AEMO
AUSTRALIAN ENERGY MARKET OPERATOR

Level 12
171 Collins Street
Melbourne VIC 3000

Postal address
GPO Box 2008
Melbourne VIC 3001

T 1300 858 724
F 03 9609 8010
E info@aemo.com.au

1 February 2024

Anna Collyer
Chair, Australian Energy Market Commission
Sydney South NSW 1235

Online submission: EPR0095

Dear Ms Collyer,

Consultation Paper – Review into Electricity Compensation Frameworks

AEMO appreciates the opportunity to provide a submission to the AEMC's Consultation Paper published on 2 November 2023 for the Review into Electricity Compensation Frameworks ("the review").

AEMO acknowledges that during June 2022, a confluence of high commodity prices, domestic market price caps, planned and unplanned outages of scheduled generating plant, low output from semi-scheduled generation, and high winter demand conditions led to unprecedented challenges operating the National Electricity Market (NEM). The events of June 2022, tested compensation frameworks and highlights key areas for operational and administrative efficiency.

AEMO supports the review as we believe that the existing directions, administered pricing and market suspension compensation frameworks in the NEM could be improved so that greater confidence can be provided to market participants which will ultimately allow for better outcomes for consumers.

Our submission to the Consultation Paper outlines the following:

- Issues with the existing compensation frameworks/
- Guiding principles that should be applied to the frameworks to improve clarity and implementation of the frameworks for participants and AEMO.
- Further detail on AEMO's initial preferred positions on aspects of the frameworks under review.

If you have any questions regarding this submission please contact Kevin Ly, Group Manager – Reform Development & Insights on kevin.ly@aemo.com.au. We look forward to working collaboratively with the AEMC and industry throughout the review process.

Yours sincerely,

Violette Mouchaileh
Executive General Manager – Reform Delivery

1. Issues with the current compensation frameworks

AEMO supports the AEMC undertaking this review of compensation frameworks and broadly agrees with the issues outlined in the consultation paper. The June 2022 NEM events were the first time all three (directions, administered pricing period (APP) and market suspension pricing schedule (MSPS)) compensation frameworks interacted and key learnings should be considered for areas of improvement across the frameworks. Further, given the ongoing use of directions during normal operations, AEMO agrees that consideration of the effectiveness of the directions compensation framework within this context should be a key consideration throughout this review.

While the June 2022 NEM events were unusual and driven by a confluence of operational issues, including high commodity prices, high demand, generator outages, low market price caps and low VRE resource, AEMO considers the compensation frameworks and associated uncertainty further contributed to the market suspension and operational issues during this period. Key issues with the current compensation frameworks are discussed below.

Interactions between frameworks that provides uncertainty on which framework participants are being compensated under

AEMO considers the compensation frameworks may have contributed to events June 2022 with several generators rebidding to reduce energy volumes offered to the market. Figures 7 and 8 below[1] show the total market capacity minus the pre-dispatch projected assessment of system adequacy (PASA) availability during the APP and MSPS market periods respectively. This highlights the generation that was technically available across the NEM but not offered to the market during these intervention pricing periods. For example, on 13 June during the APP between 1.5 GW and 3 GW of market capacity was not made available to the market.

AEMO is of the view that in addition to the lower Administered Price Cap (APC) applied at $300/MWh, participant uncertainty if and how they would receive compensation for APP and market suspension pricing schedule periods may have contributed to this change in bidding behaviour. As participants are more familiar with the direction compensation framework, this may have led to generators withdrawing capacity to wait for directions to supply electricity during those periods. Once a few participants started to withdraw capacity, in some regions this seemed to have a cascading effect, as the remaining generators were required to produce more than they had scheduled. This necessitated AEMO issuing a significant number of directions to maintain system reliability and security.

[1] AEMO, Market Suspension and Operational Challenges June 2022, p23 - https://aemo.com.au/-/media/files/electricity/nem/market_notices_and_events/market_event_reports/2022/nem-market-suspension-and-operational-challenges-in-june-2022.pdf?la=en

Figure 7 NEM regional total market capacity minus total PASA capacity on 13 June 2022 (during APP)

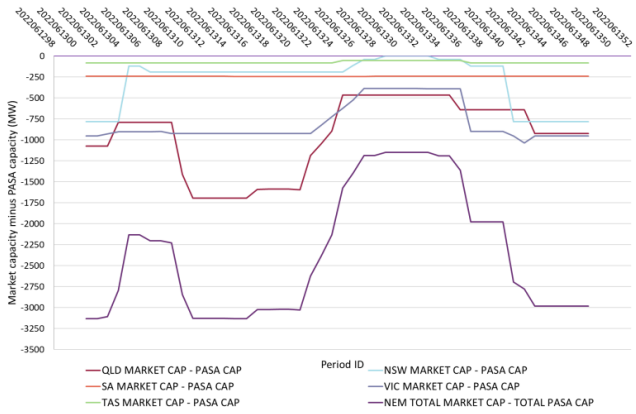
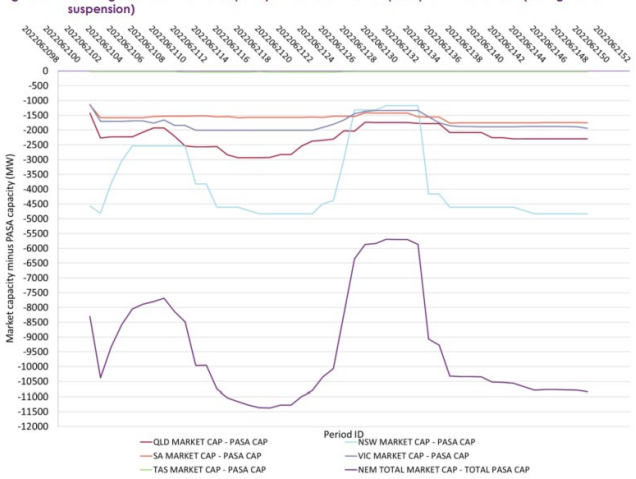


Figure 8 NEM regional total market capacity minus total PASA capacity on 21 June 2022 (during market suspension)



It is important to acknowledge that the June 2022 events were the first time APP and market suspension pricing schedule periods had interacted so significantly. It is likely that given this experience gained with the compensation framework and the increase in APC to $600/MWh many of the issues from June 2022 would have been significantly reduced. However, the underlying issue of the compensation framework's lack of clarity and increased need to provide certainty to the market remains.

