Dr Kerry Schott AO
Energy Security Board

30th September 2019

Submitted via e-mail to: info@esb.org.au

Dear Dr Schott,

Post-2025 Market Design Issues Paper

The Australian Energy Council (the "**Energy Council**") welcomes the opportunity to make a submission in response to the Energy Security Board's ("**ESB**'s") *Post-2025 Market Design Issues Paper*.

The Energy Council is the industry body representing 22 electricity and downstream natural gas businesses operating in the competitive wholesale and retail energy markets. These businesses collectively generate the overwhelming majority of electricity in Australia, sell gas and electricity to over ten million homes and businesses, and are major investors in renewable energy generation.

Introduction

The Energy Council supports the objectives of the review and the ESB's considered methodical approach. The ESB's concern regarding unintentionally compounding existing investment uncertainties during the period of the review is well-founded. To that extent, the Energy Council engaged KPMG in 2018 to prepare a report "Market Design Principles"[1] which lays out an excellent set of objectives for contemplating reforms of such magnitude. The potential principles laid out in the ESB's assessment framework are not in conflict with KPMG's preferred principles, but the ESB may find KPMG's presentation more engaging.

Since May 2019 a specific Energy Council member working group dedicated to the 2025 review has been meeting regularly to assist the industry's understanding of the issues and to help coalesce a constructive industry input. The ESB is invited to make full use of the Energy Council as a conduit to the views and concerns of businesses most affected and most critical to achieving a successful long-term National Electricity Market ("**NEM**").

It is accepted that the power system is in transition, as variable renewable energy ("**VRE**") displaces conventional thermal generation, and distributed resources and controllability become major parts of the industry. This increase in VRE is expected to continue, with the Australian Energy Market Operator ("**AEMO**") forecasting that 20GW will be in operation by 2040.[2] To date the existing wholesale market design has accommodated the change in generation mix, and it is very important for the ESB to assess whether any changed market design (whether such changes be incremental or extensive) is justified when the costs of implementing the changes are considered.

As the ESB acknowledges, the proposed market design needs to be cognisant of other changes occurring in the market, such as the introduction of Five Minute Settlement[3] and later Global Settlements,[4] and outcomes from the Australian Energy Market Commission's ("**AEMC**'s") Coordination of Generation and Transmission Investment Review.[5] In addition, not noted in the Issues Paper, is AEMO's Renewable Integration Study.[6] It is therefore difficult to assess whether any perceived shortcomings in the current market will remain in the

[1] Available at https://www.energycouncil.com.au/media/12076/market-design-principles-executive-summary-a4.pdf & https://www.energycouncil.com.au/media/12077/market-design-principles-final-report-180419.pdf
[2] Australian Energy Market Operator, *2019 Electricity Statement of Opportunities – A Report for the National Electricity Market*, August 2019, p.37, Figure 7
[3] National Electricity Amendment (Five Minute Settlement) Rule 2017 No. 15
[4] National Electricity Amendment (Global Settlement and Market Reconciliation) Rule 2018 No. 14
[5] Available at https://www.aemc.gov.au/market-reviews-advice/coordination-generation-and-transmission-investment-implementation-access-and
[6] The details of which are available at https://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Security-and-reliability/Future-Energy-Systems/Renewable-Integration-Study

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future, and more importantly, whether any changes proposed by the ESB will be warranted, given these other market changes may take some time to bed down, and have their outcomes reported and analysed.

In this regard, the Energy Council is pleased to release another report simultaneously with this submission, also prepared by KPMG, "Coordinating Electricity Market Reform", which lays out a toolkit to assess the congruency of potentially overlapping reforms. The executive summary is attached to this submission.

KPMG developed a tool kit to stocktake the many NEM rule changes and reviews underway, and in doing so found many circumstances of synergy and conflict. Given the early stage of the 2025 review, KPMG could only comment contextually upon it, but the Energy Council urges the ESB to employ a similar methodical approach when considering market reforms, to reform themes both within and without the review.

Discussion

The Energy Council approaches the review with a pre-existing view that the existing NEM design of:

- decentralised competitive investment co-existing with centrally planned network investment;
- an energy-only spot market and decentralised contracting; and
- competitive central procurement of ancillary services and network support,

is theoretically sound and has performed well for most of the NEM's history. However there is justifiable concern as to whether, subject to the five key challenges the ESB has listed, it will ultimately deliver the best result for customers. The Energy Council supports this list of challenges.

One of the key challenges which also needs consideration is the role of central planning in the development of the NEM. The NEM's founders considered self-evident that decentralised, competitive market-based investment and operation delivered superior outcomes to central planning wherever it was possible. Thus the extent of central planning was limited purely to those parts of the industry that were naturally monopolistic. A key question surrounding this review is the shift in view by contemporary policy makers, who seem less enthusiastic to allow decentralised markets to determine the course of the NEM than its founders.

The most significant example of a central plan is AEMO's biennial Integrated System Plan ("**ISP**") which provides an expectation for transmission development over the coming 20 years, based on assumptions and scenarios it has developed in consultation with stakeholders. This plan is neither static nor definitive, therefore when Transmission Network Service Providers ("**TNSPs**") seek to undertake projects suggested in the ISP, they must perform their own due diligence in relation to each project's viability according to the requirements of the Regulatory Investment Test for Transmission.[7] There is no doubt that the ISP, with its detailed scenario development, is a good starting point for TNSPs, but it provides a limited set of possible futures, and the best project for a TNSP at a given point in time must be assessed by the TNSP's own enquiries.

