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Australian Energy Market Commission (AEMC) and
Australian Energy Market Operator (AEMO)
Via https://www.aemc.gov.au/contact-us/lodge-submission

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Dear Chair

Australian Aluminium Council Response to Essential System Services (ESS) and inertia in the NEM

The Australian Aluminium Council (the Council) represents Australia's bauxite mining, alumina refining, aluminium smelting and downstream processing industries. The aluminium industry has been operating in Australia since 1955, and over the decades has been a significant contributor to the nation's economy. It includes six bauxite mines plus several smaller mines which collectively produce over 100 Mt per annum making Australia the world's largest producer of bauxite. Australia is the world's largest exporter of alumina with six alumina refineries producing around 20 Mt per annum of alumina. Australia is the sixth largest producer of aluminium, with four aluminium smelters and additional downstream processing industries including more than 20 extrusion presses. Aluminium is Australia's top manufacturing export. The industry directly employs more than 17,000 people, including 4,000 full time equivalent contractors. It also indirectly supports around 60,000 families predominantly in regional Australia.

The Council welcomes the opportunity to provide feedback to the AEMC and AEMO on their joint paper Essential system services and inertia in the NEM (the Paper). The Council and its members have been actively engaged in the Post 2025 National Electricity Market (NEM) reforms and recognises that the NEM is currently heading towards a system which lacks the inertia and demand requirements required to address the risk of instability. The current energy only market is no longer fit for purpose. The Council will focus its response on ESS and Inertia, but within the context of the broader Post 2025 NEM reforms. The Council agrees that the NEM is going through a once in a century transformation, as Australia moves towards net zero emissions by 2050 and that this transition will need to be carefully managed, to ensure that all consumers are provided with competitively priced, reliable, low emissions energy. The Council has considered how options presented contribute towards meeting the needs of the aluminium industry and the content has been tested against the Council's view of design principles for an electricity system (See *Attachment 1*). As each smelter, refinery and extruder has unique electricity arrangements, the Council will reserve its comments on the Paper to a high level.

Aluminium Industry and the National Electricity Market

Within the NEM the Australian aluminium industry has four aluminium smelters and two alumina refineries which use more than 10% of the electricity consumed in the NEM. Accordingly, the Australian aluminium industry has a strong interest in electricity policy. Electricity typically accounts for around 30-40% of aluminium smelters' cost base, and therefore it is a key determinant of their international competitiveness. Alumina refineries, while not as electricity intensive as smelters, are also significantly exposed to electricity policy. For the aluminium industry, it is the delivered cost (including transmission) of electricity which drives international competitiveness.

The delivered electricity supply requirements of the aluminium industry, can be summarised as follows:

- least cost, and an internationally competitive electricity cost, as a minimum;
- consistent uninterrupted electricity supply;
- an ability to secure electricity supply under long-term contractual arrangements; and
- an ability to be compensated adequately for system services which smelters and refineries provide for the network and its stakeholders.

These outcomes need to be delivered within the framework of Australia's Paris Agreement emission targets.

Aluminium smelters already offer a range of services and functions which support the network over varying weather, network demand and operating conditions, including Reliability and Emergency Reserve Trader (RERT) and Frequency Control Ancillary Services (FCAS). Smelters' large and fast-acting interruptibility helps secure and restore stability to the network before and after contingencies occur. The industry has increasingly been called upon to support grid stability and reliability, as the challenges in managing the grid increase. Amongst the roles played by very large and continuous smelter loads are:

- Buffering the erosion of minimum scheduled demand;
- Support for the continued economic commitment and operation of large-scale synchronous generation (noting that de-commitment of synchronous units due to inadequate base demand levels can regularly remove large blocks of inertia and system strength from the system);
- Supply of certain essential system services, such as contingency FCAS;
- Potential participation in "backstop" reliability schemes such as RERT or Interim Reliability Reserve (IRR) noting that RERT is non contingent revenue; and
- Enhancing system resilience through rapid unscheduled interruptibility in the case of extreme high impact events, which, like more extreme weather conditions, are occurring increasingly frequently in the NEM and are increasingly complex to match with dispatch in real time.

Only some of the current services are explicitly remunerated, nor is their overall "real option" value recognised – namely the flexibility that retention of these large loads provides in future choices of physical and economic mechanisms to stabilise the system and market. In the absence of these loads the measures required to maintain secure and resilient operation of the grid are likely to require significant additional investment and cost to all consumers. The Council recognises that smelters, play multiple roles in the market, which are currently unpriced, or where the mechanism to value them is poorly aligned with operational practices. These services are entwined across resource adequacy, ESS and two-sided markets.

Existing Contractual Terms

All of Australia's aluminium smelters have long term existing contracts. The expiry of these contracts for Australian smelters varies from 2025 to 2029 (with Bell Bay Aluminium in Tasmania the first to finish). However, other major industrial facilities; including alumina refineries; also have long term base load electricity contracts. Even smelters with existing long-term contracts are not immune to changes in the market, as contracts still contain a range of change-in-law provisions. These incumbent long-term contracts need to be recognised and grandfathered where there is design change in the market, given the importance of these contracts in underpinning minimum demand and dispatchable generation.

These contracts currently bundle many markets services required to meet continuous electricity demand at an internationally competitive price. One of the key drivers for the new markets which are currently being designed, is declining and less predictable minimum demand. However, this does not recognise that industrial loads from smelters and refineries have not reduced their minimum load and therefore, the counterparty retains their ability to manage services on these loads through existing NEM mechanisms. These existing contracts underpin dispatchable generation and system reliability, particularly when demand is low and variable renewable generation is high. However, these contracts are not immune to changes in the market as contracts may contain a range of change-in-law and other pass-through provisions, so there is a real risk that base load consumers could pay twice for additional market services introduced to provide reliable and secure supply for customers with highly variable demand.

