Staff views only

Inter-regional settlements residue arrangements for transmission loops

ERC0386

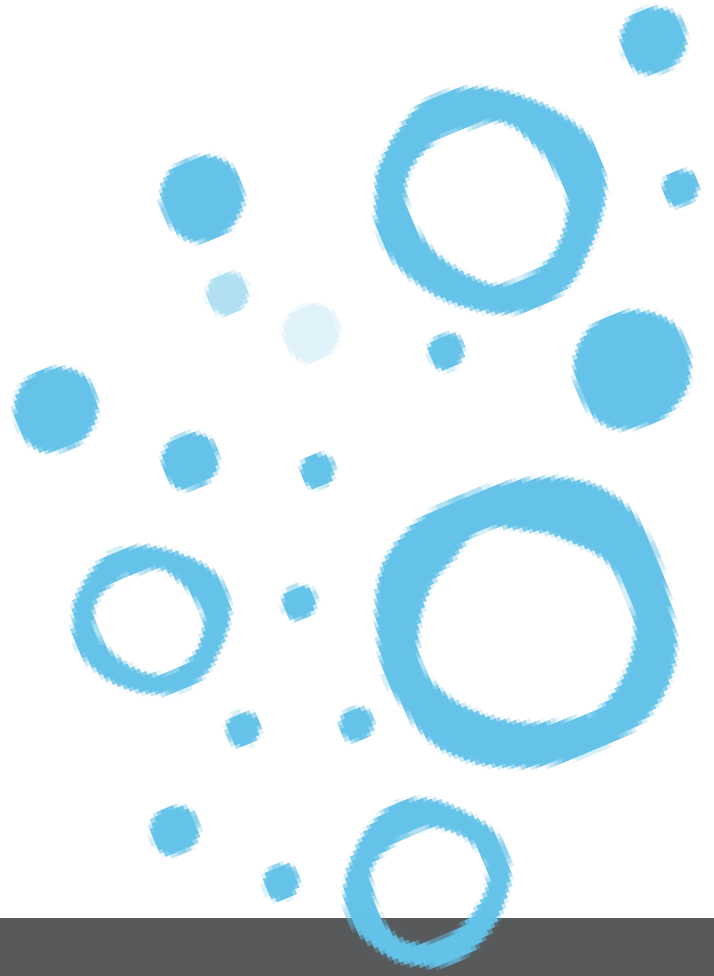
Technical Working Group

April 2025

AEMC

A E M C

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.*



ACKNOWLEDGEMENT OF COUNTRY

Introduction

AEMC

Today's objective

- Thank you for your valuable feedback on the AEMC's draft determination.
- Today the project team will explain the rationale for our change in policy direction on this rule change.
- We'll present our design options for netting off in transmission loops and seek collective feedback.
- Your inputs will inform our policy paper that will be published with legal drafting on **19 June 2025**.
- ***Note:*** **This pack contains staff-level working views for consultation purposes. This pack does not represent final views or decisions of the Commission.**

How this workshop will be run

- We have short team presentations on each agenda item followed by Q&A after each item.
- During the presentations, please put your questions or comments into the **Q&A box in Teams.** During the Q&A please also feel free to raise your hand to ask a question.
- You are welcome to provide feedback to the team on the material in these TWG slides via email by **17 April 2025.**

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.