Similarly AEMO's Electricity Statement of Opportunities provides a possible view of the future, which may trigger new generation build or Retailer Reliability Obligations,[8] but any such view of the future will be subject to inaccuracies and unpredicted outcomes. These are the inevitable challenges of any planning, and if the NEM's future becomes more linked to such central plans, then the cost of errors will be borne by customers rather than market investors.

In the Energy Council's view, while there is a role for a centralised entity to collate information and inform participants, it is beyond the capabilities of a central planner to anticipate and respond nimbly to market changes. Accordingly it is appropriate for market design to be such that it provides a framework within which participants can operate, but not be so restrictive as to curtail innovation and limit market efficiencies.

Driving Innovation to Benefit the Consumer

The Energy Council agrees that any market design must be able to facilitate future service offerings to consumers,[9] and highlights that the role of the retailer and energy service provider is not just "to take the complicated (i.e. price risk management, billing, load management etc) and make it simple", but to accept consumers' energy consumption risks (e.g. price risk, volume risk, peak demand risk) and mitigate them to tolerable levels for their customers.

[7] National Electricity Rule 5.16
[8] National Electricity Rules Chapter 4A
[9] Issues Paper, p.14

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Therefore there is significant latitude in any market design framework, since innovative companies will identify opportunities where they exist, and it would be a herculean task for the ESB to identify opportunities and anticipate how they will facilitate better outcomes for consumers.

Investment Signals to ensure Reliability

"The reliability standard that applies to generation and bulk supply is the primary mechanism to signal the market to deliver enough capacity to meet consumer demand for electricity",[10] and the level at which the reliability standard is set is balanced against the economic cost of providing increasing amounts of reliability.

The Energy Council supports the current expression and level of the reliability standard, which is set near the optimal trade-off of the cost of additional supply against the cost of customer interruption inconvenience. From this, key market settings, such as the price cap, are derived. However there remains disquiet amongst some stakeholders who have a view that the standard should be set beyond this economic optimum. It is unfair to expect the existing market, with settings targeting the official standard, to achieve some other unofficial standard. It is imperative that the ESB publicly clarifies whether it considers the existing reliability standard or some other standard is appropriate, before investigating reform proposals intended to support reliability. It is not possible to design a market rationally subject to one official standard whilst parties are seeking to achieve an alternative unofficial standard.

The spot market is only a highly visible portion of the larger market, which is underpinned by contractual arrangements and financial derivatives. These existing, separate markets act in concert with the spot market to provide the products market participants need, at risk levels which are acceptable to them. Therefore it is necessary for the ESB to consider whether introducing a different market model, e.g. a capacity market, will be useful in the context of the broader market arrangements, such as secondary markets and individual contracting.

The effect on these existing arrangements will also require careful scrutiny by the ESB. It will not be sufficient for a short transitional period of, for example, three years, included in any new market design without the ESB considering the proper treatment of legacy arrangements. Power purchase agreements and asset financing arrangements are long-term, and it changes the bargain into which the parties entered in good faith if the market design is fundamentally changed.

The Issues Paper states that, "The future market design will need to provide sufficient incentives for efficient investment in firm, dispatchable generation or storage throughout this transition".[11] The Energy Council notes that a secure, reliable power system must be maintained, but suggests that market signals should be adequate, and the market should be open for all participants, without incentivising plant with specific characteristics.

Integration of Distributed Energy Resources into the Electricity Market

Distributed Energy Resources ("**DER**") are an increasing feature of the power system, however it is noted that the rate of installation of residential rooftop solar capacity is expected to slow compared with previous years' projections.[12] Nevertheless it will be important for their output to be accommodated, from a technical perspective at the Distribution Network Service Provider level, and from a market perspective at the NEM level.

As it stands, DER behind-the-meter is treated as a reduction in customer demand, while DER before-the-meter is treated as non-scheduled generation. To add value to the NEM, the Energy Council believes that before-the-meter DER should be treated consistently with the AEMC's draft determination for wholesale demand response,[13] which requires demand response providers to schedule their load participating in the wholesale market.

The Issues Paper states that the most important challenge and opportunity for DER is to optimise the benefits of DER investment for all Australians.[14] The AEMC has highlighted its concerns with Distribution Network Service Providers ("**DNSP**s") potentially owning individual power system assets, instead preferring that DNSPs

[10] Australian Energy Market Commission, Fact Sheet: The NEM Reliability Standard, 9th May 2013, p.1
[11] p.18
[12] Graham, P.W., Havas L., Brinsmead, T., Reedman, L., *Projections for Small Scale Embedded Energy Technologies – Report to AEMO*, CSIRO, June 2019, p.44*ff.*
[13] Australian Energy Market Commission, *Wholesale Demand Response Mechanism Draft Rule Determination*, 18th July 2019
[14] p.18

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should contract the services from the contestable market.[15] When DNSPs supply and/or own the power system assets, competitive neutrality in the provision of these services to customers is compromised. Across a short period, this could allow DNSPs to dominate the market for grid scale DER in their own service area, which would deny customers the dynamic benefits of effective competition. The AEC has previously contended[16] that these dynamic benefits will outweigh any short-term gains to customers from obtaining DNSP-provided DER slightly more conveniently in the near term, but that over time the dynamic efficiency benefit would be expected to overtake the DNSP provision benefit. Getting the market structure right for the development of before-the-meter and smaller grid-scale DER, is an important consideration for future optimisation.

Electric Vehicle ("**EV**") sales are also predicted to grow over the coming decade, which will lead to increased demand on the electricity system. Facilitating the efficient integration of EVs into existing networks will become an increasingly urgent requirement. At present there are several energy and transport industry bodies that have formed to discuss the issues and opportunities associated with the transition to EVs. The effective consolidation and coordination of industry effort in this regard will assist with this transition.

