AEMC

REVIEW

Australian Energy Market Commission

FINAL REPORT

Possible Future Retail Electricity Price Movements: 1 July 2011 to 30 June 2014

Commissioners

Pierce
Henderson
Spalding

25 November 2011

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Final Report

Inquiries

Australian Energy Market Commission
PO Box A2449
Sydney South NSW 1235

E: aemc@aemc.gov.au
T: (02) 8296 7800
F: (02) 8296 7899

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About the AEMC

The Council of Australian Governments, through its Ministerial Council on Energy (MCE), established the Australian Energy Market Commission (AEMC) in July 2005. The AEMC has two principal functions. We make and amend the national electricity and gas rules, and we conduct independent reviews of the energy markets for the MCE.

Executive Summary

The intention of this report is to provide an indication of future trends in changes to residential electricity prices and the drivers behind them.[1] It does this for each jurisdiction and at a national level. Indicative prices have been used for the base year 2010/11 and the projection period covers the three financial years from 2011/12 to 2013/14.

It should be noted that these projected prices are not the same as the regulated retail tariffs set by jurisdictional regulators and that prices are not a definite forecast of future residential electricity prices.

The projected residential electricity prices in this report:

- are for standard supply arrangements only. We understand that in some jurisdictions more than 50 per cent of customers are supplied under market arrangements; and
- assume certain consumption levels for a residential customer in each distribution area.

However, it is expected that the trends identified in this report would also apply to those customers on other supply arrangements and with different consumption levels.

Residential retail prices in this report have been projected both in the absence of, and including, a price on carbon. This is because, when our analysis commenced, there was still uncertainty as to whether, and when, a carbon pricing mechanism would be introduced. During preparation of this report, the Clean Energy Future legislation was introduced and, in early November 2011, was passed by both Houses of Parliament.

Data in this report has been sourced from existing retail pricing decisions by jurisdictional regulators and jurisdictional governments where possible. The network components have been provided by the Australian Energy Regulator based on existing network determinations and assumptions of the annual consumption of residential customers for each distribution and transmission network. Where data has been unavailable for some or all of the projection period, cost components have been estimated.

Overall electricity price increase

Over the projection period 2011/12 to 2013/14, the total increase in residential electricity prices ranges from 20 to 33 per cent in nominal terms across jurisdictions.[2] On a national level, residential electricity prices are projected to increase by 29 per cent

1 For Western Australia and the Northern Territory, future trends in the price necessary to supply electricity.

2 The exception to this trend is the Northern Territory, which is forecast to increase by ten per cent in nominal terms.

in nominal terms, which is an increase of 6.60c/kWh over the indicative base year price in 2010/11. In real terms this would equate to an increase of around 19 per cent over the projection period.[3]

Table 1 below sets out further detail regarding the drivers of expected price increases by component at a national level and for each jurisdiction. Furthermore, table 2 outlines further detail regarding the impact of a price on carbon on future residential electricity pricing trends.

Contributors to electricity price increases

Distribution

The most significant driver of the expected increase in residential electricity prices is the increasing cost of distribution services, which is expected to contribute to 42 per cent of the total increase in residential electricity prices at a national level over the projection period. The distribution component is expected to increase in most jurisdictions, as a result of both increasing levels of capital works and increases in the cost of undertaking these capital works.

Increasing levels of capital works are forecast largely to meet growing levels of maximum demand and to replace ageing assets. In some jurisdictions, higher reliability standards and increased safety requirements have also driven increases in forecast capital works.

The cost of undertaking capital works has also increased for distribution networks, as a result of higher rates of return on capital investment and increasing input costs. Rates of return on capital in absolute terms are generally over one per cent higher compared to the previous regulatory period, following the increase in debt premiums from one to three per cent in the wake of the global financial crisis.

The costs of inputs, such as, aluminium, steel and copper are expected to increase significantly over the projection period, as the commodities market recovers from the global financial crisis. Real increases in the cost of labour of over two per cent each year are also forecast in many jurisdictions over the next three years.

Transmission

Increasing levels of capital works, higher returns on capital and increases in the cost of inputs are also driving increases in the transmission component, which is estimated to contribute eight per cent of the projected increase in residential electricity prices at a national level over the projection period. This is significantly lower than the increase in the distribution component, as the combined value of the regulatory asset base of the

3 This is based on actual CPI for 2010/11, which has been sourced from the Australian Bureau of Statistics. Forecast CPI for 2011/12, 2012/13 and 2013/14 have been sourced from the Australian Government's '*Mid-Year Economic and Fiscal Outlook 2011-12*', 10 May 2011.

distribution networks is far larger than the combined value of the regulatory asset base of the transmission networks.[4]

Wholesale

An increase in the wholesale electricity component is also contributing to rising residential electricity prices over the projection period. The wholesale electricity component is projected to comprise 24 per cent of the total increase in residential electricity prices at a national level over the projection period.

There are a number of factors behind the higher allowance for the wholesale electricity component, including: changes in generation mix; higher capital costs for generators; and increasing gas prices. Jurisdictional regulators have also sought to provide retailers with an increased allowance for hedging costs to reflect both changes in load profiles and increased volatility in spot prices.[5] After 2012/13, a tightening in the supply/demand balance is also anticipated, which may further increase wholesale electricity prices going forward.

Retail

The retail component is projected to comprise 13 per cent of the total increase in residential electricity prices at a national level over the projection period.

The retail component has increased in some jurisdictions as jurisdictional regulators have provided higher allowances for customer acquisition and retention costs due to higher levels of customer switching between retailers. This increase in retail competition has served to increase the costs associated with new entrant retailers seeking market share and incumbent retailers defending their market share. The dollar value of the retail margin has also increased, with increases in other components of the residential electricity price, as retail margins are typically calculated as a percentage of the total price to supply residential electricity services.

Other

The large-scale renewable energy target component is forecast to comprise around seven per cent of the total increase in residential electricity prices at a national level over the projection period. This increase is related to the expansion of the renewable energy generation target from 1 January 2011.[6] On the other hand, the small-scale renewable energy scheme is forecast to decrease by 33 per cent in nominal terms at a national level over the projection period.

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4 In the National Electricity Market, the regulatory asset base of the distribution networks is over three times larger than the combined regulatory asset base of the transmission networks.

5 As forecast increases in maximum demand have been outstripping forecast increases in electricity consumption in most jurisdictions, load profiles have become peakier which is likely to have increased hedging costs for retailers.

6 The mandatory renewable energy target of 9,500 GWh was expanded to the renewable energy target of 45,000 GWh by 2020 from 1 January 2011.

Other components of the residential electricity price include feed-in tariff schemes and other state based energy efficiency and demand management schemes. Together these components comprise around three per cent of residential electricity prices at a national level and are not expected to have a significant impact on the total residential electricity price over the projection period in most jurisdictions.

Contributors to electricity price increases including a price on carbon

The main differences between tables 1 and 2 are the impact of a price on carbon on the wholesale electricity and retail components.

Wholesale

The inclusion of a price on carbon will have the biggest impact on fossil fuel generation (coal and gas-fired), and is expected to primarily affect the wholesale electricity component. The carbon price will impact retail prices as generators pass through the costs of compliance to retailers and retailers include them in the prices payable by consumers. Therefore, the wholesale electricity component is projected to increase by 40 per cent with a carbon price factored in (compared with 24 per cent without) in nominal terms at a national level over the projection period.

Retail

While a carbon price will not have a direct impact on the retail component (that is, retail operating costs and margins), given that the retail margin is calculated as a percentage of the total price of supplying electricity, a higher wholesale electricity component will place upward pressure on retail margins.[7] The retail component is expected to increase by 30 per cent with a carbon price factored in (compared with 26 per cent without) in nominal terms at a national level over the projection period.

Other

In respect of the large-scale renewable energy target, a price on carbon is also expected to facilitate the entry of new renewable generation into the market, since higher wholesale market electricity prices will enable renewable generators to recover a greater proportion of costs, placing counter-veiling downward pressure on the large-scale renewable energy target compliance costs for retailers.

On the other hand, the costs associated with compliance with the small-scale renewable energy scheme are likely to be slightly higher under a carbon price. This is due to the small-scale renewable energy scheme being untargeted with retailers being obliged to buy all certificates created in a reporting year, determined in accordance with their market share. Accordingly, as more certificates are created, retailers are required to buy a higher proportion of certificates to meet their liability under this scheme.

7 This is the current practice of jurisdictional regulators when calculating the retail margin, therefore this practice has been maintained in the analysis for this report.

