

12 November 2014

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## **AEMO submission to the Energy Green Paper**

AEMO is the independent operator and developer of physical energy markets in Eastern and Southern Australia. We fulfil a range of operational and planning functions which we pursue in accordance with objectives such as the National Electricity Objective, namely, to promote the long term interests of electricity customers with respect to price, quality, safety, reliability and security of supply. Given this role, AEMO is well placed to comment on a number of the matters raised in the Green Paper.

Overall we consider that the Green Paper sets out a coherent strategy for Australian energy policy. We support the general directions set out in the paper. In this submission, we identify opportunities for reform that could help to promote the Australian Government's energy policy goals. In particular we consider that:

- 1 Improved overall energy market arrangements could support innovation and competition to best meet customers' needs.
- 2 Productivity could be enhanced by more competitive gas markets.
- 3 All network investment should be efficient to minimise upward pressure on delivered energy prices.
- 4 A dynamic, integrated regulatory framework can promote efficient outcomes.

We explore each of these opportunities in the following sections.

### **1. Improved overall energy market arrangements could support innovation and competition to best meet customers' needs**

The Green Paper sets out the Australian Government's intention to keep the range of energy options technology neutral by tackling regulatory barriers. Energy markets are evolving as technology makes more options available to customers with respect to the ways in which they source their energy needs. That change in the market place is testing the conceptual separation of the market into retail and wholesale or into the industry segments as end to end competition emerges.

The energy market is developing and changing quickly in terms of:

- **Who** interfaces with the customer—the market has evolved where the focus was predominately on the provision of energy by retailers from the grid to the emergence of different business models and service providers seeking to develop new products to leverage customer responsiveness.

- **What** product and services are offered to the customers—the market is transitioning from an energy only providers to energy service and product offering (energy, demand response, electric vehicles etc.) with a strong focus on unbundling of services offerings to customers.
- **How** the customer is sourcing new and alternative energy services (i.e. from the grid, off-grid, PV, energy storage, electric vehicles etc.) and the technology available to better understand and manage energy usage (smart metering, mobile, smart devices in the home, Google NEST etc.).

Energy policy needs to be developed in the context of these changes and to ensure that market arrangements support the emergence of new products and services. Providing choice to customers about the way they source and use energy should deliver efficiencies.

Many key features of the current market framework were designed around the market model that prevailed ten years ago. This framework may not appropriately recognise or cater for the role of customers, changing technology, and evolution of business models beyond the traditional distribution and retail models. Rather, some aspects of the framework are prescriptive and dictate the form of technologies.

In particular:

- Disparate market arrangements, processes and market systems to support markets create a barrier to entry and increase costs for parties operating across jurisdictions. For instance, gas market arrangements differ between jurisdictions and between gas and electricity.
- Settlements involve a range of approximations and work on a netting basis with no one having a complete set of updated and reconciled data. A lack of standards and performance requirements for retail market data can further these problems and lead to delays and process gaps which affect services to customers. For example, customer switching processes take on average 30 days.
- Market participants are experiencing high costs associated with reconciling wholesale, network and retail billing. This appears to be influenced by a number of issues including access to timely data, data and process duplication, existing settlement by differences arrangements, and participant system issues.

As the market becomes more dynamic and power flows become more complex, the risks associated with the existing arrangements increase. There is a risk that the regulatory framework could act to entrench outdated systems and form a barrier to innovation. In the absence of reform, service providers and end users may seek to bypass the regulatory framework altogether. This trend is supported by large number of exemptions granted by the AER to alternative energy sellers. In the past two years, the AER has granted around 650 exemptions from the obligation to hold a retailer authorisation in order to sell energy.<sup>1</sup>

The absence of a comprehensive set of market data to underpin settlements not only affects retail markets. It also is, and will increasingly have an effect on operating the overall power system including the ability to forecast demand and manage security. A more active and responsive consumer base coupled with significant levels of embedded generation and (potentially) storage will make management of the overall system more complex.

