19 January 2023

Project Energy Connect Implementation
AEMO

Submitted by email to: StakeholderRelations@aemo.com.au

Dear Sir/Madam

AEC Submission to Project Energy Connect Implementation Paper

The Australian Energy Council (AEC) welcomes the opportunity to make a submission in response to the Implementation Paper for Project Energy Connect (PEC).

The Australian Energy Council is the peak industry body for electricity and downstream natural gas businesses operating in the competitive wholesale and retail energy markets. AEC members generate and sell energy to over 10 million homes and businesses and are major investors in renewable energy generation. The AEC supports reaching net-zero by 2050 as well as a 55 per cent emissions reduction target by 2035 and is committed to delivering the energy transition for the benefit of consumers.

Adequacy of Consultation Material

The AEC considers the management of negative residues around PEC and implications for the structure of Settlement Residue Auction (SRA) instruments to be an important and enduring decision for AEMO. AEMO's decision should in turn be informed by well-informed market commentary.

Unfortunately the material provided in the Paper is not yet at a point that can support well-informed commentary. Until additional information is provided, the market should not be asked to express a preferred implementation. Fortunately, the AEC believes there remains sufficient time for this to occur.

Matters that are critical to forming a view on preferred implementation, but are not yet clear are:

1. The exact structure of the network at the various stages of PEC implementation, in particular with respect to the phase-shifting transformers.
2. The delivery timelines of the various PEC stages, compared against the SRA instrument auction timeline.
3. How the different stages of PEC are expected to operate and the expected incidence of negative residue at each stage?
4. How the phase-shifting transformers are intended to operate and how the dispatch process will interact with that operation?
5. To what extent negative residues are expected to accumulate given the proposed operation of the phase-shifting transformers?
6. Worked examples, similar to those presented in the appendix, using a realistic constraint representation taking into account the operation of the phase-shifting transformers. All examples should also be provided in Excel form.
7. Why the micro-slice option, which is discussed in sections 3.2 and 3.4, was not listed as an option in section 4.2?
8. A modelled estimate of the magnitude of positive and negative residues. This could be achieved by feeding the worked examples above in (6) with historical trends in price and interconnector flows.
9. A re-worked appendix A2.1 showing how option 3 (transferred residues) would operate with a realistic constraint equation as suggested above at (6).

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10. A worked example of option 2 (bundled SRA units) showing how traders might be able to use such bundles to manage inter-regional risk, and an explanation of why it would limit the number of units sold at auction?
11. A financial analysis of the residues accumulating during the final months of the snowy region when a solution similar to that of option 3 was employed to manage its spring washer characteristics.

Timeline for consultation

Although not covered in the paper, discussions suggest that AEMO is considering a micro-slice implementation for Stage 1 of PEC, and negative residues are not expected to be a material concern for this stage. If this is the case, then the question being raised in this paper only applies from Stage 2. The ISP lists stage 2 as expected full completion in July 2026[1], preceded by some inter-network testing. Tranche 1 of the Q32026 SRA instruments are scheduled to be auctioned on 15 September 2023.

This timeline appears to provide AEMO the first 8 months of 2023 to determine the preferred approach before auctioning instruments that will be affected by it. Importantly, only the decision is price sensitive, not its implementation which can occur later than 15 September 2023. The AEC considers that this 8 months provides AEMO adequate time to:

- Publish an additional paper which covers the material that the AEC considers necessary for the market to develop an informed view;
- Conduct a public forum which works comprehensively through the material; and
- Provide a month of consultation time after publication for submissions.

If the extended time results in the decision impacting some on foot SRA instruments, for example those relating to the inter-network testing period, then this undesirable but not fatal. As discussed in the paper, the Settlement Residue Committee has an existing practice of allowing purchasers of instruments affected by a material change in approach to surrender them to re-auction. The benefits of a more informed enduring market choice far exceeds this minor detraction.

Options Preference

As discussed above, the AEC feels it has inadequate information to form a clear view on the options as presented. The following should be considered high-level theoretical opinion only, awaiting more detailed information.

Micro-Slice has attractions regarding trading simplicity and consistency with the existing radial interconnector representations. The AEC understands that AEMO did not list this as an option because it can produce large net negative residues without a clear funding source. If so, the AEC agrees that would be problematic. However, this concern should be demonstrated theoretically and practically through a realistic constraint equation.

