

28 August 2026

Ms Anna Collyer
Chair
Australian Energy market Commission

By online submission

Dear Ms Collyer

Rule change requests – IPRR staged implementation approach rule change request package

The Australian Energy Market Operator (AEMO) is submitting the attached package of rule change requests to support the successful implementation of the National Electricity Amendment (Integrating price-responsive resources into the NEM) Rule (IPRR Rule).

This package comprises the following rule change requests:

- IPRR staged implementation approach;
- Accounting for Voluntary Scheduled Resources in the Frequency Performance Payments residual; and
- Additional minor IPRR changes.

These rule change requests seek to achieve outcomes that support successful and robust IPRR implementation and deliver long-term benefits for consumers, consistent with maximising the benefits of consumer energy resource uptake and the energy transition.

IPRR staged implementation approach rule change request

Following extensive internal planning, detailed design work and industry engagement, AEMO concluded that delivering dispatch mode on existing timelines created unmanageable delivery risk to the IPRR implementation project, with consequential implications for participants managing their own implementation programs. In April 2026, AEMO took the prudent decision to pause project delivery and to assess and explore alternative approaches with stakeholders.

This rule change request seeks to defer the implementation date for IPRR dispatch mode and access to VIM payments, for up to 2.5 years, while progressively delivering and trialling key aspects of IPRR functionality and market integration with market participants through the National Electricity Rules' (NER) regulatory sandboxing framework.

Additional IPRR implementation rule change requests

The IPRR implementation project has also identified additional refinements necessary to maximise benefits and support robust implementation. These changes would:

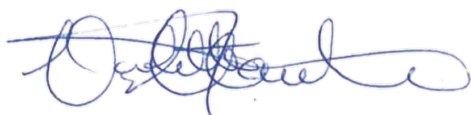
- account for Voluntary Scheduled Resources (VSRs) in the Frequency Performance Payments (FPP) residual rather than through individual assessment; and
- allow the publication of VSR SCADA data and the aggregation of non-scheduled load in central dispatch. AEMO considers these changes non-controversial and requests that the AEMC consider them through an expedited rule change process.

AEMO has submitted these as separate rule change requests to give the AEMC flexibility to consolidate the requests or consider each through separate processes as needed.

AEMO looks forward to continuing its collaboration with the AEMC and stakeholders across the energy sector to support successful IPRR implementation.

Any queries concerning this letter should be directed to Hannah Heath, Group Manager – Strategic Market Reform, at hannah.heath@aemo.com.au.

Yours sincerely,



Violette Mouchaileh

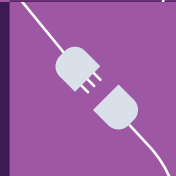
Executive General Manager, Policy and Corporate Affairs

Attachments:

Electricity rule change proposal: IPRR staged implementation approach

Electricity rule change proposal: Accounting for Voluntary Scheduled Resources in the Frequency Performance Payments residual

Electricity rule change proposal: Additional minor IPRR changes



Electricity Rule Change Proposal

Accounting for Voluntary Scheduled
Resources in the Frequency
Performance Payments residual

August 2026

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

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1. Summary

This rule change request proposes amendments to the National Electricity Amendment (Integrating price-responsive resources into the NEM) Rule 2024 No. 24 (IPRR Rule) to account for all Voluntary Scheduled Resources (VSRs) through the Frequency Performance Payment (FPP) residual, rather than requiring individual assessment of VSRs with a capacity greater than 5 MW.

This rule change request is submitted in a package of IPRR implementation related rule change requests that address issues identified in detailed implementation. The other rule change requests submitted in this package are the:

- IPRR staged implementation approach rule change request
- Minor additional IPRR changes rule change request

AEMO proposes all VSRs be included in the FPP residual

The Frequency Performance Payments (FPP) framework allocates regulation FCAS costs based on each participant's contribution to the need for regulation FCAS to maintain power system frequency at 50 Hz. As a causer-pays framework, FPP provides a financial incentive for participants to follow dispatch targets as closely as possible, thereby minimising regulation FCAS requirements. FPP also operates as a zero-sum mechanism that transfers wealth from participants who create the need for regulation FCAS to participants who contribute to meeting that need. Any regulation FCAS costs that cannot be attributed to a specific participant are allocated to the FPP residual.