There may be benefits associated with a holistic review of market frameworks to ensure that regulation is fit for purpose, outcomes based and does not create a barrier to innovation. As part of this process, it would be extremely useful to clearly define the roles and

<sup>1</sup> AER, Public register of retail exemptions, available at [www.aer.gov.au](http://www.aer.gov.au). Viewed 17 October 2014.

responsibilities of various players. It would also be worthwhile to consider whether key market data and processes should be shared.

There is a careful balance to be struck. Competitively neutral access to shared information can help competition to prosper by reducing barriers to entry while too much centralisation could stifle innovation.

Table 1 sets out AEMO's initial suggestions for a set of principles that could be used to guide the development of a market framework that can evolve to cater for innovation.

**Table 1 Principles to guide the development of the electricity market**

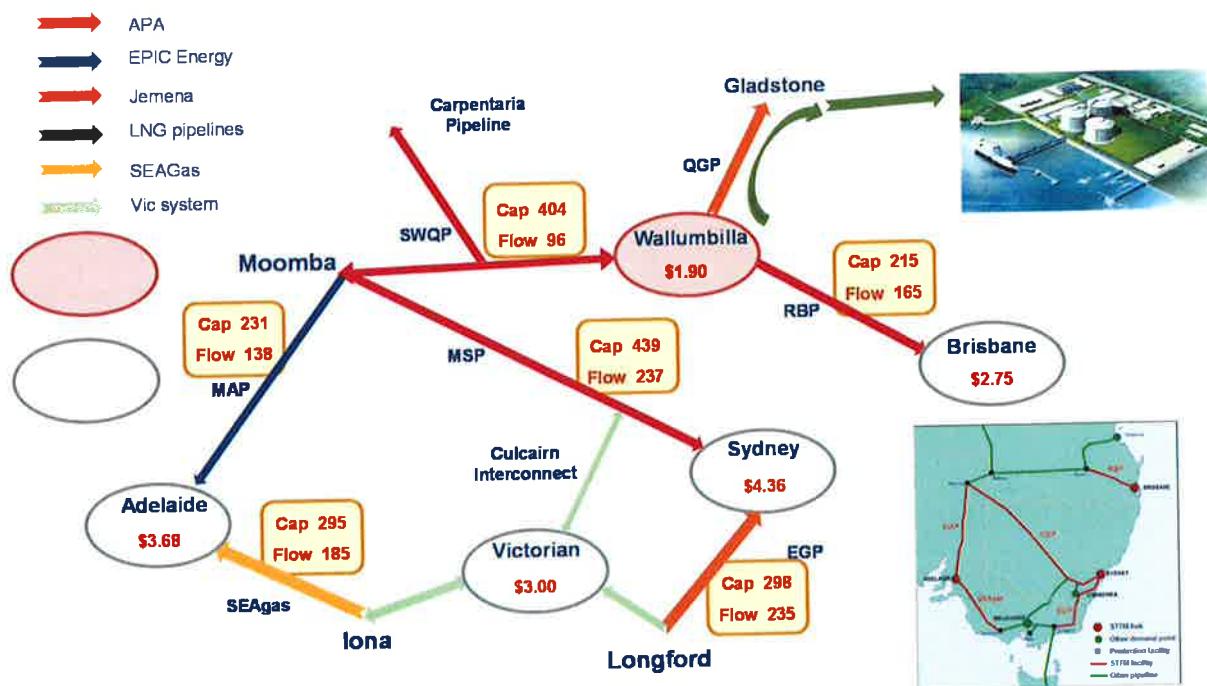
Policy area	Principles
Market arrangements	<p><b>Competitive Developments:</b> Enable integrated energy service frameworks that facilitate initiatives led by consumers and participants across the industry to actively develop products, services and technology solutions.</p> <p><b>Reduce Barriers:</b> Ensure the appropriateness of standards and measures that facilitate energy market participation.</p>
Information and data	<p><b>Accuracy &amp; Quality:</b> Timely, accurate information and data that is of an appropriate quality standard.</p> <p><b>Accessible &amp; Useful:</b> Information and data that is accessible, relevant, easy to use and understandable</p>
Market processes & transactions	<p><b>Adaptable and transferable:</b> Deploy processes that are clear, concise and avoid complexity, duplication and unnecessary delay.</p> <p><b>Streamlined:</b> Processes that leave little room for error in their execution and are developed to be as efficient as possible.</p>
Regulatory processes	<p><b>Consistency &amp; Harmonisation:</b> Implement uniform market regulation with the aim of simplifying and reducing the number of regulatory instruments (Rules, Procedures and Protocols).</p> <p><b>Simplicity &amp; Transparency:</b> Ensure Rules and Procedures are clear and complete with an appropriate balance between regulatory certainty through prescription and service innovation. Regulation that is outcomes based rather than prescribing detail that limits market evolution &amp; innovation.</p> <p><b>Change process:</b> clear, transparent, timely and streamlined changes processes that focus on the value of changes in the long term interest of consumers.</p>
Technology	<p><b>Flexible &amp; Scalable:</b> Secure technology delivering solutions catering for market participants and consumers of all sizes and able to integrate with existing third party technology and systems.</p> <p><b>Accessible &amp; Useable:</b> Technology is accessible by a variety of users to perform tasks with minimal effort. Deploy technology that is easy to use and efficient to operate</p>