System Security Services and Resilience

The Energy Council appreciates the ESB acknowledging that the future power system may not have the same level of resilience compared with the past, due to the changing character of the power system,[17] and submits that as long as system standards such as the Normal Operating Frequency Band are met, the power system is stable, irrespective of increased variability within the limits of such parameters.

Nevertheless the fact of the changing generation mix demands that the market design is such that it provides market signals to those generators capable of providing the services the system requires to maintain security and reliability, and the Energy Council supports the development of further ancillary services markets in the NEM that can be co-optimised with the dispatch of energy and other necessary services.

An example of this is the prevalence of directions in SA to maintain system strength. While some commentators may see this as an indicator that the broader market framework is inadequate, the Energy Council believes that it is better to attribute the need for directions to a lack of the necessary market signals for a specific non-energy service (system strength) that has arisen recently, and for which no competitive ancillary service provision has yet been developed. Even if it remains undeveloped, these interventions will recede in 2020 as certain grid investments complete.

Integration of Variable Renewable Energy into the Power System

The paper describes this challenge with a duplication of some of the issues mentioned in the previous challenges, such as the lack of system security services from asynchronous generators. In order to better classify the issue, it should be limited to the NEM's ability to accommodate the increasingly large swings in energy supply/demand conditions.

With respect to the AEMC's Coordination of Generation and Transmission Investment ("**CoGaTI**") review, the Energy Council has expressed concern that this is running separately from the 2025 review. There are clearly considerable congruencies, and the ESB's approach of accommodating the market design to CoGaTI's outcomes seems an unintuitive approach. Indeed if not approached simultaneously, CoGaTI would seem appropriate to run *after* this review. Consider if, hypothetically, the 2025 review recommends that generators participate in a centralised capacity mechanism outside the energy market. This mechanism will need to develop a means of recognising the level of forward looking network access that each generator has in order to avoid paying for capacity that cannot be delivered to customers due to congested network. If, however, the 2025 review recommends retaining an energy-only market this is not necessary as the constraint will be recognised in real-time dispatch. CoGaTI's outcomes therefore will either limit the ESB's choices, or, the AEMC will have to substantially re-run CoGaTI in order to accommodate the ESB's preferred market design.

With respect to Operations, the Energy Council considers that the NEM's approaches for managing VRE from day to day are sound and potentially superior to any overseas. In particular the inclusion of large-scale wind, solar and storage in the scheduling arrangements, through the NEM's semi-scheduled category and Australian Wind/Solar Energy Forecasting System ("**AWEFS**"/"**ASEFS**") means that the pre-dispatch, self-commitment

[15] Australian Energy Market Commission, *Contestability of Energy Services Rule Determination*, 12th December 2017, p.43*ff*
[16] Australian Energy Council, *Rule Change Proposal: Amendments to Chapters 5, 6, 6A and 7 of the National Electricity Rules in the implementation of Demand Response and Network Support Services*, 13th October 2016, available at https://www.aemc.gov.au/rule-changes/contestability-of-energy-services-demand-response
[17] Issues Paper, p.22

and dispatch processes can absorb very large swings in VRE remarkably efficiently and without compromising reliability. Overseas markets that have introduced forms of compulsory day-ahead markets and central-commitment have come from circumstances of not having the advantages of these uniquely successful NEM arrangements. There are good reasons to expect that creating an additional market, set at an arbitrary 24 hours ahead, would only add inflexibility and complexity to the process. Furthermore, shifting commitment decisions from generators to the market operator would lead to many sub-optimalities as the operator has imperfect information, and the generator loses incentives to be flexible to the needs of the market.

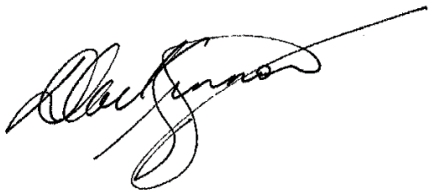
The Energy Council notes the list of related initiatives contained within Annex B of the Issues Paper, and appreciates that they are being considered by the ESB, but cautions against assuming that they all proceed, and the outcomes anticipated occur.

Conclusion

In conclusion, the Energy Council believes that while there is a case for change to accommodate increasing penetration of VRE, current system, market & rule changes afoot suggest that incremental change to the NEM's design is the most appropriate course of action to complement these changes and limit industry disruption and costs.

Any questions about this submission should be addressed to the writer, by e-mail to Duncan.MacKinnon@energycouncil.com.au or by telephone on (03) 9205 3103.

Yours sincerely,



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KPMG

Coordinating electricity market reform

A framework to assess the congruency of wholesale market reforms in the National Electricity Market.

Executive Summary

September 2019

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The Australian Energy Council (AEC) has asked KPMG to develop a framework that can be used to assess the integration of different energy market reforms. This report follows KPMG's report on market design principles prepared for the AEC in 2018.[1]

The electricity sector in Australia is changing in response to an increase in variable renewable generation, consumer empowerment, and a continued focus on maintaining reliability and security across the grid. To maintain pace with the rapidly evolving generation mix and technology change, policy makers have commissioned a number of inquiries and reviews.