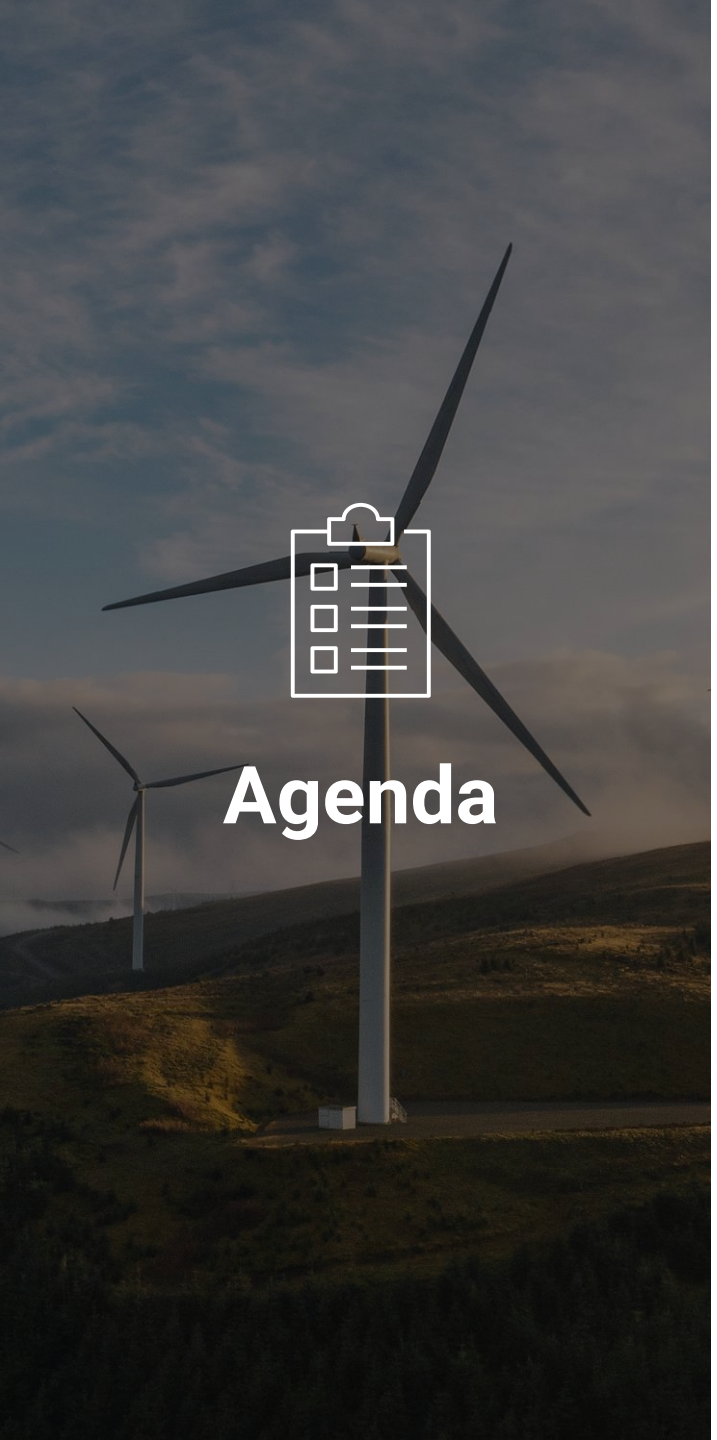
COMPETITION PROTOCOL

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.



Agenda

11:30	Introduction	5 min
11:35	Part 1: The problem	5 min
11:40	Part 2: Our draft rule & the revised direction	10 min
11:50	**Questions & discussion**	10 min
12:00	Part 3: Designing a netting off approach: Net positive & net negative cases	25 min
12:25	**Questions & discussion**	25 min
12:50	Part 5: Next steps & final questions	10 min

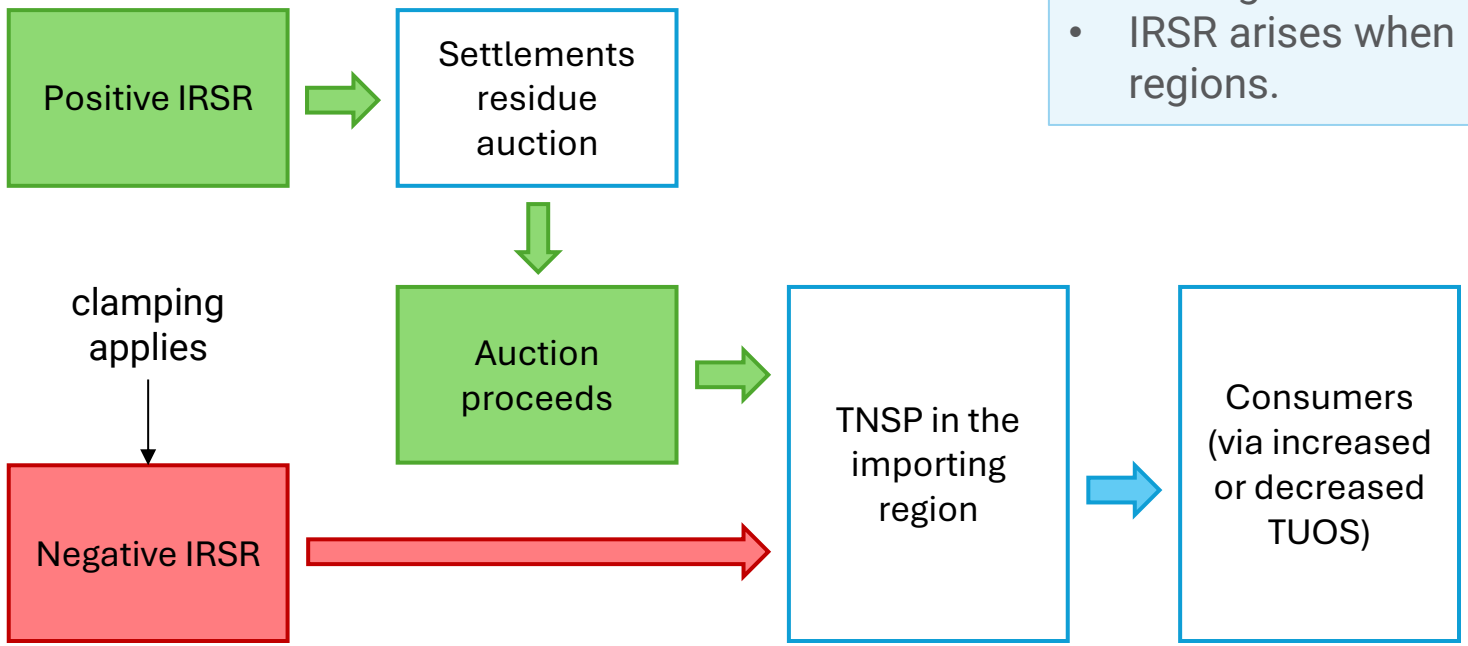
PART 1: THE PROBLEM

The current framework allocates positive and negative IRSR to importing regions

- Under the current rules:
  - Negative settlements residue is allocated to the importing region, and AEMO limits negative IRSR by applying clamping constraints.
  - Positive settlements residue is auctioned, with auction proceeds allocated to the importing region.

