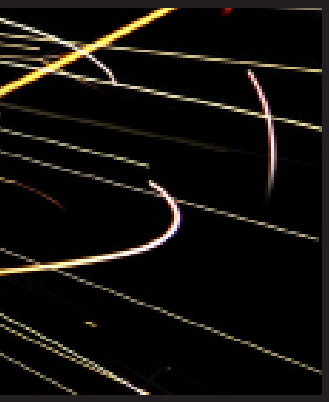
energy networks association

ENA SUBMISSION

TO THE SENATE SELECT COMMITTEE ON ELECTRICITY PRICES



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EXECUTIVE SUMMARY

Energy networks are arguably the most regulated sector in the Australian economy. Network businesses' capital expenditure, operating expenditure, borrowing costs and rates of return are regulated according to five year determinations by the Australian Energy Regulator (AER).

A host of government reviews are examining virtually every aspect of network regulation. Unprecedented discretionary powers are likely to be given to the AER. Networks' ability to challenge AER rulings through merits review appears to be in doubt.

Over the last four years, network costs have risen significantly in most jurisdictions. This increase in network costs has been driven by many factors, in particular higher costs of capital following the global financial crisis, overdue re-investment in network infrastructure and an emerging structural problem of rising peak demand. These factors are largely outside the control of governments and businesses.

Government policy should concentrate on the real causes for higher network costs rather than crudely imposing more regulation. For many years, the reform agenda has been stalled.

Governments have baulked at introducing the retail price reforms essential to curbing the growth of peak demand. Mandatory reliability standards have succeeded in improving service delivery to customers but arguably at a cost which sections of the community now find difficult to absorb. The roll out of smart meters, so important to empowering customers, has stopped at the Victorian border. The regulatory system does not provide the commercial incentives necessary to accelerate demand side participation. Policies such as support for domestic solar systems can have unforeseen (negative) consequences.

If governments wish to curb the rise in electricity prices, they will eventually have to confront these issues.

ENA welcomes the Senate Select Committee's inquiry into electricity prices as an opportunity to shift the terms of the public debate from a search for scapegoats to overdue, genuine policy reform.

INTRODUCTION

The Energy Networks Association (ENA) is the national industry association representing the businesses operating Australia's electricity and gas transmission and distribution networks. Member businesses provide energy to virtually every household and business in Australia. ENA members have invested more than $65 billion in energy infrastructure.

ENA welcomes the opportunity to provide the Senate Select Committee with an industry perspective on electricity prices. ENA members understand the community's concern about recent increases in electricity prices. There is no doubt that many low income households are under pressure from rising living costs including electricity. Governments are rightly concerned to ameliorate the impact of higher prices on vulnerable customers and to ensure that network services are being delivered efficiently.

Network businesses share these goals. Networks are regulated to ensure that the National Electricity Objective (NEO) is achieved:

> 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 –
>
> 1. price, quality, safety, reliability, and security of supply of electricity; and
>
> 2. the reliability, safety and security of the national electricity system.

As the NEO requires, networks seek to deliver efficient, reliable services to their customers. A balance must be struck between minimising costs for customers today while ensuring sufficient investment to guarantee reliable supply in the future.

Unfortunately, the public debate about rising electricity prices has often been dominated by simplistic arguments which focus on the symptoms rather than the underlying causes of higher costs. In particular, comments have focused on the alleged failings of the regulatory system. ENA members support incremental reform of the regulatory system linked with policy changes which promote a more efficient energy market. As this submission will show, reforms such as retail price deregulation are essential to address demand-driven costs.

The Senate inquiry is occurring at a time of unprecedented regulatory scrutiny for networks. The Australian Energy Market Commission (AEMC), the Productivity Commission (PC) and other bodies are all investigating aspects of network regulation and performance:

- Economic Regulation of Network Service Providers (AEMC);
- Review of Distribution Reliability Outcomes and Standards (AEMC);
- The Power of Choice –Stage 3 DSP Review (AEMC);
- Transmission Frameworks Review (AEMC);
- Connecting Embedded Generators (AEMC);
- Distribution Network Planning and Expansion Framework (AEMC);
- Review of the Limited Merits Review Regime (independent panel); and
- Electricity Network Regulation (PC).

These reviews are being conducted in transparent and rigorous ways. The findings of these reviews will help inform the public debate and ensure that any regulatory change is based on solid evidence.

This submission will provide general comments on the issues identified in the Committee's terms of reference. ENA would be pleased to provide further information on request.

A. IDENTIFICATION OF THE KEY CAUSES OF ELECTRICITY PRICE INCREASES OVER RECENT YEARS AND THOSE LIKELY IN THE FUTURE

The main components of the average Australian household electricity bill in 2012-13 are

Wholesale costs - the costs associated with generating electricity and trading it in wholesale markets [about 20 per cent of the total bill]

Network costs - the costs of building and maintaining the poles and wires delivering electricity to homes and businesses [35 to 50 per cent]

Retail and energy scheme costs - the retailer 'shop-front' for a consumer's electricity supply and costs from government schemes supporting energy efficiency and renewables [about 20 per cent]

Carbon price – the cost passed on by fossil-fuel generators for their carbon emissions [10 per cent of the household bill]

The above costs are indicative. Actual costs vary from jurisdiction to jurisdiction. Networks' relative share of the final retail bill fluctuates according to a range of factors such as demand growth, costs incurred in replacing ageing assets, government reliability standards, the relative cost of electricity in the region and the mix of electricity and gas consumed. In some States, network costs are about 35 per cent of the final retail price. In other States, the cost can be as high as 50 per cent.

In recent years, outside Victoria, network costs have been a major factor in the increase of retail prices.[1] The AEMC reports that networks charges are expected to contribute 34 per cent of national electricity price increases for 2013-14.[2]

Higher network costs are being driven by the demands of the market and government policies, in particular:

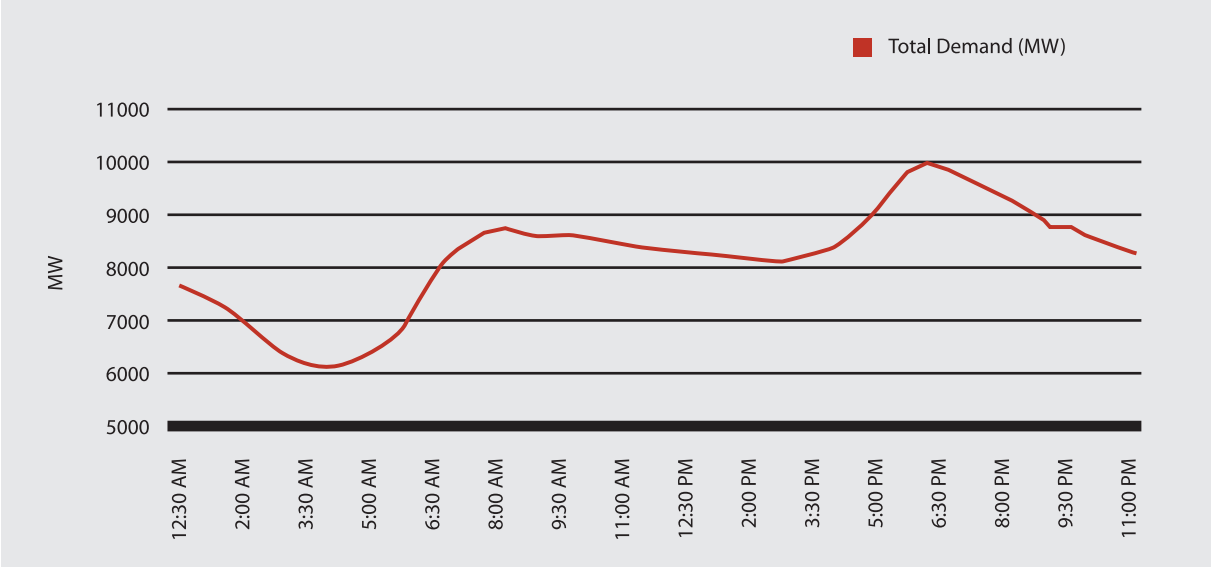
1. The rising demand for energy at peak times;
2. The need to replace ageing infrastructure;
3. The need to meet government mandated reliability standards;
4. The higher costs of borrowing after the global financial crisis; and
5. The impact of falling aggregate demand on unit costs.

1. PEAK DEMAND

Demand for electricity fluctuates over the course of each day, from day to day and from season to season.

Over 24 hours, demand peaks in early morning and early evening.

FIGURE 1 DAILY LOAD CURVE, NSW 13 SEPTEMBER 2012[3]