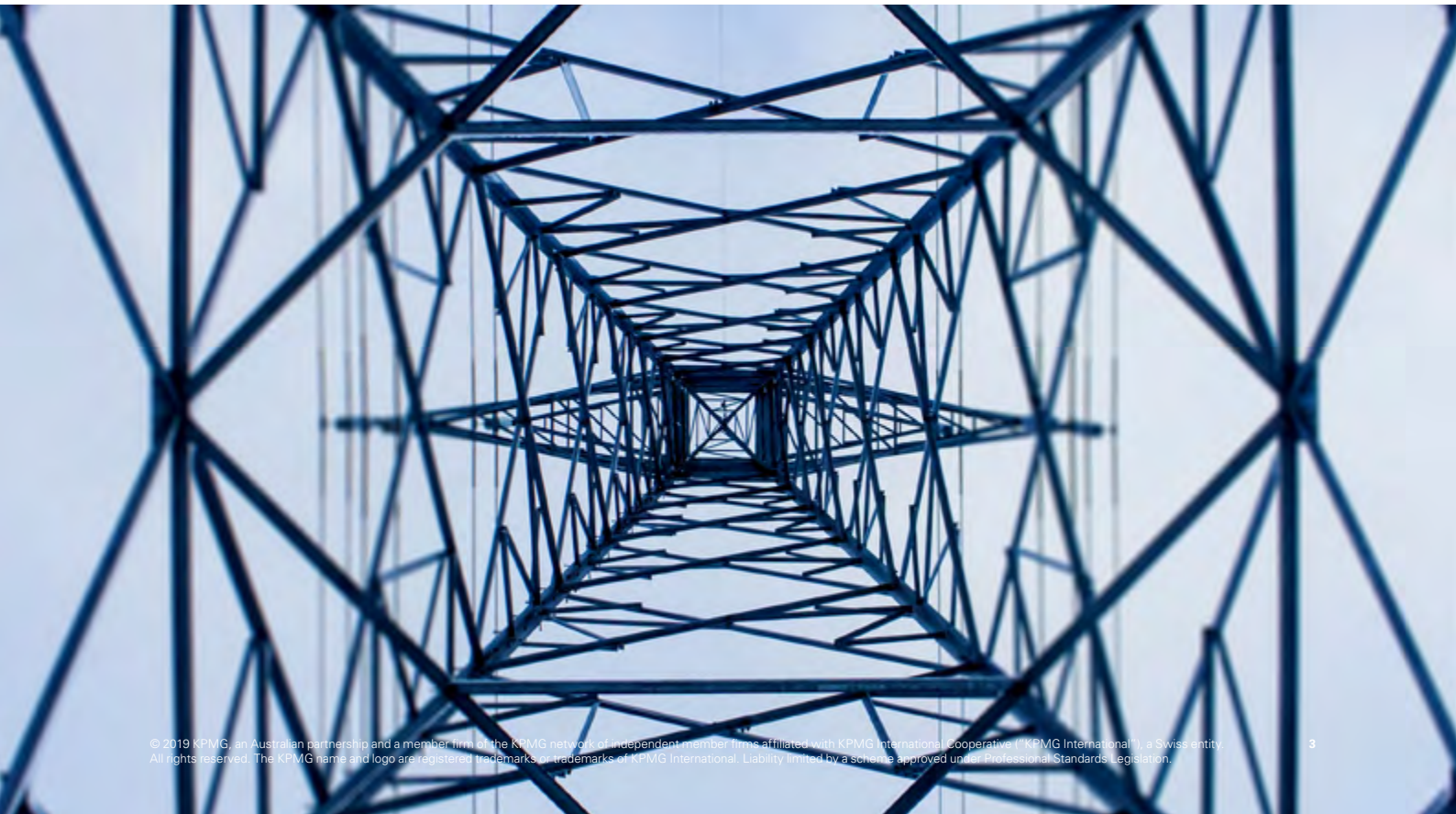
While the Australian Electricity Market Commission (AEMC) continue to progress changes to the National Electricity Rules (NER) and undertake reviews, the formation of the Energy Security Board (ESB) has resulted in a dispersion of market reform responsibility. There is also an increasing level of activity and focus from federal and state governments on electricity policy development,[2] and the Australian Energy Market Operator (AEMO) and Australian Energy Regulator (AER) are playing more active roles in reform processes.

Adding to these complexities, two large-scale reviews are currently underway in the National Electricity Market (NEM) that could fundamentally alter the design. These are the:

- Coordination of Generation and Transmission Investment (COGATI) review being progressed by the AEMC; and
- Post 2025 Market Design for the NEM (NEM2025) review being progressed by the ESB.

The increasing complexity of the regulatory landscape and growing number of influencing parties increases the importance of having clear lines of accountability between the different decision makers, and transparency around how coordination between these parties is taking place.

1 KPMG, *Electricity Market Design Principles* (2018)
2 For example: the Default Market Offer, Victorian Default Market Offer,



Importance of coordinating multiple, discrete changes to the NEM

KPMG's task was to develop a framework tool to assist energy policy decision-makers and those advocating change to understand how well their proposals might fit within, or are congruent with, other proposals underway in the market. All stakeholders interested in energy policy development will find value from engaging with this tool.

While the definition is broad, Congruent reforms typically:

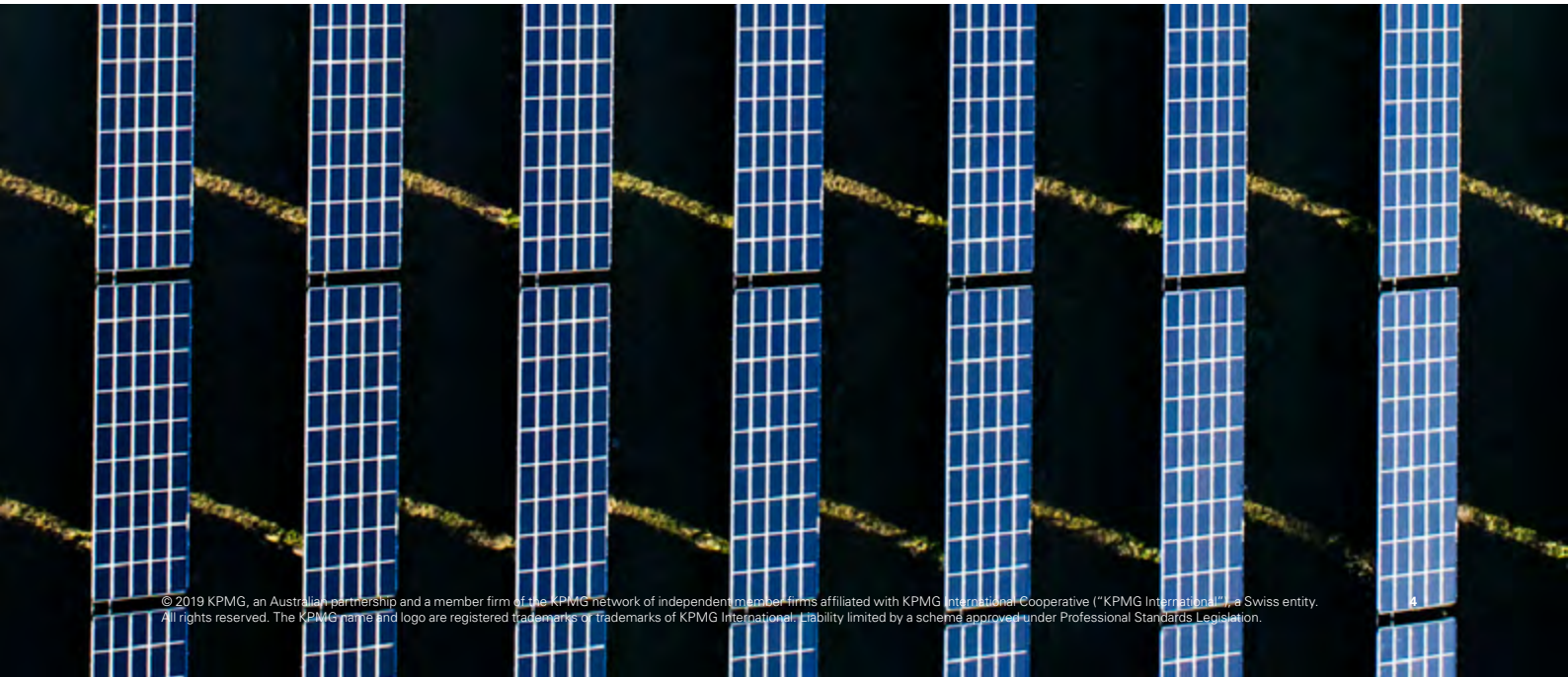
- reinforce market signals to participants;
- allocate risks efficiently and consistently to parties best placed to manage them; and
- deliver unique and complementary benefits to the market and its participants.

Congruent reforms require careful thought by decision-makers and a holistic view on the impacts on consumers. Reforms lacking congruency may create unforeseen changes to incentives that result in perverse outcomes, conflicting market signals that deter investment, and unnecessary costs and complexities that can erode the benefits of the reforms.

An outcome from applying the framework is to demonstrate the need for coordination and alignment between reforms holistically rather than individually, prompting more thorough analysis on the interactions and flow-on effects of each change to the market. Our framework cannot answer all questions and conclusions with regards to the level of integration of reforms in the NEM, but is there to provide a starting point for a conversation and debate.

We note that congruent reforms are in the long term interests of consumers and therefore promote the National Electricity Objective (NEO).[3]

3 The NEO is to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to the reliability, safety and security of the national electricity system.