International competitiveness of aluminium smelters depends on the ability to secure long term, well priced contracts. For smelters seeking to recontract, it is acknowledged that decarbonised electricity will be a core aspect of future contracts. The long term nature of these contracts also underpins the ability of smelters to make the substantial capital investment required to maintain international competitiveness. Increasingly, as other industries such as alumina refineries, seek to electrify their processes to reduce emissions these assets will also require long term competitive contracts to support the commercial investment required for transformative abatement.

For those assets which are seeking to re-contract or develop new long-term contracts, this is becoming increasingly difficult with increased numbers of markets. Counterparties are less able to supply bundled contracts and as noted above there is the real risk that through bundled contracts that pre-date particular changes to the market, large users pay twice. This making it harder for industry to manage contracts rather than focussing on their core purpose of value adding to Australia's resources.

Essential Systems Services and a potential Inertia Spot Market

In developing mechanisms to provide additional services including ESS and a potential Inertia Spot Market, it is the Council's preference is that this should be by adapting the current wholesale market, rather than developing a plethora of new markets for each service. The Council's rationale for this is:

- The product being sold is quality electricity, and the services are all components which make up the production of electricity of the right *quality*.
- A single market price is more likely to support a liquid hedge market and provide consumers with greater ability to hedge. Currently, there are a limited number of price nodes across the NEM and a reasonably functioning hedge market. The introduction of additional non hedgeable markets leaves customers exposed to a greater proportion of electricity costs that are not readily contractable and could be volatile.
- These charges may end up being an add-on not covered by existing spot price on contracts, so customers with long-term contracts could end up paying extra charges on top of their agreed electricity charge for firm offtake.
- The more markets there are, the more difficult it will be to understand the interaction between them, and the less likely that each of these markets will be competitive and liquid, increasing financial risk in the contract market.
- The alternative of non-market procurement mechanisms for separate services is more likely to result in costs and inefficiencies falling largely on consumers through "smeared" cost recovery mechanisms offering no opportunity or incentives for mitigation.

As consumers, the Council's members are not in a position to comment on the technical system needs which should be considered during any assessment of the Australian Energy Council's (AEC) rule change. However, there is a large potential disadvantage to consumers from unbundled procurement of inertia and that is cost and the potential to pay twice for the same service.

The Council had previously articulated its concerns about an overlap between a capacity mechanism and a potential Operating Reserve mechanism. Therefore, the decision by the AEMC to delay the publication on the draft determination on the Operating Reserve Market until the Capacity Mechanism design is complete was welcomed by the Council. Consistent with this view on the number overlapping reforms as outlined on P12 of the Paper, and notwithstanding the need for NEM reform and the time taken for good design, the Council urges caution in developing multiple markets in parallel.

The Council seeks a national climate and energy policy framework which is transparent, stable and predictable, while maintaining the economic health of the nation including vital import and export competing industries. The P2025 market design is a crucial aspect of this for the aluminium industry.

Given the importance of the P2025 market design for the aluminium industry, the Council is happy to provide further information on any of the issues raised in this letter and looks forward to continuing to work further with the Energy Security Board, the Department and other agencies on its development.

Kind regards,

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Attachment 1

Australian Aluminium Council - Electricity System Design Principles

Engender Australian advantage

Support a future where Australia's world class energy resources are translated into internationally competitive, low emissions, reliable energy to ensure industrial production, emissions and jobs are not exported to other countries. As Australia transitions away from a thermal fleet and towards increasingly variable and distributed generation, industrial load provides a physical and commercial "ballast" to the grid. The value of this load as both ballast and interruptible supply needs to be recognised in the development of competitive frameworks.

Avoid shocks to all market participants, including consumers

The approach to transition should be consistent with a rapid evolution, rather than revolution, in electricity reform processes. Transition should seek to avoid shocks and discontinuities where possible and rule makers should work to ensure the preservation of existing commercial contracts (grandfathering) to prevent disadvantage to all market participants who are willing to invest and contract for the long term.

Deliver improvements throughout the transition, not just in the long term

The short term versus long term balance in interpreting the National Electricity Objective is skewed in favour of the long term, which can lead to short term disadvantage. There needs to be a more risk-based approach to changes which reflects the certainty around short term costs and the uncertainty of long-term benefits. The staging of the transition must be recognised, as well as the final outcome, looking for benefits along the pathway. In considering the most beneficial end point, the benefits and costs of the transition, should also be considered.

Recognise the starting point and state-by-state variation in any design

The current energy-only market has not been able to deliver perfect competition, some regions are more balanced than others and many regions have relied on major Government investment to provide supply and manage the transition. Future market reforms need to recognise that the playing field within the market does not start from a basis of levelized competition, regulations will be required which encourage competition in the services which are needed to balance the current imperfections and in jurisdictions where the current market competition levels are unable to drive efficient outcomes. In designing new structures that recognise the reality of the starting point an important principle of design is that the cost of regulation should not exceed the private benefits.

User participation should be voluntary and recognise the complexity of participation

Even for large, sophisticated industrial users, the procurement of electricity is primarily seen as an input into production; rather than being the core process for the business itself. As the emphasis in market design switches to more demand side participation, assumptions need to be continually tested regarding the complexity of requirements to participate. It is important to recognise that demand side participation will impact on both operational processes and safety; and has the potential to distract from the core business processes of end users. It requires complex technical considerations within the businesses of industrial users that interact with the market. Outsourcing participation to an intermediary does not remove the need for the business to manage its physical interface with the market. Accordingly, services that industrial users could provide – such as demand management, stability, ancillary services, and emergency response – should be provided on a voluntary basis and need to be adequately compensated for.