NSW Electricity Network and Prices Inquiry

Final Report

December 2010

Contents

1 Introduction and overview

On 27 October 2010, the Premier announced an inquiry to investigate options to reduce or defer electricity network charges in order to place downward pressure on electricity price increases. The Inquiry was formally established by the Minister for Energy under section 21 of the *Energy and Utilities Administration Act 1987*.

This report sets out the findings of the Inquiry and presents a number of options for the NSW Government to consider. The preferred options have the potential to halve the expected steep electricity price increases anticipated from 1 July 2011.

1.1 Current trends in electricity prices

Electricity prices have increased by about 43% in NSW over the last three years.[1] Prices are expected to rise by about this much again over the next 3 years.[2] Most of this impact will occur next year. Under current arrangements it is possible that prices for some customers could increase by up to 27% from 1 July 2011 alone.

The size of electricity bills is increasing much faster than average wages and paying these bills is taking up an increasing proportion of average household income. The Independent Pricing and Regulatory Tribunal (IPART) estimated in 2009/10 that on average electricity bills account for between 1.1% and 3.8% of household income but that under its current price determination this will increase to between 1.7% and 5.3%.[3] The impact on some low income households will be much greater.

Historically, NSW has enjoyed cheap electricity relative to other jurisdictions in Australia but faster growth in the last three years means its prices are now higher than the national average.

1.2 The drivers of price increases

The price increases have two main drivers. The biggest driver is network costs: the more than doubling of annual capital expenditure and increased operating expenditure for the NSW transmission and distribution businesses since 2004. These increases are driven by growth in the demand for electricity, replacement of ageing network assets, enhanced reliability and performance standards and the escalation of operating costs. This rapid rate of growth is set to continue for the remainder of the current price period for the network businesses to 2013/14. *At least 80% of the percentage increases in the IPART 2010 determination of regulated retail tariffs are attributed to increased network charges.*

The second most important driver is the introduction and expansion of State and National government schemes to encourage the development of renewable energy sources and the reduction of greenhouse gas emissions from electricity generation. The costs of these schemes are recovered from customers through their electricity bills; they are not funded by taxpayers. These costs are expected to jump sharply in 2011 because the network businesses will start to recover the costs of the NSW Government's Solar Bonus Scheme (SBS). These costs are passed through to retail customers. Country Energy customers in particular may face price increases of an additional 10% from 1 July just to cover the costs of the SBS. EnergyAustralia and Integral Energy expect price increases arising from the SBS alone of some 5% and 6% respectively.

[1] In nominal terms between June 2007 and June 2010, derived from ABS 6401.0, Consumer Price Index, Australia.
[2] Estimate in nominal terms for period between 1 July 2010 and 1 July 2013 (period of current regulated retail tariff determination).
[3] IPART (2010) Review of regulated retail tariffs and charges for electricity 2010-2013, Electricity-Final Report, March 2010, p. 179. IPART's determination factored in the introduction of the Commonwealth Government's proposed Carbon Pollution Reduction Scheme which did not eventuate.

In addition, all customers will be affected by the price impact of the Commonwealth's expanded Renewable Energy Target (RET) scheme. This could add about another 4% to prices from 1 July 2011.

The costs of the SBS and the expanded RET scheme have not yet been factored into current price determinations for network charges and regulated retail prices but it is expected that the distribution and retail businesses will apply to the relevant regulators to have these additional costs assessed so that they can pass them through to customers from July 2011.

Based on estimates provided to the Inquiry by the businesses and other sources, the additional costs of the SBS and the RET scheme on top of IPART's indicative regulated retail tariff mean that **Country Energy's average regulated retail tariff could increase by about 27% from 1 July 2011 and EnergyAustralia's and Integral Energy's tariffs could increase by around 20%.**

There are a number of other factors that contribute to the current increases and predicted future increases in electricity prices. These include: anomalies that have arisen because of the regulatory framework; aspects of the government's ownership of the network businesses and the way it derives its return on its investment; and overspending of $1.4b by the NSW network businesses in the last regulatory period.

Apart from 'known' influences on electricity prices, future price increases will also be affected by less predictable factors. These include the possible introduction of a carbon tax or emissions trading scheme (ETS). Such a scheme will almost certainly result in increased wholesale energy costs and electricity prices. This may be partially offset by the market having already started to factor in the current uncertainties about the introduction of an ETS into its investment decisions. The impact of the introduction of a carbon tax or ETS on electricity prices will also be lessened if that is accompanied by the phase out of existing sustainable energy schemes.

The trends in fuel costs over time are also uncertain. Coal prices are predicted to decline in real terms over the long term, despite the current spike in export prices. The trend in gas prices over time is uncertain given the large scale expansion of coal seam methane production, although there are current forecasts suggesting sizeable increases in prices. The impact on electricity prices in NSW will depend on whether and how quickly there is a shift in the mix of fuels that supply generators in the National Electricity Market (NEM). The Minerals Resource Rent Tax is also scheduled to be introduced from 1 July 2012 at the same time as the extension of the existing Petroleum Resource Rent Tax. The details of how these taxes will be implemented are still being developed. Specific impacts on wholesale energy costs and electricity prices may not be significant in an internationally competitive commodities market especially since the tax is profit based. However, any regulatory change that materially increases the cost of fuel used for electricity generation will place upward pressure on electricity prices.

Other potential longer term influences on costs and prices are changing technologies and their impact on demand for electricity, particularly peak demand. These include smart grids and meters that allow electricity networks to be managed in more sophisticated ways as well as the predicted shift towards electric vehicles which will need to be charged from the network. Funding the large scale investment in the infrastructure to enable these technologies will add to pressure on retail prices notwithstanding any benefits that these technologies may bring to customers.

Customers are facing substantial known increases in electricity prices over the next few years and there are several additional potential factors which could further add to the upward pressures on electricity prices. It is hard to avoid the conclusion that all these factors create a "perfect storm".

1.3 Summary of options for easing pressure on prices

A range of possible options have been examined that may assist to ease the upward pressure on prices for NSW customers from 1 July 2011. The Terms of Reference for the Inquiry limit the scope to options that will put downward pressure on network charge increases, a major component of final retail prices. These can be grouped into three sets:

1. **Options aimed at reducing the impact on customers of expected increases in network charges over the current price period to 2013/14.** The NSW Government, as owner of the network businesses is potentially able to manage the businesses so that additional revenue is derived from them through efficiencies and costs savings (“efficiency dividends”). The Government as policy maker could return this additional revenue to customers to ameliorate the impact of price increases. This could be in the form of a government rebate for network charges that reduces the price increases by several percentage points. This approach is consistent with the incentive mechanisms built into the regulatory framework within which the businesses work.

2. **Options that address the impacts on electricity customers of the Solar Bonus Scheme.** It is possible to eliminate the predicted year one price impact of this scheme from 1 July 2011 and to reduce the overall cost and smooth the price impacts of the scheme beyond 2011/12 by redirecting money in the NSW Government’s Climate Change Fund towards the costs of the scheme. This would require an additional up front contribution from Consolidated Revenue and recovering the remainder of the costs over a longer time frame to minimise the impact on retail electricity prices.

3. **Options that address the drivers of increased network charges over the medium and longer term so that these costs are better contained in future**. A key focus of these options is to address the dual and conflicting roles that government has as owner of the network businesses and as policy maker. They would enable a more coherent balancing of public policy objectives against the commercial objectives of the businesses. These options should also enable a more appropriate consideration of the drivers for network expansions and upgrades that drive large increases in capital expenditure and operating costs and hence, final retail prices. Further, they will promote the rationalisation and increased efficiency of sustainable energy schemes.

If the preferred options can be fully implemented, it is possible to halve the now expected increases in regulated retail tariffs for some customers in 2011/12.

1.4 Terms of Reference for this Inquiry

The Terms of Reference for the Inquiry are set out in full at Attachment 1.

The objective of the Inquiry is to gain a better understanding of available options to reduce or defer network charges for electricity customers in NSW for the current price determination period (2009/10 to 2013/14). Any price reductions would take effect from 1 July 2011.

The scope of the Inquiry includes examining the annual revenue requirements of the three NSW distribution network service providers (DNSPs), EnergyAustralia, Integral Energy and Country Energy, and the NSW transmission business, TransGrid (and the transmission assets of EnergyAustralia). The retail and wholesale components of retail prices for small customers on standard contracts which are regulated by IPART under its 2010-213 are not in scope (other than the various policy driven costs that are passed through the IPART retail process).

The Inquiry is to develop a range of options on how reductions or deferrals of network charges can be achieved from 2011/12 and to recommend the most appropriate options including the actions required to implement them.

1.5 Structure of this report

Options for reducing or deferring network charges from 2011/12 have been examined after first considering the current trends in prices, the make up of electricity prices, the drivers of price increases and expectations about what may influence prices in the longer term.

Regulated retail tariffs are referred to throughout this report. About 66% of small retail customers in NSW are on these tariffs accounting for 25% of total demand.[4] There are a range of other tariffs available to electricity customers and network charges are just one component of any of these. For simplicity, regulated retail tariffs have been used as a benchmark for explaining current price trends and the implications for prices of the options that have been examined to reduce network related charges.

The report is structured as follows:

- Chapter 2 examines *trends* in electricity prices by reviewing historical prices and forecasts prices for the short to medium term based on recent price determinations by regulators. It also considers the impact of costs that are not yet factored into regulated retail tariffs for 2011/12 and 2012/13 to arrive at estimates of the very steep increases now expected from 1 July 2011.

- Chapter 3 details the *components* that make up the final retail price paid for electricity from the generation of the electricity to delivery to a customer. It outlines the aspects of the regulatory framework that affect how prices are determined and how the costs of NSW and Commonwealth sustainable energy schemes are passed through to customers.

- Chapter 4 explains how the NSW Government, as owner of the network businesses, applies a commercial framework to realise investment returns from them and how the application of some Government policies can influence the businesses' costs.

- Chapter 5 breaks down the *factors driving the price increases* and explains why network costs are the major driver and that sustainable energy schemes, particularly the Solar Bonus Scheme, are also contributing to the increases.

- Chapter 6 briefly considers what may drive *prices in future* and speculates about the impacts of a carbon price, trends in fuel costs and the influence of future technologies, such as "smart grids" and electric cars, on demand on the networks.

- Chapter 7 sets out *options* to reduce or defer network charges to place downward pressure on electricity prices from 1 July 2011 as well as options that may help prevent unnecessary future increases in network costs over the longer term.

[4] IPART, Review of regulated retail tariffs and charges for electricity 2010-2013, Final Report, March 2010 p. 3.

2 What's happening to current electricity prices?

Electricity prices increased by 41% in nominal terms across Australia in the three years from June 2007 to June 2010, and by 43% in Sydney over the same period.[5] These steep increases follow a sustained period of relatively flat prices in the mid 1990s and only modest increases in the early 2000s as greater competition was introduced to the electricity market and stronger regulatory frameworks were introduced for the remaining monopoly elements in the industry.

IPART determines regulated retail tariffs and its 2010 determination indicates average increases for customers on these tariffs will be a further 20 to 42% in nominal terms over the three years from 2010/11 and 2012/13 (Table 2.1).[6]

The expected increases result in an additional increase of up to $601 per annum for a typical residential customer on a regulated retail tariff and up to $2,012 for a business customer depending on their supply area.[7] These indicative increases could change as a result of IPART's annual reviews of the energy cost allowance which makes up part of regulated retail tariffs.

Table 2.1 Indicative average increase in regulated retail tariffs in IPART's 2010 determination (%, nominal)*

	2010/11	2011/12	2012/13	Cumulative total increase
EnergyAustralia	10	11	11	36
Integral Energy	7	10	2	20
Country Energy	13	13	11	42

Source: IPART 2010, Fact Sheet, Regulated electricity retail tariffs for 1 July 2010 to 30 June 2013 – Final Report.

These increases do not account for the costs of the NSW Government's Climate Change Fund and the Solar Bonus Scheme (SBS). Nor do they take account of the increased costs of the Commonwealth Government's Renewable Energy Target (RET). Modified rules for the RET that will increase its costs are due to commence on 1 January 2011.

These additional price pressures will have a significant further impact on prices in 2011. Preliminary estimates are that the total increases on 1 July 2011 for customers on regulated retail tariffs may be about 20% for EnergyAustralia and Integral Energy customers and 27% for Country Energy customers (Table 2.2). These estimates need to be treated with some caution as any pass through of additional costs is the subject of close review by the relevant regulator.

Estimates of the impact of the SBS primarily rely on information provided by the distribution businesses. A range of sources have been used to estimate the impact of the expanded and modified RET including draft decisions of regulators in other states and price increases already announced by one NSW retailer. The preliminary estimates have also not factored in any change in indicative price that might result from IPART's annual reviews of components that make up regulated retail tariffs or any increase in the amount collected for the Climate Change Fund.

[5] Derived from Australian Bureau of Statistics, 6401.0 Consumer Price Index, Australia.
[6] Excluding the impacts of the CPRS which has not been introduced as originally proposed.
[7] IPART 2010, Fact Sheet – Regulated electricity retail tariffs for 1 July 2010 to 30 June 2013 – Final Report.

Table 2.2 Estimates of possible average increases in regulated retail tariffs including estimates for SBS and modified RET (%, nominal)

	2010/11	2011/12	2012/13	Cumulative total increase
EnergyAustralia				
Indicative	10	11	11	36
Solar Bonus	0	5	-2	3
RET	0	4	-1	3
Total increase	**10**	**20**	**8**	**42**
Integral Energy				
Indicative	7	10	2	20
Solar Bonus	0	6	-2	4
RET	0	4	-1	3
Total increase	**7**	**20**	**-1**	**27**
Country Energy				
Indicative	13	13	11	42
Solar Bonus	0	10	-4	6
RET	0	4	-1	3
Total increase*	**13**	**27**	**6**	**52**

Source: Base tariffs sourced from IPART (2010), Fact Sheet – Regulated electricity retail tariffs for 1 July 2010 to 30 June 2012 – Final Report. These have been adjusted by the Inquiry for the costs of the SBS based on information provided by the NSW distribution businesses and estimates from a range of sources of the costs of the expanded Commonwealth RET scheme. SBS estimates include recovering all costs from 1 Jan 2010 to 30 June 2012 in 2011/12. RET costs include recovering all costs from 1 Jan 2011 to 30 June 2012 in 2011/12.
* Totals may not add due to rounding.

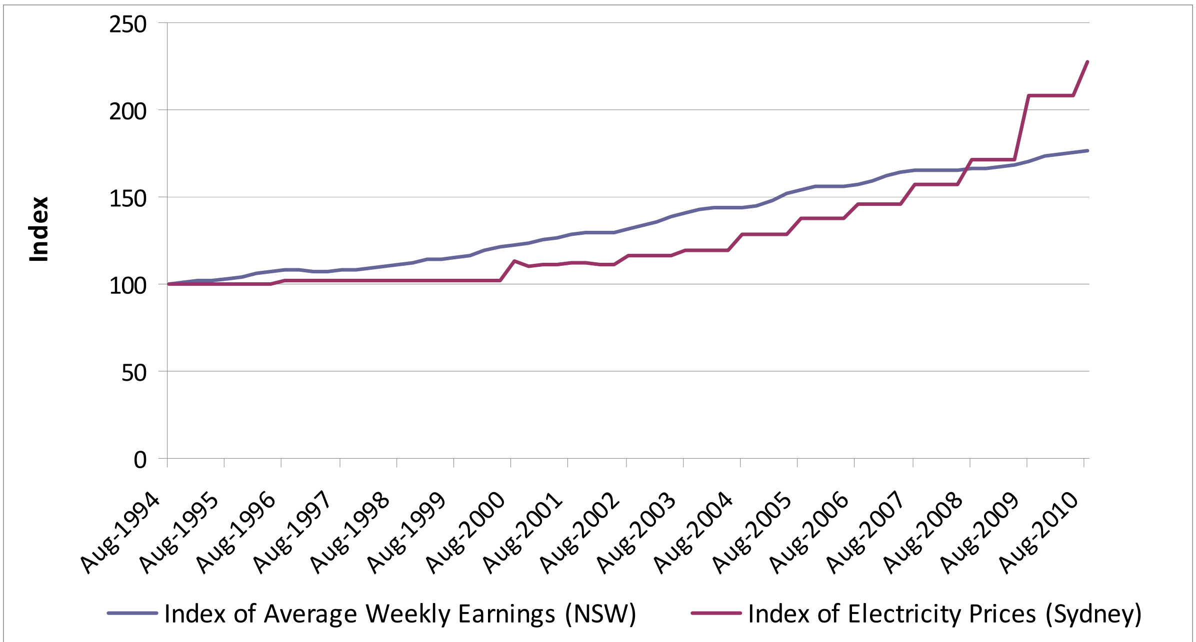
The estimates of price increases in 2012/13 are lower than the IPART indicative increases. This is because the 2011/12 increases allow for recovering more than 12 months worth of costs for the SBS and RET as some costs from prior years will not have been recovered previously. This results in percentage decreases for these components in 2012/13 when only 12 months of costs are anticipated to be recovered.

The following sections compare the increases in current prices with trends in average weekly earnings and with electricity prices in other Australian jurisdictions. More detail on the estimates of the price impact of the SBS and the Commonwealth Government's RET is provided in sections 5.2.1 and 5.2.3.

2.1 Proportion of household expenditure on electricity is increasing

Figure 2.1 shows the relative movement of electricity prices and average weekly earnings in nominal terms. It is a rough proxy for the impact of increases in electricity prices on household expenditure. It shows that since 2008 electricity prices have been growing at a much greater rate than average weekly earnings and suggests that a greater proportion of household expenditure is now spent on electricity bills. This recent trend contrasts with the trend between the 1990s until the mid 2000s of electricity price increases being modest and relatively less than growth in earnings.

Figure 2.1 Relative movements of Average Weekly Earnings and electricity prices



Source: Derived from ABS series 6302.0 Average Weekly Earnings Australia, and 6401.0 Consumer Price Index

IPART analysed the possible impacts on household expenditure of its 2010 determination using household data it collects. It found that, on average, electricity bills currently accounted for between 1.1% and 3.8% of household income in 2009/10 and that this percentage varies with household type. IPART's analysis indicated that under it's determination (which included the impact of the CPRS), electricity bills would account for between 1.7% and 5.3% of household income by 2012/13.[8]

There is considerable variation in the impact on customers of price increases. Country Energy customers, for example, already pay higher prices than Integral Energy and EnergyAustralia customers and forecast increases are much higher for its supply area.