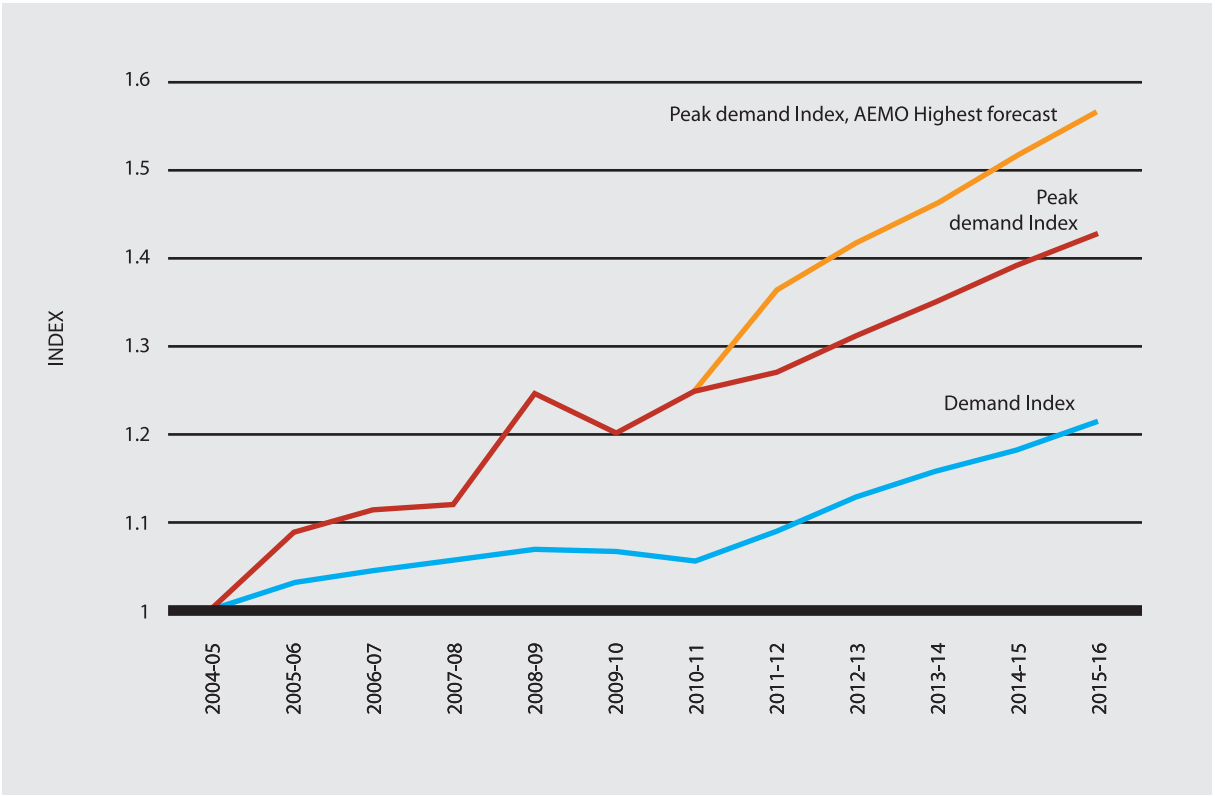
1 Australian Energy Regulator *State of the Energy Market 2011*, pp. 113-114
2 Australian Energy Market Commission *Possible Future Retail Electricity Price Movements*: 1 July 2011 to 30 June 2014, November 2011, p.6
3 Daily reading interval price and demand data, sourced from the website of the Australian Energy Market Operator.

From a network perspective, seasonal peaks are more important than daily peaks. The maximum forecast demand for electricity generally during summer determines the capacity requirement for the network. Network businesses must ensure that sufficient capacity is available to satisfy customer demand even in the case of a one-in-ten year extreme weather event. This event may be unlikely but networks have a social as well as a regulatory obligation to supply their customers at such a time.

This responsibility to customers, usually captured in government reliability standards, requires businesses to expand network capacity *in advance* to meet *forecast* electricity demand at seasonal *peak* times. Capacity must be available to satisfy customer demand well before that demand actually occurs. There is no certainty that demand will reach such levels, given the host of variables (e.g. seasonal temperatures, economic growth, customer behaviour), but the obligation remains.

Figure 2 below shows the forecasts for demand and peak demand which have guided recent network investment. The source of this graph is the Australian Energy Market Operator's (AEMO) *Electricity Statement of Opportunities (ESOO) 2011*. The latest ESOO, released in August 2012, revises the earlier figures for average annual growth in demand to 1.7 per cent rather than the 2.3 per cent shown. However, as figures 3 to 6 (which were derived from the ESOO 2012) indicate, both demand and peak demand are still forecast to rise in all jurisdictions.

FIGURE 2: NATIONAL DEMAND AND PEAK DEMAND TRENDS



The striking trend shown in Figure 2 is the separation of peak demand and aggregate demand. While aggregate demand has been flat or even falling for the last seven years, peak demand has, with one exception, risen each year since 2004-05. Put simply, Australians may be using less energy supplied over the grid but they are using considerably more energy at peak times. As will be shown, this is an inherently costly pattern of demand.

Aggregate demand has been flat or falling because of many factors, including changes in customer behaviour, the explosive growth in photovoltaic systems, mild summers, declining activity by energy-intensive industries and energy efficiency measures. Falls are most evident in New South Wales and South Australia.

Peak demand growth has moderated but is still outpacing growth in aggregate demand. The main reason for this trend is the growing use of energy hungry appliances in households. The increasing use of air conditioners (Figure 7) is the most obvious case but, as shown in Figure 8, other appliances such as televisions, lighting, space heating and computers have contributed to increased domestic consumption over the last decade. In most cases, energy demands from these appliances are forecast to continue to rise to 2020.

