



9 June 2021

Dr Kerry Schott
Chair
Energy Security Board
Email: info@esb.com.au

Dear Ms. Schott,

Re: Response to P2025 Market Design Options Paper

Tilt Renewables (TLT) is a leading Australasian renewables developer engaged across all stages of project development through to operations. TLT currently has 500 MW of operational wind farms across the NEM and New Zealand, plus a further 336 MW in commissioning and over 5 GW in its development pipeline.

TLT welcomes the opportunity to provide feedback on the Energy Security Board's (ESB) April 2021 Post 2025 Market Design Options paper (the Options Paper) – advised as being the last in its consultation series before a final report and reform recommendations are published. TLT greatly appreciates the work the ESB is undertaking in considering the market design requirements for the future NEM.

As the ESB is aware, the transformation of the Australian energy market requires careful consideration and the significant work completed by the ESB, market bodies and stakeholders should be recognised and respected. A reform program such as this will have long-term ramifications on the electricity sector and consumers, and the ESB needs to be as confident as possible that the program will be effective and avoid any unanticipated consequences.

As TLT has noted in the past, there is a lack of clarity and limited coordination between the market bodies and the ESB (made up of the market bodies) evidenced by the sizeable number of regulatory reviews and rule change processes underway in parallel. While not the focus of the Options Paper, it is an issue that continues to undermine the potential to for an appropriate, targeted, supported and well-coordinated reform program across the NEM.

We firmly believe that options and solutions to establish policy, regulatory and market frameworks should be technology neutral, transparent and address real market failures, in order to ensure competitive markets, provide investment certainty and allow new players to compete to efficiently deliver the services needed. In addition to examining the existing the specific electricity sector frameworks, emissions reduction remains a key priority both globally and locally and should not be ignored in the context of the long-term Australian energy mix and energy policy. A review of the National Energy Objective (NEO) to incorporate emissions criteria would be prudent in any program targeting long-term certainty and sustainability in the Australian energy sector.



While TLT welcomes progress made on key reform areas through the ESB's consultations over recent months, it does not believe that the options (yet) deliver a comprehensive and appropriate package of reforms to ensure least-cost outcomes and deliver fit-for-purpose market structures.

In particular, TLT believes careful thought needs to be given to sequencing and coordination of changes to address the priority issues facing the NEM relating to real-time power system 'security' issues such as maintaining system frequency, voltage, system strength and inertia. As it stands, pressing ahead with some proposed market design alterations such as decentralised capacity market (PRRO), the Congestion Management Model (CMM, previously known as COGATI) and Ahead Markets brings a high risk of being counterproductive and redundant given there has not been a case made for such reforms.

TLT also remains concerned that with many of the proposals still at early stages of development, and feedback now being received from market participants in June, the mid-year deadline for "final recommendations" on the Post 2025 Market Design is not realistic, and rushing these reforms may lead to a range of unintended consequences for the market. TLT therefore urges the ESB to continue developing appropriate reforms, but to ensure that the time is taken to fully consider the problem and solution options, given the long-term ramifications on the electricity sector and consumers.

In summary, TLT supports the initiatives proposed to address Essential System Services as the NEM evolves. However, TLT remains seriously concerned with:

- The proposed physical RRO, which appears unnecessary and costly and which may simply entrench revenue streams for incumbent thermal generators beyond their otherwise operational or economic lives, while at the same time deterring new investment in lower cost dispatchable generation; and
- The continuing intention to introduce locational marginal pricing (LMP) and financial transmission rights (FTRs), albeit as a longer-term reform, which would introduce significant costs and uncertainty for limited benefit.

These reforms are an unwelcome distraction from the real issues for a successful energy transition in Australia and they will disrupt investment and contracting between generators and retailers, ultimately raising energy prices for consumers. In addition these reforms will make it more costly and difficult to meet state renewable energy targets and national emissions reductions targets.

Thank you for the opportunity to comment and please feel free to contact myself at nigel.baker@tiltrenewables.com or Rhys Albanese rhys.albanese@tiltrenewables.com to discuss any of the issues raised in this submission.

Kind regards,

A handwritten signature in blue ink that reads "Nigel Baker".