Table 1 **The contribution of each component to possible future residential standing offer electricity price increase in the absence of a price on carbon**

	National	ACT	Victoria	Tasmania	South Australia	Western Australia	Northern Territory	Queensland	NSW
Total price comparison:									
2010/11 price (c/kWh)	**22.41**	16.19	22.86	20.75	23.99	23.99	23.76	20.69	22.75
2013/14 price (c/kWh)	**29.01**	20.47	28.87	24.82	31.47	29.43	26.12	27.36	30.27
Total c/kWh increase	**6.60**	4.27	6.01	4.07	7.47	5.43	2.36	6.67	7.51
Total % increase (2010/11 to 2013/14)	**29.4%**	26.4%	26.3%	19.6%	31.2%	22.6%	9.9%	32.2%	33.0%
By component:									
Transmission	**7.6%**	9.6%	0.1%	19.7%	12.5%	17.7%	0.0%	7.8%	7.9%
Distribution	**42.4%**	22.5%	19.0%	28.8%	46.3%	58.2%	36.3%	51.9%	45.7%
Wholesale	**24.1%**	49.9%	28.2%	35.6%	23.7%	13.5%	42.2%	27.3%	21.6%
Retail	**13.2%**	8.0%	34.4%	12.8%	1.7%	7.0%	1.1%	9.5%	7.3%
Feed-in tariff	**3.5%**	6.1%	0.9%	0.0%	7.6%	0.0%	0.0%	0.2%	7.7%
LRET	**7.3%**	8.0%	7.4%	7.2%	8.0%	9.6%	27.3%	6.5%	6.9%
SRES	**-1.1%**	-3.8%	-2.6%	-4.0%	-2.2%	-3.0%	-6.8%	-2.2%	1.9%
Energy efficiency and demand management schemes	**3.1%**	-0.3%	12.6%	0.0%	2.3%	0.0%	0.0%	-0.8%	1.0%
Other state based schemes	**-0.3%**	0.0%	0.0%	0.0%	0.0%	-3.0%	0.0%	0.0%	0.0%

Notes:

In Victoria, the entire retail margin is included in the retail component and should be treated with caution given the absence of access to data and the fact that most customers are likely to be on market contracts rather than standing offers. However, in other jurisdictions, the wholesale component may include an additional retail margin as part of the wholesale allowance provided by the jurisdictional regulators.

Jurisdictional energy efficiency and demand management schemes include: ACT - Greenhouse Gas Abatement Scheme; Victoria - Advanced Metering Infrastructure Roll-out; South Australia - Residential Energy Efficiency Scheme; Queensland - Queensland Gas Scheme; and New South Wales - Greenhouse Gas Abatement Scheme and Energy Savings Scheme. Similarly, other state based schemes include the Western Australian Tariff Equalisation Contribution.

Data sources: for most jurisdictions, data sources for each component are: wholesale - jurisdictional retail price determination and jurisdictional governments; transmission and distribution data - Australian Energy Regulator; retail - jurisdictional retail price determination and jurisdictional governments; feed-in tariffs - Australian Energy Regulator and jurisdictional governments; LRET and SRES - independent external modelling; all state based schemes - jurisdictional retail price determinations and jurisdictional governments. Further information on the data sources used and the methodology may be found in Appendix A

Table 2 **The contribution of each component to possible future residential standing offer electricity price increase including a price on carbon**

	National	ACT	Victoria	Tasmania	South Australia	Western Australia	Northern Territory	Queensland	NSW
Total price comparison:									
2010/11 price (c/kWh)	**22.41**	16.19	22.86	20.75	23.99	23.99	23.76	20.69	22.75
2013/14 price (c/kWh)	**30.75**	22.93	30.32	25.94	32.67	31.26	27.65	29.28	32.27
Total c/kWh increase	**8.34**	6.74	7.46	5.19	8.68	7.26	3.89	8.59	9.51
Total % increase (2010/11 to 2013/14)	**37.2%**	41.6%	32.7%	25.0%	36.2%	30.3%	16.4%	41.5%	41.8%
By component:									
Transmission	**6.0%**	6.1%	0.1%	15.4%	10.7%	13.2%	0.0%	6.0%	6.2%
Distribution	**33.6%**	14.2%	15.3%	22.5%	39.9%	43.5%	22.0%	40.2%	36.1%
Wholesale	**40.2%**	68.5%	40.4%	50.5%	34.8%	36.7%	68.0%	44.3%	38.3%
Retail	**12.1%**	7.1%	31.5%	11.9%	2.7%	5.9%	1.6%	8.4%	7.1%
Feed-in tariff	**2.8%**	3.9%	0.7%	0.0%	6.6%	0.0%	0.0%	0.2%	6.1%
LRET	**3.8%**	2.7%	3.8%	2.5%	5.1%	4.9%	12.4%	3.1%	3.7%
SRES	**-0.8%**	-2.3%	-2.0%	-2.9%	-1.8%	-2.1%	-4.0%	-1.6%	1.6%
Energy efficiency and demand management schemes	**2.5%**	-0.2%	10.2%	0.0%	2.0%	0.0%	0.0%	-0.6%	0.8%
Other state based schemes	**-0.2%**	0.0%	0.0%	0.0%	0.0%	-2.2%	0.0%	0.0%	0.0%
Carbon impact (c/kWh):									
2012/13	**1.65**	2.41	1.43	1.13	1.18	1.43	1.53	1.84	1.94
2013/14	**1.76**	2.47	1.45	1.12	1.21	1.83	1.53	1.93	2.03

Notes: as for table 1 above.

Contents

1 Introduction

1.1 Purpose

This report provides an indication of future trends in changes to residential electricity prices and the drivers behind them. It does this at a national level and in each state and territory in Australia over the next three financial years from 2011/12 to 2013/14 (projection period) with indicative prices included for 2010/11 as the base year.

1.2 Terms of reference

This report has been prepared by the Australian Energy Market Commission (AEMC) in response to terms of reference from the Ministerial Council on Energy (MCE), and forms the second and final report prepared by the AEMC in response to the terms of reference received.[8]

In accordance with the requirements in the MCE's terms of reference, prices in this report:

- are expressed in nominal terms and are GST exclusive;
- include both fixed and variable charges associated with residential electricity tariffs; and
- are based on a flat charge for all consumption and do not include any peak or off-peak standing offer tariffs.

8 The AEMC received terms of reference from the MCE on 17 September 2010 under section 6(b) of the *Australian Energy Market Establishment Act 2004*.

2 Methodologies and limitations

2.1 How to use this report

The intention of this report is to provide an indication of future trends in changes to residential electricity prices and the drivers behind them.[9] It does this for each jurisdiction and at a national level. Indicative prices have been used for the base year 2010/11 and the projection period covers the three financial years from 2011/12 to 2013/14.

It should be noted that these projected prices are not the same as the regulated retail tariffs set by jurisdictional regulators and that prices are not a definite forecast of future residential electricity prices.

The projected residential electricity prices in this report:

- are for standard supply arrangements only. We understand that in some jurisdictions more than 50 per cent of customers are supplied under market arrangements; and
- assume certain consumption levels for a residential customer in each distribution area.

However, it is expected that the trends identified in this report would also apply to those customers on other supply arrangements and with different consumption levels.

Residential retail prices in this report have been projected both in the absence of, and including, a price on carbon. This is because, when our analysis commenced, there was still uncertainty as to whether, and when, a carbon pricing mechanism would be introduced. During preparation of this report, the Clean Energy Future legislation was introduced and, in early November 2011, was passed by both Houses of Parliament.

2.2 Factors to consider when reviewing prices in this report

Source data

Calculations and modelling of the retail price components in this report have been based, where possible, on data sourced from existing retail price determinations that have been made by jurisdictional regulators. Similarly, data in relation to the network price components has been provided by the Australian Energy Regulator for this report based on existing network determinations. The network components are based on the Australian Energy Regulator's assumption of the annual consumption of a customer for each distribution and transmission network area. These residential

9 For Western Australia and the Northern Territory, future trends in the price necessary to supply electricity.

consumption assumptions may be found in Appendix B. . Data for Western Australia and the Northern Territory has been sourced from jurisdictional governments and regulators.

Where data has been unavailable or incomplete for some or all of the projection period, existing data series have been extrapolated based on trends in the movement of the relevant pricing components, and a number of assumptions, as contained in Appendix A.[10]

Contracts and prices

Residential electricity consumption comprises approximately 29 per cent of total electricity consumption in Australia, with most electricity being consumed by the commercial, manufacturing and mining sectors.[11]

In terms of the residential electricity contract market, in jurisdictions where the retail market has been deregulated (that is, open to full retail competition), residential customers have the choice of being supplied under 'standing offer' contracts or a 'market' contracts.[12]

Depending on the market arrangements, some or all of the retailers operating within a state or territory may be required to offer contracts of supply to small customers that are located within their designated supply areas. Customers that meet certain requirements (this generally includes customers (residential and small business) that are within a specific threshold of consumption) will have a right to be offered supply under such contracts. These types of contracts are currently referred to variously as 'standing offer contracts' or 'standard contracts.'

Standing offer contracts generally refer to retail supply contracts, the terms and conditions of which must be approved by the relevant regulator. Prices for these contracts may be set by the retailer or, where retail price regulation is still in place, by the relevant regulator, and are usually published.

Market contracts are also referred to as 'negotiated contracts' and, compared to standing offer contracts, the key difference is price and in some cases other incentives (such as, magazine subscriptions).

The proportion of residential customers that are being supplied on standing offer contracts compared to market contracts differs in each jurisdiction, and depends on

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10 A full summary of the data sources and methodologies employed in compiling this report is provided at Appendix A.

11 A Schultz and R Petchey, Australian Government – Australian Bureau of Agricultural and Resource Economics and Sciences, *Energy Update 2011*, June 2011, p. 5.

