting	2 min
2	Meeting Apologies/Attendance	Chair	Noting	2 min
3	Minutes of Meeting 2023_08_31	Chair	Discussion	5 min
4	Approach to emissions threshold regime	RPB	Discussion	15 min
5	New Facilities	RPB	Discussion	15 min
6	Existing Facilities	RPB	Discussion	20 min
7	Exemptions for Flexible Capacity Providers	RPB	Discussion	10 min
8	Cogeneration	RBP	Discussion	15 min
9	Summary of emissions threshold proposals	RPB	Discussion	10 min
10	10-year RCP guarantee for new technologies	RPB	Discussion	15 min
11	Upcoming meeting schedule	RPB	Noting	6 min
2	General Business	Chair	Discussion	5 min
	Next meeting: 8 November 2023			

Please note, this meeting will be recorded.

Competition and Consumer Law Obligations

Members of the MAC's WEM Investment Certainty 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 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.



Minutes

Meeting Title:	WEM Investment Certainty Review (WIC Review)
Date:	31 August 2023
Time:	12:30pm –2:00pm
Location:	Microsoft Teams

Attendees	Company	Comment
Dora Guzeleva	Chair	
Mena Gilchrist	AEMO	
Oscar Carlberg	Alinta Energy	
Graham Pearson	Australian Energy Council	
Trent Leach	Australian Gas Infrastructure Group	
Daniel Kurz	Bluewaters Power 1 Pty Ltd	
Francis Ip	BLT Energy Pty Ltd	
Tom Frood	Bright Energy Investments	
Jake Flynn	Collgar Renewables	
Liz Aitken	Empire Carbon and Energy	
Julius Susanto	EnerCloud Consulting Pty Ltd	
William Street	Entego Group Pty Ltd	
Dr Matt Shahnazari	ERA	
Luke Skinner	Expert Consumer Panel	
Noel Schubert	Expert Consumer Panel	
Timothy Edwards	Metro Power	
Patrick Peake	Perth Energy	
Paul Arias	Shell Energy	
Shane Cremin	Summit Southern Cross Power Pty Ltd	
Rhiannon Bedola	Synergy	
Peter Huxtable	Water Corporation	
Valentina Kogon	Western Power	
Shelley Worthington	Energy Policy WA	
Tonia Curby	Energy Policy WA	

Tim Robinson	RBP (consultants to Energy Policy WA)	
Isaac Gumbrell	RBP (consultants to Energy Policy WA)	

Item	Subject	Action
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1 Welcome

- The Chair opened the meeting at 12:30pm with an Acknowledgement of Country.
- The Chair advised members that WIC Review Working Group (WICRWG) meetings are recorded for minute-keeping purposes.
- The WICRWG members noted the Meeting Protocols.
- The Chair noted the attendance as listed above and invited members to introduce themselves.

2 Scope of the WIC Review

The Chair presented the five initiatives that were announced by the Minister for Energy on 9 May 2023 and brought to the Market Advisory Committee (MAC) on 9 June 2023, noting that:

- The aim of the WIC Review was to address issues raised during the review of the Reserve Capacity Mechanism (RCM).
- The RCM Review discussed options for emissions thresholds, formerly known as penalties for high emissions technologies in the Wholesale Electricity Market (WEM).
 - Within those discussions concerns were raised by stakeholders about reliability of supply and the need to be very careful with how the emissions threshold requirements would be staged.
- Another component to the WIC Review is exemptions for plants which fulfil the requirements of the flexible capacity product for a period of time to ensure reliability issues are addressed during the introduction of the emissions thresholds.
- Financial analysis was conducted and published suggesting that:
 - storage can be profitable between now and 2050;
 - intermittent renewable generators (wind and solar) may not be profitable following the expiration of Large Generation Certificates under the Renewable Energy Target (Cth) in 2030.
- EPWA is therefore proposing a financial top-up in return for proponents demonstrating they have contracts with storage providers, when prices begin to decline following the exit of high emissions technologies.
- A review of the Reserve Capacity Price curve has been included following concerns flagged during the RCM Review.

The Chair noted that:

- The WICRWG discussion and focus should be kept to the five initiatives - if other issues are raised, they will be noted and tracked by EPWA but they will not be addressed within this review.

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- The first stage of work will address initiatives two, four and five in the Scope of Work for the review.
- the second stage will address initiatives one and three.
- modelling will be undertaken to examine outcomes.

The Chair noted that the WICRWG is a working group formed under the MAC. The working group does not make decisions, it will undertake analysis and develop options to address the issues. The Chair advised that the MAC will be briefed on everything that is discussed within the working group.

The Chair asked the WICRWG if there are any questions.

- Mr Cremin noted that he had previously been a member of the MAC for over ten years. He noted the recent publication of the current Electricity Statement of Opportunities (ESOO) by AEMO and the expected forecast demand of 26 terawatt hours in 2030, which is significantly different to the ESOO in the year prior.
- Noting the announced retirement of coal, Mr Cremin considered that the increase amounted to a requirement to build capacity to meet the whole annual system load within the next six years.
- Mr Cremin noted that the changes that are proposed are not insignificant and sought to clarify whether any consideration has been given to the very significant changes to the market, the proposed coal retirement dates and actually determined whether this is the right time to implement the proposed changes.

The Chair responded that the WICRWG will not change the Government policy on the retirement of coal, nor was that within the scope of the WIC Review.

The Chair noted that members can independently choose to pursue the policy of coal retirement with the Minister for Energy as these policies are made by the Minister for Energy and Government.

The Chair also noted that:

- the forecast demand in 2030 has been public since the announcement of the South West Interconnected System Demand Assessment (SWISDA) on 9 May 2023;
- the ESOO is aligned with the SWISDA; and
- this information was available in the development of the scope for this review and the five initiatives.

The Chair noted the reasons for having these discussions with the WICRWG were to endeavour to get the investment environment right.

- Mr Froud noted the importance of getting the investment drivers right.
- Mr Cremin noted his disagreement with the policy on retirement of coal and noted that the ESOO estimates the requirement of \$20 billion worth of assets to be built in the next six years.

The Chair responded that the WICR is a tool to shift the investment environment to enable this increase in investment.

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- Mr Skinner noted the context driving the government decisions to retire coal is climate change and requested that members stick to the meeting agenda.

The Chair noted that meetings will occur approximately once a month, and that members are welcome to reach out to EPWA with comments outside these meetings.

3 Initiatives 4 and 5: Emission Thresholds for RCM Participation – Revisiting Work to Date

Mr Robinson noted that some of the participants in this working group were involved in the relevant RCMRWG discussions and provided an overview of:

- the background of the Penalties on High Emission Technologies and the five key policy constraints.
- the work to date:
 - the six options identified by the RCMRWG;
 - the two options shortlisted for further consideration - penalties on trading interval emissions and emissions threshold for RCM participation.
- what remains to deliver on the emissions threshold work.

Mr Robinson noted there were five WIC initiatives and that today's discussion would look at initiatives four and five, and two.

- Ms Aitken asked how these initiatives interact with the proposed exemptions for flexible gas.

The Chair responded that the proposal for exemptions for flexible gas for a period of time was not conceived separately. It evolved as a direct result of discussions on this policy, and the main concerns raised in submissions on EPWA's consultation paper, on the need to ensure reliability and security of supply are maintained during the transition net zero energy industry.

- Ms Aitken considered that this may become a challenge, and was concerned that the market, as a whole, may not be able to meet thresholds due to exempted facilities.

The Chair responded that EPWA and the WICRWG will be working on ways to address this challenge, noting that there will be discussions on making sure that participants who want to meet thresholds are able to meet their thresholds without losing their Capacity Credits due to an externality. The aim is to provide strong incentives for people to operate below the emissions thresholds. The Chair noted further design and modelling work will be required.

