


TWG5 - Dispatch mode

Integrating price-responsive resources
Technical working group

17 April 2024

AEMC

ACKNOWLEDGEMENT OF COUNTRY



The AEMC acknowledges and shows respect for the traditional custodians of the many different lands across Australia on which we all live and work. We pay respect to all Elders past and present and the continuing connection of Aboriginal and Torres Strait Islander peoples to Country. The AEMC office is located on the land traditionally owned by the Gadigal people of the Eora nation.

Agenda

1	Introductions and competition protocols	2:00 – 2:15pm
2	Interactions with the CER benefits rule change	2:15 – 2:45
3	Flexible arrangements to assist participation	2:45 – 3:25
4	Break	3:25 – 3:30
5	Directions, state of charge information and primary frequency response	3:30 – 4:15
6	Distribution network limits	4:15 – 4:45
7	Wrap up	4:45 – 5:00

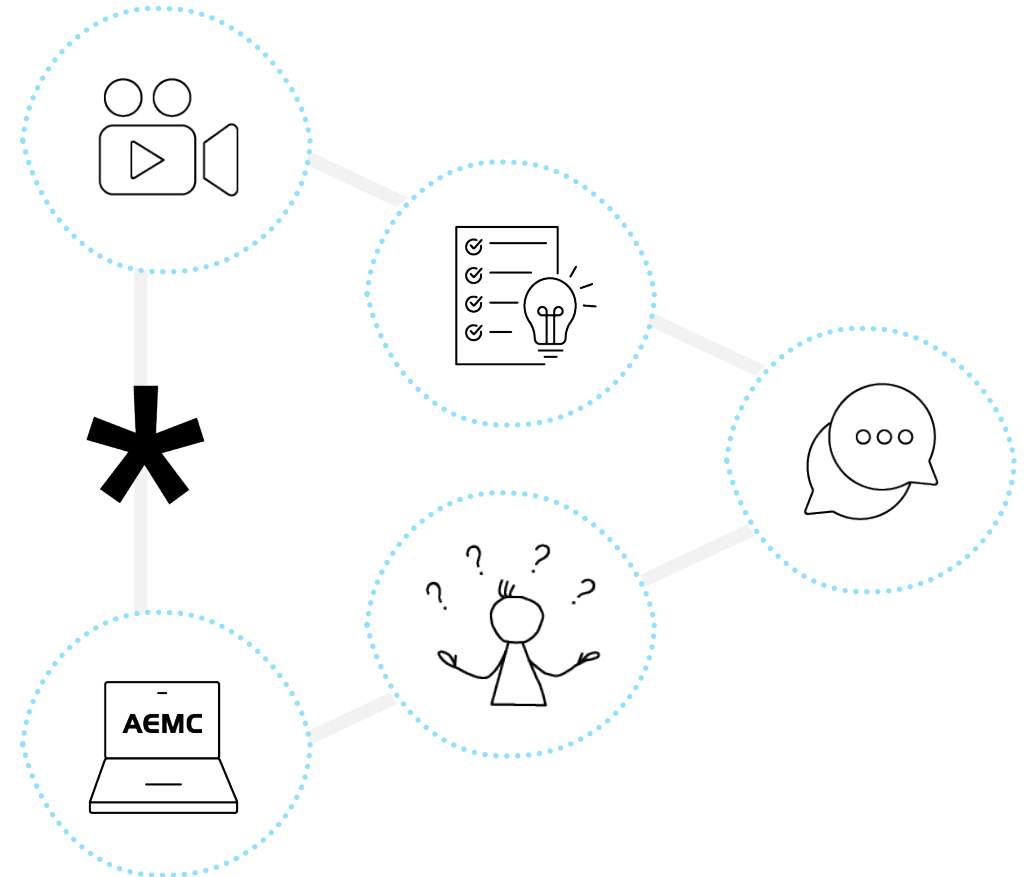
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By participating in this workshop, you give your consent to our collection, use and disclosure of the personal information you provide to us during this workshop (like your name) for the purpose of completing our consultation and publishing our draft and final determinations and reports on this rule change or review.

Please read our [privacy policy](#) for more information.

We aren't recording this workshop. We will be conducting it under Chatham house rules. We will be publishing summary minutes and the slides in this session.



COMPETITION PROTOCOL

KEY PRINCIPLES



The AEMC is committed to complying with all applicable laws, including the ***Competition and Consumer Act 2010*** (CCA), during this forum. Breaching the CCA can lead to serious penalties for individuals involved in any breach (including large financial penalties and imprisonment for key individuals involved). This protocol governs the way in which discussions will proceed at this forum, and each attendee agrees to adhere to this protocol in order to comply with the CCA.

Each attendee must make an independent and unilateral decision about their commercial positions and approach in relation to the matters under discussion in this forum.

Attendees must not discuss, or reach or give effect to any agreement or understanding which relates to:

- **pricing** for the products and/or services that any attendee supplies or will supply, or the terms on which those products and/or services will be supplied (including discounts, rebates, price methodologies etc)
- **targeting (or not targeting) customers** of a particular kind, or in particular areas
- **tender processes** and whether (or how) they will participate
- any decision by attendees:
 - about the purchase or supply of any products or services that other attendees also buy or sell
 - to not engage with persons or the terms upon which they will engage with such persons (i.e. boycotting); or
 - to deny any person's access to any products, services or inputs they require
- **sharing competitively sensitive information** such as non-publicly available pricing or strategic information including details of customers, suppliers (or the terms on which they do business), volumes, future capacity etc
- **breaching confidentiality obligations** that each attendee owes to third parties.