A customer's personal circumstances are the most important factor in determining relative impacts. IPART's analysis showed that electricity bills currently account for 6% to 8% and 4% to 6% of disposable income for households comprising single and couple aged pensioners respectively. It found that by 2012/13 this percentage will increase to between 8% to 11% of a single aged

[8] IPART (2010) Review of regulated retail tariffs and charges for electricity 2010-2013, Electricity-Final Report, March 2010, p. 176.

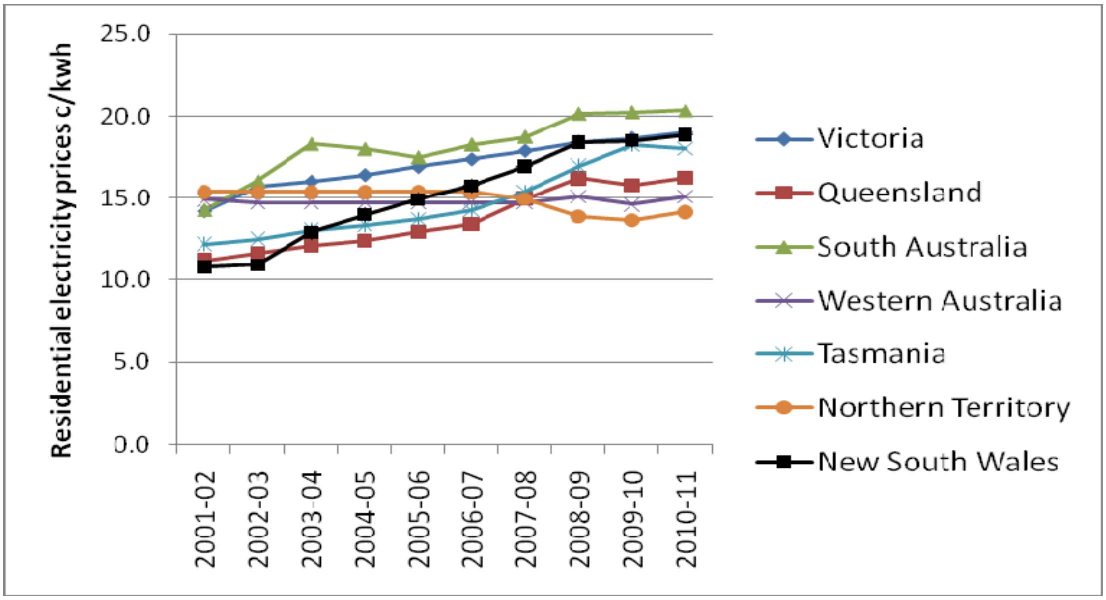
pensioner's disposable income and 6% to 9% of a couple aged pensioners' disposable income (incorporating the impacts of the CPRS).[9]

Based on its 2010 survey, IPART has also found that households were more likely to experience financial difficulty paying their electricity bills than their water or gas bills. Only 3% of low-income households in Sydney indicated they felt financially unable to pay their water bills in the past year, compared to 16% that indicated they felt financially unable to pay their electricity bills.[10]

2.2 NSW prices are increasing compared with other jurisdictions

Figure 2.2 shows the movement of prices in each State and the Northern Territory since 2001/02. It shows that in 2000/01, NSW had the lowest electricity prices of any state. NSW prices are becoming relatively more expensive and while not the highest are now above the national average.

Figure 2.2 Comparison of electricity prices by jurisdiction (c/kwh)



Source: Derived from KPMG Forecast spreadsheets 31 August 2010, accessed at http://www.aemo.com.au/planning/esoo2010.html. Note: Residential electricity prices in WA and the NT are not fully cost-reflective.

While increases in NSW have been steep over the last two years, the trend of increasing prices is common across all jurisdictions.

One of the particular challenges in NSW is that several of the drivers of price increases have peaked at the same time, compressing increases over a shorter period of time. These combined impacts were not necessarily fully anticipated by the businesses or the NSW Government as they were affected by separate policy decisions related to each of the cost components.

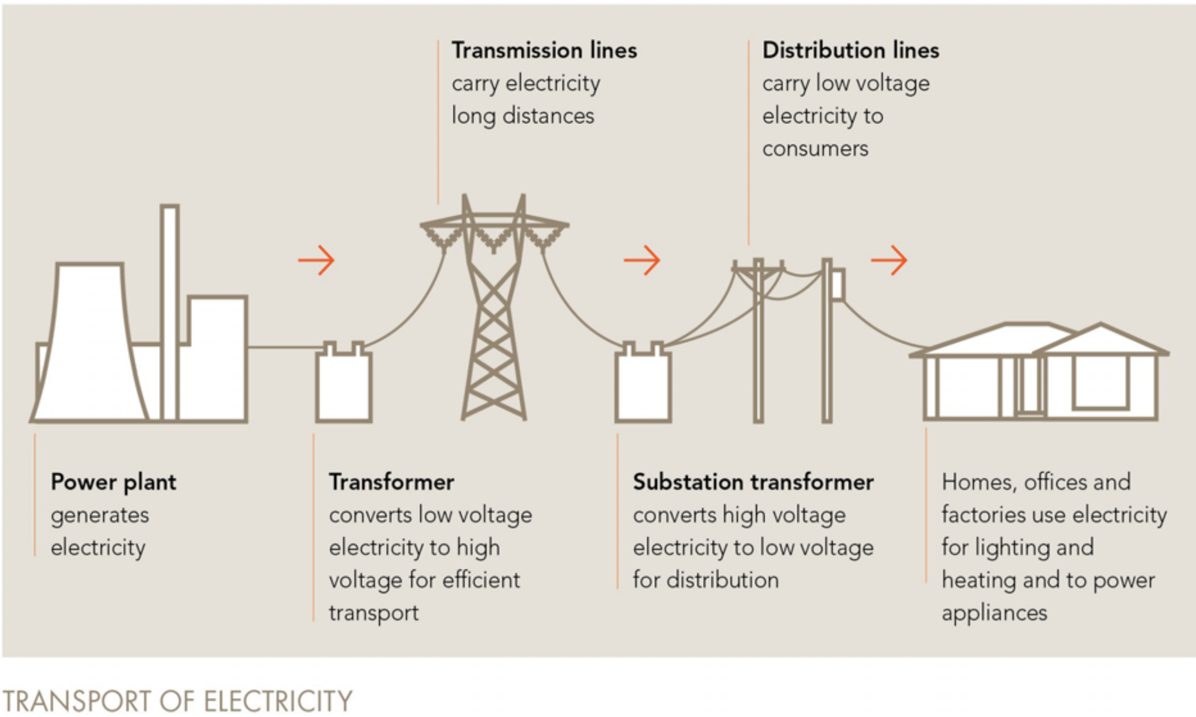
The various components driving the costs increases in NSW are discussed in chapter 5.

[9] IPART (2010) Review of regulated retail tariffs and charges for electricity 2010-2013, Electricity-Final Report, March 2010, p. 179.
[10] IPART (2010) Residential energy and water use in Sydney, the Blue Mountains and Illawarra, Results from the 2010 household survey, Electricity, Gas and Water Research Report, December 2010, p. 11.

3 What are the components of electricity prices?

The price paid by customers for electricity services covers the costs of generating electricity from an energy source, transporting it using long distance high voltage transmission networks to local distribution networks, and then distributing it through these low voltage local networks to the customer. The customer is billed by an energy retailer who purchases the electricity and pays the transmission and distribution network businesses for transporting it. Figure 3.1 illustrates the transport of electricity from generators to customers.

Figure 3.1 Transport of Electricity



Source: AEMO (2010) An introduction to Australia's National Electricity Market, p. 3.

Apart from these costs, Australian and NSW Governments' sustainable energy schemes also contribute to electricity prices as the costs of these are recovered from customers rather than funded from government revenue. The costs may be recovered directly as a levy on customers or through market based mechanisms that provide price signals to customers.

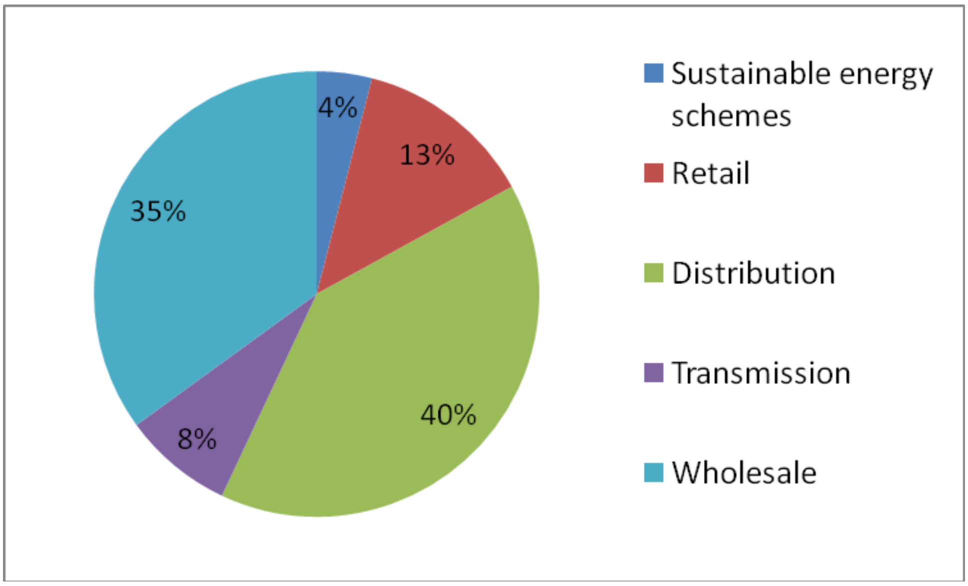
These currently include:

- the NSW Climate Change Fund (CCF)
- the NSW Solar Bonus Scheme (SBS)
- the Commonwealth Expanded Renewable Energy Target (RET)
- the NSW Greenhouse Gas Reduction Scheme (GGAS)
- the NSW Energy Savings Scheme (ESS).

The relative contribution of each of the electricity supply components—generation, transmission, distribution and retail—to an average residential bill for customers on regulated retail tariffs in NSW in 2010/11 is shown in Figure 3.2. The contribution of the Commonwealth and NSW Government's sustainable energy schemes is shown separately.

This Inquiry is concerned with the contribution to price increases of transmission and distribution (or network) charges and the recovery of costs for NSW Government sustainable energy schemes by network businesses. Together these account for about 50% of an average residential bill.

Figure 3.2: Composition of a typical NSW electricity bill in 2010/11



Source: Estimated using combination of data from IPART (2010 determination), AER (2009 determinations and conclusions) AECOM (2010, Solar Bonus Scheme – Forecast NSW PV Capacity and Tariff Payments) and information provided by NSW network businesses.

The relative proportions of these price components change over time. For example the proportion attributed to distribution costs is predicted to grow from 40% in 2010/11 to 44% while wholesale energy costs are expected to decline as a proportion of total costs from 35% to 30% by 2012/13.[11]

Section 3.1 provides a brief introduction to the regulatory framework for electricity pricing in NSW and sections 3.2 to 3.4 outline how each of the components of electricity prices are passed through to customers.

3.1 Introduction to regulation of electricity pricing in NSW

Historically, electricity suppliers were integrated monopoly businesses and these businesses, run by the NSW Government or local councils, operated generation capacity, transmission and distribution networks and managed the retail operations. Since the mid 1990s, jurisdictions across Australia have taken incremental steps to create a competitive environment for electricity, particularly in the generation and retail sectors which have in most cases been separated (either operationally or legally) from network businesses. A competitive National Electricity Market (NEM) is now well established. Despite this, some regulatory constraints on pricing are still deemed necessary since electricity

[11] Based on assumption an emissions trading scheme will not be introduced in the current price period. This also does not account for the impact of IPART's annual reviews of wholesale energy costs which may mean this component varies from IPART's 2010 determination.

network businesses are natural monopolies in their geographic area and an effective competitive retail market is still developing across some states including NSW.

These regulatory constraints include limits on the maximum amount of revenue electricity transmission and distribution businesses are allowed to collect from their customers. Annual revenue allowances for the transmission and distribution businesses are determined by the national regulator, the Australian Energy Regulator (AER).

In NSW, small retail customers also have the option of remaining on a regulated retail tariff. There are three Standard Retail Suppliers (EnergyAustralia, Integral Energy and Country Energy) and small customers in their supply areas can remain on standard contracts rather than opt for competitive market offers from either the standard retailers or other 'second tier' retailers. These regulated tariffs are determined by the state regulator, IPART. In making its determinations, IPART 'passes through' the network charges determined by the AER and determines allowances for the wholesale costs of energy, the costs of retail businesses and a retail profit margin.

The AER and IPART set the maximum amount of revenue that an electricity business (transmission, distribution or retail) can collect over a particular period of time known as the regulatory period. Each retail and network electricity business can then determine price levels for different customers provided that they do not breach the revenue cap and any other constraints that may be imposed by the regulator or the Government.

The AER made its most recent determination for NSW distribution and transmission business in 2009 for the five year period 2009/10 to 2013/14. IPART made its most recent determination of regulated retail tariffs in 2010 for the 3 year period 2010/11 to 2012/13.

3.2 Wholesale and retail costs

Approximately 35% of the average residential customer's electricity bill in NSW in 2010/11 can be attributed to wholesale energy costs and about 13% to the retail component. Wholesale electricity costs include the costs of fuel, the plant used to generate electricity as well as the costs associated with trading in the NEM including hedging costs. Retail costs are related to the interface between a customer and their electricity supplier and include call centres, customer information services, billing and metering systems.

3.2.1 Wholesale costs

The costs of electricity generation are estimated by IPART and included in the determination of regulated retail tariffs. IPART sets an allowance for these costs as the greater of the estimate of the long run marginal cost of generation (the cost of electricity from the next increment of generation capacity) and the market-based purchase cost.[12]

The NEM commenced in December 1998 and provides a single uniform marketplace for the trading of wholesale electricity across all Australian states and territories, with the exception of Western Australia and the Northern Territory (which are not connected to the NEM because of distance).

Electricity generators supply energy to the market. The price is not regulated and prices are dynamic depending on the balance of supply and demand.[13] Trading is conducted as a spot market where supply and demand are instantaneously matched through a centrally-coordinated dispatch process.

[12] The market based purchase cost is based on modelling of future prices taking into account spot prices and hedging.
[13] However, there is a floor price (-$1,000 per megawatt hour) and a ceiling price ($12,500 per megawatt hour) under the National Electricity Rules.

Generators offer to supply the market with specific amounts of electricity at particular prices and their offers are submitted every five minutes of every day. The Australian Energy Market Operator (AEMO) determines the generators required to produce electricity based on the principle of meeting demand in the most cost-efficient way.[14] AEMO then dispatches these generators into production. The NEM is a mandatory market and all electricity sold goes through the market pool but the vast majority is covered by some form of financial contract between generators and retailers to protect participants in the market from fluctuating prices.

IPART's estimates of the purchase cost of wholesale electricity are based on modelling of future costs in the NEM taking account of both spot prices and contract arrangements. Long run marginal costs of generation are modelled on a stand-alone basis. The modelling effectively builds and prices a new least-cost generation system to meet the regulated load.

IPART has provided for annual reviews of the allowances for energy purchase costs during the current determination period and for a special one-off review of the market-based cost allowance for a 1 January 2013 price change if necessary. This means annual prices increases until 2012/2013 could vary for this component from the indicative increases included in its 2010 determination.

3.2.2 Retail costs and margin

The NSW Government has agreed to phase out retail electricity price regulation completely where it can be demonstrated that effective retail competition exists but has committed to extending retail price regulation to at least 30 June 2013.[15] Only small customers can choose regulated retail tariffs.[16]

Regulated retail tariffs include the allowances determined by IPART for electricity retailers to buy electricity from the wholesale market and the charges of distribution and transmission businesses to deliver the electricity to their customers which are determined by the AER. On top of these components IPART determines allowances for retail costs and also sets a retail margin allowance. The retail margin allows the Standard Retailers to make a profit which compensates them for the systematic risks they face including variations in wholesale electricity spot and contract prices and general business risk due to changes in economic conditions.

3.3 Transmission and distribution costs

The AER regulates the amount of revenue collected by transmission and distribution businesses under the National Electricity Rules (NER).

In NSW, TransGrid operates the transmission network linking the generating plant in NSW and other States to the various sections of the distribution networks. EnergyAustralia also operates some transmission like assets, often called "sub-transmission" assets, as part of its distribution network.

EnergyAustralia, Integral Energy and Country Energy operate local distribution networks in defined supply areas. EnergyAustralia's network covers the Sydney CBD and surrounding metropolitan areas and extends north to Newcastle and the Hunter Valley. Integral Energy's supply area includes parts of Western Sydney, the Blue Mountains and Southern Highlands and extends along the coast past Ulladulla. Country Energy covers the remainder of NSW. It has the largest geographic area but the fewest customers.

[14] AEMO (2010) An introduction to Australia's National Electricity Market, p. 6.
[15] Council of Australian Governments' Meeting, *Communique*, 10 February 2006, Appendix A to Attachment B, p8.
[16] Small customers are those who consume less than 160 megawatt hours per annum – most households consume less than 20 megawatt hours per annum.

3.3.1 How are transmission and distribution costs regulated?

The AER does not set prices but assesses whether network expenditure is efficient and prudent and sets maximum amounts that can be used by network businesses for capital expenditure and operating expenditure over the regulatory period. It determines the allowed revenue that can be recovered in any given year during the regulatory period.

The AER checks network businesses' pricing proposals each year to make sure businesses will not exceed their revenue requirements.

3.3.2 The components of transmission and distribution costs

Transmission and distribution costs account for approximately 8% and 40% respectively of the final retail price paid by residential customers on regulated retail tariffs and are made up of the following components:

- Operating expenditure
- Capital expenditure, including:
    - Return of capital (depreciation)
    - Return on capital (cost of capital)
    - Tax payments.

Operating expenditure

Operating expenditure makes up about 22% of the transmission and 33% of the distribution businesses' total revenue requirements and is recovered during the year in which it is spent. This is about 15% of a customer's bill. It consists largely of the labour costs needed to manage and operate a network from day to day. It also includes the administrative and overhead costs of running a business.