## 2. Productivity could be enhanced by more competitive gas markets

As noted in the Green Paper, the development of new LNG facilities has resulted in an unprecedented increase in demand for Australian gas. The change will put upward pressure on prices. AEMO's work suggests that the balance between supply and demand will be tight with the potential for some shortfalls under extreme circumstances. The changing market conditions are also putting pressure on existing market structures, which have historically been characterised by long term bilateral contracts between a small group of industry participants. They also indicate a need for greater transparency to assist the market respond and make the necessary transition.

There is a case for introducing reforms that make east coast gas markets more integrated and hence more competitive. More effective and integrated gas markets could be expected to find efficient solutions to potential supply shortfalls; encouraging incremental supply options, storage and demand side response. Figure 1 shows the market outcomes for the various east coast gas supply hubs on 30 August 2014. While there is more than one reason for the difference in prices, the large price differentials between hubs illustrates the lack of an efficient integrated market.

Figure 1 East coast gas market outcomes, 30 August 2014



Where the gas market is finely balanced, incremental actions by market participants have the potential to make a substantial difference to customer outcomes. An integrated market which permits participants to shift gas around the network would be able to take advantage of a more diverse range of options in order to reach an efficient outcome.

A gas market can take many forms and trade does occur under the current market structure. However AEMO notes that structured gas market arrangements have the potential to improve efficiency as a result of:

- Reduced transaction costs, which give rise to incremental trades which would not occur under more costly trading arrangements.
- Trading standardised products leads to improved price discovery, allowing producers and consumers to make better informed decisions.
- Lower counterparty risk due to a broader pool of potential counterparties, which helps to reduce prudential costs.

To the extent that such structured market arrangements are voluntary, participants will only use them if they benefit from doing so.

That said, we consider that it is more important that reforms to promote competition are carried out than that the new arrangements take any specific form. The basic reform requirements are relatively clear. To promote competition in gas markets, we need greater transparency and the ability to trade in pipeline capacity.

## 2.1. Greater transparency

A well informed market is critical for both policy makers and market participants. There would be benefits in promoting greater transparency in gas prices and in the market outlook.

Gas prices are determined via long term contracts which are commercial in confidence. As a result, wholesale gas prices lack transparency. A gas price index would yield significant



benefits to customers since it would improve their ability to assess the price they are being offered when negotiating a contract, and would allow them to better understand market trends. It would also allow producers and potential producers to see the market value of additional production. AEMO is currently exploring potential price index mechanisms and will publish its findings early next year.