This is particularly evident in the application of the APP compensation process where some generators who continued to operate during the APP period, may have not received on compensation relative to generators who received a direction. This further highlights the challenges in interactions between frameworks and eligibility periods as discussed in Section 6.1 of the consultation paper.

Frameworks are complex in understanding how they are applied

AEMO considers the current design of the frameworks are complex and drive uncertainty in how they are applied. Key drivers of complexity within the frameworks include:

1. Each framework starts with a different initial settlement, or price – if the market is suspended and Market Suspension Pricing Schedule[2] applies, all participants are settled at the applied market suspension pricing schedule, using average prices from a preceding four-week sample, under APP participants are settled at a cleared price, albeit capped at the APC. For these two frameworks it is not entirely clear that compensation will always need to be payable, which is helpful given all participants are affected by suspension or administered pricing. This contrasts with directions, where the energy price has not been high enough to support the dispatch of the generator.
2. Different methodologies for the calculation of provisional compensation - The provisional compensation framework of the 90th percentile price for directions compensation is relatively familiar to market participants. In contrast, the market suspension compensation utilises benchmark costs established for the Integrated System Plan plus a 15% premium. While both methodologies are by design imperfect, the use of different methodologies and the associating timings for payment, increases the complexity and may

[2] Market Suspension Pricing Methodology and the Guide to Market Suspension Pricing Schedule: https://aemo.com.au/en/energy-systems/electricity/national-electricity-market-nem/data-nem/market-management-system-mms-data/market-suspension-pricing-schedule

create confusion as to how much compensation participants are eligible for and when they would receive these payments.

3. Administration and information requirements for APP compensation – Claims for additional compensation under the APP framework is the responsibility of market participants to apply and provide sufficient evidence. AEMO considers the administration and governance arrangements of the APP compensation framework are complex and often involve ongoing transfers of information and data in the assessment of claims.
4. Eligibility periods between three frameworks – As outlined in Section 6.1 of the consultation paper, the eligibility period of the APC frameworks is complex and creates uncertainty as to how and which compensation framework would be applied. AEMO considers this is an opportunity for improvement during this review to clarify and update frameworks, so participants clearly know which framework they are eligible to receive compensation.
5. Difference in definition of direct costs – All three frameworks have provisions in the NER, or the administered pricing guidelines, for the payment of direct costs to eligible market participants.[3] As discussed in Section 6.3 of the consultation paper, the components of direct costs differ across the three frameworks. AEMO considers there may be an opportunity to consider harmonising direct costs between APP and market suspension compensation given the defined objectives of the frameworks.

Lack of clarity on timing of payments

The compensation frameworks for directions and market suspension have set requirements for the processing, application and payment of compensation. AEMO publishes the Intervention Settlement Timetable[4] as required under NER3.12.1(b), which sets out required timings. For example, participants are required to submit a request and information required for additional claims within 15 business days following receipt of provisional compensation amount.

In contrast, the administered pricing framework does not include any provisional compensation. The administered pricing framework requires submissions from participants for compensation within 5 business days after the end of the administered price period. Following this, the Administered Price Compensation Guidelines[5] do not have any timing requirements on the receipt of supporting information from participants. This lack of clarity may lead to protracted processes of the assessment of claims and is an opportunity for improvement within this review.

Preliminary compensation methodologies

The September 2023 Directions Paper to the *Improving security framework for the energy transition*[6] Rule change set out issues regarding the direction's compensation framework and methodology. This included specifically questioning if the 90th percentile approach to preliminary compensation applied in directions was appropriate given the frequent application of directions and over or under-compensating generators with this preliminary payment.

[3] Such as NER 3.15.7B (a3) for directions

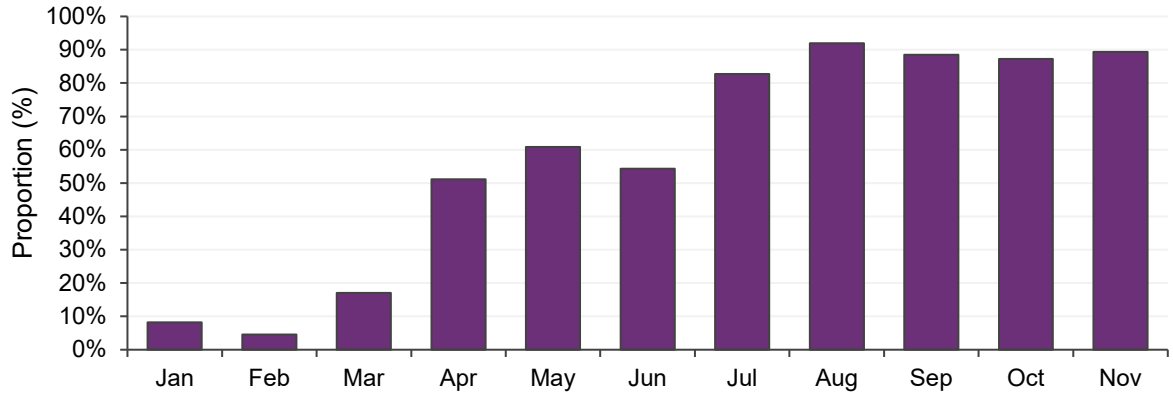
[4] Intervention Settlement Timetable - https://aemo.com.au/en/energy-systems/electricity/national-electricity-market-nem/market-operations/settlements-and-payments/prudentials-and-payments/settlement-calendars/intervention-settlement-timetables

[5] AEMC, Administered Price Compensation Guidelines - https://www.aemc.gov.au/sites/default/files/documents/final_amended_compensation_guidelines.pdf

[6] AEMC, Directions Paper, Improving Security Frameworks – 2023, https://www.aemc.gov.au/sites/default/files/2023-08/ERC0290%20%E2%80%93%20Improving%20security%20frameworks%20for%20the%20energy%20transition.pdf

AEMO provided a submission[7] in response to this Directions Paper that agreed with that the 90th percentile pricing approach is imperfect but did not consider that the application of the benchmark approach to directions compensation would resolve issues of increased numbers of additional claims. While AEMO is mindful of how compensation arrangements influence participant incentives to have plant available for direction[8] current design and limitations mean that additional compensation claims are made most of the time. The figure below shows that for South Australian directions for security, while there is variability, additional claims for gas generators are commonplace under the current framework, particularly in recent months.

