30 September 2019

Clare Savage
Deputy Chair
Energy Security Board

Via email: info@esb.org.au

Dear Clare

Post 2025 Market Design Issues Paper

AusNet Services appreciates the opportunity to comment on the Energy Security Board's Issues Paper in consideration of the Post 2025 Market Design.

AusNet Services is Victoria's largest and most diverse utility with almost $13 billion of assets including electricity transmission, electricity distribution and commercial projects.

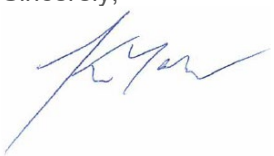
Our regulated businesses include electricity transmission across Victoria (although noting that we are not the planner for the transmission network); and electricity distribution in the North, East and Central regions of the State.

Mondo, a commercial business, provides a variety of contracted transmission and distribution services, including grid connections for new generators, battery energy storage systems and aggregation of distributed energy resources.

The attachment below contains detailed responses to the matters for consultation raised in the Issues Paper. Our submission seeks to highlight areas worthy of further exploration and should not be interpreted as endorsement of a particular market design, or design elements.

AusNet Services hopes that the comments contained in this submission are of assistance to the Energy Security Board in its deliberations on this consultation. Please do not hesitate to contact me either by email or on 03 9695 6622 if you have any further inquiries.

Sincerely,



Katie Yates
Manager Energy Policy
AusNet Services

Post 2025 Market Design - Issues for consultation

Scenarios

What scenarios and shocks should be used? How should these be used to test market design?

The Issues Paper states that the Energy Security Board (ESB) intend to use the Integrated System Plan (ISP) scenarios as the starting point for investigating possible future market designs, as these represent the most comprehensive set of scenarios in the National Electricity Market (NEM). As noted in the Issues Paper, the ISP has identified five scenarios, which are labelled as follows:

- Slow Change
- Central Scenario
- High Distributed Energy Resources (DER)
- Fast Change
- Step Change

When considering the more fundamental question of the post 2025 market design, it is important to consider a wider range of potential futures (uncertainties) beyond the dimensions that are considered in the ISP scenarios. Below is a list of some of these potential futures and how they might impact on market design.

These notes seek to highlight areas worthy of further exploration and should not be interpreted as endorsement of a particular market design, or design elements by AusNet Services.

MARKET INVESTMENT

When the NEM energy only design was formulated in the mid 1990's, the designers sought to include market signals that would achieve both efficient dispatch, as well as signalling the need for new investment. Most would agree that at least for the first decade or more of the NEM, it has proven to be effective in achieving efficient dispatch. There has always been a question regarding the effectiveness of the NEM in triggering new investment.

Whilst it is true that there has been significant amounts of new generator investment during the history of the NEM, most of that investment has been a result of drivers that are somewhat external to the NEM. Such drivers include government initiatives and subsidies, renewable energy targets and solar feed in tariffs.

The question to be asked then is whether a post 2025 market design should aim to drive both dispatch and investment, or whether it should focus just on the dispatch problem. If the decision was taken to focus the post 2025 market design on dispatch and not investment, there would need to be specific recognition that generator investment decisions are external to the market process.

If the 2025 market is focused on dispatch and not investment, careful consideration will still need to be applied to what the investment arrangements are, including the role for governments if any. Consideration would need to include investment arrangements not only for new generation, but also network augmentations and services. Such consideration will need to include the following factors:

- A 2025 market that is focused on dispatch should nevertheless be subject to constraints that reflect network capability, and should also be utilised to inform network planning and investment

decisions. This could be achieved either by a process similar to the current Integrated System Plan, or through more direct linkages such as those proposed in the current COGATI review. The key point is that dispatch and network planning cannot be completely de-coupled.