There is scope to obtain a clearer understanding of gas market trends by improving projections on reserves, production, storage and adequacy of supply. AEMO suggests that policy makers consider what information they require, and what information market participants require, in order to make well informed decisions.

## **2.2. Ability to trade in pipeline capacity**

A key theme of the Green Paper is the need to improve productivity in Australia's energy industry. In the case of pipeline infrastructure, mechanisms that help to ensure that existing capacity is efficiently utilised are likely to enhance productivity.

Ideally, gas market participants should have the ability to shift gas around the network (including between nodes) in accordance with their commercial requirements. For this to occur, participants need to be able to trade in pipeline capacity to support their activities in the commodity market.

Parties trading gas at the recently established Wallumbilla supply hub have the opportunity to post available capacity to the market thus improving visibility of capacity to a potential counterparty. To date this functionality has experienced minimal usage. Further development of capacity markets could help to encourage efficient transactions, reduce barriers to entry and lower the price of both pipeline capacity and gas.

AEMO supports the COAG recommendations with respect to gas transmission pipeline capacity trading, including the requirement for more information to be published on the National Gas Market Bulletin Board.

Clear policy direction would help to ensure that the gas market is able to respond effectively to changes in demand and supply. In recent years there has been a number of reviews of gas market policy, and a number of further reviews are currently underway. For these reviews to deliver benefits, their findings need to translate into action.

Given that the decision to amend gas market legislation lies with government, it would be beneficial if the Council of Australian Governments (COAG) were to develop a clear set of objectives and criteria to inform industry and regulators of policy expectations. These would:

- Encompass all of the existing disparate market structures;
- Draw on the findings of previous reviews; and
- Incorporate any further advice COAG requires to make a final decision.

## **3. All network investment should be efficient**

AEMO agrees that there is a need to focus on electricity prices given the significant increases that have occurred since 2009. As consumers adopt new energy technologies, it is important to ensure that all new investment in electricity networks is efficient.

Recent changes to the regulatory framework mean that regulatory scrutiny of network investment will be more effective in the future than it was in the past. For instance, AEMO has established capability to prepare electricity demand forecasts on a consistent and comparable basis across the NEM, at both the regional and transmission connection point levels.<sup>2</sup> These forecasts give the AER an independent alternative view to the forecasts

<sup>2</sup> <http://www.aemo.com.au/Electricity/Planning/Forecasting>

submitted by the network businesses during the regulatory determination process. We have also started to prepare planning reports to provide an independent view of the transmission network investment needs (see section 3.4). Along with the AER's Better Regulation reform program<sup>3</sup>, these measures can be expected to reduce pressure on electricity prices going forward.

However, there is scope for further refinements to the regulatory regime. The changing market environment and new technologies mean that there are new opportunities to introduce competition to services which were previously considered monopoly services. Energy market policy that keeps pace with these developments will avoid limiting competition and innovation. There is also scope to refine the existing regime to ensure it appropriately reflects network businesses' cost drivers.

The regulatory framework applying to network businesses should:

- Reflect costs through to customers.
- Embrace competition wherever feasible.
- Move towards outputs based regulation where competition is not feasible, and seek to ensure that replacement expenditure is efficient.

### **3.1. Reflect costs through to customers**

To support efficient outcomes, customers should have the opportunity to respond to market signals through flexible and innovative tariff structures. AEMO supports progressive change in network pricing arrangements which aim to provide appropriate signals to customers. More open and competitive retail markets in the future should also allow customers to respond to prices. Well-designed tariff structures offer scope to derive direct information concerning consumer preferences since customers are rewarded for responding, and especially for reducing their electricity consumption during peak demand periods. Customers' response to price signals will change the shape and level of customer demand which should drive the need for network services. This should mean that customers are only paying for services that they value.