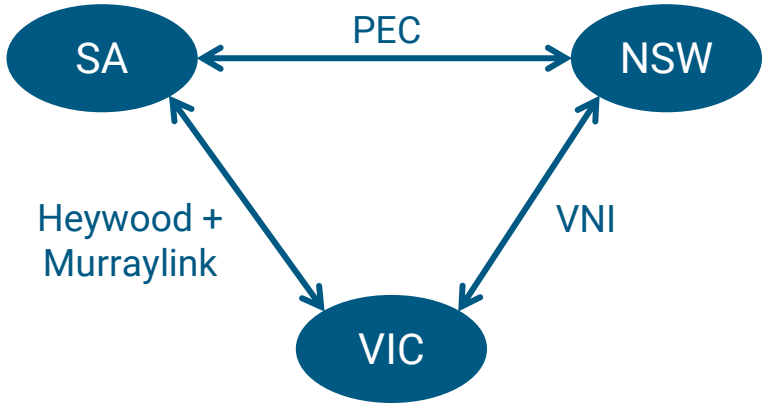
Definitions

- Setting aside intra-regional settlement residue, inter-regional settlements residue (IRSR) is the surplus or deficit of funds retained by AEMO upon completion of all settlements to market participants in a trading interval.
- IRSR arises when prices separate between regions.



We need a new way to allocate IRSR in transmission loops

- Project EnergyConnect Stage 2 (PEC) will link SA and NSW, creating the NEM's first inter-regional transmission loop.
- Negative IRSR is expected to be **larger** and **more frequent** in the transmission loop – and part of **efficient dispatch**.
    - AEMO will not clamp negative IRSR in the loop, provided the net IRSR for the loop is positive.
- Under the current rules, negative IRSR is allocated to the TNSP in the importing region.
- But in a transmission loop, this can create a risk of **extreme negative IRSR being allocated to a single region,** impacting TNSP cash flow and consumers' retail bills.



PEC will connect Wagga Wagga NSW to Robertstown SA, with an additional connection to VIC at Buronga/Red Cliffs ('PEC Stage 1').

AEMO submitted a rule change request

Clamping

Net positive IRSR: AEMO proposed not to clamp negative IRSR because the loop is producing efficient outcomes.
Net negative IRSR: AEMO proposed to clamp individual interconnectors when they reach a certain threshold to manage negative IRSR.

Allocation of negative IRSR

When loop IRSR is positive:

- AEMO proposed to reallocate negative IRSR arising on one or more individual arms of the loop to those arms that are accruing positive residues.
- The negative IRSR would be reallocated in proportion to the positive IRSR accrued, and then recovered from the relevant importing TNSPs.
    - AEMO submitted that this proposed reallocation would better align costs (negative IRSR) with beneficiaries (positive IRSR).

When loop IRSR is negative:

- Allocate negative IRSR to the importing region for each individual interconnector.
    - That is, AEMO proposed to maintain the existing approach in net negative cases.

In both cases, **AEMO proposed no changes to the arrangements for positive IRSR,** which would continue to be auctioned through the settlements residue auction (SRA) process.

PART 2: Our draft rule & the revised direction

Our draft rule would share negative IRSR between all looped regions

- The Commission considered that **AEMO's proposed reallocation method could still expose customers to the risk** of extreme negative IRSR.
- In December 2024 we made a **more preferable draft rule** that would:
  - define a 'transmission loop' as a closed loop of regulated interconnectors between three regions,
  - allocate negative IRSR that accrues on interconnectors in transmission loops to all looped regions in proportion to regional demand,
  - retain the existing allocation of positive IRSR and SRA arrangements,
  - operate alongside AEMO's proposed clamping approach (which does not require NER changes).

We also proposed a review of SRA arrangements, on the basis that it is unclear that SRA arrangements are delivering value for consumers.

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SRA = settlements residue auction (in which participants purchase rights to future positive IRSR)
NER = National Electricity Rules

Stakeholders raised four key issues in submissions

1. There is a significant and unmitigated risk to TNSP cashflow arising from extreme unlimited negative IRSR, which TNSPs say will impose a high and unnecessary risk on consumers and TNSPs.

2. Stakeholders other than TNSPs generally agreed with sharing by regional demand, although some did not support this approach as NSW will bear the majority of the costs of negative IRSR.

3. SRA participants' feedback was that SRDUs are an important hedging instrument and benefit consumers by promoting competition and enhancing risk management practices.

4. There were mixed views on the need for an SRA review and its timing, with some stakeholders suggesting we defer the review until after PEC has operated for a few years.

We consider that the draft determination would create a likely unacceptable risk to TNSPs and consumers and so other options should be explored

- Transmission loops create a risk of extreme negative IRSR.
- Our draft determination recognised this risk and sought to mitigate the impact to TNSPs and consumers by proportionately sharing negative IRSR to the looped regions.

On further consideration including of stakeholder submissions, and analysis, however, we consider this risk has likely unacceptable flow on costs to consumers in multiple ways.

- Under the draft rule, in any settlement period, TNSPs could be required to pay large negative IRSR, which could be up to tens of millions of dollars.
- TNSPs would need to plan for this eventuality, regardless of its probability.
- This would mean TNSPs could be required to have significant funds readily available, for example through access to highly flexible debt facilities, or an AER-approved working capital allowance.

- There are large costs associated with relying on debt facilities or an AER working capital allowance.
- These costs would be passed on to consumers.
- This means that every year, consumers would be paying for TNSPs to have the capability to settle large negative IRSR - even if this is not called upon often or at all.
- If these costs were not passed on to consumers, there would be reduced incentives for investment, potentially delaying transmission projects.
- And, if large negative IRSR does arise, consumers are also unhedged to that eventuality and will have to pay.

Consumers would benefit from avoiding these outcomes.