- Ms Aitken responded that option five should not be disregarded at this stage and should be used to give participants the flexibility to offset their emissions in the future and flagged. She noted the shortlist may have to be reopened to be able to assess some further solutions.

The Chair noted that the offsets option was ruled out by the RCMRWG very early in the process.

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	<ul style="list-style-type: none"> ▪ Mr Skinner considered that offsets are not guaranteed emissions reductions. ▪ Ms Aitken disagreed with this view. 	
	<p>Mr Robinson noted that Ms Aitken had raised the fundamental tension between the options that:</p>	
	<ul style="list-style-type: none"> ▪ the thresholds could be set loosely such that they never bind, and retirement and operations continue as planned without adding any additional concerns about reliability; or ▪ the emissions thresholds could be set to actually change behaviour and possibly bring forward retirement of fossil fuel plants and incentivise proponents to install a different type of technology. This option potentially increases the risk to system reliability. 	
	<p>Mr Robinson noted that the ideal solution would make a difference to the emissions profile of the SWIS, while maintaining reliability.</p>	
	<p>Mr Robinson noted that option six was the preferred option. It is expected to provide more certainty of the timing of exit from the market for certain technologies than option one, it received the most support from the MAC and RCMRWG members and:</p>	
	<ul style="list-style-type: none"> ▪ assists in maintaining reliability of supply, as it provides certainty around plant exit; ▪ is simpler to implement; and ▪ allows use of existing National Greenhouse and Energy Reporting (NGER) data. 	
	<p>Mr Robinson noted that the RCMRWG considered that if this policy brings forward the retirement of existing plants, it may increase security and reliability issues, noting the large investment required for the energy transition.</p>	
	<p>Mr Robinson noted that as a response to the concern about reliability initiative five was developed, to allow for a ten-year exemption for facilities providing flexible capacity. Mr Robinson noted that this did not remove the tension but does go some way to mitigating the reliability issue.</p>	
	<p>In response to a comment from Mr Edwards, Mr Robinson noted that there was a mandate in Europe for emissions thresholds in the capacity mechanisms and provided an overview of emission participation thresholds in the UK Capacity Market.</p>	
	<p>Mr Robinson noted that there was information provided in the appendix that showed that the current performance of the SWIS fleet, if measured against the same limits that Europe was using, would show that the SWIS would be in big trouble in reliability terms. He added that the fleet in the SWIS had a long way to go in improving emissions to the point where the European regulations would not bite incredibly hard.</p>	
	<p>In response to comments from working group members, the Chair noted that, while she understood participants concerns with regard to coal capacity and baseload gas plant, the retirement of coal was not going to be dealt within the WICRWG. The Chair noted that the thresholds in the</p>	

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UK Capacity Market were only one part of a plethora of measures to reduce emissions in Europe and the UK.

- Mr Kurz considered this to be a 434MW rule implementation and questioned whether we want 434MW for peak demand, which is what this initiative considers.
- Ms Aitken noted her understanding of the concept of the emissions thresholds. However, she could see issues which will require detailed modelling. If a facility is emissions-limited in dispatch via an emissions budget, the facility will need to be able to price that into its offer. As facilities are not able to include opportunity cost in market bids, the facility may be forced to put itself on a forced outage. Ms Aitken has concerns as to what would happen once a facility's carbon 'budget' is reached in the hot season. Ms Aitken requested this to be considered.
- Ms Gilchrist noted that the AEMO will continue to require the ability to direct facilities to operate to maintain System Security and Reliability. This will be irrespective of where they are at in terms of their annual emissions. She noted that AEMO considers an exemption may be appropriate in these circumstances.

Mr Robinson noted that there were effectively two threshold limits and provided an overview of what was proposed for the WEM:

- Emission rate threshold - a limit based on the scope one emissions from the previous year, divided by the amount of electricity generated in the last year, which calculates an average carbon dioxide limit per MWh of electricity generation.
- Facility emissions quantity – a limit based on the scope one emissions from the previous year, divided by the facility's nameplate capacity.
- Mr Schubert suggested rather than using 'MWh generated'/'MW installed', to use 'MWh sent out'/'MW sent out capability' as this would align better with what capacity allocations are based on. Mr Schubert considered that this would place a more stringent obligation on the generator and will encourage efficiency of the plant.

Mr Robinson noted that further work will be required to be undertaken to unpack some of these issues and there was a need to be careful whether to use MW generated vs MW sent out data for generation and emissions.

- Ms Aitken considered, from a commercial perspective, that facilities, particularly gas plant, may limit their total generation this year in order to maintain their ability to preserve Capacity Credits in the following year due to the emissions thresholds being based on the previous year's emissions/generation.
- Ms Aitken noted that facilities cannot price themselves out of the market or to reflect the opportunity cost of their reserve capacity and could be left with no option but to put themselves on an outage.

The Chair responded that linking the thresholds to the capacity cycle also allows AEMO to foresee the gaps in capacity, for the ESOO.

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- Ms Aitken considered that the WEM does not necessarily have all the right tools in the short-term dispatch market and there may be a need to rethink some things in order to accommodate the emissions limits.
- Dr Shahnazari noted, in response to Ms Aitken, that this has been discussed previously by the RCMRWG and this was considered by the RCMRWG to be the better mechanism. Emissions thresholds rather than emissions penalties were chosen, as a result of the Ministerial directive that there will be no net cost to the consumers. The emission threshold accounts for that opportunity costs whereas the emissions penalties would result in a cost pass through to consumers.
- Mr Edwards provided support for the existing emissions threshold quantity as explained by Mr Robinson.
- Mr Edwards noted that ideally, following the introduction of emissions thresholds, the only fossil fuels left on the network should be fast response gas generators which can deal with situations that long duration storage cannot fill. Calculating the threshold from nameplate capacity gives generators sufficient flexibility to move around.
- Mr Carlberg wanted to clarify that the Environmental Protection Agency's (EPA) guidelines are also taken into consideration along with the federal emissions policy and the State Electricity Objective, noting that these guidelines require new facilities to reduce their emissions in line with net zero.

The Chair added that emission thresholds currently exist as part of EPA WA's Ministerial Statements for new facilities.

- Ms Aitken, in response to Dr Shahnazari, noted that having a signal that indicates that emissions have a cost may attract new investment in the market and opportunity costs could represent a reasonable price signal for the changeover of different types of plant.
 - [Dr Shahnazari noted agreement with this comment by Ms Aitken.](#)

The Chair noted that the WIC initiatives four and five would no longer be required if the State or Commonwealth Government introduced another carbon reducing measure that achieves the same objective.

Mr Robinson continued the overview of the thresholds, noting that under the proposal new facilities who were not meeting either thresholds would not receive any Certified Reserve Capacity. Existing facilities would be exempt from the rate thresholds and the quantity threshold would decrease over time.

- Mr Skinner asked whether the CO₂e figure was e20 years or e100 years.

Mr Robinson responded that he did not know the detail of how the NGER translates the other gases into CO₂ equivalent and that the intent was to use an existing regime rather than implement a new one.

- Mr Skinner responded that it is likely 100 years in that case.