There are significant challenges associated with sending sophisticated price signals using traditional accumulation meters. Network pricing reform increases the potential benefits associated with arrangements which permit customers to procure advanced metering services on a competitive basis.

### **3.2. Embrace competition wherever feasible**

Pro-competitive reforms have the potential to benefit customers through lower prices and more innovative service offerings. While electricity networks have natural monopoly characteristics, some services provided by network businesses can be provided on a competitive basis. Such services include metering, connections (e.g. in New South Wales distribution), and infrastructure finance.

The changing market environment brings with it new opportunities to introduce competition in domains which have historically been considered to be the exclusive preserve of network businesses.

The decision to invest in network infrastructure is relatively straightforward if demand for electricity network services consistently grows. Historically, network planners have been confident that network infrastructure will ultimately be used, even if their demand forecasts are not quite right. Over the last five years, this assumption has ceased to hold true.

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<sup>3</sup> <http://www.aer.gov.au/Better-regulation-reform-program>

There is now more scope to consider alternatives to expensive, lumpy network upgrades. Options such as demand management and embedded generation have the potential to be more cost effective and flexible in circumstances where it is unclear whether an identified constraint is likely to persist.

AEMO, in its role as planner-procurer of the Victorian transmission network, has observed a significant increase in the level of competition in its tender processes. The increase in competition applies both between rival providers of network solutions (as network businesses seek new opportunities) and between network and non-network solutions.

During AEMO's consultation on Stage 3 of the regional Victorian thermal capacity upgrade, the original estimate for the capital cost of the leading network option was \$77 million.<sup>4</sup> However, when it became apparent that there may be scope to resolve the identified need using a non-network alternative, the re-scoped network option resulted in a cost of only \$42 million.<sup>5</sup> AEMO has subsequently gone out to tender and received bids from a diverse range of non-network service providers.

Similarly, three transmission network service providers participated in AEMO's tender process for the construction, ownership and operation of the Heywood Terminal Station upgrade. As a result of competitive pressure, AEMO will be able to procure the Victorian part of the project (including both contestable services and the interface works) at a substantial discount to the forecast cost.

### **3.3. Move towards outputs-based regulation**

AEMO supports reforms that move the Australian regulatory framework towards a more outputs-based regulatory regime. The current regulatory framework remunerates network businesses on the basis of inputs. Ultimately, a regulatory regime that rewards network businesses for delivering services valued by customers is clearly preferable to a regime that rewards network businesses for building assets. An outputs based regime gives network businesses the ability to make decisions that deliver desired levels of reliability in the most efficient manner.

AEMO has recently finalised a review of the Value of Customer Reliability (VCR)<sup>6</sup> which sought to determine the value residential and business customers place on the reliable supply of electricity. VCR data is an important resource in an outputs based regulatory regime since it represents, in dollars per kilowatt hour, the willingness of customers to pay for the reliable supply of electricity.

Going forward, the VCR study results can be applied to support investment decision making that is more reflective of customer reliability preferences at a particular location on the grid. For instance, they can be used to establish economically derived reliability standards capable of making efficient trade-offs between the benefits and costs of a reliable electricity supply.

### **3.4. Seek to ensure that replacement expenditure is efficient**

The economic regulation arrangements in the National Electricity Rules are designed to give much greater scrutiny to augmentation expenditure than replacement expenditure. In the past, network businesses' replacement expenditure allowances have been determined simply by reference to the age of the asset fleet.

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<sup>4</sup> AEMO, Regional Victorian Thermal Capacity Upgrade RIT-T Project Assessment Conclusion Report, October 2013.