IPRR Rule 3.15.6AA includes VSRs as eligible units under the FPP framework. The FPP framework makes VSRs 5 MW and above subject to individual frequency performance assessment. This is because they have 'appropriate metering' being full Supervisory Control and Data Acquisition (SCADA) capability. VSRs under 5MW, which do not have full SCADA, are included in the residual FPP calculation.

Through its experience preparing for the IPRR Rule, AEMO proposes that accounting for all VSRs in the FPP residual would better promote the long-term interests of consumers as this change is expected to support participation in IPRR by avoiding the potential for adverse participant financial outcomes that are unrelated to NEM frequency performance while also minimising AEMO implementation costs.

Individual FPP assessment is not well aligned with VSR operating characteristics

The existing IPRR Rule makes VSRs eligible for FPP but does not distinguish between different IPRR operating modes. As a result, the FPP framework requires individual contribution factors to be calculated for VSRs over 5MW operating in active, inactive and hibernated modes.

Individual FPP assessment is also unsuitable for VSRs operating in inactive and hibernated modes. The FPP framework individually assesses a resource's contribution to the need for regulation FCAS by comparing actual performance against reference trajectories derived from dispatch targets. The dispatch targets provided to inactive and hibernated VSRs do not reflect the balance of active power in the NEM and therefore do not indicate a VSR's contribution, or otherwise, to the need for regulation FCAS.¹

¹ The balance of active power (MW) in the NEM determines system frequency and the demand for regulation FCAS to manage frequency deviations arising from forecasting error.

Individually assessing VSR performance under the FPP framework in all modes of operation may therefore expose Voluntary Scheduled Resource Providers (VSRPs) to adverse financial outcomes that do not reflect their VSR's contribution to NEM frequency performance.

Implementing a VSR-specific FPP solution would require material system changes

Meaningful FPP contribution factors can only be established for VSRs operating in active mode. Applying the FPP framework only to active-mode VSRs would therefore require AEMO's FPP systems to identify and account for VSR operating modes.

Material system enhancements would be required to achieve this. AEMO's FPP systems would need to dynamically identify VSR operating status, determine when individual FPP assessment should apply, and incorporate that information into contribution factor calculations.

Implementing this functionality would require significant system investment, increase implementation and delivery risk, increase ongoing operational complexity, and divert specialist resources from other market reforms.

Expected benefits are unlikely to justify the costs

AEMO's assessment is that individual FPP assessment for active mode VSRs is unlikely to provide a frequency control benefit sufficient to justify the associated implementation cost, complexity and ongoing operational burden.

VSRs are generally not designed to provide the continuous and tightly controlled primary frequency response delivered by large synchronous generators or grid-scale batteries with governor or inverter-based response capability. Historical experience indicates that aggregated demand-side resources rarely achieve persistent net positive outcomes because of their technical and control characteristics. Individual FPP active mode participation by VSRs is therefore unlikely to deliver frequency control benefits under the FPP framework.

Including VSRs in the residual FPP calculation is a more proportionate and efficient approach

Under the proposed arrangements, VSRs over 5 MW would not receive individual contribution factors. Their aggregate contribution to the need for regulation FCAS services would be included with smaller VSRs in the residual component of the FPP framework.

Accounting for all VSRs in the residual recognises their aggregate impact across all operating modes without requiring significant investment and exposing VSRPs to the risk of adverse outcomes under the two-sided FPP design that may discourage participation in IPRR. AEMO therefore considers this approach better promotes the long-term interests of consumers than existing arrangements.