Mr Robinson noted that the proposal in March 2023 was to set the emissions intensity threshold at 0.55tCO₂/MWh, which could be met by a new gas peaker. The quantity threshold would then allow it to be used as

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	<p>a peaker for up to 20% of the time. This threshold would allow a new peaker, but not allow new coal or liquid fuels.</p>	
	<p>The Chair added that this threshold will need to be decreased for existing facilities and that what still required discussion was whether the threshold decreases over time for new incoming facilities while preserving the existing facilities for a period of time.</p>	
	<ul style="list-style-type: none"> ▪ Mr Skinner opposed the concept of setting an emissions threshold which enables new gas fired investment and that resources should instead be going into the production of new renewable facilities. Mr Skinner considered that the purpose of this policy should be to prevent the entry of new fossil fuels and reduce existing fossil fuel consumption. ▪ Mr Frod agreed with Mr Skinner and considered that new fossil fuels should not be facilitated in the network and considered that if signals are there, alternatives will get built. 	
	<p>Mr Robinson noted that, just because something is allowed, does not mean it will be built and noted that in the discussions in the Benchmark Reserve Capacity Price (BRCP) Reference Technology Review there have been discussions whether new gas will actually be built.</p>	
	<ul style="list-style-type: none"> ▪ Mr Frod questioned if there are doubts of feasibility why is this being considered. ▪ Mr Arias noted that this work will incentivise renewable capacity, however, there is also a need to balance system security and reliability. If the modelling suggests gas is required, then the policy should provide the opportunity for new gas to enter the market. ▪ Ms Gilchrist agreed with Mr Arias. ▪ Mr Edwards noted that this is a transition period in which reliable power was still required. Mr Edwards considered that there is a need to incentivise new gas generators and noted that new gas generators can use green hydrogen and, as supply lines mature, gas turbines can transition to green hydrogen. ▪ Mr Street noted his agreement with Mr Edwards. ▪ Mr Skinner responded that hydrogen storage and transport has a high leak rate and hydrogen gas has a global warming potential higher than carbon dioxide. He further noted that green hydrogen has a very inefficient round-trip use for electricity production. ▪ Mr Schubert also considered that hydrogen for power generation is very inefficient and high cost compared to the same renewable electricity being used directly <u>(instead of for producing hydrogen)</u> or stored in long duration storage. ▪ Ms Aitken noted that a green hydrogen fuelled peaker needs to be considered in order to meet system security, at least until a twelve-hour battery can be produced. ▪ Mr Carlberg agreed with Mr Arias' and Mr Edwards' comments, and considered that it is too early to definitively say whether gas does or does not have a role in the future electricity system. Mr Carlberg noted that the ERA and the Grattan Institute have said that the last ten to twenty percent of energy will be hard to abate and gas generators may have a role in providing this backstop. 	

Item	Subject	Action
	<ul style="list-style-type: none"> ▪ Mr Carlberg noted that the topic of decreasing thresholds may be second order due to the EPA guideline and the existing pressures against new thermal generation to come online. <p>The Chair noted the importance of the WIC Review being undertaken alongside the BRCP Reference Technology Review.</p> <ul style="list-style-type: none"> ▪ Mr Cremin noted his concern with security of supply. Mr Cremin had concerns that if the review gets this wrong a decision or outcomes may not be able to be reversed, and that careful consideration needs to be given to the timeframes and sequencing of this work. <p>The Chair agreed that detailed design and sequencing consideration was important, and work was still to be done.</p> <ul style="list-style-type: none"> ▪ Mr Flood noted the importance of the timeframes to ensure confidence for investment and give investors the ability to plan. ▪ Mrs Bedola noted that, in terms of the exemptions, Essential System Services facilities need to be considered. These may or may not decide to be certified for flexible capacity. <p>The Chair noted that she is not certain that she agreed with Mrs Bedola but is happy to discuss this further.</p> <p>Mr Robinson outlined next steps for the WICRWG including:</p> <ul style="list-style-type: none"> ▪ finalising threshold levels for new facilities; ▪ transitional thresholds and exemption parameters; ▪ the timing of the commencement and transition; and ▪ the interaction between dispatch availability obligations and emissions limits. <p>Mr Robinson highlighted the link between the BRCP Reference Technology Review and the WIC Review, and that the proposed emissions thresholds will be used to shortlist technology types which can be used.</p> <p>The Chair noted that EPWA will present to the WICRWG on the outcomes of future discussions on the BRCP Reference Technology Review by the RCMRWG.</p>	

4 Schedule of working group content

Mr Robinson highlighted proposed dates for future meetings and provided a draft agenda and dates for future meetings.

Mr Robinson noted EPWA will present a revised proposal for the emissions thresholds for discussion at the next WICRWG meeting on 11 October 2023.

The Chair noted that EPWA intends to complete the BRCP Reference Technology review by the end of the year, noting that this work is being completed in parallel with the new rules. This will be taken to the RCMRWG on the 21 September 2023 meeting as an initial proposal.

ACTION: EPWA to re-publish the slides with amendments.

5 General Business

Item	Subject	Action
No general business was discussed.		

The meeting closed at 2pm.



Government of Western Australia
Energy Policy WA

WEM Investment Certainty Review Working Group Meeting 2023_10_11

11 October 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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4. Approach to emissions threshold regime

Two emissions thresholds

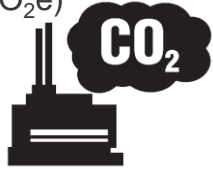
EPWA proposes to apply two emissions thresholds for participation in the Reserve Capacity Mechanism:

- tCO₂-e of Fossil Fuel origin per MWh of electricity generated: Emissions Rate Threshold
- tCO₂-e of Fossil Fuel origin on average per year per installed MW: Emissions Quantity Threshold

Existing facilities will be subject to the rate threshold only, with transitional arrangements to phase it in over time.

Emission Rate Threshold

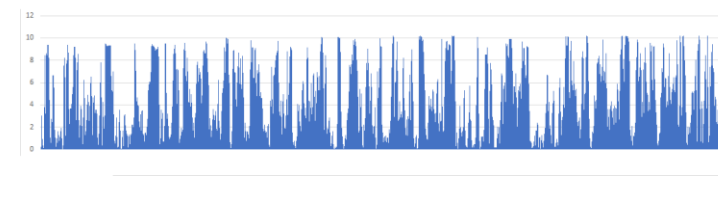
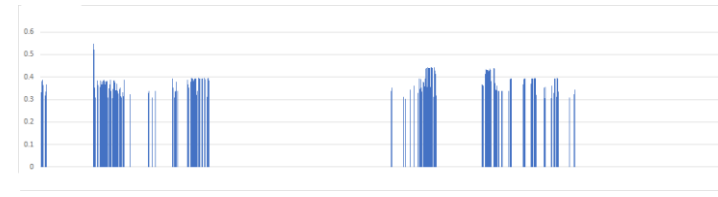
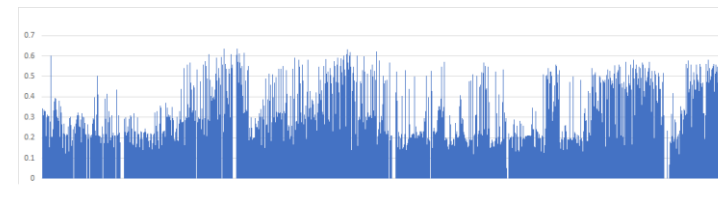
Facility annual
scope 1 emissions
(tCO₂e)



0



Previous capacity year facility generation
(MWh)



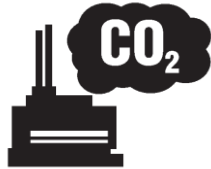
Facility emission
rate (tCO₂e/MWh)



For each
capacity year

Emission Quantity Threshold

Facility annual
scope 1 emissions
(tCO₂e)



Facility nameplate
capacity (MW)



Facility emission
quantity
(tCO₂e/MW)



For each
capacity year



0



0

Issues with the use of NGER Data

Previous discussions proposed to use National Greenhouse Emissions Register (NGER) data to assess performance against emissions thresholds. This no longer appears workable.

- NGER reporting groups generation facilities differently to WEM registration. Individual facilities and facility components may have different emissions factors to that of the NGER grouping.
- Some facilities don't produce enough energy to be required to disclose emissions under the NGER scheme.
- The NGER reporting period runs from 1 July – 31 June. This data is not published until the 28th of Feb in the following year. Emissions data would be 18 months old by the time it is used to determine RCM participation.
- NGER data includes emissions and energy generated for all uses including parasitic load, on-site work, and emissions from sources not directly related to the generation of electricity (fuel in vehicles etc). Reported emissions are spread over a larger volume of energy than provided to the SWIS, so facilities with large parasitic loads have lower emissions intensity in NGER data than the intensity of sent-out energy.
- Emissions intensities are volatile between years due to facilities' efficiencies at different capacity factors

While some of these issues could be addressed with administrative effort, fundamentally the scope of the programme is different to that needed in the WEM.

