



21 February 2017

NEM Security Review Expert Panel  
By email: NEMSecurityReview@environment.gov.au

Dear Panel Members,

**Re: Preliminary Report of the Independent Review into the Future Security of National Electricity Market**

The Southern Sydney Regional Organisation of Councils (SSROC) is an association of 11 Councils in the area south of Sydney harbour. SSROC provides a forum for the exchange of ideas between our member Councils, and an interface between governments, other Councils and key bodies on issues of common interest. We facilitate collaboration between councils on joint ventures, procurement, and projects including advocacy. Together, our member Councils cover a population of almost 1.7 million, or one third of the population of Sydney.

SSROC has advocated for some years for the reform of the National Electricity Market (NEM). SSROC strongly supports a reform that not only permits but encourages energy efficiency and decentralised energy production from renewable sources. We note the expert panel's view that "The transition to a lower emissions economy is underway and cannot be reversed."<sup>1</sup>

**1 Taking advantage of new technologies and business models**

SSROC supports actions to attract investment in advanced energy demonstration projects. Exploration of emerging technologies and demonstration projects is valuable research for future development of the electricity supply business. Some respected authorities including CSIRO and Energy Networks Australia, even propose that a transition to 100% renewable energy is feasible by 2050<sup>2</sup>.

One of the major barriers to significant increases in deployment of renewable energy is the intermittent nature of wind and solar, which is not suitable for baseload generation. But the feasibility of overcoming this barrier is increasing, highlighting the importance of new technologies and business models to enable renewables to have a role in meeting baseload demand. Technologies such as molten salt energy storage, lithium-ion batteries and pumped hydro energy storage are increasingly proven and financially viable. SSROC would ask the Panel to consider the mechanisms whereby regulatory frameworks can be made more responsive and appropriately resourced to enable new technologies to be rapidly deployed, and whether the NEM could incorporate incentives that favour renewable generation over carbon-intensive generation.

In taking advantage of new technologies and business models that are reaching a demonstrably proven status, the National Energy Objective needs to be broadened to include social and environmental risks: currently the Objective aims to minimise risk to the existing system by protecting and strengthening the status quo. The Objective 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 – price, quality, safety, reliability, and security of supply of electricity; and the reliability, safety and security of the national electricity system."*

The Objective fails to consider the long-term effects of continued use of carbon-intensive sources of energy on consumers due to its contribution to climate change: this could be addressed by

modifying the Objective to require that it addresses the social and environmental risks of the system's operation.

Fundamentally, the NEM was designed to sell electricity from a centralised generating model. Alternatives now exist that challenge that paradigm while lowering price, improving quality, reliability and security, and are genuinely in the long-term interests of consumers. The NEM needs to adapt to become a market that rewards reductions consumption and accommodates decentralised generation.

Changing the Objective might appear to be a simplistic solution: it is not. It represents a major cultural change for all stakeholders in the sector, but particularly for the Australian Energy Market Commission (AEMC) which is responsible for making and amending the rules. A significant overhaul of the organisation will be needed to shift its operation from protection of the entrenched approach to electricity generation to one that actively seeks ways to improve the NEM and works with proponents to rule change to find effective solutions.

## **2 The role of the electricity sector in meeting Australia's emissions reduction targets**

With electricity the largest source of Australia's annual emissions by a significant margin, the sector has to play a major role in meeting the emissions reduction targets. Further, many solutions exist already to enable this to happen: many of which would be greatly facilitated by reform of the NEM. For example:

- enabling the take-up of renewable technologies by consumers,
- facilitating the integration into the NEM of distributed renewable generation, which CSIRO and ENA estimate will comprise 30 to 50 per cent of Australia' electricity needs by 2050,
- paying a fair price for electricity generated locally, by applying a model such as the Local Generation Network Credits (LGNC) proposed by the City of Sydney, the Total Environment Centre and Property Council of Australia last year,
- where a proposed rule change has merit and could reduce emissions, working with the proponent to develop and implement the rule change within the framework of the National Electricity Rules.

