

**INQUIRY INTO ELECTRICITY SUPPLY, DEMAND AND
PRICES IN NEW SOUTH WALES**

Organisation: Energy Networks Australia

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Inquiry into Electricity Supply, Demand and Prices in New South Wales

Response to Select Committee Inquiry

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Contents

Overview	3
The NSW Electricity Network	3
Electricity Network Transformation Roadmap	3
Drivers of recent increased electricity prices	4
Revisions to NSW government mandated reliability standards	5
Changes to the cost of debt following the Global Financial Crisis	6
The growing retail component of electricity bills	7
Improved Planning	10
Generation Technologies	12
Consumer Protection	12

Overview

Energy Networks Australia welcomes this opportunity to make a submission to the New South Wales (NSW) Legislative Council's Select Committee *Inquiry into Electricity Supply, Demand and Prices in NSW*.

Our Association represents Australia's energy grid supporting all Australian customers with over 900,000 km of electricity transmission and distribution lines and almost 90,000 km of gas distribution mains.

The New South Wales electricity network

In New South Wales, electricity is supplied to 3 million customers through an extensive network of poles and wires. The network is operated by utilities Transgrid, Ausgrid, Endeavour Energy and Essential Energy. These companies deliver energy to customers, with the costs passed on through retail electricity bills.

Network charges are regulated to protect the long-term interests of customers. The independent regulator (the Australian Energy Regulator – AER) is responsible for ensuring efficient spending on network infrastructure. Through a comprehensive public process, the AER has to approve, in advance, the five-year revenue proposals for each network business.

In the current round of AER decisions, electricity network revenues are forecast to fall by an average 13.5 per cent, compared with the previous round of decisions. In contrast, forecast electricity network revenues in determinations made from 2009 to 2011 rose by 30 per cent.¹

The cost of electricity distribution services from power stations to homes and most businesses typically accounts for around 36-40 per cent of the final price in New South Wales.

Energy Network Transformation Roadmap

Australian energy networks have collaborated with the national science agency, CSIRO, in the landmark study, the Electricity Network Transformation Roadmap. The two-year analysis produced a comprehensive transition plan for the electricity grid to *keep the lights on, bills affordable and decarbonise electricity*. This roadmap is to help guide network businesses to an efficient and timely transformation.

The Key Concepts Report for the Electricity Network Transformation Roadmap² identified measures, which could see 10 million participants using the grid as a platform for energy exchange, customers saving over \$414 per year on average, total savings of \$101 billion in system expenditure and zero net emissions for the electricity sector by 2050.

The Roadmaps analysis found that **coordinated, timely action** to changes in the energy system can deliver more choice and control for Australian energy customers, while maintaining system security and meeting international climate change

¹ AER, State of the Energy Market 2017, page 107.

² CSIRO and Energy Networks Australia 2016, Electricity Network Transformation Roadmap :Key Concepts Report (Roadmap)

commitments. In fact, CSIRO's analysis confirmed that Australia's electricity sector could exceed its share of current national carbon abatement targets, achieving 40% below 2005 levels by 2030. The analysis also suggested it is possible for the electricity sector to maintain a reliable, stable grid while achieving zero net emissions by 2050, in line with the aspiration of the Conference of the Parties (COP 21 Paris Agreement – December 2015) to the United Nations Framework Convention on Climate Change.

Realising these opportunities relies on strengthening, rather than undermining, NEM institutions and markets in which investors – whether they are utilities, new innovators or households – can make decisions without unnecessary policy risk.

Our submission focusses on the Select Committee's Terms of Reference.

Drivers of recent increased electricity prices

Retail electricity bills are made up of a number of components:

- » wholesale costs reflecting electricity generation costs and purchased by retailers in competitive markets;
- » network costs reflecting the cost of the transmission and distribution networks that are regulated by the Australian Energy Regulator (AER);
- » retail costs including operating costs such as billing and marketing and a profit margin for risk in providing retail services; and
- » environmental policy costs mandated by the Australian and State and Territory governments, such as the Renewable Energy Target and the state and territory feed-in tariff and energy efficiency schemes.

Changes in any one of these components flows through into retail electricity bills.