12 For the purpose of this report, a standing offer contract pertains to the regulated tariff calculated by the jurisdictional regulator in those states where retail price regulation remains (Queensland, New South Wales, Australian Capital Territory, Tasmania and South Australia). In Victoria, the standing offer contract has been calculated as the weighted average of the published/documented offer for the three main retailers in each of the five distribution areas.

such factors as the introduction and extent of retail competition (measured by the level of customer churn) in a jurisdiction.

With the exception of Victoria, the standing offer contract price for all jurisdictions is regulated by jurisdictional regulators or governments. This has made the estimation of the individual pricing components for Victoria difficult, as no ready approximate breakdown exists.

Price modelling in this report is specifically limited to residential electricity retail prices for standing offer electricity contracts only, and does not cover market offer prices. While clearly many residential customers receive supply under market offer rather than standing offer contracts, information on the split between these two groups is not reported by retailers.

For example, in Victoria most residential customers are on market contracts and are supplied electricity at rates that can be ten to 20 per cent lower than published standing offer contracts. Therefore, the residential electricity prices outlined in this report may not be representative of the actual prices applying in Victoria and should be treated as such.

The price movements modelled should however, be adequate to provide a general indication of the movements expected of residential electricity retail prices, regardless of contract type, under the assumptions that have been made.

Pass-throughs

Despite standing offer contract prices being determined by jurisdictional regulators in most jurisdictions, there is also the potential for standing offer contract prices to vary over the projection period due to the pass through of unexpected costs from one or more of the various components. Also, this report has not accounted for the effect of recent natural disasters, which may affect the future price of network services in some jurisdictions.

Pricing methodologies

There is currently no uniform methodology that is applied by all regulators in setting the wholesale electricity and retail allowances, with each jurisdictional regulator having developed its own methodology over time.

The methods that have been used to classify different types of network expenditure by the network businesses in their regulatory proposals to the AER are also different for each distribution and transmission business.

These differences in methodology result in different outcomes across the jurisdictions. Variations also exist in terms of jurisdictional energy profiles and consumption, supporting infrastructure and associated investment, and the underpinning policy and regulatory environments. These represent just some of the factors that influence the

level and change in pricing components and the total residential price across different jurisdictions.

As jurisdictional regulators apply different methodologies in making their retail electricity price determinations, the pricing outcomes in each jurisdiction can differ. Many other factors such as jurisdictional energy profiles, the generation mix, the supporting infrastructure and associated investment, and the underpinning policy and regulatory environments, also contribute to the level and change in cost components and the total residential electricity price across different jurisdictions.

Outline of the rest of this report

Chapter 3 outlines each of the pricing components and the possible drivers in retail electricity price movements relating to each of these components. The chapter concludes with a summary of national weighted average residential electricity prices over the projection period.

Chapter 4 provides a summary for each state and territory in Australia. Each summary includes:

- a bar graph at the beginning of each section showing the projected price movements over the individual financial years of the projection period in the absence of, and including, a price on carbon;
- a table that outlines the nominal increases in each pricing component in the absence of a price on carbon and an explanation of the possible drivers;
- a table that outlines the nominal increases in each pricing component including a price on carbon and an explanation of any changes; and
- a table that shows the possible impact of a carbon price on residential electricity prices.

A summary of the data sources and methodologies that were used in compiling this report is contained in Appendix A.

Appendix B provides a summary of the likely residential electricity prices by distribution area and the possible bill impact for a customer consuming the statewide average annual amount of electricity.

3 Projected trends in the movements of residential electricity price cost components

This section provides an overview of the projected trends in movement of the cost components of residential standing offer electricity prices over the projection period.

3.1 Retail electricity components

The retail electricity price that consumers see on their bill is made up of a number of different, and independent, components. The main components of Australia's residential electricity price and the relative contribution/share of each component to total residential electricity price for the year 2013/14, both with and without a price on carbon, is shown in table 3.1 below. The purpose of this table is to show the relative changes in the proportions of the components, with and without a carbon price, and whether a component becomes more or less important.

Table 3.1 Contribution at a national level of each component over the projection period and the relative share of each component to the total residential price

	National percentage contribution to price change over the projection		Share of residential electricity price in 2013/14 no carbon			Share of residential electricity price in 2013/14 with carbon		
By component:	No carbon	With carbon	National	Lowest state	Highest state	National	Lowest state	Highest state
Transmission	7.6%	6.0%	**7.7%**	0.0%	17.6%	**7.3%**	0.0%	16.9%
Distribution	42.4%	33.6%	**38.4%**	24.1%	47.6%	**36.3%**	22.9%	44.7%
Wholesale	24.1%	40.2%	**32.2%**	27.0%	61.0%	**36.1%**	32.3%	63.8%
Retail	13.2%	12.1%	**14.6%**	1.3%	27.5%	**14.2%**	1.4%	27.1%
Feed-in tariff	3.5%	2.8%	**0.9%**	0.1%	4.3%	**0.8%**	0.1%	4.1%
LRET	7.3%	3.8%	**2.4%**	2.2%	3.4%	**1.8%**	1.6%	2.4%
SRES	-1.1%	-0.8%	**0.5%**	0.5%	0.7%	**0.5%**	0.5%	0.7%
Other state based schemes	2.8%	2.2%	**3.3%**	0.3%	6.2%	**3.1%**	0.2%	5.8%

Note: the national percentage contribution over the projection period relates to the relative contribution of each component to the overall projected price increase at the national level. The share of residential electricity price columns are all for the year 2013/14 and denote the national average and the highest and lowest share of each component from analysis of all the states and territories of Australia.

As can be seen from table 3.1, the proportion of each cost component varies by jurisdiction, depending on the generation fuel mix, the level of capital investment being undertaken by the network businesses, and the nature of any relevant jurisdictional policies and programs, among other factors. Changes in each of these components will contribute to movements in future possible residential standing offer electricity prices.

Further detail on the changes and drivers of these cost components is set out in chapter 4, under the individual states and territories.

Impact of a carbon price

In the absence of a carbon price, it is expected that large renewable energy target (LRET) compliance costs for retailers would be higher, as the certificate price needed to underpin viability of large-scale renewable projects would be higher. Economic modelling suggests that without a carbon price, insufficient renewable generation may

be built to meet the 2020 target, with RET-liable electricity retailers preferring to pay the prescribed charge rather than the higher certificate prices needed by renewable energy investors. These costs are likely to be passed on to consumers.

The inclusion of a price on carbon will have the biggest impact on fossil fuel generation (coal and gas fired), and is expected to primarily affect wholesale electricity costs. The carbon price will impact retail prices as generators pass through the costs of compliance to retailers and subsequently retailers include them in the prices payable by consumers.[13]

While a carbon price will not have a direct impact on retail costs (that is, retail operating costs and margins), given that in deriving their regulated retail prices, states and territories calculate the retail margin as a percentage of total costs, higher wholesale electricity costs will place upward pressure on retail margins.[14] However combined with the operation of the enhanced RET, a price on carbon is also expected to facilitate the entry of new renewable generation into the market, since higher wholesale electricity prices will enable renewable generators to recover a greater proportion of costs, placing counter-veiling downward pressure on LRET compliance costs for retailers.

On the other hand, the costs associated with the small-scale renewable energy scheme (SRES) compliance are projected to be slightly higher under a carbon price.

Unlike the LRET, the SRES is an untargeted scheme and retailers are obliged to buy all certificates created in a reporting year, determined in accordance with their market share. Accordingly, as more certificates are created, retailers are required to buy a higher proportion of certificates to meet their liability under this scheme.

Under the Solar Credits multiplier, owners of small scale renewable installations are able to receive additional certificates for every MWh of eligible renewable energy deemed to be generated over a nominal system lifetime (for example, 15 years for solar photovoltaic systems). This mechanism operates on a sliding scale which reduces the additional number of certificates that may be created each year until 1 July 2013, when it will cease and after which only one certificate will be received for each MWh of deemed generation for eligible installations.

The Solar Credits multiplier has helped drive high demand for the early installation of eligible small scale generation, with owners seeking to sell the additional certificates to recoup their investment and installation costs. Jurisdictional feed-in tariff schemes have also contributed to this short term high demand for small scale renewable installations, as they provide additional financial incentives on top of the incentives provided under the SRES for the renewable electricity that is generated.

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13 However, it is noted that, under the Australian Government's carbon price package, many households will receive some combination of tax cuts and subsidies to aid in any cost of living (including electricity price) impacts.

14 It is unclear at this stage whether jurisdictional regulators will pass-through the increased wholesale electricity component in the retail margin. In following with current practice, our projections have included the increased wholesale electricity component in the retail margin.

In the short term, as the incentives for small scale renewable installations under both the SRES and jurisdictional feed-in tariffs fall over time (as the solar credits multiplier ceases and feed-in tariffs reach their cap), this will result in lower SRES compliance costs for retailers and consumers.

However, under a carbon price from 2013/14 and possibly beyond, a small increase in SRES compliance costs is projected, reflecting the expected increase in rates of small renewable energy installations. This increase in installations is due to the decreasing cost of the technology and the increasing price of retail electricity services, notwithstanding the decreasing value of any subsidies.

3.1.1 Transmission and distribution network component

Background

Transmission networks carry electricity over long distances at high voltages, from generators to the distribution networks as well as directly to some large industrial consumers. The costs associated with these networks typically comprise approximately eight per cent of the total residential electricity price.