- Where network planning and investment is driven by external factors (for example, government initiatives) rather than the market, it would remain important that the market operator is well informed of, and can provide input into network planning. If this connection is broken, there would be a danger that network planning outcomes may not meet the needs of the market participants.
- It would remain important that network planning drivers and forecasts are transparent and well reported, and subject to appropriate expert assessment. Transparent consultative processes would be critical to ensuring that the network planning process is suitably informed by, and remains relevant to the market dispatch process.
- If network planning is managed through external processes, then it would be important to retain, and expand on the current arrangements which allow non-network options to compete with distribution and transmission augmentation. There would need to be transparent processes for the planning and utilisation of non-network options, to ensure that all stakeholders are well informed, and have the opportunity to participate.

Key considerations

- Important to provide investment signals that are relevant to current and new investors, and are able to be responded to in a practical manner.
- Need to ensure that the process for managing new network connections is transparent and effective. Given the trend towards decentralised supply options, new connection processes will need to be tailored to meet the needs of many smaller network connections, opposed to the past processes which were designed to accommodate a relatively small number of large capacity connections.
- The trend towards increasing amounts of DER will need to be supported with suitable and consistent connection arrangements for the distribution as well as the transmission networks.
- It will become increasingly important to acknowledge and account for the interaction between transmission and distribution networks, and to leverage any distribution-connected generation and load with the broader market and transmission services.
- It seems likely that real-time network services will become increasingly important, both within the distribution and transmission networks. This will be driven by the proliferation of DER at many locations across the network. Effective management of these network services will require them to be actively valued and utilised, with the need for additional services or augmentation being transparently assessed.
- Investment signals need to be available sufficiently in advance to allow for appropriate planning, installation and testing. Should avoid waiting until there is a security or reliability shortfall before triggering a need to respond. Market operator should anticipate potential future problems, and flag these as investment opportunities. This is particularly important where there are long lead times to meet the energy system needs such as for new generators, storage or transmission lines.
- Where new investment is required that is capable of meeting certain technical characteristics, these need to be spelt out early in the process so that suitable investment options can come forward.
- A key objective should be to minimise the need for the market operator to intervene in the market due to insufficient or inadequate investment.

- If a particular technology is able to deliver a variety of services, then the revenue available from the services should be able to be "stacked" so that the investment can be realised. While this may introduce ambiguity in relation to the delivery of a combination of regulated and non-regulated services from the same resource, it may also allow for more efficient outcomes.

MARKET DISPATCH

The existing NEM is a gross pool, meaning that all generators greater than a certain size must participate in the market dispatch process. This has the advantage of providing the Australian Energy Market Operator (AEMO) control over all significantly sized generators, which ensures that it is able to maintain power system security. The importance of this issue is being emphasised at present with AEMO having to intervene more frequently to overcome power system issues related to inertia and system strength. By optimising all generators in a single dispatch algorithm, it also ensures that the best overall efficiency can be achieved.

When the NEM was established in 1998, virtually all generators were subject to costs associated with fuel supply and other running costs, meaning that their short run marginal costs (SRMC) were greater than zero. Typically, the generators with the lowest running costs have the lowest SRMC. The NEM bidding and dispatch process applied competitive pressure on all generators to bid at their SRMC, thus ensuring efficient resource utilisation.

When large wind and solar generators emerged, they were included in the NEM dispatch process[1]. These renewable generators were able to bid at their SRMC, which was typically very close to zero dollars. In effect, although renewable generators are required to bid into the NEM and receive dispatch targets, they are in effect 'price takers', and other than when they are required to reduce output due to network limits, are not particularly influenced by the NEM pricing and dispatch[2].

As the volume of renewable generators in the NEM has grown to be a significant portion of the total amount of supply, it has resulted in the market for the remaining flexible[3] generators to be diminished and fundamentally changed.

A question for consideration in the post 2025 market is whether the new market should continue to include renewable (zero SRMC) generators. An alternative would be to focus the post 2025 market design on the flexible (non-zero SRMC) generators.

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[1] Some changes were needed to the NEM dispatch rules to accommodate the less flexible renewable generators. This resulted in the new 'semi scheduled' classification.

[2] On some occasions the NEM spot price can become negative. This is typically due to an excess of supply in the market, and the negative price is signalling generators to reduce their output. In this circumstance, all generators would typically, subject to their hedging contract position, be incentivised to reduce output, including renewable generators.