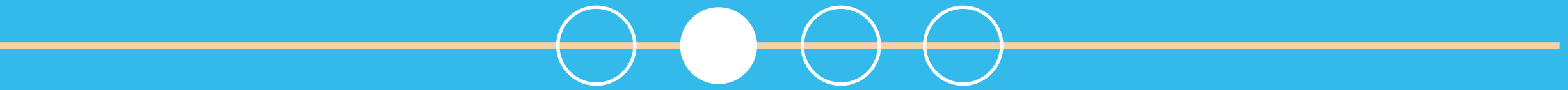
We consider that market participants may be better-placed than TNSPs to manage these risks and potentially at lower overall costs to consumers

- Including negative IRSR in SRDU payouts may be a more appropriate way of managing the risk of negative IRSR in transmission loops.

- This is because market participants may be better placed than TNSPs to manage risks associated with wholesale prices.
  - Market participants that are exposed to inter-regional price separation are exposed to both losses and gains.
  - Negative and positive IRSR both offset underlying spot wholesale price differences between regions, which market participants currently manage day-to-day.
  - Market participants are likely to have greater skill and experience in managing market risk than TNSPs as it is consistent with their role in the sector.
  - In contrast, exposing TNSPs (and therefore consumers) to unhedged IRSR creates risks which may be very costly to manage – see previous slide.
  - The annual TUOS process would likely creates extra complexities and time-based risks.

- Therefore, we consider it may be more efficient for SRD units to reflect all price separation risk through a netting-off approach - this would align the risk with the party best placed to manage it.

- Overall, this could result in lower retail prices – because any decrease in TUOS should likely be more than the increase in wholesale price changes.



Discussion (10 mins)

PART 3: Designing a netting off approach

We are considering an approach that includes netting off to balance TNSP and market participants' risks – to consider this we are developing a straw person design

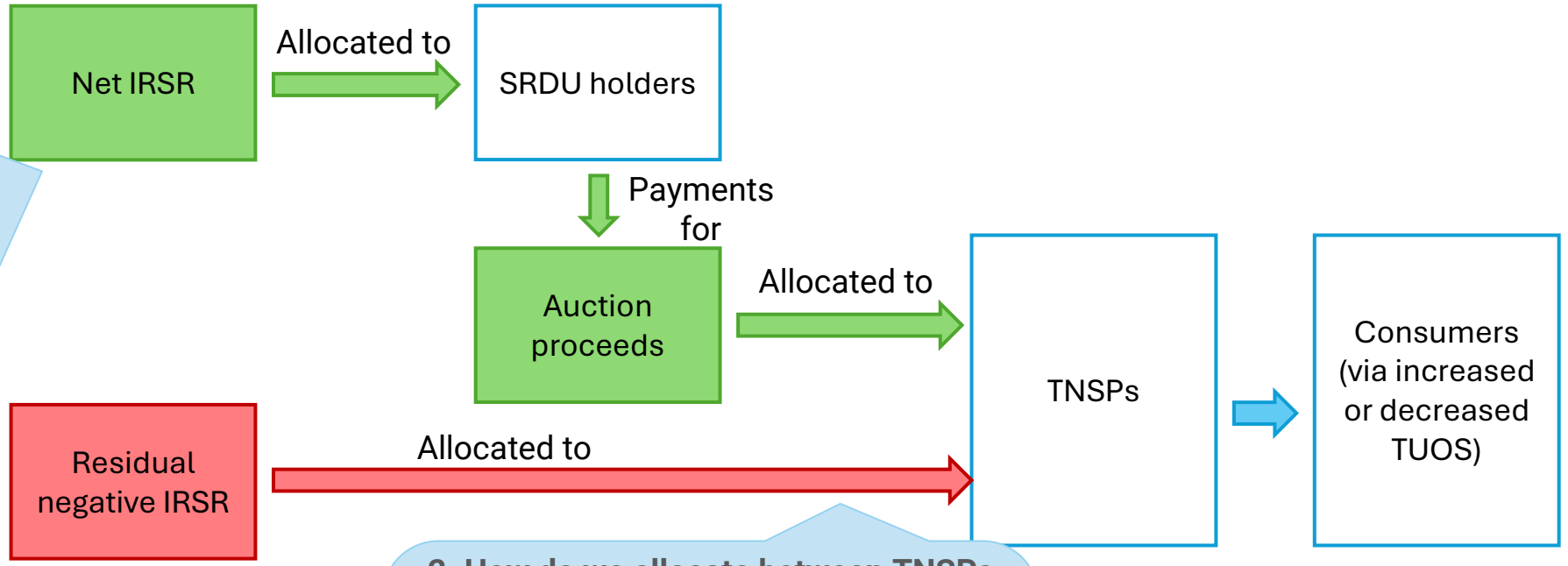
- The possibility of extreme negative IRSR is a result of not clamping the loop when it has net positive outcomes.
    - So, in these cases extreme negative IRSR must, by definition, be associated with larger amounts of positive IRSR.
- SRDUs can be made to always pay out positively - something we think is a good design feature.

Decisions to be made in a straw person netting off approach

1. How do we net off:

- in net positive cases?
- in net negative cases?