Figure 1 South Australian system security directions – proportion of additional claims compared to total number of directions by month in 2023



The Consultation Paper notes that although there is no defined objective for the directions compensation framework methodology, the entitlement of directed participants to receive compensation was included in the NER following a review of directions in 2000 that concluded directed participants should receive a "fair payment" that would cover the costs incurred by the participant complying with the direction while minimising inequitable impacts on other market participants.[9] In practice, the persistent use of additional claims demonstrates that the preliminary compensation methodology is insufficient in achieving this and has systemically under-compensated generators relative to their costs. This in turn increases the administrative burden of the framework and reduces the role preliminary compensation seeks to have in providing generators with timely access to compensation.

AEMO considers the future assessment of the need, and options for a preliminary compensation methodology is a key area of focus for this review and largely agrees with the Consultation Paper's characterisation of the issue. As discussed further in Section 2 and 3 below, AEMO notes this is a challenging balance as the methodology should seek to estimate an appropriate payment to generators to comply with a direction, while providing timely access to compensation and efficiency when administering the framework. Deeper consideration and investigations of methodology options is appropriate for this review, including assessment

[7] AEMO, Submission to Improving security frameworks directions paper, - https://www.aemc.gov.au/sites/default/files/2023-10/12%2020230928%20Submission%20Improving%20security%20frameworks%20for%20the%20energy%20transition.pdf

[8] AEMO, Submission to Improving security frameworks directions paper, page 16 - https://www.aemc.gov.au/sites/default/files/2023-10/12%2020230928%20Submission%20Improving%20security%20frameworks%20for%20the%20energy%20transition.pdf

[9] AEMC, Consultation Paper – electricity compensation review, p11 - https://www.aemc.gov.au/sites/default/files/2023-11/Compensation%20review%20-%20consultation%20paper.pdf

of the need for preliminary compensation. While AEMO notes the importance of timely payment for participants, the assessment of preliminary compensation should include consideration if preliminary compensation is required or instead if the use of an applications only compensation framework (as is currently done for APP and other services compensation) would better align with the objectives of the framework. The primary reason for preliminary compensation is to deliver timely payment to participants.

The figures below compare the 90th percentile methodology with the benchmark values for different technology types in both South Australia and New South Wales over dates in 2022 and 2023.

Figure 2 Comparing 90th percentile RRP and benchmark methodologies (South Australia)

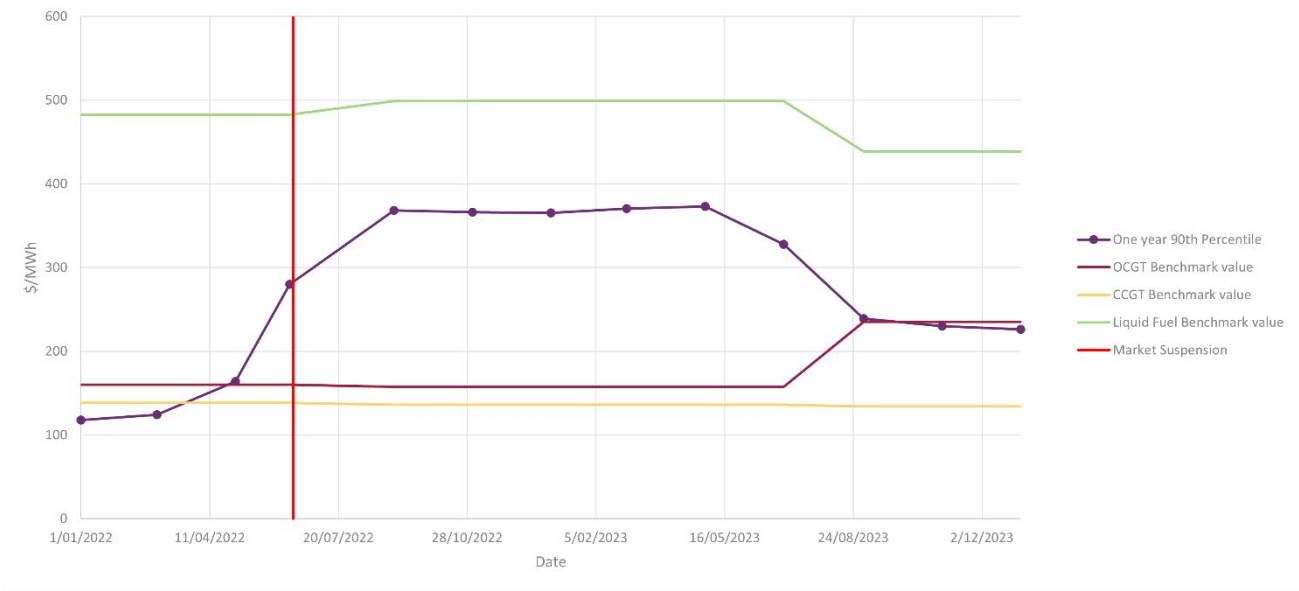
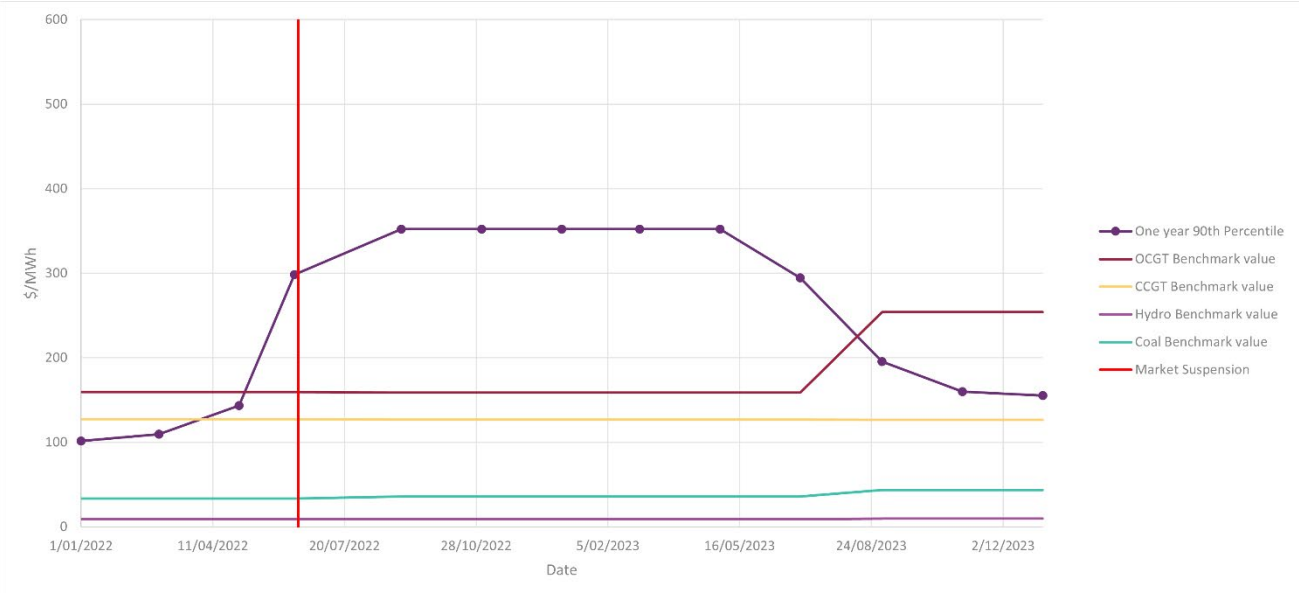