[3] The word 'flexible' is used here to refer to generators that are able to respond to 5 minute dispatch targets to either increase or decrease their output.

This approach would include a variety of balancing services. These services could be delivered via a market or contracts, and could be regulated or non-regulated. This would depend on the individual service being delivered – how often it is required and how many sources of the service are available – and who is best placed to manage the service. We would also need to consider who is best placed to signal the need for this service (for example, the market operator, network service provider, or other).

If any of these services were to be delivered via a market, this would be more like a balancing market, which seeks to optimise the flexible generation needed to balance the renewable generation. The amount of renewable generation would still need to be measured and forecast, and would become an input into the balancing market. The market operator would also need to retain the ability to reduce (constrain) the amount of renewable generation output in certain areas under some circumstances, to maintain power system security.

If a balancing market were introduced for flexible generation, then additional arrangements would be required to remunerate the zero SRMC (non-flexible) generation. If it is seen as desirable to continue to link the zero SRMC remuneration to the market outcomes, then it may be feasible to have their remuneration linked to the spot price outcomes, although this will need to be carefully considered to avoid creating a settlement shortfall. Alternatively, the dispatch and settlement of zero SRMC plant could be completely de-coupled from the balancing market, and they could for example be remunerated through power purchase agreements or other similar arrangements.

A balancing market as outlined above could provide a global solution to the 'firming' requirements which have recently become a key issue for new renewable generators. The need for sufficient flexible generators to effectively 'firm up' the renewable generators could be a specific objective of a balancing market. This might be more effectively achieved if the balancing market included some form of day ahead market, which might be more successful in ensuring that the appropriate mix of flexible plant is online to balance the renewable generation output in real time.

The balancing market could also be configured to ensure that as well as meeting the real time flexible generation balancing requirement, there could also be a reserve margin requirement included to cater for contingencies. The Texas ERCOT market includes a reserve margin which may provide a useful example of how such an approach could be taken.

If the market were to be re-configured to a balancing market as outlined above, it would still be important that the market operator provide detailed information and reports on the amount of renewable generation output and forecast capacity for all regions. These reports should include examination of actual and forecast limitations on the amount of renewable energy in certain areas. This would be required to ensure all stakeholders have adequate insight to inform their operational and investment decisions.

If any of these services were to be delivered via contract (for example, as a service contracted by the market operator or Network Service Providers), the assessment of the need for the service could be embedded in market and power system planning processes. It would be important for the requirement for the service to be identified with adequate lead time to address the issue, and the provision of the service to be assessed equally against other options for addressing the issue (for example, network augmentation).

One of the aspects this assessment may need to consider is the benefit associated with the flexibility of being able to obtain a service for a limited period of time, allowing the ability to adapt to the market's changing needs during this period of transition.

Key considerations

- A balancing market may provide improved market signals regarding the need for flexible generation to firm up renewables generation.
- A balancing market would effectively provide a 'global' solution to the requirement to firm up renewable generators. By resolving the firming issue globally, the burden to provide firming solutions would be removed from potential new renewable generators, thus providing greater opportunities for new investment.
- Although a balancing energy market would focus on flexible generation, other markets for frequency and other 'ancillary' services should be retained for all eligible providers.
- These ancillary service markets should be open to all technologies that can meet the defined criteria (including renewables).
- A common framework for non-market services could ensure that the need for each service is identified early, and the options to address the issue are assessed against common criteria such as cost, flexibility in a changing environment, ability to deliver service.

TECHNOLOGY NEUTRALITY

An important principle that has underpinned the NEM is that of technology neutrality. In essence, this means that the NEM rules must not favour one technology over another.

Over recent years, it has become apparent that the technology neutrality principle has begun to break down as we have seen various schemes and incentive programs to specifically support certain technology types. It seems that this is likely to continue, noting recent attempts to encourage pumped hydro, solar, coal, gas, battery storage, and more recently nuclear.