FIGURE 3: NSW DEMAND AND PEAK DEMAND TRENDS

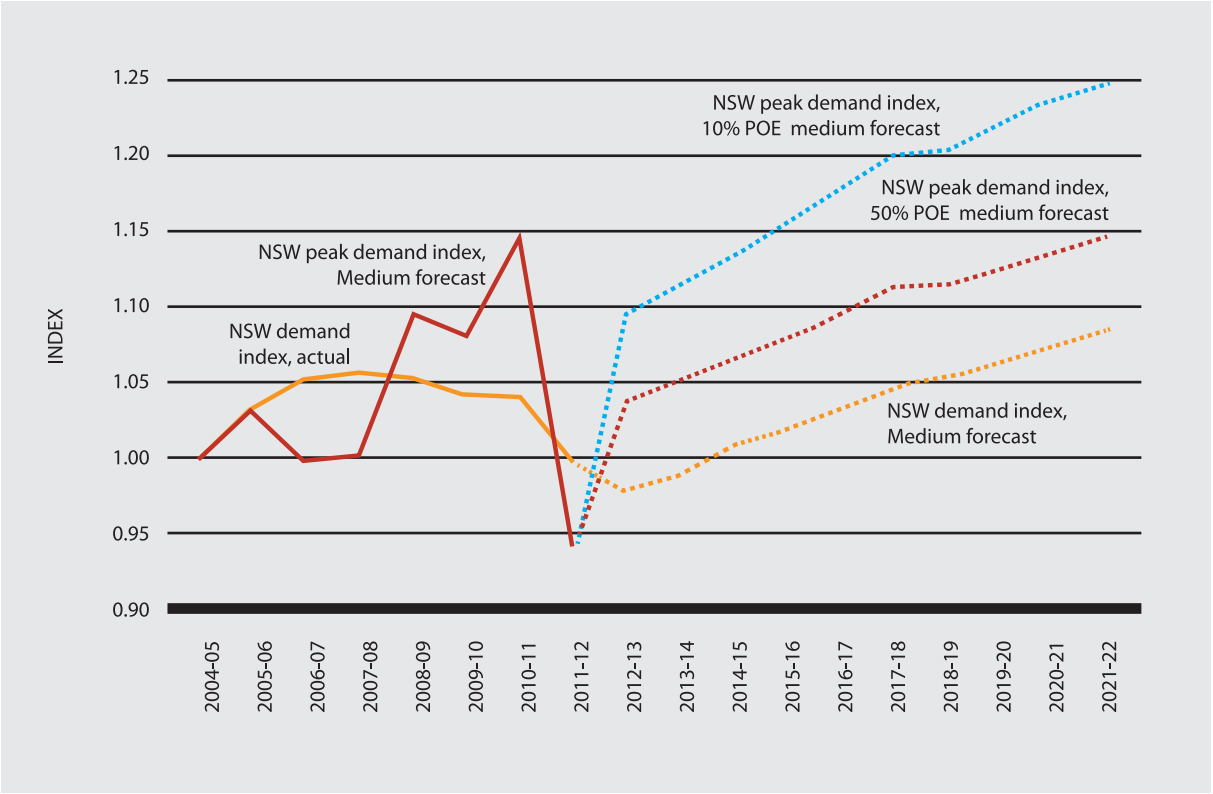


FIGURE 4: QUEENSLAND DEMAND AND PEAK DEMAND TRENDS

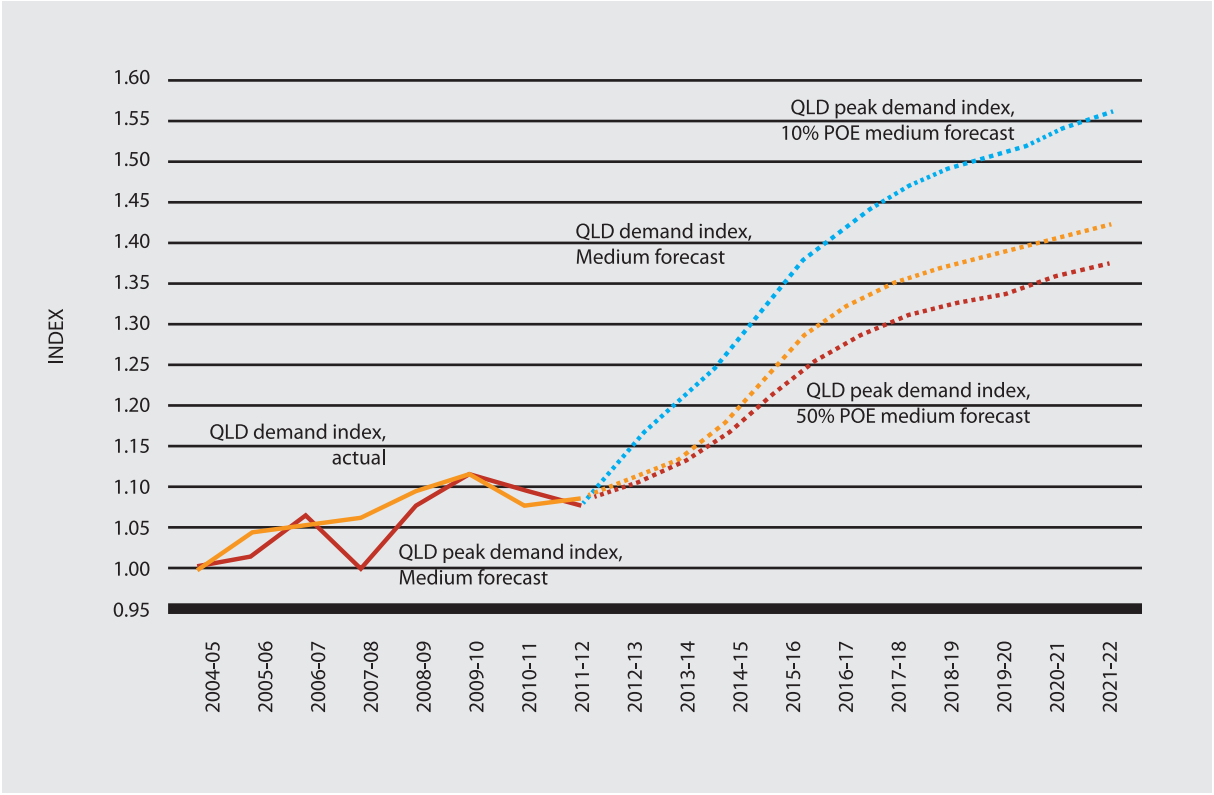


FIGURE 5: VICTORIAN DEMAND AND PEAK DEMAND TRENDS

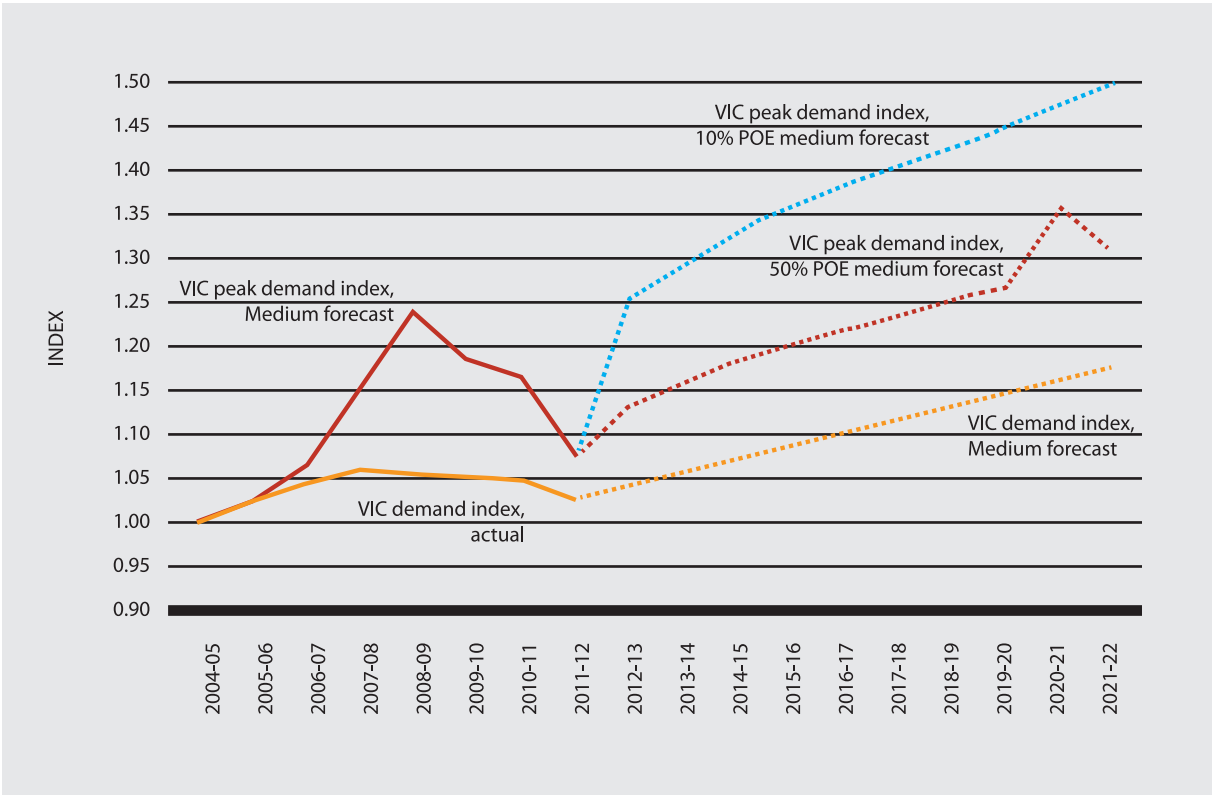


FIGURE 6: SOUTH AUSTRALIAN DEMAND AND PEAK DEMAND TRENDS

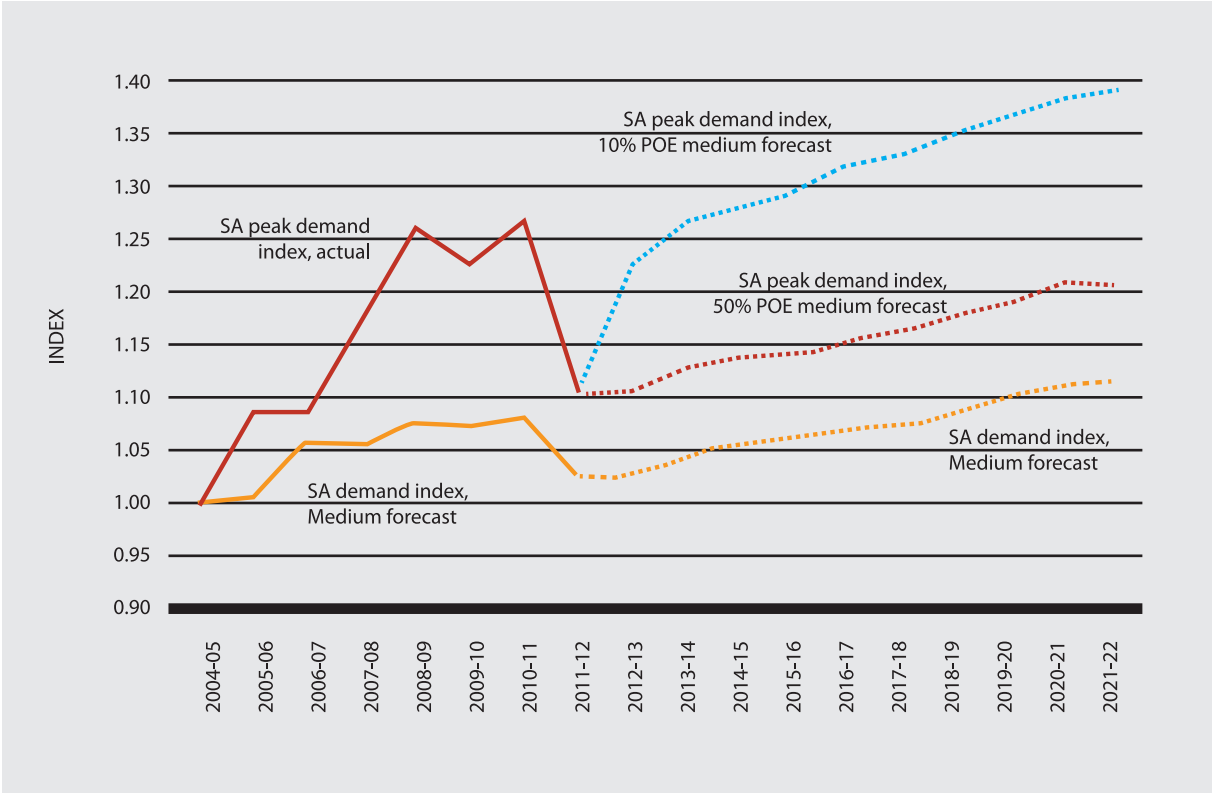
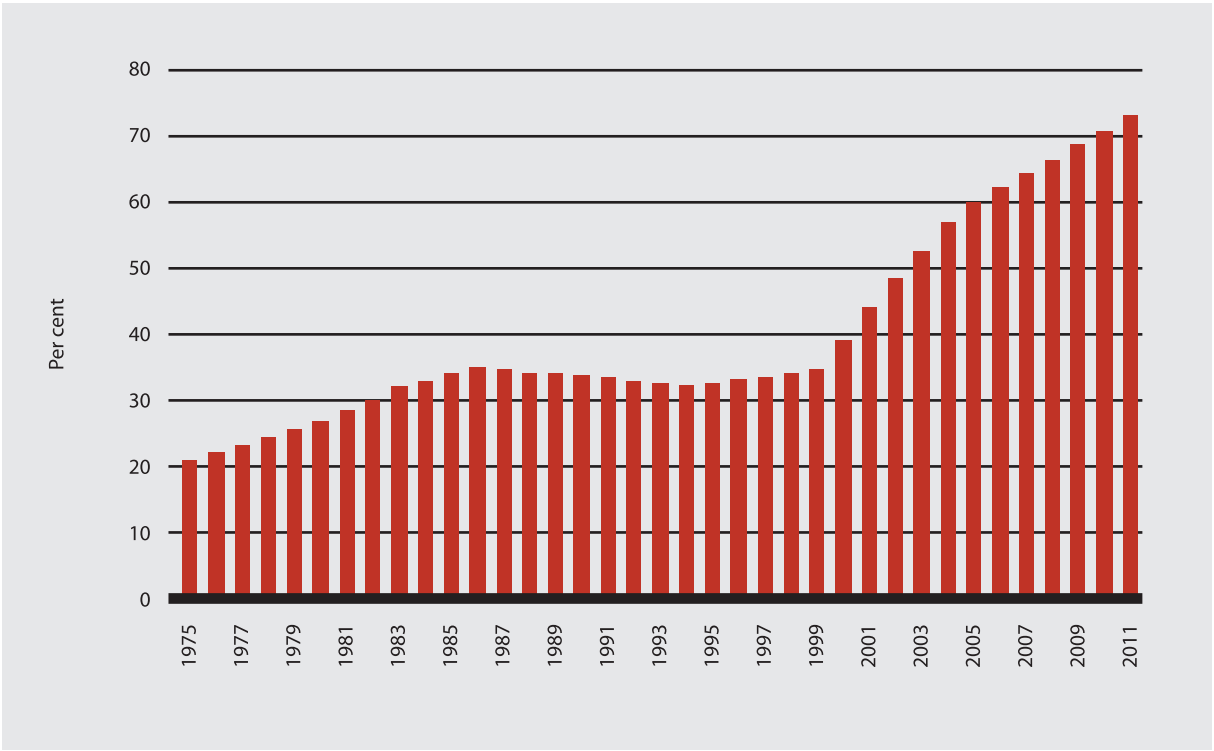
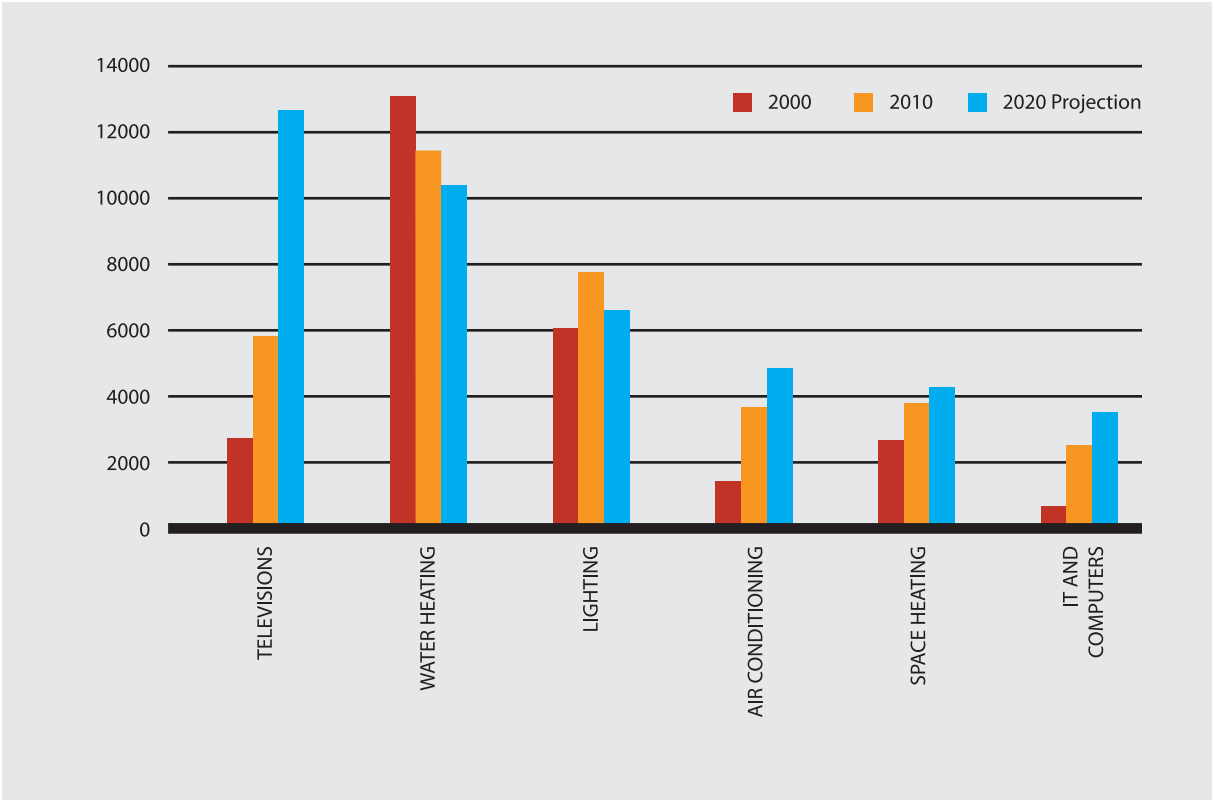