Ambitious strategies exist that would enable Australia to transition towards renewable electricity, such as that recently published by the ANU<sup>3</sup> and Beyond Zero Emissions' (BZE) Stationary Energy Plan<sup>4</sup>. SSROC supports the principle of increasing renewable electricity, and is working to support Councils achieving their renewable energy targets, and to enable residents to reduce their electricity consumption. While the extent of potential renewable generation put forward by ANU and BZE is very ambitious, we urge the Panel to consider these strategies, with a view to future-proofing the NEM so that it does not prevent the achievement of higher proportions of renewable electricity in the long-term.

## **3 Barriers to investment in the electricity sector**

SSROC strongly supports building the capacity of local communities to deliver and own renewable energy projects consistent with the objectives of the SSROC Renewable Energy Master Plan. Finance can be a significant barrier to community energy projects, which may need seed funding, grants or finance that can be repaid from energy cost-savings.

The electricity industry could fund local projects paid for by the savings on investment in the network that would otherwise have been required. Some electricity retailers already offer solar leasing options to their customers; this offer could be enhanced if sufficient customer demand could be generated that the resulting installations would generate enough electricity to reduce the need for additional infrastructure. Technology-based solutions are already used to facilitate consumer bulk-purchases<sup>5</sup>, and could be used by the electricity industry, potentially targeting geographical areas where a network infrastructure upgrade is likely to be needed.

SSROC supports rule changes for electricity networks and retailers to implement Virtual Net Metering (VNM). VNM is widely used in the USA and currently being trialled in Australia. Byron Shire (solar PV) and Willoughby Councils (co-generation unit) are the first Councils to participate in a VNM trial and Essential Energy, Ausgrid, Origin Energy and Energy Australia are all participating

in the trial as well. Enabling VNM would significantly improve the business case for Councils for rooftop solar PV.

The preliminary VNM trial results showed that VNM significantly improves the business case associated with renewable/distributed energy generation, relative to a base case that assumes current market conditions and the current structure of network charges. At the same time, it shows that VNM has a negative impact on network business revenues. For this reason, SSROC suggests a change in market rules to induce this service to be offered. If VNM were enabled by the NER, councils (and other consumers with multiple sites) would be able to maximise the benefits from on-site renewable energy technologies by installing them on more viable sites and net-off their outputs against the total electricity consumption.

Another barrier to investment in distributed generation is the inability under the existing rules for a small generator to supply electricity to another premises, even an immediate neighbour, without incurring significant cost that renders the investment unviable. This could be addressed by a new tariff for use of the grid for this limited purpose.

#### **4 Technologies at consumers' premises to improve energy security and reliability**

Demand-side management (DSM) technology can contribute to improving energy security by allowing consumers to understand and control their energy consumption. If consumers could easily see a financial benefit to reducing their peak consumption, then they might contribute to lowering peak demand and avoiding a power-outage. DSM would require technology to be implemented at the consumers' premises to enable them to see and monitor their consumption, as many households and buildings have access to only basic monthly meter data.

If consumers were willing to surrender some degree of control over their peak consumption, then the supply-side could have greater control over excessive peak consumption. A low-tech version of this approach is credited by some stakeholders<sup>6</sup> with averting threatened blackouts in NSW in February 2017: technology could make the approach more reliable and responsive.

SSROC urges the review to promote the extensive penetration of smart meters and DSM.

The preliminary report states that the roll-out in Victoria of digital meters would not realise all the anticipated benefits and would represent a cost to consumers. SSROC agrees with the point that a business case must be built on the benefits to consumers (p17). However, it does not necessarily follow that the cost should be borne by those consumers: the benefit of consumers' reduced consumption to the network should be acknowledged and a financial adjustment made to that consumer's account. Currently the consumer only benefits from their own reduced consumption. This was the basis of the rejected LGNC rule-change proposal, which SSROC recommends should be reconsidered.

#### **5 New planning and technical frameworks to complement current market operations**

Network service providers already have planning processes in place to enable them to forecast where infrastructure upgrades are likely to be required in future. These forecasts could be used to target specific locations for local renewable energy projects as described in section 3 above.

