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Energy Security Board
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Dear Chair

***Australian Aluminium Council Response to P2025 Market Design Consultation Paper***

The Australian Aluminium Council (the Council) represents Australia's bauxite mining, alumina refining, aluminium smelting and downstream processing industries. The Australian aluminium industry has been operating in Australia since 1955, and over the decades has been a significant contributor to the Australian economy. Alongside many decades of economic contribution, the industry is globally comparatively young and well maintained. The industry includes five bauxite mines (>10 Mt per annum), six alumina refineries and four aluminium smelters; in addition to downstream processing such as extruders and distributors. Australia is the world's largest producer of bauxite and the world's largest exporter of alumina, and the sixth largest producer of aluminium. The industry directly employs more than 15,000 people, including 4,000 full time equivalent contractors. The industry also indirectly supports around 40,000 families in regional Australia.

**Aluminium industry and the National Electricity Market**

Within the National Electricity Market (NEM) the Australian aluminium industry has four aluminium smelters, two alumina refineries and a number of extruders; and uses 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 and extruders, while not as electricity intensive as smelters, are also significantly exposed to electricity policy. 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; and
- an ability to secure electricity supply under long-term contractual arrangements.

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

Electricity in the Australian market has in recent times been consistently priced in the highest (fourth) quartile of global prices for electricity intensive manufacturing. Australia's industry is seeking a restoration of international competitiveness. A future where Australia's world class energy resources are translated into internationally competitive, low emissions, reliable energy will ensure industrial production, emissions and jobs are not exported to other countries. An efficient and least cost electricity market should support the transition of economically important industrial sectors such as alumina and aluminium, enabling a greater manufacturing sector in the future.

While the focus of this submission is in in the context of a Post 2025 NEM, it is important to recognise that Australia's electricity intense manufacturing sector is facing immediate challenges, the urgency of which means they will need to be addressed within the construct of the current NEM. During the first half of 2020,

commodity prices collapsed because of COVID-19. While prices have, in part, recovered the longer-term future of industry will depend on the rate of recovery of the global manufacturing sector and the impact this has on international demand. Equally, the COVID-19 pandemic has underscored the importance of electricity intense manufacturing domestically, supporting a productive and resilient economy. The COVID crisis has demonstrated the advantages of not only the ability to value add within an almost exclusively domestic supply chain but also the importance of local industry which provides the underpinning market for our dependent contracting and manufacturing sector.

**P2025 Market Design Consultation Paper & Process – Evolution or Revolution?**

The Council welcomes the opportunity to provide feedback to the September 2020 Energy Security Board (ESB) discussion paper "P2025 Market Design Consultation Paper" (the Paper). The Council has considered how the Paper contributes 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*).

The NEM Post 2025 process offers the ability to map out a coherent long-term reform path, rather than consider incremental change on an individual basis, thereby supporting a cohesive system solution and avoiding unintended consequences. However, this process is facing a number of key challenges:

1. Changes are still continuing in the current NEM, both by design and by necessity. Therefore, even with collaboration the reform process has an uncertain baseline.
2. Many of these changes reflect emerging issues whose solutions may not be deferrable until the ESB's work is settled; for one example as stated in by Australian Energy Market Operator (AEMO) in the 2020 Electricity Statement of Opportunities (ESOO) "Declining minimum demand could lead to issues with managing voltage, system strength, and inertia. It is creating near-term operational and planning challenges for sustaining a reliable and secure power system that must be addressed."
3. State and Federal Governments are taking actions which may be inconsistent with the reform directions proposed by the ESB or simply not being considered in the P2025 market design, adding to policy and regulatory uncertainty and increasing the risk that material changes in P2025 market design may lead to significant unintended consequences for consumers.

The Paper as presented, is still deliberately an options paper for multiple options, in effect a matrix with interlinkages. While there are some signals on direction, the path is still the subject of consultation and further consideration by the ESB. During the period until the preferred path is recommended by the ESB to the Energy Ministers by mid-2021, the baseline will continue to shift. It is particularly hard from a demand side perspective, to understand the full range of implications that these options will present. Smelters seeking to recontract during this period, are facing difficult decisions, especially under current economic conditions. As outlined above the biggest challenge for many large loads will be faced in the next five years, before the bulk of these reforms are implemented.