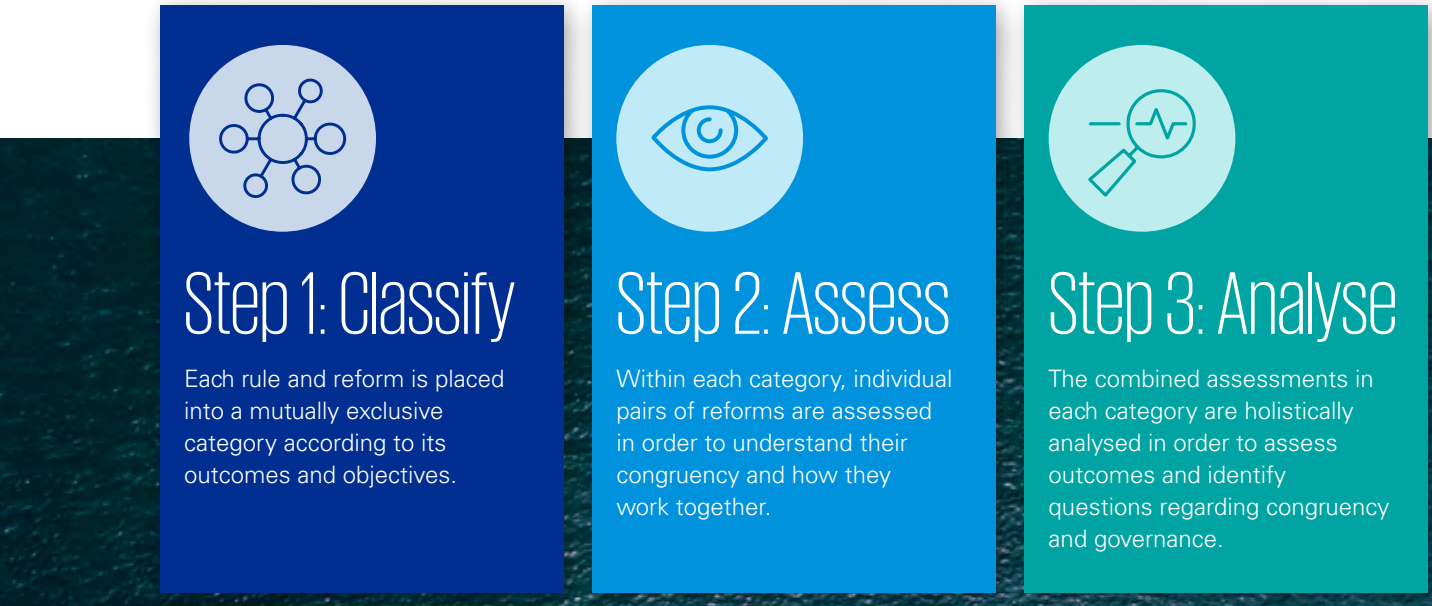
The assessment framework

In order to make an assessment of the congruency of electricity market reforms, KPMG's framework uses a piecewise approach to build a picture of the regulatory landscape. After separating reforms into related categories, the framework methodically looks at individual interactions between pairs of reforms. Assessing these individual interactions requires a structured analysis that considers various factors concerning each reform pair, in order to form a view on how well they work together. This analysis can then be combined into a holistic view of the congruency of current reforms across the market.

We would expect the framework tool to be used by decision makers or proponents of reforms or rule changes in order to provide an assessment of congruency as part of a reform proposal or as part of an assessment process. This could include market participants or stakeholders, the AEMC, as well as other market bodies such as the ESB, AEMO, and AER.

The framework is made up of three key steps, as shown in Figure 1. Through undertaking a process to **classify**, **assess**, and **analyse**, interactions between reforms in the market can be identified and the congruency of reforms in the NEM assessed.

FIGURE 1: Overview of coordination framework approach



Step 1: Classify

The initial step of the framework is to classify each reform into one of the following categories, relating to which part of the electricity supply chain in the NEM the reform predominately impacts upon:

- Wholesale market, relating to the operation of the wholesale electricity spot market and ancillary services markets in the NEM;
- Contracting, covering trading of electricity financial instruments through various means;
- Generation, relating to development, connection, operation, and function of generation assets in the NEM; and
- Networks, relating to the function of transmission/distribution networks and relevant standards.

This step ensures that the assessment and consequent analysis is performed on a smaller subset of rules and reforms in order to reduce complexity. While reforms should ideally only sit within one category, it is possible to place reforms in more than one category if need be.

Step 2: Assess

Once the reforms have been placed into their respective categories, a detailed assessment is carried out whereby the interaction between each pair of reforms within a category is assessed in more detail. The purpose of this step in the assessment process is to highlight any potential positive or negative interactions within a category.

The assessment between each pair of reforms looks at three areas:

- Extent of overlap in outcomes and objectives of the reforms.
- Congruency of the two reforms in practice.
- Acknowledgment of the interaction by the proponent or decision-maker of the reform.

Through a series of questions (see Section 3 of the report), each pair of reforms is graded on a scale from –5 to +5, referring to the materiality of the interaction. We have prepared a spreadsheet tool with this report to assist in undertaking the assessment. We note there is a degree of subjective judgement in undertaking the assessments, and other parties may form different views on how the questions should be answered.

For each category, a half matrix as shown in Figure 2 is populated as the scoring is completed. A positive score flags there may be positive interactions, while a negative score flags there may be negative interactions.

FIGURE 2: Sample of completed half-matrix from assessments

	Reform A	Reform B	Reform C	Reform D	Reform E	Reform F
Reform A		–4	–3	–4	0	0
Reform B			–2	0	4	0
Reform C				0	1	3
Reform D					2	0
Reform E						–1
Reform F						

Step 3: Analyse

Following the scoring of the reforms, it is important to evaluate the results in detail to understand why certain interactions exist between reforms and the potential impacts of those interactions. This step provides an overview of the congruency of the category as a whole (i.e. the number of linkages and common themes of congruency), as well as insights into potential impacts on consumers and the role of governance between the various reforms. Table 1 provides guidance on questions and lines of analysis to be considered in this assessment.

TABLE 1: Questions to guide the analysis

Qualitative analysis		
Overview This section covers the general findings between the two reforms and why the reforms have been flagged.	**Impacts to consumers** This section covers how well the pair of reforms reflect the NEO, outlining costs and benefits to consumers.	**Governance** This section covers potential governance reasons underpinning the overlap.
What overlapping outcomes or objectives are the reforms addressing and why is this the case?	Do the overlapping reforms together promote efficiency in the long-term interest of consumers?	How are the reforms planning to be implemented, and do overlapping reforms span one or more government or market institutions?
What are the general themes and observations with respect to the congruency of reforms in the category?	Are there concerns around the costs of the reforms outweighing the benefits? Are there inefficient costs from implementing various pairs of reforms?	Was there appropriate communication and/or coordination between the market institutions regarding the overlapping pairs of reforms?

Applying the framework to reforms underway in the NEM

To demonstrate how the framework is used, we have applied it to a selection of current rules and reforms in the market. Through this, we can show the benefits of using the framework to deliver a structured analytical approach to assessing the congruency of multiple market reforms, as well as provide insights into the complex regulatory environment.

In total, 23 rules and reforms were selected, spanning across various issues within the NEM. From this, we were able to construct a holistic picture of the various interactions between reforms highlighting the complexity of the current regulatory landscape and raising questions around congruency and coordination.

Figure 3 outlines these interactions at a high-level, while Section 4 of the report sets out our findings in detail and Appendix B contains details on individual assessment and scoring. Observations from our analysis are set out below:

1.