Capital expenditure

Capital expenditure is made up of the costs of investing in the network including: the replacement and upgrade of ageing assets; expanding the network to provide for growth in customer numbers and demand; and, to meet safety, reliability and environmental standards imposed on the businesses through their licence conditions.

Revenue to provide for capital expenditure is determined using a building block approach. The value of a businesses' regulatory asset base (RAB) is established for the start of the pricing period. This is a measure of the financial value invested in a network business by its owner. It has a substantial impact on network prices through its links to allowances for the return of capital (depreciation) and return on capital.

Depreciation charges recoup capital expenditure over time. Depreciation charges allocate the capital costs of assets over the period in which they are used so customers pay for the investment while it is in service and they are deducted from the value of the RAB. These depreciation charges make up approximately 9% of transmission businesses' and 10% of distribution businesses' revenue requirement in any one year or about 5% of a customer's bill.

The cost of financing the capital expenditure includes a return on the equity invested, and is a return paid to the owners as 'compensation' for providing the network business with equity finance to support their capital investment. In addition to the return on equity, there is a payment for any borrowings (debt funding) used alongside equity to finance the capital expenditure investment. The allowance for the return on capital is determined by multiplying the value of the businesses' RAB by an appropriate rate of return.

The total cost of capital payments (both return on equity and payment for debt) account for about two thirds of the total revenue requirement of transmission businesses and over half of distributions businesses' requirement. This is equivalent to about one quarter of the price paid for electricity by an average residential customer.

New capital expenditure is added to the value of the RAB but generally only if it is prudent and efficient as assessed by the AER (although this was not the case under transitional rules for the AER's 2009 determination which meant that an over-spend in the last regulatory period flowed through to the RAB without an assessment (see section 5.1.5)).

Tax payments

Tax payments are made to the NSW Treasury as a tax equivalent of what would be paid on profits if the businesses were paying tax to the Australian Taxation Office. These tax equivalent payments account for about 3% of the revenue requirement of the transmission business and 4% of the distributions businesses which is equivalent to about 2% of a retail customer's bill.

3.3.3 Total transmission and distribution costs 2009/10 to 2013/14

Table 3.1 sets out the AER's conclusion on the maximum allowed revenue for TransGrid and the transmission component of EnergyAustralia's business for 2009/10 to 2013/14. Table 3.2 sets out the AER's conclusion on the revenue requirements for the NSW distribution businesses from 2009/10 to 2013/14. These conclusions were made following the businesses appeal to the Australian Competition Tribunal after the AER's original determinations.

The total average annual revenue requirement over the regulatory period for all businesses is about $5 billion.

Table 3.1 AER determination on the maximum allowed revenue for NSW transmission businesses ($m, nominal)

	2009/10	2010/11	2011/12	2012/13	2013/14
TransGrid					
Regulatory depreciation	74.6	75.2	66.8	75.4	85.5
Return on capital	423.8	473.0	514.8	570.5	621.7
Net tax allowance	24.1	25.4	24.9	28.1	31.3
Operating expenditure	162.1	160.3	168.5	182.5	188.9
Opex efficiency allowance*	5.8	4.7	5.8	2.5	-3.0
Annual revenue requirements	**690.5**	**738.6**	**780.8**	**859.0**	**924.3**
EnergyAustralia (transmission only)					
Regulatory depreciation	4.0	7.4	11.0	14.3	13.5
Return on capital	103.1	131.2	149.4	175.3	210.1
Tax allowance	3.7	7.6	8.8	10.5	11.5
Operating expenditure	36.0	36.6	37.4	38.3	38.6
Annual revenue requirements	**146.7**	**182.8**	**206.6**	**238.4**	**273.6**

Source: AER 2009, advice on conclusions for TransGrid and NSW distribution businesses for the price period 2009/10 to 2013/14 following Australian Competition Tribunal decision of 25 November 2009.
* An allowance for opex efficiency resulting from the carry forward mechanism applied in the current regulatory control period.

Table 3.2 AER determination on the maximum allowed revenue for NSW distribution businesses ($m, nominal)

	2009/10	2010/11	2011/12	2012/13	2013/14
EnergyAustralia (distribution only)					
Regulatory depreciation	76.0	99.6	120.2	142.6	138.7
Return on capital	731.3	845.2	973.7	1117.2	1256.4
Tax allowance	39.3	67.5	77.1	87.7	92.7
Operating expenditure	483.9	507.2	531.7	555.5	571.6
Annual revenue requirements	**1330.5**	**1519.6**	**1702.8**	**1903.1**	**2059.3**
Integral Energy					
Regulatory depreciation	144.3	123.2	119.8	113.5	106.3
Return on capital	369.8	415.9	470.0	518.5	563.5
Tax allowance	38.8	42.9	43.1	42.9	43.5
Operating expenditure	304.8	314.8	327.4	339.7	346.8
Annual revenue requirements	**857.7**	**896.8**	**960.4**	**1014.6**	**1060.1**
Country Energy					
Regulatory depreciation	154.1	176.8	141.7	161.4	181.1
Return on capital	432.9	494.2	558.1	629.7	701.7
Tax allowance	48.6	51.9	45.3	52.6	57.8
Operating expenditure	405.4	424.0	442.8	461.2	477.9
Annual revenue requirements	**996.0****	**1146.9**	**1188.0**	**1304.8**	**1418.6**

Source: AER 2009, advice on conclusions for NSW distribution businesses for the price period 2009/10 to 2013/14 following Australian Competition Tribunal decision of 25 November 2009.
* Incorporates adjustment for TUOS in 2009/10 of -$44.9m.

3.4 Costs of sustainable energy schemes

The costs of sustainable energy schemes are included in retail tariffs after their recovery is approved by the relevant regulators. Participants in the NEM incur costs associated with the NSW Government's Greenhouse Gas Reduction Scheme (GGAS) and Energy Savings Scheme (ESS) as well as the Commonwealth Government's Renewable Energy Target (RET). Recovery of these costs is regulated by IPART which assesses the costs of the schemes and determines allowances for cost recovery by electricity retailers.

NSW distribution businesses incur costs associated with the NSW Government's Solar Bonus Scheme (SBS) and Climate Change Fund (CCF). The recovery of these costs is regulated by the AER using cost pass-through mechanisms. The AER has no role in assessing the costs of the schemes but ensures that the distribution businesses do not over-recover the costs.

Each of the schemes, their costs and contributions to electricity prices are outlined in the following sections.

The total contribution of these schemes to prices is increasing. Based on current pricing determinations, it is expected to grow from 4% of the retail price in 2010/11 to about 7% in 2012/13. This doesn't account for all of the possible increases in costs for some schemes such as the SBS and RET which means the proportion of the retail price is likely to be even greater.

3.4.1 Greenhouse Gas Reduction Scheme

The NSW Greenhouse Gas Reduction Scheme (GGAS) began in 2003 and is designed to reduce the greenhouse gas emissions associated with the production and use of electricity. It is an electricity-sector specific scheme that establishes a per capita benchmark for greenhouse gas emissions.

GGAS requires Benchmark Participants, mainly NSW electricity retailers and large energy users, to meet mandatory targets for reducing the emission of greenhouse gases from the production of the electricity they supply or use by surrendering certificates that are created through activities that reduce or offset emissions.

GGAS reduces the marginal cost for new low emission generators or existing generators that lower their emissions without affecting the marginal cost for high emission generators.[17] On the assumption that marginal costs determine bid prices, this reduces average NEM prices. Even though the cost to retailers of buying GGAS certificates is more than this saving, GGAS has a relatively small net effect on retail prices.[18]

The energy efficiency component of GGAS ceased on 30 June 2009 with the introduction of the NSW Energy Savings Scheme (described in section 3.4.2), a mandatory energy efficiency trading scheme.

In recent years, the NSW Government has been preparing to transition GGAS to a national scheme.

Delayed national action means that there are no clear signals to investors in the energy market regarding how Australian governments' (including NSW) emissions reduction targets are to be achieved. In this context of ongoing uncertainty around the timing, form and scope of national carbon pricing arrangements, the NSW Government has commenced a review of GGAS including options for reviewing benchmark targets. There is currently a surplus of certificates which limits the effectiveness of GGAS as an ongoing greenhouse gas reduction measure.

At the time that IPART made its final decision in March 2010, the NSW Government had announced that GGAS would be discontinued once the CPRS was introduced. The CPRS was deferred in April 2010. IPART assessed that the long run marginal cost in meeting the GGAS target was zero, based on the surplus of tradeable abatement certificates (NGACs) and the expected discontinuation of the scheme.[19] IPART will review these costs in 2011. For the time being GGAS costs are not contributing to electricity prices.

[17] IPART 2010, Modelling options for improving GGAS, A report to the GGAS Taskforce on stage 1 Modelling, November 2010, p. 4.
[18] IPART 2010, Modelling options for improving GGAS, A report to the GGAS Taskforce on stage 1 Modelling, November 2010, p. 4.
[19] IPART (2010) Review of regulated retail tariffs and charges for electricity 2010-2013, Electricity – final Report, March 2010, p. 106.

3.4.2 NSW Energy Savings Scheme

The NSW Energy Savings Scheme (ESS) was introduced on 1 July 2009. It replaced the incentives for energy savings that were previously provided by the Demand Side Abatement component of GGAS. The initial energy efficiency target was 0.4% of retail sales and it will grow to 4.0% by 2014.

This scheme establishes legislated annual energy savings targets for electricity retailers. To meet their target, the Standard Retailers must surrender Energy Savings Certificates (ESCs). ESCs may be created from recognised energy savings activities that either reduce electricity consumption or improve the efficiency of energy use.

The ESS places downward pressure on wholesale electricity prices over time (although in the first few years they may be higher) by lowering energy demand. However, retail prices may be higher once the costs of purchasing certificates and the costs of administering the scheme are incorporated into tariffs. The ESS currently contributes less than 1% to electricity prices.

3.4.3 Commonwealth’s Renewable Energy Target

The Australian Government has set a target to achieve a 20 per cent share of renewables in Australia’s electricity supply mix by 2020. To achieve this it has implemented the Renewable Energy Target (RET) scheme. The scheme guarantees a market for additional renewable energy generation using a mechanism of tradeable Renewable Energy Certificates (RECs). Electricity retailers and other large buyers of electricity are required to purchase a stipulated number of RECs each year and surrender them. Accredited generators can create the certificates.

The target has been expanded and the scheme modified since its predecessor, the Mandatory Renewable Energy Target, was introduced in 2000. The Australian Government announced changes in February 2010 which mean that from January 2011 the scheme will include two parts – the Small-scale Renewable Energy Scheme (SRES) and the Large-scale Renewable Energy Target (LRET).

Under the SRES, owners of small-scale technologies, such as residential solar systems will receive a fixed price of $40 for each REC created. The number of systems supported will be uncapped. The design of the scheme includes a multiplier, known as Solar Credits, to be applied to RECs created by small scale solar, wind and hydro electricity systems. The multiplier will decrease over time.

In addition, revised targets have been set for the LRET with the intent this will create a stronger market for large-scale projects like wind farms.

In its 2010 determination, IPART provided cost allowances for complying with the RET during the 2010/11 to 2012/13 price determination period. However, these allowances do not account for all the costs of complying with the split of the RET into the SRES and LRET. The possible price impact of this is discussed further in 5.2.3 and means the contribution of this scheme to prices could increase from about 1% to more than 4% of retail prices although this cannot be predicted with any certainty until the costs are reviewed by IPART.

IPART has given standard retailers until 10 January 2011 to make a cost pass-through application for costs for the period 1 January 2011 to 30 June 2012 associated with the small scale renewable component of the Commonwealth's Expanded Renewable Energy Target. Costs associated with the RET beyond June 2012 will be captured in IPART’s wholesale energy cost allowance review. This means that the cost impacts of the scheme included in regulated prices from 1 July 2011 to 30 June 2012 will reflect approximately 18 months worth of costs.

3.4.4 Climate Change Fund

The Climate Change Fund (CCF) was established under the *Energy and Utilities Administration Act 1987* in July 2007 to help business, households, schools, communities and government save water and energy and reduce greenhouse gas emissions.

The costs of the NSW Climate Change Fund are passed through to electricity customers via the distribution businesses. The total amount to be collected is set by the Minister for Climate Change and the Environment, with the concurrence of the Minister for Energy and the Treasurer, by making an order, published in the Gazette, requiring the distribution businesses to make annual contributions to the Climate Change Fund. In 2010/11, the distribution businesses are required to contribute a total of $150 million to the fund (Table 3.3). The Minister requires that businesses only recover 25% of this amount from residential customers. It accounts for about 1% of electricity prices for residential customers.

Table 3.3 Contributions by distribution businesses to the Climate Change Fund, 2010/11 ($m)

EnergyAustralia	$70.0
Integral Energy	$44.7
Country Energy	$34.8
Total	**$150.4**

3.4.5 Solar Bonus Scheme

The SBS began on 1 January 2010 and ends on 31 December 2016. Under the scheme customers who purchased or ordered solar panels before midnight on the 27 October 2010 receive a 60c a kilowatt/hour (kWh) gross feed-in-tariff until the scheme ends.[20] Following a review of the scheme it has been adjusted so that those who purchase or order panels after 27 October will receive 20c/kWh. A gross feed-in-tariff means participants are paid for all the electricity they produce rather than being paid only for the electricity they produce but don’t use. The scheme can now be closed once 300MW of installed capacity has been reached by a decision of the Minister for Energy.

The costs of the scheme have two components. The first is administration and implementation costs. Since the scheme was not formalised when the AER made its 2009 determination, none of the administration or implementation costs associated with the scheme that include both capital and operating expenditure were included in the determination. EnergyAustralia has made an application to the AER to pass through these costs. Both Integral Energy and Country Energy have advised they do not intend to apply to the AER to recover these costs.

The second component is the payments made to customers. While the businesses have been making payments to SBS participants since 1 January 2010, they have not yet started to recover the costs of these payments from all customers and the current determination makes no allowance for their recovery. It is possible, under the relevant rules, for the businesses to defer collection of the payments until the end of the regulatory period (2013/14). It might not be feasible for all businesses to do this as it could adversely affect their working capital. The businesses are entitled to recover all of the payments under the scheme for the 30 months between January 2010 to 30 June 2012 in the 2011/12

[20] Customers who had already purchased or leased a solar generator had 21 days to lodge their applications to join the program.

pricing year. To do this, the network businesses must advise the AER of their intention to include recovery of this amount as part of their annual pricing proposals in April 2011.

The businesses estimate that recovering 30 months worth of costs from 1 July 2011 will add between 5 and 10% to a average retail prices for 2011/12 depending on the supply area the customer is in. This amount will be less from 1 July 2012 when the businesses only seek to recover payments for a 12 month period.

Table 3.4 Estimated costs of Solar Bonus Scheme to be recovered from 2011/12 to 2013/14 ($m nominal)

	2011/12* $m	2012/13 $m	2013/14 $m
EnergyAustralia	$74-$149	$37-$100	$37-$100
Integral Energy	$115	$79	$79
Country Energy	$244	$154	$154
Total**	**$471**	**$302**	**$302**

* assumes recovery of all costs from 1 January 2010 to 30 June 2012 in this year.
** uses mid-point of EnergyAustralia's range of costs to estimate total

4 Government ownership of network businesses

Understanding the role of Government ownership of the network businesses is important in the context of examining options to reduce pressure on prices.

NSW electricity network businesses are State Owned Corporations (SOCs). They have been established with a corporate governance structure which has been developed to mirror as far as possible that of a public listed company. This is designed to create an "arm's length" relationship between the SOC Board and management and the government as owner and shareholder. However, government decisions still influence the costs of the businesses primarily through its dividends policy and the enforcement of its wages and other policies. These are in addition to the costs of Government policies related to the sustainable energy schemes described in section 3.4 that impact on the business regardless of who owns them.

The ownership of the network businesses is not affected by the NSW Government's Energy Reform Strategy, which only involves selling its retail electricity and some generator electricity trading rights. However, aspects of the reforms may potentially affect distribution businesses' costs as each of the businesses had separate distribution and retail arms. The Government has sold the retail businesses. Some costs that have been shared between the retail and distribution arms, including overhead costs, will no longer be shared. This is discussed in section 5.5.

4.1 Payment of dividends to NSW Government by network businesses

The government subjects its businesses to the commercial discipline of paying dividends and making tax equivalent payments in recognition of the opportunity cost associated with the Government's equity investment in its businesses. It realises a return on these assets on behalf of taxpayers.

The state electricity businesses raise debt funding through the central financing agency for the NSW Government, T-Corp, effectively borrowing with a AAA credit rating. However, the businesses' borrowing costs and therefore revenue requirements are calculated based on a stand alone assessment of their credit rating (which was BBB+ for the current determination). The businesses pay a loan guarantee fee to T-Corp for this facility—the difference between a market rate of interest and the cost of debt obtained from T-Corp. An equivalent fee would not flow to the owner in the case of privately owned network businesses but would be a cost of debt paid to debt providers. Hence, the Government receives more revenue from these businesses than it would if it was a private owner of the businesses although the businesses are effectively facing similar costs as if they were a privately owned business. This is an appropriate discipline on State Owned Corporation Boards and management because it makes them operate with "real" financial discipline.

NSW Treasury published a new government guarantee policy in September 2010 which has the effect of lowering this fee for the businesses and improving the transparency of the fee.

Pre-tax profits of the distributors increased substantially from $661 million in 2008/09 to $965 million in 2009/10. The Auditor-General found that overall financial performance of the network businesses met or exceeded all financial performance targets and largely attributed this to increased margins from the sale of electricity resulting primarily from increases to the regulated network tariff.[21]

[21] Auditor-General's Report to Parliament 2010 Volume Four, p. 20.

The NSW 2010/11 Budget revenue streams for the state owned electricity network businesses are set out in Table 4.1.

Table 4.1 NSW Budget – Revenue from State Owned Electricity Network Businesses ($m)

	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
Dividend	426	480	462	694	923	801
Tax equivalent payment	244	244	250	442	613	566
Government guarantee fee	56	97	230	264	352	326
Total	**726**	**821**	**942**	**1,400**	**1,888**	**1,693**

Source: Derived from NSW Treasury, Budget Statement 2009-10. Government guarantee fee information provided by NSW Treasury.