Between 2007 and 2012, a number of drivers led to the significant increases in **network charges**. Increases in network costs were overwhelmingly driven by the demands of the market and government policies, including:

- a. forecasts of rising demand for electricity at peak times, largely driven by the use of energy intensive appliances such as air-conditioners, requiring more transmission and distribution capacity that is only used for a small fraction of time;
- b. the need to replace aging infrastructure, given that much of Australia's electricity infrastructure was built in the 1960s and 1970s with a working life of 30 - 40 years;
- c. the need to meet NSW government mandated reliability standards, which was a significant driver of costs for network businesses that lay largely outside their direct control; and
- d. the higher cost of sourcing the required investment as a result of the Global Financial Crisis, which saw debt margins double in capital markets.

A range of market and government policy factors that drove network cost increases from 2007 to 2012 have since moderated or been addressed, with significant changes in market conditions, government reliability standards and regulatory frameworks. The AER's revenue and pricing determinations made between 2012 and 2015 provided for maximum revenue that networks could recover from customers that is on average 9 per cent lower than recoverable revenue in the previous regulatory period.

Driver of Network Costs	Current Status
<p>Debt margins: Corporate debt margins increased by up to 100% during the GFC, under regulatory frameworks that set debt based on the time of the AER Decision.</p>	<p>Debt margins have fallen substantially since the GFC. Long-term debt costs have recently been at the lowest point since the GFC.</p> <p>The regulatory framework has been amended to include a 'trailing average' approach the cost of debt allowance, smoothing volatility over 10 years.</p>
<p>State Government Reliability Standards: In NSW and Qld, network licence conditions were changed to prescribe higher 'input based' reliability standards which required additional redundancy in networks.</p>	<p>Relevant Governments corrected deterministic standards, in favour of more outcome based, probabilistic standards.</p>
<p>Replacement expenditure: As recognised by regulators, capital replacement cycles required networks to address a significant number of 1960s and 1970s assets reaching the end of their economic life.</p>	<p>Recognising an increased proportion of replacement expenditure, new regulatory reforms extend regulatory investment tests to replacement expenditure. The AER has also modified modelling which allows it to assess network proposals against benchmark expenditure requirements</p>
<p>Perceived incentives to prefer capital expenditure over operating expenditure</p>	<p>In 2012, regulatory changes were made to incentivise further capital efficiency, increase use of demand management, allowing excessive capital expenditure to be excluded by the Regulator.</p>
<p>Demand and Load Profile: A decoupling of consumption from economic growth, combined with rapid changes in technology uptake (e.g. air-conditioners, dishwashers, solar PV) made demand forecasting more challenging and the load more 'peaky'.</p>	<p>Peak demand growth has softened in many areas of the network and forecasting and planning are more advanced. Pricing reform, incentives for distributed resources will remain critical to enable efficient network services in the future.</p>

Further detail is provided below.

Revisions to NSW government mandated reliability standards

In 2007, the former NSW Government revised the design, reliability and performance licence conditions for Distribution Network Service Providers (DNSPs). NSW networks were required to meet the toughest reliability standards in Australia. Networks were required, on average, to provide customers with power 99.98 per cent of the time (equivalent to less than two hours outage per customer per year).

Higher reliability standards require networks to invest in redundancy to ensure that power can still be supplied if some feeders fail, even during times of peak load.

The NSW Independent Pricing and Regulatory Tribunal (IPART) approved additional capital expenditure of \$1.5 billion over the 2004-09 period with additional costs in the 2009-14 period to meet these standards.

For Essential Energy, the higher standards meant spending on quality, reliability and security of energy supply more than doubled from 2004/05 to 2009/10.

In addition, underground cabling is a major improvement to network reliability. Underground cabling is more expensive than overhead cables, but is also more secure, improving reliability and safety of supply.

In 2014, the current NSW Government revised the reliability and performance licence conditions for electricity distributors. The purpose of the revision was “to facilitate the delivery of a reliable and cost-effective supply of electricity”³.

Changes to the cost of debt following the Global Financial Crisis.

The Global Financial Crisis in 2007 resulted in a significant increase in financing costs, which led to an increase in network revenues and network prices. Debt margins in capital markets doubled. However, more recently, the cost of debt has reduced very significantly due to improved financial market conditions and reform of cost of debt methodologies in the AER regulatory determinations that reduce exposure to temporal volatility.

