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4 October 2024

Anna Collyer
Chair
Australian Energy Market Commission

By online submission

Dear Ms Collyer,

Amendment to Frequency Performance Payment (FPP) Cost Recovery

Through AEMO's work to implement the 2022 Primary Frequency Response (PFR) Incentives Rule Change, it has become aware of a need for minor amendment to the Rules for cost allocation for units without high-speed metering – a portion of costs called 'the residual'.

AEMO's proposed amendment is to change NER 3.15.6AA so it uses the concepts of adjusted sent out energy (ASOE) and adjusted consumed energy (ACE) instead of adjusted gross energy (AGE) as a basis for non-energy cost allocation for the residual. The rationale for this proposal is twofold:

- AEMO understands that its proposal is better aligned with the intent of previous Rule determinations than the current drafting of the Rules.
- To implement the current NER would be more costly from a market systems perspective and create greater risks of delay than AEMO's proposal. The PFR Incentives Rule Change is effective from 8 June 2025.

AEMO proposes that this amendment be expedited on the basis that it is non-controversial. The attached proposal document provides further context and explanation.

AEMO recognises and appreciates the scale of regulatory change that has been delivered by the AEMC in recent years, including several reforms to better manage power system frequency. AEMO looks forward to continued collaboration with the AEMC on this Rule Change. Please contact Paddy Costigan, acting General Manager of Strategic Market Reform, at paddy.costigan@aemo.com.au should you wish to discuss this proposal.

Yours sincerely,

Violette Mouchaileh
Executive General Manager – Reform Delivery

Attachments: Electricity Rule Change Proposal – Amendment to Frequency Performance Payment Cost Recovery

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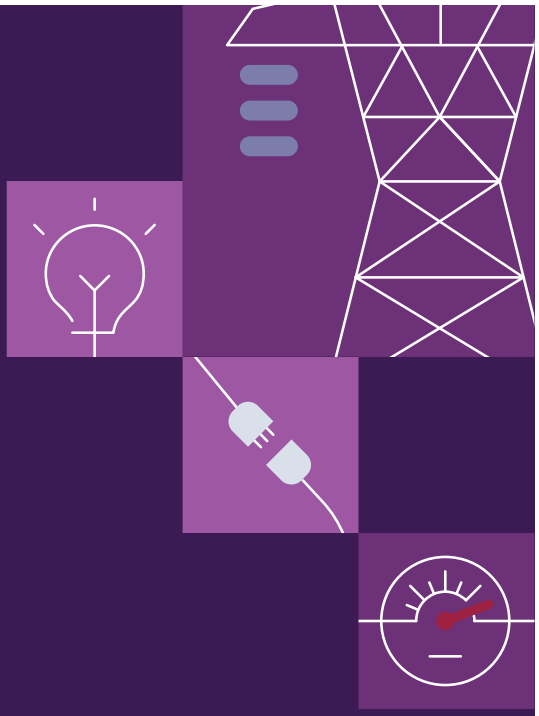

Electricity Rule Change Proposal

Amendment to Frequency Performance Payment Cost Recovery

October 2024

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New South Wales | Queensland | South Australia | Victoria | Australian Capital Territory | Tasmania | Western Australia

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1. Summary

Building on the Five-Minute Settlements and Global Settlements Rule, the 2021 Integrating Energy Storage Systems into the NEM (IESS) Rule changed the cost allocation of non-energy costs. The previous approach of categorising connection points as either generator or customer was being challenged by the installation of large batteries or distributed generation at the household level. To address this challenge, the IESS Rule introduced the concepts of adjusted sent out energy (ASOE) and adjusted consumed energy (ACE). The Rules required these new data concepts be recorded separately each trading interval for all cost recovery market participants (CRMPs) – a new concept incorporating generators, customers, and integrated resource providers. These concepts were to be applied 'as applicable' to the recovery of non-energy costs. For example, ASOE would be used to recover contingency raise frequency control ancillary services (FCAS) and ACE would be applied to contingency lower FCAS. Using separate concepts of ASOE and ACE meant problems like a customer connection point being paid a share of non-energy costs, or generation and consumption netting off could be avoided in settlements – leading to a wider allocation of non-energy costs. As a result of the IESS Rule, AEMO's systems now only use ASOE and ACE in non-energy cost recovery.

The Primary Frequency Response (PFR) Incentives Rule was made after the IESS Rule. It used the concept of Adjusted Gross Energy (AGE) as a basis for non-energy cost recovery from units without appropriate (high-speed) metering – a portion of costs often called 'the residual'.