Nigel Baker
Executive General Manager, Generation & Trading
Tilt Renewables



In this response, TLT has focused on the areas of most relevance in the Options Paper, being:

1. Resource Adequacy Mechanisms;
2. Essential System Services; and
3. Transmission and Access Pathways.

Responses to Options Paper Proposals

1. RESOURCE ADEQUANCY MECHANISMS (RAMs)

TLT agrees that maintaining security and reliability as the system transitions over the next 10-15 years, while delivering energy at lowest cost to consumers, is critical. While it broadly supports the intention behind Resource Adequacy Mechanism (RAM) options to sharpen real time prices and long-term investment signals, TLT holds serious concerns that the proposed options could simply entrench revenue pools for ageing thermal generators that would otherwise retire, and will fail to support the NEO by driving an increase in system costs and energy prices for consumers. Whereas it is clear that the work on Essential System Services (ESS) is solving real and pertinent issues for the NEM as it transitions, risks associated with resource adequacy in general are of a far lesser magnitude and are largely capable of resolution by existing market frameworks.

It is critical that the ESB's final options on RAMs:

- are based on a thorough cost benefit analysis to provide confidence that the recommendations proposed:
 1. address the issues; and
 2. are in the best interest of consumers, avoiding unintended consequences; and
- avoid picking winners by ensuring technology and competitive neutrality, to enable competition and avoid increased market power flowing to existing dominant market players.

TLT position on the RAM options is that the case for change has not been made and in particular:

- Existing generator exit arrangements are sufficient (noting they have already been significantly strengthened in recent years) and do not need 'further reform' or special contracts;
- Introducing a decentralised capacity market which is presented as a modified RRO is not justified and the proposed changes would be to the detriment of consumers, investors and the environment, and likely counter-productive to the overall reform agenda and intent; and
- Without a comprehensive understanding of where any gaps in the reliability framework are, and the impact of those gaps on market signals and investment decisions, it is difficult to design and assess potential solutions. The ESB should not be recommending any significant changes to the reliability framework at this stage and further reform should be paused until the market impacts of other measures are seen.



Jurisdictional schemes

Jurisdictional investment schemes are likely to remain a feature of the market for the foreseeable future, for example the RET, NSW Electricity Roadmap and Victorian Renewable Energy Target. The existence of these schemes is largely the result of policy gaps in the broader NEM, including the lack of systemic emissions reductions objectives, and concerns from jurisdictions regarding other aspects of the market. Rather than attempt to corral the various jurisdictions on the structures and details of their specific investment schemes, TLT believes it would be appropriate for the ESB to focus on addressing the underlying policy issues (lack of emissions targets in the energy sector, essential system services improvements, transmission buildout etcetera) that have led to the different jurisdictions losing faith in the NEM in the first place and which have led them to intervene. Addressing the fundamental underlying issues should allow jurisdictions to step back from the market, having confidence in its effective functioning and minimising the need for federal or state-based interventions.

Generator exit options

TLT believes that ageing thermal generation retiring is a natural evolution of the NEM and an integral part of the energy transition in Australia, not something that should be feared or artificially delayed. Market changes, such as to generator exit notice periods, have already been implemented to mitigate shock impacts of future thermal plant retirements, and there has been no demonstration that the expected retirements will create resource adequacy gaps to which the market will not adequately respond. The wording of the Options Paper appears to start from the basis that any early retirement of coal generators would be problematic and a negative for the market overall (e.g., “*Real risk of lumpy thermal exits occurring earlier than anticipated*”, “*concerns regarding very near-term unexpected exits*”), however justification for these statements has not been provided given that uneconomic generation retiring should be expected in a functional market, and where that generation is emissions-intensive, such retirements would have the added benefit of improving the nation’s carbon footprint.

TLT is not convinced that there is a problem to be solved here by more reform. The current notice period arrangements are sufficient, in our view, to ensure an orderly transition. The generator exit notice requirement was implemented in 2018 with guidelines released in 2019 and there has not been any evidence to suggest a failure since then. TLT does not support any of the options proposed, including increased information about mothballing/seasonal shutdowns or an integrated process to manage early exit via an ‘Orderly Exit Management Contract’ (OEMC), which is highlighted in the Options Paper as a “last resort” outcome envisaged by the ESB. Indeed, TLT holds concerns this latter approach could add significant cost, risk and complexity whilst providing the potential for gaming by owners of aged thermal generation.

