

Electricity Markets Competition Policy team  
Department of Climate Change, Energy, the Environment and Water  
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Fluence Energy Pty Ltd (Fluence) welcomes the opportunity to respond to the Strengthening the Prohibiting Energy Market Misconduct (PEMM) provisions in the Competition and Consumer Act 2010 (CCA) Consultation Paper (referred throughout as the consultation paper). We appreciate the proactive engagement from the Federal Department of Climate Change, Energy, the Environment and Water (DCCEEW).

## **Fluence is a leading battery energy storage solutions provider**

Fluence Energy Pty Ltd is an indirect subsidiary of Fluence Energy, Inc. (Nasdaq: FLNC). Fluence is a global market leader in energy storage products and services, and digital applications for renewables and storage. As of 30 September 2025, Fluence had deployed or contracted over 46 GWh of energy storage across 273 projects in 48 markets globally, and optimised or contracted 16 GW of wind, solar, and storage assets using Fluence Mosaic™ bidding system.

Fluence is not a project owner or Market Participant. Fluence is helping customers, who would typically be Market Participants, transform the way we power our world for a more sustainable future.

Australia is one of the core markets for Fluence, with high levels of renewable penetration requiring significant volumes of energy storage. Fluence has supported customers to deploy energy storage assets and bidding systems across multiple NEM regions:

- 530 MW / 830 MWh utility-scale storage operational with Fluence providing long term servicing
- 1,600 MW / 4,250 MWh utility-scale storage under construction using Fluence battery energy storage systems (BESS)
- 11 GW of renewable assets (wind, solar and BESS) supported by Mosaic™ bidding system.

Fluence also has a strong track record of delivering market leading solutions to tackle some of the biggest challenges faced by our energy systems. We have delivered Storage-As-Transmission-Assets for our customers in the German market and are contracted to deliver projects under the Stability Pathfinders programme for our customers in Great Britain. In the NEM, Fluence has pioneered innovation in the storage industry and has previously worked with customers to secure Australian Renewable Energy Agency (ARENA) funding to deploy grid-forming capability. Fluence's Mosaic software helps our customers manage their storage assets manage their obligations under critical system security contracts including the special integrity protections scheme (SIPS).

## **The consultation paper seeks to strengthen the PEMM provisions**

By strengthening the PEMM provisions in the CCA, we understand DCCEEW is seeking to:

- Enhance the retail provisions so that consumers are protected when costs are increasing.
- Prohibit cross-market manipulation to avoid circumstances where parties, through their actions in one electricity-related market, seek to gain benefit in a related market.

Fluence has experience across all aspects of BESS delivery – as a BESS technology supplier, in delivering engineering, procurement and construction (EPC) turnkey projects, and through our Mosaic bidding system to support our customers decisions regarding how they trade renewable and BESS assets. Fluence is not a market participant and our main pillars of feedback are as follows:

- *The increase of BESS has improved competition of dispatchable capacity, improving outcomes for energy consumers.*
  - Fluence’s analysis indicates the increase in the deployment of BESS in the NEM is resulting in a shift from a small number of larger Market Participants to multiple new-entrant power producers. Despite the introduction of new technology in the NEM, the fundamentals of the NEM remain the same – Market Participants face an efficient incentive to get dispatched or risk “missing out”. Under the current NEM market design, if assets don’t get dispatched, then the Market Participant won’t be paid.
  - The shift to a larger number of Market Participants controlling BESS makes it less likely for particular units to be able to exercise market power at peak times. Also, following the entry of BESS, frequency control ancillary services (FCAS) prices have fallen due to an increase in supply in those markets. While energy and FCAS markets can have correlated prices, ultimately Market Participants are responsible for submitting bids and offers across all markets and AEMO’s NEM dispatch engine forms the least cost optimisation needed to operate the market safely and securely.
- *Bidding systems – including those that facilitate algorithmic or automated rebidding – are essential tools that promote competition and help Market Participants ensure compliance with the NER.*
  - Bidding systems promote competition by reducing barriers to entry for new Market Participants, and support investment in renewables and battery storage assets which are essential to meet government renewables objectives.
  - We have seen a shift in the type and composition of dispatchable resources that are participating the NEM driven by significant new entry from renewables and storage. Inverter-based wind, solar, and BESS are the most flexible and fast ramping dispatchable resources ever registered in the NEM. Significant new entry from these assets with advanced technological capability demands a related evolution in the software-based bidding tools used to manage and bid these resources. As the NEM’s physical resources have become faster, more flexible, and more use limited, with generation availabilities that change dynamically with the weather, their rebidding has necessarily become faster, more frequent, and more precise. This change is a feature of market participants keeping pace with their obligations for fast-response and weather-dependent resources and not of “excessive” bidding.
- *The technology employed by bidding systems in the NEM is fundamentally different to the technology used in algorithmic pricing systems in industries.*
  - There is existing legislation that prohibits collusion, and the regulation of behaviour of bidding platforms between multiple providers would be no exception. The NER also specifies that Market Participants are ultimately responsible for the information provided in bids, whether aided by bidding platforms or otherwise. Given these regulations, our customers have strong vetting and due diligence processes when selecting a bidding software provider, such as Fluence Mosaic. This is essential for