AGE is the sum of ASOE and ACE and used for energy settlements. Given ASOE is a positive value and ACE is negative, AGE is effectively a measure of *net* generation and consumption. The reason AGE should be avoided for non-energy costs is because it can be negative, or nets off over certain periods, and therefore a participant may be paid a share of, or avoid paying, non-energy costs.

AEMO believes the use of AGE (in the PFR Incentives Rule) for non-energy cost recovery was a misapplication of the IESS rule. The aim of the IESS rule is explicit in the Final Determination (and described in later sections of this proposal). The aim of the PFR Incentives Rule was implied by the Draft Determination, which had *customer energy* and *generator energy* liable for 'residual' costs under the PFR Incentives Rule[1] - suggesting that both generation and consumption would be liable for non-energy costs. The Final Rule's addition of the "absolute value of AGE" in clause 3.15.6AA does make both generation and consumption liable to an extent, however, using "absolute" in reference to "AGE" is not exactly the same as how the IESS Rule aimed to use ASOE and/or ACE, nor how it was later implemented in AEMO's non-energy cost settlement systems. AEMO aims to correct this minor misapplication with this proposal.

AEMO's proposal would make the quantities of ASOE and ACE liable for non-energy cost recovery. When compared to using the absolute value of AGE the proposal only affects trading intervals when a connection point has both ASOE and ACE metered quantities in the same trading interval. An example could be when a household's electricity demand exceeds rooftop PV production for only a few minutes in the trading interval. It is important to realise that although ASOE and ACE can have separate measured quantities for a trading interval, they

[1] *Customer energy* and *generator energy* are terms that pre-date the IESS rule.

cannot happen simultaneously, being metered quantities at the connection point. Therefore, any rooftop PV generation that is consumed at the household is not recorded in ASOE and ACE.

The issues described above relate to reform aims. In addition to these, the current Rule drafting also has issues for AEMO's market systems. To implement the current Rules would require unwinding of some of the settlement system changes introduced through the IESS Rule. AEMO is concerned it cannot implement the PFR Incentives Rule as drafted because it cannot complete such changes by 8 June 2025 and it does not wish to incur unnecessary costs to doing so.

Further, the relevant market systems that could give effect to the current Rules are not currently affected by internal AEMO projects to implement the PFR incentives Rule. Therefore, changes to these systems would require an extensive amount of testing and set back the project.

AEMO requests that:

- The National Electricity Rules (NER) be amended to remove the reference to absolute value of AGE in non-energy cost recovery, replacing this with the absolute values of ASOE and ACE.
- This amendment be expedited on the basis that it is non-controversial. In support of this, AEMO notes that the settlement changes from the PFR Incentives Rule have not yet been implemented, AEMO's rule change proposal has an insignificant effect on settlements, and the proposal would avoid needless implementation costs.

2. Relevant Background

2.1. Current framework

2.1.1. IESS Rule and non-energy cost recovery

Building on significant modifications to settlements from the Five-Minute Settlements and Global Settlements Rule changes, the IESS Rule fundamentally changed settlements by departing from a 'category-based' approach to a directional approach.

Energy at a connection point was no longer categorised as either 'generator' or 'customer'. Instead, through the introduction of the ASOE and ACE concepts, energy became 'sent out' or 'consumed' energy, regardless of the type of connection point from which it derives.

The IESS Rule also made changes to non-energy cost recovery. This included recovery from a newly defined grouping of participants, being *cost recovery market participants* (CRMPs).

Non-energy costs, rather than being allocated on energy from categories of connection point, was instead based on each CRMP's proportion of ASOE or ACE.

CRMPs are:

- Market generators
- Integrated resource providers
- Market customers

This change was necessary because a category of connection point (e.g. customer, generator etc.) was no longer a reliable indicator of consumption or generation. With increased prevalence of distributed generation and battery storage systems, connection points could routinely switch from consuming to sending out energy, sometimes within a settlement interval. Whilst net values are appropriate for energy settlement, the IESS Rule intended to apply the gross value[2] of ASOE and ACE to non-energy cost recovery settlement. This is explicit in highlighted box in the excerpt from section B.3 of the IESS Final Determination:

[2] Strictly, the gross *absolute* value of the two streams. ACE values are negative, ASOE values are positive.