In general, there is no reason the market cannot respond and replace, where necessary, retiring generation capacity, however continued proposals for government interference and intervention in the generation market (as perpetuated in the Options Paper) will only discourage market responses from the private sector.



Having said that, contingency scenario planning is in general a sensible approach, given the increasing unreliability of ageing thermal generation, however such planning should avoid where possible negating the potential for market responses to solve any ‘gaps’ that may arise should a generator close unexpectedly.

Modified Retailer Reliability Obligation (RRO)

While there are three options presented by the ESB, the Options Paper seems to be focused on the introduction of a decentralised capacity market under the guise of a Physical RRO or a modified RRO.

TLT is of the view that there is no evidence to suggest security of supply above and beyond the existing measures is required to manage reliability in the NEM. Despite persistent concerns, reliability and resource adequacy do not appear to be imminent challenges. History has shown even when there are forecasts of reliability challenges, the market is able to respond and address these risks and there is no evidence to suggest the industry will in the future fail to deliver. Indeed there is a long and strong list of advanced projects on AEMO’s Generation Page^[1], with many projects expected to be generating before 2025.

^[1] AEMO | Generation information

With the RRO only coming into application recently and no evidence or justification provided for further reform of it, TLT remains unconvinced of the need for RRO ‘fiddling’. In TLT’s view, the first option presented in the Options Paper (status quo + ESS) is preferred.

Indeed, with existing safety nets, an emerging demand response mechanism and new essential system services, the market has and will continue to provide pricing and incentives for capacity that will be suited to a changing environment.

TLT is strongly opposed to the proposal to introduce a Physical Retail Reliability Obligation (PRRO). In practice, the outcome would be to require smaller retailers that don’t also own large generators to buy (new and additional) certificates from dispatchable generators, likely from large vertically integrated ‘gentailers’, further entrenching their dominance in the market.

TLT is highly concerned that the PRRO approach in effect will become a “more carbon” tax on electricity consumers (windfall revenue to existing thermal generators and higher compliance costs for smaller retailers will result in increased costs to consumers), will unnecessarily prolong the operational life of thermal plant and will act to deter investment.

There is a clear risk that the changes proposed in the PRRO could lead to higher emissions and sub-optimal generation and storage outcomes than would otherwise occur through existing market incentives. TLT is concerned that:

- implementing a Physical RRO, with or without a trigger, will counteract the other investment signals for renewable generation and zero-emissions storage, in favour of existing, or even new, thermal generation; and
- ongoing government underwriting of, and direct investment in, dispatchable capacity in a non-transparent and ad hoc manner will impact, delay and increase uncertainty for investments by the private sector.



The ESB has argued that the PRRO should reduce or lower the risk of future government intervention, however why that would be the case has not been explained nor is it self-apparent. Additionally, TLT would like to see further clarity around:

- The key risks/costs/benefits from shifting from the current RRO to a triggerless financial RRO
- The key risks/costs/benefits from shifting to a physical RRO;
- The likelihood that a physical RRO approach would be *more likely* to extend the life of emissions-intensive thermal generation and *less likely* to incentivise cleaner short and long-term storage (which many market experts have observed could be expected to be the case); and
- The interplay and potentially conflicting roles of the RRO and the proposed Operating Reserves market.

2. ESSENTIAL SYSTEM SERVICES (ESS)

To ensure the critical security of the NEM is maintained as the ageing fleet of thermal generation assets exits the market, the essential system services that have been previously provided as a by-product of synchronous generation will need to be provided through efficient and transparent mechanisms that incentivise new technologies and value key services.

TLT views the options proposed under ESS to be generally sound. System services have been an under-appreciated element of the NEM for some years and the proposed changes developed by the ESB can make a positive contribution to market operation.

As noted in TLT's previous submission, the most efficient mechanisms for the provision of adequate essential system services need to be carefully considered. Even with options identified, work is still required to develop detail and processes and to justify that these are addressing the most relevant challenges for the system.