FIGURE 7: AUSTRALIAN HOMES WITH AN AIR-CONDITIONER OR EVAPORATIVE COOLER[4] (PER CENT)



4 Topp, V and Kulys, T, Productivity in Electricity, Gas and Water: Measurement and Interpretation Productivity Commission Staff Working Paper, March 2012 p45

FIGURE 8: CHANGES IN ELECTRICITY CONSUMPTION BY APPLIANCES IN AUSTRALIA[5]



The increasing 'peakiness' of demand has major, negative effects on network efficiency. To meet peak demand growth, businesses have been compelled to expand network capacity. However such expanded capacity lies idle except for short-lived periods of exceptional demand. It is estimated that $11 billion in network infrastructure is used for the equivalent of 4 or 5 days a year.[6] In South Australia, which suffers from sharp peaks in summer demand, about 20 per cent of network capacity is used for the equivalent of 23 hours a year.[7]

The result is an inefficient combination of growing network capacity and falling network use. This phenomenon is evident in asset utilisation rates. In Queensland, for example, utilisation rates have been steadily falling over the last five years.

5 Derived from data in Ernst and Young, *Rationale and drivers for DSP in the electricity market – demand and supply of electricity*. Report for the AEMC Power of Choice Review, 20 December 2011, p.43
6 Ausgrid, *Supply and demand: our five year network plan, 2011-2012*, p.10
7 ETSA (now SA Power Networks), derived from AEMO *Statement of Electricity Opportunities*, 2011

FIGURE 9: ENERGEX ZONE SUBSTATION AND BULK SUPPLY SUBSTATION UTILISATION[8]

Substation type	Bulk supply		Zone	
Substation utilisation category	NPR utilisation[1]	ECC utilisation[2]	NPR utilisation[1]	ECC utilisation[2]
200203	64.00%	102.00%	68.00%	116.00%
2003/04	75.00%	120.00%	77.00%	128.00%
200405	74.20%	132.00%	68.80%	117.30%
200506	71.20%	114.10%	64.60%	110.80%
200607	63.00%	97.00%	59.60%	110.80%
200708	61.20%	95.70%	56.20%	92.40%
200809	61.30%	95.30%	56.50%	95.50%
200910 [3]	60.60%	96.90%	54.80%	100.70%
201011 [3]	54.40%	91.70%	50.70%	74.80%

NPR is Name Plate Rating, referring to normal maximum operating rating applied to electrical equipment
ECC is Emergency Cyclic Capacity, referring to peak capacity for emergency circumstances (eg temporary coverage when other components fail)

Falling aggregate demand has another effect on network costs. Like any business, networks must recover their capital and operating costs from sales: as the volume of energy sold over the grid falls, the unit cost of network services has to rise. This effect has been compounded by other developments, such as the subsidy-fuelled growth of household solar systems.

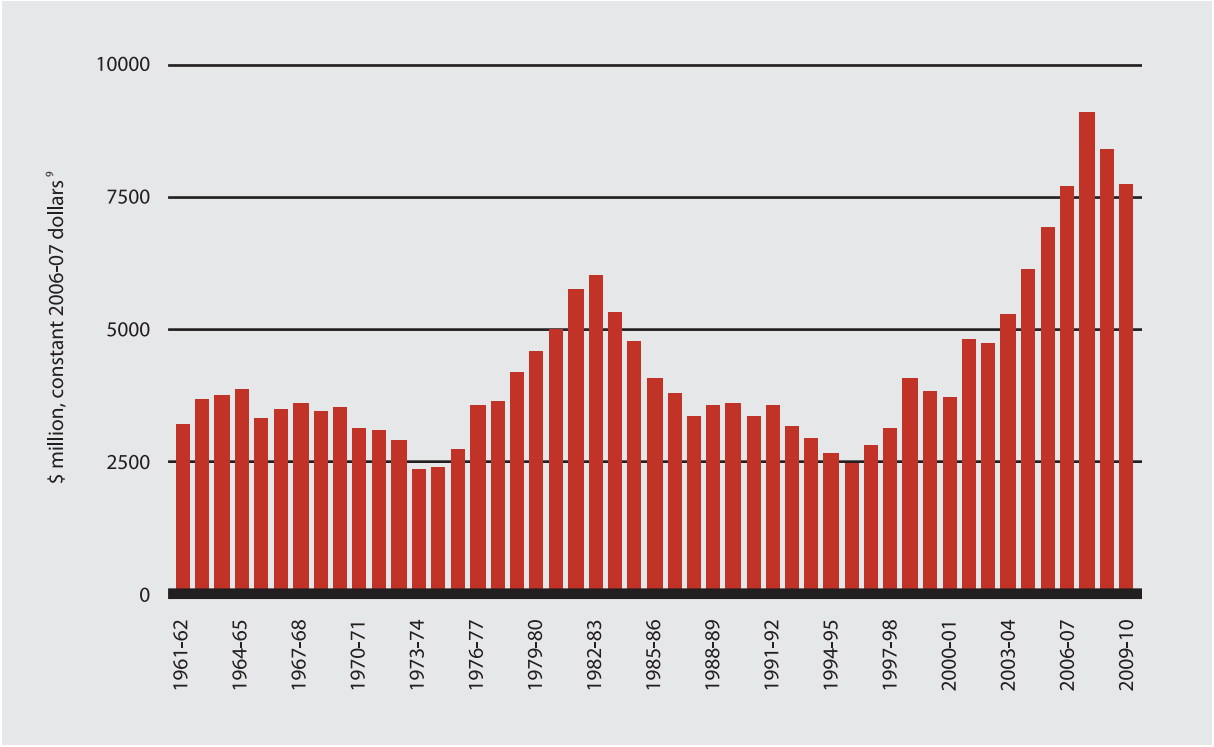
2. REPLACING AGEING INFRASTRUCTURE

Infrastructure investment is cyclical, driven by demand pressures and the depreciation of assets. Over time, ageing assets must be replaced to ensure network reliability, safety and environmental compliance.

Analysis by the Productivity Commission (Figure 10) has identified that capital investment in the electricity sector over the last fifty years has been characterised by two periods of major investment – the early 1980s and the last five years.