Market Participants to ensure that systems are compliant with the NER/NEL and relevant laws.

- In the context of existing regulatory arrangements that govern bidding and prohibit collusive behaviour, enhancements to the PEMM legislation are unnecessary.
- Furthermore, the technology employed by bidding systems in the NEM today (including Fluence's own Mosaic system), is fundamentally different to the technology used in algorithmic pricing systems referenced in the AEMC Staff Working paper referenced in the consultation paper.
- Fluence supports further work to better understand bidding systems and how they are used in the NEM. Should the ACCC and AER have concerns, we encourage these institutions to identify, in consultation with industry, any specific risks of bidding systems under the current legislation and regulation for Market Participants' bidding and provide evidence that these risks cannot be adequately addressed under existing regulations in the NER/NEL and CCA. Fluence would welcome an opportunity for discussion and further collaboration. Only following the completion of such analysis should DCCEEW consider whether or not enhancing the PEMM to include bidding systems is a necessary next step.

Please see the appendix for further context and analysis to support Fluence's views.

We would like to thank DCCEEW for the opportunity to provide feedback on the consultation paper. We are available to discuss any of the comments in this submission in more detail, on request.

## Appendix – Fluence detailed feedback

### The increase of BESS has improved competition of dispatchable capacity, improving outcomes for energy consumers

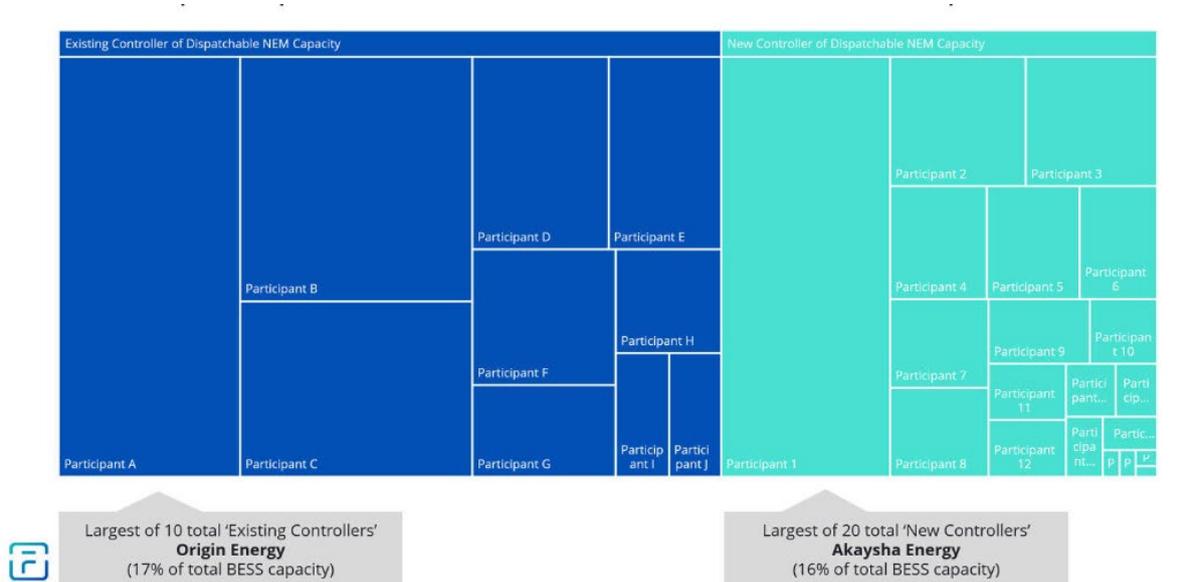
This section provides further analysis on the enhanced competition from new entrant BESS, and efficient incentives that all asset classes face in the NEM.

#### i) Energy storage has increased competition in dispatchable capacity

The increase in certain dispatchable asset classes, such as BESS and other storage, reflects the changing needs of the power system as the NEM decarbonises. Over the past decade, we have observed a significant increase in BESS investments in response to increasing intraday price spreads (largely driven by investment in rooftop and utility-scale solar), and reforms like 5-minute settlement that provide a strong signal for fast response generating capability.