Emissions tracking approach for the WEM

EPWA proposes to assess emissions using data specific to the WEM for all facilities, both existing and new. There are two options:

Option 1 – Historical emission rate

Emissions rate based on actual output and actual emissions, using historical data as benchmark.

Emissions quantity based on actual emissions

- Potential for volatility from year to year
- Higher complexity
- Reliance on expert reports or theoretical emissions intensity for new facilities before commissioning.

Option 2 – Theoretical emission rate

Emissions rate based on theoretical emissions at specified point on heat rate curve.

Emissions quantity based on metered generation at theoretical emissions rate

- More stable and predictable from year to year
- Lower complexity
- Reliance on expert reports for all facilities
- Provides clearer signals as to when facilities will exit the RCM

Proposal: Option 2 – theoretical emissions rate.

Other aspects of emission assessment regime

- Theoretical emissions rates would use a combination of the facility's heat rate curve specified by the manufacturer, at the expected average capacity factor of the facility when operating.
- The process of assigning an emissions rate would occur as a facility is commissioned, this value would become part of each facility's standing data.
- Annual emissions quantities would be calculated as the facility's theoretical emissions rate multiplied by its sent-out meter data
- The theoretical emissions rate would be tested by AEMO using historical actual fuel usage, fuel carbon content, and heat rates. If major discrepancies were detected, AEMO would nominate a new emissions rate based on historical data.

5. Treatment of new facilities

Threshold levels for new facilities

Emissions rate threshold

The previously proposed per-unit-of-energy emissions threshold of 0.55tCO₂/MWh is less than the emission rates of almost all existing fossil-fuelled generators on the SWIS. It would preclude new generators fired on coal or diesel, but would not preclude a new gas plant.

Proposal: 0.55tCO₂-e/MWh threshold for new facilities.

Emissions quantity threshold

The previously proposed annual per-unit-of-capacity threshold was 1000tCO₂-e/MW. At this level, a facility with an emissions intensity at the rate threshold would be able to produce energy at a ~20% average annual capacity factor. This is sufficient only to run as a peaking or sub-peaking plant. It would preclude new baseload fossil-fuelled capacity.

The Benchmark Reserve Capacity Price reference technology study has assumed a capacity factor of 10%. Assuming a 20% capacity factor when setting the limit provides a buffer for high-output years. Participants would take on the risk of being dispatched above the emissions threshold.

Emissions in case of AEMO direction could be excluded from the annual cap, but the ERA would need to watch for facilities deliberately withdrawing capacity so as to force a direction.

Proposal: 1000tCO₂-e/MW annual threshold for new facilities.

Long term thresholds for new facilities

As the SWIS gets closer to 2050, the net-zero target means that fossil-fired capacity must further reduce. This means that the thresholds for new facilities will continue to get lower over time.

The specific thresholds to apply will depend on the technology available at the time, but should be expected to allow smaller and smaller capacity factors.

Each new facility would be allowed to participate in the RCM for at least ten years, as long as it continued to meet the thresholds that applied when it was commissioned.

Proposal: new facility thresholds will reduce over time to reach near zero by 2050.

Emissions quantity threshold emissions rate equivalent

Average annual capacity factor

	60%	50%	40%	30%	20%	10%	5%
0.05	263	219	175	131	88	44	22
0.1	526	438	350	263	175	88	44
0.15	788	657	526	394	263	131	66
0.2	1051	876	701	526	350	175	88
0.25	1314	1095	876	657	438	219	110
0.3	1577	1314	1051	788	526	263	131
0.35	1840	1533	1226	920	613	307	153
0.4	2102	1752	1402	1051	701	350	175
0.45	2365	1971	1577	1183	788	394	197
0.5	2628	2190	1752	1314	876	438	219
0.55	2891	2409	1927	1445	964	482	241

CCS and hydrogen blends

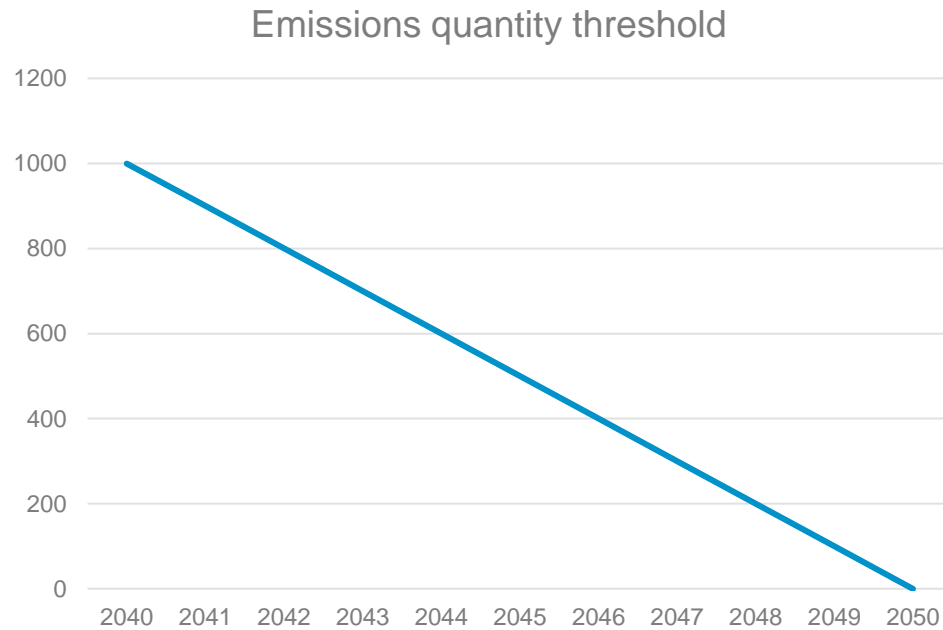
New CCGT

Reciprocating engine

Facility CO₂-e/MWh

1000 tCO₂-e/MW

Example of reducing thresholds for new facilities over time



Average annual capacity factor

	60%	50%	40%	30%	20%	10%	5%
0.05	263	219	175	131	88	44	22
0.1	526	438	350	263	175	88	44
0.15	788	657	526	394	263	131	66
0.2	1051	876	701	526	350	175	88
0.25	1314	1095	876	657	438	219	110
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0.5	2628	2190	1752	1314	876	438	219
0.55	2891	2409	1927	1445	964	482	241

Facility CO₂-e/MWh

2040 2042 2044 2046 2048

Discussion:

- Should the rate be set in a regular review, or should it automatically adjust?
- Should the rate drop a little each year, or should it stay the same for a few years then make a larger drop?

6. Treatment of existing facilities

Drawbacks of an emissions quantity threshold for existing facilities (1)

Applying the same thresholds to existing facilities would result in immediately disallowing all existing capacity from the RCM. This would cause undue risk to power system reliability, so a transitional period was proposed. A key goal of the transitional profile was to allow a clear forecast of when particular facilities would no longer qualify for the RCM.

EPWA proposed to apply only the emissions quantity threshold to existing facilities, as participants can influence this dimension, while they can have limited options over the emissions rate threshold. This would allow seldom-used high emission rate facilities to continue to receive Capacity Credits.