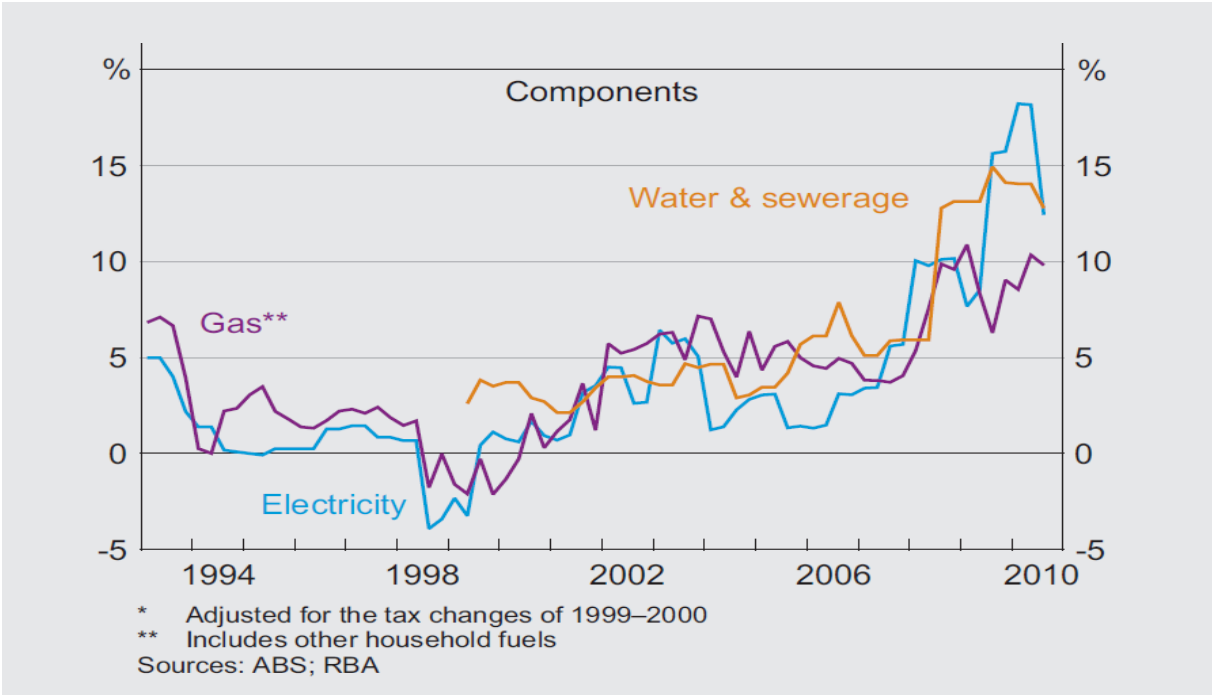
8 Queensland Government, *Electricity Network Capital Program Review 2011: detailed report of the independent Panel*, p.13, 31

FIGURE 10: CAPITAL INVESTMENT IN ELECTRICITY SUPPLY



A similar pattern is evident in other utility sectors.

FIGURE 11: UTILITY SECTOR INVESTMENT TRENDS



9 Topp, V and Kulys T, *Productivity in Electricity, Gas and Water: Measurement and Interpretation*, Productivity Commission Staff Working Paper, March 2012 p.52

In the more recent period, investment has been spurred by the need to replace assets built in the 1960s and 1970s. Such assets are approaching the end of their effective lives. The average age of network assets is 28 years.

The need to replace ageing assets has been most pronounced in New South Wales and Queensland, reflecting the relative age of their assets. In 2006, for example, many of Ausgrid's assets were approaching or beyond their standard life: 23 per cent of transmission substations and 15 per cent of overhead and underground transmission feeders were beyond their standard life.[10]

According to the previous New South Wales government, 43 per cent of capital expenditure by network businesses in that State is devoted to replacing assets.[11] In Queensland, the corresponding figure for Energex is 31 per cent.[12]

Like any long-term investment, replacing ageing assets has up-front costs which raise prices and depress productivity. Nevertheless, replacing assets is essential for reliability.

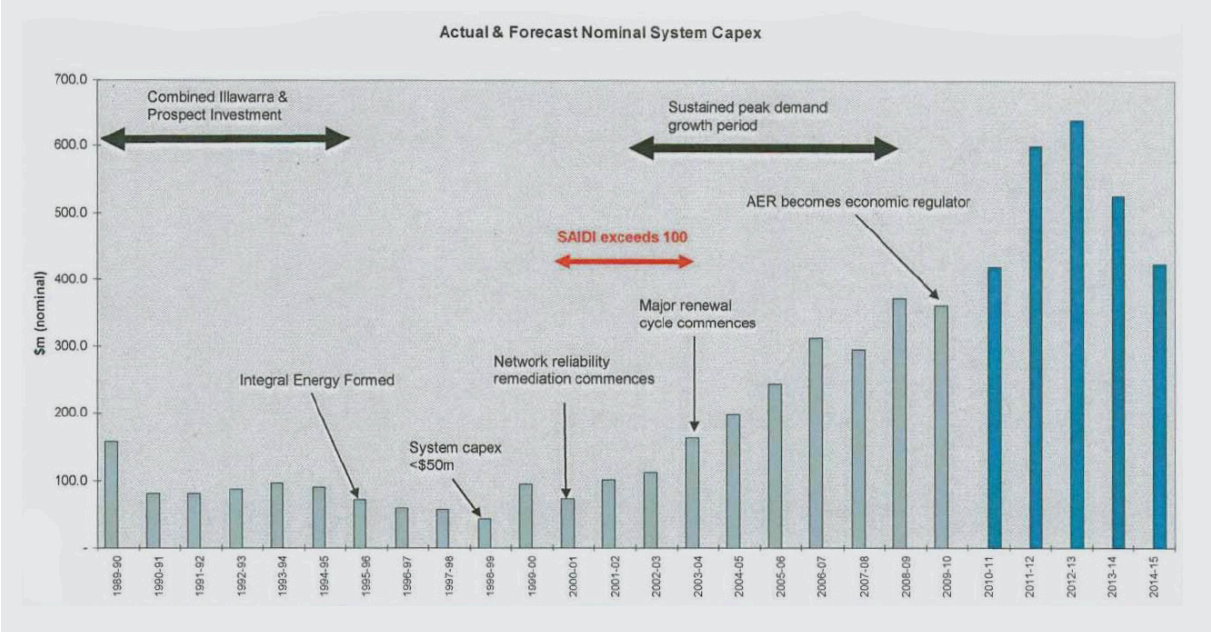
3. RELIABILITY STANDARDS

Another major cost driver is the regulatory requirement to meet minimum standards of reliability. State governments apply mandatory reliability standards for network services. In recent years, these standards have been raised in some jurisdictions following costly outages caused by the combination of ageing assets and a lack of network capacity to manage peak demand.

In 2005, the Queensland and New South Wales governments raised reliability standards for networks. Both States committed to ten year programs to enhance network security. These programs have upgraded network capacity at points of rising peak demand.

Higher reliability inevitably comes at an increased price to customers. In NSW, the new standards have led to an estimated $2.75 billion in additional capital expenditure.[14] In Queensland, capital expenditure by networks doubled from the previous to the current regulatory period.[15] Historic under-investment in assets has seen a sudden and painful 'catch up'.

FIGURE 12 ENDEAVOUR ENERGY ACTUAL AND FORECAST CAPITAL EXPENDITURE[13]



10 Ausgrid submission to the AEMC Directions Paper on AER/EUC rule change proposals: Appendix A, 16 April 2012
11 NSW *Electricity Network and Prices Inquiry* Dec 2010, p.30
12 NERA, *Analysis of key drivers of network price increases*, April 2012, p. 73
13 Endeavour Energy, Submission to the AEMC consultation paper on Economic regulation of network service providers
14 ENA calculation from NSW *Electricity Network and Prices Inquiry* Dec 2010 and DRET Factsheet on electricity prices
15 Queensland Government *Electricity Network Capital Program Review* 2011, p.65.

Reinvestment has strengthened network performance. The previous Queensland government estimated an improvement of 40 per cent in network reliability. In 2004, before the introduction of the new standards, customers on Energex's urban network experienced an average of 1.6 supply interruptions a year or an average of 130 minutes without electricity. The most recent figures show 0.73 interruptions for 80 minutes.[16]

The impact of these higher reliability standards on prices is now forcing a reassessment of the design of standards. Standards vary from jurisdiction to jurisdiction with considerable debate about the merits of 'deterministic' and 'probabilistic' standards.

Deterministic standards tend to be prescriptive, requiring minimum levels of network redundancy or setting minimum performance standards (e.g. targets for the frequency and duration of outages). Deterministic standards are often criticised for compelling network businesses to duplicate assets at considerable cost. Probabilistic standards are an attempt to reflect the value to customers of supply, arguably allowing for less reliability where customers do not place a high value on supply. Only Victoria uses probabilistic standards for distribution.

The AEMC is conducting a review of reliability standards with the aim of identifying an appropriate national framework. It seems likely that State governments will support a loosening of the prescriptive elements of their reliability standards.

In most cases reliability standards are set by state governments without a public process to ascertain the willingness to pay of customers. The AEMC has tested customer attitudes as part of its review into reliability standards. The results confirm that most customers place a high value on reliability and are not attracted to trading off reliability for modest savings in costs.[17]

AEMC analysis also reveals the limited savings which can be achieved by relaxing reliability standards. According to the AEMC, lowering reliability standards in New South Wales would yield annual savings of only $3 to $18 per household once fully implemented (i.e. in 2028/29).[18]

ENA believes that reliability standards need to provide some operational flexibility for networks to allow the most cost effective solution rather than being overly deterministic in application. Standards also need to be based on a genuine, public assessment of the community value for reliability.

4. HIGHER BORROWING COSTS

Networks are unusually capital intensive businesses. Networks build long-lived assets with working lives measured in decades. The full cost of these assets is recovered gradually from network charges over many years. Network revenue is regulated to smooth the impact on customers of large-scale capital investments to avoid 'price shocks'.

The AER regulates the rates of return for investors in line with comparable businesses in the market. Returns on debt and equity reflect benchmark returns for comparable businesses in the market. Analysis of public data by ENA confirms that network businesses receive effectively average returns in the market.

This highly regulated system only works because the moderate returns for network investors are accompanied with only moderate risks. To date, the regulatory system has given investors sufficient certainty that, over time, their returns will justify the upfront investment. Continuing private investment in networks is thus very sensitive to changes, real or perceived, to the risk profile of the businesses. Regulatory or other changes which raise doubts about the certainty of the future revenue flows needed to recover the costs for sunk and new investment could jeopardise funding.

Like other businesses, the cost of raising investment capital has risen for network businesses over the past five years. The global financial crisis has seen long-term debt dry up with funds available at higher premiums for shorter periods.

This change has been recognised in AER determinations. Network allowances for the cost of capital have been raised to reflect the changed market conditions. Figure 13 below shows the increase in allowed returns on investment capital from 2004-05 to 2008-09.

16 Queensland Government *Electricity Network Capital Program Review* 2011, p.37.
17 AEMC *Review of Distribution Reliability Outcomes and Standards: Draft Report NSW Workstream*, June 2012, pp.47-48, 50
18 ibid., pp. iii, 56-77.