2. Relevant background

On 19 December 2024, the Australian Energy Market Commission (AEMC) made the IPRR Rule,² which introduces a framework that allows aggregated consumer energy resources (CER), distributed energy resources (DER), price-responsive loads, and other non-scheduled resources, to be scheduled and dispatchable in the National Electricity Market (NEM).

The AEMC's final rule is the last stage of the rule change process that was initiated by AEMO's January 2023 rule change proposal for the "Scheduled Lite Mechanism."³ This rule change request was developed in accordance with the final recommendations made by the Energy Security Board (ESB) to Energy Ministers as part of its Post 2025 Market Design work.⁴

The IPRR Rule introduced VSRs, enabling aggregated resources, such as virtual power plants (VPPs), small stand-alone generators or energy storage systems, community batteries, and flexible loads to participate in the NEM central dispatch. VSRPs may elect to participate in one of three dispatch modes - active (participate as a fully scheduled resource); inactive (submit bids but not follow dispatch targets); or hibernated (not participate in central dispatch for energy).

The IPRR Rule also amended National Electricity Rules (NER) 3.15.6AA(a) to include VSRs as eligible units under the FPP framework.

In its final determination, the AEMC considered VSRPs would likely benefit from FPPs, however they recognised that VSRPs may be negatively affected if their VSR does not follow their reference trajectory (or dispatch target trajectory). The AEMC further noted that FPPs are new to the market and it may take some time to understand the significance of these payments for participation.⁵

Through detailed implementation design, AEMO has gained a more detailed understanding of how VSR operating modes interact with the FPP framework than was available during development of the original rule. This work has identified not only material implementation costs and architectural complexity, but also broader questions regarding whether individual assessment of VSRs under the FPP framework is proportionate to the likely operational and market benefits.

2.1.1. Frequency Performance Payments

FPP provides Cost Recovery Market Participants (among whom the costs of Regulation Frequency Control Ancillary Services (FCAS) are allocated) with an incentive to operate their facilities in a way that provides the power system with good primary frequency control, and a disincentive to operating in a way that negatively impacts frequency. It is a zero-sum system in which participants whose FPP eligible units are determined to contribute to poor frequency outcomes fund payments made to participants whose eligible units contributed to positive frequency performance.^{6 7} FPP therefore implements a causer pays approach.

² National Electricity Amendment (Integrating price responsive resources into the NEM) Rule 2024.

³ Further information on the Scheduled Lite Mechanism is available [here](#)

⁴ Further information on the Post 2025 Electricity Market Design project can be found [here](#).

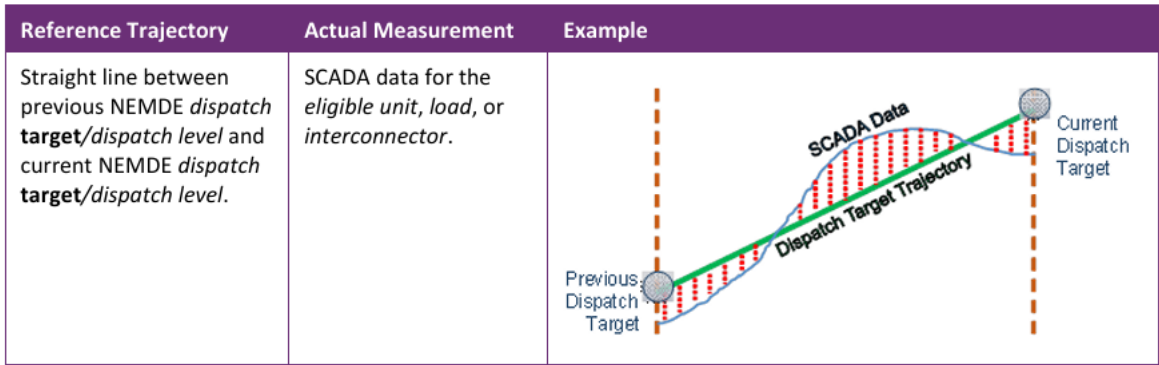
⁵ AEMC, IPRR final determination, December 2024, p. 83

⁶ AEMO, Frequency Contribution Factors Procedure, 7 February 2026, p. 6.