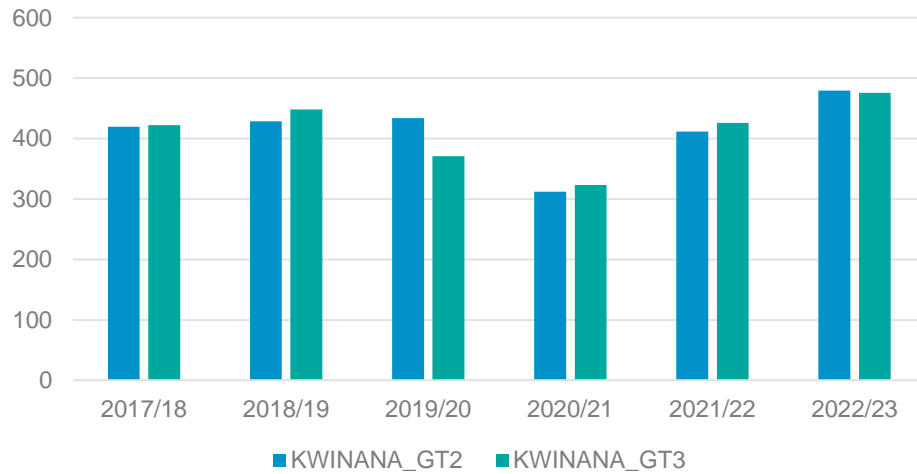
Drawbacks of an emissions quantity threshold for existing facilities (2)

Some MAC and RCMRWG members considered that using a quantity threshold would not provide certainty, and further analysis supports this contention:

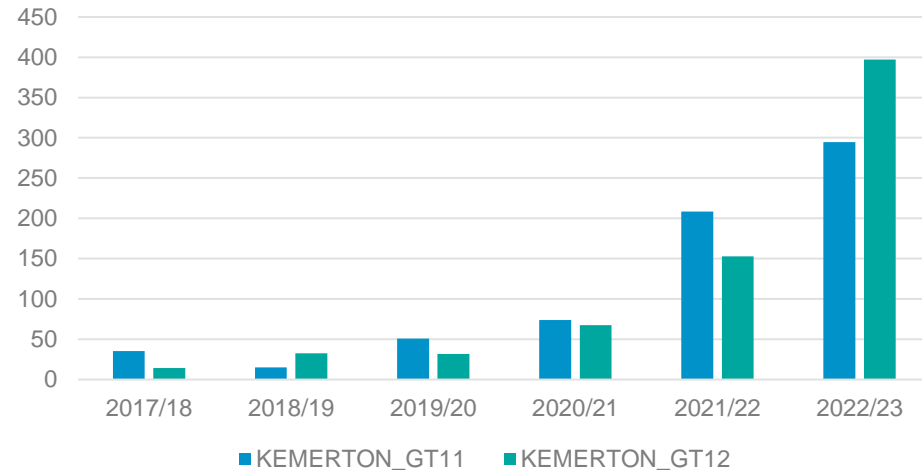
- The annual dispatch quantity of facilities can be highly variable, meaning the annual emissions of facilities also fluctuates. Therefore the date when a facility would be excluded from the RCM is difficult to predict. Applying the emissions quantity threshold would lead to:
 - Uncertainty for participants around when their facilities would no longer be eligible for the RCM
 - Difficulty for investors to predict when capacity may exit the market
 - Challenges for AEMO in forecasting system reliability and potential capacity shortfalls.
- The tensions between emission thresholds and market power mitigation measures would incentivize inefficient bidding behavior. Participants would be incentivized to withhold capacity in order to receive capacity payments.