TLT positions on the ESS options are:

- Further exploration of the UCS recommendation to resolve some of the issues raised during consultation is critical and TLT would support the AEMC taking carriage of this as part of the ESS package of changes to ensure coordination;
- There has been no case made for System Security Mechanism (SSM) given the suite of measures currently being proposed to improve system security are likely to be sufficient; and
- That it would be appropriate to accelerate the Frequency Response final rule implementation to 24 months or less (instead of the current 3-years).

Unit Commitment for Security (UCS) and System Security Mechanism (SSM)

While some details are yet to be developed, TLT broadly supports the development of the future-time UCS as a decision-making tool for AEMO where interventions maybe necessary to maintain system security via a structured procurement mechanism. TLT however do not support the use of the UCS going beyond that single purpose. To do so could override in-market bidding and dispatch structures.



For TLT to support the UCS as a recommendation more broadly, there are a number of important issues that would need to be resolved as the details of the UCS are further developed. These include:

- Ensuring the UCS is transparent so it is clear how contracts are identified for dispatch;
- Designing the UCS such that contracts are procured and the service is dispatched without disrupting competitive pricing behaviours and outcomes in both the energy and ancillary services markets; and
- Being clear on what the UCS is trying to achieve i.e., what the optimisation problem is that it is solving for and how this will be achieved in practice.

It is important that these issues are given due consideration to fully understand the likely impacts of the UCS in related markets. Given that the ESB will not have sufficient information to endorse any specific UCS recommendations for its June deadline, TLT would support the AEMC taking carriage of the further exploration of the UCS as part of a detailed forward work plan, and looks forward to continuing to engaging closely with market bodies as the mechanism is further developed.

The need for a further mechanism to procure system security services as proposed by the ESB, of a shorter-term timeframe SSM procurement option, has not been developed and evaluated sufficiently and therefore we do not support this. TLT has remaining concerns about how the SSM and the UCS would interact. As such, it is recommended that:

- Further clarity be provided on when and how the SSM would be used, versus the UCS; and
- A cost-benefit analysis of the proposed tools be undertaken, including demonstrating the benefits provided by having a (separate) SSM.

Further, TLT is of the view that the suite of measures currently being proposed to improve system security are likely to be sufficient. It is important to test these measures and their effectiveness in addressing any gaps, before considering the SSM arrangements any further.

Fast-frequency response, inertia and future reforms

Declining levels of inertia have led to the need for faster acting response times, which are not valued in the current market design. Fast frequency response (FFR) services will be required to maintain power system security into the future and should be thought of as complementary to the system strength requirements of the power system.

In TLT's view, FFR services, the volume of FFR, primary frequency response (PFR), regulation FCAS, contingency FCAS and inertia (which are all required to support the NEM) should all be co-optimised. However, given the overlapping synergies between inertia and other ESS that are already coming into play, TLT does not believe there is any evidence for a new inertia market to be introduced. TLT believes it is too premature and recommends that analysis be undertaken in the future once the other ESS reforms are operational, to understand whether inertia needs to be separately priced and procured to achieve efficient outcomes.

TLT supports the work that the AEMC and the Australian Energy Market Operator (AEMO) are undertaking with respect to improving system frequency outcomes and considers the provision of FFR to be the next logical step in maintaining system security post contingency, as system inertia continues to decline due to a changing technology mix. Given the lead times



required to implement new markets, TLT is encouraged by the approach taken by the AEMC to progress change before there is an urgent need and to send clear investment signals to those who may consider participating in FFR markets. TLT believes the timing of these reforms needs to be expedited to ensure that the security and reliability measures are addressed proactively.

As the ESB is highly aware, by 2025 there will be a clear need for new FFR services in the market. If the power system transition continues to track faster than the step change scenario this could occur before 2025. The cost of managing power system frequency is expected to rise year on year without the establishment of the FFR services, so any delay will have cost impacts.

Given the above, we urge the ESB and the AEMC to amend the timeframe proposed for the FFR final-rule implementation to 24 months or less (instead of the current 3-years), allowing AEMO sufficient time to review and amend the market ancillary services specification (MASS) and develop updates for the performance specifications of the new services.

With regards to the FFR arrangements and system strength arrangement, TLT continues to support the AEMC rule change process and encourages the ESB to refer to TLT's submissions made to the AEMC on these matters.

