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Department of Climate Change, Energy, Environment and Water
https://consult.dcceew.gov.au/capacity-investment-scheme-public-consultation-paper

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Dear Minister

Australian Aluminium Council Response to Capacity Investment Scheme – Public Consultation Paper

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. Six bauxite mines 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 highest earning manufacturing export. The industry directly employs more than 19,000 people, including 6,600 full time equivalent contractors. It also indirectly supports around 60,000 families predominantly in regional Australia.

The Council welcomes the opportunity to provide feedback Capacity Investment Scheme (CIS) – Public Consultation Paper (the Paper). The Council will focus its response on the CIS but within the context of the broader reforms taking place in the electricity markets in order to encourage new investment in clean dispatchable capacity, support reliability, and reduce the risk of price shocks in Australia's rapidly changing energy market.

As per the Council's submissions to the Energy Security Board during the development of the Capacity Mechanism, the Council supports the development of a mechanism which incentivises the right technologies and structures to ensure the grid can be maintained in a secure state during times of maximum duress, whether that be lack of supply to match demand, or lack of demand to match supply. Both the National Electricity Market (NEM) and Wholesale Electricity Market (WEM) are 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 NEM and WEM are currently heading towards systems which lacks the inertia and demand requirements required to address the risk of instability, which is becoming increasingly problematic for industries which rely on firm, uninterrupted power supplies.

The Council welcomes the recognition that the CIS is not intended to alter the operation of Australia's electricity systems or markets, but to bring forward investment and place downward pressure on electricity prices for consumers, with costs being borne by the Commonwealth and not passed on to electricity

consumers, including households and industry. The alignment of Federal and State processes, such as working in partnership with NSW Electricity Infrastructure Roadmap and recognising the specific design issues in the WEM, is also welcome.

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 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 demand periods;
- 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); and
- Enhancing system resilience through rapid unscheduled interruptibility in the case of extreme contingency events, which, like more extreme weather conditions, are occurring more frequently in the NEM and increasingly complex to match with dispatch in real time.

Only some of the current services are explicitly remunerated. Some are not, and their overall "real option" value is not 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 would require significant additional investment and cost to all consumers.

While aluminium smelting is currently a large electricity consumer, consuming around 2.6 GW of electricity in the NEM, the potential to electrify the alumina refineries will require a further 3-5 GW[1]. There are two refineries in the NEM and four in the WEM (or South West Interconnected System (SWIS)). While this needs to be combined with technology availability to enable transformation in some cases it is the supply and availability of competitively priced zero emissions electricity which may be the rate limiting step. For example, the SWIS may not have the generation nor transmission capacity to electrify one alumina refinery, let alone four.

[1] https://arena.gov.au/assets/2022/11/roadmap-for-decarbonising-australian-alumina-refining-report.pdf

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 2035[2] (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.

One of the key drivers for the new markets which are currently being designed, is managing the declining and less predictable minimum demand. To date, this has not recognised that industrial loads from smelters and refineries have *not reduced* their minimum load. These existing contracts underpin dispatchable generation, system reliability, help reduce transmission congestion and avoid constraining renewable production. Without adequate consideration in any new market design, 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. It will also be important to the capacity costs in any future market are able to be hedged.

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.

Integration with State Schemes

The Council welcomes the integration with existing state schemes including:

- in Western Australia, CIS projects may be required to be eligible for and participate in the Reserve Capacity Mechanism.
- In NSW, the CIS will be integrated with the Electricity Infrastructure Roadmap.
- Renewable energy zones (REZs) identified in particular states and territories.

Role of Large Industrial Loads in the CIS

While the Council recognises that the CIS is intended to invectives new investments, the exclusion of existing assets may exclude the participation of large industrial loads. These may have lower cost and efficient capacity which is not currently incentivised to be provided to the market. The Council believes this least cost delivery needs to be facilitated as it may be delivered more efficiently and quickly to the market than through the CIS.

The Paper proposes that the Minimum Storage Duration should be 2 hours. However, the Paper (P14) also states that a 4 hour 100 MW battery would have less flexibility compared to a 1 hour 400 MW battery. On P16 the Paper then outlines that for CIS to be eligible for Demand Response, it needs to be able to reduce for 4 hours or more. If Demand Response can offer above a certain MW threshold (e.g., 150 MW Capacity), then the duration should be 1 hour. This would better enable large industrial producers to offer this service, should they wish. Further, the 'Capacity' offered by industrial user for minimum demand periods should be rewarded

[2] Portland recently announced a new contract represents approximately 50 per cent of the energy required to meet the facility's nameplate capacity of 358,000 tonnes of aluminium per year.
https://www.alcoa.com/australia/en/news/releases?id=2023/08/powering-the-future-of-portland-aluminium&year=y2023

and compensated, recognising the avoided impacts on reliability and transmission congestion which it delivers.

The Paper indicates that assets already receiving Government Funding (Revenue) would be ineligible for CIS. However, the Paper also indicates that assets may be eligible if "other forms of financial support from State or Commonwealth government where the relevant government intends the financial support to be complementary to the CIS". This is contradictory and should be clarified.

Importance of CIS in Developing New Renewable Capacity

Decarbonisation of the aluminium sector will rely heavily on the availability of large-scale, competitive , firmed, renewable energy including significant investment in the low carbon firming which will be required. While the Council supports measures to fast-track investment and delivery in capacity, significantly more than 6GW will be needed in the longer term.

There is an opportunity for the CIS to promote investment in new technologies which could improve market efficiency and reduce costs over time, including longer duration storage. Supporting these new, long duration forms of storage could also drive new technologies to access the learning rates to lower cost for all future projects, including those not formally supported by the CIS. The Council believes a specific allocation in the CIS for novel or new technologies could be a way to achieve this.

Successful international schemes have relied upon a simple pricing model to help maximise the success of the scheme - enabling efficient business decision-making and capital deployment

Conclusion

The Council acknowledges the role the CIS could have in the emerging electricity market by encouraging new investment in clean dispatchable capacity and supporting reliability. There is an ongoing role for large industrial users in this market, which is not yet sufficiently valued.

The Council would be happy to provide further information on any aspect of this submission.

Kind regards,

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