Many commentators see technological breakthrough as being central to solving the challenges of achieving an energy sector with zero carbon emissions. A technology neutrality principle might be seen as an impediment to achieving this objective.

If generator investment is removed from the post 2025 market arrangement as discussed above, then the technology neutrality principle is perhaps less important. This would need to be carefully considered however, based on what the new drivers were for generator investment.

Key considerations

- Encouraging investment in a range of technologies opens up opportunities for new investors to participate.
- Reliance on a limited number of technologies may not be optimum. More diversity of technologies is likely to improve efficiency and supply reliability.
- New technologies can improve market and power system dynamics.
- New technologies should also be encouraged for transmission and distribution services.
- Need to achieve a balance between providing incentives to encourage investment in new technologies, and ensuring a consistent and timely planning process. For example, investors may not be willing to explore new technologies if the current planning requirements impose regulatory obstacles. Where a new technology appears to offer benefits but these need to be investigated further, it would assist if the planning authorities could provide support to direct investors in the right direction. This would also help avoid investors wasting time and effort on technologies that are unlikely to be successful.

NETWORK PLANNING AND INVESTMENT

Network planning and investment is a key issue that is under close examination in the NEM at present. It has become apparent that without significant new network investment, many new renewable generation projects will be unable to proceed, due to poor network capacity in many renewable energy zones.

The current NEM arrangements seek to de-centralise network planning which is informed by market participants through the Regulatory Investment Test for Transmission (RIT-T) process, and is subject to network regulation. The current Australian Energy Market Commission (AEMC) review into Coordination of Generator and Transmission Investment (COGATI) is proposing new arrangements which would even more closely couple the NEM dispatch outcomes with network planning decisions.

It is clear that the current network planning and investment arrangements are not effective in delivering network capacity where it is required.

One alternative would be to de-couple network planning decisions from market dispatch, and move to a more centralised network planning arrangement. Whilst this would be viewed by many as a retrograde step, it might be worthy of consideration at least for the challenging period where the industry is undergoing radical transformation. Once we emerge from the energy transformation, then it might be appropriate to revert back to more de-centralised network planning and investment arrangements.

Moving to a more centralised network planning and investment arrangement might be relatively straight forward. For example, the AEMO ISP and the ESB's efforts to 'action the ISP' could be viewed as steps towards a more centralised planning and investment approach for networks.

Alternatively, if a market led arrangement is proposed for network investment, then the following principles should be observed to ensure that generation and network investment work towards common goals:

- where investment provides a generator with network access, then that generator should contribute to the costs;
- generators should have protected network access rights in return; and
- TNSPs should be incentivised to continue to meet the demand for network access.

Whatever alternative is chosen for network investment, it will be important to ensure flexibility in the manner in which network services are regulated. With the energy transformation continuing, traditional network elements and service definitions are unlikely to be applicable. TNSPs might be best placed to satisfy the 'no harm' obligations of a region's new generators for example. Other examples that have emerged are the minimum inertia and system strength gap obligations.

There needs to be recognition that there are likely to be new circumstances where a regulated service rather than a market service will provide the best solution.

Key considerations

- During the transformation, any centralised network planning process would need to engage heavily with the network businesses and other stakeholders to understand forward-looking challenges and concerns.
- A centralised process should provide a clear investment approach, which should allow any party to provide realistic solutions.

- If changes are proposed to network regulation, then it will be important to allow suitably long lead times and transition arrangements to reflect the long lived nature of network investment and cost recovery. This is important to ensuring network owners are able to manage their costs and risks.

CUSTOMERS

It is assumed that the National Electricity Objective (NEO) would be broadly retained under the post 2025 market. This is appropriate as the emphasis should continue to be on end use customer value, however there may be value in including reference to the need to transition towards zero emissions from the sector.

Increasingly in the NEM, the customer is being seen as central to, rather than peripheral to market decisions. This central position of customers could perhaps be better reflected into the post 2025 market design.