Distribution networks step down the voltage and carry the electricity for use by residential and business consumers. Distribution costs comprise around 24 to 48 per cent of the total residential electricity price.

However the total length of the distribution network infrastructure is approximately 17 times longer than transmission network infrastructure, which results in the former requiring significantly higher capital and operational expenditures in order to maintain and augment/expand, compared with the latter. In the National Electricity Market (NEM), the regulatory asset base of the distribution networks is around $43.5 billion, more than three times the valuation for transmission infrastructure.[15]

For the NEM jurisdictions, the cost of transmission and distribution services is based on the maximum allowed revenue and/or weighted average price cap, determined by the Australian Energy Regulator (AER) in relation to each NEM jurisdiction for a regulatory period of usually five years. [16,17] Transmission and distribution prices are passed through to end use customers as a component of their electricity prices.

Independent wholesale markets are operated in both Western Australia and the Northern Territory.

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15 AER, 2010, *State of the Energy Market - 2010*, pp. 47-51.

16 Comprised of the eastern seaboard states: Queensland, New South Wales, Victoria, South Australia, the Australian Capital Territory and Tasmania.

17 All transmission businesses are on a revenue cap. Currently all distribution businesses in Queensland, Tasmania and the ACT are on a revenue caps, while distribution businesses in NSW, Victoria and South Australia are on weighted average price caps.

Western Australia has three electricity networks, the largest being the South West Interconnected System (SWIS), on which the Western Australian Electricity Market is based. Western Power is the monopoly owner and transmission and distribution network service provider in the SWIS. Network prices are regulated by the Economic Regulatory Authority (ERA) through amendments to the electricity access code.

The electricity industry in the Northern Territory is dominated by Power and Water Corporation, a government owned, vertically integrated entity which owns the transmission and distribution networks, generation assets and is also the monopoly retail provider. Regulation of the network is overseen by the Northern Territory Utilities Commission through the access arrangements for the Power and Water Corporation.

In both Western Australia and the Northern Territory, network prices are included as a component of retail electricity prices, but are subsidised by the relevant jurisdictional governments.

Trends

Over the 2011/12 to 2013/14 projection period, the transmission component in Queensland, New South Wales, the Australian Capital Territory and Tasmania are projected to increase by between approximately 20 and 35 per cent in nominal terms. In South Australia and Western Australia, the transmission component is expected to increase at a much higher rate of between 40 and 55 per cent in nominal terms, while in Victoria, transmission costs are projected to increase marginally by one per cent over the projection period.[18]

As the transmission component comprises a relatively small share of the total residential electricity price, in nominal terms the projected increase in the Australian Capital Territory and Victoria is projected to be less than 0.5c/kWh between 2011/12 and 2013/14. On the other hand, over the projection period the transmission component in Western Australia is projected to increase by 0.96c/kWh. On a national level, the projected increase in this component is expected to comprise around eight per cent of the total increase in residential electricity prices over the projection period.

Similarly, the distribution component is expected to increase significantly over the projection period in all jurisdictions except for Victoria, the Australian Capital Territory and the Northern Territory. In South Australia, for example, the distribution component is expected to increase by 42 per cent in nominal terms over the projection period, while in New South Wales this component is projected to increase by approximately 32 per cent over the same period. In nominal terms, these increases equate to an increase of 3.5c/kWh in South Australia and 3.4c/kWh in New South Wales. Likewise in Queensland, the distribution component is expected to increase by 3.5c/kWh over the projection.

18 Further explanation of the transmission component for Victoria is provided in section 4.4.1.

On the other hand for Victoria, the Australian Capital Territory, Tasmania and the Northern Territory, the distribution component is projected to increase by less than 20 per cent in nominal terms. This equates to an increase of around 1.0c/kWh for these jurisdictions.

In Western Australia, distribution prices are projected to increase by 15 per cent over the period 2010/11 to 2011/12.[19]

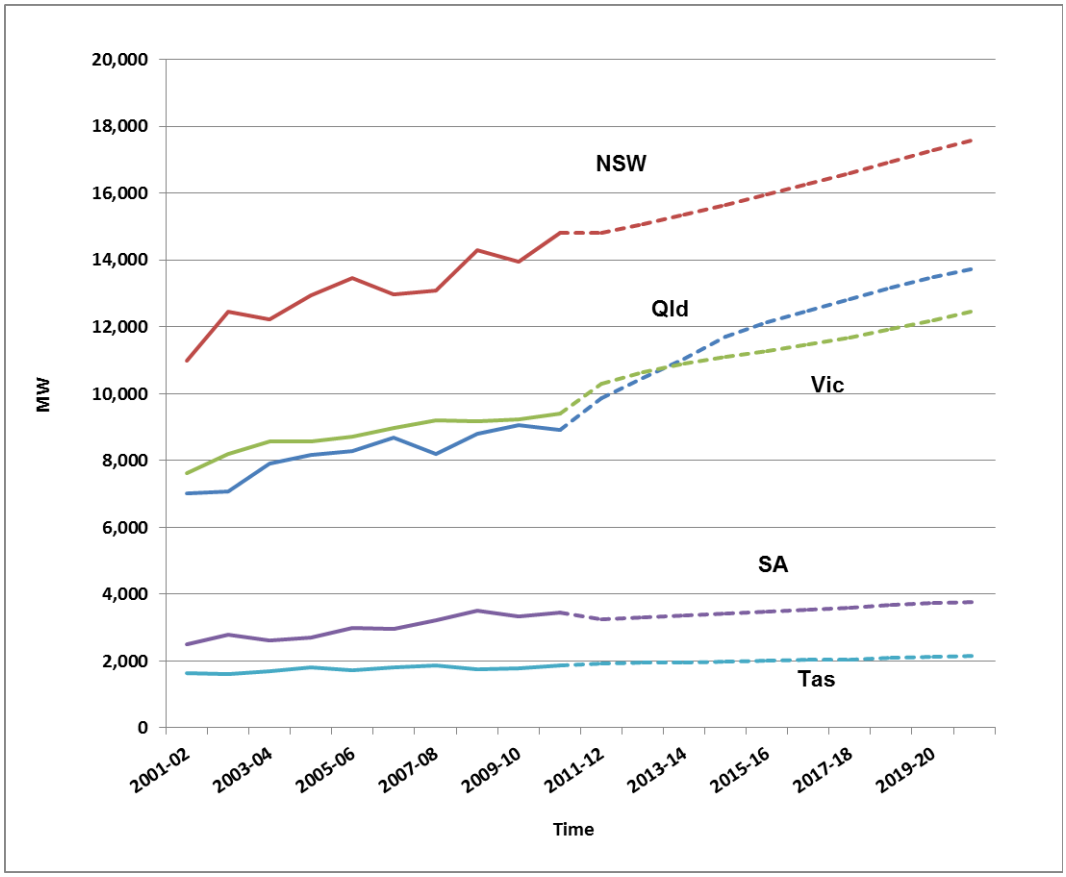
The increase in the cost of network services, particularly distribution services, is the most significant driver in the increasing price of residential electricity over the projection period. On a national level, the distribution component is projected to contribute 34 per cent of the total increase in residential electricity prices. The cost of network services is increasing due to increased forecast levels of capital works over the current regulatory period by the network businesses. This is as a result of high forecast annual increase in the maximum demand for electricity and the need to replace ageing assets.

For example, maximum demand is expected to increase each year by around three per cent or more in most jurisdictions. This has resulted in the need for distribution and transmission businesses to expand the capacity of their networks to ensure that this demand for electricity can be met, even though the capacity may only be required for a few peak periods over the course of a year. The increasing penetration of air conditioning, particularly in the residential sector, has been cited by network businesses as a key reason for increasing maximum demand

Figure 3.1 below depicts the growth in maximum demand over the last few years. It shows actual maximum demand for 2001/02 to 2010/11 and forecast maximum demand for 2011/12 to 2020/21 in the NEM jurisdictions.

19 Distribution prices have not been determined by the ERA for the period 2012/13 to 2013/14.

Figure 3.1 Growth in maximum demand in the NEM - 2001/02 to 2020/21



Data has been sourced from AEMOs Electricity Statement of Opportunities for 2011 and NEMMCO's Statement of Opportunity for 2004. Summer maximum demand has been used for all jurisdictions with the exception of Tasmania, where winter maximum demand was used. Actual demand data was used for 2001/02 to 2010/11. Forecasts for 2011/12 onwards are based on the 50 per cent probability of exceedance, under a medium growth scenario.