Figure 1 Excerpt from section B.3 of IESS final determination

B.3 The Commission's analysis and final decision

The Commission's final decision maintains the draft decision with one minor amendment (and a limited number of drafting corrections). The minor amendment is to remove demand response service providers from the definition of cost recovery market participants. That is, to maintain the existing approach where demand response service provides are not liable for the recovery of non-energy costs.

The final decision amends the non-energy costs recovery framework to align with the overarching principle that recovery of these costs should be on a beneficiary/causer pays approach, or if that is not possible then costs should be dispersed as broadly as possible. Therefore, the recovery of non-energy costs will be based on a participant's gross consumed energy and/or gross sent out energy in an interval (as applicable), irrespective of what participant category it is registered in. Consumed and sent out energy will be measured separately for all market participants i.e. consumed and sent out energy data in an interval will be measured separately and not netted among different connection points nor at a single connection point in any interval during which energy has been both sent out and consumed.

This approach will not count energy that is both produced and consumed behind the connection point for the purposes of calculating non-energy costs, for example, rooftop solar production that is consumed on site.

This decision requires two main changes:

- The use of two new data streams in non-energy cost recovery — adjusted sent out energy (ASOE) and adjusted consumed energy (ACE), which will be available after global settlement is implemented in May 2022 where the necessary metering is in place.
- Non-energy cost recovery would be based on a participant's gross energy flows i.e. gross consumed (i.e. ACE) or exported (i.e. ASOE) during relevant intervals, rather than the category a participant is registered in.

2.1.2. IESS Rule cost recovery for the 'residual'

This section of the proposal specifically describes the recovery of non-energy costs for 'residual' units that do not have appropriate metering as specified by NER 3.15.6.A(i)(2) from the IESS Rule Change.

This section is included because it shows how the IESS Rule works and is the precursor to the clause in the NER that AEMO proposes amending. As shown below, 3.15.6.A(i)(2) was amended to introduce ACE and CRMP, instead of *customer energy* and *market customer* respectively.

Figure 2 NER 3.15.6.A(i)(2) from the IESS Rule Change

~~in relation to~~ each *Cost Recovery Market Participant* ~~*Market Customer*~~ for whom the *trading amount* is not calculated in accordance with the formula in subparagraph (1), an ancillary services transaction occurs, which results in a trading amount for that *Cost Recovery Market Participant* ~~*Market Customer*~~ determined in accordance with the following formula:

$TA = PTA \times -1$

and

$$PTA = \text{the aggregate of} \left(TSFCAS \times \frac{MPF}{AMPF} \times \frac{TCE}{ATCE} \right)$$

for each *trading interval* for *global market ancillary service requirements* and *local market ancillary service requirements* where:

TA (in $)	=	the *trading amount* payable by the *Cost Recovery Market Participant* in respect of the relevant *region* and *trading interval*;~~the *trading amount* to be determined (which is a negative number);~~
TSFCAS (in $)	=	has the meaning given in subparagraph (1);
MPF (a number)	=	the aggregate of the contribution factor set by *AEMO* under paragraph (j) for *Cost Recovery Market Participants*~~*Market Customers*~~, for whom the *trading amount* is not calculated in accordance with the formula in subparagraph (1) for the *region* or *regions* relevant to the *regulating raise service* or the *regulating lower service*;
AMPF (a number)	=	the aggregate of the MPF figures for all *Cost Recovery Market Participants*~~*Market Participants*~~ for the *trading interval* for the *region* or *regions* relevant to the *regulating raise service* or *regulating lower service*;
TCE (in MWh)	=	the *adjusted consumed energy* amounts ~~*customer energy*~~ for the *Cost Recovery Market Participant* ~~*Market Customer*~~ for the *trading interval* in the *region* or *regions* relevant to the *regulating raise service* or *regulating lower service*; and
ATCE (in MWh)	=	the aggregate of the *adjusted consumed energy* amounts ~~*customer energy figures*~~ for all *Cost Recovery Market Participants*~~*Market Customers*~~, for whom the *trading amount* is not calculated in accordance with the formula in subparagraph (1), for the *trading interval* for the *region* or *regions* relevant to that *regulating raise service* or *regulating lower service*.

Appendix A describes more comprehensively how non-energy cost recovery was modified through the IESS rule change. Where customer connection points were previously used, ACE is used, and where generator connection points were previously used, ASOE is used. Notably, the pre-IESS Rules concepts of *customer energy* and *generator energy* both refer to AGE in their definition. Therefore, by removing these concepts from non-energy cost recovery sections of the NER, the IESS effectively removed AGE from these sections too.