Option 4 (Financial Transmission Rights [FTR]) seems to be a reform beyond the scope of the issue. Even if the congestion management proposals being pursued by the Energy Security Board are implemented, they would not create a platform suitable to support this option.

Option 2 (Bundling of SRAs along pathways) presents conceptual challenges. The theory is not well explained in 4.2.2 and could benefit from diagrams and a worked example, particularly showing how traders seeking to manage inter-regional price risk would acquire SRA units in this option. The paper states AEMO would have to limit the number of units auction, which would be a disadvantage, but does not explain why.

Assuming the paper's listed disadvantages are a fair reflection, the AEC would consider this option unpreferred.

[1] https://aemo.com.au/-/media/files/major-publications/isp/2022/2022-documents/a5-network-investments.pdf?la=en

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Option 1(a) (Removal of clamping with negative residues recovered from TNSPs) has received some interest from AEC membership as it is simplest with respect to changes to arrangements for inter-regional trading. The obvious challenge would be the unknown cost of funding these residues which would fall initially upon TNSPs who would pass them onto customers. It has been suggested that a quarter's auction proceeds could be first drawn upon before recovering funding from TNSPs.

The materiality of the negative residues is critical to the workability of this option, but is entirely unpredicted by the paper. For all parties to form a view on this option, back-cast style modelling as suggested in (8) of our list of additional material is essential.

Option 1(b) and 1(c) (funding of negative residues from SRA instrument holders) change the nature of SRA instruments from being purely a receivable to a potential liability. It would appear to destroy their value as an inter-regional price hedge such that it becomes purely a speculative instrument. As discussed in the paper, as a liability it would necessitate collateral from SRA holders. It could even result in instruments being auctioned at a *negative* price.

For these reasons 1(b) and 1(c) are not preferred by the AEC.

Option 3 (funding of negative residue from the associated larger positive residue) has a brief NEM precedent as it was implemented to manage a similar issue in the final months of the subsequently abolished snowy region.

> *"The Southern Generators' proposal aims to eliminate the risk of Victoria to Snowy IRSR units (in either direction) being in deficit, thereby eliminating the reason for NEMMCO to intervene in the operation of the market to impose clamping. Under the Southern Generators' proposal, in the case of either northward or southward power flows, positive settlement residues accumulated on the interconnector between Snowy and NSW would be used to offset negative settlement residues accumulated on the interconnector between Victoria and Snowy."*[2]

The PEC paper could benefit from a historical account of these months with some financial analysis of how effective the option proved in managing negative residues and inter-regional price risk for SRA instrument holders.

In nodal markets where spring washer effects are common, the pooling of negative and positive residue to support FTRs implicitly achieve the same outcome. Whilst the NEM has no intention of ever introducing nodal pricing and global FTRs, the approach suggested in this option seems most consistent with the standard international approach, albeit applied here to only three flowpaths.

The AEC suggests the worked example of this option should be extended to discuss how a trader would hedge inter-regional price risk across the three limbs. The AEC suspects that when such material is published and then explained through public forums, that this option will eventually garner broad support.

Impact of ESB's concurrent reforms on congestion management

The Paper asks for commentary on how this may change the option chosen because "Both congestion management models are likely to change the way settlement residues accrue to interconnectors."

The AEC is not certain about the relevance. It is true that the calculations in both models transfer some constraint residue between different players affected by a constraint, however interconnectors exist in each scheme with lowest priority, which is the same as in the status quo arrangements.

[2] https://www.aemc.gov.au/sites/default/files/content/5b52054f-f235-4264-b6dd-83850431 94c1/Final-Rule-Determination.pdf

It is possible that for radial interconnectors, negative residues become less common because of the incentives for more efficient generator dispatch than status quo. However that is a different matter. The PEC issue relates to negative residues that occur in limbs of a priced loop, even with fully efficient dispatch. Hence AEC's initial view is that the negative residue issue for PEC is likely to be unchanged by the introduction of one of these schemes.

Any questions about this submission should be addressed to Ben.Skinner@energycouncil.com.au or by telephone on (03) 9205 3116.

Yours sincerely,

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