⁷ NER clause 3.15.6AA(e) includes the following FPP eligible units: a scheduled generating unit, a semi-scheduled generating unit, a scheduled bidirectional unit, a scheduled load, an ancillary service unit, a non-scheduled generating unit, a non-scheduled bidirectional unit or a market connection point for a non-scheduled load.

AEMO must determine, in accordance with the Frequency Contribution Factors Procedure (FCFP), a contribution factor (which may be positive or negative) for each eligible unit with appropriate metering. The contribution factor is calculated each trading interval based on deviations from a reference trajectory derived from dispatch targets. The reference trajectory is compared with Supervisory Control and Data Acquisition (SCADA) measurements to assess the unit’s deviation from that trajectory and its resulting impact on the need for regulation FCAS (see Figure 1 below).

Figure 1 Example of how AEMO assesses individual FPP contribution factors



The FPP framework relies on the ability to assess an individual resource’s performance against a reference trajectory and determine whether that resource has improved or degraded system frequency outcomes. It follows that the framework is most effective when applied to resources capable of providing continuous, measurable primary frequency response and can ramp up or down from one dispatch target to another in a linear fashion.

Eligible plant without appropriate metering is included in a residual cost allocation calculation. All plant in a region that does not have high-speed (4-second) SCADA measurements, such as small loads and distributed resources are included in the FPP residual. AEMO cannot measure the real-time deviation of these facilities directly. Instead, it applies a balancing approach at the regional level where the residual deviation of all eligible plant without SCADA is assessed.⁸ AEMO then uses this derived residual deviation in the same way as for measured units to calculate a residual performance value for the region.⁹

⁸ The FPP residual is a balancing term. AEMO directly measures the deviations of all facilities with suitable metering. Any remaining deviation needed to balance MW in the region is attributed to the residual category. The residual is not directly measured. Instead, AEMO infers it as the amount required to make the regional MW deviation balance.

⁹ AEMO, FPP Calculation and Participant Outcomes – Fact sheet. Further information available: [here](#).

3. Statement of issue

3.1. Current Rules

IPRR Rule 3.15.6AA(a) includes a VSR as an eligible unit for FPP.

The IPRR Rule does not distinguish between VSRs operating in each of their participation modes being active, inactive, and hibernated.

A VSR over 5 MW is therefore individually assessed under FPP in each of its participation modes.¹⁰ Smaller VSRs are included in the FPP residual calculation.¹¹

3.2. Statement of issue

AEMO's implementation work shows that the FPP framework does not align well with the operating characteristics of VSRs or with the design assumptions underlying the FPP mechanism because:

- FPP is inappropriate for VSR inactive/hibernated modes.
- Individual FPP active-mode assessment is costly and complex.
- Individual FPP assessment is unlikely to enhance frequency outcomes.
- FPP is unlikely to provide VSRs with a material financial benefit.

3.2.1. FPP is inappropriate for VSR inactive/hibernated modes

Inactive VSR dispatch targets are not suitable for individually assessing a VSR's contribution to frequency performance. These targets are intended to provide visibility of a VSR's behaviour for dispatch rather than direct its operation or indicate its contribution to real-time active power balance in the NEM.

Inactive VSRs continue to receive dispatch instructions but are not required to follow them. For an inactive VSR, the dispatch target for each trading interval equals the VSR's output or consumption at the end of the previous trading interval.¹² Figure 2 illustrates the dispatch targets and resulting FPP reference trajectory for an inactive VSR.