It is clear from this and the previous section (2.1.2) that, after the IESS Rule, CRMPs responsible for connection points with both ASOE and ACE amounts in a trading interval will be liable for the separate charges these streams accrue.

2.1.3. PFR Incentives Rule

In the National Electricity Market (NEM), the central dispatch process makes assumptions about the state and needs of the power system 5 minutes into the future and then issues targets to scheduled units assuming these units follow a straight-line trajectory from their current to their target state. The algorithm that determines targets is called the NEM dispatch engine (NEMDE). NEMDE incorporates dispatch constraints that ensure that instructions to units respect the technical limits of the power system and reflect requirements such as FCAS.

In practice, there are a range of factors that could lead to differences between the outcomes assumed by NEMDE and outcomes on the actual power system during normal operation. These include errors in 5-minute forecasts, variations in demand within 5-minute dispatch intervals, and scheduled generator/load variations to their straight-line trajectories (including units failing to start).

To manage these differences in normal system operation, or 'dispatch errors', NEM regulatory frameworks include mechanisms whereby units provide corrective response. Primary corrective response (i.e. PFR) comes through local and automatic response that is inverse and in proportion to the change in frequency[3]. Secondary response comes through Regulation FCAS, where unit outputs are adjusted to correct dispatch error using AEMO's centrally administered Automatic Generation Control (AGC) system, which runs based on 4-second Supervisory Control and Data Acquisition (SCADA).

Under the PFR Incentives Rule of 2022, the requirement for mandatory PFR was supplemented with a double-sided system of penalties and rewards for dispatch performance within a trading interval. This system is called Frequency Performance Payments (FPP) and is to commence 8 June 2025. The PFR Incentives Rule introduced mechanisms to allocate the costs of FPPs and it will also apply these mechanisms to allocate the costs of Regulation FCAS, replacing the current 'Causer Pays' framework.

Both Regulation FCAS and FPPs rely on the same high-speed (4-second) data to allocate costs. Units with 4-second data are allocated costs based on a calculated 'contribution factor' that reflects their performance. 'Residual' units without high-speed metering (typically loads and distributed generation) are allocated costs as a group, with a single contribution factor, then distributed based on ACE and/or ASOE. The treatment of the residual in the PFR Incentives Rule is covered by NER 3.15.6AA(b)(2), shown below. Note that this clause is also referenced by NER 3.15.6AA(c)(2) and (d)(2). NER 3.15.6AA(b)(2), (c)(2) and (d)(2) cover the

[3] The 2020 Mandatory PFR Rule introduced requirements on all scheduled and semi scheduled generators to provide PFR

allocation of 'residual' costs for FPPs, regulation services used and regulation services not used respectively.

Figure 3 Excerpt from NER 3.15.6AA(b)(2) from the PFR Incentives Rule Change

each eligible unit which does not have appropriate metering, an *ancillary services transaction* occurs, which results in a *trading amount* for the relevant *Cost Recovery Market Participant* determined in accordance with the following formula:

$$TA = RCF \times \frac{P_{regulation}}{12} \times RCR \times \frac{TE}{ATE}$$

for each *trading interval* for each *global market ancillary service requirement* and each *local market ancillary service requirement*, where:

TA (in $)	=	the *trading amount* payable or receivable by the *Cost Recovery Market Participant*;
RCF (a number)	=	the residual contribution factor for eligible units that do not have appropriate metering, for the relevant *trading interval* and relevant to the *global market ancillary service requirement* or *local market ancillary service requirement* for the *regulating raise service* or *regulating lower service*, having regard to the principle in paragraph (f)(4);
$P_{regulation}$ (in $ per MW per hour)	=	has the meaning given in subparagraph (1);
RCR (in MW)	=	has the meaning given in subparagraph (1).
TE (in MWh)	=	the sum of the absolute value of any *adjusted gross energy* amount, for the *Cost Recovery Market Participant* for an eligible unit that does not have appropriate metering, for the *trading interval* in the *region* or *regions* relevant to the *global market ancillary service requirement* or *local market ancillary service requirement* for the *regulating raise service* or *regulating lower service*; and
ATE (in MWh)	=	the aggregate of the absolute value of *adjusted gross energy* amounts for all *Cost Recovery Market Participants*, for eligible units that do not have appropriate metering, for the *trading interval* for the *region* or *regions* relevant to the *global market ancillary service requirement* or *local market ancillary service requirement* for the *regulating raise service* or *regulating lower service*.