In the current round of AER decisions, electricity network revenues are forecast to fall by an average 13.5 per cent, compared with the previous round of decisions. In contrast, forecast electricity network revenues in determinations made from 2009 to 2011 rose by 30 per cent.⁴

The return on capital is the largest revenue component for electricity networks. The cost of capital has fallen substantially as capital markets improved and long-term debt costs have recently been at historic lows.

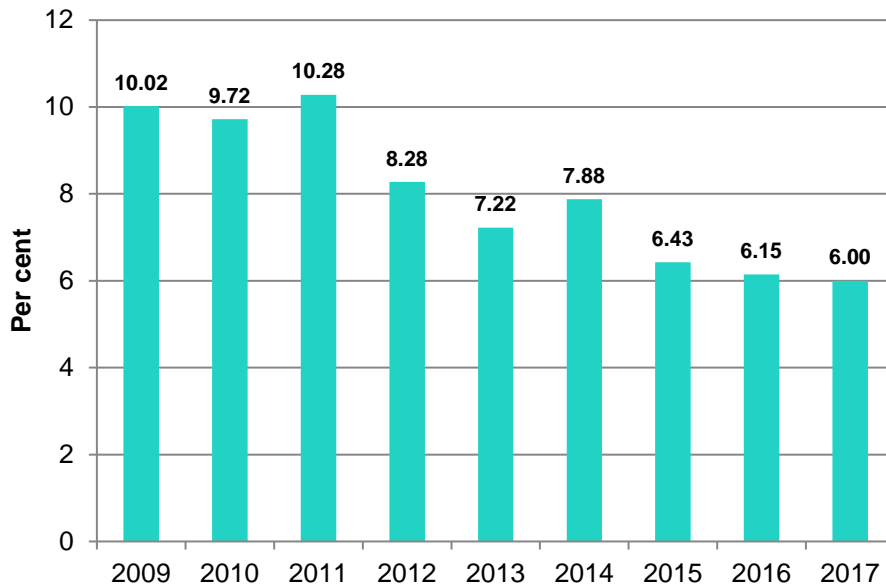
The AER’s regulatory determinations made since 2012 reflect lower costs of financing due to reductions in the risk-free rate and the debt risk premium. The overall cost of capital in electricity determinations declined from a peak of over 10 per cent in 2011, to just 6 per cent in 2017 (Figure 1).

The cost of capital is updated annually to reflect changes in debt costs. Therefore, an increase in return on debt may increase the cost of capital, which may result in an increase in network revenues and network prices (the reverse is also true).

Figure 1 Overall cost of capital in electricity determinations

³ NSW Government, Reliability and Performance Licence Conditions for Electricity Distributors, 1 July 2014, page 2.

⁴ AER, State of the Energy Market 2017, page 107.



Source: Energy Networks Australia analysis

The growing retail component of electricity bills

As noted in Energy Networks Australia’s recent submission to the Australian Competition and Consumer Commission’s (ACCC’s) *Inquiry into Retail Electricity Supply and Pricing Issues Paper*, it is difficult to establish clear information about the extent of actual competition between electricity retailers in each market. A number of commentators have recognised that while the ostensible indicators of competition (e.g. customer churn) appear positive - the actual price outcomes for customers are opaque. We note a number of customer advocates and regulators continue to recognise that segments of Australian retail markets are not subject to strong price discipline or competitive pressure⁵.

It appears that retailers adopt a highly segmented marketing strategy that effectively exploits any inaction by customers or those who are unable to engage actively with retail offers. There is evidence of a significant cohort of customers who are not active in retail markets. As a recently released Energy Consumers Australia (December 2016) survey indicated, nearly half of all households in NSW and Queensland have never switched supplier (47 per cent and 52 per cent respectively) while even in Victoria, which is regarded as among the most competitive markets globally, 36 per cent of households have never changed their supplier⁶.