The tax equivalent payment represents the tax that would be payable by a private business to the Commonwealth as a corporate tax payment. NSW state owned businesses make equivalent payments direct to the NSW Government.

The increase in payments from 2011/12 reflects the distribution businesses' increased allowable revenue. The 2010/11 NSW Government budget papers explain that the earnings from the network businesses are forecast to rise over the forward estimates period largely because the capital expenditure allowed by the AER increases the regulatory asset base from which a large proportion of the regulated revenue is derived through a return on capital. In this way, the NSW Government benefits, as any private owner would under the regulatory framework, from increased expenditure by the network businesses and the subsequent higher prices paid by customers which generates a greater revenue stream for NSW Treasury commensurate with the cost of capital for the businesses.

4.2 Application of NSW Public Sector policies to State Owned Corporations

As State Owned Corporations, the network businesses are subject to some NSW Public Sector Policies that can impact their business costs. These include the 2007 Wages Policy and the Government's Local Jobs First Plan.

The 2007 Wages Policy requires that any increases to employee related expenses exceeding 2.5% per annum are funded through employee-related reform measures and cost savings. Any increases in wages or conditions beyond 2.5% are subject to the approval of the Cabinet's Budget Committee. If applied effectively, the policy can be used to contain costs. As discussed in section 5.1.1, cumulative growth in wages for each business to 2009/10 has exceeded growth in NSW's average weekly earnings since 2004/05. This has been accompanied by significant growth in staff numbers for the distribution businesses which has contributed to increased costs in the current regulatory compared to the previous period.

The businesses must also comply with the NSW Government's Local Jobs First Plan which requires them to follow price preference schemes that favour small and medium Australian and New Zealand businesses bidding for contracts. The scheme requires the network businesses to discount the bids of bidders that meet specified criteria when comparing them with the bids of other businesses. This means they may pay more than they otherwise would in order for local suppliers to have a better chance of being awarded a contract. EnergyAustralia estimates complying with the plan will cost them $6m in 2011/12 with the costs increasing to $50 m per annum by 2015/16. These do not satisfy the regulatory principals for reasonable costs incurred by an efficient network provider and are therefore not passed on to customers and may mean returns to the NSW Government are lower than regulated returns.

5 What factors are driving current increases?

There are several factors driving the current increases in NSW electricity prices. The two most significant are network costs and the costs of government schemes to promote renewable energy sources and reduce emissions of greenhouse gases. By comparison, increases from wholesale electricity costs and retail costs are expected to be relatively small (comparable to inflation) over the current retail price determination period although wholesale costs in particular may contribute proportionately more in the future.

Table 5.1 shows the contribution of different components of electricity costs to the cumulative percentage price increases to 2012/13 based on IPART's 2010 determination. **At least 80% of IPART's indicative percentage increases are attributed to increased network charges.** This does not account for the increased costs of the Solar Bonus Scheme and the modified RET which will both contribute a proportion of increased costs from 1 July 2011.

Table 5.1: Contribution of cost components to average cumulative price increases from 2010/11 to 2012-13 (% nominal)

	EnergyAustralia	Integral Energy	Country Energy
Increase in network charges (as determined by the AER)	31	16	35
Increase in wholesale energy costs	1	1	3
Increase in retail costs and margin	3	2	3
Rounding	1	1	1
Total increases	**36**	**20**	**42**

Source: IPART Fact Sheet 'Regulated electricity tariffs for 1 July 2010 to 30 June 2013 – Final Report'

The following sections discuss the underlying reasons for the increases.

5.1 Increased network charges are the major factor driving price increases

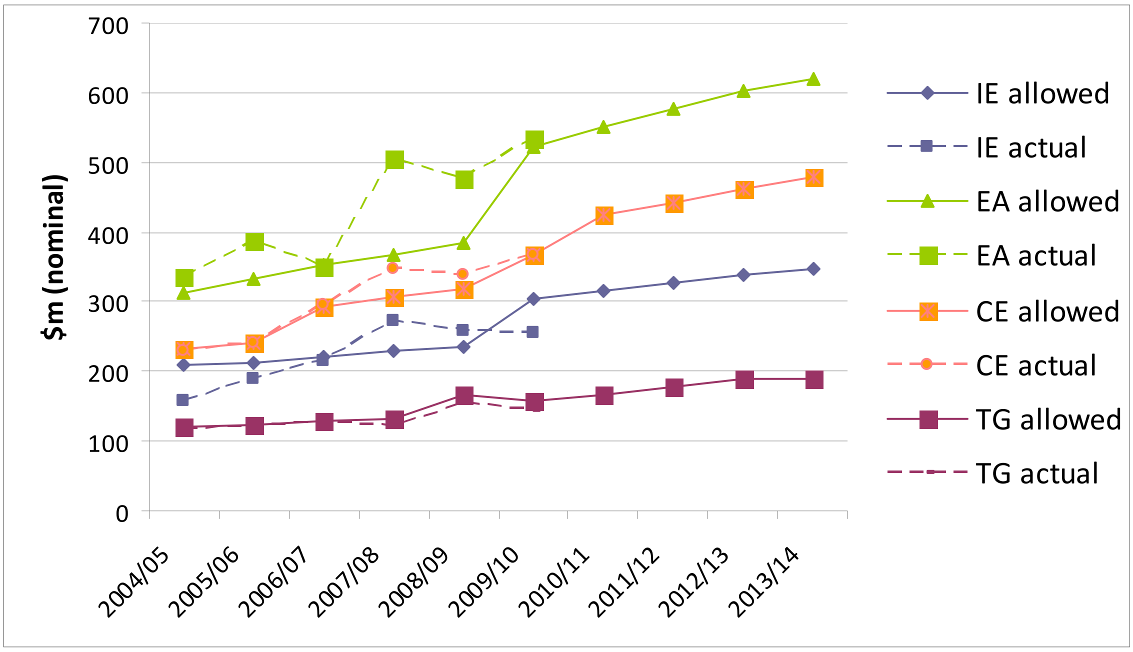
Increased network charges result from growth in both operating and capital expenditure and the revenue allowances made for these in the determinations of the AER.

NSW prices are expected to continue to increase at a faster rate than other jurisdictions largely because of expected increases in revenues to be recovered by distribution businesses as a result of the 2009 determinations by the AER. The largest increases in allowed revenues in the current determinations of the AER are forecast for EnergyAustralia and Country Energy (over 70 per cent in real terms) and Country Energy (52%).[22] This compares to forecast rises in average revenues of 37% in Queensland, 24% in South Australia and 11% in Victoria.

Figure 5.1 shows the growth in allowed operating expenditure from 2004/05 to 2013/14 in nominal terms for NSW network businesses. It shows a step change in allowed operating expenditure at the start of the determination period in 2009/10 after overspending by all businesses (except TransGrid) in 2008/09. Allowed operating expenditure for the period 2009/10 to 2013/14 is about 40% higher than the previous regulatory period. The change in actual expenditure for each business depends on the extent of its under or over spend in the previous period. The increases are partly driven by the forecast growth in the maintainable asset base in line with the planned capital program of the businesses for the 2009 to 2014 period.

This is discussed in section 5.1.1.

Figure 5.1 Growth in allowed operating expenditure 2004/05 to 2013/14



Source: Data provided by Integral Energy, EnergyAustralia, Country Energy and TransGrid

Capital expenditure has increased at an even faster rate than operating expenditure and is comprised of three main components:

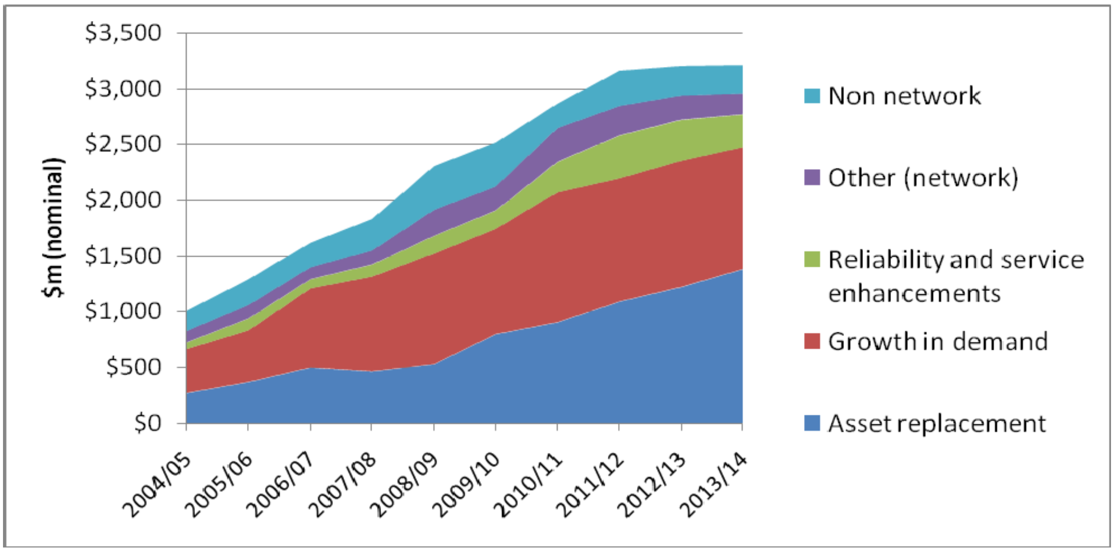
1. replacement of ageing assets
2. investment in new assets to service growth in customer numbers and increased demand for electricity
3. enhanced reliability and service standards.

Growth of capital expenditure for each of these categories for the three NSW distributors is shown in Figure 5.2 and discussed in sections 5.1.2 to 5.1.4. The graph shows that total annual capital

[22] AER (2010), State of the Energy Market 2010, p. 52.

expenditure (excluding non-system capital expenditure) will grow by about three times from $1b in 2004/05 to the over $3b anticipated in 2013/14 in nominal terms.

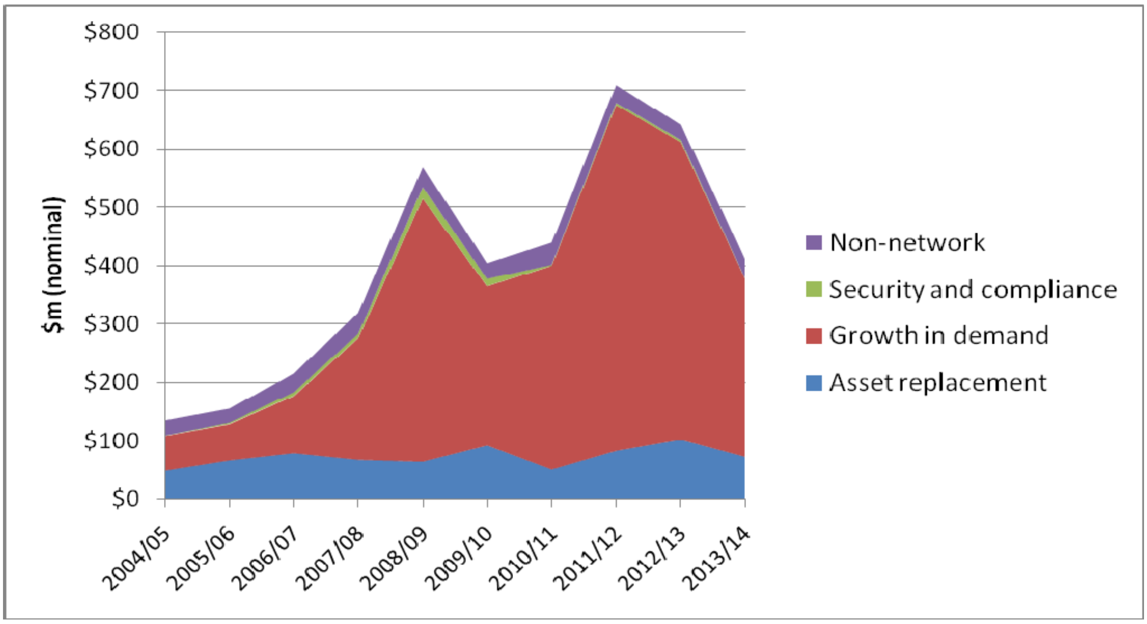
Figure 5.2 NSW distributors' capital expenditure by purpose 2004/05 to 2013/14 (nominal)



Note: Based on actual expenditure from 2004/05 to 2009/10 and forecast expenditure to 2012/14. EnergyAustralia's transmission business assets are included in this graph.

TransGrid's pattern of expenditure is much more lumpy than the distribution businesses which reflects the nature of its long distance high voltage assets—the timing of an individual project can significantly affect expenditure in any one year. Figure 5.3 shows that expenditure is expected to peak during 2010/11 and 2011/12.

Figure 5.3 TransGrid's capital expenditure by purpose 2004/05 to 2013/14 (nominal)



Note: Based on actual expenditure 2004/05 to 2009/10 and planned expenditure from 2010/11 to 2013/14.

Two aspects of the regulatory framework also have a particular impact on the network costs passed through to customers. These are the way underspending and overspending of capital expenditure are managed at the end of a price period and the allowance made for the cost of obtaining capital for a capital expenditure program (known as the Weighted Average Cost of Capital (WACC). The contribution of each of these aspects of the regulatory framework to increased charges is detailed in sections 5.1.5 and 5.1.6.

5.1.1 Growth in operating expenditure

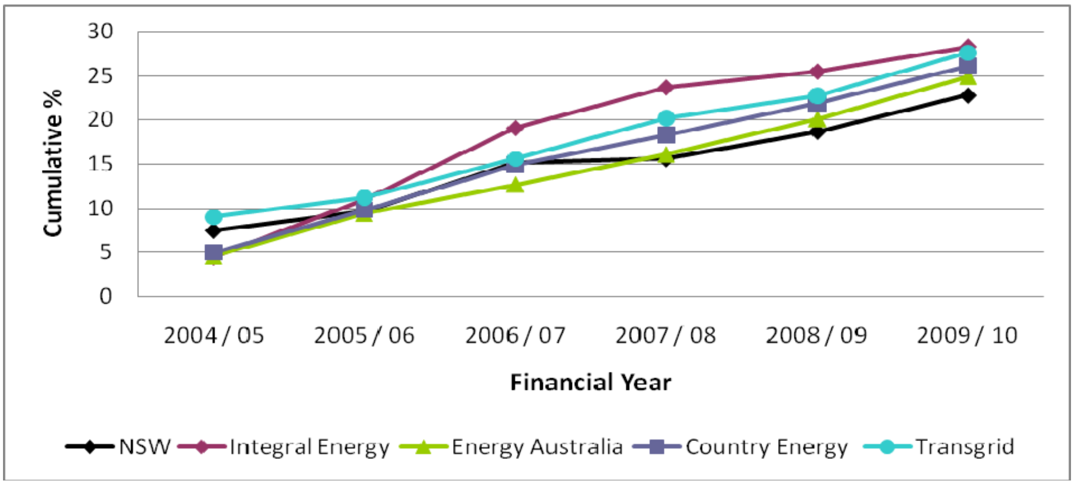
Growth in operating expenditure is driven in most cases by wages growth and increases in staff numbers. EnergyAustralia also advises that other items including IT, property related costs, insurance, occupational health and safety and other compliance costs (for example, increases in overtime due to inability to work on or near roads in daylight traffic hours) are driving increases in its operating expenditure.

Figure 5.4 shows that since 2004/05, the cumulative percentage increases in wages for each business have exceeded the increases in Average Weekly Earnings for NSW. The total cumulative increase was highest for Integral Energy over this period at 28.3% compared to the NSW average of 22.8%.

The total number of staff for each business has also increased by 42% from 8,077 in 2004/05 to 11,486 in 2009/10. The number of TransGrid staff increased by less than 7 per cent whereas the number of EnergyAustralia staff increased by 47% over the same period. Not all of this increase relates to operating expenditure. Much of the growth in staff numbers relates to a large increase in capital work. For example, during this period EnergyAustralia's capital expenditure grew by more than 300%. Additional staff are employed in replacing ageing assets, complying with licence conditions, meeting load growth and rising peak demand as well as connecting new customers. The growth in capital expenditure also results in increased costs associated with maintaining the significantly increased asset based and a safe operating environment.

The growth trends have continued since the introduction of the NSW Government's wages policy in 2007 although in 2008/09 and 2009/10 Integral Energy has limited growth in average weekly earnings to 1.5% and 2.2% respectively. Growth in Average Weekly Earnings for all other businesses has exceeded 2.5% and has been accompanied by growth in staff numbers although award increases above 2.5% are offset by productivity savings.

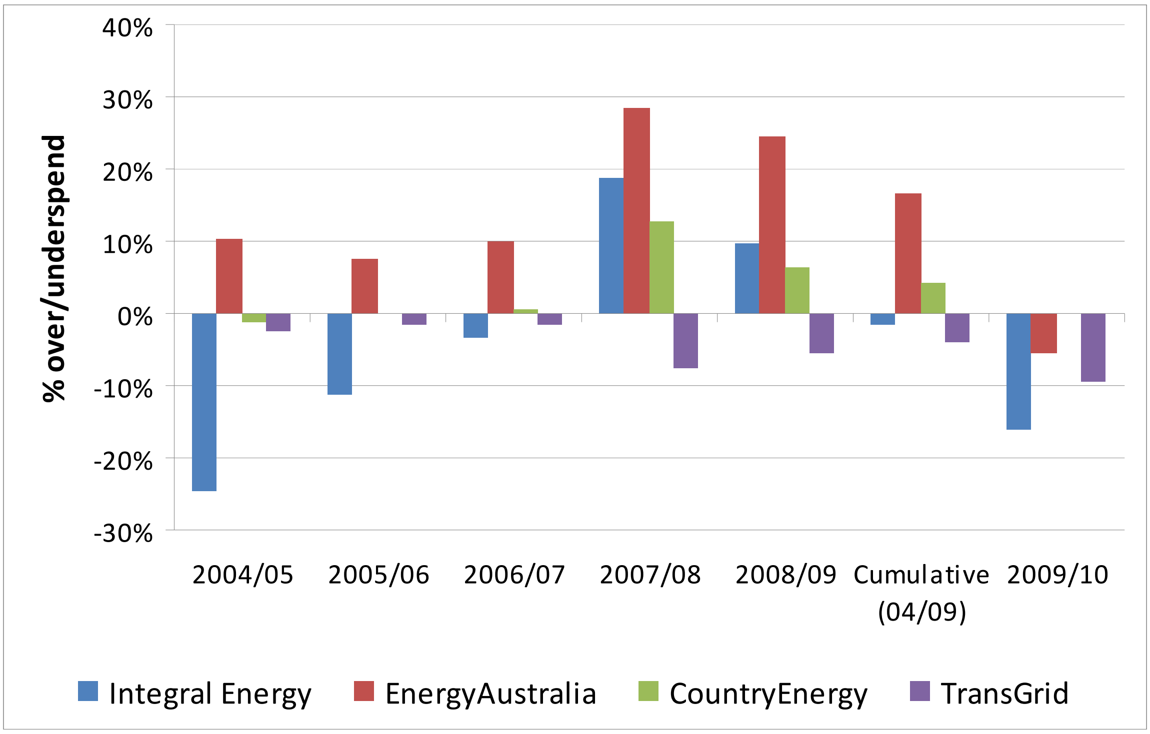
Figure 5.4 Cumulative % growth in Average Weekly Earnings 2004/05 to 2009/10



Source: Average Weekly Earnings data provide by each business. NSW data sourced from ABS 6302.0, Average Weekly Earnings Australia.