PFR Incentives Rule – Draft Determination

Through the PFR Incentives Rule, AEMO understands that the Commission intended for all energy, whether generation or consumption, to be liable for payment if it formed part of the 'residual'. This is reflected in the introduction of TE/ATE (as opposed to TCE/ATCE[4]) and application of costs to all market participants (as opposed to market customers) through the PFR Incentives Draft Determination[5]. An excerpt from the Draft Rule is shown below in Figure 4.

AEMO understands that this change from *customer energy* to the absolute value of *customer energy*, *generator energy*, and *small generator energy* to distribute costs to participants for load or generation that did not have the appropriate high-speed metering was deliberate. The changes created incentive to install appropriate metering and have a contribution factor calculated directly. This would reduce costs allocated through the residual and could even see units being paid under the Frequency Performance Payments.

[4] Defined in the Rules excerpt in section 2.1.2, with mark-up shown for the IESS Rule change.
[5] The PFR Incentives Draft Determination was made on a version of the NER that did not include the drafting for the IESS Rule. The Final Determination was made on a version of the Rules that included the drafting for the IESS Rule.

Figure 4 Excerpt from 3.15.6A(i)(2) from the PFR Incentives Draft Rule

in relation to each *Market Participant* for whom the *trading amount* is not calculated in accordance with the formula in subparagraph (1), an *ancillary services transaction* occurs, which results in a *trading amount* for that *Market Participant* determined in accordance with the following formula:

$$TA = \text{the aggregate of} \left(TSFCAS \times \frac{RMPF}{NAMPF} \times min\left(\frac{RR}{EA}, 1\right) \times \frac{TE}{ATE} \right) \times -1$$

for each *trading interval* for *global market ancillary service requirements* and *local market ancillary service requirements* where:

TA (in $)	=	the *trading amount* to be determined (which is a negative number);
TSFCAS (in $)	=	has the meaning given in subparagraph (1);
RMPF (a number)	=	the aggregate residual contribution factor for the relevant *trading interval* set by *AEMO* for the *Market Participants* under paragraph (j) for whom the *trading amount* is not calculated in accordance with the formula in subparagraph (1), for the *region* or *regions* relevant to the *regulating raise service* or *regulating lower service* (which is a negative number);
NAMPF (a number)	=	has the meaning given in subparagraph (1);
TE (in MWh)	=	the sum of the absolute value of any *customer energy*, *generator energy* and *small generator energy* for the *Market Participant* for the *trading interval* in the *region* or *regions* relevant to the *regulating raise service* or *regulating lower service*;
ATE (in MWh)	=	the aggregate of the absolute value of *customer energy*, *generator energy* and *small generator energy* figures for all *Market Participants*, for whom the *trading amount* is not calculated in accordance with the formula in subparagraph (1), for the *trading interval* for the *region* or *regions* relevant to the *regulating raise service* or *regulating lower service*;

2.1.4. Summary - rules chronology

The IESS Rule was made in between the Draft and Final Determinations of the PFR incentives Rule. This meant the amendments for the final PFR Incentives Rule were made on a version of the NER that included the IESS Rule. This was necessary because the IESS Rule commenced prior to the PFR Incentives Rule.

Under the PFR Incentives Rule, these costs allocated to the "residual" for FPP and for Regulation FCAS are distributed to each market participant responsible for the relevant market connection point based on the ratio of the *adjusted gross energy* of that connection point to all market connection points that are assigned to the residual (that do not have appropriate metering).

To follow the changes sequentially for allocation of 'residual' non-energy costs:

Table 1 Basis for allocation of 'residual' non-energy costs for various rule change stages

Ruling	NER clause(s)	Ratio used to allocate costs	Specification of energy in ratio	Participant for which allocation applies
Pre-IESS Rule	3.15.6.A(i)(2)	TCE/ ATCE	*customer energy* for the *Market Customer*	Market Customer
PFR Incentives (Draft Rule)	3.15.6A(i)(2) [not made]	TE/ ATE	sum of the absolute value of any *customer energy*, *generator energy* and *small generator energy* for the *Market Participant*	Market Participant
IESS Rule	3.15.6A(i)(2)	TCE/ ATCE	*adjusted consumed energy* amounts for the *Cost Recovery Market Participant*	CRMP
PFR Incentives Rule	3.15.6AA(b)(2)	TE/ ATE	sum of the absolute value of any *adjusted gross energy* amount, for the *Cost Recovery Market Participant* that does not have appropriate metering	CRMP