Operating reserves/ramping

The recently published Options Paper does not appear to have explored this issue beyond what was presented in the ESB paper released in January 2021. It is noted that the results of modelling commissioned by the AEMC suggest an operating reserve service is unlikely to be needed to support system security¹ and as such, it seems unlikely that an operating reserve will be implemented for this purpose. Given this evidence from the AEMC, TLT does not see a need for further exploration of an operating reserves mechanism for ESS purposes and suggests that any further consideration of operating reserves should be first and foremost as a resource adequacy mechanism, based on evidence of system reliability gaps in the future.

Ahead Markets

TLT agrees with the ESB as highlighted in the Options Paper, that ahead markets are not a priority and do not warrant further consideration at this stage. Rather, getting the frequency control and system strength frameworks in place as a matter of urgency, followed by further exploration of UCS, should be the focus in the near to medium term.

3. TRANSMISSION AND ACCESS PATHWAY

TLT agrees with the Options Paper regarding the need for substantial transmission investment to accommodate the large volume of new large-scale, low-cost, renewable energy that will be built in the NEM in the coming years, and that "*challenges are emerging in*

¹ AEMC, Reserves Rule Changes (ERC0295 and ERC0307), Rule change – deep-dive workshop 1, 22 April 2021, [minutes](#), p4.



getting the new network built". Building further transmission capacity, both through new construction and upgrades to existing infrastructure, in a timely and efficient manner will be fundamental to a successful energy transition from cost, reliability and system security perspectives.

TLT supports the ESB's continued work on improving the RIT-T and on actioning the ISP, however is disappointed that overall, the proposals in relation to transmission continue to be biased towards "congestion management" and access reform, rather than on measures that would assist in actually getting the required transmission built.

Need to Focus on Transmission Capacity and Investment

Accommodating the growth of renewable energy will not only promote competition, lower energy prices and decarbonise the NEM - it is also critical to maintaining system security. Increasing transmission capacity and interconnectivity will make the electricity system more secure and reliable, including by exploiting diversity of supply and taking full advantage of investments in storage and firming capacity.

Addressing this crisis is a fundamental issue for the NEM, as almost all major reforms depend upon improved transmission capacity. Legacy barriers to expanding the transmission network need to be broken down so that intra- and inter-regional transmission links can be planned, financed and constructed efficiently. This requires acknowledging the immediacy of the crisis and taking concrete steps to ensure that 'Actionable Projects' identified by AEMO's Integrated System Plan are built as soon as possible.

The result of delays in transmission investment will be higher electricity prices for consumers, as otherwise least-cost generation projects are not built, along with reduced reliability and system security.

Access Reform and Congestions Management are Not Primary Issues

Australia has an issue with transmission investment and asset build. With delays in transmission infrastructure leading to the deferral in the connection of low-cost renewable energy generation, ultimately consumers suffer as a result of higher energy prices. Those higher prices will outweigh the contribution to electricity bills of any increases in transmission network costs associated with upgrade projects that have been suitably evaluated.

The renewable energy industry has consistently demonstrated that where network capacity exists, generation will be quickly and efficiently delivered by private investors and developers, leaving a negligible risk of well-planned network investments becoming 'stranded assets.' The risk of insufficient transmission capacity driving higher cost and delayed renewable energy generation is significantly higher, and therefore the focus should rightly remain on facilitating the building and augmentation of transmission network infrastructure.



Unfortunately, the policy discussions regarding transmission needs in the NEM have been hijacked to focus on proposals for transmission access reform. The Options Paper states that *“there is also a debate underway about whether generators should share in the cost of transmission investment”* and refers to *“advice to Energy Ministers on transmission cost allocation”*, without elaborating further on what that advice was or on what it was based.

Arguing whether consumers, or new generators should pay for transmission augmentations is a distraction. New generators will necessarily pass any new/additional transmission costs on to consumers in the form of higher energy prices (or through increased costs of government underwriting schemes, where they are implemented) in any case if they are to invest, so there is simply no net consumer benefit from attempting to shift more transmission costs to generators. The focus should be on utilising, and streamlining where necessary, existing frameworks to ensure the required infrastructure is quickly and efficiently built.