Figure 5.5 shows that overspending of operating expenditure compared to the maximum allowed revenue trended up over the previous regulatory period. EnergyAustralia significantly exceeded its allowance over the period. In 2009/10, the first year of the current regulatory period all businesses have spent less than their operating expenditure allowance apart from Country Energy which has spent all of its allowance.

Figure 5.5 Operating expenditure over/under spend compared to allowance



Source: Data provided by Integral Energy, EnergyAustralia, CountryEnergy and TransGrid.

5.1.2 Expenditure on replacement of network infrastructure

Expenditure on replacement of assets by the distribution businesses is at a peak and is expected to grow from 31% of total capital expenditure to 43% between 2010/11 to 2013/14. This expenditure is characteristically lumpy but has risen consistently since 2005. This increase partly results from the need to replace 40 to 50 year old post World War II assets. EnergyAustralia, the largest of the distributors in terms of revenue, is forecast to spend 46% of its total capital expenditure from 2010/11 to 2013/14 on replacement of infrastructure compared to 30% by Integral Energy and 21% by Country Energy. EnergyAustralia's supply area encompasses Sydney's most established and densely populated areas, which is contributing to the need to invest relatively more in replacement assets at this time compared to the other distribution businesses.

5.1.3 Expenditure to meet growth in demand

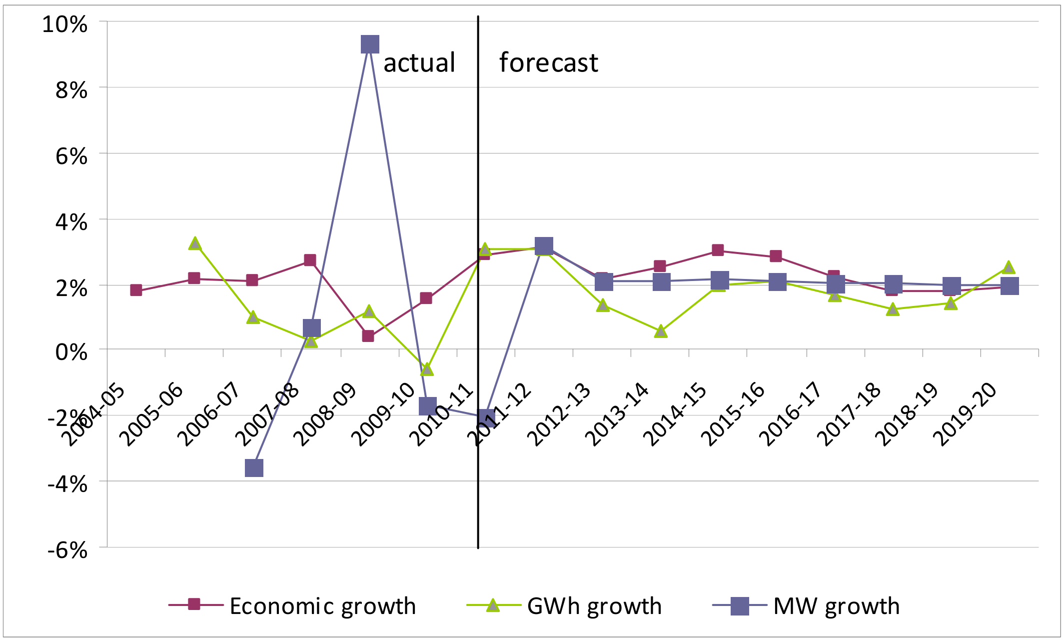
Growth in demand is closely related to economic growth and current experience is that it is only slowed marginally by demand management and energy efficiency programs. It accounts for just over 40% of capital expenditure over the period 2009/10 to 2013/14. A higher proportion of Integral Energy's capital expenditure is attributed to meeting growth in demand (46%) than the other businesses, reflecting both population growth in its supply area but more importantly growth in peak demand. Investment in networks to meet demand is driven by peak rather than average loads.

In its 2008/09 Performance Report, Integral Energy reported that peak demand increased by 14.5% from 2007/08 to 2008/09 while customer numbers grew by 0.75%. A key factor has been the growth in use of air conditioners in western Sydney.[23] In 10 years, the proportion of houses with air conditioning in western Sydney grew from 25% to 70%. This is consistent with trends across Australia although the proportion is much higher in western Sydney than coastal regions. IPART conducted a household survey in 2010 and found that 71% of households in Integral Energy's network area had air conditioners compared to 50% in EnergyAustralia's network area.[24]

Despite this growth in *peak* demand, average household *total* demand for electricity fell between 2006 and 2010. Average electricity consumption in the combined network areas of EnergyAustralia and Integral Energy fell by 6% between 2005/06 and 2009/10.[25] This may partly result from increased electricity prices but also from a trend toward replacing more electric hot water systems with gas or solar systems and customers' increased concern for the environmental impacts of electricity use.[26]

Figure 5.6 shows recent trends and forecasts in the growth of peak and total demand. Variable weather can affect the peak demand experienced in any one year as the peaks occur in hot summer and cold winter weather which accounts for the oscillation in peak demand (measured in MW) compared to the smoother trend line in total demand (measured in GWh). Forecasts show continued average growth in peak demand of about 2% per annum.

Figure 5.6 Forecast and actual growth in total and peak demand in NSW 2002/03 to 2019/20



Source: Data sourced from AEMO (2010), 2010 Statement of Opportunities.

[23] Integral Energy (2009) Electricity Network Performance Report 2008-09, November 2009, p. 3.
[24] IPART (2010) Residential energy and water use in Sydney, the Blue Mountains and Illawarra, Results from the 2010 household survey, Electricity, Gas and Water Research Report, December 2010, p. 58.
[25] Ibid.
[26] Ibid.

5.1.4 Expenditure to meet enhanced reliability and performance standards

Distribution businesses' licence conditions impose a series of performance targets to be met by 2014 related to:

- the level of security of supply required for specific areas, for example, at least three independent supply feeders (power lines) are required for the Sydney CBD
- the frequency and duration of blackouts for different types of feeders (CBD, urban or rural)
- the number and duration of any blackouts for individual feeders
- obligations to pay customers when these standards are not met.

These licence obligations came into effect on 1 July 2005 and were modified in 2007. The NSW State Plan also includes a target to achieve average electricity reliability for NSW of 99.98% by 2016. It is anticipated that compliance with the current standards will mean this target is met.

The licence conditions reflect a 'deterministic' approach to planning a network and setting standards. Deterministic standards require that sufficient network redundancy is available to ensure that supply remains available when a specified number of network contingencies occur at any time. For example, the requirement to have three supply feeders to the Sydney CBD means that power will continue to be supplied by the third feeder if the other two feeders fail, even during times of peak load.

The alternative is a 'probabilistic' approach. This involves considering the likelihood of disruptive events occurring coincidentally and then weighing up the costs and benefits to consumers of the risk of power supply disruption compared to the capital cost of expanding the network to ensure sufficient redundancy. Taking the Sydney CBD example, the likelihood of two feeders failing would be weighed up against the costs and benefits to customers of investing in a third feeder compared to the impacts of a power failure.

Although standards usually involve a combination of deterministic and probabilistic approaches, in NSW the dominant approach is deterministic. This contrasts with Victoria where a predominantly probabilistic approach is adopted. The key difference is that absolute standards are set in NSW without necessarily applying the filter of a formal cost benefit analysis. Regulated standards in Victoria are generally subject to a economic cost benefit analysis prior to their adoption, however there is little if any actual assessment on what customers want or are willing to pay – lower reliability and lower costs, or higher reliability and higher costs.. .

The distribution businesses applied to IPART in 2005 to pass through the additional costs they expected to incur in the 2004-09 determination period as a result of the introduction of the standards. IPART allowed additional pass-through of costs related to capital expenditure of about $1.5b. The increase in allowable revenue for the period was about $360 million in 2005/06 dollars.[27]

The distributors also cited the licence conditions in their submissions to the AER's 2009 determination as a key justification for their capital expenditure increases covering the period 2010 to 2014. This was

[27] IPART (2006), Statement of Reasons for Decision on applications by Country Energy, EnergyAustralia and Integral Energy in December 2005 for the Tribunal to approve the pass through of costs associated with the introduction of a licence condition.

recognised by the AER which attributed a proportion of the increased capital expenditure to meet standards for improved network security and supply.[28]

The NSW reliability and performance standards were reviewed in June 2010. The review has recommended a further review in 2011 of the methods used in defining reliability standards to ensure the appropriateness of the Licence Conditions that will be in place for the next AER pricing determination to cover the 2014-2019 regulatory period. It also recommended public consultation on them. These steps will allow consideration of the most appropriate approach to determining standards, taking into account price impacts, customer wishes and economic benefits to the NSW economy.

TransGrid prepares its own reliability standards as part of its planning process and these are provided to the NSW Government for review. The AER has questioned the validity of these arrangements. It is usually a Government function to ensure the reliability of an essential service is balanced against the costs to the state's consumers of the provision of that service. It is therefore appropriate to ensure that a body independent of TransGrid establishes the transmission planning standards for NSW. It is intended that this occur as part of the 2011 review of standards.

Despite the importance attached to this component of expenditure by the AER and the NSW distribution businesses in the 2009 determination, only about 10% of the forecast capital expenditure is attributed to reliability and performance enhancements. The proportion of capital expenditure each business attributes to meeting the standards varies significantly and this may partly reflect different approaches to attributing capital expenditure to this category. Country Energy attributes about 23% of its capital program to meeting reliability and performance standards for each year of the current price period whereas Integral Energy only attributes 2 to 3%. EnergyAustralia's proportion varies between 5 and 10% per annum. The higher proportion of expenditure on meeting reliability standards for Country Energy relates to significant expenditure required on underperforming feeders to meet standards related to the frequency and duration of blackouts.

Integral Energy has also advised it is investing approximately $70m per annum or about 17% of its capital program to meeting the mandated security of supply standards which it has included in the 'other' category. Most of this expenditure arises from annual growth in peak demand and ongoing compliance work.

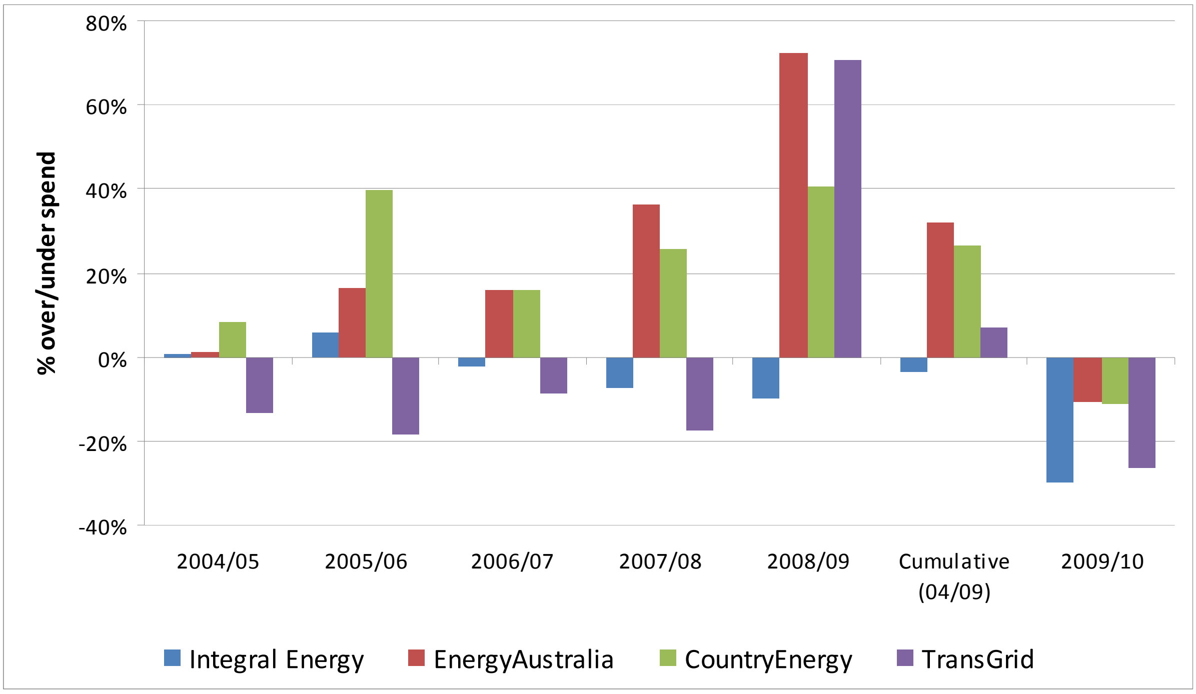
These proportions of expenditure are probably underestimates. It is difficult to separate all the costs of meeting the criteria from amounts attributed to other purposes. For example, expenditure to replace ageing assets will incorporate the incremental costs of replacing existing assets with designs that meet the new criteria.

5.1.5 Impact of overspend of capital expenditure in previous price period

An overspend of capital expenditure in the last pricing period contributed to the increase in the value of the regulatory asset base (RAB) for all businesses (except Integral Energy) for the start of the new regulatory period. The businesses overspent by about $1.4 billion in the previous price period with more than half the overspend occurring in the final year (2008/09) as shown in Figure 5.7.

[28] Australian Energy Regulator, Final Decision, New South Wales distribution determination 2009-10 to 2013-14, April 2009, p. x.

Figure 5.7 Capital overspend in previous price period by businesses (nominal)



Source: Data provided by Integral Energy, EnergyAustralia, CountryEnergy and TransGrid.

The AER's 2009 determination for NSW network businesses was made on the basis of transitional national rules that were negotiated by NSW Treasury and the businesses and approved by the Ministerial Council for Energy. The agreed transitional rules meant that the overspend of each of the businesses was not subject to an examination for efficiency or prudency as part of the new determination, as had occurred under the previous state-based regulatory regime. This agreement meant there was no clear incentive for the businesses to constrain expenditure in the lead up to the new pricing period.

EnergyAustralia exceeded its approved capital allowance over the full period by 32% including by 72% in the final year. Its RAB increased from $4.6b to $8.5b from the start of the previous pricing period to the start of the new pricing period in 2009/10. Country Energy overspent by 41% in the final year of the period. In comparison Integral Energy underspent by about 3.5% for the period. TransGrid deferred its capital expenditure which resulted in an underspend over the first 4 years and increased expenditure in 2008/09. It's expenditure exceeded the allowance for the period by about 7%.

The direct contribution of this overspend to price increases has not been estimated. It is difficult to model as it is hard to determine whether the additional expenditure in the prior period had any offsetting impact on the capital expenditure allowances in the current period. However, there is no doubt that this massive increase in capital expenditure is a major driver of the large costs and electricity bill increases paid by customers in NSW.

All businesses have spent less than their capital expenditure allowance in 2009/10.

5.1.6 Impact of the WACC determined by the Australian Competition Tribunal

The Regulatory Asset Base (RAB) is used to determine the allowed return on the capital invested by a business in combination with the Weighted Average Cost of Capital (WACC). The WACC is an estimate of the cost the business faces in providing the capital (debt and equity) needed to fund its capital expenditure at the time a regulatory determination is made. The WACC can vary significantly depending on the economic climate at the time.

The AER's 2009 determinations for the network businesses allowed for a WACC of 8.8%. The NSW network businesses appealed the AER's decision to the Australian Competition Tribunal (ACT) with the support of NSW Treasury. The key concern in the appeal was that the WACC was set too low and investors would not earn adequate compensation for their investments. The appeal mechanism is a merit based process that allows businesses to appeal an element of a decision without affecting the other elements of the decision. If the Tribunal finds against the applicant, the AER's decision stands which means businesses do not risk a more unfavourable outcome.

In November 2009, the Australian Competition Tribunal (ACT) decided to increase the WACC to 10.02%. The timing of the ACT decision coincided with uncertainty about impacts of the Global Financial Crisis (GFC) on the long term costs of capital. Since then, the cost of capital has fallen. Most recently, the AER October 2010 Victorian Electricity Network Determination resulted in an average WACC of 9.56% for Victorian network businesses because the GFC has subsided and the cost of capital had decreased.

While the regulatory model must take proper account of the cost of capital, this does illustrate the substantial variability in point-in-time cost of capital estimates, with significant impacts on what customers pay for electricity. In the space of some 12 months, the regulatory cost of capital for electricity network investments in Australia with a 50 year plus life has varied by 46 basis points.

The increase in the WACC from 8.8% to 10.02% increased the allowable revenue that can be collected by businesses over the price period by about 8% which is equivalent to about a 3% increase in the regulated retail tariff.

NSW experienced the biggest step change in WACC between regulatory periods of all jurisdictions (1.23%) and now has the highest WACC of all.

At least some of the price increase that NSW customers are experiencing is because of the anomalies that can occur as a result of point-in-time regulatory determinations applied to monopoly network businesses investing in long-life assets. This is also arguably an example of the anomalies that can occur as a result of a merit based appeal process in which one element of a decision is reviewed in isolation from other elements.

5.1.7 Impact of inter-regional transmission charging

Under the current National Electricity Rules, transmission network service providers recover their costs from customers within their region. In February 2010, the Ministerial Council on Energy submitted a rule change request to the Australian Energy Market Commission (AEMC) seeking to implement an inter-regional transmission charging mechanism.