3. Statement of Issue

3.1. Current Rules – PFR Incentives Rule

For this proposal AEMO considers the "current rule" should be considered as the rule made on 8 September 2022 (the PFR Incentives Rule) which commences 8 June 2025. This rule change introduced new calculations to allocate the costs of frequency performance payments and regulation services. The relevant calculations for this rule change proposal are in NER 3.15.6AA(b)(2), (c)(2) and (d)(2). These clauses describe the allocation of trading amounts for cost recovery market participants that do not have appropriate (high-speed) metering. The calculations depend on two terms, TE and ATE, defined as:

Figure 5 TE and ATE defined in NER 3.15.6AA(b)(2) from the PFR Incentives Rule Change

TE (in MWh)	=	the sum of the absolute value of any *adjusted gross energy* amount, for the *Cost Recovery Market Participant* for an eligible unit that does not have appropriate metering, for the *trading interval* in the *region* or *regions* relevant to the *global market ancillary service requirement* or *local market*
ATE (in MWh)	=	the aggregate of the absolute value of *adjusted gross energy* amounts for all *Cost Recovery Market Participants*, for eligible units that do not have appropriate metering, for the *trading interval* for the *region* or *regions* relevant to the *global market ancillary service requirement* or *local market ancillary service requirement* for the *regulating raise service* or *regulating lower service*.

3.2. Issues with the current Rule

The Primary Frequency Response (PFR) Incentives Rule was made after the IESS Rule. It used the concept of Adjusted Gross Energy (AGE) as a basis for non-energy cost recovery from units without appropriate (high-speed) metering – a portion of costs often called 'the residual'.

AGE is the sum of ASOE and ACE and used for energy settlements. Given ASOE is a positive value and ACE is negative, AGE is effectively a measure of *net* generation and consumption. The reason AGE should be avoided for non-energy costs is because it can be negative, or nets off over certain periods, and therefore a participant may be paid a share of, or avoid paying, non-energy costs.

AEMO believes the use of AGE (in the PFR Incentives Rule) for non-energy cost recovery was a misapplication of the IESS rule. The aim of the IESS rule is described in section 2.1.1 of this proposal. The aim of the PFR Incentives Rule is described in section 2.1.3 of this proposal.

Despite using "absolute" in reference to "AGE" (in the PFR Incentives Rule) it is not *exactly* how the IESS Rule aimed to use ASOE and/or ACE, and therefore not easy to implement in AEMO's non-energy cost settlement systems.

The primary issue with the Rule is the difficulty in implementing it, not the settlement effects, which AEMO considers are not going to have a significant effect on the power system.

Using AEMO's non-energy cost systems as per the IESS Rule implementation, both quantities of ASOE and ACE would be liable for non-energy cost recovery. When compared to using the absolute value of AGE (as stipulated by the PFR Incentives Rule) this would affect settlements only when a connection point has both ASOE and ACE metered quantities in the same trading interval. That is, the connection point would have sent out energy at one point in the trading interval, and consumed energy in another - an example could be when a household connection point's electricity demand exceeds rooftop PV production for only a few minutes in the trading interval. It is important to realise that although ASOE and ACE can have separate measured quantities for a trading interval, they cannot happen simultaneously, being metered quantities at the connection point. Therefore, any generation that is consumed at the connection point is not recorded in ASOE and ACE.

The settlement effect is shown in the following table. The table shows three trading intervals, one where the connection point was only consuming energy, another only sending out energy and the third metered as having both sent out at one point in the interval and consumed at another. It is only in this last case where a difference in settlement amount is observed.

Table 2 Various energy concepts for a sample interval at a connection point with 2-way flows

Interval	1	2	3	Notes
ASOE	0	10	5	ASOE positive
ACE	-10	0	-5	ACE negative
AGE	-10	10	0	ASOE + ACE
ABS(AGE)	10	10	0	As per NER
ABS(ASOE) + ABS(ACE)	10	10	10	As proposed

AEMO considers this settlement difference will not have a significant effect on the power system. For most trading intervals a connection point within the residual cost allocation will either be sending out energy or consuming energy, and the minor differences in cost allocation are very unlikely to affect consumer behaviours – particularly given these are connection points that do not have appropriate metering and have no individual contribution factor.