(This question is the focus of this TWG)



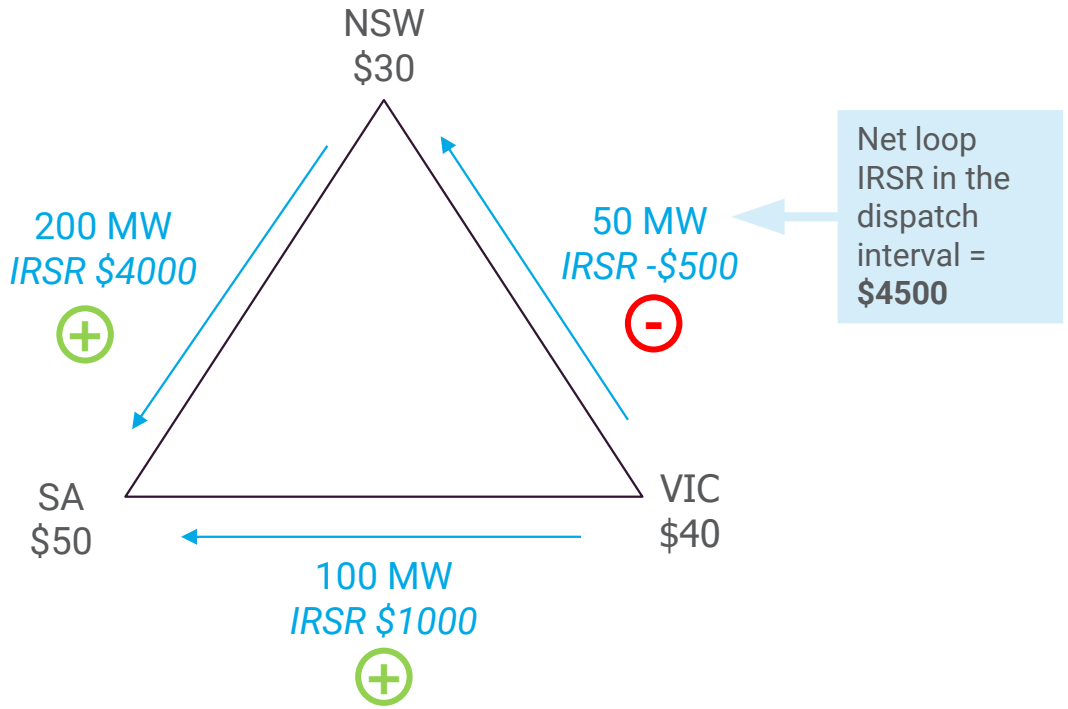
2. How do we allocate between TNSPs the:

- residual negative IRSR and
- auction proceeds?

(we will further consider this question in the lead-up to our policy paper)

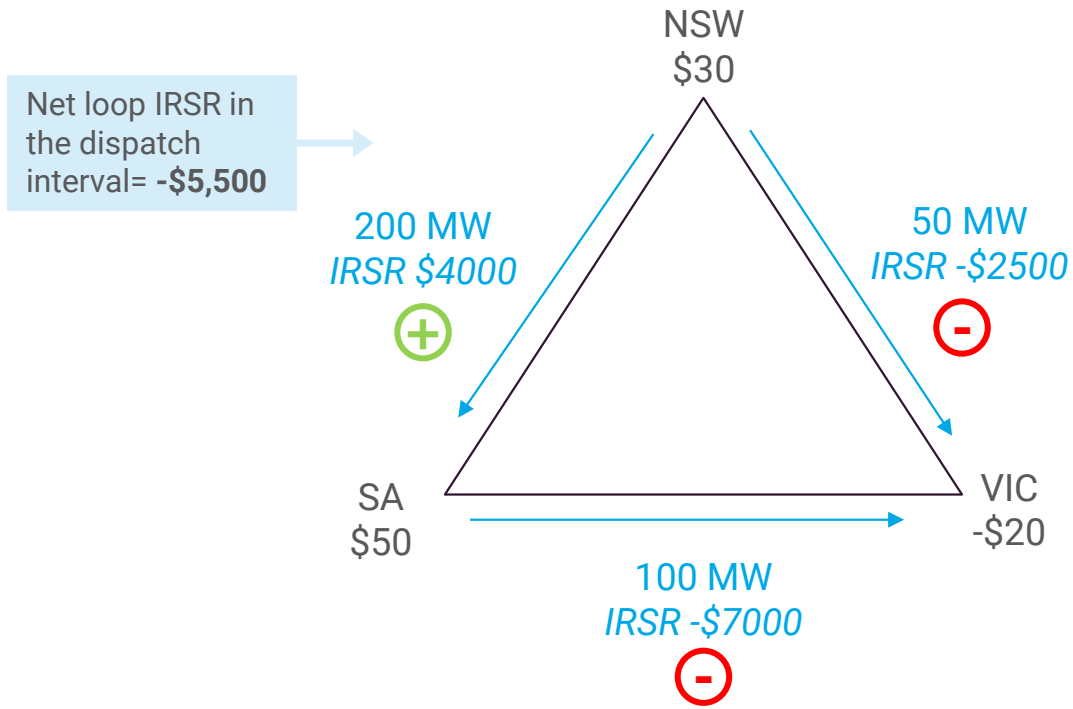
Netting off could apply in both net positive and net negative cases

Net positive example



Key question: How does netting off work?
We will discuss this first on slides 21-24

Net negative example



Key questions: Do we net off – and if so how does it work?
We will discuss this on slides 28-29

In designing the straw person, we considered four options, but have narrowed this down to Options 2 and 3 as preferred possible options

Net positive

Option 1: Netting off by directional interconnector

- 6 directional SRDUs.
- **SRDUs would pay out the sum of all IRSR on a directional interconnector over a quarter.**
- SRDU Payout = (positive IRSR-negative IRSR) calculated for each directional interconnector for all intervals over a quarter, floored at zero.
- SRDU payouts would always be positive.
- **Any remaining negative residues** at the end of the quarter would be paid by TNSPs.
- Option 1 could still leave TNSPs and consumers exposed to extreme negative IRSR.