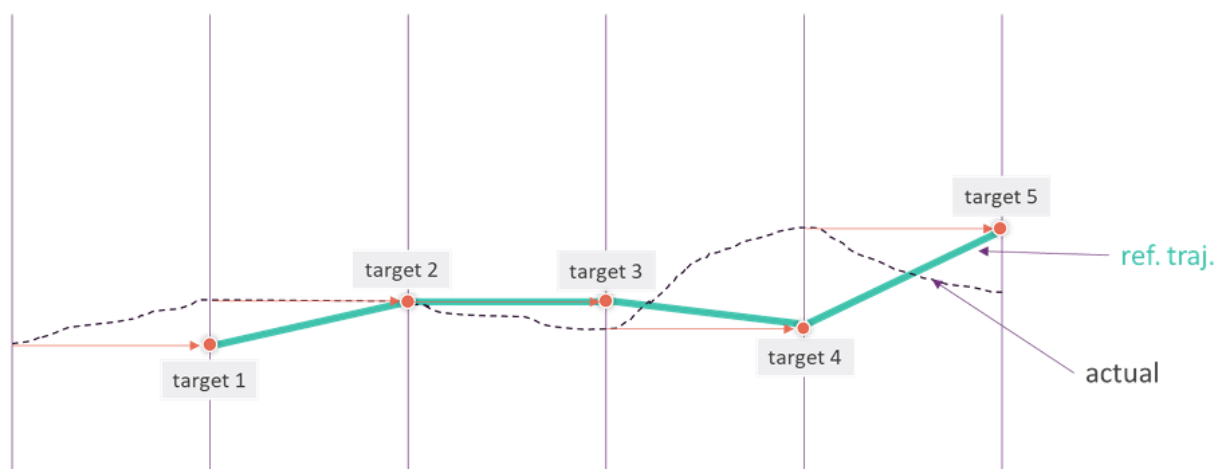
An inactive VSR may increase or decrease its generation or consumption between trading intervals. As a result, its actual SCADA outcome may differ materially from its dispatch targets. Such deviations are an inherent feature of inactive mode and do not indicate the VSR's impact on frequency. As a result, comparing actual VSR performance against an inactive-mode reference trajectory would not provide a reliable basis for assessing the VSR's contribution to the need for regulation FCAS.

¹⁰ VSRs over 5 MW are required to have full SCADA. They therefore have 'appropriate metering' for individual FPP assessment.

¹¹ Smaller VSRs are required to have SCADA-Lite which doesn't qualify as 'appropriate metering' for individual FPP assessment.

¹² AEMO, VSR Guidelines, second draft report, 4 September 2025, p. 67.

Figure 2 Inactive mode VSR dispatch targets and FPP reference trajectory¹³



Hibernated VSRs do not participate in central dispatch for energy and receive a dispatch target of zero MW in all dispatch intervals.¹⁴ The purpose of hibernated mode is to allow underlying resources to temporarily return to non-scheduled operation without any expectation that they will follow an energy dispatch trajectory. Assessing a hibernated VSR against a zero MW reference trajectory would also not provide a meaningful indication of its contribution to the need for regulation FCAS and could result in structurally adverse FPP outcomes for VSRPs.

3.2.2. Individual FPP active-mode assessment is costly and complex

Only a VSR operating in active mode and providing 4-second SCADA could be meaningfully assessed through an individual contribution factor.

Active-mode VSRs are fully scheduled and receive dispatch targets derived from National Electricity Market Dispatch Engine (NEMDE) optimisation. Comparing actual performance against those dispatch targets can provide a meaningful indication of whether a VSR has contributed to, or reduced, the need for regulation FCAS during a dispatch interval.

AEMO, however, estimates that limiting individual FPP assessment would require significant system investment, increase delivery risk and operational complexity, and divert specialist resources from other market reform initiatives. Restricting individual FPP assessment to active-mode VSRs would require AEMO's FPP systems to identify and respond to changes in VSR operating mode. These changes may occur frequently as a VSRP may switch a VSR between active and inactive modes on a daily basis.

Supporting mode-dependent individual assessment would require AEMO to:

- dynamically track VSR operating status
- update eligibility logic as participation status changes
- adjust reference trajectory and contribution factor calculations and
- reconcile status transitions with prior-period regulation recovery processes.

¹³ AEMO, Voluntary Scheduled Guideline review, second draft report, 4 September 2025, p. 49.