AER data indicates that:

- » The majority of customers are not active in investigating their retail offer choices and it is not due to lack of awareness. Around 70 per cent of customers in NSW, Victoria, South-East Queensland and South Australia had not actively investigated their energy options in the 12 months to June 2016.
- » Vulnerable customers are most impacted. *“High levels of customer vulnerability create a barrier to participation and impede the development of effective competition. Vulnerable consumers are less likely to shop around because they lack*

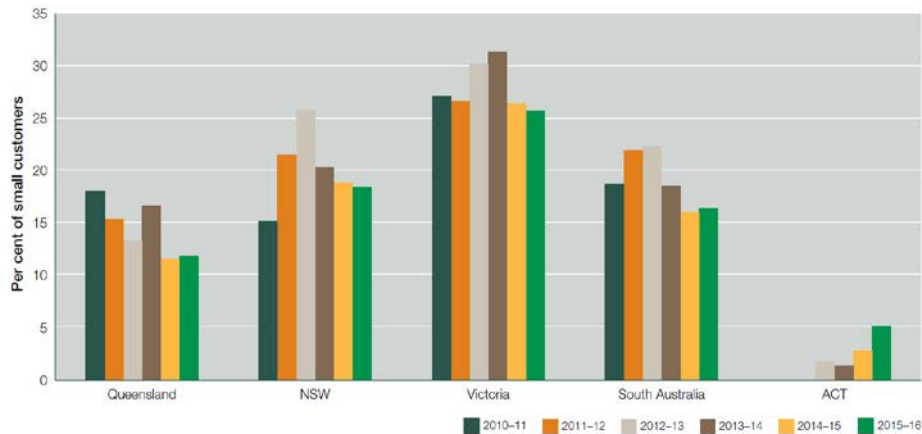
⁵ St Vincent de Paul Society and Alvis Consulting, [The NEM - A hazy retail maze](#), Melbourne, December 2016.

⁶ Canberra Times “Open energy markets failing households” 5 February 2017.

confidence in finding the best deal for them, and they fear they may end up worse off. They are often embarrassed by their financial situation and concerned that switching retailers will mean a loss of benefits, increased debt, and exit or reconnection fees⁷.”

- » While customer ‘switching’ rates are not of themselves an indicator of efficient outcomes (for the reasons noted by the Chair of the Energy Services Commission), they are flat or declining according to AER data below⁸.

Figure 4.13
Small energy customer switching—electricity



- » There has been a significant increase in price diversity in the past 12 months, rather than a narrowing of retail offers that might be expected in a highly competitive market, around an efficient price point being revealed through competitive market pressure.

There appears substantial evidence that retailers do not proactively offer discounts to passive customers including those on

- » standing offers which are significantly higher than the market offer of the same retailer and the best market offer; or
- » market offers in which the discount period has lapsed as typically occurs after a limited period (e.g. 12 months).

The financial benefit to the retailer and disbenefit to the customers involved is substantial. The AER has identified that a typical customer switching from an electricity standing offer to the best market offer with the same retailer could save up to \$676 in Victoria, \$381 in NSW, \$332 in South Australia, \$256 in Queensland and \$204 in the ACT⁹.

While Victoria’s retail market is often recognised for high levels of customer switching which approach 30 per cent, a recent Grattan Institute report recently demonstrated that despite high levels of churn:

“In Victoria, the profit margin for electricity retailers appears to be about 13% – more than double the margin regulators traditionally considered fair when they had responsibility for setting prices. Victorians would save about \$250 million a

⁷ AER (2017) *State of the Energy Market Report*, p. 144.

⁸ *Ibid* p. 145.

⁹ *Ibid* p. 147.

year – about \$100 per household – if the profit margin of their electricity retailers was the same as for other retail businesses”.¹⁰

The Chairman of the Essential Services Commission of Victoria recently observed:

“Around us, we see markets with characteristics that force us to question the effective state of competition. Price structures are at odds with what we might expect in a highly competitive market....Retailers have developed contract arrangements that effectively 'hide' their actual prices. Customers have a very low awareness of the market, how they are engaging with it or what it really means for them”.¹¹