Option 2: Netting off around the loop in proportion to positive IRSR

- 6 directional SRDUs.
- **In each net positive interval, SRDUs would pay out according to:**
  - **the positive IRSR on the limb minus**
  - **a proportional amount of the negative IRSR arising on other limbs in that interval**.
- SRDU Payout = positive IRSR + [(negative IRSR) x (positive IRSR/total positive IRSR)]
- SRDU payouts would always be positive.
- There are no negative residues left over in net positive cases.
- See slide 22.

Option 3: Netting off around the loop based on net trade

- 6 directional SRDUs.
- **In each net positive interval, SRDUs would pay out according to 'net trade' around the loop.**
- We would calculate the 'net trade' (net energy flows) between the looped regions, and assign IRSR to unit holders based on net trade.
- SRDU payouts would always be positive.
- There are no negative residues left over in net positive cases.
- See slide 23.

Option 4: Whole-of-loop SRDU

- 1 loop SRDU.
- **In each net positive interval, SRDUs would pay out according to the total loop IRSR.**
- SRDU payouts would always be positive.
- There are no negative residues left over in net positive cases.
- There would be **complex transitional arrangements** because this would be a new type of SRD unit.

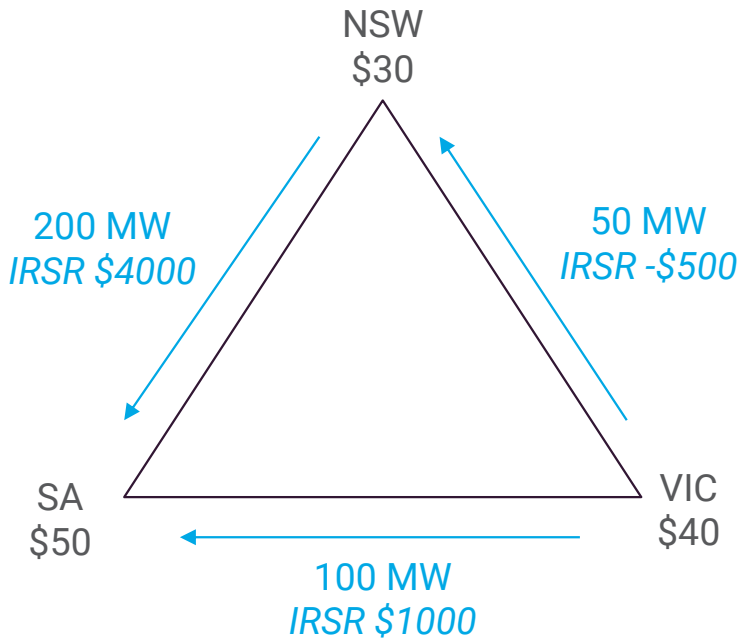
Staff views only

Option 2: Worked example

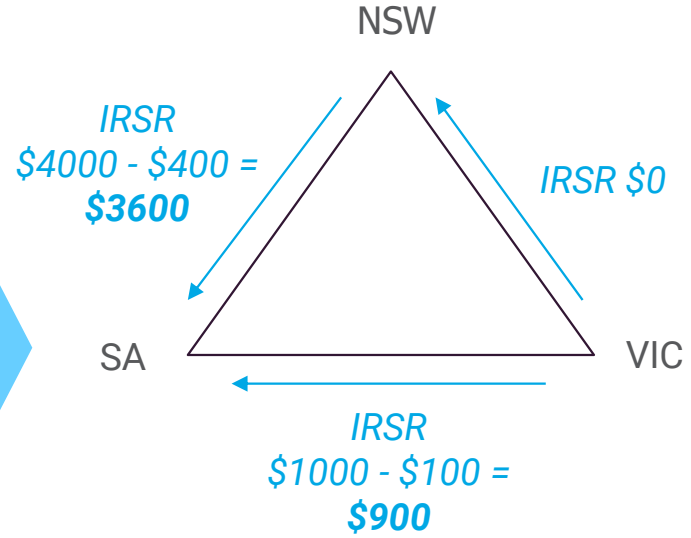
Netting off around the loop in proportion to positive IRSR

- For a given dispatch interval, for positive arms, determine its proportion of total positive IRSR.
- Any negative IRSR is allocated to positive arms, in proportion to the amount of positive IRSR on that arm – this reduces the SRDU payout on that arm.
- The payouts on each positive arm will always be positive (because total positive IRSR is always greater than negative IRSR in net positive cases and we are allocating proportionally to positive IRSR).
- The payout on negative arms will be $0.

IRSR pre-netting



IRSR post-netting



Positive arms are NSW-SA and VIC-SA.
Total positive IRSR is $4000 + $1000 = $5000.

Allocation:

- $\frac{4000}{5000} = \frac{4}{5}$ ths of negative IRSR to NSW-SA SRDU holders.
- $\frac{1000}{5000} = \frac{1}{5}$ th of negative IRSR to VIC-SA SRDU holders.