FIGURE 13: RETURN ON DEBT ALLOWANCE

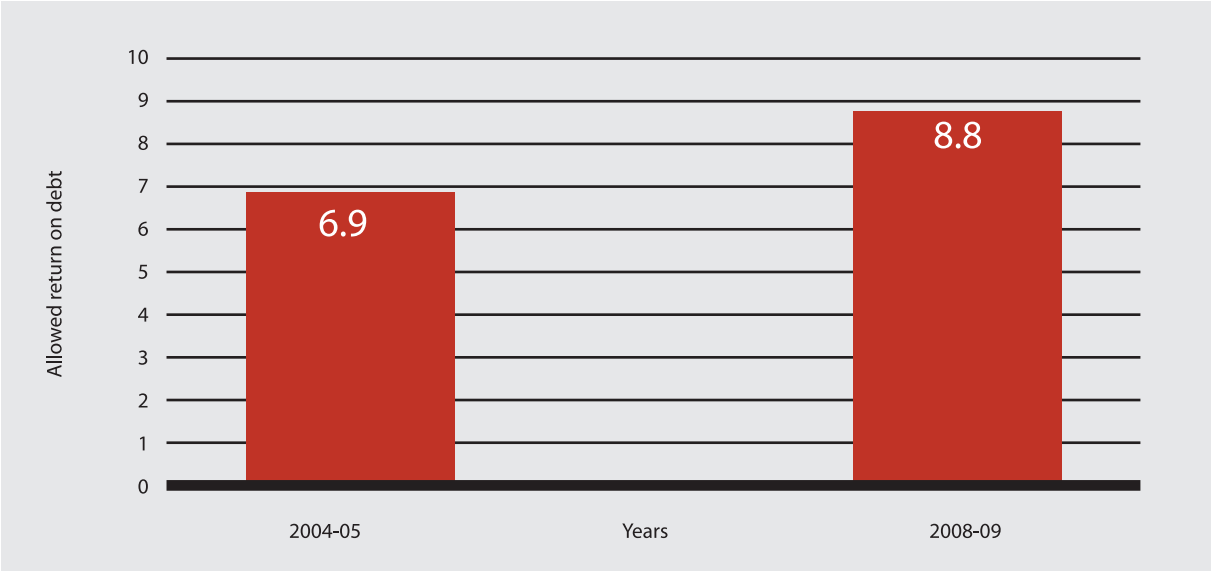
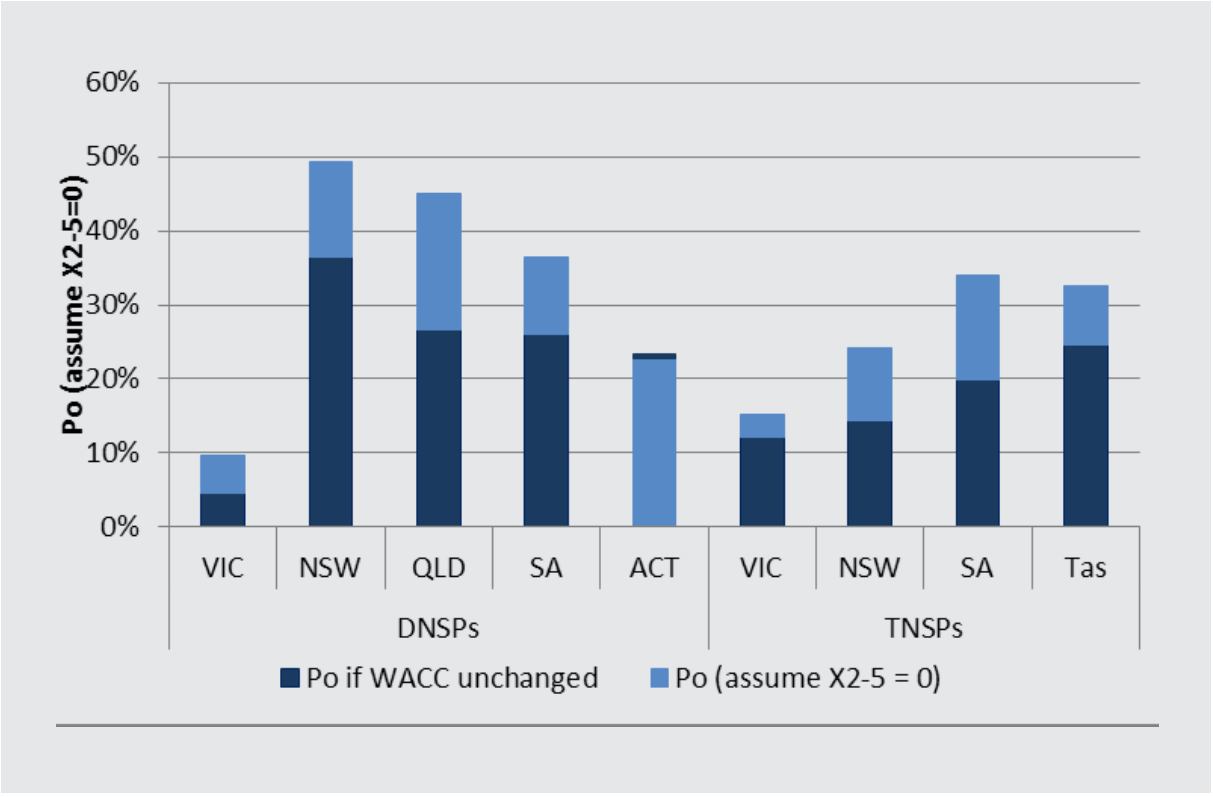


FIGURE 14: SIGNIFICANCE OF THE INCREASE IN COST OF CAPITAL



Approved increases in the weighted average cost of capital have been the single most important factor in pushing up network costs in recent years. NERA Economic Consulting has analysed network costs in the current and previous regulatory periods. Figure 14 shows their findings with regard to the cost of capital: the light blue section of each bar shows the additional cost due to higher capital costs.[19]

ENA has estimated the impact of a one per cent increase in funding costs for each state. For example, in New South Wales such an increase leads to $780 million in additional interest costs over five years, costs that have to be passed on to consumers.

5. FALLING AGGREGATE DEMAND

As noted above, AEMO has cut its aggregate demand projections due to a host of factors such as lower forecasts for economic growth, signs of falling industry demand, the penetration of photovoltaic systems and falling household consumption.[20]

Falling aggregate demand does not alleviate the pressures on networks. As noted above, it is the continuing growth in *peak* demand which drives network investment.

Network businesses must fund new network capacity to meet peak demand from what is in effect a shrinking pool of over-the-grid energy sales. The combination of rising capital costs and falling volumes means upward pressure on unit costs.

One reason, often overlooked, for this trend of rising unit costs is the proliferation of household solar systems. Solar installations have been driven by generous subsidies, such as inflated feed-in tariffs, funded by the broader customer base. The cost of these subsidies to other electricity customers has become well known and has spurred State governments to cut assistance. However, the sudden growth of household solar systems also has other impacts on network costs.

The costs of feed-in tariffs, PV connections and metering are often recovered by law from network tariffs. In 2011-12, for example, Solar Bonus Scheme payments in south-east Queensland added more than $66 million to network charges.[21] In NSW, it is estimated that the Solar Bonus Scheme will cost customers $1.75 billion. Managing the intermittent flow of energy from household solar systems back into the grid creates costly technical problems with maintaining power quality and safety.

The main cost impact of solar systems is more indirect. As households with PV panels reduce their use of energy imported over the grid, they also reduce their contribution to meeting the fixed costs of network infrastructure. Network charges are overwhelmingly based on the volume of energy used by households.

This situation would not necessarily be inequitable if these households were also reducing their reliance on the network and their contribution to rising capital costs via peak demand. Unfortunately, that does not seem to be the case.

There is growing evidence that solar systems are *not* reducing peak demand. In general, solar systems produce energy at off-peak periods. Solar output is low when household demand is highest. This mismatch of solar output and household demand is evident in Figure 15.

The Perth Solar City program suggests that this effect may go further. The most recent program report notes that 'solar PV households are deferring electricity consumption to periods where PV generation is minimal (usually late afternoons / early evenings)'.[22] This may be a deliberate decision to maximise the returns from feed-in tariffs set well above market rates for electricity or a simple rebound effect (i.e. lower electricity bills reducing household's sensitivity to electricity costs).

19 NERA *Analysis of Key Drivers of Network Price Changes: A Report Prepared for the ENA*, April 2012, p.9.
20 AEMO *Electricity Statement of Opportunities for the National Electricity Market,* 2012, p.2-10
21 Energex, *Final Energex Network Management plan 2012/13*, August 2012, p.20
22 Perth Solar City *Annual Report 2011*, pp. 68-70.

FIGURE 15: CONTRIBUTION OF PV TO PEAK COMMERCIAL, RESIDENTIAL AND TOTAL DEMAND[23]