In this context we note that stakeholders are being asked to comment and express preferences on P2025 initiatives and options whose impacts, costs, and possible benefits are largely unquantified. There seems little time in the ESB program of work for robust quantification to emerge prior to recommendations being made to Energy Ministers mid next year. This critical issue needs to be rapidly addressed.

While this phased market design is articulated in the Paper, it is clear to the Council that rapid evolution, rather than revolution in reform processes would best describe the process. This also best allows the demand side market to develop and adapt to the evolution, at the same time allowing technology discovery and development over time.

The Council's response is focussed on the most relevant workstreams within the Paper. As each smelter, refinery and extruder has unique electricity arrangements, the Council will reserve its comments on the Paper to a high level. Aluminium smelters in particular, generally have long-term electricity contacts. However, the expiry of these contracts for Australian smelters varies from 2021 to 2029 (with Portland Aluminium in

Victoria the first to expire) spanning the duration of the proposed period of reform under consideration by the Paper, which is also a period where significant retirement of legacy synchronous generation is expected.

The Paper considers the challenges faced by thermal retirement, in the block nature of capacity exiting the grid. However, the Paper does not consider the challenges that the loss of blocks of equivalent sized demand would also pose to the grid, particularly at a time when minimum demand is being eroded and the unique services provided or supported by very large industrial users are of increasing operating value. The Paper also does not consider the implications that removal of blocks of demand would have on transmission systems which have been designed to support large loads at certain locations, including increased operating complexity and transmission constraints.

**Understanding the needs of Large Energy Users**

The Paper identifies that large industrial consumers have diverse needs and already bear a disproportionately high proportion of system costs. The Council welcomes the recognition that a future market design needs to examine the allocation of how these costs are shared, but also believes that there must be further consideration of this issue along with consideration to how risk is shared.

When the NEM was developed twenty years ago it placed a greatest emphasis on the regulatory framework for the supply side, where generation could be dispatched to meet demand, and a more limited emphasis on the demand side. There is naturally therefore, a greater mutual understanding between the supply side and the NEM market operator and regulators, than there is with the demand side. This has also provided the supply side with twenty years of learnings on the operation of the NEM both physically and commercially. Even very large energy consumers, such as aluminium smelters, do not have the depth of knowledge held by the supply side in the operation of the current NEM and its associated market structures.

This also leads to risk of market reform initiatives tending to be developed and viewed through a "supply-side lens" with the result that demand-side participation proposals require or assume that users will adapt their physical and economic interaction with the wholesale market to behave more like supply-side resources.

Even for large, sophisticated industrial users, the procurement of electricity is primarily 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, must be designed with the physical and economic realities of users' businesses fully understood, and need to be adequately compensated.

Aluminium smelters offer a range of services and functions which already support the network over varying weather, network demand and operating conditions, including Reliability and Emergency Reserve Trader (RERT) and Frequency Control Ancillary Services (FCAS). Additionally, smelters' large and fast-acting interruptibility helps secure and restore stability to the network before and after contingencies occur, particularly on high temperature and / or high demand days. The industry has increasingly been called upon to support grid stability and reliability, which, as the ESB observed in the 2020 Health of the National Electricity Report, has continued to degrade as levels of inertia, frequency control and system strength are put under stress by the rapid introduction of variable renewables and the closure of aging dispatchable generation. Additionally, there has been degradation of inertia on the demand side. Furthermore, with the large and sustained increase in residential and commercial solar PV, the network is already and will continue to struggle with the midday solar peak and the erosion of the underlying demand, making the network more

difficult to operate and manage during these periods. Aluminium smelters, in particular, provide important stable baseload demand during these periods for the NEM, and the network cannot afford to see further industrial demand leave the system. In the development of evolving options, consideration should be given to how the market will recognise and support the ongoing operation of major industrial loads, such as smelters.

One of the key barriers for increased deployment of technologies for smelters to enhance their capability to provide additional services to the market is policy uncertainty over the market structure for these services and incentive over a commercially bankable timeframe to make these investments. A key outcome for large users from the P2025 reforms should be predictability so industry can confidently invest and plan for the future. "Investibility" is not solely a concern for the supply side of the market.