¹⁴ Ibid.

The FPP framework was designed on the basis that eligibility for individual assessment would remain relatively stable and be determined primarily by registration standing data and telemetry capability. It was not designed to accommodate resources whose eligibility changes frequently according to their elected operating mode.

3.2.3. Individual FPP assessment is unlikely to enhance frequency outcomes

The characteristics of aggregated VSRs mean that the financial incentives provided through individual FPP assessment are unlikely to materially enhance frequency outcomes

Aggregated price-responsive fleets, particularly those comprising residential and small commercial resources, face inherent technical and coordination constraints that limit their frequency responsiveness. VSRs are primarily designed to respond to energy market dispatch outcomes rather than provide the continuous and tightly controlled primary frequency response typically associated with large synchronous generators or grid-scale batteries.

Relevant constraints include:

- variation in asset capability and response speed across the portfolio;
- communication latency and layered control architectures;
- customer override behaviour; and
- practical limitations in continuously coordinating dispersed resources.

These characteristics limit the likelihood that VSRs will consistently track reference trajectories in a manner that supports system frequency irrespective of any financial incentives provided through the FPP framework.

3.2.4. FPP is unlikely to provide VSRs with a material financial benefit

AEMO considers that individually assessing VSRs for FPP is unlikely to provide the financial benefit to VSRPs expected by the AEMC when it made its final determination.

FPP is a two-sided and zero-sum mechanism that represents a wealth transfer between participants. Payments to resources that improve frequency control are funded through charges to resources whose deviations from their reference trajectories do not assist, or adversely affect, the maintenance of system frequency. Accordingly, resources that consistently and measurably support frequency restoration are more likely to achieve sustained positive FPP outcomes; and resources that deviate from their reference trajectories are more likely to receive negative contribution factors and incur charges. Individual assessment given VSR control characteristics and the hibernation and inactive modes may expose a VSRP to structurally adverse financial outcomes.

In contrast, inclusion in the residual generally results in a regular but very small payment. Over the last four quarters, the Frequency Performance Payment (FPP) residual has averaged approximately \$0.9 million per quarter. This amount is allocated across all participants without full SCADA, including customer loads and other non-scheduled resources. To indicate the quantum of payments likely, the FPP residual represents approximately 0.02% of total adjusted consumed MWh over the last 4 quarters.

4. How the Proposal will address the issues

This rule change request proposes accounting for all VSRs in the FPP residual rather than requiring individual assessment for VSRs over 5 MW.¹⁵ Under the proposed arrangements, VSRs would not receive individual contribution factors under the FPP framework. AEMO considers that its proposal to account for VSRs in the FPP residual is a more proportionate treatment of VSRs given their characteristics and impact on frequency control.

AEMO considered providing VSRPs with the option to declare whether they wanted a VSR to be in or out of FPP at the registration stage. This approach may have provided some VSRs with highly controllable resources, such as community batteries, scope to benefit from FPP. AEMO however decided against progressing this option as implementation complexity and cost were also likely to exceed possible benefits.¹⁶

The proposal avoids inappropriately applying FPP to VSRs in inactive and hibernated modes

As explained in Chapter 3, the reference trajectories applying to inactive and hibernated VSRs do not provide an appropriate basis for assessing a VSR's contribution to the need for regulation FCAS.

The proposal will avoid material implementation costs

Accounting for all VSRs in the FPP residual removes the need for fundamental changes to the FPP system architecture to accommodate different and frequently changing VSR modes of operation. The proposal eliminates the associated implementation cost, delivery risk, and added ongoing operational complexity.

The proposal is not expected to adversely impact frequency outcomes

AEMO does not expect individual FPP eligibility to materially enhance the overall frequency response provided by VSRs compared with including all VSRs in the FPP residual. Aggregated price-responsive resource fleets face practical limitations in providing the continuous and tightly controlled frequency response required to deliver material benefits under the FPP framework.

The aggregate impact of VSRs on the need for regulation FCAS would continue to be captured through the FPP residual.