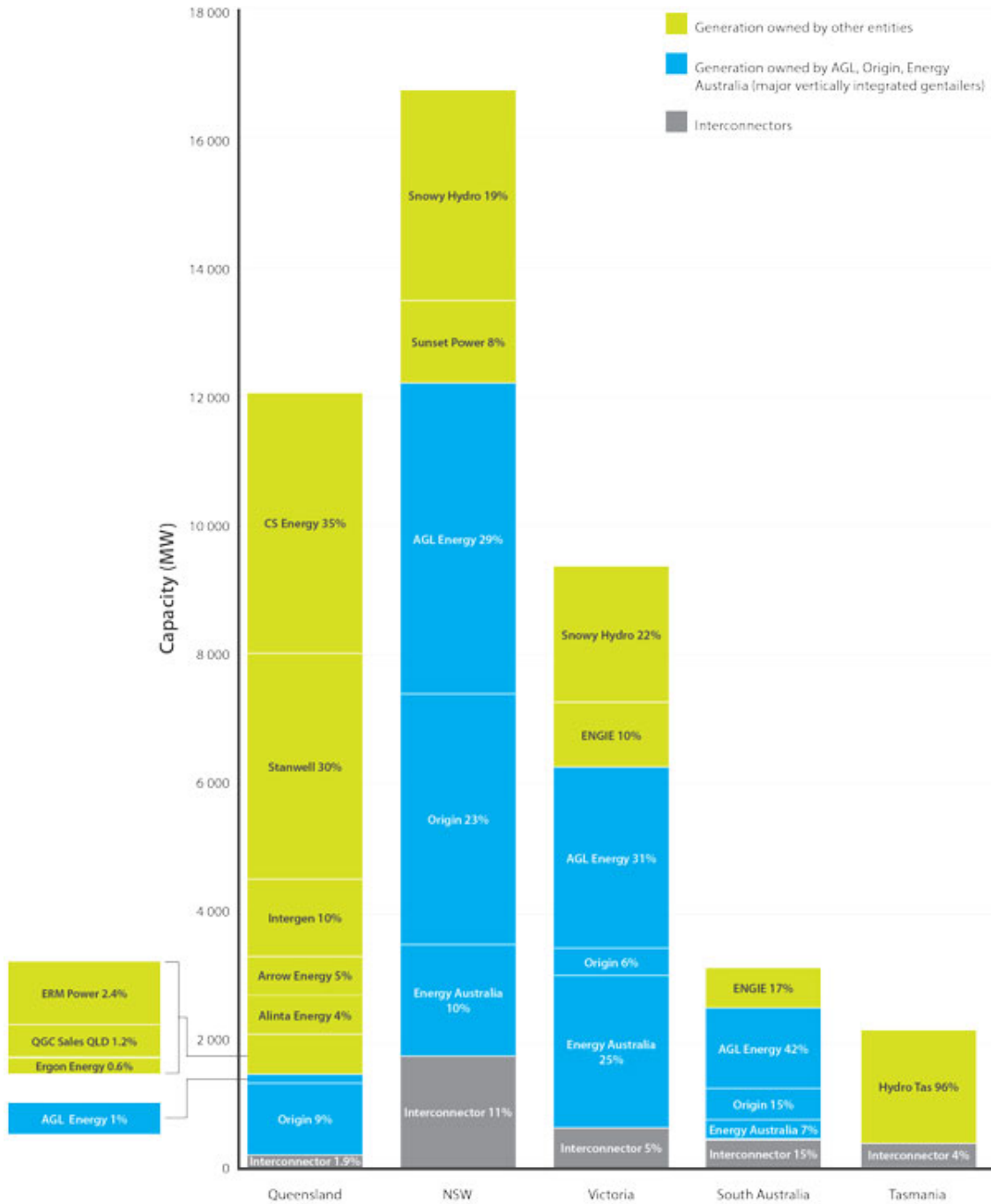
Energy Networks Australia notes analysis by the Finkel Review and other stakeholders on the level of vertical integration in some jurisdiction and would recommend the Select Committee review its impact on competition.

In the period from 2009 to 2017, the major retailers have increased their share of NEM generation capacity from 15 per cent to 48 per cent¹². The Finkel Review includes a graph showing Generation ownership by NEM region in 2017 as shown below.

¹⁰ Wood, T., Blowers, D., and Moran, G. (2017). [Price shock: is the retail electricity market failing consumers?](#) Grattan Institute.

¹¹ Dr R. Ben-David, [Shock Therapy. Reviving retail competition in the energy market](#) August 2016.

¹² AER, *State of the Energy Market 2017*, 2017 p.47.



The graph shows significant generation concentration in NSW. It should be noted that the largest three generators are also retailers (or gentailers as they are sometimes called).