The NEM consists of five interconnected regions and energy can be imported and exported between regions. Currently, if energy is imported, the importing region only pays transmission charges based on the costs of the transmission network service provider in its region even though it utilises the network of the exporting region. The proposed rule change would introduce a new charge, a load export charge, on transmission businesses in adjoining regions that reflects the flow of electricity from one region to adjoining regions.[29]

[29] Australian Energy Market Commission (2010), Draft Rule Determination, National Electricity Amendment (Inter-regional Transmission Charging) Rule, 2 December 2010, p. 2.

The AEMC has released a draft rule determination. The Draft Rule provides for a load export charge to apply from 1 July 2012. The charge would be made up of the locational, non-locational and the common service charge components of transmission network charges. AEMC modelling indicates that as a net importer, NSW would incur net additional charges of approximately $49.3m.[30] This is nearly 6% of the total annual revenue collected by TransGrid and is equivalent to a retail price increase of approximately 0.5%.

Submissions on the draft rule determination close in January 2011.

5.2 Government sustainable energy schemes are contributing to increased prices

The costs of government schemes to reduce greenhouse gases and promote renewable energy sources are recovered from all customers via distribution and retail charges. The price impacts of the most significant schemes are outlined below. Increases resulting from recovering the costs of the SBS and the modified RET could add between 9% and 14% to a customer's bill in 2011 depending on their supply area.

5.2.1 Solar Bonus Scheme

NSW distribution businesses anticipate that the modified SBS equates to the collection of an additional $470m in revenue in 2011/12 and approximately $300m each year thereafter based on current forecasts of the rate of uptake of the scheme.

The impact on prices will vary for each of the businesses as shown in table 5.2. A disproportionate number of SBS participants are in Country Energy's supply area and under the current policy about half of the total costs of the scheme will be borne by Country Energy's customers. The lower rates of uptake in EnergyAustralia's and Integral Energy's supply areas and the larger customer base means that the impact is expected to be less for their retail customers.

The impact in 2012/13 is a percentage reduction compared to 2011/12 since about $300m will be collected in that year compared to $470m in the previous year.

Table 5.2 Distribution businesses' estimates of the price impact on average bills of the SBS from 1 July 2011 (nominal %)

	2010/11	2011/12	2012/13
EnergyAustralia	0	*5*	*-2*
Integral Energy	0	*6*	*-2*
Country Energy	0	*10*	*-4*

Source: % increase estimates provided by EnergyAustralia, Integral Energy and Country Energy.

5.2.2 Climate Change Fund

In 2010/11 the distribution businesses are required to contribute a total of $150m. This amount is ultimately recovered from retail customers.

[30] Australian Energy Market Commission (2010), Draft Rule Determination, National Electricity Amendment (Inter-regional Transmission Charging) Rule, 2 December 2010, p. 27.

From 2005/06 to 2008/09, the distribution businesses contributed about $40 million per annum to the Climate Change Fund and its predecessor, the Energy Savings Fund. In 2009/10 this amount more than tripled to $140 million and it further increased to $150 million in 2010/11. Future contributions are not yet known. They could be affected by some of the options proposed in section 7.2 for funding the SBS.

5.2.3 Renewable Energy Target

It is not possible to predict accurately the costs associated with the Commonwealth's modified scheme to meet its Renewable Energy Target. Industry stakeholders have provided various estimates of the likely increase to electricity prices as a result of the changes to the RET. However, these will vary by jurisdiction. The Energy Users Association of Australia (EUAA) has estimated the cost of the SRES component will be $3.80/megawatt hour (MWh) and estimates the total cost of the RET Scheme will be $6/MWh or higher.

The Queensland Competition Authority is proposing a 5.83% overall increase in its retail price setting Benchmark Retail Cost Index and attributes 2.91 percentage points of the draft proposed increase to the modified RET scheme.[31]

AGL has estimated that the cost of the SRES component only will be $7.58/MWh in a submission it made to the Essential Services Commission of South Australia (ESCOSA).[32] Origin Energy has made a similar submission and estimates a range of $6.50 to $9.00/MWh for the cost of the SRES. Both are seeking a decision ahead of the new scheme's commencement on 1 January. AGL predicts, if allowed, these additional costs will increase regulated retail tariffs by up to 3%.

AGL also notified NSW customers in December 2010 that its retail prices would increase by 3.8% from 1 January 2011 as a result of the scheme.

The existing allowance for the RET for regulated retail tariffs determined by IPART was based on the rules of the scheme that applied in 2010 rather than the modified rules that will apply from 1 January 2011. A rough estimate based on rises in other states and AGL's announcement for NSW customers is that the additional costs of the modified scheme would result in an increase in regulated retail tariffs of around 4% for NSW customers from 1 July 2011 to recover 18 months worth of costs in 2011/12.

A determination of these costs will be made by IPART in relation to regulated retail tariffs following its review of the potential costs and submissions by the NSW standard retail businesses.

5.2.4 Other schemes

Relative to the other schemes, the Greenhouse Gas Reduction Scheme (GGAS) and the Energy Savings Scheme contribute small amounts to a customer's final bill. As explained in section 3.4.1, the current retail price determination means that no costs are currently being recovered for GGAS.

The Energy Savings Scheme which replaced the demand side abatement component of GGAS currently contributes less than 1% of an average bill and while its costs will grow over the price period, they are not likely to exceed 1%.

[31] Queensland Competition Authority (2010) Draft Decision, Benchmark Retail Cost Index for Electricity 2011-12, December 2010.
[32] AGL (2010) Submission to ESCOSA 19 October 2010. Accessed on 23 November 2010 at http://www.escosa.sa.gov.au/library/101019-ElectricityPricePath_2010-DraftReportFurtherSubmission-AGL_Public.pdf

5.3 Wholesale costs are currently contributing little to the increase in prices

Table 5.3 shows there are no distinct trends in wholesale electricity prices in recent years and they are expected to remain stable over the current price determination period. However, the uncertainty about a carbon price and the Minerals Resource Rent Tax as well as the extension of the Petroleum Resource Rent Tax may influence price trends beyond the current determination period (see chapter 6).

Factors that contributed to increased spot prices in 2010 compared to 2009 included extreme weather events, the effect of prolonged drought on generating capacity in hydro systems and the number of planned and unplanned outages and constraints on the flow of electricity into the State from other regions in the NEM.[33] These factors do not suggest a long term underlying trend to increased costs and the average 2010 spot price is within the normal variation of average prices.

Table 5.3: Average annual wholesale spot prices of electricity (nominal)

Year ended 30 June	NSW	Vic	Qld	SA	Tas
	$/MWh	$/MWh	$/MWh	$/MWh	$/MWh
2010	44.19	36.28	33.30	33.31	29.37
2009	38.85	41.82	34.00	50.98	58.48
2008	41.66	46.79	52.34	73.50	54.68
2007	58.72	54.80	52.14	51.61	49.56
2006	37.24	32.47	28.12	37.76	56.76

Source: AEMO price statistics average annual prices per financial year

Frontier Economics also provided advice to IPART as part of its 2010 regulated retail tariff determination that suggests the long run marginal costs of generation will be stable (excluding the effects of inflation) over the pricing period if any forecast impacts of a carbon price are excluded. However, IPART will review these costs annually which may result in changes in these forecasts.

[33] Auditor-General's Report, Financial Audits, Volume Four 2010 focusing on Electricity, p. 6

Table 5.4: Frontier Economics' advice on the LRMC of generation to meet each Standard Retailers regulated load for the 2010 determination (2009/10 - $/MWh)

Year ended 30 June	2010/11	2011/12	2012/13
EnergyAustralia	66.3	65.4	64.7
Integral Energy	68.4	68.3	68.2
Country Energy	61.7	61.6	61.5

Source: Frontier Economics, *Energy Purchase Costs – A final report prepared for IPART,* March 2010 (excludes CPRS)

Although steady over the current retail price period, the LRMC costs have increased substantially compared to the last year of the previous regulatory period (2009/10) where the range was $45-$55 (in 2009/10) dollars.[34] As explained in section 3.2.1, IPART sets an allowance for wholesale energy costs based on the greater of the estimate of LRMC of generation and the market-based purchase cost.

5.4 Retail costs are currently contributing little to the increase in prices

Similarly to wholesale costs, retail costs only contribute a small proportion of the total predicted increase in price over the price determination period. In its 2010 determination, IPART decided to adopt a total retail cost allowance lower than that used in 2007, partly because retail businesses actual costs were lower than those included in its 2007 determination. However it did allow a slightly higher retail margin allowance of 5.4% compared to 5.0% in 2007.

5.5 Potential impact of costs related to the NSW Energy Reform Strategy

The distribution businesses expect there will be an increase in their costs as a result of reallocating organisational overhead costs following the sale of their retail arms as part of the NSW Energy Reform Strategy. This includes the costs of retaining excess employees under the NSW Government's 5-Year employment guarantee, rebranding, IT and staff exit costs.

These potential costs are not part of the efficient cost of operating a distribution network but are the result of a government policy decision and have the potential to put further upward pressure on prices if they are passed through to customers rather than funded by the NSW Government. Integral Energy estimates these costs to be approximately $140m from 2010/11 to 2013/14. EnergyAustralia estimates these costs to be approximately $187m for the same period. If these costs are recovered from customers, it will add about 2% to a customer's bill in the current determination period and around 1% to a customer's bills in later years.

The distribution networks have proposed that these costs be met from the proceeds of the Energy Reform Strategy which would avoid any price impact on electricity customers.

The AER has, however, stated that it considers that the sale of the retail arms falls within the definition of an event for which the businesses may apply for a pass through of costs to customers and

[34] Frontier Economics, *Energy Purchase Costs – A final report prepared for IPART,* March 2010, p20.

commented that it may be difficult for the NSW Government to estimate and hence fund these costs.[35] This means that if the costs are not funded by the NSW Government the businesses may apply to pass them through to customers. It is unlikely all of the costs would be allowed to be passed through by the AER.

It is assumed that the NSW Government will fund these costs as it would be unreasonable to pass through its costs related to the energy reform transaction to electricity customers.

[35] AER (2009), New South Wales distribution determination, 2009-10 to 2013-14, April 2009, pp.282-283.

6 What are the expected price trends beyond the current price period?

There is considerable uncertainty about influences on electricity prices in the longer term. The focus of this Inquiry is on practical, short to medium term measures that will help to mitigate existing pressures, which are related to increased network costs. However, the longer term context is important and underlines the significance of managing price pressures now because of the potential for compounding pressures in the future.

Future price increases are expected if some form of carbon price is introduced in Australia whether it be through an emissions trading scheme or carbon tax. The size of any increase will be affected by the extent to which the market has already anticipated and factored in its introduction. The proposed Minerals Resource Rent Tax and the extended Petroleum Resource Rent Tax may also affect the cost of supply of key energy sources including coal, gas and coal seam methane driving up energy costs for electricity suppliers.

Technology will also have an important role and has the potential to affect the overall efficiency of the networks. It could be used to manage distribution networks in a more sophisticated way using smart grids and to adapt network infrastructure to provide for the expected growth in the use of electric motor vehicles.

All of these factors are critically important to future planning for our electricity supply industry. Although they have little impact on the Inquiry’s options for relieving current price pressures, it is essential that government, electricity supply businesses and customer are engaged in the debate about how to manage each of these issues to avoid undue price pressures and so that a mismatch between customer preferences and the services supplied does not eventuate.

Each issue is briefly outlined in the following sections. It is not possible to quantify the likely price impact of any of the factors because there are so many unknowns including, when and how they might start to take effect, the policy settings that will affect how the electricity industry responds as well as the possible range of customers’ behavioural responses.

6.1 Possible impacts of a price on carbon

The Australian Government is currently considering options for introducing a price on carbon in some form, such as an emissions trading scheme or a carbon tax, as a market based means of reducing Australia’s greenhouse gas emissions. It had previously attempted to pass legislation to introduce a Carbon Pollution Reduction Scheme from 1 July 2011 but this was defeated in the Senate. The timing and details of any alternative scheme are unclear. If a scheme is introduced it is expected to result in considerable upward price pressure on electricity prices. The proposed CPRS was packaged with compensatory measures to help offset the impacts of it on consumers and businesses.

IPART incorporated the predicted impacts of the proposed Carbon Pollution Reduction Scheme on regulated retail tariffs in its 2010 determination. Table 6.1 shows IPART determined it would result in up to an ***additional 26%*** nominal increase in electricity prices over the pricing period (in addition to the increases outlined previously – see table 2.1). IPART’s modelling suggested this could mean up to an additional $331 per annum by 2012/13 for an average annual bill for a residential customer.[36]

[36] IPART (2010), Review of regulated retail tariffs and charges for electricity 2010-2013, Electricity – Final Report March 2010, p7.

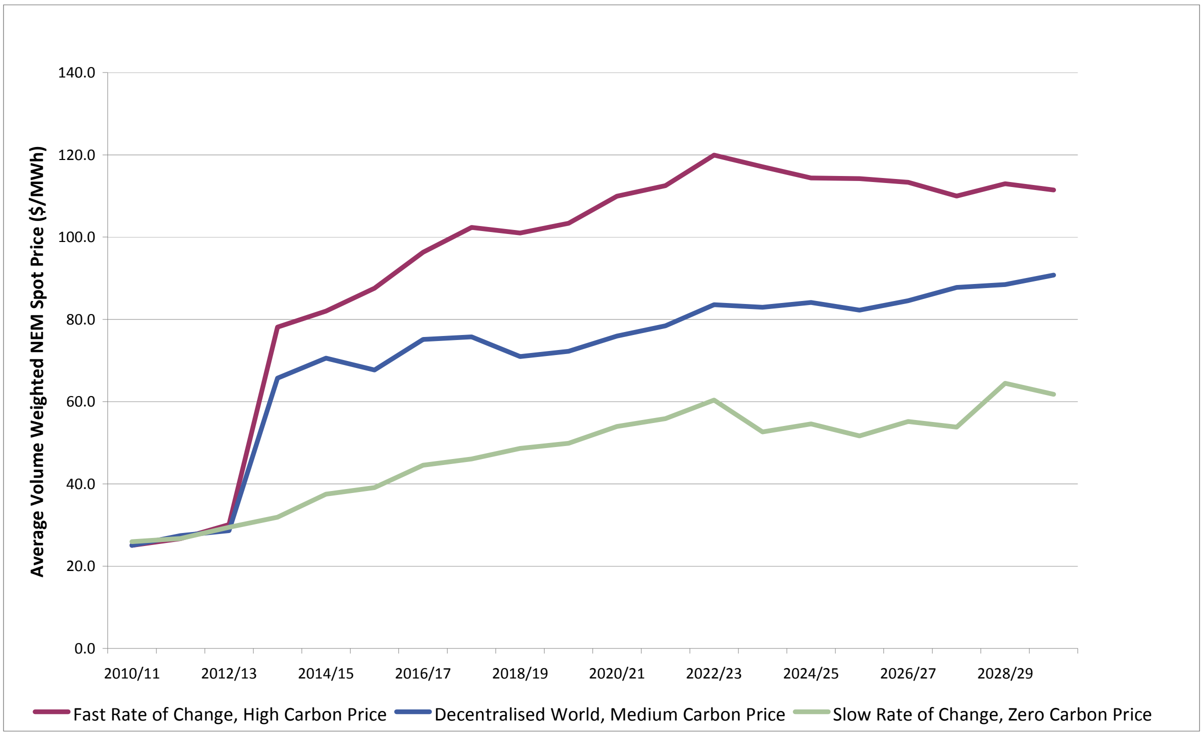
Table 6.1 Indicative average increase in regulated retail tariffs with CPRS (nominal, %)

	2010/11	2011/12	2012/13	Cumulative total With CPRS	Cumulative total No CPRS
EnergyAustralia	10	16	25	60	36
Integral Energy	7	14	20	46	20
Country Energy	13	17	24	64	42

Source: IPART (2010), Review of regulated retail tariffs and charges for electricity 2010-2013, Electricity – Final Report March 2010, p5.

In addition, AEMO has released data forecasting the possible range of impacts on the spot prices for electricity in the NEM if a carbon price is introduced. It shows it is possible the spot price will jump by 150% almost immediately when a price is introduced.

Figure 6.1 Forecast NEM Spot Price by carbon price scenario



Source: AEMO National Transmission Network Development Plan (data sets) 2010, accessed at http://www.aemo.com.au/planning/2010ntndp_cd/html/simulation_output.htm.

The policy settings of both the NSW and Australian Governments have evolved and adapted in response to the uncertainty of when and how a carbon price might be introduced. For example it was a consideration in the design of the Commonwealth's modified Renewable Energy Target, has influenced the conditions that might be attached to approvals for new coal fire powered generation and has triggered the review of other schemes such as the market based GGAS. This means that even in the absence of a national scheme, a carbon price is being factored into policy, investment and planning decisions to some extent. This may, depending on timing and design of any eventual national scheme, moderate the scale of such a scheme's impact on electricity prices.

6.2 Possible increases in fuel costs

Trends in fuel costs are difficult to predict, particularly in the environment of increased global economic instability that has been experienced in recent years as well as the uncertainty about the introduction of an emissions trading scheme.

ACIL Tasman forecasts trends in fuels costs for generators that supply the NEM. More than 80% of electricity in the NEM is currently generated from coal. Despite recent volatility in coal prices and a sharp spike in 2008, ACIL Tasman predicts that past trends of real price reductions will continue. This is because of the expected ongoing reduction in production costs and subdued growth in demand for coal because of increased use of alternative fuels and the possible introduction of widespread emissions trading.[37]

In contrast, natural gas prices are forecast to increase over time as demand increases and because it is a lower emissions intensity fuel. The KPMG Energy Price Forecast released by AEMO in support of the 2010 Electricity Statement of Opportunities (ESOO) indicates that natural gas costs, in the absence of a carbon price or other new tax or cost imposts, are projected to rise by a total of 32.9% between 2010/11 and 2020/21. Depending on the changes in the mix of fuels used in the NEM this is likely to increase pressure on fuel costs in the medium to long term.

The Australian Government has also proposed the introduction of a Minerals Resource Rent Tax (MRRT) for iron ore and coal as well as the extension of the Petroleum Resource Rent Tax (PRRT), which currently only applies to offshore petroleum projects, to cover all oil, gas and coal seam methane projects, onshore and offshore.