There were a large number of similar outcomes and objectives between reforms in the contracting market, with multiple proposals aiming to increase contract market liquidity. The contract market is particularly complex, with small changes potentially having a disproportionate negative impact on efficiency. Our analysis flagged questions around how these reforms would work together in practice and whether there could be inefficiencies from duplication if all proposals were implemented.

2.

Five minute settlements, which is due to be implemented on 1 July 2021, could have outcomes that impact a large number of other reforms given the magnitude of this change to settlement processes. The alignment of current and potential future reforms with five minute settlements requires careful consideration by decision makers.

3.

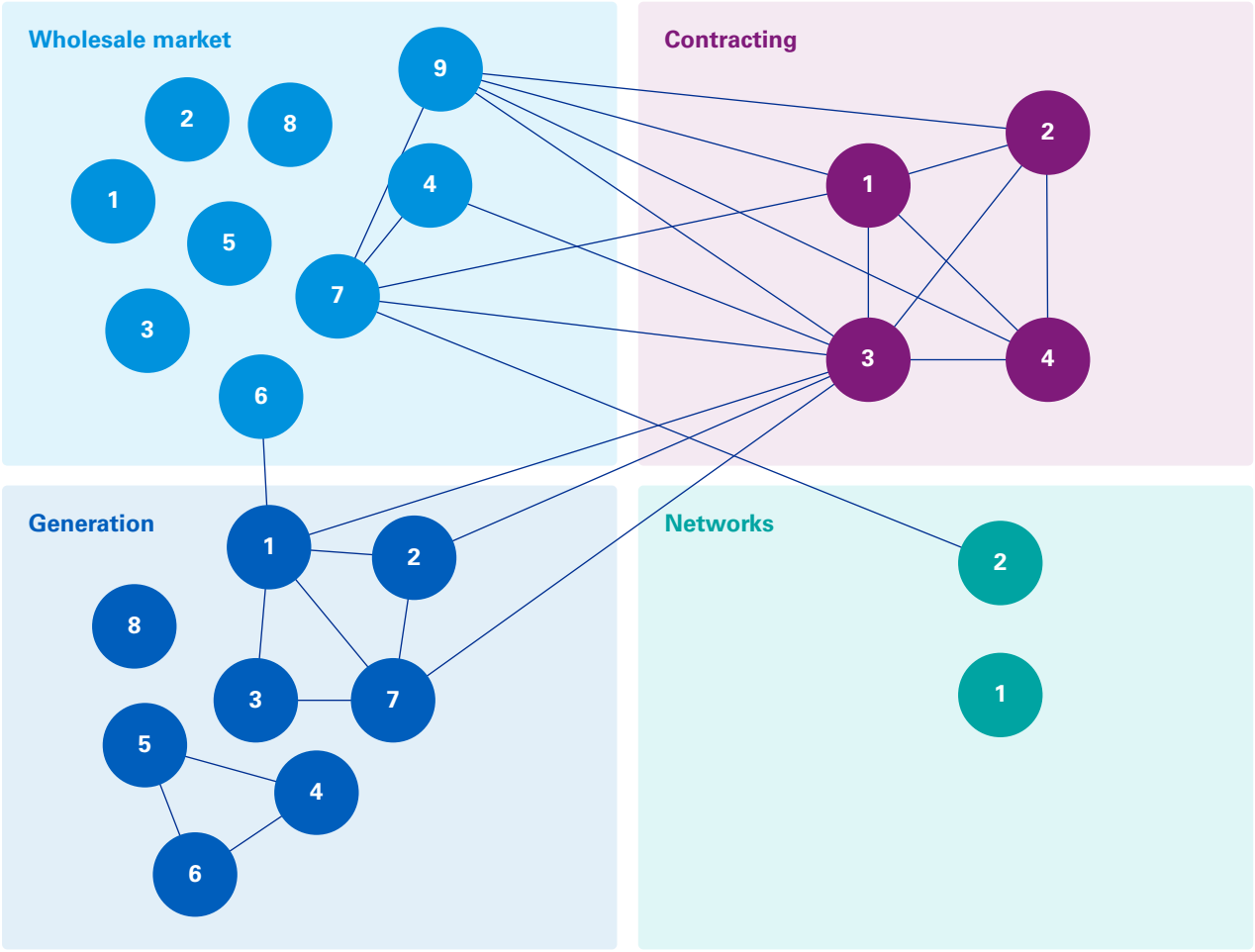
Changes to generator registration thresholds will have a broad impact that will require consideration of costs and benefits of reforms on newly obligated generators.

4.

The large number of reforms aimed at increasing transparency for generators are closely related to each other but appear to deliver unique and complementary benefits, raising no immediate questions regarding their congruency. In fact, many of the reforms appear to have been designed to harmonise with other reforms in the market (e.g. aligning timeframes between the Medium-Term Projected Assessment of System Adequacy (MT PASA), generator notice of closure, and Retailer Reliability Obligation (RRO)). This highlights the benefits of a coordinated approach to implementing reforms in the NEM.

Overall, our analysis found there appears to be a challenge in aligning reforms being implemented over different time periods. For example, the yet to be implemented five minute settlements or the proposed wholesale demand response mechanism will have broad market impact, which are not fully known at this stage.