Fluence’s own published analysis<sup>1</sup> suggests that within the NEM’s fleet of grid-scale, scheduled BESS, there are signs that the control of the BESS fleet is diversifying away from a small number of large players toward a more diverse fleet underpinned by a multitude of new-entrant independent power producers. Fluence’s analysis concluded that, of the approximately 10.5 GW of scheduled BESS capacity that had reached financial close as at April 2025, around 40% of that capacity by the end of 2027 will be bid and controlled by new-entrant Market Participants with no prior experience bidding a scheduled unit (see Figure 1, below).

**Figure 1: Share of Market Participants controlling BESS capacity by 2027**



<sup>1</sup>The growing NEM BESS fleet: Who is controlling all this capacity, anyway? Article published by Watt Clarity, April 2025. [Link](#).

**ii) Market Participants face an efficient incentive to offer capacity or risk “missing out”**

Despite the recent increase in prevalence of automation in bidding systems for modern, flexible, dispatchable units, the fundamentals of the NEM remain the same and these fundamentals apply to BESS.

Market Participants still face an efficient incentive to offer and rebid their capacity at prices that are most likely to result in the asset getting dispatched. Otherwise, Market Participants risk “missing out” on opportunities to dispatch their resources at profitable prices, incurring opportunity costs. These real-time trade-offs exist for all asset classes, not just BESS, and includes bidding in across energy and FCAS markets.

The examples highlighted in the consultation paper would likely result in the individual BESS assets earning suboptimal revenues.<sup>2</sup> This is especially the case following:

- The implementation of 5-minute settlement in 2021, that aligned the dispatch and settlement periods at 5-minutes and removed incentives for alleged gaming 30-minute intervals. The examples highlighted by DCCEEW are not limited to specific asset classes.
- The fall in FCAS prices that coincided with significant new entry of BESS, despite relatively stable enablement levels.<sup>3</sup>

**Bidding systems promote competition and enable Market Participants to ensure conformance and compliance with the NER**

This section provides further context on how bidding systems are used in the NEM to ensure compliance with the NER/NEL. It also provides rationale for why the increase in rebids is a function of a decarbonising power system and not “excessive” or an inherent issue.

**i) Bidding systems are not a new phenomenon in the NEM and are an essential tool for Market Participants to compliantly submit bids and rebids**

Market Participants have been using software tools to form and submit bids since before the creation of the NEM in 1998. AEMO (and NEMMCO before it) requires that bid files be structured in a very specific format, and bid files include information that is both commercial in nature (i.e. offer prices) and physical in nature (i.e. unit capabilities and availabilities). The consequences of mismanaging bid information can be costly for a Market Participant – commercially, reputationally, legally, and physically. These risk factors are well suited to mitigation via software tools that help human traders keep track of required information, ensure structured formatting, and validate adherence to market rules and compliance requirements.

Similarly, price forecasting is not a new phenomenon. All Market Participants in the NEM have historically incorporated some form of price forecast into their unit commitment decision-making, including offer prices and availabilities.

What *has* changed in recent years is the type and composition of dispatchable resources that are participating the NEM. Inverter-based wind, solar, and BESS resources are the most flexible and fast ramping dispatchable resources ever registered in the NEM. This evolution in technological capability drove a related evolution in the software-based bidding tools used to manage and bid these resources. As the NEM’s physical resources have become faster, more flexible, and more use limited, with generation availabilities that change dynamically with the weather, their rebidding has necessarily become faster, more frequent, and more precise. This change is a feature of market participants

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<sup>2</sup> DCCEEW, *Consultation paper*, p45.

<sup>3</sup> The AER produces quarterly data on FCAS enablement in accordance with NER clause 3.11.2A. [Link](#).

keeping pace with their obligations for fast-response and weather-dependent resources and not of “excessive” bidding.

BESS resources are incredibly use-limited, with ever-changing physical availabilities that require frequent re-forecasting, re-planning, and re-signalling to AEMO, to deliver their limited energy into the market at the time it’s needed most, and to efficiently respond to the NEM’s price signals. It would be near impossible to efficiently and compliantly offer a BESS into central dispatch without the support of a bidding system with some degree of automation, and without making frequent rebids.