COMPETITION PROTOCOL

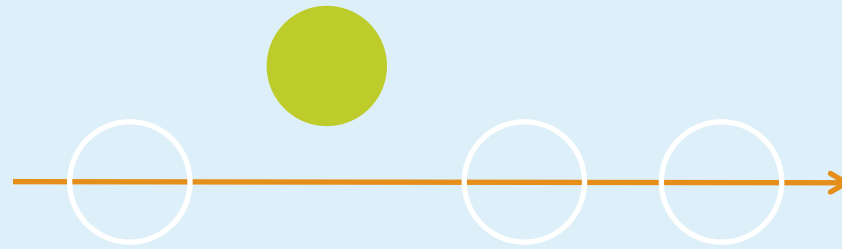
COMMUNICATION AND
MEETING GUIDELINES



Attendees must ensure that all communications (including emails and verbal discussions) adhere to the ***Key Principles***.

This forum will be conducted in accordance with the following rules:

- The agenda for this forum does not include anything that could contravene the Key Principles set out in this protocol.
- We will read and minute the below *competition health warning*:
 - Attendees at this forum must not enter into any discussion, activity or conduct that may infringe, on their part or on the part of other attendees, any applicable competition laws. For example, attendees must not discuss, communicate or exchange any commercially sensitive information, including information relating to prices, marketing and advertising strategy, costs and revenues, terms and conditions with third parties, terms of supply or access.
 - Participating in this forum is subject to you having read and understood the protocol including the Key Principles.
- We will keep accurate minutes of the forum, including details of attendees.
- If something comes up during the forum that could risk contravening any competition laws, attendees should:
 - Object immediately and ask for the discussion to be stopped.
 - Ensure the minutes record that the discussion was objected to and stopped.
 - Raise concerns about anything that occurred in the forum with their respective legal counsel immediately afterwards.
- All attendees understand that any competitively sensitive matters must be subject to legal review before any commitment/agreement can be given.
- Any decision about whether, and on what terms, to engage with customers and suppliers is an independent and unilateral decision of each attendee.

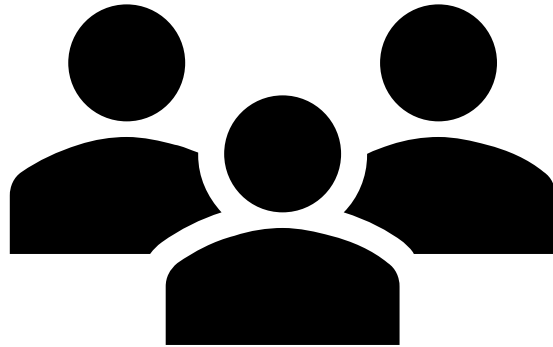


Introduction



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AEMC project team



EGM: Andrew Lewis

Project sponsor: Ben Davis

Project leader: Rachel Thomas

Lead areas

Visibility lead: Sam Markham

Dispatch lead: Harrison Gibbs

Incentives lead: Rachel Thomas

Additional

Lawyers: Lily Mitchell and Ben Bronneberg

Market expert: Craig Oakeshott

Graduate: Jacqueline Price

TWG purpose and materials disclaimer



We have established this TWG to gain industry insight and feedback to evolve our policy thinking throughout the rule change

Please note that the information in this pack is the *Integrating price-responsive resources into the NEM* project team's initial views. We have included our initial views in places to assist with discussions.

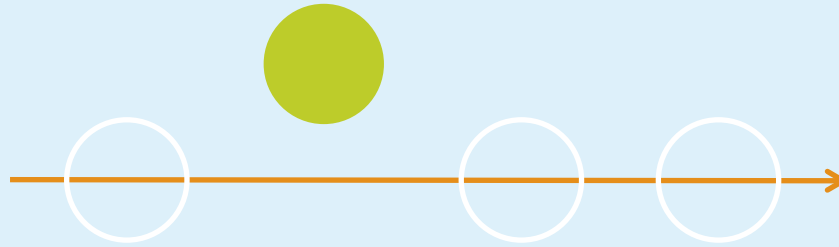
The views expressed by the team in TWG documents or meetings do not necessarily represent the views of the Commission or what will be included in our upcoming Draft Determination.



TWG timeline

Meeting time	Indicative issue areas for discussion*
Wednesday 21 February 3 – 5pm	TWG1 Introduction to the TWG
Tuesday 27 February 10.30am – 1pm	TWG2: Visibility #1 Visibility option(s) to continue to draft determination
Monday 4 March 2 – 5pm	TWG3: Dispatch #1 The overarching framework for the rule and participation
Tuesday 12 March 10am – 1pm	TWG4: Incentives Incentives for solutions will be discussed
Wednesday 10 April 2 – 5pm	TWG5: Visibility #2 (cancelled) Contd. Discussion from 27 Feb
Tuesday 16 April 2 – 5pm	TWG6: Dispatch #2 Contd. Discussion from 4 March
Tuesday 7 May 2 – 5 pm	TWG7: Visibility #2 Contd. Discussion from 27 February