The proposal avoids potential for adverse financial outcomes

Excluding VSRs from individual FPP eligibility avoids exposing VSRPs to the financial risks inherent in the two-sided contribution factor design. Participation through the residual results in smaller and more neutral settlement impacts over time, ensuring that VSRPs are not disadvantaged by an assessment framework that is not well suited to their operational characteristics.¹⁷

4.1. AEMO Procedure changes

AEMO may make minor consequential amendments to relevant procedures or supporting documentation to reflect that VSRs are not individually assessed and are instead treated through the residual. AEMO does not expect these changes to be material.

¹⁶ Significant implementation challenges were also identified due to the geographical dispersion of NMIs and how they would be represented in Settlement systems.

¹⁷ Units in the residual generally make a small payment under the FPP framework.

4.2. Stakeholder engagement

AEMO has actively engaged with stakeholders on VSR participation in FPP through:

- VSR Guidelines consultation;¹⁸
- IPRR implementation including Wholesale Electricity and Program Consultative Forums;¹⁹
- bilateral discussions with affected stakeholders.

Stakeholders generally indicated support for, or neutrality toward, accounting for VSRs in the FPP residual, recognising that the expected benefits of individual eligibility are unlikely to justify the required implementation expenditure and complexity.

5. Proposed Rule

AEMO proposes that NER 3.15.6AA be amended to specify that all VSRs are to be assessed in the residual under NER 3.15.6AA(b)(2).

AEMO proposes that the proposed rule commence at the start of Stage 2 of the IPRR staged implementation approach.

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

The National Electricity Objective as stated in the National Electricity Law is *“to promote efficient investment in, and efficient operation and use of, electricity services for the long-term interests of consumers of electricity with respect to:*

- (a) price, quality, safety, reliability and security of supply of electricity; and*
- (b) the reliability, safety and security of the national electricity system; and*
- (c) the achievement of targets set by a participating jurisdiction—*
 - i. for reducing Australia's greenhouse gas emissions; or*
 - ii. that are likely to contribute to reducing Australia's greenhouse gas emissions.”*

AEMO considers that the proposed rule will contribute to the NEO principally by promoting efficient investment in, and efficient operation of, electricity services with respect to price.

The proposal avoids material expenditure on system functionality that is not expected to produce a corresponding improvement in frequency control or a material benefit to VSRPs. Those costs would otherwise be recovered from market participants and ultimately be passed through to consumers.

AEMO therefore considers that the proposal represents a proportionate and efficient refinement of the FPP framework and promotes the long-term interests of consumers.

¹⁸ Further information on the VSR guideline consultation is available [here](#).

¹⁹ The presentations to the Electricity Wholesale Consultative Forum and Program Consultative Forums are available [here](#).

7. Expected benefits and costs of the proposed Rule

AEMO does not expect the proposed rule to result in material direct implementation costs.

Minor costs may be incurred by AEMO in making consequential changes to procedures, guidance material and implementation documentation. These costs are expected to be small and capable of being accommodated within the IPRR implementation program.

The expected benefits of the proposed rule are as follows:

VSRPs - The proposal avoids exposing VSRs to individual contribution factor outcomes that may be materially influenced by their operating modes or by the structural characteristics of their aggregated fleets. VSRPs would continue to be subject to the financial outcomes associated with the residual. Those outcomes may be positive or negative and will depend on regional frequency performance and the applicable allocation methodology.

The proposal may also remove the opportunity for an individual VSR with strong frequency response capability to receive positive individual FPP outcomes. AEMO considers that this potential foregone benefit is likely to be limited, given the operational characteristics of the VSR class and the substantial implementation cost required to enable individual eligibility. Participation in regulation FCAS is available to these participants when operating in active mode.

Consumers The avoided implementation expenditure would otherwise be recovered from market participants and may ultimately be borne by consumers. Given the limited expected operational and participant benefit from individual VSR eligibility, avoiding these costs supports efficient investment in electricity services and the long-term interests of consumers.