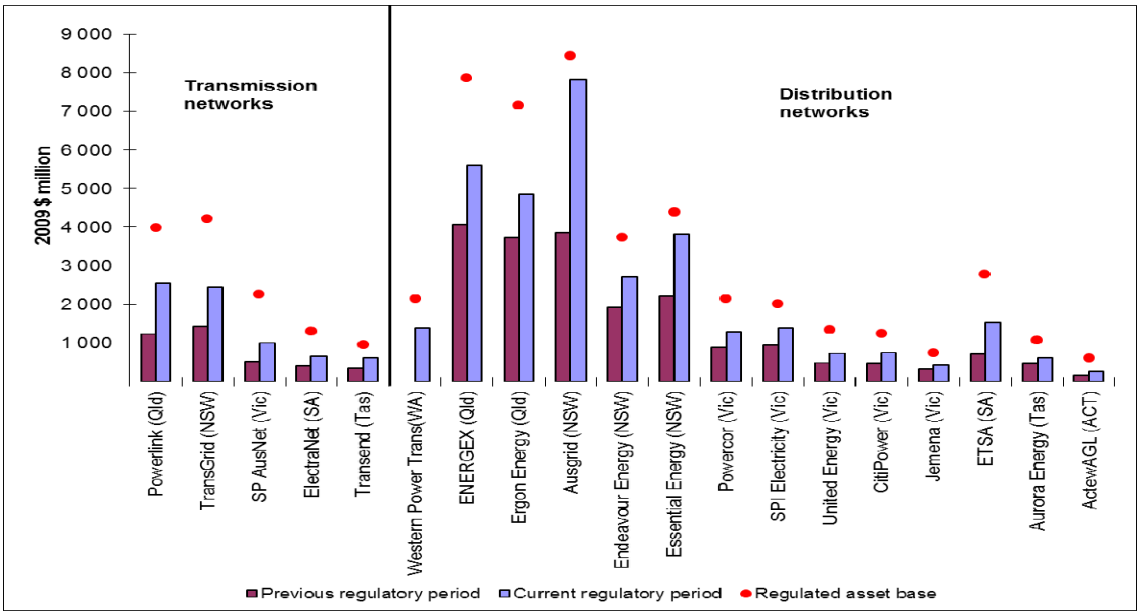
The ageing nature of many of the distribution and transmission businesses' assets has also led to the need for increased capital expenditure to replace these assets. The proportion of capital expenditure that is spent on replacements will vary with each network, depending on their asset replacement strategy, overall network age, and operational and maintenance procedures. For many networks, forecast expenditure on replacements will comprise around 20-35 per cent of their capital expenditure over the next three to four years. However, for some networks, such as Ausgrid's distribution network, forecast capital expenditure for replacement of assets will be far higher and comprise almost half of their forecast capital expenditure over the next two years.

Some states such as New South Wales, Tasmania and South Australia, have also recently adopted additional reliability standards for their distribution businesses. This has required further capital investment to ensure these standards can be met within the required timeframes over the five year regulatory period.

The cost to consumers of network service providers undertaking higher levels of capital expenditure has also increased due to higher returns on capital and higher input costs in the current regulatory determinations compared to the previous determination. The forecast increase in the value of capital expenditure by the

distribution and transmission networks in the current regulatory period compared to the previous one is shown in Figure 3.2 below.

Figure 3.2 Increases in network capital expenditure compared to the last regulatory determination



Source: AER and the Western Australian Economic Regulatory Authority. For Western Australia, the current regulatory determination covers a three year period rather than the five year period that applies in the NEM jurisdictions.

The return on capital is by far the biggest component of network charges. For transmission businesses, the return on capital accounts for around 65 per cent of total annual charges. For distribution businesses, the proportion varies from 38 per cent for ActewAGL Distribution to over 60 per cent for Energex. Under the current five year regulatory period, there has been an increase of over one per cent in the regulated rate of return compared to the previous regulatory period for the network businesses in the NEM. The rate of return for network businesses in Australia now tends to be between 9.5 to ten per cent, compared to between eight and nine per cent in the previous regulatory period.[20]

Under the National Electricity Rules, the return on capital must be set by the AER for the duration of the five year regulatory period, which in some cases will not end until 2014. This increase in the rate of return is solely due to increases in the cost of financing debt, which has occurred following the global financial crisis. Required premiums on comparable corporate bonds have jumped from around one per cent to over three per cent.[21]

The required inputs for capital investment in distribution and transmission networks, such as steel, copper and aluminium are also forecast to increase significantly over the

20 This rate is based on the 'nominal vanilla weighted average cost of capital', which is the return on capital after tax.

21 A number of network businesses have also had their return on capital increased following a merits review of the AERs determinations by the Australian Competition Tribunal.

next few years, as a result of the recovery in the commodities markets following the global financial crisis. In its most recent determination, the AER has forecast that over 2011 the real increase in copper, crude oil, steel and aluminium prices will range from 14 to 22 per cent.

From 2012, aluminium, steel and copper are forecast to increase at a slower rate or decrease as prices return to long-term averages. The cost of construction and manufacturing are forecast to increase by around two per cent each year in real terms over the next five years.[22] As Australia returns to resource boom conditions, the utilities sector will face competition from other sectors in the economy with transferable labour skills, such as the construction and mining sectors. Forecast increases in the costs of materials and manufacturing have been a factor in further increasing the cost of undertaking the required capital investment to meet increasing maximum demand and replace ageing assets.

3.1.2 Wholesale electricity component

The National Electricity Market (NEM) is an energy only wholesale spot market that operates on the eastern seaboard of Australia.[23] In the NEM, all wholesale electricity is traded by generators and retailers through the spot market. In addition, NEM participants also enter into formal hedging contracts to manage spot price related risks.

In Western Australia, energy is traded through a combination of bilateral contracts, a day-ahead short-term energy market, and a balancing market. By comparison with the NEM, 95 per cent of electricity is traded through bilateral contracts outside of the short-term energy and balancing markets in Western Australia.

There is no wholesale electricity market in the Northern Territory. In the Northern Territory, Power and Water Corporation provides customers with electricity, water and sewerage services. As well as being the Northern Territory's main electricity supplier, it also generates electricity through natural gas, diesel, solar and combined technologies and is the territory's distribution network owner.

In most jurisdictions, the wholesale electricity component of the residential electricity standing offer is set by a jurisdictional regulator. However, in Western Australia and the Northern Territory, the wholesale electricity component is determined by the Government. In Victoria, the wholesale electricity component is set by the wholesale market as retail electricity prices are no longer regulated in this jurisdiction.

In determining an energy purchase cost allowance for retailers within its jurisdiction, the jurisdictional regulator must estimate the costs that each retailer faces in purchasing energy from the wholesale market, and managing any associated risks.

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22 The cost of materials and manufacturing comprises approximately 43 per cent of the costs that are used by the AER when determining how the costs of capital investment should be escalated when setting the maximum allowed revenue for network businesses over the five year regulatory period.

23 The participating jurisdictions of the NEM are Queensland, New South Wales, the Australian Capital Territory, Victoria, Tasmania and South Australia.

While the methodology used by each jurisdictional regulator varies between jurisdictions, it will generally either reflect the long-run marginal cost of generation plant, or a modelled market-based purchase cost approach. In the case of Queensland, the wholesale electricity component is a combination of both approaches.

Nationally, increases in the wholesale electricity component are projected to contribute 24 per cent of the expected increase in residential electricity prices over the projection period. This contribution is slightly higher in Victoria and New South Wales, which are projected to have increases of around 23 per cent in nominal terms. On the other hand, increases in Queensland and the Australian Capital Territory are projected to contribute over 30 per cent of the expected increase in residential electricity prices.

Some jurisdictional regulators have indicated that these price increases are related to increasing fuel costs and higher capital costs for generation. There are a number of factors behind this including: changes in the generation mix; increasing natural gas prices; and financing risks associated with uncertainty around carbon pricing. Jurisdictional regulators have also sought to provide retailers with an increased allowance for wholesale energy costs to enable them to better manage volatility in the price of energy and to provide for more cost reflective prices.

For example, in South Australia, where summer peak demand for electricity can be particularly high and volatile, the jurisdictional regulator moved to a floor and cap approach to setting the upper and lower bounds of the standing contract price from 2011/12. This enables retailers greater flexibility to cope with unexpected and material changes in prices, including changes in wholesale prices. Potential increases in fuel and capital costs has increased the expected long-run marginal costs of generation in South Australia, resulting in an increase in the projected wholesale electricity component of 19 per cent in nominal terms over the projection period.

In other jurisdictions, such as Western Australia, Tasmania and the Northern Territory, the wholesale electricity component is not expected to contribute as large a share of the projected increase in residential electricity prices over the projection period, typically less than 15 per cent.

3.1.3 Retail component

The retail component generally comprises 13 per cent of the total residential electricity price and is set by jurisdictional regulators in most jurisdictions. In Western Australia and the Northern Territory, the retail component of the residential electricity price is determined by the Government. In Victoria, retail price regulation for electricity has been removed.

In competitive markets, the retail component generally includes retail operating costs, customer acquisition and retention costs, and a retail margin. In New South Wales, South Australia, Queensland, and the Australian Capital Territory, a retail margin of around five per cent on all costs (including wholesale costs, retail operating costs and network costs) has been determined by the jurisdictional regulators. In Tasmania, a

retail margin of 3.8 per cent has been set; as it was considered that the Tasmanian retailer faced lower risks than other retailers operating in the NEM.

The retail component is not expected to increase significantly over the projection period in most jurisdictions. On a national basis, the retail component is expected to contribute around 26 per cent of the expected increases in total residential electricity prices over the projection period. In Queensland and New South Wales, higher allowances for customer acquisition and retention costs have been provided by the jurisdictional regulators in recent years due to higher levels of customer switching between retailers. This increase in retail competition has served to increase the costs associated with new entrant retailers seeking market share and incumbent retailers defending their market share.