The changed taxation arrangements are due to commence on 1 July 2012 but depend on the passage of legislation through Parliament. A draft Bill is not expected to be released until June 2011. The details of the proposal are currently being considered by a Policy Transition Group which is to consult with industry and advise the Government on implementation of the new arrangements.

The details of implementation of the new taxes are still being determined. They will increase the effective tax rates for those businesses within scope hence it is possible there will be some level of impact on prices of the affected fuels but it is difficult to predict in the context of a competitive global market and without the detail of the arrangements.

6.3 Possible impacts of electric vehicles

Several motor vehicle companies including General Motors, Renault, Daimler, Mitsubishi and Nissan are targeting mass-market roll-outs of electric vehicles from 2011/12.[38] The rate of uptake of the vehicles and the way they are charged will potentially be one of the most significant factors affecting future demand on electricity networks.

Different models for charging batteries could eventuate. One pilot in Canberra is trialling ‘swap and go’ facilities which involve switching a drained battery for a recharged battery in a network of facilities analogous to petrol stations.[39] Another alternative is that vehicles are ‘plugged in’ to power outlets where they can be conveniently recharged, for example in home garages, at offices, shopping centre

[37] ACIL Tasman (2009) Fuel resource, new entry and generation costs in the NEM. Prepared for the Inter-Regional Planning Committee, April 2009.
[38] Powering Australia (2010), Volume 4, Securing Australia’s energy future, p. 50.
[39] Ibid, p. 52.

car parks and so on. The limited range of electric vehicles, currently between 90 and 395 kilometres, means that options for fast charging are essential.[40]

The impact of this on peak electricity demand is critical. If charging occurs mostly in the overnight off-peak period, it could contribute to increased efficiency of electricity networks. In addition, it is possible charged car batteries could be plugged in to supplement other supplies in peak demand periods. However, if the overall impact is that peak demand is increased significantly it could drive further significant investment in distribution networks. The impact would be similar, but at a larger scale, to the growth in peak demand that has resulted from increased installation and use of air conditioning over the last decade.

Integral Energy advised us that a preliminary assessment indicates that with a 30% penetration of electric vehicles, a typical residential distribution network may need to double its capacity if vehicles were primarily charged at home during the evening peak demand period. For comparison, in the 2009 to 2014 regulatory period Integral Energy plans to spend $1 billion on its network to deal with peak demand growth in the order of 2% per annum.

It is not possible to predict with certainty the impact of electric vehicles on existing networks and retail electricity prices. The way the industry and support infrastructure for charging electricity vehicles evolves in Australia provides opportunities to increase the efficiency of the networks but there is also a risk they will trigger a step change in peak demand which would result in increased investment in electricity infrastructure with the costs passed through to customers.

6.4 Possible impacts of “smart” meters and “smart” grids

Smart grids work by combining advanced communication, sensing and monitoring infrastructure with the existing electricity network. A smart grid has the potential to find and repair faults on the electricity grid quicker, manage voltage and identify infrastructure requiring maintenance. Smart meters, which are part of the smart grid, can help individual consumers manage their electricity consumption and enable the use of energy efficient ‘smart appliances’ which can be programmed to run on off-peak power.

NSW has committed to a rollout of smart meters to electricity customers by 2017 subject to successful large scale trials. This technology has the potential to help address the challenges created by the doubling of average domestic power use over the last decade and the increased complexity of managing two-way flows from customers who have installed micro-generation systems such as solar panels.[41] However, costs of the roll-out could be significant and the benefits are not easily quantified.

In 2006, the Victorian Government approved an Advanced Metering Infrastructure Project which was to replace existing accumulation meters with smart meters in 2.4 million homes and small businesses. The Victorian Auditor-General reviewed the Project in 2009 and found, among other things, that variation in studies of the project’s economic benefits suggested these were uncertain, there were significant implementation risks and the benefits to consumers were not clear. Various estimates from the regulator, consumer groups and retailers of the costs of smart metering and additional retail costs ranged from $40 to $170 per annum.[42] In March 2010, the Victorian Government indefinitely halted the transition of retail customers from flat rate to time of use tariffs due to concerns from the community about the impact on electricity bills.

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[40] AECOM Australia Pty Ltd (2009) Economic Viability of Electric Vehicles, 4 September 2009, p. 7.
[41] Powering Australia 2010, Vol 4, Securing Australia’s energy future, p. 42.
[42] Victorian Auditor-General’s Report November 2009, Towards a ‘smart grid’ – the roll-out of Advance Metering Infrastructure, 2009-10:3.

Whether or not smart grids and meters result in net benefits to customers will depend on their cost, functionality and customers' behavioural responses. In some cases, customers will have limited capacity to respond to price signals by shifting their energy demand to off peak and shoulder times to benefit from a time of use tariff structure. In these cases, their bills could increase.

These impacts will not be fully understood until appropriate pilots and trials have been conducted.

In June 2010, EnergyAustralia won $100 million in Federal Government funding which will allow a demonstration-scale smart grid to be rolled out across fives sites in Sydney and the Hunter. About 50,000 smart meters will be deployed and customers will be offered a number of pricing options. It will help to provide a basis for decisions on the use of smart grids and meters in NSW.

7 Options for mitigating pressure on prices

In consultation with the network businesses, several options have been identified that address the two main current drivers of the price increases over the current pricing determination period:

1. options aimed at reducing network charges paid by customers; and
2. options that address the impacts of the SBS on customers.

The options if implemented can have the effect of reducing prices to avoid the anticipated price spike on 1 July 2011 as well as smoothing increases over a longer period.

The options were examined with a focus on:

- what options would deliver the greatest benefits for customers from 1 July 2011
- whether the options could be practically implemented in the short to medium term taking account of the legislative and regulatory environment
- the impacts on government revenue
- whether the option is consistent with the Government's policy to promote reduction of greenhouse gas emissions and encourage development of renewable energy sources.

A third set of options has been developed that addresses the medium and longer term drivers of price increases beyond the current regulatory period, particularly in relation to the rate of growth in capital expenditure and the dual role of government as owner of the network businesses and policy maker. These options present policy questions for the Government to consider and include establishing a State Owned Corporations Commission (SOC Commission); advocating the introduction of a national energy efficiency market, while rationalising existing NSW schemes; and reviewing the NSW approach to developing reliability and performance standards.

Depending on the extent to which these options are implemented, it is possible to halve the total possible increase for some customers. The options are summarised in Table 7.1.

Table 7.1 Summary of options

1. Reduce increases in network charges:

a) The NSW Government could direct businesses to reduce increases in network charges to a specified capped amount (eg CPI plus 5%). Businesses would be required to achieve efficiencies and cost savings in order to do this while minimising the impact on Government revenues; or

b) The NSW Government could provide rebates that offset some of the increased network charges paid by customers. The rebates would be funded by increased dividends from the businesses paid to Government as a result of achieving efficiencies and cost savings over time. This option better aligns with the existing regulatory framework than option 1a).

2. Spreading and sharing the costs of the Solar Bonus Scheme

a) The costs of the SBS could be recovered retrospectively (ie. costs recovered in the year after they are incurred) which would reduce the price impact of the scheme by about 60% in 2011/12 but result in an additional price increase in 2012/13. Customers would fully fund the costs of the scheme in their supply area over the period to 2017/18.

b) The costs of the SBS could be spread proportionately across the businesses which would reduce the impact on Country Energy customers and increase the impact by a lesser amount on Integral Energy and EnergyAustralia customers using an external fund that businesses paid money into and received money from.

c) Preferably, the costs of the SBS could be consolidated with the CCF to reduce the combined costs of both schemes. Using available funds from the CCF and gap funding from NSW Treasury, the costs could be completely eliminated in 2011/12. Future costs could be fully repaid by increasing the contribution to the CCF by $100 million per annum (or about a 1% increase in retail prices) and paying off the scheme over a longer period. It could be fully paid by 2020 at this rate.

d) The costs of the SBS could possibly be reduced by redirecting a benefit currently accruing to retailers, and sometimes shared with SBS participants, to paying the costs of the scheme and reducing the cost impacts on all customers. An effective mechanism to implement this option has not yet been identified. The issue could be referred to IPART for review.

3. Additional options to address price drivers over the medium and longer term

a) The separation of the dual and conflicting roles of Government as owner of the businesses and policy maker could be improved by establishing an independent SOC Commission to which the business boards are accountable and which would have the responsibility for driving the businesses to deliver efficiencies within the scope of the regulatory framework. In addition, responsibility for representing the interests of consumers in pricing processes and policy decisions could be allocated to a Cabinet Minister to ensure these interests are taken into account in all policy decisions.

b) The NSW Government could advocate the establishment of a National Energy Efficiency Program and the consolidation of all existing programs in each jurisdiction to achieve benefits at more efficient costs. In NSW this could include winding back the CCF by only funding existing commitments and recovering of the costs of the SBS from the fund before closing it.

c) The NSW Government approach to setting reliability and performance standards could be reviewed so that it includes cost benefit analysis and takes account of customer preferences.

7.1 Reduce the increases in network charges

Customers will continue to experience steep price increases unless predicted increases in network charges can be eased regardless of any of the other drivers of cost increases. Two options have been identified that can reduce the extent of increases over the remainder of the current price period.

The first is for the NSW Government, as owner of the businesses, todirect them to make savings and efficiency gains so as to limit any price increases passed on to customers to a capped amount. This has implications for the operation of the regulatory framework and could compromise the commercial disciplines applied to the businesses.

A second approach is for the businesses to continue to operate within the existing regulatory framework, and consistent with the incentives in the framework, deliver efficiencies and savings over the next few years that result in improved returns to the Government. The Government can use these additional returns to provide rebates on network charges for retail customers for the remainder of the price period. This approach means that the businesses will retain the same commercial incentives any business would have to deliver services cost efficiently and increase returns to their owner, while providing scope for the Government to reduce price pressures on customers arising from network charges.

These options are outlined in the sections 7.1.1 and 7.1.2 respectively. Section 7.1.3 briefly outlines some of the strategies and levers the businesses have to deliver efficiencies under either of these options.

7.1.1 Direct distribution businesses to reduce increases in network charges

The Government, as owner of the businesses, can direct their Boards to reduce network charges. Network charges are limited by the annual allowable revenues the AER decides the businesses are able to recover from their customers. Reducing network charges means that businesses would deliberately under recover allowed revenues. The amount of under recovery could be determined such that network price increases for customers would be limited to a specified amount, for example CPI plus 5%. This provides an effective form of government control on price increases.

While it is possible for the Government to direct businesses in this way, it challenges the regulatory framework that the businesses work within. Within this framework, businesses (whether publicly or privately owned) have an incentive to improve efficiencies and manage costs so that more of the revenue they collect can be returned to their owners. Businesses are generally not acting commercially if they do not recover the full amount of revenue they are reasonably able to collect. In the case of network businesses, this amount is regulated taking into account the efficient costs of the businesses. The Boards of the businesses are obliged to act in the commercial interests of the business which generally means recovering the maximum revenue allowed and operating the business to maximise the proportion of this returned to their owner.

In NSW, where businesses are publicly owned, the legislative and commercial framework applied to State Owned Corporations aims to mirror the incentives facing any private sector business. If the NSW Government issued a direction to under-collect revenue, it introduces a non-commercial discipline into the regulatory framework inconsistent with what the framework is designed to achieve. It may also, perversely, limit the benefits delivered to customers as the businesses would not have incentives to achieve efficiencies other than those required to meet the imposed cap on prices. The Government's intervention would effectively be a new layer of regulation that over-rides the AER's processes and replaces the efficiency incentive mechanisms built into its determinations.

7.1.2 Provide rebates to electricity customers

An alternative to the NSW Government issuing a directive to businesses to reduce network charges is to provide a Government rebate for network charges. Under this scenario, the NSW Government could allocate a portion of the dividends and other revenue streams it derives from the network businesses to reducing the impact of price increases on customers.

The rebate could be designed in various ways. For example, the Government may choose to rebate 10% of the network charges for each customer which is equivalent to about a 5% reduction in retail prices. Alternatively it may determine a limit on retail price increases such as CPI plus 5% and provide a rebate to cover any difference between this amount and the regulated prices standard retail businesses are allowed to charge. This latter approach is more complex as it would need to account for non-network drivers of price increases and may distort competition in the retail sector if it cannot be applied equitably to all customers whether on regulated or non-regulated tariffs.

If the rebate is applied to all customers, approximately $100m (of the businesses $5b in total revenue) would be required for each percentage point decrease in retail price in 2011/12. If the rebate was targeted at “small” customers only, some $50m would be needed for each percentage point decrease in retail prices. Small customers are those who consume less than 160MWH of electricity each year. An average household consumes about 7MWH, hence applying the rebate to small customers would capture households and most small businesses. Whether or not to target the rebate in this or any other way is a policy question for government.

Any use of funds to rebate electricity customers is a draw on the Government’s consolidated revenue. This strengthens the incentive for the NSW Governmentto work with the businesses to maximise efficiencies and the amount of revenue paidto Government. Any returnsthat exceeds the amount a business would return to its owner if it performed in line with the regulatory allowances could be available for Government to apply to reduce the impact of price increases on customers. This option avoids compromising the regulatory framework and commercial disciplines of the business.

Despite the intent to mirror the commercial incentives of a privately owned business, there will always be differences in the effectiveness of a regulatory framework applied to private and government owned businesses because of these and other incentive factors.

To strengthen the regulatory model and the effectiveness of the regulatory framework for government owned businesses, it is proposed (and detailed further in section 7.3.1) that an independent SOC Commission is established. The Commission’s focus would be to oversee the governance and efficient and effective operations of the businesses and, hence the returns to Government within the relevant regulatory framework. This more effectively separates commercial aspects and business efficiencies from any policy considerations of the Government including issues related to price impacts.

Separate to the Commission, a Cabinet Minister or Ministers, for example the Minister for Consumer Affairs and the Minister for Energy, could monitor the impacts on customers of proposed price increases and Government policy decisions. These Ministers’ scope of responsibilities should include representing the interests of customers in pricing determination processes including by making submissions to the regulator on the effects that allowing increased revenues will have on customers in NSW. This will mean Cabinet is able to carefully deliberate on any proposals that have impacts on electricity consumers, anticipate the cumulative effects on prices of all decisions and represent the interests of consumers in pricing processes.

7.1.3 Examine options for businesses to deliver efficiencies

The businesses provided information to the Inquiry that indicated increased returns could be provided to the Government in various ways and that there was scope to deliver these returns within the current regulatory period. These are outlined briefly below. If the option presented in 7.1.2 is adopted, it is possible that these options for increasing dividends in combination could be used to generate additional dividends that would fund a rebate to all customers equivalent to a 3 or 4 per cent reduction in retail prices. The proposed SOC Commission, if established, could work with businesses to drive these initiatives.

Reducing operating expenditure

Increasing operating efficiencies and achieving savings sustainably over the regulatory price period increases dividends in the current period and also allows the businesses a share of the costs savings in future regulatory periods.

The regulatory framework is designed to reward sustained decreases in operating expenditure below the allowed revenue determined by the AER. This means there is little risk to businesses of being penalised for reducing costs below their allowance in the next regulatory period if they deliver consistent and sustainable savings by establishing a lower cost structure. In fact, they are more likely to benefit under the efficiency benefit sharing scheme.

Conversely, businesses will potentially be penalised if they overspend or deliver one-off savings early in a determination period that cannot be sustained in future years. The scheme allows businesses to retain around 30% of efficiency gains or losses against a benchmark level for five years after the gain or loss is made and to pass on the remaining 70% to customers through price adjustments.[43]

Integral Energy advised that it has been able to achieve a lower underlying cost structure as part of focussed management initiatives and delivering on the objectives of the NSW Wages Policy. This is supported by data on wages growth for the last two years (see Figure 5.4) which show that Integral Energy has been able to slow the rate of growth in operating expenditure. It projects that it will underspend its allowed operating expenditure revenue for the remainder of the price period in line with the incentives of the regulatory framework.

Some opportunities for reducing operating expenditure that could be considered by each business include:

- applying the Government's wages policy effectively to achieve productivity improvements
- managing increases in overtime which is projected to grow for some businesses (including by 100% for EnergyAustralia in 2010/11)
- restricting projected increases in the number of staff over the price period.

Deferring or reducing capital expenditure

The businesses all have large programs of capital expenditure for the remainder of the price period and provided information about the likelihood of being able to defer or reduce the size of these programs. There appears to be only limited scope to do this. They advised that capital expenditure is close to fully committed for the remainder of the current price period. In addition, the savings resulting from reduced capital expenditure only have an incremental impact on dividends returned to

[43] AER (2010) State of the Energy Market 2010, p. 57.

government in the short term as the costs of capital expenditure are recovered over the life of relatively long-lived assets.

This means, paradoxically, that a sudden large decrease in a capital expenditure program can sometimes lead to increased revenue requirements in the short term. This is because staff may shift from capital programs to operational areas. Since operational expenditure is recovered on a one for one basis, this may result in an increase in the revenue required to meet the operational costs in the short term despite the reduction in capital expenditure.

Integral Energy has advised that it has been able to reduce expenditure in the early years of the AER determination by re-phasing its capital program which it believes will relieve some pressure on retail prices in the early years of the current pricing period. TransGrid has also advised it was able to pay additional dividend to the Government through deferring some of its capital expenditure as well as implementing operational efficiencies. It already expects to pay a total of $70m in additional dividends and income tax equivalent payments over the price period as a result of outperforming the efficiency targets set by the AER.

EnergyAustralia advised it is able to reduce capital expenditure over the AER determination period by about $425m or 5% of its total allowed capital program by achieving efficiencies. This saving reduces the forecast interest expense and strengthens the capital ratios in EnergyAustralia's Statement of Corporate Intent commercial targets.

Increasing borrowings

As capital expenditure requirements of the businesses are funded from debt (borrowings) or equity, the more debt funding is used the less equity funding is required and therefore less revenue needs to be recovered (the cost of debt is less than the cost of equity).

Debt to equity ratios are constrained by financial cover requirements imposed on the businesses by NSW Treasury.

During 2010/11 all the distribution businesses will reach a debt to equity ratio at least 9% higher than that assumed by the AER in its determination (60/40). They are also likely to further increase debt relative to equity given historically high levels of expenditure in the forward capital program.