Figure 3 Comparing 90th percentile RRP and benchmark methodologies (New South Wales)



As seen in these graphs, for the compensation amounts before the market suspension and towards the end of 2023, the 90th percentile usually under-compensates for certain technology types (OCGT and Liquid fuel benchmark amounts are higher than the 90th percentile for most of these intervals). Additionally, the 90th percentile is slow to react to short-term market dynamics (as it is calculated using a year of data) as is seen in the leadup to the market suspension.

Figures 2 and 3 also demonstrate a case can be made for why benchmark values are not appropriate either. In the period following the market suspension the 90th percentile is above most benchmark values, which is a time as noted previously when many additional compensation claims were still being made. This includes Mintaro for example which is an Open Cycle Gas Turbine (OCGT) and which would've received a much smaller payout had it been paid the benchmark value during this time when it was already requesting additional compensation.

2. Guiding principles to improve the compensation frameworks

To assist AEMO in managing the NEM's security and reliability during operationally challenging periods, AEMO is of the view that compensation frameworks that have clear objectives and methodologies will allow for their efficient and effective implementation. This will also result in better cost outcomes for consumers.

To achieve this, AEMO proposes the principles outlined in this section are considered when determining any changes to the existing compensation frameworks. These principles will also address the issues AEMO has outlined in section 1 above.

- Maintain incentives to provide services
- Appropriately compensate participants for costs incurred in a timely manner
- Administrative efficiency

2.1 Providing confidence to participants

Compensation frameworks should provide confidence to participants that they will be compensated when they respond to market issues or events.

As outlined in section 1, one of the main issues with the existing frameworks is their lack of clarity. This can lead to participants' uncertainty and reluctance to respond to issues when notified of these by AEMO via market notices.

It is important that compensation frameworks provide confidence to participants on the process to allow for the best cost outcome to consumers when they are needed. This means that the frameworks must have clear processes and methodologies to remove any uncertainty.

For example, the following could be considered to improve clarity of the existing frameworks, thereby improving the confidence of participants to respond to market issues:

- Improving the definitions of each of the three compensation arrangements, that is, their objectives, when each particular framework will be applied, and the methodology to calculate the compensation payment for each.
- Minimising the interactions or overlaps between each of the compensation mechanisms.

2.2 Promoting good electricity industry practice[10]

Compensation frameworks should encourage participants to act with good electricity industry practice.

During the June 2022 events, it was observed that there was reduced market availability of some generators. Critical energy shortages at a number of coal- and gas-fired generators meant that additional directions for pumped hydro to ensure capacity was available for extended periods of peak demand was required, which led to complications of the formulation of directions.

This then meant that wider market processes such as PASA and pre-dispatch projections, which are integral to participants making well-informed market offers reflecting constraints such as limited fuel or water availability, and to AEMO in assessing reserves and reliability, were compromised.

It was recommended in AEMO's *NEM market suspension and operational challenges in June 2022* report, that participants ensure their submitted bids, PASA availability and energy limits reflect operating conditions and are updated regularly, consistent with NER requirements in both short-term and medium-term PASA timelines.

To further support this recommendation, compliance reviews following the compensation event could be conducted to ensure the compensation frameworks promote good electricity practice and therefore discourage participants from any disorderly bidding or similar.

2.3 Providing administrative efficiency

Compensation frameworks should be able to be implemented in an efficient manner.

Another issue outlined in section 1 that resulted from the June 2022 events, was that the existing compensation frameworks as outlined in the Rules, are not easily understood and therefore complexities can arise when required to implement them in practice.

Frameworks that are less complex to understand will lead to more efficient implementation by participants and AEMO. To reduce complexity and thereby improving clarity and efficiency of implementation, the following could be considered when reviewing the frameworks:

- Aligning the definition of direct costs
- Aligning the timing of payments across the three frameworks.
- Clear identification of the implementation process for participants.
- If required, alignment on the preliminary compensation payment, that is, if possible, a single preliminary compensation methodology across all schemes (discussed in detail in Section 3.1.2 below).
- Minimal impact on the market from AEMO implementing the frameworks.