3.1.4 Renewable energy target

The enhanced RET comprises approximately 2.2 to 3.4 per cent of the total residential electricity price. The scheme was implemented by the Australian Government in August 2009 to encourage additional renewable energy generation to meet the government's commitment to achieving a level of renewables equivalent to a 20 per cent share of renewable energy generation by 2020. The enhanced RET commenced on 1 January 2010 and served to expand the previous target, under the Mandatory Renewable Energy Target (MRET), by more than four times, from 9,500 GWh to 45,000 GWh.

Under the RET legislation, wholesale purchasers of electricity have a legal liability to surrender certificates or pay the penalties for non-compliance. The cost of these certificates serves to increase the wholesale energy purchase costs for retailers, which are then passed on to end use customers. The additional large-scale generation encouraged through the RET can also place some small, generally downward pressure on wholesale electricity prices, which can partially offset the impact of the RET compliance costs on retail electricity prices. An estimate of the costs of complying with the RET is generally considered by jurisdictional regulators as part of their decision on the wholesale electricity cost allowance.

On 1 January 2011, the RET was split into two parts, the LRET and SRES.[24] Under these enhancements, the LRET covers large scale renewable energy projects and has a target of 41 000 GWh by 2020. The SRES provides a financial benefit for small scale renewable energy technologies, such as the purchase of eligible solar water heaters, small-scale solar photovoltaic panels and small wind and micro-hydro systems. The SRES has an uncapped target and provides up to $40 for each small scale technology certificate created. Each year a small scale technology percentage is set which estimates the amount of small scale technology certificates which will be created each year. Any surplus or shortfall from the previous year is also included in the small-scale technology percentage.

24 The Commonwealth Government passed legislation to separate the RET into the LRET and SRES on 24 June 2010.

Projections of the RET costs for 2010/11 were sourced from jurisdictional determinations, or the previously published *Future Possible Retail Electricity Price Movements: 1 July 2010 to 30 June 2013* report, where data was unavailable. From 2011/12 onwards, projections of the LRET and SRES were sourced from modelling undertaken by an external consultant for all jurisdictions. Our modelling is broadly consistent with that published in jurisdictional pricing determinations; however, in many cases, our modelling results in slightly lower compliance costs.

Over the projection period at the national level, the LRET and SRES components are expected to increase by 95 per cent in nominal terms. At the national level, the LRET is expected to contribute seven per cent of the total increase over the projection period. There remains some uncertainty regarding the future costs of the SRES, as the small scale technology percentage will be set each year. The small scale technology percentage will affect the liability on retailers and the amounts of certificates that they need to purchase. Over time, it is likely that the absolute value of the SRES will decrease as a result of reduced system uptake as well as a lower rate of certificate creation per system from the phase out of the multiplier. Conversely, it is likely that the absolute value of the LRET will increase as the target for the LRET moves towards the annual target of 41 000 GWh by 2020.

3.1.5 Feed-in tariff schemes

In recent years, a number of states and territories have introduced feed-in tariff schemes, which pay a premium rate for renewable energy that is fed back into the electricity grid. The objective of these schemes is to encourage renewable electricity generation. In Australia, feed-in tariff schemes have generally been targeted at small scale generation from solar photovoltaic systems. These schemes have increased the cost of residential electricity prices by a relatively small amount in most cases, as the cost of these initiatives are generally spread across all consumers rather than only those that may be receiving the direct benefit of the scheme. This results in a cross subsidy from all consumers to those consumers participating in the scheme. In addition, the relatively high uptake of these schemes has amplified the costs of the SRES, as the feed-in tariffs incentivise uptake by consumers.

Factors that affect the cost of feed-in tariff schemes include: whether the scheme provides 'net' or 'gross' feed-in tariff payments; the total capacity of the scheme; the period of the scheme's operation; the eligibility requirements; and the rate that is paid for the electricity generated. Of these factors, the most important aspect is the rate of the payment and whether they provide 'net' or 'gross' feed-in payments. Under a 'net' feed-in payment scheme, payments are only made on the amount of electricity that is generated after the household's consumption has been supplied. In contrast, a 'gross' feed-in payment is made for all electricity that is generated by the household.

Relatively strong demand by customers for feed-in tariff schemes has resulted in increasing participation rates, which will contribute to future movements in residential electricity prices. Recent higher than expected demand for the gross feed-in tariff scheme in New South Wales has resulted in a reduction in the feed-in tariff payment

from 60c/kWh to 20c/kWh and has subsequently closed to limit the cost of the scheme. The component of the gross feed-in tariff scheme in the Australian Capital Territory is expected to increase from 0.8 per cent to approximately 1.9 per cent of the total residential electricity price between 2011/12 and 2013/14. Similarly, in South Australia the feed-in tariff scheme is projected to increase from 0.5 to two per cent of the total residential electricity price over the projection period as a higher amount is passed through to customers from 2012/13. This is significantly higher than the feed-infeed-in tariff schemes in other jurisdictions. For example, in Queensland, the net feed-in tariff scheme component is expected to increase from 0.06 per cent to 0.07 per cent over the same period.

As feed-in tariffs comprise a relatively small component of the total residential electricity price, on a national level, feed-in tariffs are only expected to contribute four per cent of the total increase in residential electricity prices over the projection period. Furthermore, information on the costs of feed-in tariffs has become more readily available as distribution businesses have submitted their annual pricing proposals to the AER in 2011.

3.1.6 Other state and territory programs

In addition to the feed-in tariff schemes, some states and territories have also implemented other jurisdictional programs that contribute to increases in residential electricity prices. As the scope, scale and objective of these programs vary by jurisdiction, the effect of these programs on the residential electricity price differs by jurisdiction. These programs include initiatives such as the advanced metering infrastructure roll-out in Victoria, the Queensland Gas Scheme, the Energy Efficiency Saving Scheme in New South Wales, the Greenhouse Gas Abatement Schemes in New South Wales and the Australian Capital Territory, and the Residential Energy Efficiency Scheme in South Australia.[25]

In most cases the objective of these programs is to encourage energy efficiency, demand management and a reduction in greenhouse gases by requiring retailers or distributors to undertake specific activities. Usually there are targets that need to be met and penalties for non-compliance. The allowances for these programs are determined by jurisdictional regulators and the program costs are generally passed through to consumers through distribution charges. Generally these programs contribute about 0.3 to six per cent of the total residential electricity price and are not expected to increase significantly over the projection period. However, in Victoria, metering costs, which include the cost of the advanced metering infrastructure roll-out, are expected to contribute approximately 13 per cent of the total increase in residential electricity prices over the projection period.[26] In Western Australia, the Tariff Equalisation Contribution, which facilitates a uniform residential electricity price

25 We understand that in Victoria there is also the Victorian Energy Efficiency Target, which was not included in our analysis.

26 The costs of the smart meter roll-out in Victoria have been sourced from the AER. *AER, Final Determination, Victorian Advanced Metering Infrastructure Review – 2012-15 budget and charges applications*, October 2011.

across the state, is expected to comprise approximately seven per cent of the total cost of providing residential electricity services over the projection period.

3.2 National summary

With reference to the above trends, the following provides an indication of future weighted average national residential electricity prices.

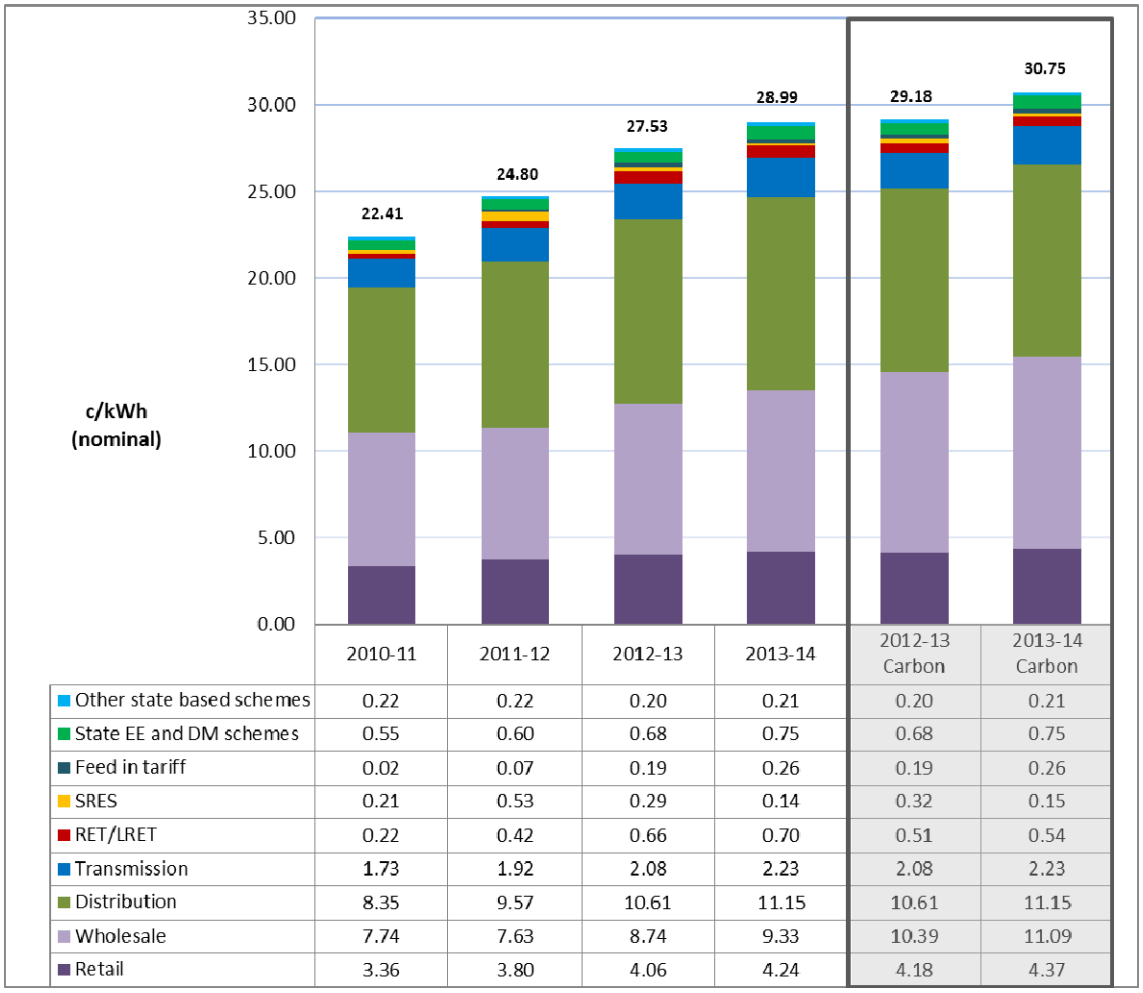
3.2.1 Projected trends in national electricity prices from 2011/12 to 2013/14 in the absence of a carbon price