Regarding congestion management, the Options Paper states on multiple occasions that *“congestion needs to be managed”* and goes on to use that as a justification for the Locational Marginal Pricing and Financial Transmission Rights (LMPs and FTRs, previously the basis of the proposed “COGATI” reforms, now re-branded as a Congestion Management Model, or CMM), without addressing the fact that management of congestion does occur under the existing market operation. Existing congestion signals are ignored and benefits are claimed (e.g., *“...will also reduce the risk of low marginal loss factors and facilitate grid connection”*) with little justification of how the proposals would achieve such outcomes.

As argued in earlier submissions, TLT is opposed to COGATI and does not believe new complex access and pricing structures have been justified. TLT has concerns that the creation of new cost recovery models and access schemes will lead to unnecessary complexity, fragmented outcomes, impracticalities and ultimately delays in delivering the physical infrastructure required. Indeed, either reform proposal – the CMM or COGATI – would significantly disrupt contracting between generators and retailers/loads (who for unknown reasons are proposed to continue to face the regional reference price, rather than locational pricing, despite expectations regarding increased demand-side participation in the future NEM) and stall investment in new renewable energy. Ultimately these approaches will result in higher electricity bills for consumers.

TLT therefore does not support the CMM proposal. In TLT’s view, the ESB has failed to provide clarity on the relevance of the issues the CMM purports to address, whereas its introduction would be highly disruptive and costly for the market. It is noted that the stated objectives which led to the “COGATI” reforms and those reforms themselves (which are largely retained in the CMM proposal) have been opposed by a majority of stakeholders, including opposition from the vast majority of generators, despite the ESB suggesting generators would be key beneficiaries of the CMM.

It is notable that the Options Paper does not even attempt to address the concerns raised regarding the fundamental issue of whether reform such as CMM / COGATI is required at all, specifically stating that *“the ESB has sought to address the main concerns... other than the concern that reform is not needed, which the ESB does not agree with.”* Surely a more thorough justification is warranted for such disruptive reform, rather than effectively stating to the tens of serious market participants that have rejected this reform simply that *“we don’t agree with you so are going to ignore your concerns”*.



To ensure the timely and efficient delivery of new transmission infrastructure and the lowest overall cost to electricity consumers, TLT suggests that funding for transmission infrastructure should be through existing (RIT-T) and emerging (REZ) mechanisms supported by political (state-based) will. TLT supports the initiatives outlined in the Options Paper regarding actioning the ISP, enhanced congestion information, dedicated connection assets and system strength investigations.

Renewable Energy Zones (REZ)

The ISP as well as a range of other processes have identified many REZs across Australia, in fact to the point where a significant proportion of the NEM transmission network outside of major population centers may eventually form part of a REZ. In this context it is relevant to consider REZs as integral parts of the wider transmission network, rather than “special” zones which require completely new, bespoke and independent connection rules, access regimes and market structures compared with connections elsewhere in the network.

As outlined in its response to the prior REZ consultation paper, submitted on 12 February 2021, TLT believes that the ESB should consider a much simpler approach to REZs, which includes:

- Using the ISP to identify the lowest-cost (and most needed) REZ options;
- Actioning the ISP rule change with a particular focus on the RIT-T reforms which includes locking in capacity and implementing consumer protections;
- Following through the Dedicated Connection Assets (DCA) rule change underway by the AEMC;
- Addressing system strength, for example as suggested in TransGrid’s rule change and under consideration in the AEMC’s investigation into system strength frameworks in the NEM;
- Focusing on the practical development of the jurisdictional REZs already underway in NSW and VIC as a “trial and learn approach”; and
- Ensuring that REZs do not result in discrimination against generators attempting to connect to areas of the network with existing transmission capacity (ie. outside of nominated REZs), as that would be a perverse outcome.

The above approach should facilitate the investment in transmission extensions and upgrades by investors with a low cost of capital (therefore delivering the long-life, capital-intensive transmission itself at the lowest effective cost), and efficient use of the NEM’s renewable energy resources. Lowest cost and timely transmission investment in the right places will unlock competitive investment in renewable generation, which has been proven to be deployed rapidly by the private sector in areas with strong renewables resources and transmission capacity, and ultimately provide for optimal outcomes for consumers as a result.