* Note that the areas are indicative and could evolve as the project progresses

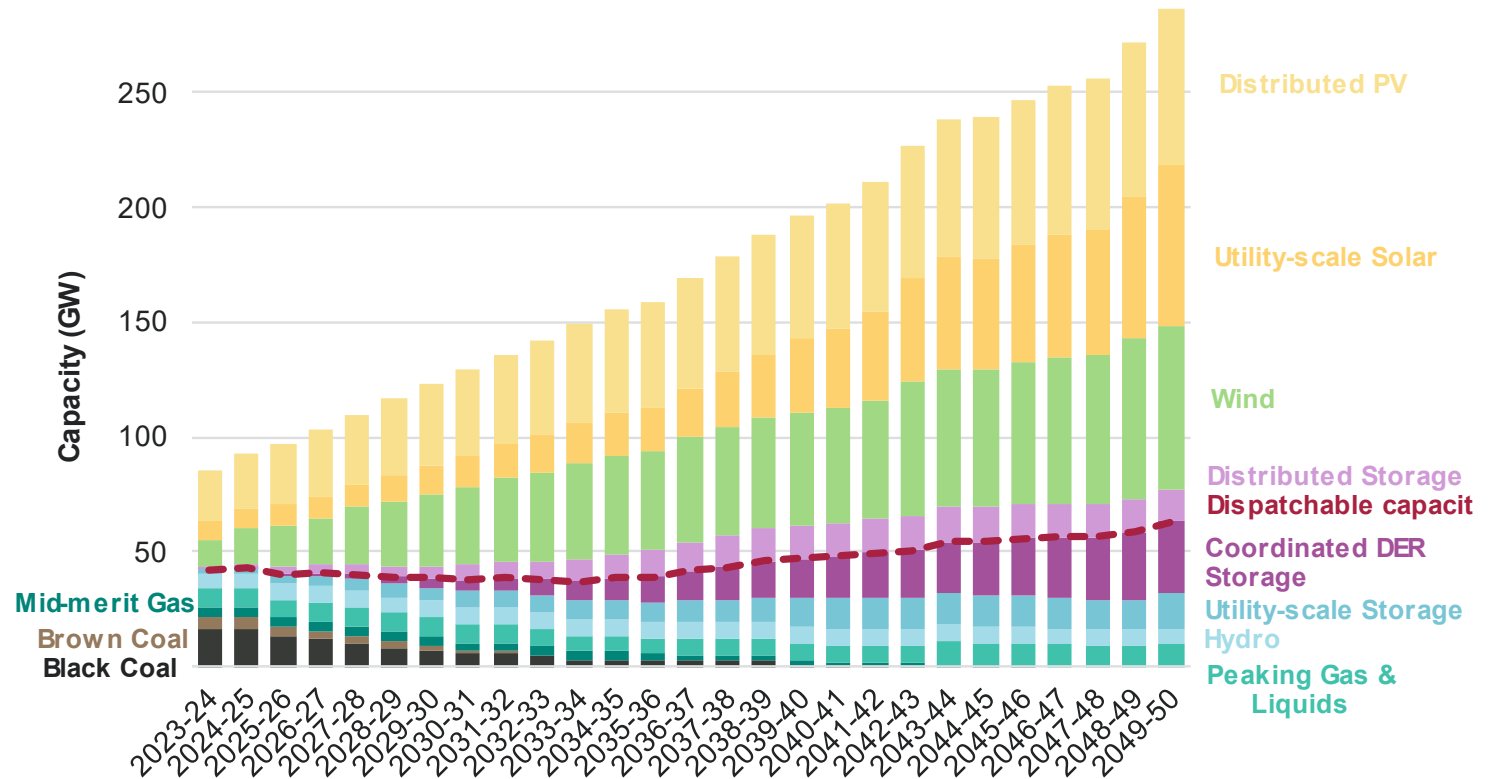


Context for the rule change and recap of last TWG

Context for this rule change

By 2050 the 2022 ISP forecasts that there will be 31GW of coordinated CER storage.

Our rule change process is focused on ensuring that these resources can support the operation of the market and the power system as a whole.



Dispatch design objective

Dispatch mode aims to facilitate price-responsive resources to participate in the central dispatch process. This will ensure the participants and their resources are treated similarly to other resources, providing access to the full value stream (such as reg FCAS).

This will support the operation of the power system by providing sufficient levels of resources that can be dispatched – comprising controllability, firmness and flexibility.

To meet this objective, the resources participating in Dispatch mode would need to be highly forecastable and/or controllable.

Resources that would not meet these criteria are likely better considered through the Visibility mode.



Who would participate?

Continuing from the last TWG, we want to highlight that this rule change is future-focused, and not all the currently non-scheduled assets may be eligible to participate in dispatch mode.

- Dispatch mode is focused on providing participants who are or will be controlling unscheduled price-responsive resources an avenue to participate in dispatch processes. Examples of likely business models/assets include:
 - VPP operators (retailers) who have contracted with many households to control their batteries to manage their spot price exposure
 - Small generator aggregators (soon to be small resource aggregators)
 - Large controllable price-responsive loads.
- Dispatch mode is a voluntary mechanism. It does not seek to make a consumer act a certain way. Instead, it seeks to capture existing arrangements and allow these arrangements to be represented in central dispatch.

Recap from the last TWG

AEMO presentation of NEM dispatch process

- Bidding and dispatch in the wholesale electricity market
- Dispatch target vs bid
- Scheduled BDU bid structure

AEMC led worked example of dispatch mode

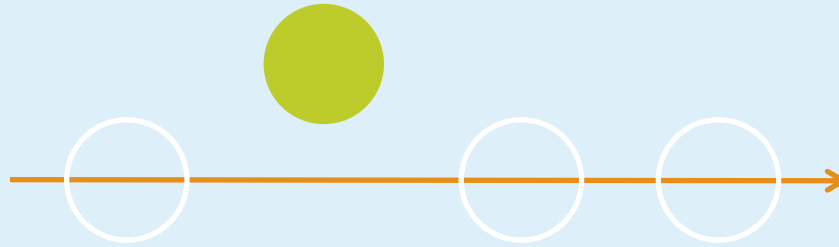
- Creation of an LSU
- Data exchange and telemetry
- Bidding and dispatch of an LSU
- Conformance requirements

AEMC initial assessment of whether details should go in rules or guidelines.