Summary

Between the base year (2010/11) and the final year (2013/14) of the projection period, the weighted average national residential electricity price is projected to increase by 29 per cent in nominal terms. This is equivalent to a nominal price increase in the total residential electricity price of 6.60c/kWh, over that period.

The average annual growth rate of national residential electricity prices over the three year projection period is expected to be approximately nine per cent.

Figure 3.3 Summary of current and future possible residential electricity prices in Australia from 2010/11 to 2013/14



	2010-11	2011-12	2012-13	2013-14	2012-13 Carbon	2013-14 Carbon
Other state based schemes	0.22	0.22	0.20	0.21	0.20	0.21
State EE and DM schemes	0.55	0.60	0.68	0.75	0.68	0.75
Feed in tariff	0.02	0.07	0.19	0.26	0.19	0.26
SRES	0.21	0.53	0.29	0.14	0.32	0.15
RET/LRET	0.22	0.42	0.66	0.70	0.51	0.54
Transmission	1.73	1.92	2.08	2.23	2.08	2.23
Distribution	8.35	9.57	10.61	11.15	10.61	11.15
Wholesale	7.74	7.63	8.74	9.33	10.39	11.09
Retail	3.36	3.80	4.06	4.24	4.18	4.37

In this graph, each bar represents the total residential retail price for a given financial year, with components (identified in the adjoining table) individually shown within the bar. Note that the final two years have been recalculated to incorporate a carbon price.

Table 3.2 provides a breakdown of the price components and their individual increases over the projection period.

Table 3.2 Australia - projected movement of retail electricity cost components from 2011/12 to 2013/14 in the absence of a carbon price

	Nominal percentage increase between 2010/11 - 2013/14	Nominal price increase between 2010/11 - 2013/14 (c/kWh)	Percentage of total price increase attributable to component
Transmission component	29	0.50	7.6%
Distribution component	34	2.80	42.4%
Wholesale energy component	21	1.59	24.1%
Retail component	26	0.87	13.2%
Green energy component (total)	68	0.83	12.6%
Total	**29**	**6.60**	**100%**

This table identifies the nominal percentage change for electricity retail price components between the final year (2013/14) and the base year (2010/11) (column 1) and the nominal price difference for each identified component (column 2). It also indicates how much of the overall change in retail price over this period is attributable to each component (column 3). All values have been drawn from figure 3.3 however note that the individual green energy components, identified in figure 3.3, have been amalgamated in this table.

3.2.2 Projected trends in national electricity prices from 2011/12 to 2013/14 under a carbon price

Summary

Taking into account a price on carbon, between the base year (2010/11) and the final year (2013/14) of the projection period, the weighted average national residential electricity price is projected to increase by 37 per cent in nominal terms. This is equivalent to a nominal price increase in the total residential electricity price of 8.34c/kWh, over that period.

The average annual growth rate of national residential electricity prices over the three year projection period is expected to be approximately 11 per cent.

Table 3.3 is a table that allows a comparison of projected movements of retail electricity price components within the absence of, and including, a carbon price. The table clearly indicates the increasing significance that is expected of the wholesale energy component on the retail price, where a carbon price is in effect.

Table 3.3 Australia - projected retail electricity components with and without a carbon price

	Nominal percentage increase between 2010/11 - 2013/14		Nominal price increase between 2010/11 - 2013/14 (c/kWh)		Percentage of total price increase attributable to component	
	No carbon	With carbon	No carbon	With carbon	No carbon	With carbon
Transmission component	29	29	0.50	0.50	7.6%	6.0%
Distribution component	34	34	2.80	2.80	42.4%	33.6%
Wholesale energy component	21	43	1.59	3.35	24.1%	40.2%
Retail component	26	30	0.87	1.01	13.2%	12.1%
Green energy component (total)	68	55	0.83	0.68	12.6%	8.1%
Total	**29**	**37**	**6.60**	**8.34**	**100%**	**100%**

This table compares the information from table 3.2, projected movements of retail electricity components in the absence of a carbon price, with projected movements of the same components including a carbon price. It provides an illustration of how the imposition of a carbon price might impact on these components.

Compared to projected price movements in the absence of a carbon price, table 3.4 shows that, with the inclusion of a price on carbon, estimates of the total retail price for the weighted average national residential electricity price are projected to increase by 1.6c/kWh in 2012/13. Similarly, in the following year 2013/14, the expected increase in the total retail tariff as a result of a price on carbon is 1.7c/kWh.

Table 3.4 Australia – projected impact of carbon price on total residential electricity price in 2012/13 and 2013/14

Period	Year on year increase attributable to carbon price (c/kWh)	Percentage increase in residential price due to carbon price
2012/13	1.64	5.6%
2013/14	1.74	5.7%

That is, with reference to figure 3.3, with carbon prices factored in, the weighted average national residential electricity price moves from 27.53c/kWh to 29.18c/kWh in 2012/13. This equates to a six per cent increase. Similarly in 2013/14, the total retail price increases by six per cent with a carbon price factored in from 28.99c/kWh to 30.75c/kWh.

4 Future possible residential electricity prices

This section outlines future possible residential electricity prices (and, in the case of Western Australia and the Northern Territory, costs of supply) at a state and territory level. These state and territory prices are weighted average prices based on the number of residential customers in each distribution area.

The future possible residential electricity prices are shown as both exclusive and inclusive of the carbon price announced by the Commonwealth Government of Australia in its proposed Clean Energy Future legislation. Further detail on the future possible residential electricity prices in each distribution area in each state and territory is contained in Appendix B.

4.1 Queensland

It should be noted at the outset that residential electricity prices in Queensland may not be completely cost reflective, as the Queensland Government subsidises the costs of providing electricity services through the provision of community service obligation payments to Ergon Energy. This ensures that there is a uniform regulated electricity price across the state for residential electricity customers.

As at June 2011, approximately 1,154,000 small customers (i.e. both residential and small business customers), or 57.3 per cent of the total Queensland customer base, remained on regulated standing offer contracts in Queensland.[27]

4.1.1 Projected trends in Queensland residential electricity prices from 2011/12 to 2013/14 in the absence of a carbon price

Figure 4.2 provides an indication of the future possible residential electricity prices in Queensland between 2011/12 to 2013/14. The data reflects the standard regulated residential electricity tariff (including fixed and variable charges) for 2010/11 and 2011/12,[28] and the projected residential electricity price for 2012/13 and 2013/14, in the absence of, and under, a price on carbon. The projected prices for 2012/13 and 2013/14 have been based on a weighted average of the costs in both Energex's and Ergon Energy's network distribution areas.[29]

The wholesale electricity, transmission and retail components for 2012/13 and 2013/14 have been estimated, as existing jurisdictional and AER determinations do not cover the whole projection period.[30]

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27 Queensland Competition Authority, 2011, *Market and Non-Market Customers - June Quarter 2011.*