Variation in annual emissions quantity – selected facilities

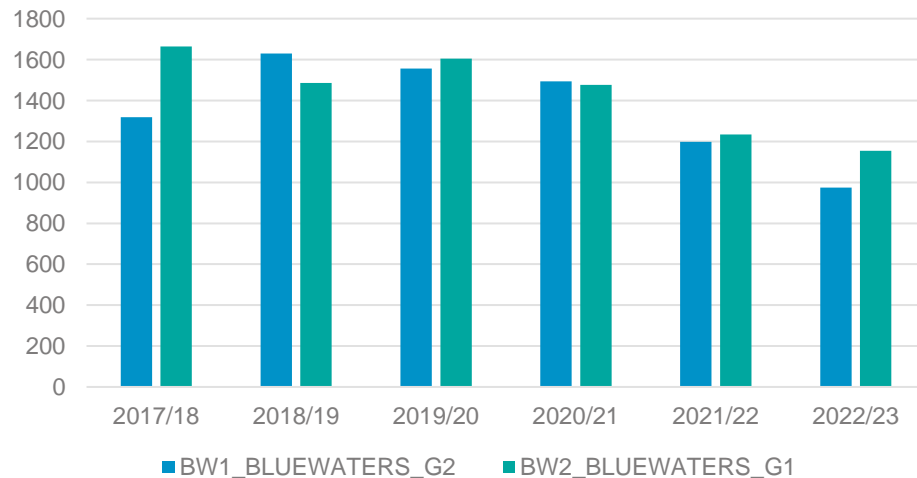
Kwinana annual GWh



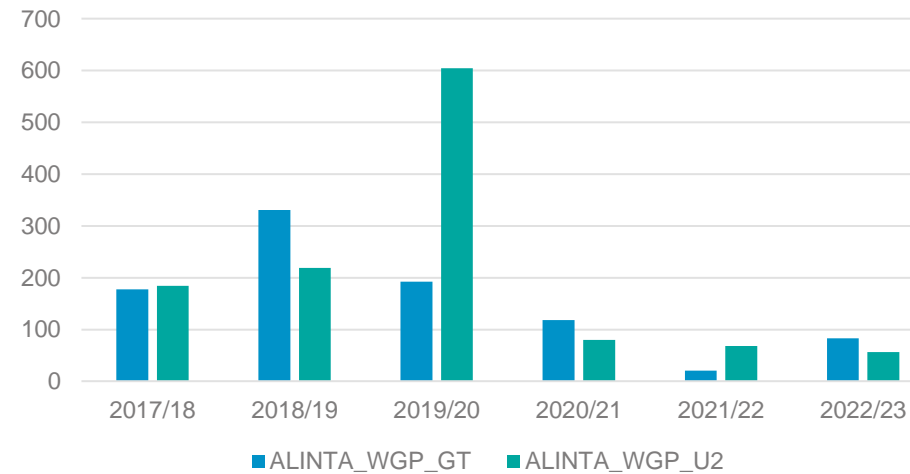
Kemerton annual GWh



Bluewaters annual GWh



Alinta Wagerup annual GWh

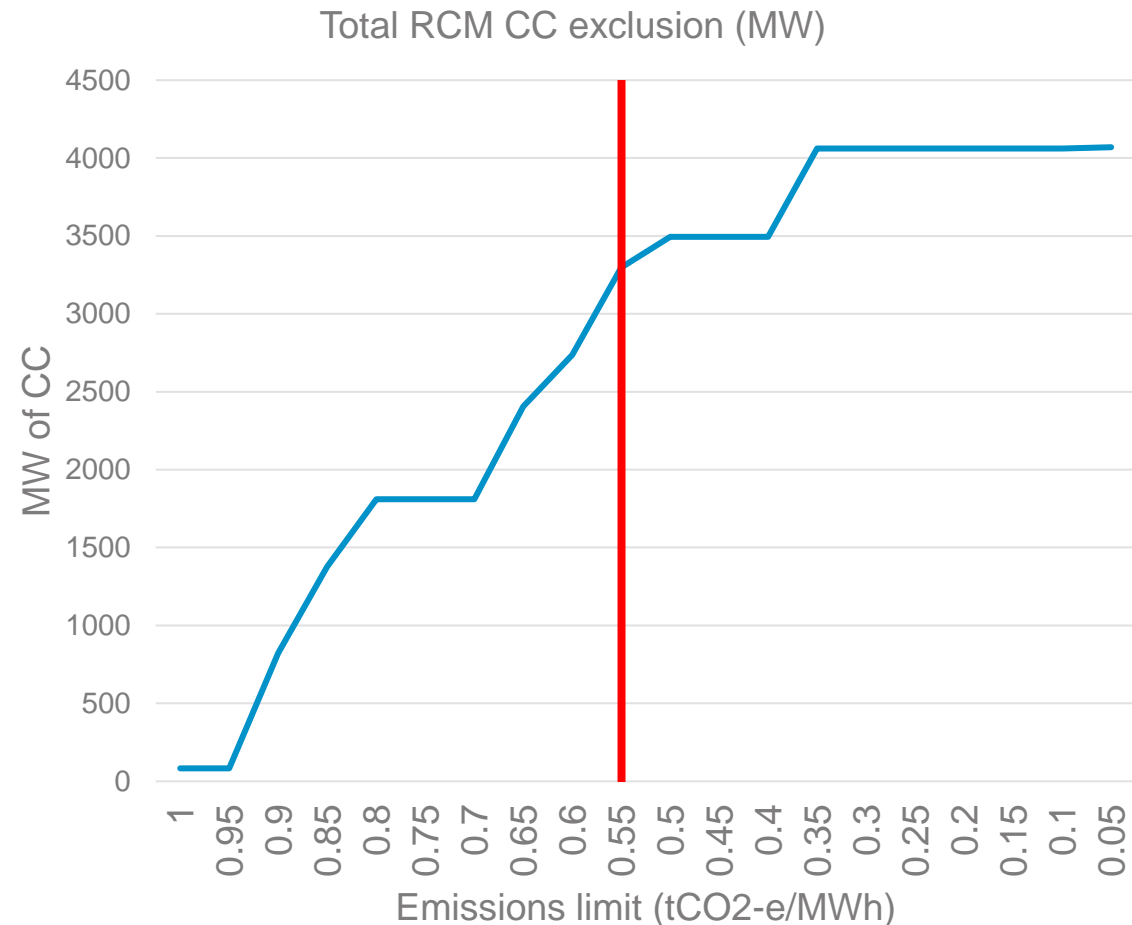


Using an emissions rate threshold for existing facilities

Excluding facilities from the RCM based on their per unit emissions intensity provides certainty as to when a facility will be excluded from the RCM. As long as the threshold is reduced in a smooth profile, the quantity of capacity affected decreases steadily and predictably.

An intensity threshold also provides incentive for participants to extend facility lives by investing in emission reducing technology.

Proposal: apply an emissions rate threshold to existing facilities rather than an emissions quantity threshold.

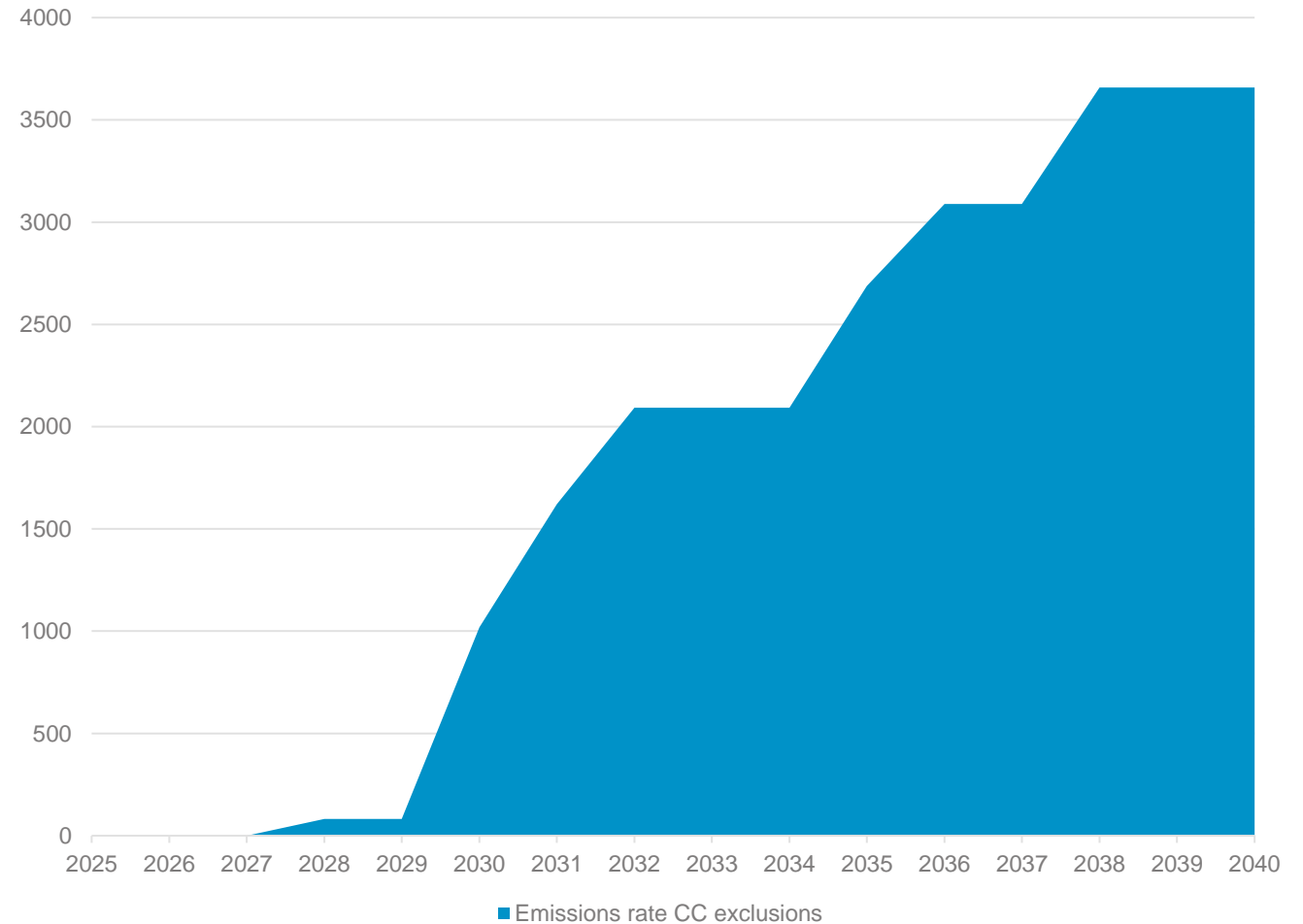


Transitional threshold levels for existing facilities

Ideally, a transitional threshold will avoid having large quantities of capacity exiting the SWIS at the same time.

An initial transitional cap of 1 t/CO₂-e/MWh, with a decrease of 0.05tCO₂-e each year would provide a relatively smooth profile of capacity excluded from the RCM.

Proposal: Apply an initial cap of 1.0 tCO₂-e/MWh for existing facilities for Capacity Year 2028, and reduce by 0.05 each year until the rate matches that for new Facilities in 2037.