Unit category	Payout (in the dispatch interval*)
NSW-SA	$3600
VIC-SA	$900
All others	$0
Total	**$4500**

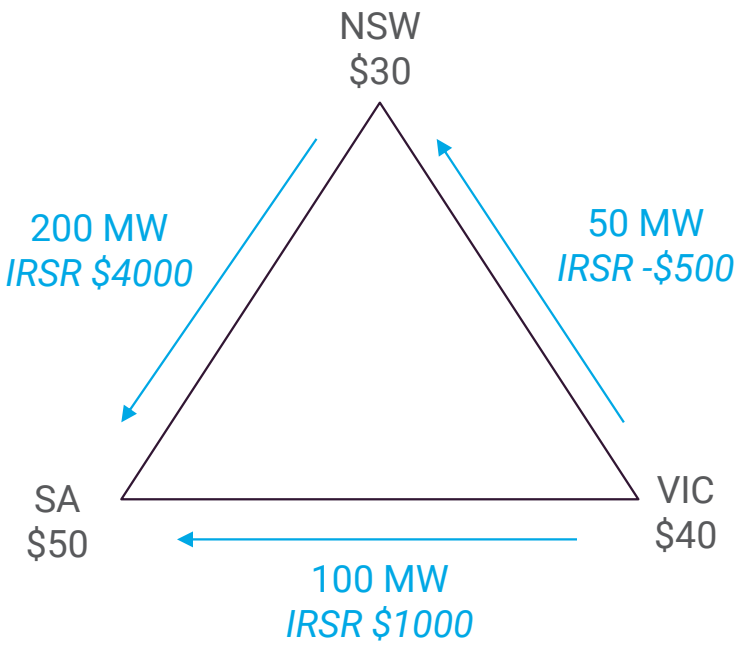
*In this example, we have set the dispatch interval to one hour to simplify the calculation.

Option 3: Worked example

Netting off around the loop based on net trade

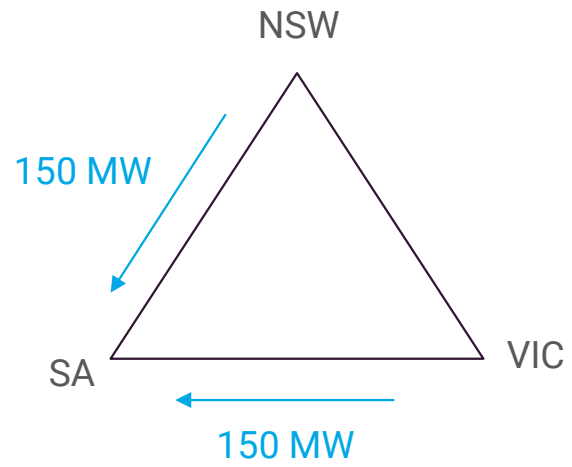
- For a given dispatch interval, determine whether each looped region is net exporting or net importing.
- Determine the net amount transferred from each exporting region to each importing region (see example). There will only be 'net trade' on two arms.
- The payout for each unit category is the price difference multiplied by the net trade.
- The payouts on each arm will generally be positive, but in the case that one arm is negative, this amount would be netted off from the positive arm.

Actual flows



Net exports/imports
NSW exports 150 MW
VIC exports 150 MW
SA imports 300 MW

Net trade



Unit category	Payout (in the dispatch interval*)
NSW-SA	150 x ($50 - $30) = $3000
VIC-SA	150 x ($50 - $40) = $1500
All others	$0
Total	**$4500**

*In this example, we have set the dispatch interval to one hour to simplify the calculation.

In considering this option we are also conscious we would need to consider transitional arrangements for existing SRDUs

- If this option was to be taken forward, we would need to consider the impact of any new framework on the existing SRDUs that have already been sold.
- A netting approach could change the payouts of SRD units that have been sold.
    - For example, on the existing NSW-VIC and VIC-SA interconnectors.
- There are existing arrangements to cancel or re-sell units if they choose. This could help SRDU holders mitigate their risk and is permitted under the auction participation agreement if there is a change in how the payout is calculated.
- AEMO has discretion to re-auction any cancelled units. We are thinking through these issues further and are interested in your feedback.

We are also considering netting off in net negative cases

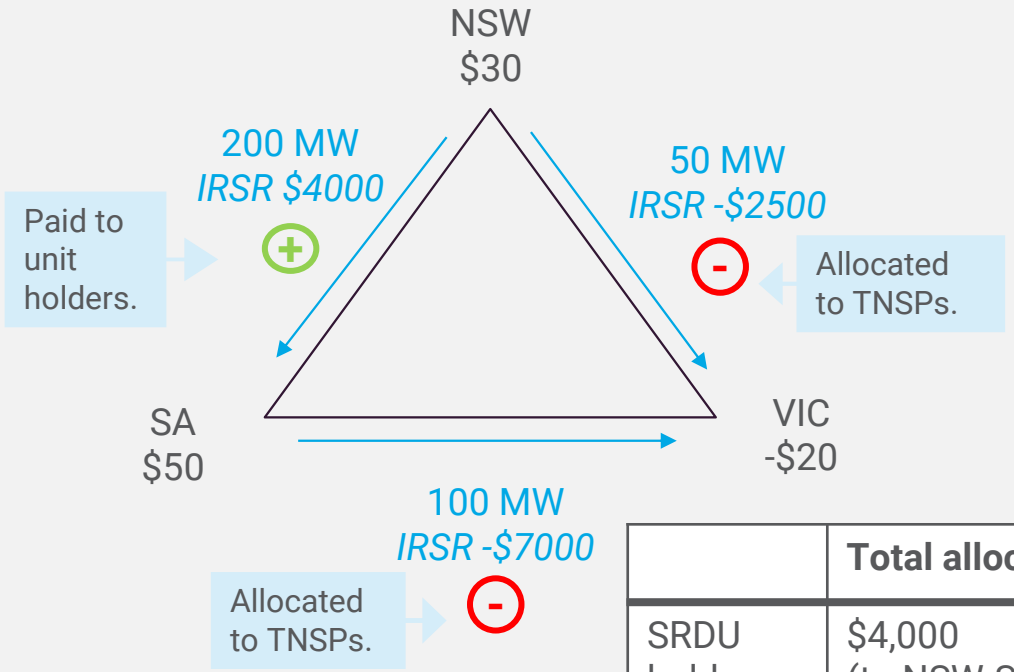
We consider that netting off in all cases is likely to promote consistency and stable outcomes

- Netting off recognises the behaviour of the transmission loop as a whole.
- The flows on the arms of loop are not independent of each other, even in net negative cases.
- Netting off in net negative cases would provide continuity when the net loop IRSR passes through zero.