There should be careful planning and consideration to make sure that NEM customers, are adequately consulted and engaged and transitions to new structures are carefully implemented and managed. This will help ensure customers can develop the necessary skills and resources to meaningfully participate, as appropriate in a future market. Equally, in considering the design of an evolved NEM, assumptions about the transition should not overestimate the degree of participation by the demand side which may evolve and the pace of this evolution. Treating the demand side as the mere inverse of the supply side, under the same operating conditions will result in lost opportunities and unintended consequences in market design.

**Firming**

The Council shares the ESB's concerns over whether signals for investment in new and existing capacity in firming or dispatchable plant are sufficient to maintain resource adequacy over the planning timeframe, and if the real-time market will work to make sufficient resources available when needed.

Providing electricity is supplied consistently, 24/7 firm power, and at internationally competitive prices, aluminium smelting can be run on increasing proportions of firmed renewable electricity. In the short to medium term, the Council supports the use of thermal plant to firm variable renewables, as part of a transition to a lower emissions grid. In the medium to longer term, a technology neutral, least cost approach to technology for firming renewables should be followed, noting that achieving an internationally competitive electricity price is likely to need a range of technologies.

Alumina refineries already provide some demand response to the grid. However, if there was to be an increased supply of internationally price-competitive low or zero emissions electricity, there is the potential to materially increase the electrification of alumina refineries combined with additional demand response, which could supplement reliability in both the NEM and South West Interconnected System (SWIS) electricity markets. It is essential during this transition, Australia retains major industrial loads, through these short- and medium-term challenges, to ensure the nation can capitalise on its long-term strategic advantages.

In determining the solution to the challenges firming presents, the Council is focussed on solutions which deliver least cost solutions to consumers; where that least cost should also include lower volatility, noting that high volatility in spot prices over recent years has been a key driver in the increased cost of wholesale electricity contracts.

In the absence of quantitative analysis being included in the Paper, it is not clear which amongst the Resource Adequacy Mechanisms discussed in the Paper may achieve the best combination of effectiveness, least-cost, and predictability. In general terms the Council prefers mechanisms which would build on existing markets and price signals rather than introducing new markets whose behaviour may be less predictable and less able to be hedged through established risk management products. Given the significant number and scale of announced actions and policies by both State and Federal Government's directed at the issue of resource adequacy, the Council supports retaining the existing Retailer Reliability Obligation, but is cautious of other resource adequacy mechanisms being introduced.

The Council notes that the ESB does not intend to continue to pursue a centralised capacity market in the P2025 design and supports the view that it does not offer obvious benefits over and above a decentralised capacity market. This is also consistent with the Councils position that the ESB should pursue evolution not revolution in the market design.

**Unpriced Products / Services**

Very large electricity users play a number of 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, essential system services and two-sided markets. These are resources which already exist, although they could be further enhanced with improved investment signals.

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); 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 these services are explicitly remunerated, nor is their overall "real option" value recognised – namely the flexibility that retention of these loads provides in future choices of physical and economic mechanisms to stabilize 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 costs.

There is no current mechanism which recognises the value of stability or predictability in minimum demand or the support for the provision of inertia in the market. The current mechanisms RERT, Wholesale Demand Response (WDR) and IRR aim to provide a financial reward for interruptibility. However, they do not recognise that the same load if offered into one market cannot be then used for another, nor do they offer long term bankability on the investment timeline of an asset (5-10 years); nor do they offer a value on event risk.

The market reforms are seeking to address challenges in reliability. Average summer peak demand is likely to be best met through a combination of supply side (e.g. new dispatchable generation) and demand side resources which have the capability of being routinely dispatched, such as certain DER technologies. Changes to frameworks, such as to the reliability obligation to incentivise this may be required but should be light touch.

However, low probability high impact events are best served by existing infrastructure, such as smelters, rather than on the generation side where the investment required to meet infrequent events would be extremely high. A potential solution to replace this gap between average peak demand and extreme event would be to the use of a long run availability payment (via certificate or contract) for this service.