FIGURE 3: **Interactions between reforms assessed in this report**



Wholesale market

1. Application of the Regional Reference Node Test to the Reliability and Emergency Reserve Trader
2. Threshold for participant compensation following market intervention
3. Intervention compensation and settlement processes
4. Enhancement to the Reliability and Emergency Reserve Trader
5. Participant compensation following market suspension
6. Transmission loss factors
7. Wholesale demand response mechanism
8. Global settlement and market reconciliation
9. Five minute settlement

Contracting

1. Short term forward market
2. Market making arrangements in the NEM
3. Retailer Reliability Obligation
4. Voluntary market making

Generation

1. Transparency of new projects
2. Generator three year notice of closure
3. Generator registration thresholds
4. Primary frequency response requirement
5. Removal of disincentives to primary frequency response
6. Monitoring and reporting on frequency control frameworks
7. Improving transparency and extending duration of MT PASA
8. System restart services, standards and testing

Networks

1. Maximum reactive current during a fault
2. Demand management incentive scheme and innovation allowance for TNSPs

External factors

Rule changes and reviews undertaken by the market institutions are not the only factors that influence market outcomes. There are a number of external factors outside of the NEM that can also influence outcomes but have not been accounted for in how we applied the framework, as these are outside the scope of this report. These impacts are set out below and Section 5 of the report:

Gas markets, including rule changes and policies being implemented by the federal and state governments. For example, policies that enable or detract from the supply of gas into domestic markets will impact gas generators' costs and therefore wholesale prices in the NEM.

Retail market rule changes and policies being implemented by the federal and state governments. Retail market reforms, such as default market offers (DMOs), could influence outcomes in the wholesale market and contract market.

Transmission infrastructure upgrades and funding, such as Marinus Link and the South Australia to New South Wales interconnector. Network investments will have an impact on the supply and demand balance in the NEM, influencing generation investment and wholesale prices.

Government policies and subsidies for renewable energy and dispatchable capacity at the state and federal levels can have an impact on outcomes in the wholesale market and contract market.

It is important for policy makers to understand these external factors when assessing the costs and benefits of groups of reforms. There could be greater commentary in reports assessing new reforms on how such external factors have been taken into account.

Extending the framework to COGATI and NEM2025

Our assessment has focussed on rule changes and reforms that represent incremental changes to the market, however, there are large-scale reforms underway that could supersede many of these changes. One of these reforms is COGATI (progressed by the AEMC) which is a reform to introduce nodal pricing in place of regional pricing in order to better align generation and transmission investment incentives. Section 6 of this report has a high-level assessment of COGATI using the framework, along with insights into its interaction with NEM2025.[4]

Through extending our framework to include COGATI, a number of interactions and questions regarding congruency were raised. Some examples include:

- How five minute settlements and aspects relating to the implementation of COGATI would work together in practice;
- Whether rule changes relating to marginal loss factors and intra-regional settlement residues should be paused until a decision on any reforms related to COGATI have been made; and
- How the implementation of nodal pricing under COGATI would affect the contract market and the compatibility with proposed reforms seeking to increase contract market liquidity.

The extent of the interactions COGATI has on reforms being considered highlights the need for holistic analysis. Failure to understand the links between these reforms could risk market inefficiencies that result in higher prices for consumers. Looking externally, COGATI will affect how retailers contract under a nodal pricing system and it is not clear whether this change in behaviour has been contemplated under the new retail price regulation mechanisms. The alignment of COGATI with AEMO's Integrated System Plan also needs to be considered.

Another large-scale reform underway is NEM2025 (progressed by the ESB), which looks to assess whether the current market design is fit-for-purpose or should be replaced by an alternative design. Progressing COGATI alongside NEM2025, both of which could fundamentally change the function of the NEM, will require careful coordination and planning in order to ensure efficient outcomes for consumers. We understand AEMC staff are members of the NEM2025 working group and these organisations are aware of the need to work together closely.

4 This analysis assumes that the COGATI model in the Directions Paper is implemented.

Key takeaways

Well-coordinated policy reform in the NEM is essential to promote market efficiency, provide certainty to investors and promote the long-term interests of consumers. The development and application of our framework tool has highlighted several key lessons to be considered in future analysis, which are set out below:

1. Caution when assessing multiple reforms attempting to solve the same issue

It is important that reforms are implemented and evaluated before implementation of similar or related reforms that may materially impact the outcomes. Failure to assess outcomes from a single reform before introducing new ones could result in inefficiencies through higher costs, redundant benefits, and unnecessary complexity.

2. Assessments should consider a wider scope of potential impacts

Given the large number of reforms being proposed, it is becoming increasingly important to consider the wider impacts of a reform and potential overlaps. Understanding the first and second order implications is an important first step to not only avoiding conflict with other changes, but being in a position to identify and reinforce any benefits.

Holistic analysis, using the framework tool in this report, and quantitative cost benefit analysis with consistent methodologies will identify opportunities to reduce inefficiencies and promote combinations of reforms in the long-term interest of consumers.

3. External factors need to be assessed when evaluating rule changes

While there are a number of changes underway within the NEM that have been assessed in this report, there are also external factors that can have a material impact on the market, including renewable energy and gas policies, transmission upgrades, and retail markets. It is essential that this context is considered when assessing reforms to the NEM, and similarly, parties implementing external policies acknowledging potential impacts on NEM outcomes.

4. Governance arrangements should deliver complementary reforms

Unclear governance arrangements confuse responsibility and accountability. Where multiple energy market institutions and governments are undertaking major reviews of the NEM, and/or implementing policies, the task of promoting congruent policies in the long term interests of consumers is made more challenging. It is important to ensure there are clear lines of responsibility and the relevant organisations are held accountable, as this will ensure consistency in analysis and the best chance of coordinated reforms being introduced.

In addition, there could be increased transparency of how the various decision makers are collectively considering the complementary nature of all the reforms. For example, an annual statement jointly issued by the energy market institutions on how the NEO has been promoted under the package of reforms made in the past 12 months could help provide confidence on the robustness of the reform process to stakeholders. This could also evaluate the overall costs imposed to the industry as a result of multiple reforms and consider the overall capacity for industry to implement these packages.

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