## **ii) Timely rebids communicate a unit’s physical availability updates, not just its offer price updates**

Much of the NEM Wholesale Market Settings Review Draft<sup>4</sup> and Final<sup>5</sup> Reports, and AEMC Staff Working Paper<sup>6</sup> referenced in DCCEE’s consultation paper are focused on the prices offered through bidding systems, and the theoretical possibility of algorithmic collusion in offered pricing. However, helping a Market Participant form offer prices is just one component of a bidding system’s core function. More importantly, bidding systems provide accurate and timely signalling of a BESS’ physical availability across the entire dispatch horizon, via the “MaxAvail” parameter within a bid file.

Fluence’s Mosaic bidding system reads real-time signals from a BESS’s physical plant and uses the very latest plant status information to plan the BESS’ intended future dispatch and management of stored energy. If warranted, the Mosaic system updates and rebids the MaxAvail parameter to AEMO every five minutes, covering every 5-minute dispatch interval for the remainder of AEMO’s dispatch horizon.

Small changes to plant availability or a BESS’ planned dispatch in an upcoming interval – often the result of a changed price forecast (itself often the result of a changed demand or renewable generation forecast) - can lead to material changes in MaxAvail for each subsequent interval in the remainder of the trading day. Most rebids submitted by a BESS unit will include MaxAvail updates in future intervals – as required under the Chapter 3.8 of the National Electricity Rules (NER) – because commercial intentions and related physical availabilities have changed.

It is essential (and required by the NER) that AEMO be provided with the most up-to-date view of the unit’s intentions and physical availabilities – and – particularly for BESS units - it would be near impossible for a Market Participant to signal this information fast enough, accurate enough, and reliably enough, without the aid of automated software logic. In this sense, bidding system automation is essential to a BESS unit’s ability to bid compliantly and ensure it only seeks dispatch targets it is confident it can physically conform to.

## **iii) Increased rebid volumes reflect the NEM’s changing resource mix**

As the power system becomes more reliant on weather dependant generators, resource availability (supply) forecasts will change more often<sup>7</sup>, leading to price forecasts changing more often, leading to energy limited plant like BESS needing to re-plan their SOE and rebid their intentions and availabilities more frequently. Given this new reality, in combination with the transition to a market comprised of more numerous smaller generators, the governments should not be surprised that recent years have seen an increase in the volume of unit rebids submitted to AEMO.

The increase in rebids reflects a shift away from a small number of large thermal generators, towards a large number of smaller renewable generators. The recent increase in the volume of rebids referenced in the NEM Wholesale Market Settings Review Draft and Final reports, is not problematic in and of itself. Rather, it instead highlights that the AER’s market monitoring capabilities may need to be enhanced to

<sup>4</sup> NEM Wholesale Market Settings Review, *Draft Report*. August 2025. [Link](#).

<sup>5</sup> NEM Wholesale Market Settings Review, *Final Report*, December 2025. [Link](#).

<sup>6</sup> AEMC Staff Working Paper, *Addressing the risk of algorithmic collusion*. published September 2025. [Link](#).

<sup>7</sup> AEMO’s demand forecasts will also change more often, as demand becomes increasingly weather dependant on the back of trends including electrification of heating/cooling loads, and rooftop PV.

effectively monitor bidding compliance, risks of market manipulation, and the effectiveness of competition.

**iv) Behind every bid is the human hand of a Market Participant, with a defined strategy**

The NEM Review and AEMC Staff Working Paper, referred to in the consultation paper, at times refer to ‘algorithmic bidding’ and ‘algorithmic pricing’ as if autonomous machines are forming dispatch plans and offer pricing for units on their own. This is not the case. Behind every dispatchable unit is a team of human traders (the Market Participant), with at least one representative on shift around the clock, 24/7.

Fluence’s Mosaic bidding system is designed explicitly for Market Participants to define, control, and execute their own trading strategies. The bidding system simply helps the Participant execute on its defined strategy, often leveraging algorithmic automation to in support of commercially optimal, compliant outcomes.

Importantly, the Market Participant is in control of all key commercial variables that define the trading strategy – for example, the price bands that get offered, the range of prices the bidding system will utilise, the way the unit’s physical limits are codified into physical constraints in the optimisation, the way the Participant’s risk tolerances are codified into commercial constraints in the optimisation, etc. It is not safe to assume that every bid price offered by a BESS unit was determined by an algorithm, as bidding systems including Fluence’s afford the Market Participant’s human traders various ways to control or dictate offer prices.

In Fluence’s Mosaic system, there are several ways human traders can steer, guide, or otherwise override the algorithmic execution of their strategy. For example, human traders can layer on both “soft” economic constraints to guide the bidding system and influence SOE management, or “hard” constraints including using the Mosaic system to place “manual bids” – where the bid price, volume, availability, and rebid reason are hand dictated by the human trader. Human dictated rebids can be indistinguishable from automation-aided rebids.