- Example of where we consider guideline or prescriptive rules are appropriate
- AEMC assessment of the proposed guideline creation
- AEMC assessment of the proposed rule amendments

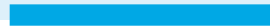
What we've heard so far

- The TWG did not highlight any material issues with the proposed design of dispatch mode, however, the TWG highlighted:
 - Complexity of controlling an aggregated portfolio that may contain controllable and uncontrollable resources behind a single connection point.
 - Complexity and timing of other reforms, such as network interactions (DOEs).
- The TWG did not identify any issues with the AEMC's assessment of what details should be in the rules or guidelines but highlighted that there should be a clear process of updating the guidelines, including at the request of participants.
- We are taking your detailed feedback into account as we progress our assessment of the rule change request and continue to develop a draft determination and draft rule (if applicable).



interactions with the CER benefits rule change

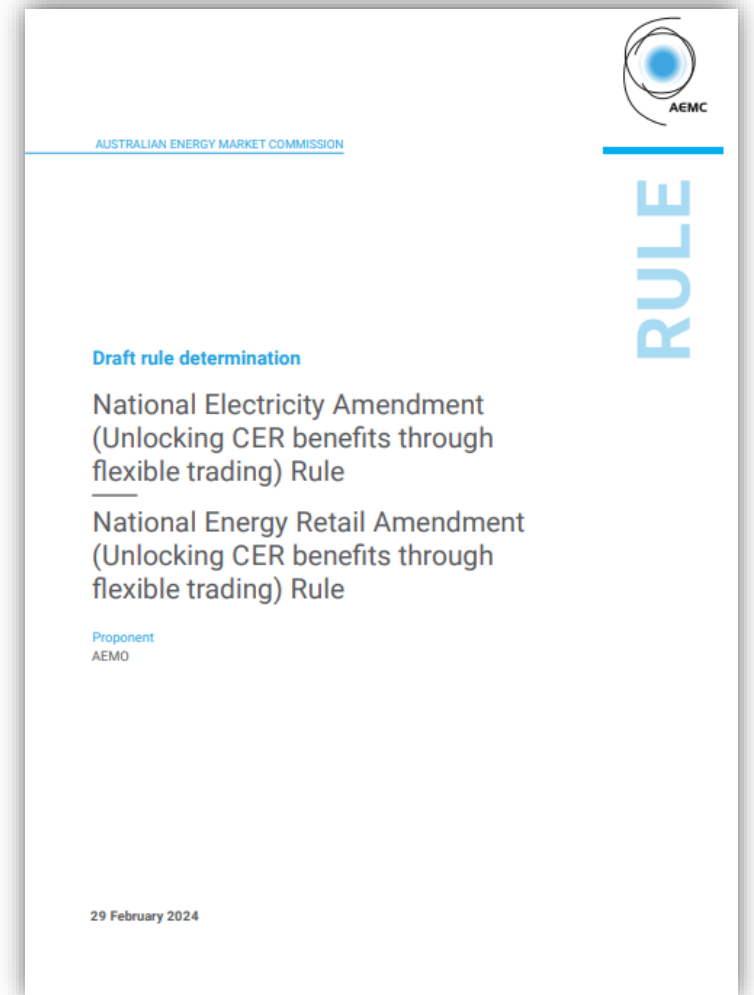
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CER benefits draft determination – small customers

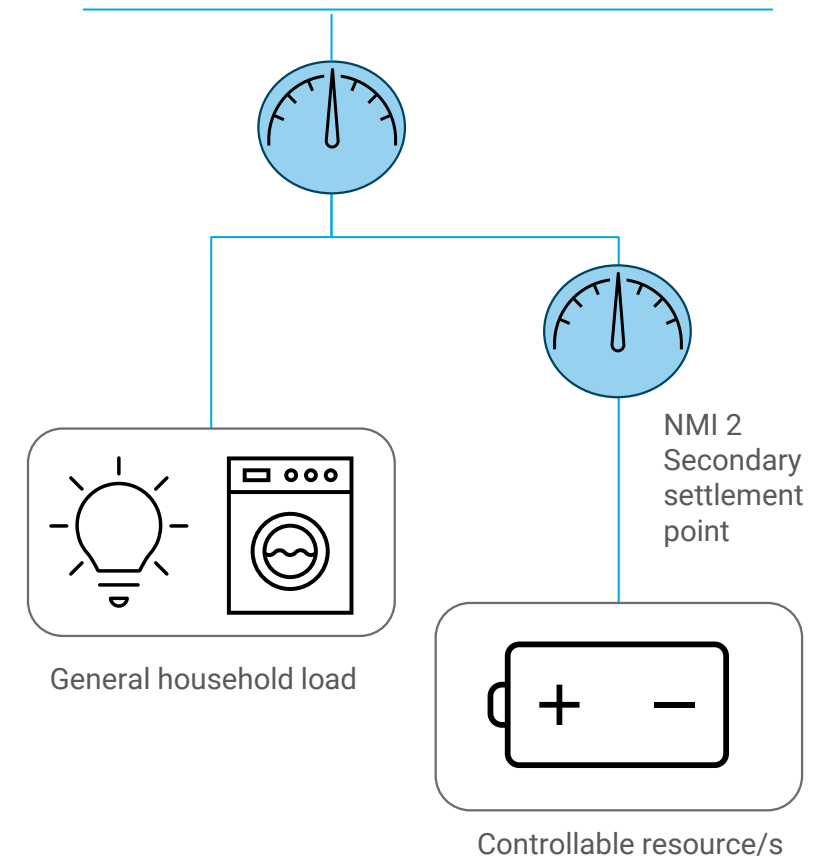
- On 29 February 2024, the Commission published its draft determination for the unlocking CER benefits through flexible trading rule change.
- The draft determination outlined an option for a small customer’s flexible CER to be market-connected through the establishment of a second settlement point. The FRMP at the primary connection point would continue to be responsible for the whole of the customer’s supply at their premises, including any secondary settlement points
- The key change in this option compared to the existing framework is that flexible CER energy data would be separately metered and provided to market settlement systems from the household’s inflexible loads.
- Establishing a secondary settlement point would be voluntary.



Available [here](#).

Diagram of proposed change – small customers

- The opposite diagram shows one way that a participant could use the arrangements; in this, the consumer's battery is behind the secondary settlement point and the general household load behind the primary connection point.
- The second settlement point would be assigned an NMI and subtractive settlement arrangements would apply between the primary connection point and secondary settlement point(s).
- At the secondary settlement point/s, flexible CER energy consumption would be separately metered through either a smart meter (type 4 meter) or another form of settlement-grade meter built into the CER device or wired externally to the device. The in-built measurement capability in the technology would require National Measurement Institute approval.