AEMO considers the aim of the PFR Incentives Rule was certainly to make any generation and consumption liable for a share of residual costs. AEMO does not consider there was a specific aim to deviate from the IESS Rule by specifying the absolute value of AGE be used instead of using ASOE and ACE metered quantities. AEMO would suggest it is more likely that a minor

misapplication of the IESS Rule occurred, particularly given the implementation of non-energy cost recovery was not fully understood at the time, because AEMO had yet to implement the IESS Rule in its systems.

3.2.1. AEMO systems

Following the IESS Rule, AEMO changed its software to allocate ancillary service costs based on two new data concepts: adjusted consumed energy (ACE) and adjusted sent out energy (ASOE).

Figure 6 illustrates why AEMO's systems cannot carry out the calculations currently required by NER 3.15.6AA(b)(2). Please note that the large differences in calculated values A, B and C conceptually demonstrate the impacts of different approaches to netting and aggregation. They are not intended to be representative of the likely magnitude of impact of AEMO's rule change proposal. To interpret the figure, please also note the points below:

- NMIs correspond to 'connection points' as defined in the NER.
- AEMO's retail systems, however, usually aggregate measured generation and consumption to the 'connection point identifier (CPID)' level.
- 'CPIDs' do not correspond to 'connection points' as defined in the NER.
- The figure shows the ASOE and ACE from two NMIs (NMI1 and NMI2) that sit under a CPID (CPID1).

Figure 6 Illustration of the system impacts of various approaches to 'netting'

Measured data legend

NMI-level ASOE and ACE. Note ACE is not available in AEMO's systems at the NMI level.	ASOE and ACE data, aggregated to the CPID-level, available in AEMO's wholesale systems.

		CPID1			CPID-level calculated values	
		NMI1	NMI2		AGE	abs(AGE)
	ASOE	60	10	70	-10	10
	ACE	-30	-50	-80		
NMI-level calculated values	AGE	30	-40	**150**		
	abs(AGE)	30	40			
	sum(abs(AGE))	70				

A

This value:
- Is compliant with the current NER drafting
- Is not aligned with the intent of IESS
- Cannot be calculated by AEMO's systems because it depends on data that is currently not available at the NMI level

B

abs(ASOE) + abs(ACE), this value:
- Can be calculated by AEMO's systems
- Is not compliant with the current NER drafting
- Is aligned with the intent of IESS
- Is compliant with AEMO's proposed rule drafting

C

This value:
- Can be calculated by AEMO's systems
- Is not compliant with the current NER drafting
- Is not aligned with the intent of IESS

Figure 6 derives a value compliant with the current NER (A), a value that AEMO understands is aligned with the intent of IESS and AEMO's proposed amendment (B) and a value with the same calculation as A carried out at a CPID level rather than a connection point level (C). Though values B and C can both be calculated by AEMO's current systems with relatively minor updates, C does not reflect the relevant reform intent and only B is supported by AEMO.

4. How the Proposal will address the issues

4.1. How the proposal will address the issues

AEMO proposes the definition of TE and ATE be amended by removing reference to *adjusted gross energy* and replacing with *adjusted consumed energy* and *adjusted sent-out energy*.

This proposal is compatible with AEMO's settlement systems for non-energy cost recovery and is consistent with both the previous determinations for the IESS Rule and PFR Incentives Rule:

- It is consistent with the IESS Rule, because the PFR Incentives Rule intended that both *generated energy* and *consumed energy* be liable for residual costs – the IESS rule deliberately replaced these with ASOE and ACE.
- It is consistent with the PFR Incentive Rule because it distributes costs to eligible units without appropriate metering irrespective of whether they tend to generate or consume energy. This is useful because it ensures there is incentive for units to install appropriate metering, thus leave the residual, and have a contribution factor calculated individually for that eligible unit.

4.2. Stakeholder engagement

The AEMC consulted on the change to allocating non-energy cost recovery as part of the IESS rule change process. That rule change process was both complex and extensive. The PFR incentives rule change also featured a full consultation process.

As AEMO's rule change proposal supports these rule changes, AEMO submits that the change can be considered non-controversial and only minor, proportionate consultation is necessary or desirable.

Since identifying the need for this implementation amendment, AEMO has highlighted the issue via the regular engagement forums operated as part of the NEM Reform Program. Specifically, this rule change proposal was raised at:

- The Electricity Wholesale Consultative Forum (EWCF) in July (slide 20) and August (slide 9)
- The Program Consultative Forum (PCF) in August 2024 (slide 23).