A closely related principle is that of customer choice. Currently customers are able to choose their retailer, and it is assumed that this would continue. In the future there are likely to be additional participants such as aggregators and demand response service providers. The customer choice principle needs to be considered carefully as to whether it should or can apply to these additional entities.

Additional matters to be considered for customers include whether the existing cross subsidies to achieve consistent customer prices across states are retained.

Key considerations

- Should allow customer the choice to interface directly with aggregators and other service providers in addition to traditional retailers

SCOPE OF THE MARKET

Need to consider the extent to which the market encompasses smaller supply and demand entities. For example, would the current thresholds of 5 and 30 MW continue to apply?

Need to consider the extent to which the market will incorporate DER, and the nature of DER market interaction. For example, will DER be given the opportunity to be scheduled by the market, or will it simply be incorporated in the demand forecast?

Need to consider how the market will interact with Stand Alone Power Systems (SAPS). There is some potential for SAPS to become more common, and larger in size in the future, based on improved wind, solar and storage technology. As SAPS proliferate, there may be a need for specific arrangements in the market design to take account of SAPS.

Key considerations

- DER service providers will need a level of certainty regarding their interaction with the market, whether this is through direct participation or some other drivers. The objective should be to provide effective signals for DER investment and utilisation.
- SAPS service providers should be provided with appropriate signals to ensure their efficient investment and utilisation as network alternatives.

DRIVING INNOVATION

The issues paper quite appropriately identifies the need to encourage innovation in a number of different areas including driving customer benefits, retail models, DER arrangements and system security challenges. The issues paper also recognises the importance of innovation by including it as one of the criteria in the proposed assessment framework.

It is quite clear that if the industry is to overcome the many complex and fast changing challenges that it currently faces, then some means need to be found to allow innovation to take place, and where appropriate, be rewarded. If opportunities for innovation are not encouraged, there is a risk that more traditionally planned arrangements will fail to overcome current and future challenges.

One example of this is in the area of grid innovation to integrate new energy technologies and manage more extensive two-way energy flows. There are increasing demands from customers and non-network providers for networks to be ready to facilitate their investments. However, the regulatory regime provides negligible funding to networks for this type of innovation expenditure and, to date, satisfying the economic test for a speculative innovation has been difficult, potentially biasing outcomes toward traditional network approaches.

On the other hand, the post 2025 market arrangements need to ensure that appropriate principles for cost / risk allocation are maintained for new innovation, and that there are no free passes given to the latest new idea.

It seems that there are two competing objectives at play:

- the need to provide an environment where new and innovative ideas can be tested and refined towards providing effective solutions;
- the need to provide a stable, transparent and well regulated environment for investment and market dispatch.

It seems that it may be very difficult to achieve both of these objectives in one single market environment.

An alternative approach would be put in place two separate environments. The main market environment would be underpinned by clear regulatory arrangements, mainly focused on achieving efficient and transparent market outcomes. The other ‘pre-market’ environment would be more focused on flexible and adaptive arrangements that could accommodate new and innovative ideas.

Under a two-tiered approach as outlined above, new ideas could be tested in the pre-market environment to determine their effectiveness in meeting the challenges of the power system, and in achieving effective returns for investors. Once a new idea has been tested, it might then become clear that the main market arrangements would benefit from a regulatory change of some sort to accommodate the new innovation.

The objective would be that any new innovation that proves to be successful would eventually be incorporated in the main market arrangements in some form. This may require some regulatory changes to the main market, but this would be informed by the pre-market trials.

There is an additional timing issue for funding of network support for third party trials. There is currently no pathway to allow a network to fund expenditure to allow a trial from a third party if not identified years

in advance in their decision. A solution could involve a new criterion for capex and opex expenditure or some form of industry innovation fund (funded through Decisions) that networks (and third party partners) could bid for.