AEMO is of the view that factoring in the above three guiding principles into the review of the existing compensation frameworks will improve their efficiency and effectiveness for participants and AEMO, and ultimately provide better cost outcomes for consumers.

[10] As defined in Chapter 10 of the NER.

3. Further detail

This section provides a more detailed discussion on AEMO's proposed approach on certain aspects of the compensation frameworks. Our comments below align with the overarching principles (discussed in section 2 above) that should be incorporated into any changes made to the existing frameworks.

3.1 Objectives and Methodology

3.1.1 Objectives

While AEMO does not propose specific changes to all three objectives, AEMO considers that the lack of objective for the directions compensation framework provides uncertainty to participants and may affect the efficient design of directions compensation payments. The compensation methodology applied to each framework should be clear and designed to meet the defined objective of each framework. Without a clear objective, there is no clear basis to select a methodology and administer the compensation framework. In addition to the lack of objective for the directions framework, AEMO agrees that it is worthwhile reviewing the reviewing the objective for all three frameworks.

AEMO considers this review should recommend explicitly stating the objective for the directions compensation framework and doing so this encompasses the principles outlined above in section 2, that is:

- Provide confidence to participants.
- Promote good electricity practice.
- Provide administrative efficiency.

In lieu of a specific NER reference for the directions compensation objective, section 4.1.1 of the Consultation Paper, refers to the review of directions by NEMMCO and NECA in 2000 that states:

> *"Directed participants should receive a "fair payment" that would cover the cost incurred by the participant complying with the direction while minimising inequitable impacts on other market participants."*

In defining a directions compensation objective, AEMO is of the view that defining only "fair payment to cover costs" may be unclear what it entails and if it is reflective of the true cost of the service provided and the value to do so. In addition to the direct costs, such as fuel costs, incremental maintenance costs etc, it may be appropriate for compensation frameworks to pay generators a little more as the market is relying on the reputation and knowledge that the participant will comply with a direction. This may be considered the "goodwill" of the participant or the value of their established reputation as a market participant that will comply with a direction. Having said that, AEMO is mindful how compensation arrangements incentivise the provision of services and participation in other markets. The balance between these matters should be considered when defining both the directions compensation objective and the preliminary methodology applied.

3.1.2 Methodology

AEMO believes any methodology adopted should be linked back to the objectives of the framework and alignment to the principles outlined in Section 2. The preliminary methodology should be clear in its application and administration and reasonably reflect the value of the service provided. Further work is required to assess and determine an appropriate preliminary methodology, however AEMO considers the decision on methodology options should align to the following principles of preliminary compensation:

- Managing cash flow implications for participants. That is, ensuring compensation payments are made to generators as soon as possible.

- Balancing any over payments to participants with the value of a participant comply with a direction.
- Avoid excessive reliance on additional claims.
- Ensuring the methodology avoids special treatment in respect of different technologies, (in alignment to NER 3.1.4(a)(3)). This will be important as the level of battery uptake continues to increase in the NEM going forward.

While there may be both administrative and functional efficiency in having a single preliminary methodology across all schemes, given differences in initial payment received between the three frameworks, the preliminary compensation methodology is received by generators as a different payment. For example, in directions compensation, the spot price is withheld and the initial payment for complying with a direction received is the amount determined in the preliminary methodology. For the market suspension, the initial payment received in the market suspension price[11] and the preliminary compensation methodology is used to top up the payment received if the MSP is lower than the compensation methodology. For the APP, while there is no defined preliminary compensation, the initial payment received is the APC set at $600/ MWh. Therefore, while administratively efficient, AEMO acknowledges that a single price for all methodologies may not create equivalence in the payments and incentives received by customers.

The choice of preliminary compensation methodology, or indeed if one should be applied, should also have regard for the differences in methodologies for the initial payment received by participants. For example, when comparing the directions and APP frameworks, the initial payment of the APC may be thought of as essentially serving the same function as the preliminary compensation for directions – that is, to pay generators as soon as possible and appropriately incentivise participants to continue operate during periods APP periods. To all events and purposes, the APC is the preliminary payment, and no compensation is necessary if the price during an administered price period is below the APC. However, the difference in APC price to the 90th percentile preliminary compensation methodology (APC price is typically higher), reflects the slight difference in objectives of the methodologies. Having said that, AEMO considers it is worthwhile that this review reflecting on the value of the APC price and if it may be appropriate in application to directions compensation.

For example, the APC could be used as an inflection point whereby any costs above it must be claimed. AEMO considers the APC is a useful as an industry benchmark for a reasonable amount to cover generators short-term costs, incentivise them to be available to supply, and balance the need for administrative efficiency. Conceptually, any payment below the APC is resolve of any concerns of over-compensating a participant. This premise may be sound and is reasonably consistent with the intent of the APC.

The cost of a direction is identified as being a function of not just variable costs, but the direction being given. This is consistent with historic data, where despite relatively high preliminary compensation, the nature of non-variable costs incurred and the potential for the denominator to vary (the directed quantity (DQ – MWh). It is very difficult to estimate a reliable variable price for preliminary compensation. Including a cost estimate in the preliminary compensation, as a function of a direction to synchronise may avoid having to calibrate the variable compensation rate higher to account for a portion of more fixed costs.

This preliminary compensation could for example, be calculated by technology type, (as could be an estimate of start cost in the preceding paragraph) to avoid a variable compensation rate or price needing to be

[11] Determined in accordance with the market suspension pricing schedule – which may seek to align as closely to the optimal spot market price as possible.

calibrated higher or lower to account for a range of costs of different technologies. Like the idea of trying to remove costs that are a function of the type of direction being given, not the volume of the direction DQ, this is also premised on an absence of a goldilocks price in the preliminary compensation rate that suits all technologies. The thinking would be that, whilst the absolute, or exact value of unit, technology is impossible to estimate reliably the fundamental differences in costs between types of technologies can generally be accounted for.