Attendees at those forums did not express concerns about AEMOs assessment of the issue nor approach in seeking this implementation amendment.

5. Proposed Rule

5.1. Description of the proposed Rule

5.1.1. NER drafting to clause 3.15.6AA

Figure 7 AEMO's proposed drafting of NER 3.15.6AA

TE (in MWh)	=	the sum of the absolute value of any ~~*adjusted gross energy*~~ *adjusted consumed energy* or *adjusted sent-out energy* amount, for the *Cost Recovery Market Participant* for an eligible unit that does not have appropriate metering, for the *trading interval* in the *region* or *regions* relevant to the *global market ancillary service requirement* or *local market ancillary service requirement* for the *regulating raise service* or *regulating lower service*; and
ATE (in MWh)	=	the aggregate of the absolute value of ~~*adjusted gross energy*~~ *adjusted consumed energy* or *adjusted sent-out energy* amounts for all *Cost Recovery Market Participants*, for eligible units that do not have appropriate metering, for the *trading interval* for the *region* or *regions* relevant to the *global market ancillary service requirement* or *local market ancillary service requirement* for the *regulating raise service* or *regulating lower service*.

5.1.2. Expedited as non-controversial

AEMO proposes this amendment be expedited on the basis that it is non-controversial under the National Electricity Law (NEL). The rule change is non-controversial because:

1. It is consistent with decisions the AEMC has already made;
2. Trading and settlement in accordance with the current rules has not commenced;
3. The difference in settlement amounts between the current and proposed method is not large and unlikely to have a significant effect on the power system;
4. There are substantial implementation costs, timing issues, and complexity with the current rule as it stands; and
5. This rule change bears similarities with the Implementing integrated energy storage systems rule change, which the AEMC expedited as non-controversial (in consultation with stakeholders). Both that rule change and this proposal relate to minor adjustments to complex new market structures, the need for which was discovered during the implementation process.

5.2. Transitional matters

AEMO considers there are no transitional matters relating to this rule change request.

6. How the Proposed Rule Contributes to the National Electricity Objective (NEO)

The AEMC has determined, as part of the IESS rule change process, that using ACE and ASOE for non-energy cost recovery is in the long-term interests of consumers. Accordingly, AEMO's proposal is in the long-term interest of consumers because it provides for consistency with that position in the allocation of FPP trading amounts.

In addition, as outlined in this proposal, implementing the current rules would require significant changes to AEMO's systems, to re-introduce the necessary AGE calculation. Completing such work would impose significant additional costs on the project, all of which are recovered from market participants and, ultimately, consumers.

It is also highly questionable whether any such change could be completed in time for the scheduled commencement of FPP on 8 June 2025. This means that, should this rule change be delayed or not made, market participants face significant uncertainty and likely delay surrounding the introduction of FPP. This uncertainty is likely to increase implementation costs, which may in turn be passed on to consumers.

Appendix A. Non-energy cost recovery modifications through IESS[6]

Non-Energy Cost	Recovery [pre-IESS]	IESS Recovery
FCAS Contingency Lower Services	Market Customer participants based on the **net energy** (imports –exports) from **setcpdata**	All participants based on **ACE** from **Energy_Transactions**
NMAS Network Support Control Ancillary Services (NSCAS) including test payments		
Energy or FCAS Contingency Lower Directions		
RERT (Reliability and Emergency Reserve Trader)		
Market Suspension		
APC (Administered Price Claim)		
FCAS Contingency Raise Services	Market Generator and Market Small Generator Aggregator participants based on the **net energy** (imports –exports) from **setgendata** and **setsmallgendata**	All participants based on **ASOE** from **Energy_Transactions**
FCAS Contingency Raise Directions		
NMAS System Restart Ancillary Services (SRAS) including test payments	All participants based on the **net energy** (imports –exports) from **setcpdata, setgendata** and **setsmallgendata**	All participants based on **ACE**and **ASOE** from **Energy_Transactions**
Non-Energy and Non-AS Directions		
FCAS Regulation Services Costs	“Causer Pays” method from those Market Generators with Market Participant Factors (MPFs), with the residual from Market Customers **net energy** from **setcpdata**	Same, but with the residual from all participants **ACE**

[6] Adapted from https://aemo.com.au/-/media/files/initiatives/integrating-energy-storage-systems-project/aemo-iess-settlements-change-summary---june-2023.pdf?la=en