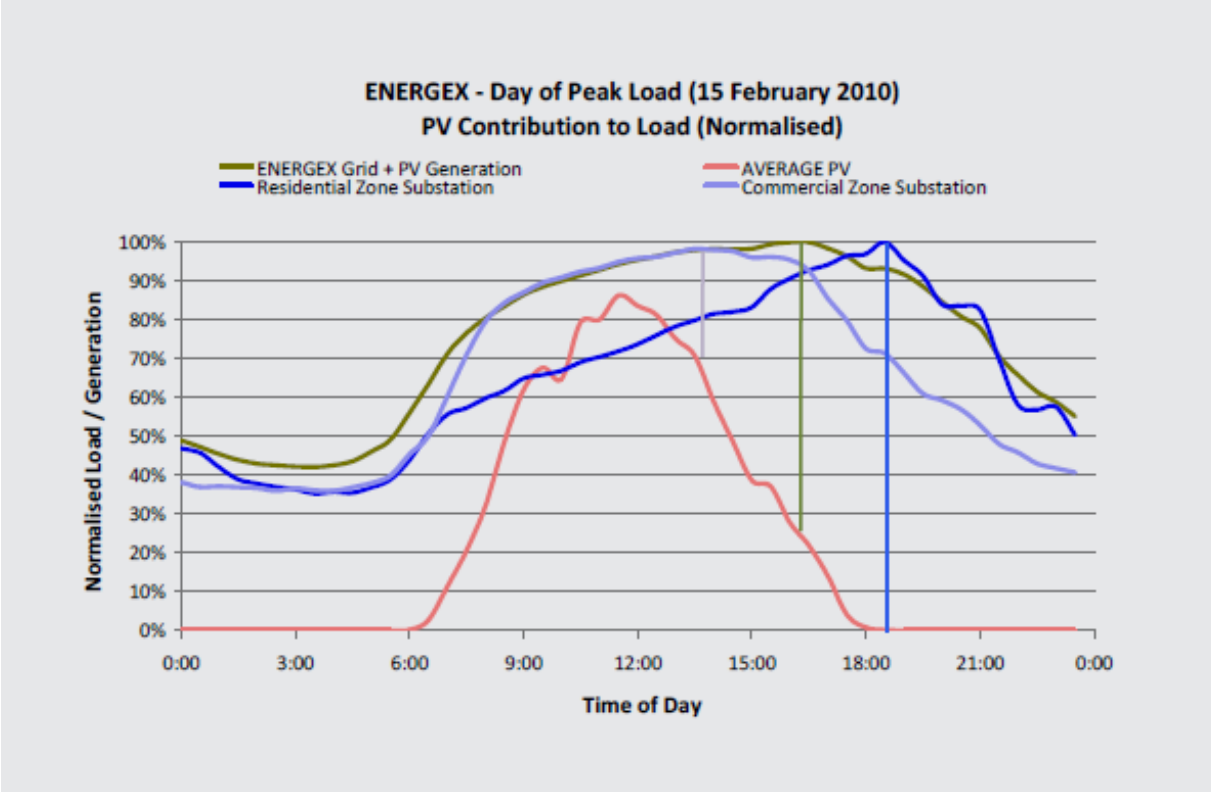
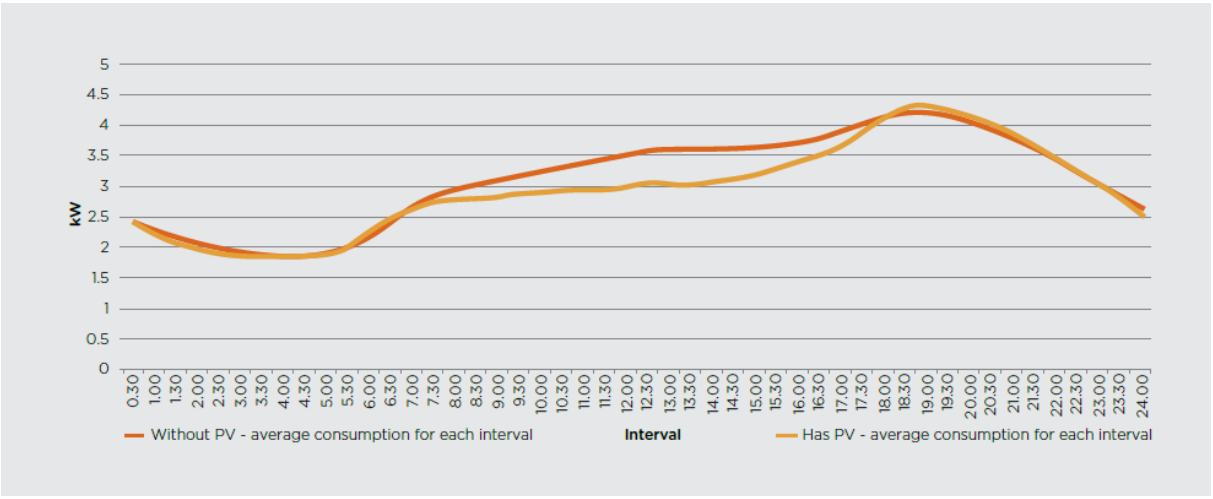


FIGURE 16: AVERAGE ELECTRICITY DEMAND FOR SOLAR PV AND NON SOLAR PV HOUSEHOLDS[24]



23 Queensland Government *Electricity Network Capital Program Review 2011*,p.63
24 Perth Solar City *Annual Report 2011*, p.69

B. LEGISLATIVE AND REGULATORY ARRANGEMENTS AND DRIVERS IN RELATION TO NETWORK TRANSMISSION AND DISTRIBUTION INVESTMENT DECISION MAKING AND THE CONSEQUENT IMPACTS ON ELECTRICITY BILLS, AND ON THE LONG TERM INTERESTS OF CONSUMERS

Australia is fortunate to have a strong, independent institutional framework for energy market regulation in the National Electricity Market (NEM).[25] As noted earlier, the cornerstone of this framework is the National Electricity Objective (NEO) which enshrines the goal of serving the long term interests of consumers:

> 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 –
>
> 1. price, quality, safety, reliability, and security of supply of electricity; and
> 2. the reliability, safety and security of the national electricity system.

The Australian Energy Regulator (AER) regulates electricity transmission and distribution businesses according to the NEO and the related revenue and pricing principles. Since 2005, the AER has set revenue caps for transmission businesses in the NEM. Since 2008, the AER has set caps on the revenues or prices which can be earned by distribution businesses in the NEM. Caps are set to allow businesses to recover efficient capital and operating costs. AER determinations apply for five years.

For both transmission and distribution businesses, caps are determined through a 'building block' approach which analyses the main cost drivers of the network business: operating costs, capital costs, asset depreciation, taxation and a commercial return on capital. This approach ensures close scrutiny of all costs. Incentives schemes encourage businesses to further reduce costs (e.g. deferring investment). The building block approach is a well established model in Australia and overseas.

The AER determination process is open and consultative. Over what is usually 12 months, the original network proposal is subjected to rigorous expert analysis. In the initial consultation stage, expert reports commissioned by the AER and the network proposal are made public. At the second consultation stage, a draft determination is released for comment. The final determination is open to appeal to the Australian Competition Tribunal.

In response to community concerns about higher electricity prices, the AEMC has released a draft determination which would retain this determination process but expand greatly the discretion of the AER. A final determination is due to be released in November.

25 The National Electricity Market covers all States and Territories other than Western Australia and the Northern Territory. The Economic Regulation Authority and the Utilities Commission regulate networks in Western Australia and the Northern Territory respectively.

C. OPTIONS TO REDUCE PEAK DEMAND AND IMPROVE THE PRODUCTIVITY OF THE NATIONAL ELECTRICITY SYSTEM

TARIFF REFORM

Reducing peak demand requires incentives and price signals to residential and small business customers to adjust their discretionary use of electricity. The regulatory system should assist customers to make informed decisions which reflect the real value to them of the electricity they use.

The greatest obstacle to more informed decisions by customers is the lack of cost reflective retail prices. State governments continue to regulate residential prices in ways which obscure from the customer the actual cost of electricity. Flat tariffs are claimed to 'protect' customers from higher prices but in practice these tariffs provide no incentives for customers to reduce use at peak times. Peak demand continues to grow, forcing up network costs.

Most large commercial and industrial users already have access to time of use pricing.

Under the Amended Australian Energy Market Agreement, the Council of Australian Governments agreed to phase out retail energy market regulation in jurisdictions where competition is found to be effective by the Australian Energy Market Commission. Victoria removed regulation in January 2009. Despite positive findings by the Commission, South Australia and the ACT have refused to remove price regulation.

The Victorian government is now moving to introduce optional flexible (or time of use) pricing for residential customers in 2013. The switch to time of use pricing has been made possible by replacing traditional accumulation meters with smart meters which measure consumption in thirty minute intervals. Smart meters and interval meters record consumption according to the time of use: accumulation meters simply record total consumption.

A number of trials have been undertaken to test how consumers respond to cost reflective pricing.

In the summer of 2011, for example, the Victorian distributor SP AusNet tested new commercial and industrial tariffs with the aim of reducing demand on 'critical peak days'. A two part charge was introduced with a critical peak component (based on the customer's maximum demand on five notified days during a defined critical peak demand period) and a capacity component. The critical peak tariff resulted in a significant customer response, reducing summer peak demand by 88MW.

DEMAND SIDE PARTICIPATION

Network businesses are pioneering the use of demand side participation (DSP) initiatives which offer customers ways to reduce their energy use at peak times. The focus of these initiatives is to secure sufficient changes to customers' use at peak times to allow networks to defer capital expenditure on network expansion.

Networks are engaging directly with residential, commercial and industrial consumers for the provision of DSP (e.g. through rebates to install energy management devices for load control, or large customer load curtailment contracts) and are working in partnership with other DSP providers (e.g. to develop network support arrangements with large customers). Some examples of this industry activity follow.

In the summer of 2009-10, NSW distributor Ausgrid launched a local project to cut demand by 6.3 MVA at Willoughby sub-transmission substation in order to defer building a new substation and ensure reliable supply to local customers. The target reduction was achieved through a mix of network support agreements with large customers and a gas-fired cogeneration site (through an aggregator), and the installation of power factor correction equipment. The project benefited customers through capital expenditure deferral savings and a 58% reduction in the risk of non-supply.

Ergon Energy has a DSP project underway in Moronbah which is aimed at reducing demand by 3 MVA to allow deferral of a new substation, transformers and a new 11kV feeder. Without this project, demand on the existing substation would exceed its capacity by summer 2012/13, putting at risk reliable supply.

Since 2010, SA Power Networks has been conducting a trial of demand response enabling devices (DREDs) in air conditioners. Customers receive incentive payments for allowing the network to limit the power consumption of their airconditioners at peak times during the summer. Some 3,500 homes are participating in the trial.

Queensland distributor Energex is running demand management trials with the aim of reducing forecast demand across its network by 144 MVA by 2015 at a projected cost of $114.4 million.[26] These trials include:

- offering residential consumers an incentive payment for installing an energy management device in pool pumps, air conditioners and hot water units, allowing Energex to limit peak power consumption during critical times;
- offering commercial and industrial consumers an incentive payment for installing energy management solutions such as power factor correction equipment, and upgrades to lighting, heating, ventilation and cooling systems; and
- reward based tariffs that encourage customers to reduce their energy consumption during peak periods.

Western Power has engaged residential consumers through the Perth Solar Cities (PSC) residential energy efficiency program to trial air-conditioner load control using smart meters and home area network communications.

To support wider use of DSP by networks, ENA has proposed an improved incentive scheme which would provide clear commercial returns for investing in DSP. ENA is finalising a report to identify how such an improved demand management incentive scheme could work.