For market suspension compensation, currently, the higher of the MSPS or the ISP benchmark is paid during market suspension. The aim of the MSPS compensation framework is to maintain incentive for relevant participants to supply during market suspension periods. The MSPS is maintained through market suspension periods is to encourage the commitment and dispatch of generators in the hope the prices in the schedule are a reasonable estimate of what the prices would have been otherwise if the market wasn't suspended. A preliminary payment may undermine this, because if the preliminary payment is too generous, the MSP price schedule will not ration supply: generators will want to profit from the generous payments – thus leading to over commitment or dispatch of generators. During suspension where a price is set ex-ante, it is unlikely an orderly dispatch schedule can be maintained, because the market is suspended, therefore directions would need to be used. This would suggest preliminary compensation would be payable under suspension when a direction is given. On the face of it, this could also undermine the effect of the MSP schedule in encouraging some semblance of orderly dispatch for the prevailing conditions, because a participant may prefer a direction to receive the preliminary compensation – this could be mitigated because the option of receiving the preliminary compensation lies with AEMO, (because it decides which plant to direct), and not with the participant, and if there are many suppliers AEMO can choose the cheaper ones.

If the MSP price schedule is considered analogous to the RRP and the ISP benchmark as the preliminary compensation, it may be unnecessary to include preliminary compensation - with instead directions compensation acting to provide this. The premise here is when under suspension, MSP schedule acts as the RRP and if it fails, directions are then required. Given this, there is no role for a separate preliminary compensation encouraging availability, because this is performed by directions. This premise should be investigated to check whether it is sound. Causal effects of a market suspension are uncertain, conditions may vary greatly.

Ultimately, the choice of methodology should link back to the objectives and principles of preliminary compensation. This will involve trade-offs including balancing administrative efficiency and cash-flow issues for participants against the occurrence of additional claims, as well as the differences in the initial settlement amounts received between the frameworks.

AEMO looks forward to contributing to this review to consider the range of options that are fit-for-purpose across technology types and for an evolving power system. In administering the framework, AEMO's priority is ensuring that any preliminary methodology is clearly set out in the rules to provide clarity on application and administration.

It is likely a preliminary methodology will need to resolve the following points:

1. Be based on an accepted value, for example like the APC, that establishes the judgment of when administrative efficiency and incentives to be available, are prioritised over a concern of over compensating a participant;
2. Reflect fundamental differences in technology types;

3. Try to account for recent prevailing market conditions, costs and prices;
4. Allow for costs that are not a function of volume, and hence any method is unlikely to be price based alone; and
5. When it is to be used under market suspension, administered pricing or directions, noting the use of directions could occur under the other conditions.

Further analysis and economic assessment of methodology options is required to assess the preliminary methodology that best aligns with the principles above. AEMO has included a high-level discussion of a range of options below, including the APC price.

	Methodology	Trade-offs
	Current methodologies	
1	90th percentile (Directions)	**Pros**: Set at a level that minimises risk of overpayment; applicable for all technology types **Cons**: System undercompensating of generators, significant number of additional compensation claims, increased administrative burden
2	APC approach – single step, claims-based methodology (APC price is set at $600/MWh)	**Pros**: Incentives generators to remain available with APC price, more accurate representation of costs with claims-based approach **Cons**: Impact on generator cash flow with longer time before receipt of payment
3	Benchmark (market suspension)	**Pros**: Seeks to estimate costs **Cons**: Not flexible to dual-fuel generators or storage; does not account for updates in plant costs or varied heat rates at different levels of output; difficult to update benchmarks to determine better compensation outcomes
	Alternative methodologies	
4	Higher of two prices – higher of 90th percentile in past 12-months and 95th percentile in past two weeks	**Pros**: 95th percentile is more reflective of current price dynamics; counters the risk of lower annual prices **Cons**: Not reflective of specific generator/ technology costs
5	Volume weighted average price (by generator)	**Pros**: Reflects the price received by generators (willingness to participate in the market); better suited to battery operations **Cons**: Average price is lower than 90th percentile – increased additional claims
6	Volume weighted average price (by technology type)	**Pros**: Reflects the price received by technology type (estimates the costs) **Cons**: As above
7	90th percentile of spot price received (by technology type)	**Pros**: Reflects the price received by technology at the 90th percentile as a better reflection of technology SRMC than the 90th percentile (Option 1); counters the risk of lower annual prices **Cons**: Not weighted by volume per technology type
8	90th percentile of past 12-months spot prices in specific blocks (e.g., 4PM-8PM)	**Pros**: Filters out very low-price periods (compared to option 1) **Cons**: Like Option 1, likely to undercompensate generators as it does not reflect their operations
9	Higher of 90th percentile and benchmark price	**Pros**: Includes both a cost-base and pricing approach **Cons**: Current methodology for benchmark may be consistently lower
10	Increase benchmark premium	**Pros**: Increased value for providing service to participants **Cons**: Does not account for updates in plant costs or varied heat rates, not flexible to dual-fuel generators or storage
11	Benchmark with specific cost variables included for each type of generator: start, hours. Boiler temperature. Heat rate	**Pros**: specific to the class of generator; more accurate cost build up **Cons**: May not completely reflect the difference in costs between generators; difficult to estimate costs for batteries
12	Auction for directions – ex-ante approach. Generators to nominate prices they would be willing to receive	**Pros**: Generators nominate price; price differential reflects varied costs between generators **Cons**: New administrative process to run the auction; may incentivise higher prices in auctions

	Methodology	Trade-offs
13	Linked to fuel price – Link to liquid market (STTM, DWGM) and use a trailing average to determine raw rule input. Generators submit average heat rates for min-gen level.	**Pros**: Creates a stronger and more accurate link between **costs incurred** while being directed, rather than linking it to general **market outcomes** as the current 90th percentile does. **Cons**: Finding accurate liquid market price signals for technologies other than gas might prove to be difficult.
	Single step option	
14	Claims compensation only – no default (preliminary compensation) compensation.	**Pros**: More accurate compensation; removes preliminary compensation estimate. **Cons**: Impact on generator cashflows which may impact incentives

Price based methodologies

AEMO has undertaken initial assessment of options 4-7 listed above against the current methods 1-3. Figures 4 and 5 presents some results from this analysis for selected dates in 2022 and 2023 for an OCGT unit in SA and a coal unit in NSW. Methods 5-7 have been calculated using the most recent 2000 intervals that each generator/technology type was dispatched in. Intervals in which generators were directed online have been removed from the calculation.