We are also considering netting off in net negative cases

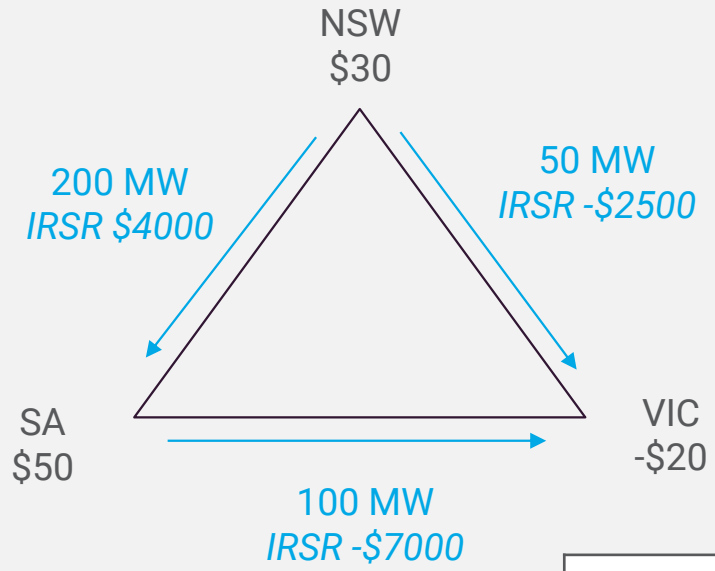
Netting off in net negative cases would mean that only the net negative IRSR is recovered from TNSPs. This example shows how netting off in net negative cases would affect SRDU payouts and the amount recovered from TNSPs.

If we were **not to net off**, TNSPs would be allocated the negative IRSR on each arm (and the positive would be paid out to unit holders).



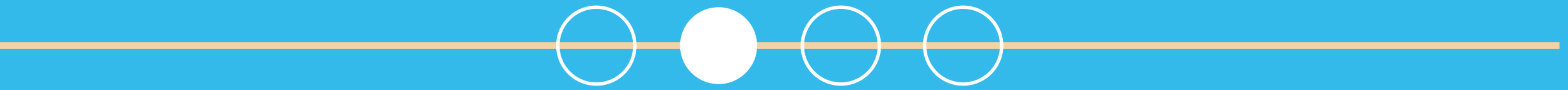
	Total allocation
SRDU holders	$4,000 (to NSW-SA units)
TNSPs	-$2,500 + -$7,000 = **-$9,500**

If we were to **net off**, TNSPs would be allocated the net IRSR around the loop (and nothing would be paid to unit holders).



Loop IRSR:
$4000 +
-$2,500 +
-$7000
= **-$5,500**

	Total allocation
SRDU holders	$0
TNSPs	**-$5,500**



Discussion (25 mins)

Questions to guide stakeholder discussion: Netting off

We are interested in stakeholders' views on the following questions –

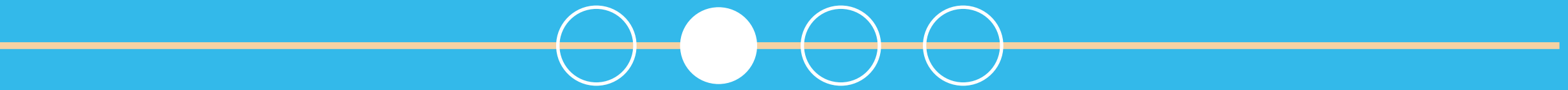
1. Do stakeholders have a preferred design option between Options 2 & 3 for netting off in net positive cases? Why?

2. How could netting off impact inter-regional hedging? Is there a difference in Options 2 or 3 for benefits or impacts on inter-regional hedging?

3. What other considerations do stakeholders consider important? Have we missed anything?

4. Do stakeholders have any comments on what issues we should be considering in transitional arrangements? Do the considerations differ between Options 2 and 3?

5. What are stakeholders' views on netting off in net negative cases?



PART 4: Next steps & final questions

NEXT STEPS

We welcome stakeholder feedback on today's discussion, by 17 April.

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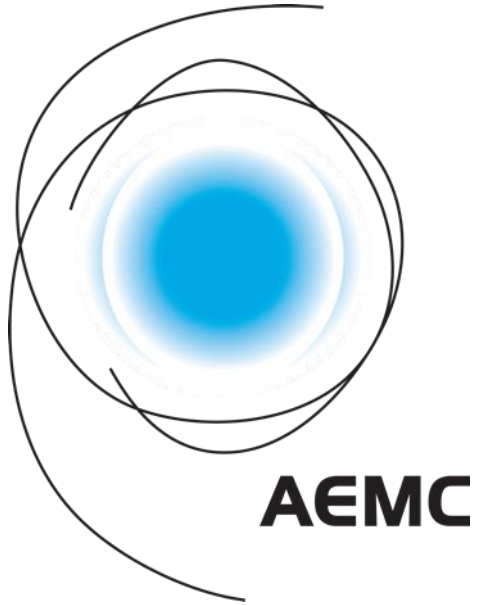

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