The Finkel Review Panel noted that the ACCC is currently holding an inquiry into the retail electricity prices in the NEM, which includes an examination of the impact of vertical integration. The Panel also noted that the AER also has new powers and responsibilities as of December 2016 to monitor and analyse whether there is effective competition in the wholesale market. The NSW IPART is also currently undertaking its 2017 Retail Energy Market Monitoring Report. The draft Report is expected to be released later this month. The recent *Independent Review into the Electricity and Gas Retail Markets in Victoria* (the Thwaites Review) found that in Victoria retailers' costs and profits from selling energy are a major contributor to energy prices.

“For most households in the research sample, the retail charge was the single biggest component of their electricity bill – bigger than the charge for producing or distributing electricity. Rises in fixed charges as a component of the bill also contributed to the increases, locking in costs for consumers despite declining consumption”.¹³

The review also found that:

“competition has added additional costs to the market that have not been offset with cost reductions or other benefits and these costs need to be recovered from consumers”.¹⁴

It may be worthwhile for the Select Committee and/or IPART to consider whether this situation is also occurring in NSW.

Improved Planning

Energy Networks Australia notes that one of the Finkel Review’s key recommendations was for greater strategic planning of transmission infrastructure in Australia, including a new planning mechanism to allow for the efficient development and connection of new Renewable Energy Zones. These zones are gaining international prominence as a transmission-planning tool to enable the “scale up” of penetration of solar, wind, and other resources on the grid.

The Panel also proposed AEMO and Transmission Network Service Providers (TNSPs) develop an Integrated Grid Plan. The first plan is due to be released by mid-2018 and should “determine the optimal transmission network design to enable the connection of renewable energy resources, including through inter-regional connections.”

Energy Networks Australia notes that over the coming decades, the energy market will transition from one in which most energy is sourced from large-scale transmission connected generators, to one where distribution-connected resources provide 50 per cent or more of energy.

Modelling in the ENA-CSIRO Roadmap found that the forecast scale of these resources is such that unanticipated orchestration and inevitable bidirectional flows of energy could breach constraints even at transmission level and put overall system security of supply at risk. Energy Networks Australia considers that a critical issue is that these resources, if not controlled appropriately, could result in widespread overload and/or invoke of technical constraints on the distribution network. Dealing with this potential issue will require:

- » significant enhancement of network visibility, communications and control functionality;
- » the development of advanced power system architecture;
- » an improved interface with AEMO, in mapping, monitoring, and forecasting DER;
- » capability in overlaying two way flows across the system and managing them in a way that ensures the greatest amount of DER can be used for the greatest amount of markets;
- » accurately forecasting energy and demand – at different time scales and at different levels of the network; and

¹³ Thwaites, J., Faulkner, P., and Mulder, T. (2017) [Independent Review into the Electricity and Gas retail markets in Victoria](#), August 2017, p. ix.

¹⁴ Ibid, p. ix.

- » increased data transparency (including for customer participation and planning) is also necessary to ensure fair access for all parties.

Energy Networks Australia emphasises the importance of detailed system planning based on a detailed regular assessment of the impact of future synchronous generation closures, in order to ensure that generation supply can meet forecast demand. It will be important to integrate, where possible, assessments of both generation retirements and new generation development so that challenges can be identified and planned for in the *National Transmission Network Development Plan* and in jurisdictional Transmission Annual Planning Reports.

Generation Technologies

Adopting a technology neutral approach to carbon reductions provides the lowest cost impact to customers. Analysis by the energy consultancy Jacobs¹⁵ found that a technology neutral framework could achieve the Australian Government's 2030 abatement target at the lowest cost compared to other policy settings resulting in an average saving of \$216 per annum over the decade 2020 to 2030.

The Select Committee should seek to avoid identifying a 'silver bullet' or developing climate change policies favouring particular technologies. The Select Committee should instead adopt a principle of technology neutrality and seek to establish a mix of market and regulatory frameworks that encourage innovation and competition, and remove barriers to the formation of commercial solutions.

Measures supporting research and development, pilots and trials can play an important role in niche areas of technology development. However, the more significant investment risks to an efficient energy transition result from governance issues and poorly coordinated policy and regulatory frameworks. For instance, the Select Committee should avoid a recommendation to mandate direct support for particular generation options or other technologies like storage – instead focussing on the market service or outcome that is required, such as abatement targets or emissions intensity targets. Similarly, Governments should avoid prescriptive regulation of technology solutions that prevent new technologies like storage from best serving customers in the variety of roles they can play.