Key considerations

- A potential investor in new technology needs a relatively simple, flexible, low cost process to assess the merit of its proposal, and the ability to step away from the proposal if it does not succeed.
- Investors need to have the ability to earn some revenue from market trials, and an understanding of what potential revenues might be available in the main market, should their proposal be successful.
- Any assessment of a new innovative idea should ultimately be made from the perspective of the overall market and benefits to end use customers. Any assessment made from a more narrow perspective of any single stakeholder group may create winners and losers, but this should not be the main measure in assessing the overall effectiveness.

OTHER SCENARIOS

As well as the scenarios identified by AEMO for its ISP, there has been previous work conducted by CSIRO for Energy Networks Australia (ENA) on its Electricity Network Transformation Roadmap[4], which identified a number of scenarios and counterfactuals. These scenarios include consideration of price and incentive reform, efficient capacity utilisation, electricity sector decarbonisation, adoption of demand management, adoption of electric vehicles and carbon policy.

It may be useful for the ESB to consider the ENA scenarios as well as those identified by AEMO for its ISP.

[4] The ENA Electricity Network Transformation Roadmap is available at https://www.energynetworks.com.au/sites/default/files/entr_final_report_web.pdf

Modelling

How can market and economic modelling best be used to evaluate individual components of market design or the end-to-end market design?

Modelling of different market design options is a useful way to understand some of the complex interactions and potential outcomes. Such modelling will be an important component of the assessment of any options.

Like any market, the energy market is comprised of many complex interactions, many of which are strongly influenced, if not specifically the result of, a human decision or response. Such human elements are critical to the success of the market, as it is through people responding to market signals that the outcome of effective and efficient dispatch is (hopefully) achieved.

These critical human responses and interactions are very difficult, some might suggest impossible, to accurately include in a computer based model or simulation. Ultimately, the best way to understand such human interactions is to carry out some sort of market simulation involving human players. Such simulations were conducted prior to the NEM commencement, and should be included as part of the assessment process for the post 2025 market.

The issues paper states that an energy only market model will be established, and that this will then provide a baseline for assessment of alternative market models. Whilst it may be appropriate to use an energy only market model for the baseline, it will be important that alternative market models such as capacity markets and balancing markets (discussed earlier) are included in the analysis. The post 2025 market design project represents a pivotal opportunity to consider a range of alternative market designs, and this should not fall into the trap of simply tweaking the current energy only market design.

It will be critical to the perceived success of this post 2025 market design project that all reasonable alternatives are considered, even if they are ultimately rejected. Without consideration of a range of alternative market designs, there will be potential for doubt to be cast over any conclusions.

ANCILLARY SERVICE MODELLING

The issues paper notes that modelling will include consideration of ancillary services markets. This is appropriate for those ancillary services that are able to be procured and dispatched through competitive market processes. The energy market transformation is imposing a number of new challenges which in some cases are leading to the need to define new services. For example, inertia and system strength services are new inclusions. Recently AEMO identified new system restoration services including voltage and frequency support. In the future, there are likely to be additional network support services driven by the growth in DER.

With such a wide range of services needed, and potentially limited depth of service providers, it is likely that at least some of these services will need to be procured through non-market processes, at least initially. Any modelling and assessment process therefore needs to be mindful that not all services are suitable for market procurement.

Assessment framework

Is the assessment framework appropriate to evaluate the effectiveness of future market designs? What else should be considered for inclusion in the assessment framework?

Overarching principle to meet the NEO is supported, but is there scope to review the NEO as part of this review? If so, consideration should be given to including reference in the NEO to the need to transform the sector towards zero carbon emissions. Once the transition has been achieved, this provision could perhaps be removed. Until the reduction in carbon emissions has been achieved however, omitting it from the NEO feels like we are ignoring the "elephant in the room".

Comments on some of the assessment framework elements are outlined below.