What this could mean for dispatch mode participation

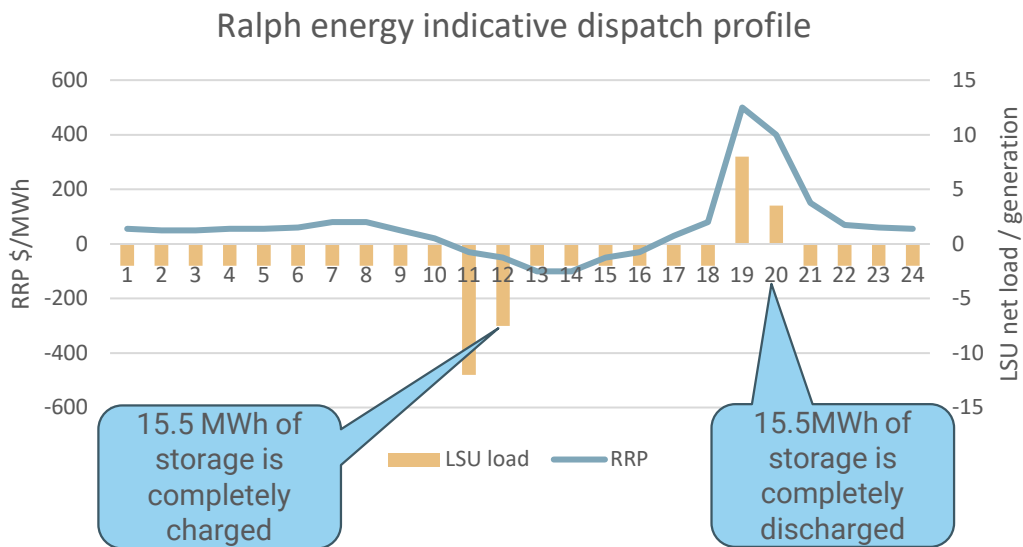
- Last TWG we heard that passive load can be hard to forecast in a portfolio of NMIs, which can become even more complicated when multiple different kinds of resources are aggregated. Such as rooftop PV, batteries as well as household passive load.
- Splitting out the price-responsive resources, such as household batteries, from the passive or uncontrollable resources using a secondary settlement point could reduce this complexity and make it easier to participate in dispatch mode.
 - In using a secondary settlement point only the controllable resources would be bid and dispatched into the market
- We want to emphasise that this would be an option available for dispatch participants (subject to a CER benefits final rule being made that reflects the draft rule) and that participants may choose to participate at the primary connection point.
- The following slides build off the previous TWG example and contrasts participating at the primary connection point and a second settlement point. We have provided these examples to give a stylized overview of the two rule changes could work together, not an example of a specific business case that could be made.

For TWG feedback

1. Is anything unclear about the interactions between the second settlement point for small customers and the IPRR rule change?
2. Would this arrangement support your participation in dispatch mode?

Recap: Example from previous TWG

- Retailer Ralph Energy signed up 1,200 households with behind-the-meter batteries with a contract that allows Ralph to control these batteries. The aggregated capacity of the aggregated batteries was 12 MW/15.5 MWh.
- Both passive load and controllable load are behind a single NMI, meaning Ralph Energy was responsible for all resources (passive and controllable) behind the meter at each participating site. Ralph Energy’s customers were assumed to have a flat load profile of 2MW.
- The customers were grouped into Light Scheduling Unit (LSU) based on sub-regional zonal areas.
- The LSU was then dispatched based on its bidding intentions.



Market price range (\$/ MWh)	Ralph Energy intention
< 0	Customer batteries: Charge at the maximum rate, i.e. 10MW. Assuming all batteries in the fleet have a state-of-charge (SOC) available to charge. Underlying customer load: no change (2MW load) Bid intention: -12MW
0 to 300	Customer batteries: no action. Underlying customer load: no change (2MW load) Bid intention: -2MW
Above 300	Customer batteries: discharge at the maximum rate, i.e. 10MW. Assuming all batteries in the fleet have SOC available to discharge. Underlying customer load: no change (2MW load) Bid intention: +8MW

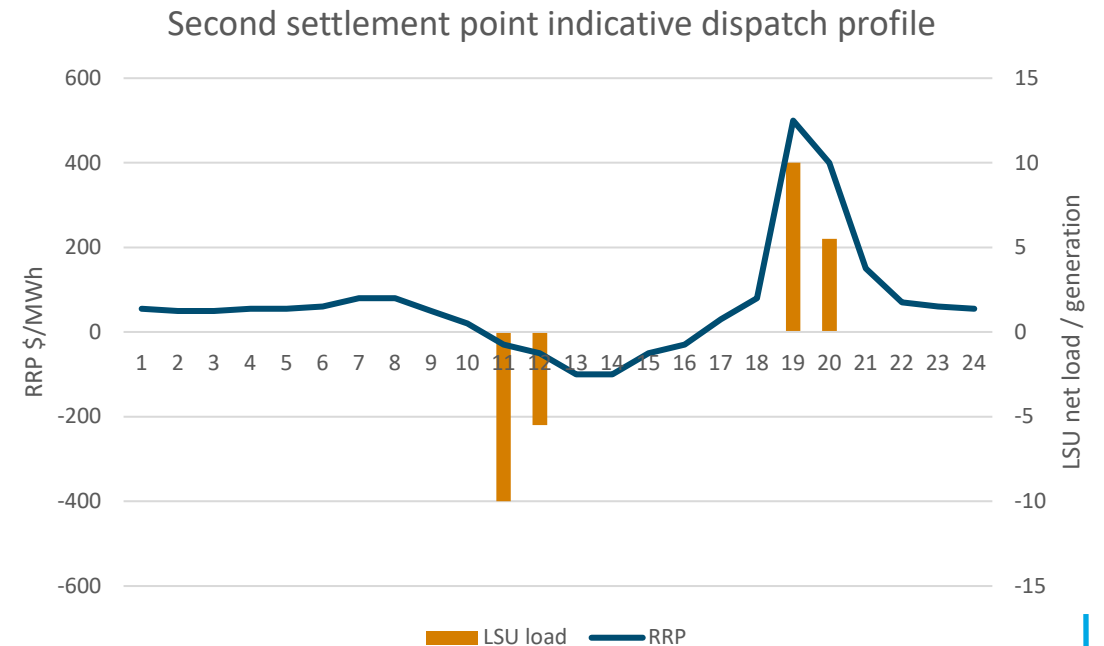
Bidding and dispatch with second settlement points