The Select Committee should also consider potential abatement opportunities between sectors. For instance, opportunities arise where emissions from the electricity sector could be reduced through switching from electrical to gas appliances within households or commercial buildings. Alternatively, the introduction of electric vehicles may reduce emissions from the transport sector but will require increase electricity generation and potential growth of emissions in that sector.

Consumer Protection

Energy Networks Australia notes the recent NSW Government Energy Affordability package. The increase in energy rebates will assist eligible low-income customers. As will the removal of retailer fees in the near future and increased funding for energy efficiency programs.

¹⁵ Jacobs (2016), *Australia's Climate Policy Options – Modelling of Alternate Policy Scenarios*, available from www.energynetworks.com.au

We also note and support the recent NSW Auditor-General's Performance Audit of NSW energy rebates for low-income households including the recommendations that by September 2018 the NSW Department of Environment and Planning should:

1. Ensure effective strategies are in place to make information about rebates available to all eligible, low-income households
2. Evaluate alternative models and develop advice for government to reduce complexity and improve equity of ongoing rebates
3. Establish measurable objectives for schemes that provide ongoing support, and monitor and measure performance of all schemes against objectives and outcome measures
4. Assess the impacts of the forecast increase in embedded networks and develop strategies to manage any increased administrative risk
5. Strengthen assurance that Energy Accounts Payment Assistance (EAPA) scheme is being provided in accordance with its objectives and guidelines by implementing accreditation and compliance programs
6. Ensure those eligible for EAPA financial support are not disadvantaged by inflexible payments, inconsistent provider practices, or inability to access an EAPA provider in a timely manner. Options include:
 - moving from a fixed-value voucher to a flexible payment based on need irrespective of energy type
 - establishing a 'Provider of Last Resort' facility for households that cannot access an EAPA Provider.

In addition, Energy Networks Australia notes that for many years, consumer groups and other stakeholders have advocated a thorough and inter-jurisdictional review of energy assistance programs available in different States and Territories.

Every State and Territory has its own energy assistance programs. These programs would benefit from being standardised across jurisdictions, being appropriately means tested and being administered by the Australian Government, on behalf of the States and Territories, through the tax and transfer system. Eligibility for assistance should be automatic for those whose income qualifies them for assistance. Customers should not have to apply. The amount of assistance available should take into account factors such as household size and the number of dependents.

Energy Networks Australia supports the Finkel Review recommendation that the COAG Energy Council should engage with relevant portfolio areas including housing, and with state, territory and local governments, to identify:

- » opportunities to accelerate the roll out of programs that improve access by low income households to distributed energy resources and improvements in energy efficiency; and
- » options for subsidised funding mechanisms for the supply of energy efficient appliances, rooftop solar photovoltaic and battery storage systems for low-income consumers.

We note that a number of State Governments, including the NSW Government, have existing funding arrangements of this nature in place for low-income households. Energy Networks Australia supports the Finkel Review recommendations regarding improving the accessibility of information for consumers.

Energy Networks Australia also notes that NSW has adopted the National Energy Customer Framework (NECF), a national regime that regulates the sale and supply of electricity and gas to customers, including through harmonising most energy consumer protections across participating state and territories. The NECF comprises a range of energy consumer issues, including:

- » the relationship between customers, retailers and distributors and the associated rights, obligations of each party, including consumer protection measures;
- » a guaranteed access for all small customers to an offer of supply of energy;
- » mandatory minimum terms and conditions for market retail contracts for all small customers, including pre-payment meter market retail contracts in jurisdictions where these are allowed;
- » limitations on disconnections, including processes to follow and restrictions on when disconnections can occur, including prohibition on disconnections for registered life support customers;
- » access to the Australian Energy Regulator's Energy Made Easy website, which includes a price comparator tool to help customers to compare electricity and gas offers in their area and information to help customers understand their energy consumption;
- » energy marketing rules to ensure customers receive appropriate information before they enter into an energy contract;
- » requirements for retailers to have policies in place that assist customers in hardship (having difficulty paying their bills);
- » a compliance, monitoring and enforcement regime overseen by the AER;
- » arrangements in the event of an energy retailer failure to maintain supply to customers; and
- » a single retail authorisation regime for retailers to operate in all NEM jurisdictions.