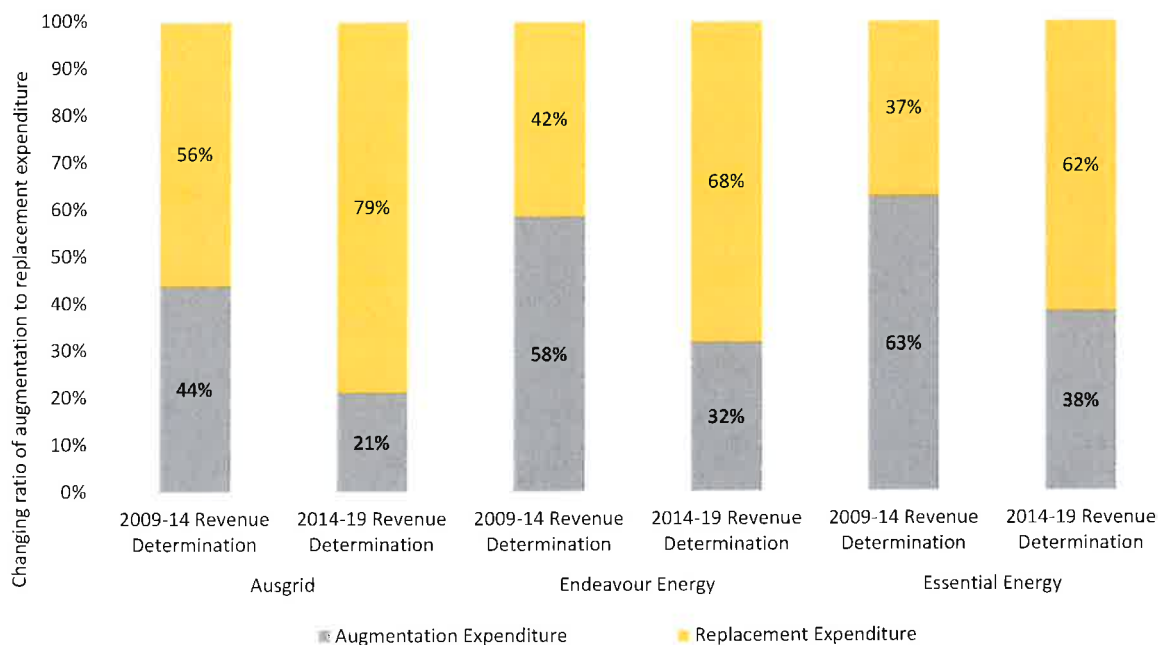
<sup>5</sup> AEMO, Regional Victorian Thermal Capacity Upgrade RIT-T - Stage 3, June 2014.

<sup>6</sup> <http://www.aemo.com.au/Electricity/Planning/Value-of-Customer-Reliability-review>

The forecast reduction in maximum demand has resulted in network businesses delaying or cancelling a number of network augmentations that were under investigation or already committed. In comparison, the reduction in committed asset replacements has not been of the same magnitude.

Collectively, the network businesses are looking to spend \$5.5 billion in replacement expenditure over the next five years compared to \$3.3 billion in augmentation expenditure. Figure 2 provides an example of how replacement expenditure has increased as a proportion of overall investment expenditure in NSW distribution.

**Figure 2 Ratio of augmentation expenditure to replacement expenditure, NSW DNSPs**



Source: AER, AEMO analysis

The case for replacing assets which have reached the end of their useful life is relatively straightforward in circumstances where demand inexorably rises. In an uncertain demand environment, however, it may not be necessary to replace assets on a like for like basis. It may be possible to replace the old asset with something smaller, with a non-network option, or it may be case that the asset is no longer required.

There would be benefits associated with reforms which make the network businesses' replacement expenditure decisions more transparent and focussed on future needs. Consistent with the regime that applies to augmentation expenditure, a network business proposing to carry out a major replacement project could be required to undertake a transparent cost benefit analysis to ensure that there isn't a more efficient alternative network or non-network option. In addition, pressure on electricity prices could be reduced if network businesses adopted best practice whole-of-life asset management practices.

Such measures could help to ensure that Australia's future energy needs are met in the most efficient manner.