7. Exemption of Flexible Capacity providers

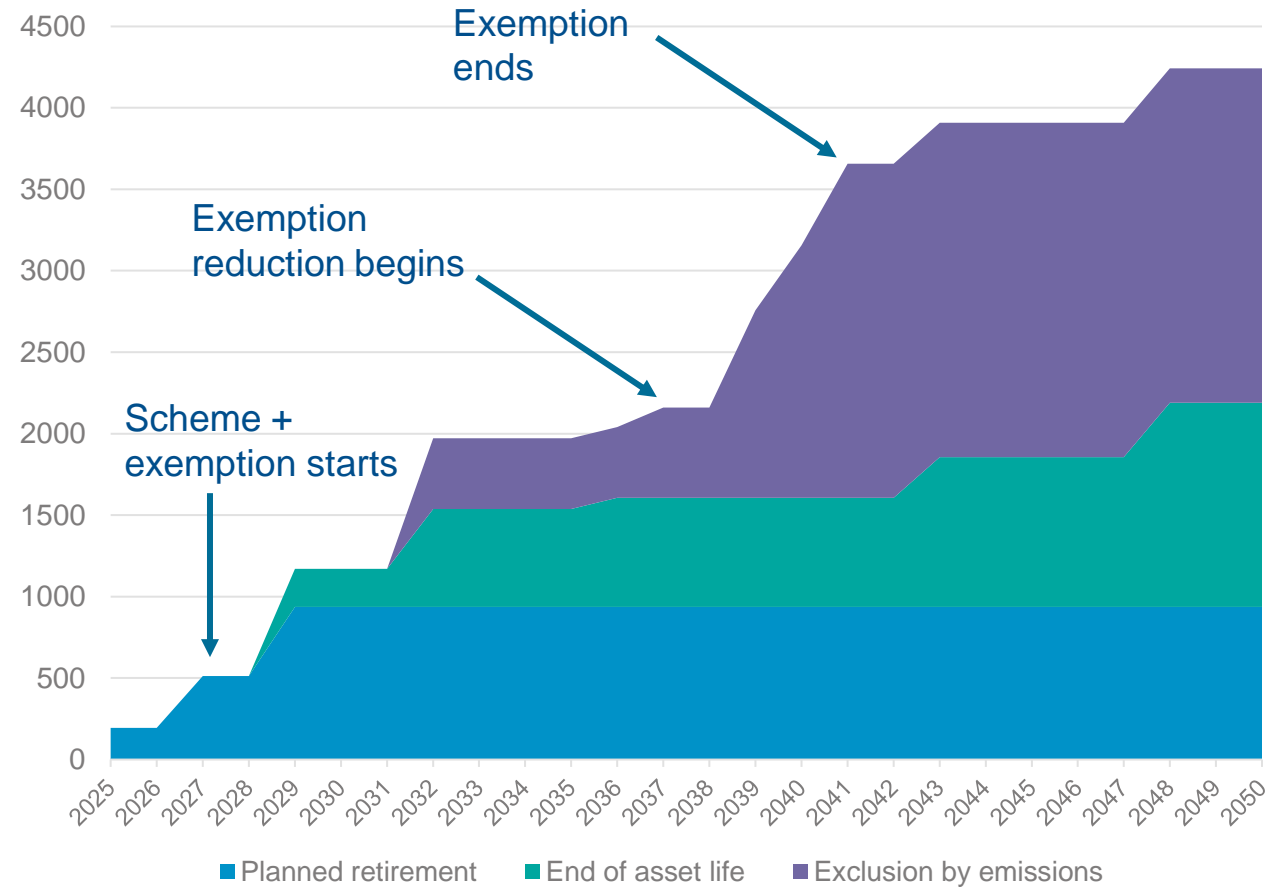
Exemption parameters for facilities providing Flexible Capacity

We estimate that around 2 GW of existing capacity will be eligible for Flexible Capacity Credits.

Under initiative 5, these facilities will be exempt from emissions thresholds for ten years, though some will reach the end of their natural economic life earlier

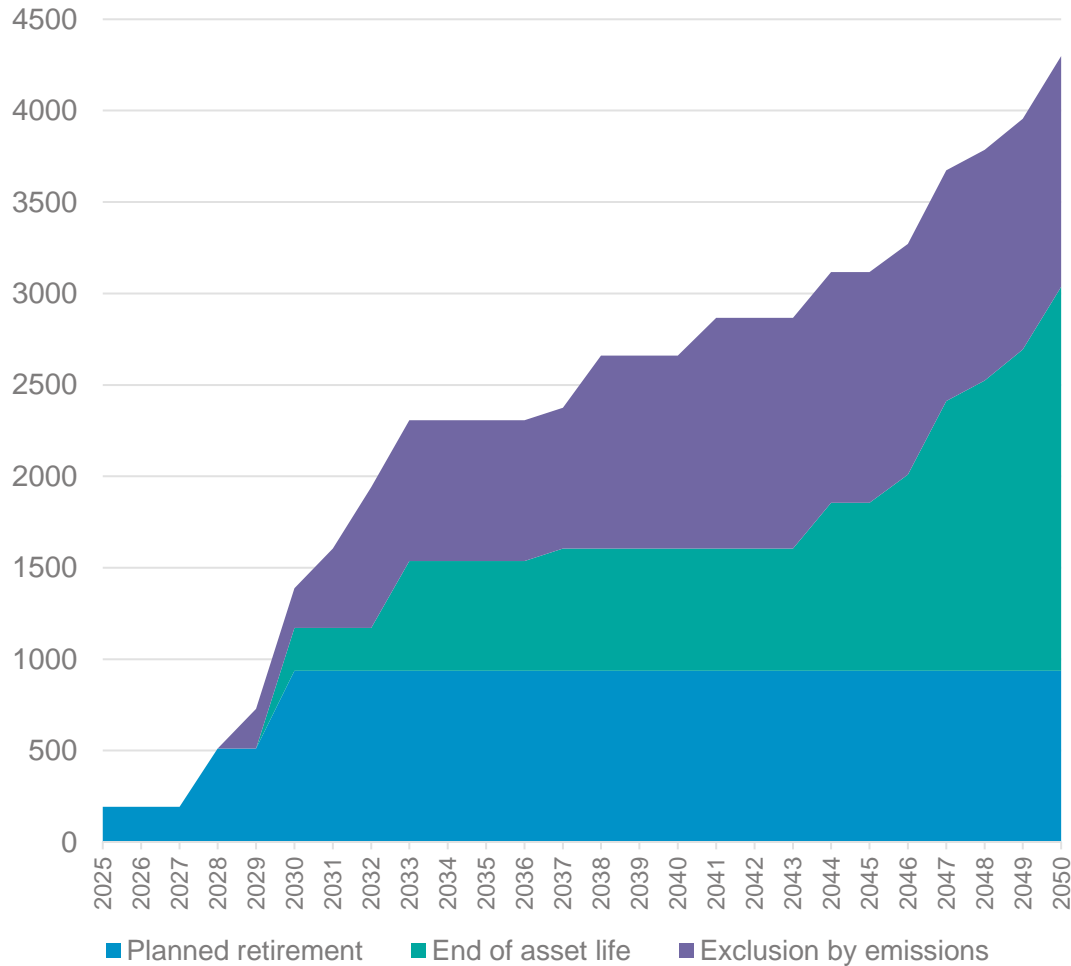
If the emissions threshold were to revert to the default new facility rate for all these facilities at the same time, it could result in more than 1000 MW exiting the SWIS at the same time, with potential significant reliability impact.

Proposal: Postpone threshold reduction for ten years for exempt facilities, then reduce to 0.75 in 2037, and then by 0.05 each year until 2041.