Tariffs could be reformed to enable consumers to choose from a range of demand-based network tariffs, including the option of going off-grid, with standalone and micro-grids rewarded for their contribution to reducing the need for upgrades to traditional infrastructure.

Distributed generation needs to be fully integrated into networks, so that it can be exploited as part of the electricity generation mix. The current NEM regulatory framework persistently hinders and fails to acknowledge the potential positive contribution of 1.5 million small electricity generators. This source of electricity is contributing the slight fall in demand for electricity in recent years<sup>7</sup>.

Technical frameworks need to be more flexible and adaptable than they currently are, and should be designed to facilitate speedy adoption and deployment of new technologies. Open standards will be necessary for secure system operation, efficient management, communications, and interoperability between decentralised networks, including small generators and micro-grids.

## 6 Effective competitive retail markets and consumers paying no more than necessary

Consumers contribute to reduced electricity demand when they implement energy efficiency or distributed energy solutions. This contribution should be recognised as a financial saving to the electricity industry and rewarded appropriately.

A mechanism whereby the electricity industry funded new household-scale renewable electricity installations would enable low-income earners, renters, vulnerable and hardship consumers to benefit from renewable energy; a sector from which they are effectively currently excluded.

A new network optimisation market could be established to generate demand and supply of distributed electricity generation and network services. This would need to enable the rapid optimisation of supply from multiple sources with demand, and include the integration of resources to achieve the necessary reliability and efficiency. It would also need to be transparent, with pricing commensurate with actual benefits received.

## 7 Governance structures

Governance structures will need to be transformed to enable dramatically improved agility within the networks, as technology facilitates connections, integration and opportunities for all consumers to make lower carbon electricity choices. Failure to transform would cripple the industry, and would incentivise consumers at every level opting out of the grid altogether, enabled by rapidly improving technology and increasingly competitive pricing.

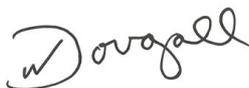
New information and control systems will be required to enable full integration of distributed resources. These will be very agile, but will also need to be very secure as they will become a critical element of electricity network infrastructure. They will be necessary to enable AEMO to judge the operational constraints of the system.

## Conclusion

SSROC supports the reform of the NEM to enable it to efficiently and effectively accommodate the changing nature of Australia's energy mix and the shift from centralised to decentralised electricity generation. We also acknowledge the difficulty of combining agility and responsiveness with a robust regulatory framework, and of the transition. The opportunity for the electricity sector to transition to cheaper, cleaner, distributed services is huge, and undoubtedly in the long-term interests of consumers of electricity with respect to price, quality, safety, reliability and security of supply.

For any enquiries regarding this submission, please contact Helen Sloan, Program Manager SSROC on 02 8396 3800.

Yours faithfully,

A handwritten signature in black ink that reads 'Namoi Dougall'.

Namoi Dougall  
General Manager

Southern Sydney Regional Organisation of Councils

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## References

- <sup>1</sup> Preliminary Report of the Independent Review into the Future of the National Electricity Market, p19.
- <sup>2</sup> CSIRO and Energy Networks Australia 2016, *Electricity Network Transformation Roadmap: Key Concepts Report*. Available: [www.energynetworks.com.au/roadmap](http://www.energynetworks.com.au/roadmap)
- <sup>3</sup> Blakers A, Lu B, Stocks M 100% Renewable Electricity in Australia, February 2017. Available: <http://energy.anu.edu.au/files/100%25%20renewable%20electricity%20in%20Australia.pdf>
- <sup>4</sup> Wright M, Hearps P (lead authors) Australian Sustainable Energy, Zero Carbon Australia, Stationary Energy Plan, June 2010. Available: <http://bze.org.au/publications-overview/>
- <sup>5</sup> See for example: [www.suncrowd.com.au](http://www.suncrowd.com.au)
- <sup>6</sup> See for example: <http://www.abc.net.au/news/2017-02-10/nsw-power:-blackouts-across-the-state-averted/8260830>
- <sup>7</sup> Australian Energy Regulator, National Electricity Market electricity consumption, 2016. Available: <http://www.aer.gov.au/wholesale-markets/wholesale-statistics/national-electricity-market-electricity-consumption>