In response to growing pressure on network prices, AEMO has started to prepare planning reports to provide an independent view of the transmission network investment needs.<sup>7</sup>

<sup>7</sup> <http://www.aemo.com.au/Electricity/Planning/Independent-Planning-Review--NSW-and-Tasmanian-Network>



Among other things, we assess whether proposed major asset replacement projects are required given forecast demand and whether an alternative option could fulfil the reliability standard more efficiently.<sup>8</sup>

AEMO's reviews are carried out in its capacity as the national transmission planner however there is no formal obligation on AEMO to prepare independent planning reports. Going forward, there would be benefits associated with recognising this function within the regulatory framework in order to ensure that AEMO is able to obtain the information it requires to undertake a high quality assessment.

#### **4. A dynamic, integrated regulatory framework can promote efficient outcomes**

The Green paper sets out the Government's goal to improve efficiency by removing unnecessary regulatory barriers and market interventions. AEMO supports this goal. We consider that there is an opportunity to pursue this goal through reforms which are designed to make the regulatory framework more dynamic and consistent.

##### **4.1. A more dynamic regulatory framework**

In an uncertain market environment, efficient outcomes are more likely to be achieved in the context of a dynamic regulatory framework that responds quickly to changing market conditions. Otherwise there is a risk that regulatory barriers could increase transaction costs and restrict beneficial change.

The key regulatory instruments that govern the Australian energy market – including the National Electricity Rules (NER), the National Gas Rules (NGR) and the National Electricity Customer Framework (NECF) – have become increasingly prescriptive over time. Further, the process that must be followed to amend these documents is time consuming and resource intensive.

We consider that a preferable approach would be to set out the high level principles and objectives in the NER, NGR or NECF and put the technical detail in ancillary documents administered by the AER or AEMO (as appropriate) using a relatively streamlined process.

This approach would allow for regular updates and continuous improvement of the technical requirements, operating, planning and regulatory arrangements that apply to energy market participants. In order to change an ancillary document, the AER and AEMO must comply with the relevant consultation procedures as set out in the Rules.<sup>9</sup> Accordingly, it would still be necessary to undertake a public consultation process and publish reasons. However, this process is generally faster than a rule change process.

We acknowledge that the ancillary documents also have the potential to generate an unnecessary regulatory burden. AEMO is responsible for producing a range of procedures and guidelines. We recognise that some of our documents are also overly prescriptive.

AEMO proposes to work with stakeholders and the other NEM institutions to undertake a comprehensive review of regulatory instruments with a view to reducing red tape and promoting flexibility, competition and innovation.

These measures have the potential to improve efficiency by reducing the transaction costs that arise as a result of unnecessary regulatory barriers.

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<sup>8</sup> AEMO's review does not extend to advising the AER whether the condition of TNSP network assets necessitates their replacement.

<sup>9</sup> See, for instance, NER cl. 8.9 and NER cl. 8.

#### **4.2. A more consistent regulatory framework**

AEMO supports efforts to reduce unnecessary differences between the regulatory arrangements that apply in different jurisdictions. A single consistent regime is more likely to support the efficient development of the energy market. For instance, more technical interventions are required to manage system stability when there are pockets of high penetration of non-synchronous generation compared to a situation where non-synchronous generation is spread across diverse network locations.

With both Federal and State membership, the Energy Council is ideally placed to drive a coherent national agenda which takes account of diverse local issues. It would be helpful if the Energy Council could provide a forum through which the local, state and national impacts of decisions can be considered to provide an effective overall framework.

#### **5. Conclusion**

The energy industry is currently going through a range of changes, some of which are driven by policy initiatives, some by technology developments, and some by commercial developments such as the export of LNG. There is an opportunity for government, through the White Paper process, to put in place clear policy frameworks that minimise the risk of regulatory arrangements and market arrangements falling behind these rapid changes and resulting in inefficient outcomes. If you wish to discuss this submission, please contact David Swift on (08) 8201 7371.

Yours sincerely



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