It is important to note when assessing these price-based methodologies that there are a number of ways these options could be calculated. These ways would need to consider trade-offs related to the sampling size, as:

- Longer time horizons such as 12 months smooth out short-term fluctuations in the spot price and hence create valuable stability in preliminary compensation amounts. Long time horizons are, however, also slow to react to market dynamics and may lead periods of under- or over-compensation.
- Shorter time horizons such as 2000 intervals (~1 week) respond well and follow actual market dynamics, however, they may also lead to rapidly changing amounts of preliminary compensation. Such sudden changes may also create issues with cash flow management for directed participants.

For example, option 6 is calculated using specific generators to calculate the volume weighted price by technology type where each generator is operating during their individual previous 2000 intervals of operation. An alternative approach may to sum generation for OCGT in a region over the past 2000 intervals. The latter aligns with what is currently done for market suspension benchmark values.

Figure 4 Comparing methodologies – QPS1 Open Cycle Gas Turbine (OCGT)(South Australia)

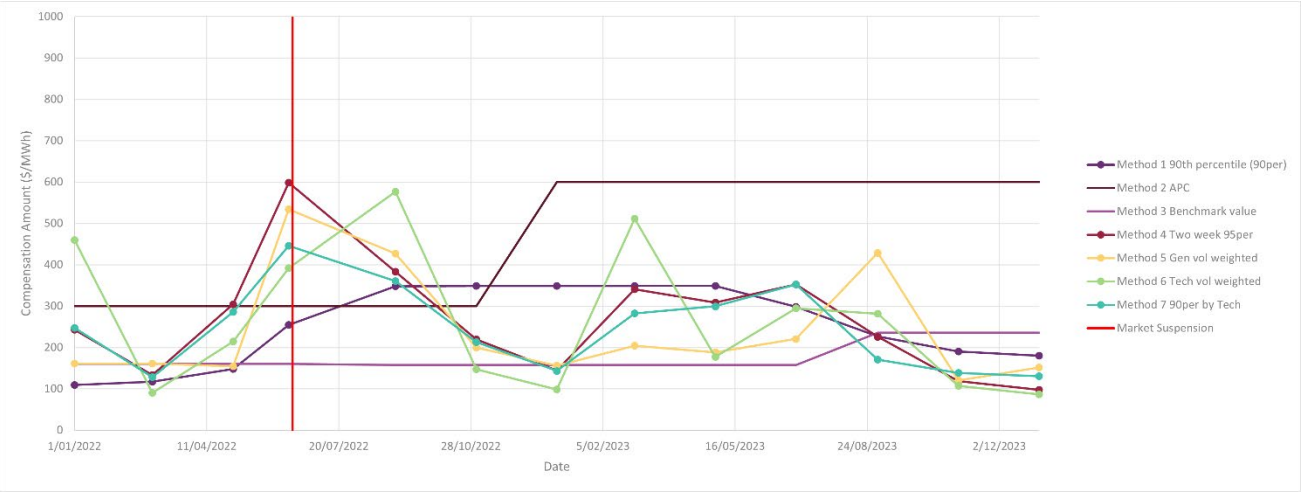
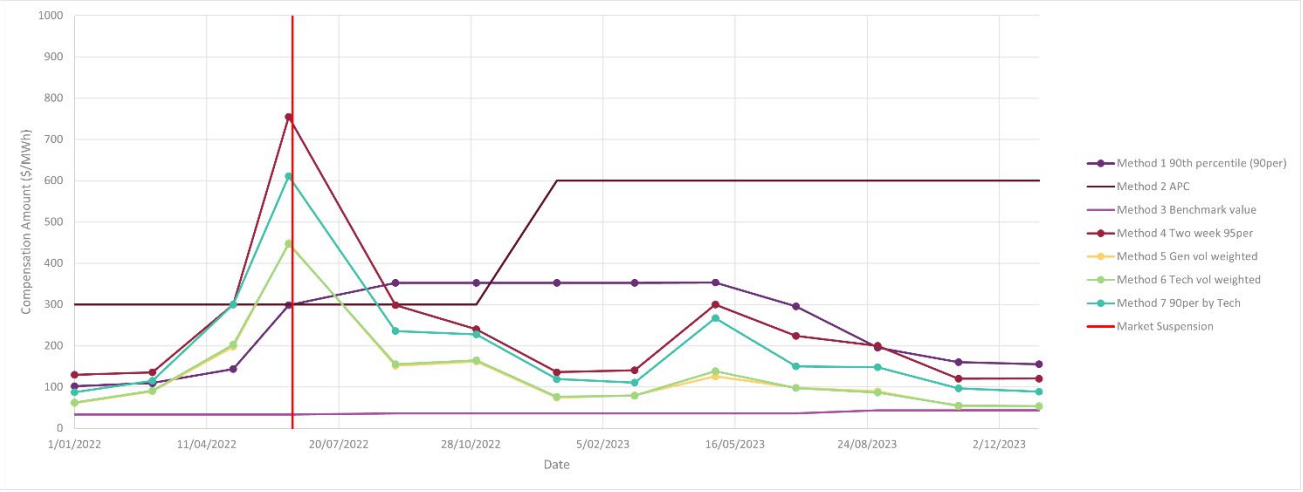