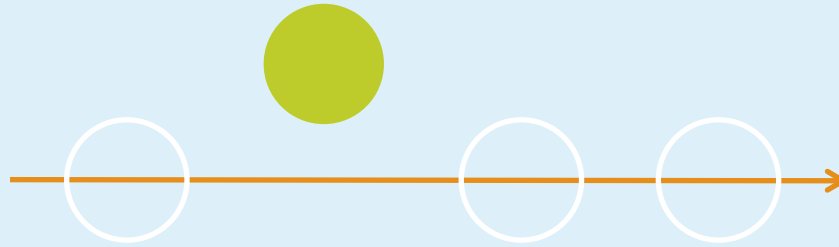
- If Ralph uses secondary settlement points for the customer batteries they have signed up, they will only need to bid the price-responsive intentions of these batteries.
- Using a secondary settlement point Ralph would also not need to reserve capacity to smooth out any unexpected changes in customers' load.

For TWG feedback

1. Is there anything unique with bidding and dispatching at the secondary settlement point that:
 - Requires different regulatory design
 - Creates barriers to participation
2. If this example applied to a large customer, is there anything specific we should be taking into account?

Market price range (\$/ MWh)	Ralph Energy intention
< 0	Customer batteries: Charge at the maximum rate, i.e. 10MW. Assuming all batteries in the fleet have a state-of-charge (SOC) available to charge. Bid intention: -10MW (or -12MW)
0 to 300	Customer batteries: no action. Bid intention: 0MW
Above 300	Customer batteries: discharge at the maximum rate, i.e. 10MW. Assuming all batteries in the fleet have SOC available to discharge. Bid intention: +10MW (or +12MW)





Flexible arrangements to assist participation

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Options to assist participation in dispatch mode

Stepping stone process

- What is the best way for participants to learn and grow their operational capability in a low risk environment and eventually join dispatch mode.
- Objective for today: What are the TWG views on the AEMC's approach for developing a stepping-stone process, and is there anything more the rule change can do to support growing participants' capabilities?

Opt-out and hibernation processes

- What is the best way to recognise that participants may only have the capability to participate in dispatch over certain time periods.
- Objective for today: What are the TWG views on the AEMC's approach for developing opt-out and hibernation processes, and is there anything more the rule change can do to support approaches

Why are we discussing this today

- It's important to note that the processes we are looking at today are generally either not described in the rules at all or described at a very high level in the rules and are left to AEMO's discretion to design and implement.
- Given the scope of changes being investigated in this rule change, we consider that it could be helpful to outline a requirement to develop a stepping-stone process in the rules. Outlining these processes in the rules would:
 - Outline a clear process for participants to provide input into the creation and continued development of the stepping-stone and opt-out processes.
 - Assist AEMO in allocating sufficient investment in developing these processes.

Stepping-stone

Proposal

- The rule change request outlined that the proposed visibility mode and dispatch mode would work in tandem. Visibility mode would provide an environment where participants can learn their operational capabilities and build confidence in their operation.
- Participants could then ‘graduate’ to dispatch mode if they were able to meet the participation criteria and saw benefit in participating.
- The AEMC is not progressing visibility model as proposed by AEMO as a standalone mechanism. This means the proposed linkages between visibility participation and dispatch participation are not as clear.

Initial AEMC views

- The AEMC staff view is that given the relatively large jump from status quo to participating in dispatch, a stepping-stone process is required to encourage participants to learn and grow their capabilities before entering dispatch mode.
- We consider that AEMO’s requirements for developing a Light Scheduling Unit guideline for dispatch mode should also include a stepping-stone process. This would offer an avenue for participants to learn and grow their capabilities before formally participating in dispatch mode. We consider AEMO should be required to develop a stepping-stone process and consult on its approach but should have broad discretion regarding how it does this. This would be in line with the broader guideline process.

Questions for TWG

- Do you agree that a stepping stone should be developed by AEMO as part of this rule change?
- Should the AEMC set any guiding principles on how this stepping stone process is developed in the rule change process?
- Is there anything else the rule change can do to support participants in joining dispatch mode?

Opt-out / Opt-in process

Proposal

- The rule change request outlined opt-out and self-hibernation arrangements to recognise the maturity of participants' operational capability. This aims to lower entry barriers and recognise that participants may not have 24/7 operational capabilities. Both arrangements are proposed to be defined in the Light Scheduling Unit guideline, outlined at the previous TWG.

The opt-out process would allow participants to remove themselves from dispatch obligations within operational timeframes (seven-day period, aligned with ST PASA timeframes).

- The rule change outlined that dispatch participants who want to opt-out would be required to:
 - Remain in Dispatch mode for a minimum amount of time
 - Provide notification to opt out a minimum amount of time in advance
 - Be subject to Visibility mode obligations
 - Remain opted-out no longer than a specific period of time, within operational timeframes. When opting out for longer than the specified timeframe, there will be a reactivation process to opt back into dispatch mode.
- To opt back in the dispatch participant will need to:
 - Remain opted-out for no longer than a specific period of time
 - Provide a notification to opt back into the Dispatch mode a minimum amount of time in advance.