Fluence’s Market Participant customers can and do often layer on intra-day constraints and overrides to the bidding system. These constraints result in bidding and dispatch outcomes that commonly reflect a combination of human input, and algorithmic execution. Importantly, the bid outcomes always reflect the intentions of the Market Participant, and the physical capabilities of the unit.

An examination of recent “peak price” days including several days in June 2025 would reveal the clear role of ‘human hands’ in guiding the outcomes of many BESS in the NEM’s fleet. During these volatile periods, many units rebid fewer times than is typical, and atypically constrained utilised price bands to specific ranges. In this sense, on the most volatile peak price days, the BESS fleet was being traded the same way dispatchable units have traditionally been by human traders competing against each other, seeking outcomes that align with their organisation’s commercial prerogatives and risk management protocols.

## **Bidding systems in the NEM are not susceptible to anti-competitive practices**

This section outlines the fundamental differences in technology deployed by bidding systems, and the strict regulations that exist for Market Participants when submitting bids and offers.

**i) The technology employed by bidding systems in the NEM is fundamentally different to the technology used in algorithmic pricing systems in other industries**

The technology employed by bidding systems in the NEM today (including Fluence’s own Mosaic system), is fundamentally different to the technology used in algorithmic pricing systems referenced in the AEMC Staff Working paper referenced in the consultation paper.

Fluence's bidding system incorporates specific AI methods including machine learning to forecast prices. These methods support the optimisation of bidding decisions within a framework of rules and constraints built into the bidding system. Examples of significant rules and constraints include:

1. The Market's Participant's defined prices, preferences, constraints, and strategies;
2. NEM market rules, as defined in the bidding system's codebase;
3. Physical plant limits, as determined by physical models and real-time telemetry.

By contrast, the AI methods referenced in the AEMC Staff Working Paper are so-called *uninterpretable AI models*<sup>8</sup>. These approaches, including reinforcement learning, do not always enforce constraints (e.g., market rules, physical limits, or trader strategies) and may instead prioritise singular objectives like maximising profit. As a result, they can lead to unintended behaviours, due to their "unconstrained" decision-making nature.

For example, the AEMC Staff Working Paper cites an example of 'algorithmic collusion' between different sellers selling the same textbook on Amazon.com. In this example, the only constraint in the uninterpretable AI model is the physical availability of the book (i.e. the remaining available stocked quantity). In contrast, optimisation and bidding of a BESS in an electricity market requires the consideration of and strict adherence to modelled constraints including the BESS' physical availability and capabilities, the codified market rules, and the defined limits and objectives of the Market Participant. We suggest that analogies and examples from other industries are not directly relatable to the NEM and the 'algorithmic collusion' posited in the AEMC paper is not occurring in the NEM today and is unlikely to occur in the future.

Fluence's research on the current state-of-the-art AI methods suggests that applying uninterpretable AI models to BESS optimisation and bidding would be impractical, because these types of algorithms cannot reliably enforce physical constraints and limits (for example, a BESS' warranty constraints). Fluence's bidding system does not provide Market Participants with tools that can be used to manipulate market outcomes or engage in anti-competitive behaviour.

## ii) Existing regulations hold Market Participants accountable for their bids

Under the current NER, each Market Participant who submits a bid takes responsibility and is accountable for that bid, regardless of whether the bid was created with the assistance of automation or an algorithm. Further, the NER sets out a strong and robust penalty regime for Market Participants who are found to have bid in contravention of the NER. Accordingly, Market Participants already face a strong and efficient incentive to ensure their bidding systems form bids in a way that is compliant, explainable, and defensible.

This incentive gets passed down to bidding system developers, including independent bidding system providers like Fluence, who are typically put through rigorous due diligence processes before being contracted and deployed by a Market Participant. Fluence is committed to helping Market Participants compliantly operate within the NEM's Rules, Technical Guidelines.

Further, the AER already has considerable powers to compel Market Participants to explain and defend their bids, especially rebids close to the start of a Trading Interval. The AER need only ask a Participant to "please explain" a bid. If information from the Market Participant is not forthcoming, insufficient, or indicates non-compliance with the NER, the AER can leverage its enforcement powers – which serve as a strong and constant deterrent to bad or careless conduct on behalf of Market Participants and bidding system developers alike.

The responsibility of Market Participants for their bids also extends to compliance under the CCA that prohibits collusion.

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<sup>8</sup> Other commonly used terms for these types of models may include *opaque decision-making models*, or *black-box AI models*