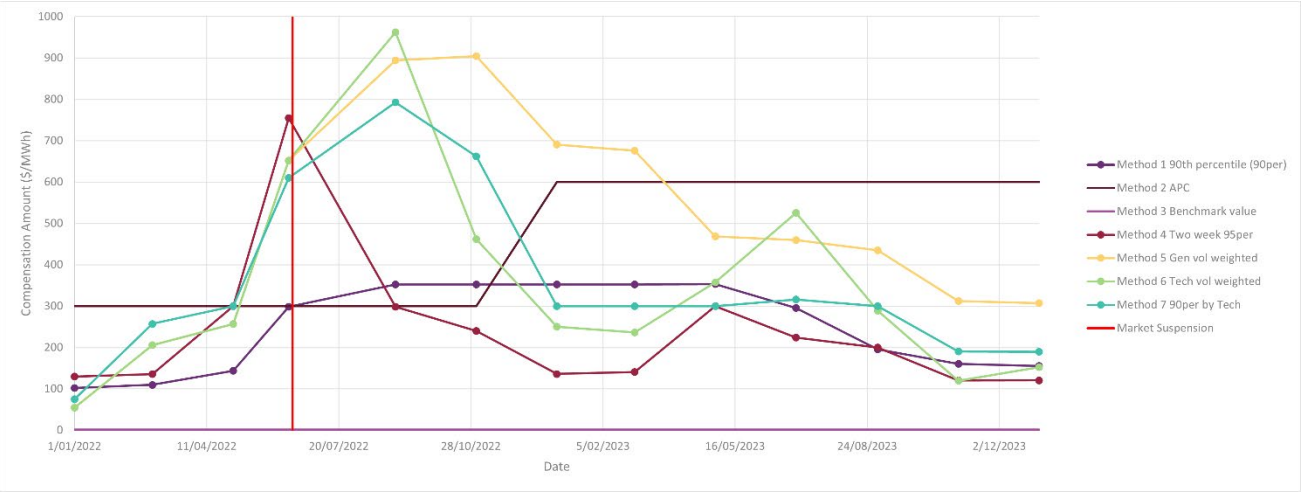
Figure 5 Comparing methodologies – BW02 Black Coal Steam Sub-Critical (New South Wales)



Methods 5-7 are each more aligned to compensating an appropriate amount for different technology types. It is more likely to avoid over-compensating and under-compensating for different technology types. Additionally, figures 4 and 5 further demonstrate that the benchmark methodology is likely to under-compensate for both OCGT and coal when compared with calculations of volume weighted prices.

Figure 6 below presents the analysis of applying some of the preliminary methodologies to a grid scale battery. One of the price-based methodologies by generator/technology type (methods 5-7) may apply better to this type of technology than current benchmark values.

Figure 6 Comparing methodologies – WALGRVG1 Grid-scale Battery (New South Wales)



3.2 Governance

Administering and assessing claims

As identified in Section 5.2 of the Consultation Paper, AEMO agrees that it may be appropriate to have a single body responsible for receiving all compensation claims. AEMO believes the following benefits may result:

- Reducing confusion for market participants.
- Timeliness of processing and assessing claims.
- A single market body would be able to set up appropriate resources, systems, processes and imbed these within the business.

Table 5.1 in the Consultation Paper lists four options for initial consideration for administering and assessing compensation claims. AEMO agrees with the AEMC's characterisation of these options as well as the relative pros and cons that have been included.

Option 1 proposes AEMO as the body to administer and assess all compensation claims. AEMO is open to considering this option and agrees this approach could leverage existing expertise and roles of AEMO including system monitoring and market operations to manage the security and reliability. It may also reduce instances for sharing information between market bodies and any associated time lags.

Having said that, AEMO does not consider it would be appropriate for AEMO to assess opportunity costs as part of the APP compensation. As noted in the consultation paper, AEMO is not an economic regulator, and it does not have the functions to assess opportunity cost claims. If AEMO was appointed to assess and administer all compensation claims, opportunity costs assessments could be assessed by an independent expert, similar to existing processes for independent advice to support additional claims.

Administering pricing compensation guidelines

AEMO proposes that the methodology and principles for calculating administered pricing compensation is embedded in the Rules. This approach aligns with other frameworks including the methodology and principles of calculating direct costs in the Directions and Market Suspension frameworks, which are embedded in the Rules. In doing so, the independent expert may refer directly to the Rules when assessing claims for

administered pricing, including any opportunity cost assessments. Any changes to the methodology for administering pricing compensation would go through a rule change process as is currently the practice for directions and markets suspension compensation.

3.3 Administrative

Overlapping claims

The issues that exist with overlapping claims include:

- The eligibility period of administered pricing compensation starts from the first trading interval where the APC is applied, until the last trading period of the day.
- Participants are eligible for administered pricing compensation if total costs over the entire day exceed total revenue. However, Directions and Market Suspension compensation are applied only to relevant trading intervals.
- The compensation processes are required to account for any other compensation payable during the eligibility period to avoid compensating twice. This may require claims to be assessed twice, increasing administrative costs and time, and therefore uncertainty to participants. Further, this creates perverse incentives for generators to wait for directions where other revenues are not taken into account.

To address the above issues, AEMO believes that aligning the eligibility period for APC compensation with other frameworks to only relevant trading intervals would suffice. This approach is simple and means the frameworks are managed in the same way, that is only one framework for each period to apply.

Adding a time limit for supporting information

AEMO believes timeframes should be included for receipt of supporting information for administered pricing compensation for the following reasons:

- Removes the risk of extended APC compensation claims. This would align with other compensation frameworks and provide accountability for progressing the claim on both the claimant and body assessing the claim.
- Claim timeframes allow participants to provide additional information to initiate their APC compensation claim.

AEMO considers that as additional timeframes may be required to gather opportunity cost information from claimants, it would not be necessary or possible to align the timeframes for assessment of administered pricing compensation is required. Specific and defined timeframes for administered pricing would be appropriate.

Harmonising definitions

AEMO believes definitions of direct costs between all three frameworks should be aligned within the Rules. This is because all three frameworks seek to provide a reasonable amount of compensation for participants that provide a service in the event the market price is not sufficient. Having alignment of the definitions for direct costs also supports having frameworks that provide clarity and are less complex so that they can be administratively efficient.