The Council's view on the current mechanisms is consistent with the ESB's consideration of whether backstops need to be more efficient or effective under extreme circumstances where the market cannot deliver within reliability standards. While noting that the use of backstops should be minimised where possible, the provision of some interruptibility for high risk events in exchange for a long run availability

payment, recognising the value of backstops could be appropriate. This should recognise the consumer value of reliability.

**Essential System Services**

While the Council agrees that the changing mix of resources on the grid means that certain capabilities delivered as a by-product of energy by thermal generators now need to be delivered by other means to keep the system secure and reliable, the solutions proposed in the Paper largely seem to pass the cost and risk associated with this change through to consumers. There is little discussion in the Paper of the very important issue of cost allocation and recovery principles. A number of these services, such as inertia and system strength, benefit supply-side resources equally if not more than consumers. In general, the Council favours a "causer pays" approach. Recent experience with system services costs has been that their procurement has been at high cost to consumers[1]. For instance, a generator that doesn't provide system services, but whose generation leads to the system requiring more of them, should be expected to pay. This would ensure that where new generation projects, including intermittent renewable generation projects, add extra costs to the system that their proponents would need to meet these costs, not customers. New markets with unbound costs and risks, means costs and risk are being passed onto energy consumers. Therefore, there must be a mechanism whereby the lowest overall cost for energy including system services is delivered to consumers.

The Council remains concerned that some rule recent rule changes aimed at systems strength and reliability, have yet to come into full effect, in addition to the recent AEMC consultation on six further rule changes. These decisions are all linked, and there are implications for services which have joint supply / joint demand, and for the baseline position from which the P2025 reforms will begin.

The Council in principle supports the delivery of missing services via a market, where this will deliver the most efficient outcome. However, this will only be true for services where there will be sufficient buyers and sellers at all times, to ensure a competitive marketplace, to deliver these services at lowest cost. In developing mechanisms to provide services through a market, 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 provides greater consumer ability to hedge. Currently, there are a limited number of price nodes across the NEM and a reasonably functioning hedge market. Because it's an energy only market, many of the services discussed in these rule change proposals are priced into the hedge. The introduction of additional non hedgeable markets leaves customers exposed to a greater proportion of electricity costs that are not contractable and could be volatile.
- These charges may end up being an add-on not covered by existing spot price hedge contracts, so customers with long-term contracts could end up paying extra charges on top of their agreed electricity charge.
- The more markets there are, the more difficult it will be to understand the interaction between them, increasing financial risk in the contract market.

Additionally, the development of new markets; such as fast frequency response; need to be matched with compatible physical systems; such as equally fast communication systems; to support them. The development of markets prematurely, particularly in the context of significant State and Federal Government policy overlap, risks unintended consequences.

[1] https://www.aemo.com.au/-/media/files/major-publications/qed/2020/qed-q1-2020.pdf?la=en

**Two-Sided Markets and Demand Response**

This workstream and general expectations for demand-side participation need to recognise that the physical, economic and business context in which electricity consumers operate, including very large energy users, is very different in focus and much more diverse than that of supply-side resources. Energy production and market participation is the core business of generators and retailers. Energy consumption is a side effect of consumers' economic activity, for which energy services are just one of many inputs needing to be procured. In most cases expecting users to adjust their activities and operations in near-real time to the needs of the electricity market is expecting the tail to wag the dog.

The growth of distributed energy resources embedded in the demand side of the market, together with appropriate communication and controls, will enable some of those resources to contribute more actively to market dispatch processes.

But attempts to strongly encourage, or worse compel, many other energy consumers to participate in the market's real time dispatch processes, whether directly or through intermediaries or aggregators, involving short-notice physical variation of their core production processes are not realistic and likely to result in disappointingly low rates of participation and response.

Reforms which seek to enhance the use of flexibility that does exist on the demand side therefore need to start with a focus on more fully understanding the nature of that flexibility, for which timeframes processes and availability are very different from those of supply side resources built specifically for participation in the current market design. This need is independent of whether or not traders or aggregators act as intermediaries between end users and the market.

Moves towards a two-sided market should therefore be incremental, voluntary and designed with clear recognition of the physical capabilities and wider economic context of businesses' and consumers' energy use.