The self hibernation process enables dispatch participants to opt-out for periods beyond operational timeframes. For example, if a participant does not want to operate over the winter season with a subset of its NMIs, it could flag the hibernation status of those NMIs for a specified period, rather than de-classifying and re-classifying them.

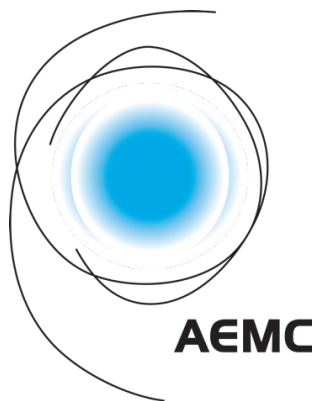
Initial AEMC view

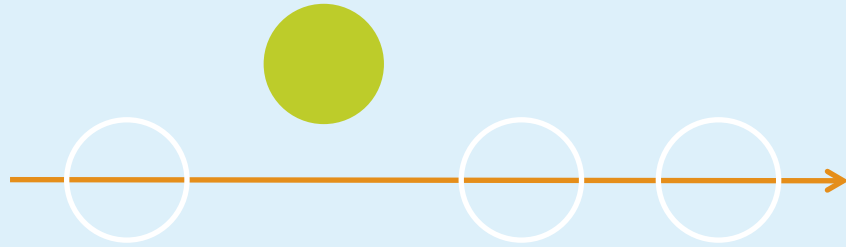
- The AEMC staff view is that opt-out and hibernation arrangements will be helpful for dispatch participants as they develop their operational capability. AEMO would be best placed to determine technical aspects relating to dispatch participants being removed from scheduling processes and then re-entering.
- Based on this, the AEMC considers that these arrangements should be required as part of AEMO's new Light Scheduling Unit guideline.
- This is consistent with the AEMC's process outlined at the previous TWG.

Questions for TWG

- Do you agree that opt-out and hibernation arrangements should be developed?
- Should the AEMC set any guiding principles in the rules for AEMO to follow when developing the opt-out and hibernation processes in its guideline?

Break





Directions, state of charge information and primary frequency response

We are starting to map out the rule requirements for dispatch

- The design of the dispatch LSU is broadly based off a scheduled bi-directional unit, with key differences outlined at the previous TWG.
- At the last TWG we outlined our principles for whether details should go into the rules and our assessment of the proposed rule amendments and guideline creation.
- We have started examining the current and future rules requirements for scheduled bidirectional units and whether these requirements should apply to dispatch LSUs.
- Through this process we have outlined several key requirements we would like to test with the TWG whether they should apply to dispatch participants.

Directions

Overview	Rule change proposal	AEMC initial thoughts and Questions for TWG
<ul style="list-style-type: none"> AEMO can issue clause 4.8.9 directions to maintain or re-establish the power system in a secure, satisfactory, or reliable operating state. Directions may be issued to scheduled Registered Participants, including plant or market generating units. The Commission’s recent final rule for <i>Improving security frameworks</i> introduced a new NMAS framework for ‘transitional services’ which allows AEMO to contract for system security needs that are not captured in existing frameworks. Certain types of direction may result in the payment of compensation to the directed Registered Participants. 	<ul style="list-style-type: none"> The rule change request proposed that Dispatch LSUs will be considered ‘scheduled resources’ unless an exception is appropriate, meaning they will be subject to AEMO-issued directions. AEMO considers this appropriate as it has the ability to consider the capabilities of Dispatch LSUs to comply with directions and respond to the maturation of these capabilities over time. 	<ul style="list-style-type: none"> Our initial view is that dispatch participants should be able to be directed, in line with existing resources. We consider that being subject to directions would not add any additional complexity or pose a significant disincentive to participate in dispatch mode. Dispatch participants are already required to reflect the capability of it’s LSU through its bids, with this capability able to be directed if needed. We expect that dispatch participants might not be directed often in the short term. If they are directed, they would be eligible for compensation under certain conditions. Under the ISF final rule, regularly directed participants for system security will also be eligible to be contracted by AEMO. <p>Questions for TWG</p> <ul style="list-style-type: none"> Do you agree with the AEMC’s initial thoughts that dispatch LSUs should be subject to directions? Is there any other factors that would mean dispatch LSUs should not be subject to directions?

Enhancing reserve information

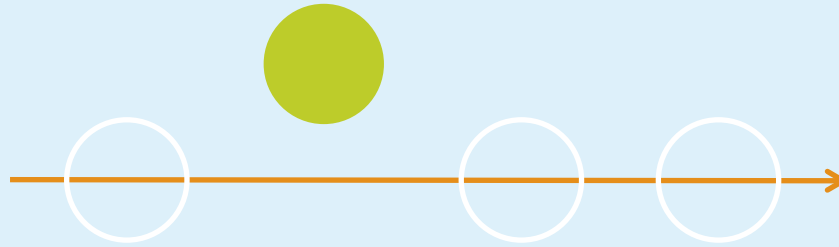
Overview	Rule change proposal	AEMC initial thoughts and Questions for TWG
<ul style="list-style-type: none">• In March 2024 the AEMC made a final rule for <i>Enhancing reserve information</i>.• The final rule will require the publication of information on energy availability in the operational timeframe, including:<ul style="list-style-type: none">• State of charge• Daily energy constraints• Maximum storage capacity	<ul style="list-style-type: none">• AEMO’s rule change proposed that dispatch LSUs would provide AEMO with the Aggregated actual generation, actual load and actual energy stored.• If the final rule for enhancing reserve information is extended to dispatch participants, the state of charge information already provided to AEMO would be provided to the market.• It would be published close to real-time, aggregated by region, and the following trading day by a dispatchable unit identifier (DUID) to align with existing post-trading day publications.	<ul style="list-style-type: none">• Our initial view is that the AEMC’s final decision in <i>Enhancing reserve information</i> should apply to dispatch participants.• Our initial view is that this is appropriate, given that dispatch participants already require this information, and publishing the information aligns dispatch LSUs with scheduled BDUs. <p>Questions for TWG</p> <ul style="list-style-type: none">• Do you agree with the AEMC’s initial view that dispatch LSUs should have their SOC information published?• If not, why should dispatch LSUs specifically be excluded from this?