EFFICIENCY:

- *Prices reflect marginal costs* – see early discussion re SRMC for renewable energy.
- *Potential exercise of market power* – should focus mainly on encouraging competition and new entrants, and leave competition enforcement to the Australian Competition and Consumer Commission (ACCC). A well designed competitive market that provides clear pathways for new entrants should restrict opportunities for market power to be exercised.
- *All services the power system needs are valued* – suggest caution against this approach. Only those services for which practical and liquid competition exists should be sourced through competition – otherwise should be centrally managed.
- *Seeks to maximise capital efficiency* – not sure why capital efficiency should be priority? Capital efficiency is relevant to individual investors, but less relevant to market design. Market design should focus on efficient production and distribution of resources. This is normally achieved by consideration of allocative, productive, dynamic, social and X-efficiency.
- *High quality of information is available to participants* – would extend this to provide information to everyone (need to encourage new entrants).
- *Secondary markets* – caution against trying to design secondary markets up front. Better to let these evolve to suit market participants needs. Perhaps could include a requirement to review effectiveness of secondary markets as they evolve.

EFFECTIVE ENTRY AND EXIT

- In addition to generators, this principle should also apply to all service providers and new participant categories (e.g. aggregators)

COST ALLOCATION

- User pays – this approach inevitably leads to customers paying for everything. Although this might be strictly correct, it tends to remove the commercial drivers from intermediaries such as generators, retailers, network service providers, and AEMO, and therefore diminishes the potential for efficient outcomes to emerge. Causer pays is generally a more appropriate approach (provided that a causer can be identified).

RESLIENCE TO EXTERNAL SHOCKS

- Not reliant on one technology or asset – a diverse range of technologies does potentially reduce external shock risk exposure, but may also inhibit more efficient technology types.

TECHNOLOGY NEUTRALITY

- See earlier comments on tech neutrality. May need to re-consider this principle – at least for the transition.

Challenges and risks

Have we identified all of the potential challenges and risks to the current market? If not, what would you add?

Which of these challenges and risks will be most material when considering future market designs and why?

Some of the previous sections have touched on potential risks and challenges. The following list is a more concise summary of some of the key risks and challenges:

- Need to be able to manage dramatic changes through the energy transition period, and then adopt a more incremental approach to ongoing changes. Can a single market design achieve both of these requirements? Is there a need to step back from full market solutions for the period of the energy transition?
- Renewable energy is not driven by traditional SRMC considerations that underpin the current NEM.
- Worth considering how other markets have responded to significant challenges. For example, financial markets worldwide have had to adapt to changing landscapes.
- There is a very large amount of capital tied up in the NEM, much of it from overseas investors. The future ongoing success of the electricity industry to continue to meet the demands of end use customers is dependent upon ongoing investment of large amounts of capital. It is critical that any changes to market design are done in such a manner that it does not cause undue concern with local and overseas investors.
- Need to consider and confirm ongoing commitment of state and federal governments to governance arrangements in the NEM. If there are any concerns about the distribution of legislative power across the state and federal governments, these concerns will need to be understood and responded to before any new market design will be able to be finalised.
- One example of the need to confirm state attitudes prior to finalising the market design is the sharing of power across interconnectors, and the willingness of neighbouring states to support each other at times of supply scarcity. For example, under the current arrangements, states have agreed that when an importing state is suffering a supply shortfall, the exporting state will allow supply to be exported across an interconnector, even if this results in some supply shortages in the exporting state. This is often referred to as the ‘share the pain’ principle.

Additional risks that should be contemplated in the 2025 market design process include:

- Should consider a scenario where there is significantly less water available, potentially impacting the long term technical and economic viability of pumped hydro generation as well as thermal generation cooling water. Such a scenario would also inform the risk of becoming too dependent on any one technology.

Overseas examples

Which (if any) overseas electricity markets offer useful examples of how to, or how not to, respond to the challenges outlined in this paper?

Whilst examination of overseas markets is always worthwhile, caution needs to be exercised in relating overseas experience to the Australian context. Our circumstances are unique in a number of ways, including the physical nature of our long and skinny networks, high concentration of demand in a relatively small number of load centres, strong historical reliance on coal, relatively little hydro potential, very strong wind and solar potential, state and federal government complexities.

Notwithstanding the above, the Texas market and the Irish market both appear to provide useful comparisons to the NEM due to their similar market designs and strong penetration of renewable generation.