As one example, in a future market with high levels of variable renewable penetration, seasonal energy balancing may become a challenge to reliability over extended periods of lower solar and wind output, even with growth in long duration storage. This is one area where with suitable mechanisms, market signals and notice periods in place, the ability for some energy users to modify production schedules to offset relatively predictable supply side variability could enhance reliability.

While smelters and refineries are large commercial users who may be capable of developing systems and processes to managing the necessary trading arrangements; as previously stated the procurement of electricity in the NEM is an input into the production of alumina and aluminium; rather than being the core process for the business itself (unlike supply side businesses). For major electricity users such as smelters, where the use of electricity is intrinsically integrated into production processes and there is a high process stability cost associated with modulation; outsourcing to a third party or aggregator and regular participation in real time dispatch is unlikely to be a viable option.

The introduction of two-sided markets may be the most fundamental change to the NEM since it commenced twenty years ago. For several years before the NEM was introduced, dedicated teams within electricity companies worked collaboratively on a full-time basis to actively contribute to its development, participate in simulations and develop common understanding of the impending changes. Even with the consultative approach the ESB has undertaken with the P2025 process, customers have not had the opportunity to fully test the potential implications of proposed changes. This could lead to a theoretically efficient design changes which, in practice, place onerous or cumbersome obligations on businesses, with commercial and operational implications.

As such, the Council supports a transitional and voluntary approach to support the move to a two-sided market, such as exploring different approaches to scheduling demand side participants through the

wholesale demand response mechanism rule change, to enable energy users to better understand the degree to which they want to participate in such a market and how to do so without adopting overly complex systems or taking on significant additional costs and changes to business focus. Consumers should not have to participate or engage any more than they do today, unless they want to. The Council remains concerned the current view of the two-sided market is overly optimistic in terms of large user participation and constructed around an aggregator driven model. If market participation from the demand side is not as robust as assumed in the Paper, this risks a market failure before the P2025 market reforms even begin.

As discussed earlier, the current market arrangements provide a limited range of mechanisms to value the specialised services and real optionality provided by the presence of very large users, and the Council supports initiatives which appropriately value the capacity large energy users provide in the system. The Council welcomes market design which efficiently values all aspects of what is required for the NEM to meet the National Electricity Objective.

**Transmission Investment**

The Council acknowledges that the current transmission network is insufficient to support the additional connection of large quantities of renewable generation which will occur over the next twenty years. However, the Council's focus is ensuring the additional supply is delivered at least cost and risk, through co-ordinated transmission, storage and generation investments. Accordingly, the Council supports a "causer-pays" approach to ensure transmission network expansions are only built only when to do so, is more cost effective than building new storage or firming generation. This optimisation will not occur if consumers fund transmission costs for selected new generation projects.

The Council is concerned that the 2020 AEMO Integrated System Plan (ISP) identifies a number of projects which pass billions of dollars of cost and risk to consumers over many decades. Locking in this cost and risk, with no consumer alternative, will have consequences for the viability of Australia's energy users. For the aluminium industry, it is the delivered cost (including transmission) of electricity which drives international competitiveness. Therefore, the potential for high additional transmissions costs, particularly ongoing transmission costs for stranded assets with more than 50 years lives, to be passed through by the Australian Energy Regulator (AER) are of concern to the Council. The Council believes there needs to be more consideration of stranded asset risk in the final consideration of transmission design principles.

Any market design needs to ensure co-ordinated changes in the transmission and generation investments align with the optimal development path for the power system in a way that has regard to the needs of electricity users, including the design of Renewable Energy Zones (REZs). Premature implementation of too many REZs would risk increasing costs to consumers. The Council supports development of interim frameworks to address immediate needs, while developing long term strategies for beyond 2030.

Particularly when addressing transmission reform, the Council is concerned that major decisions are being made in parallel to the consultation being undertaken in this Paper, including on the AEMC Transmission Access Reform model. This is one of the biggest examples of the baseline shifting during this process, which will have both practical and commercial consequences.

**Avoid shocks to all market participants, including consumers**

The approach to transition for the P2025 market design 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 the ESB 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.

**Conclusion**

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 submission and looks forward to continuing to work further with the Energy Security Board on this market design.

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 site 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.