More recently, the AEMC is developing a set of national planning rules to ensure that networks consider non-network alternatives such as DSP when assessing the need for augmenting network capacity. The Regulatory Investment Tests (RIT) for transmission and for distribution require networks to test non-network alternatives for all new projects above $5 million in capital cost. Networks are required to conduct a cost-benefit analysis of options to address demand, including demand side participation. Networks must advise the market of possible opportunities for DSP through an open process, subject to review.

EMBEDDED GENERATION

Alternative technologies such as embedded/ distributed generation and energy storage units can be used to reduce demands on networks at peak times.

ENA members have already managed the connection of 1.2 gigawatts of embedded generation capacity (i.e. units with capacity greater than 100kW). If smaller systems such as residential PV with export capability are included, 1.5 gigawatts of capacity has been installed successfully in the National Electricity Market. ENA members use embedded generation for network support at times of critical peak demand.

Embedded generation requires tailored solutions for each project, taking into account local network conditions as well as the design of the project itself (e.g. type and scale of generation, potential to export energy to the grid). Chapter 5 of the National Electricity Law provides a detailed connection for units above 30MW in capacity. The AEMC is reviewing the arrangements for smaller generation units.

ENA members have released comprehensive information to the market to explain the requirements for network connection. In 2010, ENA released detailed guidelines to assist project proponents. While jurisdictions apply different regulations, ENA is investigating the potential for greater national consistency in the connection process.

26 Energex's revised regulatory proposal 2010-2015, p. 31.

D. INVESTIGATION OF MECHANISMS THAT COULD ASSIST HOUSEHOLDS AND BUSINESS TO REDUCE THEIR ENERGY COSTS, INCLUDING

(I) THE IDENTIFICATION OF PRACTICAL LOW COST ENERGY EFFICIENCY OPPORTUNITIES TO ASSIST LOW INCOME EARNERS REDUCE THEIR ELECTRICITY COSTS

Energy efficiency has been a policy priority for the Commonwealth and State governments for many years. There are a series of programs offering support to low income households, such as the Commonwealth's Low Income Energy Efficiency Program, the NSW Government's draft Renewable Energy Action Plan, the NSW Energy Savings Scheme and Home Power Savings Scheme and the Victorian Government's Victorian Energy Efficiency Target (VEET) Scheme.

A National Energy Saving Initiative has been under development for some years.

As already noted, network businesses are testing a range of demand side participation options for customers which could assist low income households (e.g. rebates for direct load control). In Victoria, ENA members have developed accessible information tools such as web-based portals and in-home displays which can provide daily data on energy consumption. Jemena's web portal includes an assessment tool which allows customers to monitor their consumption. United Energy is trialling a similar service, as is SP-Ausnet.

At this stage, such services are confined to Victoria. These 'real-time' information services require smart meters.

(II) THE OPPORTUNITIES FOR IMPROVED CUSTOMER ADVOCACY AND REPRESENTATION ARRANGEMENTS BRINGING TOGETHER CURRENT DIFFUSE CONSUMER REPRESENTATION AROUND THE COUNTRY,

ENA members believe that greater participation by customers at all stages of the regulatory process will enhance community confidence.

From a planning perspective, customers' views are important to striking the right balance between short-term price and medium-term reliability. It is concerning that only one jurisdiction in Australia has formally sought to identify the value customers place on reliability as part of its planning process.

Network businesses have evolved their own engagement strategies to inform their planning.

During the AER determination process, a vast body of complex information is available to customer groups. There are good opportunities for all stakeholders to participate in the process. However, participating *effectively* in the process requires specialist skills, in particular the capacity to analyse the technical and economic data underpinning network proposals. Customer groups have access to project funds through the National Consumer Advocacy Panel but, on the whole, this funding is limited and is rarely used to participate in determinations.

Customer groups also have the opportunity to initiate or participate in merits review cases. Merits review is the main mechanism for regulatory accountability. Parties can appeal elements of an AER determination where they believe the decision is unreasonable, based on an error of fact or incorrect use of regulatory discretion. Cases are heard by the Australian Competition Tribunal. In practice, customer groups have rarely used this mechanism.

An independent panel has been commissioned by the Standing Council on Energy and Resources to investigate ways to improve the operation of merits review: the panel has identified greater participation by customer groups as a major priority for reform. As part of the panel's review, ENA has proposed measures which would make merits review more accessible to customer groups.

ENA seeks to maintain a good working relationship with leading consumer advocacy groups. ENA has taken the lead in funding the National Energy Industry and Consumer Forum to work on issues related to smart meters. ENA has discussed with consumer groups their views on consumer representation. ENA is aware that consumer groups considered in 2011 a report which canvassed forming a national energy consumer association: ENA understands that consumer groups have mixed views about this concept.

(III) THE OPPORTUNITIES AND POSSIBLE MECHANISMS FOR THE WIDER ADOPTION OF TECHNOLOGIES TO PROVIDE CONSUMERS WITH GREATER INFORMATION TO ASSIST IN MANAGING THEIR ENERGY USE,

As noted earlier, where the enabling infrastructure exists, network businesses are offering customers tools and services to monitor their energy consumption. The main constraint is the lack of smart meters in jurisdictions (other than Victoria).

(IV) THE ADEQUACY OF CURRENT CONSUMER INFORMATION, CHOICE, AND PROTECTION MEASURES, INCLUDING THE BENEFITS TO CONSUMERS AND INDUSTRY OF UNIFORM ADOPTION OF THE NATIONAL ENERGY CUSTOMER FRAMEWORK,

The focus of the National Energy Customer Framework (NECF) is to provide a national framework for the retail sale of electricity and gas, in particular customer service, protection and consumer benchmarking information.

Network businesses are or will be bound by the provisions of the framework to the extent that they provide services directly to customers (e.g. connection).

Unfortunately, the NECF has not been introduced in all jurisdictions as scheduled. The NECF was introduced in the Commonwealth, Tasmania and the ACT from 1 July 2012. Implementation dates for other jurisdictions (NSW, Queensland South Australia and Victoria) are still being negotiated.

While network businesses have devoted considerable resources to aligning their systems with the NECF, the impact on electricity and gas prices is insignificant.

(V) THE ARRANGEMENTS TO SUPPORT AND ASSIST LOW INCOME AND VULNERABLE CONSUMERS WITH ELECTRICITY PRICING, IN PARTICULAR RELATING TO THE ROLE AND EXTENT OF DIVIDEND REDISTRIBUTION FROM ELECTRICITY INFRASTRUCTURE,

Both privately and publicly owned businesses produce dividends for their owners. In the case of state owned businesses, networks contribute to the consolidated revenue which funds State government activities including concession schemes assisting low income energy consumers. In recent years, State governments have expanded their assistance to vulnerable customers through various rebate schemes.

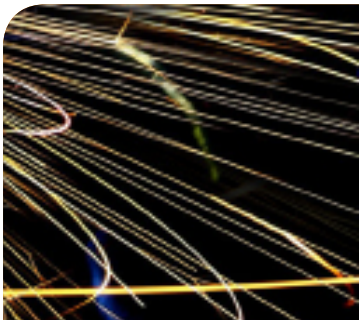
Over the past three financial years, as Table 1 shows, dividends in Queensland and New South Wales have been relatively stable.

TABLE 1: NSW AND QLD GOVERNMENTS' DIVIDEND REVENUE

Company	Dividends, $m			
	2010-11	2009-10	2008-09	2007-08
Essential Energy[27]	41.2	47.6	29.2	49.1
Ausgrid[28]	175.1	250.0	173.0	183.5
Endeavour[29] Energy	156.8	142.6	103.6	125.0
TransGrid[30]	133.9	135.1	120.2	105.9
Total	507.0	575.3	426.0	463.5
Energex[31]	187.8	148.2	102.8	946.9
Ergon[32]	252.6	137.5	116.6	118.4
Powerlink[33]	121.4	100.2	98.8	84.4
Total	561.8	385.9	318.2	1149.7

ENA analysis on rates of return in the network sector suggests that, over the last four years surveyed, government-owned networks achieved a median return on equity of 7.1 per cent, compared to the Commonwealth bond rate of 5.5 per cent over the same period or 7.2 per cent for all Australian networks surveyed.

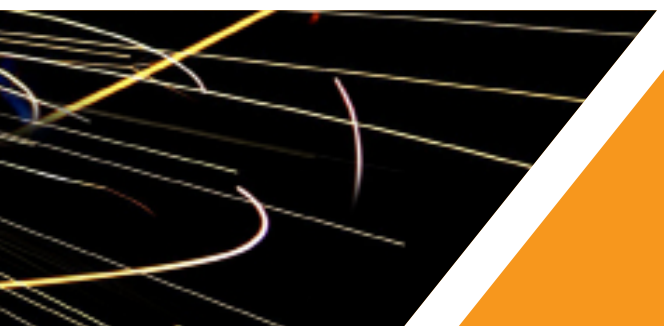
27 Essential Energy Annual Report 2010-11, p.113 and Country Energy Annual Report 2008-09, p.89.
28 Ausgrid Annual Report 2010-11, p.34 and EnergyAustralia Annual Report 2008-09, p.68.
29 Endeavor Energy Annual Performance Report 2010-11, p.3 and Integral Energy Annual Performance Report 2008-09, p.3
30 TransGrid Annual Report 2011, p.22.
31 Energex Annual Report 2010-11, p.90.
32 Ergon Annual Report 2010-11, p.6.
33 Powerlink Annual Report 2010-11, p.7 and Powerlink Annual Report 2009-10, p.9.



(VI) THE ARRANGEMENTS FOR NETWORK BUSINESSES TO ASSIST THEIR CUSTOMERS TO SAVE ENERGY AND REDUCE PEAK DEMAND AS A MORE COST EFFECTIVE ALTERNATIVE TO NETWORK INFRASTRUCTURE SPENDING,

As already noted, ENA members are supporting regulatory changes to strengthen the commercial incentives for demand side participation. Numerous DSP projects by network businesses are testing the most effective ways to secure customer support for lowering peak demand.

Networks are testing a range of tariff reforms which would support more informed consumer choice and alleviate the demand pressures on networks.



Energy Networks Association Ltd
P +61 2 6272 1555 **F** +61 2 6272 1566 **E** reception@ena.asn.au
Level 3, 40 Blackall Street, Barton ACT 2600

www.ena.asn.au