Despite this, it may be possible for some businesses to lever their gearing ratios to lower their overall revenue requirements during the current determination period. For example, TransGrid advised that it currently has a relatively low 50% ratio although this will increase with its planned capital expenditure program for the remainder of the period. In contrast, EnergyAustralia's forecast gearing ratio is over 80%. It has strategies in place to manage the associated financing risks.

7.2 Spread and share the costs of the Solar Bonus Scheme

As outlined in section 5.2.1, the recovery of costs for the SBS is expected to spike in 2011/12 if businesses recover all the costs of the scheme for 2009/10, 2010/11 and 2011/12 over 2011/12. Country Energy customers will be the worst affected by these price increases.

There are several possible ways to reduce the short term impact on customers. Depending on the option implemented, the price impact in 2011/12 could be completely eliminated and a modest increase in prices imposed from 2012/13 to recover the remaining costs of the scheme over the period to 2020.

Each of the options outlined below mean customers bear nearly all of the costs of the scheme whether directly or indirectly but any potential price spike will be very significantly reduced.

The preferred option (outlined in 7.2.3) involves consolidating funding of the SBS with the CCF to reduce the combined costs of both schemes for customers. Available funds from the CCF supplemented with a contribution from the NSW Government's consolidated fund would cover the costs of the first 18 months of the scheme. Businesses would then start to recover each year's costs retrospectively. That is costs incurred in 2011/12 would start to be recovered in 2012/13 and so on. An additional contribution of approximately $100m to the CCF from distribution businesses (and recovered from customers) would be imposed from 1 July 2012/13. This would result in a 1% increase in retail prices for customers from 1 July 2012/13 and mean that the full costs of the scheme are recovered by 2020. The impact would be even across customers in all supply areas.

7.2.1 Recover costs retrospectively to smooth the price impact

Distributors have the option of recovering 30 months of costs of the SBS in one 12 month period from 1 July 2011/12. Alternatively, costs could be recovered from customers retrospectively.

This means only the costs incurred from 1 January 2010 to 30 June 2011 would be recovered in 2011/12. This amounts to about $170m and would reduce the predicted increases for the SBS cost component for each business by over 60% in 2011/12 so that the maximum increase attributed to the SBS would be about 4% in Country Energy's supply area. It would be between 2 and 3% in EnergyAustralia's and Integral Energy's supply areas.

In 2012/13 an additional increase of between 1.5 and 3% would be imposed depending on the customer's supply area. These combined increases would be retained in prices until 2017/18 until the scheme ends and the final year's costs are recovered.

No cost savings would be achieved and the scheme would be fully funded by customers along with all other sustainable energy schemes they fund through electricity pricing. Country Energy customers would bear the major portion of the costs of the scheme and be worst affected by price increases.

Businesses may incur some additional costs by carrying the costs of the scheme over to the next 12 month period which would have a small impact on dividends returned to Treasury.

7.2.2 Spread the costs of the SBS proportionately across the businesses

Country Energy has experienced a much higher take-up of the scheme than the other businesses hence its customers are affected disproportionately by its cost.

The scheme is a NSW Government initiative designed to benefit all of NSW by reducing greenhouse gas emissions, promoting the development of a solar industry in NSW and reducing demand for electricity supplied from the grid. It was not designed to be targeted at any one customer group.

On this basis it is arguably equitable to spread the costs of the scheme equally across all NSW electricity customers.

If the costs are not funded from other sources, this would at least have the effect of reducing the cost of the scheme for Country Energy customers while increasing the cost of the scheme for Integral Energy and EnergyAustralia customers by a lesser amount.

In order to implement these changes, an external fund would be required to recover funds from, and pay out funds to, the network businesses to achieve an even distribution of costs. This would be consistent with the requirements of the National Electricity Rules, and does not require any changes to the legislation establishing the SBS.

It is estimated that this would result in even increases across the businesses of a total of 5% per annum (ignoring the possible up front spike) if the costs are recovered over the life of the scheme. If 30 months of costs were recovered in 2011/12 the increase is likely to be between 7 and 8% for all customers in 2011/12 followed by a smaller decrease in 2012/13.

As for the option outlined in 7.2.1, customers would fully fund the scheme and no overall costs savings would be achieved.

7.2.3 Consolidate recovery of costs with funds available from the CCF

This option involves reducing the overall costs of the SBS by redirecting any uncommitted funds in the CCF to the costs of the SBS. The Department of Environment, Climate Change and Water has advised a maximum of $116m will be available from the CCF to meet these costs in 2011/12.[44] If this amount is supplemented by a NSW Government contribution of $55m the price impact of the first 18 months of the scheme could be completely eliminated for customers. The scheme costs are expected to be about $300m per annum in subsequent years until it ends on 31 December 2016.

If the remaining costs of the scheme are recovered retrospectively and all available funds from the CCF are used each year, these costs could be met in full by increasing contributions from the distribution businesses to the CCF by about $100m from 2012/13. This is equivalent to about a 1% increase in regulated retail tariffs for customers. The costs of the scheme would be fully recovered, including interest payments for carrying over unpaid amounts from year to year, by 2020 if this option were implemented.

This extends recovering the costs of the scheme for several years beyond the scheme's 31 December 2016 end date. This could be justified on the basis that solar panels have a 20 to 25 year life and will be delivering greenhouse gas savings over this extended period so it is reasonable to recover their costs over that time.

A number of permutations of this option could be considered. For example, to recover the costs fully within 12 months of the close of the scheme (2017/18), the additional CCF contribution would be about $190 million rather than the proposed $100 million and would result in increased prices of nearly 2% in 2012/13 rather than 1%. Further, additional increases would be necessary if there was no up-front contribution from the NSW Government. However, full recovery of costs by 2020 and maximising the contribution of the CCF with a modest upfront contribution from NSW Treasury will minimise the impacts on customers.

The advantage of using the CCF to recover costs is that it will automatically spread the impact of the costs of the scheme across the customers of all the three businesses. This is because funds are paid in to the Climate Change Fund by each business on a proportional basis. However, funds could be paid out to the businesses on the basis of the actual costs they incur in relation to the SBS which would prevent a disproportionate impact on Country Energy customers.

Any of these permutations would ideally involve progressively winding down the CCF to reduce the increases sustainable energy schemes are contributing to prices. Only current contracted

[44] This appropriately excludes any funds contributed to the CCF by water customers.

commitments and the costs of the SBS would be funded from the CCF from 2011/12. Once SBS costs are recovered, this component of electricity prices could be completely eliminated. This is further discussed in relation to NSW advocating the rationalisation of these schemes and replacing them with a more cost effective national mechanism in section 7.3.2.

7.2.4 Investigate whether additional benefits to retailers and SBS participants can be redirected to reduce impact on all customers

Retailers are able to gain financially from the design of the SBS and some share this gain with SBS participants. The flows of money between distributors, retailers, the Australian Energy Market Operator (AEMO) and customers are complex. However, one option is to investigate whether this gain can be returned to all customers rather than just SBS participants to ease price impacts of the SBS.

SBS participants who are net consumers from the grid are billed for the full amount of their consumption but also receive the feed-in-tariff rate for all electricity they generate. The retailer benefits because it is able to collect the full tariff on gross consumption but is only required to pay AEMO on a net consumption basis. The retailer therefore earns the wholesale energy cost component of the tariff on the generated solar power. Some retailers share this benefit with the SBS participant by offering a premium, commonly 6 to 8 cents on the feed-in-tariff in addition to the 60c or 20c/kWH (depending on when a customer joined the scheme) that distributors currently fund. EnergyAustralia and a number of second tier retailers offer the premium. Integral and Country Energy currently do not.

This benefits the SBS participant but comes at a cost to all other customers.

If an SBS participant is a net generator, the retailer can earn ‘additional revenue’ by having the spot price for the difference between generation and consumption credited to its account. The retailer is able to offset the amount of electricity it would otherwise have to purchase through the market by the electricity generated by the PV panels and fed into the grid with the actual benefit dependent on the hedging arrangements the retailer has in place.

Theoretically additional benefits could also accrue as a result of lower network charges paid to transport the electricity and the reduced losses from shorter transport distances. However, this benefit is likely to be at least partially offset by the additional costs distribution businesses face for managing the variable voltage from SBS participant premises.

Options for redirecting this additional gain by retailers and SBS participants could be explored to determine whether the overall price impact of the scheme can be reduced for all customers. The ACT Government has implemented an approach that recognises the benefit to electricity retailers of the avoided cost of power. Retailers in the ACT are required to contribute an amount determined by the Minister that approximates the savings retailers are able to make by avoiding purchases of electricity from the National Electricity Market. This is currently set at 6c/kWh.[45]

It is not clear whether regulatory mechanisms are available to effectively implement this approach in NSW. Based on the premium retailers currently offer some SBS participants, it may have the potential to reduce the costs of the scheme that are funded by distribution businesses (and ultimately customers) in the order of about 10%. However, if this amount is recovered, it is likely it could only be recovered prospectively and not for the first 18 months of the scheme (1 January 2010 to 30 June 2011).

[45] ICRC, Electricity Feed-in Renewable Energy Premium: Determination of Premium Rate” Final Report, March 2010, p.4

Recovering this amount would come at the expense of retailers and any customers they currently share the benefit with and it may be difficult to wind back.

If it proves possible to capture this benefit and apply it to the costs of the scheme, it could reduce the payback period for the scheme for customers and reduce any additional amount they are required to contribute.

It is proposed that further exploration of this option is referred to IPART after legal advice is obtained on whether an effective legal mechanism is available to implement it.

7.3 Additional options to address drivers of price increases over the longer term

The proposals outlined in sections 7.1 and 7.2 are short term options which the NSW Government can consider that have the potential to relieve pressure on electricity prices from 1 July 2011 and over the remainder of the current price period. However, these measures do not address some of the key drivers of the increases that have been identified. These include the high rate of growth of capital and operating expenditure, the dual roles of the NSW Government as owner and policy maker as well as the growing cost of sustainable energy schemes.

The following sections include additional suggestions that the NSW Government could consider to manage the growth in capital expenditure and to provide incentives to drive the longer-term efficiency of the businesses as well as ensure the cost of future sustainable energy schemes are efficient. If not managed effectively, ongoing increases in network costs will compound the effects of the other less predictable as well as the controllable factors that are likely to influence future electricity prices.

7.3.1 Increase the separation of dual roles of government by establishing an independent SOC Commission

The existing regulatory framework applies to both the privately owned monopoly network businesses that exist in some jurisdictions (such as Victoria) and government owned businesses (or SOCs) in other jurisdictions including NSW. The framework aims to mirror the commercial environment a privately owned business would experience in a competitive environment.

The dual roles of government as owner and policy maker mean that adjustments will always be needed to ensure the that the same regulatory framework operates as effectively for government owned businesses as private businesses. It is in the interests of government owners to make these adjustments to maximise the efficiency of the businesses and to facilitate sound policy decisions.

One way to achieve this as outlined briefing in section 7.1.2 is to increase separation of the ownership and policy roles within the NSW Government. Currently NSW Treasury plays a large part in both roles as well as managing the state's budget which uses the revenue generated the businesses.

An independent SOC Commission could be established to act as the 'owner' of the business. Its role would be to oversee the governance of the businesses and drive efficiencies to maximise returns to the owner within the regulatory framework while responding to customer demands for services. Its interests would be commercially driven and separate from the Government's role of managing the state's budget.

The Boards of the businesses would be appointed by the Government on the recommendation of the Commission and be accountable to the Government through the Commission. The businesses'

Statement of Corporate Intent (SCI) would be between the businesses and Treasury as well as with the Commission.

The SOC's have two shareholder Ministers, the Treasurer and one other. The SOC Commission should report to the other shareholder Minister so that there is a clear separation from the Treasurer's budget oversight responsibilities.

The policy function should be overseen by another Cabinet Minister or Ministers. It is suggested that the Minister for Energy and a Minister for Consumer Affairs have joint responsibility. The Consumer Affairs Minister's special focus would be the impact on customers of the Government's decisions. This would help the NSW Government to anticipate price pressures on customers and to ameliorate these impacts if necessary. This is particularly important in the current climate of increasing prices and the impacts this is having on households and businesses.

The scope of these Ministers' roles could also include representing NSW consumer interests in the regulator's price setting processes, for example, by making submissions to the regulator. Responsibility for the regulation of distribution charges transferred from IPART to the AER on 1 January 2008. One of the consequences of this change is that the regulator may not have the same connection with, and focus on, those affected by a decision in a particular jurisdiction. Its capacity to establish this connection may also be limited by its own operational constraints and the national rules it works within. It is therefore important that the interests of NSW consumers are represented in these processes.

7.3.2 Advocate the establishment of a national energy efficiency program

Various Commonwealth and State government initiatives aimed at promoting energy efficiency are driving a substantial increase in the proportion of costs these schemes contribute to final prices. This proportion is expected to grow to at least 7% of final prices in NSW within the next two years and will be comparable to the amount transmission charges contribute to prices.

The incentives provided by some of the schemes overlap and some are specific to particular technologies. For example the Commonwealth's RET provides specific incentives for small scale solar generation through saleable credits generated by these systems that customers can use to reduce the cost of their solar panels. These customers also benefit from the SBS in NSW and other feed-in tariff schemes in other States. This results in subsidies for some of the more expensive options for achieving efficiencies and reducing greenhouse gases.

Other schemes such as GGAS are market based and less selective about how efficiencies or greenhouse gas reduction are achieved but rather, are designed to facilitate a least cost outcome.

There are also recent examples of the inefficient administration and roll-out of these schemes in some jurisdictions resulting in higher costs than anticipated with adverse impacts for customers and criticism of government's delivery.

Various incentives are also targeted at demand management. Effective demand management can have the dual effect of reducing customer bills in the short term through increased energy efficiency and, over time, relieving peak demand and reducing the expenditure needed to supplement the network. However, demand management programs in Australia have not been demonstrably effective at a large scale. As described in 5.1.3, peak demand drives a large component of capital expenditure and it is forecast to continue to grow at a consistent rate.

A strategic review of Australian Government climate change programs found that there are too many programs, many of which are ad hoc or poorly targeted, and that there is no framework that establishes them as a coherent set of policies.[46] It concluded that the programs are a result of multiple decisions with no clear strategic approach to policy and without a commitment to least cost mitigation.

The Review proposed that the Australian Government establish a National Energy Efficiency Program into which existing programs, including demand management programs, would be consolidated and as necessary, refocussed.[47] It suggested that any Government assistance to households and businesses in making decisions to improve their energy efficiency should be broad based and technology neutral and replace existing technology-specific programs.

The current policy of the Commonwealth Government is to develop a mechanism for introducing a carbon price. A complementary initiative would be to establish a national energy efficiency program.

If effectively designed, this initiative could reduce costs by rationalising all existing schemes across jurisdictions and operating a single national and largely market based scheme. It would have the dual effect of reducing the costs of, and increasing the benefits derived from, energy efficiency initiatives as well as reducing demand on electricity networks. This would have the effect of putting downward pressure on the network components and sustainable energy components of electricity prices.

In the interim, NSW could rationalise its own schemes. As proposed in section 7.2.3, this should at least involve planning the wind down of the Climate Change Fund which is funded by electricity customers. Although, it is proposed it is used to fund the unavoidable costs of the SBS, it could be decided that no new initiatives or extension of existing initiatives are funded from the scheme.

In the absence of a national program, the continuation of all other NSW schemes funded by electricity customers could be assessed and wound back or redesigned as necessary.

7.3.3 Review approach to setting reliability and performance standards

An outcome of the 2010 review of reliability and performance standards was to recommend a further review of the approach to developing standards in NSW. This review is expected to take place in 2011 and will include both transmission and distribution standards.

The review should include close consideration of how cost benefit analysis can be included in future standard development processes so that the standards take into account customers' expectations about both the standards and costs of services. Customers should have the opportunity to participate in weighing up the benefits of higher levels of reliability and the related costs including the costs associated with the probability of service failures if reliability is not improved. This aspect could be the responsibility of the Minister for Consumer Affairs. Further, any proposals should also be evaluated against the National Electricity Objective.

[46] Roger Wilkins (2008) *Strategic Review of Australian Government Climate Change Programs*, 31 July 2008, Commonwealth of Australia 2008, Department of Finance and Deregulation, p. 1.
[47] Ibid, p. 100.

Appendix 1: Inquiry Terms of Reference

Objective

The objective of the inquiry is to gain a better understanding of the options for the Government to reduce or defer network charges for NSW customers during the current network determination period (2009/10 to 2013/14). These price reductions would take effect from 2011/12, due to regulatory timeframes for price changes.

Scope and Deliverables

The inquiry is limited to examining the annual revenue requirements of the network businesses, that is the three NSW distribution network service providers (DNSPs), (EnergyAustralia, Integral Energy and Country Energy), and the transmission business (as well as the transmission assets of EnergyAustralia) from 2011/12 onwards.

In examining the annual revenue requirements of the network businesses, committed capital projects should be excluded. For the purposes of this inquiry, committed capital projects include projects which have been commenced or which have binding contracts in place at the time of the inquiry's commencement.

The retail and wholesale components of retail prices for small customers on standard contracts, which are regulated by IPART under its 2010-2013 Determination will not be examined as part of this inquiry.

The inquiry is to produce the following deliverables:

- A range of options on how reductions or deferrals in the proposed increases can be achieved by reducing the annual revenue requirements of the network businesses from 2011/12 onwards,

- A recommendation on:

    1. The most appropriate option/s to achieve the objective; and

    2. Any necessary actions required to be undertaken by the network businesses, the NSW Government, or both, to address the identified impacts associated with the recommended option/s.

The inquiry will need to consider the distribution network pricing regulatory framework implemented by the Australian Energy Regulator under the requirements set out in the National Electricity Law. This includes taking into account any timeframes and criteria (eg the materially threshold) for determination resets and pass through events.

Responsibilities and Timeframes

The inquiry will be led by Dr Tom Parry and Mr Mark Duffy, who will report directly to the Minister for Energy. Dr Parry and Mr Duffy will work in conjunction with appropriate representatives from the Department of Premier and Cabinet, NSW Treasury and Industry and Investment NSW, and within the allocated budget to employ external consultants to conduct and coordinate the inquiry.

The inquiry will require the cooperation of each of the network businesses.

A draft report will be provided to the Minister for Energy by 30 November 2010, followed by a final report by 31 December 2010. The timeframes may need to be adjusted to meet the requirements of any regulatory timetables in order for any identified cost reductions to be passed through to customers from 1 July 2011.