Mandatory primary frequency response

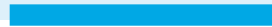
Overview	Rule change proposal	AEMC initial thoughts and Questions for TWG
<ul style="list-style-type: none">• In March 2024, the AEMC made a final rule <u>clarifying mandatory primary frequency response obligations</u> for bidirectional units. The final rule clarified that batteries must provide PFR when they are exporting or importing energy, including when providing a regulation service.• In September 2022 the AEMC made a final rule for <u>primary frequency response incentive arrangements</u>. The final rule introduces new frequency performance payments arrangements that incentivise market participants to operate their plant in a way that helps to control power system frequency.	<ul style="list-style-type: none">• The rule change request proposed that Dispatch LSUs will not need to comply with the Primary Frequency Response Requirements due to the maturity of distributed resources.• The rule change also outlined that ideally, LSUs will be able to access frequency performance payments, providing an incentive to participate in the mechanism. Requiring a change to the rules to include dispatch LSUs as an eligible unit. To participate, LSUs will be subject to complying with relevant requirements, such as having appropriate metering.	<ul style="list-style-type: none">• Our initial view agrees with the proposal that dispatch participants should not be subject to primary frequency response obligations but should be eligible for frequency performance payments.• We agree with AEMO that the maturity of distributed assets justifies their exclusion from MPFR requirements.• We consider that dispatch LSUs should be considered an eligible unit and able to receive frequency performance payments, subject to being able to comply with relevant requirements <p>Questions for TWG</p> <ul style="list-style-type: none">• Do you agree with the AEMC’s initial thoughts that dispatch LSUs shouldn’t be subject to MPFR obligations?• Do you agree with the AEMC’s initial thoughts that dispatch LSUs should be eligible for FPP?

Other requirements the TWG would like to raise?

- Based on today's discussion, are there any other requirements for scheduled BDUs that the TWG would like to raise that should or shouldn't apply to dispatch LSUs?



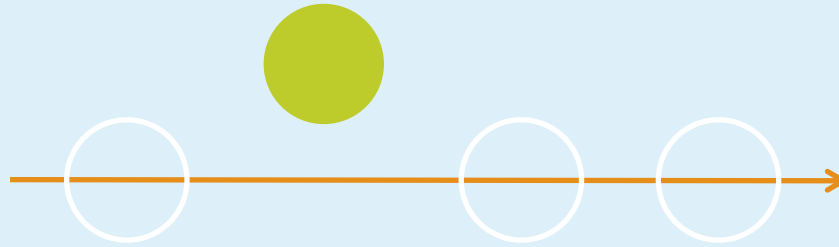
Distribution network limits



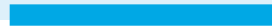
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Distribution network limits

Overview	Rule change proposal	AEMC initial thoughts and Questions for TWG
<ul style="list-style-type: none"> Flexible export limits (FELs) are being developed as a mechanism for DNSPs to maintain the integrity of the distribution network as customer exports continue to grow. FELs can allow consumers to export more from their resources at times and locations where there is “spare” unallocated capacity, rather than be restricted to (potentially lower) static limits. 	<ul style="list-style-type: none"> The rule change request proposed that FELs would not be integrated into the market scheduling process for dispatch LSUs Dispatch mode participants would be responsible for managing their energy and FCAS bids, as well as dispatch to ensure they operate within the FELs for their portfolio. 	<ul style="list-style-type: none"> Our initial view is that the dispatch participant would be required to comply with any applicable FEL (or DOE) when submitting their bids for dispatch mode. We consider that given FELs are still being developed by DNSPs, including these interactions within the design of dispatch mode would not be possible. Incorporating FELs into the design of dispatch mode can be investigated as the design and implementation of FELs progresses. The AEMC staff view is that through this rule change, we would outline an expectation that FELs are designed in a way that facilitates dispatch participation. <p>Questions for TWG:</p> <ul style="list-style-type: none"> Do you agree with the AEMC’s initial thoughts that network limits are the responsibility of the participant to manage? If not, does excluding FELs from dispatch instructions pose a significant barrier to participation?



Wrap up



AEMC

This is the last dispatch TWG before our draft determination

Thank you for your engagement in the TWG process to date; today marks the last dispatch of TWG before we publish our draft determination.

Before we conclude the TWG:

- Are there any issues or considerations that haven't been covered in the dispatch TWGs you would like to raise?
- Are there any points from the TWGs that you would like to highlight?

If there are topics from this and the previous TWG that you would like to discuss further with the AEMC, please get in touch.

Further information

Project page

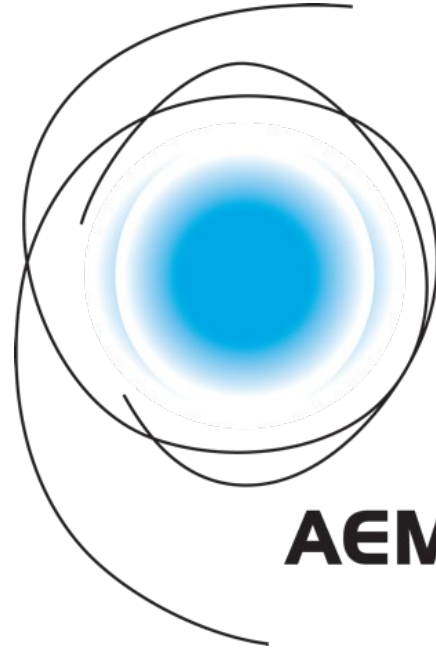
For more information and links to any documents mentioned:

<https://www.aemc.gov.au/rule-changes/integrating-price-responsive-resources-nem>



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