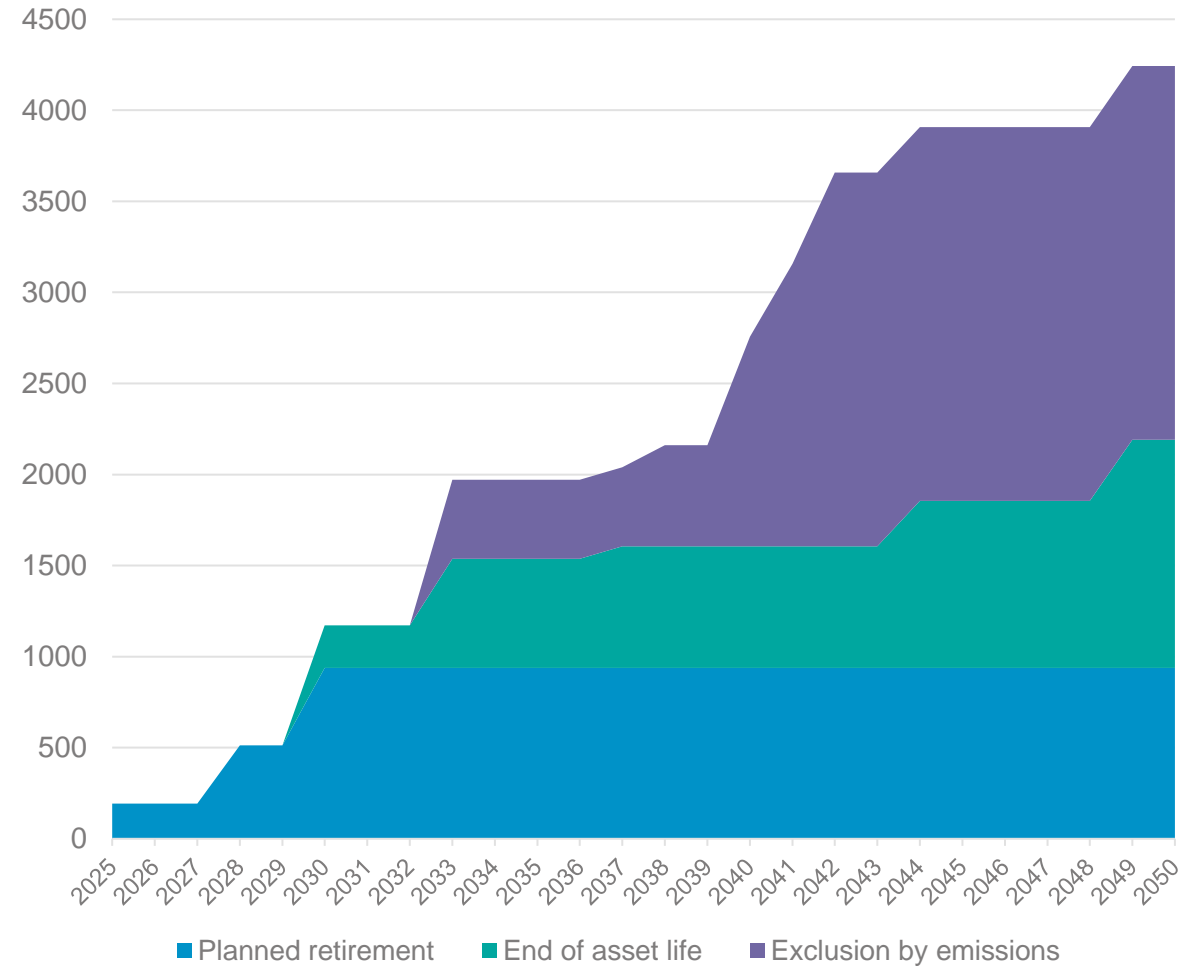


Comparing CO₂/MW threshold with CO₂/MWh threshold

Annual/MW retirement schedule



Emissions/MWh retirement schedule



8. Cogeneration

Treatment of cogeneration (1)

Cogeneration facilities use fossil fuels to generate both electricity and heat or steam for use in the industrial process. Because a large proportion of the fuel goes towards creating energy that is not output as electricity, the inherent emission rate would be unfairly high if only the electricity is taken into account.

In European jurisdictions with emissions thresholds for capacity mechanism participation, cogeneration is subject to the same emissions penalties as the rest of the market. The emissions intensity of the cogeneration plant is determined by evaluating the proportion of energy produced for steam generation compared to energy generated for electricity production.

EPWA has considered two options for managing emissions thresholds for cogeneration facilities in the SWIS:

1. Identify a standing ratio to allocate emissions from fuel use between electricity and process heat, and use that ratio to determine the inherent emissions rate per MWh generated by the facility.
2. Exclude cogeneration facilities from the emissions threshold regime.

Treatment of cogeneration (2)

If a heat:electricity ratio was applied to SWIS cogeneration facilities, it would likely fall between 1.3:1 and 2:1.

In the SWIS, most cogeneration operates entirely behind the meter, serving intermittent load. This intermittent load adds a very small quantity to the Reserve Capacity Target. Only a minority of cogeneration is registered for participation in the RCM. Presently, the SWIS incorporates a total of 346.9 MW of cogeneration Capacity Credits.

Most cogeneration facilities operate on gas, and the few coal boilers are reaching end of life. Any new facility requiring process heat is unlikely to use fossil fuels. Existing cogeneration equipment will reach end of life sometime around 2040, and may be retired earlier depending on fuel availability. Replacement equipment will either be:

- New fossil fired boilers, which have to meet new (non-carbon) environmental standards.
- Electric boilers which do not burn fuel locally.

The additional complexity required to determine and apply a heat:electricity split for cogeneration facilities is unlikely to affect overall emissions.

Proposal: Exclude existing cogeneration facilities from threshold regime. Allow Capacity Credits for existing cogeneration facilities.

9. Summary of emissions proposals

Emissions Threshold Proposals (1)

EPWA proposes to:

- Implement a new emissions accounting scheme which measures a facility's emissions rate based on theoretical emissions at specified point on heat rate curve.
- Measure a facility's emissions quantity based on the metered generation at the theoretical emissions rate
- Set an emission intensity threshold of 0.55 tCO₂e/MWh to apply to all new facilities from the 2026 capacity cycle (for the 2028 Capacity Year). This threshold would not apply to existing facilities.
- Set an emissions quantity threshold of 1,000 tCO₂e/MW to apply to all new facilities from the 2026 capacity cycle (2028 Capacity Year)
- Set an emissions rate of 1 tCO₂e/MWh to apply to all existing facilities for the 2026 capacity cycle (2028 Capacity Year)
- Decrease the threshold for existing facilities by 0.05 tCO₂e/MWh in each subsequent year, until the threshold is the same for new and existing facilities in the 2037 capacity cycle

Emissions Threshold Proposals (2)

EPWA proposes to:

- Apply an emissions rate threshold to existing facilities rather than an emissions quantity threshold.
- Postpone threshold reduction for ten years for exempt facilities, then reduce to 0.75 in 2037, and then by 0.05 each year until 2041.
- Postpone the decision to include or exempt cogeneration facilities until EPWA has engaged with facility owners on likely replacement timetables

What recommendations does the working group have for the MAC?

10. 10-year RCP guarantee for new technologies

Defining “new technologies” (1)

Initiative 2 offers a ten-year fixed price for “proponents of new flexible technologies, such as long-duration storage”. The desired outcome is to provide additional incentive for investment in these technologies, which will allow more variable renewable generation to connect without compromising reliability.

Under the proposed rules that implement the outcomes of the RCM Review, the required duration of storage facilities will be extended over time, as measured by the Availability Duration Gap. Any facility that can provide firm capacity over this timeframe will support the replacement of fossil-fuelled generation by renewables.

EPWA considers that requiring a facility to be of a technology type not already present in the SWIS would be inconsistent with the desire to encourage increased renewable build.

Defining “new technologies” (2)

Proposal: Allow a fixed capacity price for any new facility that:

- *provides firm availability over a period of time that exceeds the prevailing ESR Duration Requirement, and*
- *uses a renewable fuel source.*

Such a facility would be treated like current fixed price facilities for RCM pricing purposes, but would be considered along with non-fixed price proposed facilities for NAQ purposes.

A thermal facility running on renewable hydrogen would be eligible. This is a matter for future consideration once that technology is more mature.

11. Upcoming WIC WG meetings

Upcoming meetings

8 November:

- Emission thresholds (incl exemptions) final proposal
- 10-year price guarantee final proposal
- Price curve options
- Modelling discussion

6 December:

- Price curve analysis
- Price curve initial proposal

24 January:

- Price curve final proposal
- Price guarantee options.

Questions or feedback can be emailed to energymarkets@dmirs.wa.gov.au

February:

- Price guarantee analysis
- Price guarantee initial proposal.

March:

- Price guarantee final proposal.

April – Consultation paper released

June:

- Updates to proposals based on submissions.

June – Information paper released

July:

- Draft amending rules.

12. General Business

*We're working for
Western Australia.*