28 This reflects 'Tariff 11' charges.

29 As a result, prices for 2012/13 and 2013/14 may not reflect future 'Tariff 11'.

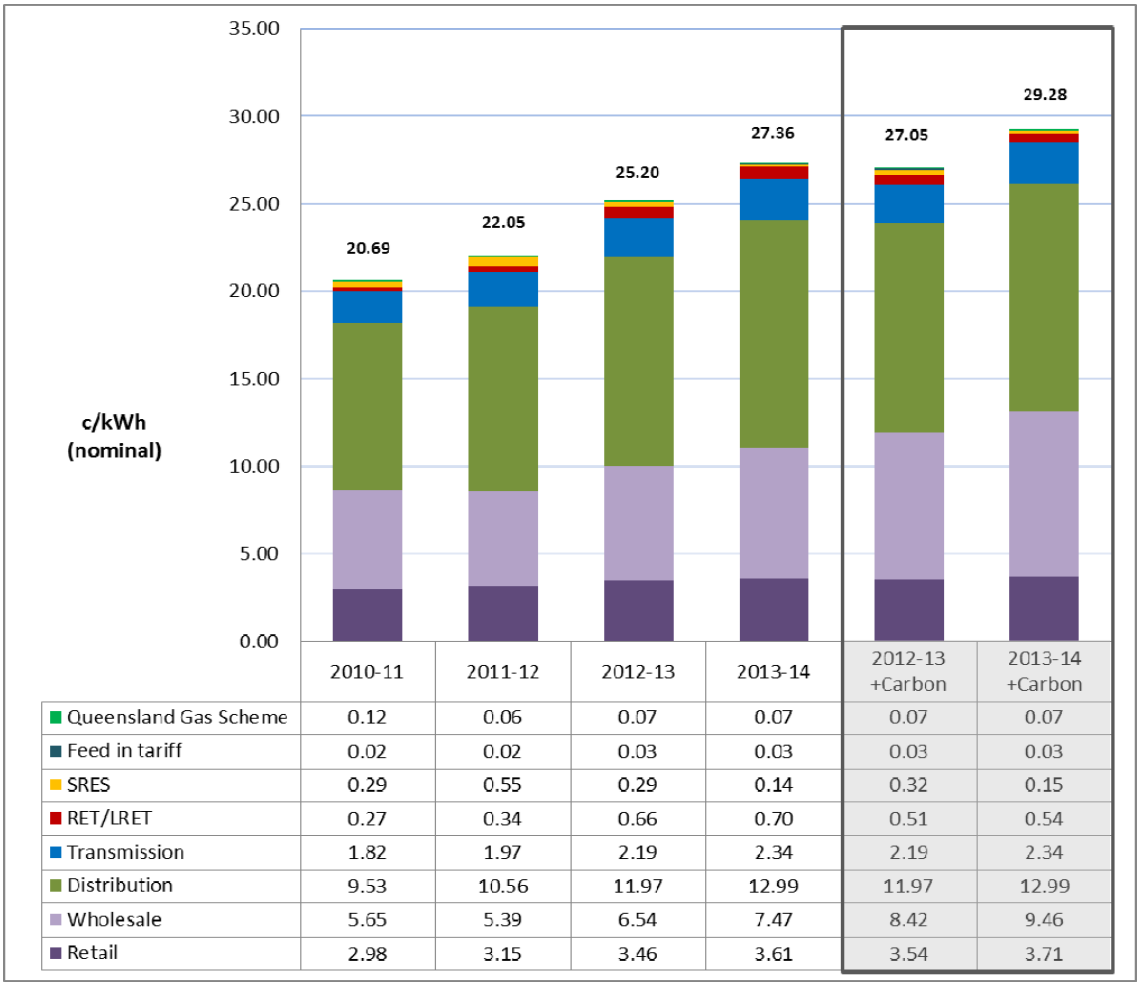
30 The Queensland Competition Authority (QCA) is currently undertaking a review of regulated retail tariffs and prices in Queensland. As a result of that review, the Queensland Government may elect to use a different methodology for calculating regulated retail tariffs - including both the wholesale and retail components - from July 2012. If this was to occur, it may result in tariffs going

Summary

Between the base year (2010/11) and the final year (2013/14) of the projection period, residential electricity prices in Queensland are projected to increase by 32 per cent in nominal terms. This is equivalent to a nominal increase of 6.67c/kWh in the total residential electricity price over this period.

The average annual growth rate of Queensland residential electricity prices over this three year projection period is expected to be approximately ten per cent.

Figure 4.1 Queensland - current and future possible residential electricity prices from 2010/11 to 2013/14



	2010-11	2011-12	2012-13	2013-14	2012-13 +Carbon	2013-14 +Carbon
Queensland Gas Scheme	0.12	0.06	0.07	0.07	0.07	0.07
Feed in tariff	0.02	0.02	0.03	0.03	0.03	0.03
SRES	0.29	0.55	0.29	0.14	0.32	0.15
RET/LRET	0.27	0.34	0.66	0.70	0.51	0.54
Transmission	1.82	1.97	2.19	2.34	2.19	2.34
Distribution	9.53	10.56	11.97	12.99	11.97	12.99
Wholesale	5.65	5.39	6.54	7.47	8.42	9.46
Retail	2.98	3.15	3.46	3.61	3.54	3.71

In this graph, each bar represents the total residential retail price for a given financial year, with components (identified in the adjoining table) individually shown within the bar. Note that the final two years have been recalculated to incorporate a carbon price.

forward that differ to those projected in this report using the current methodology utilised by QCA. On 11 November 2011 the QCA released a draft methodology paper, which set out the Authority's preliminary views and proposed approaches to determining the key elements of regulated tariffs and prices.

Table 4.1 below provides a breakdown of the retail price components and their individual increases over the projection period, in the absence of a carbon price being imposed.

Table 4.1 Queensland - projected movement of retail electricity cost components from 2011/12 to 2013/14 in the absence of a carbon price

	Nominal percentage increase between 2010/11 - 2013/14	Nominal price increase between 2010/11 - 2013/14 (c/kWh)	Percentage of total price increase attributable to component
Transmission component	28	0.52	8
Distribution component	36	3.46	52
Wholesale energy component	32	1.82	27
Retail component	21	0.63	9
Green energy component (total)	35	0.24	4
Total	**32**	**6.67**	**100**

This table identifies the nominal percentage change for electricity retail price components between the final year (2013/14) and the base year (2010/11) (column 1) and the nominal price difference for each identified component (column 2). It also indicates how much of the overall change in retail price over this period is attributable to each component (column 3). All values have been drawn from figure 4.1 however note that the individual green energy components, identified in figure 4.1, have been amalgamated in this table.

Transmission network component

Between the base year (2010/11) and the final year (2013/14) of the projection period, the transmission network component is projected to increase by 28 per cent in nominal terms. This is:

- equivalent to a nominal price increase in this component of 0.52c/kWh, over that period; and
- a contribution of eight per cent to the overall projected increase in residential electricity prices over that period.

As the transmission component only comprises around nine per cent of the total residential electricity price, this increase is expected to account for approximately only eight per cent of the total increase in residential electricity prices over the projected period.

As noted in the Australian Energy Regulator's network determination, the majority of the capital expenditure in Queensland is being driven by increasing demand for electricity. Specifically:

- transmission costs increase in response to many of the same factors that are driving distribution cost increases;[31] and

31 For example, Powerlink's annual planning report notes that its forecast of electricity demand is being made at a time of record levels of investment in the resources sector (LNG and mining), which is driving major new loads in various parts of the State. Powerlink Queensland, *Annual Planning Report 2011*, p. 3.

- a strong resurgence in economic growth in Queensland is predicted as a result of reconstruction after the natural disasters experienced by the state in 2010/11.[32]

In relation to the next regulatory period (from 2012/13 to 2016/17), Powerlink's revenue proposal indicates that their proposed final year revenue of $1.446 billion is approximately twice that of its 2010/11 revenue of $734 million, therefore the transmission related component may increase by a higher amount than is factored into these projections.[33]

Distribution network component

Between the base year (2010/11) and the final year (2013/14) of the projection period, the distribution network component is projected to increase by 36 per cent in nominal terms. This is:

- equivalent to a nominal price increase in this component of 3.46c/kWh over that period; and

- a contribution of 52 per cent to the overall projected increase in residential electricity prices over that period.

The Australian Energy Regulator's network determination indicates that maximum demand and energy consumption are expected to grow significantly over the next four years, as a result of stronger economic activity in the minerals and residential sectors. In particular:

- maximum demand during the summer peak is projected to increase by five per cent each year in south-east Queensland, and by seven per cent each year in regional Queensland; and

- energy consumption is projected to increase by four per cent each year in south-east Queensland, and by six per cent in regional Queensland.[34]

This growth in maximum demand and consumption is driving a significant expansion in the distribution networks in Queensland, resulting in higher levels of capital works. For example, around $10.5 billion ($2009) of capital expenditure on Queensland's distribution networks is projected over the current five year regulatory period. This is a 34 per cent increase on the level of capital expenditure that was spent in the previous regulatory period.

32 ibid.

33 AER request for submissions on Powerlink's 2012/13-2017/18 revenue proposal, www.aer.gov.au/content/index.phtml/itemId/747456.

34 Powerlink Queensland, *Annual Planning Report 2011*, pp. 38-43.

Wholesale component

Between the base year (2010/11) and the final year (2013/14) of the projection period, the wholesale energy component is projected to increase by 32 per cent in nominal terms. This is:

- equivalent to a nominal price increase in this component of 1.82c/kWh over that period; and
- a contribution of approximately 27 per cent to the overall projected increase in residential electricity prices over that period.

The increase in the wholesale component is related to rising fuel - coal and natural gas - costs, which increases the long run marginal costs of generation in Queensland.

Currently, forward contract prices have fallen in the past year with the passing of the drought, cooler weather conditions and the commissioning of new generating plant in Queensland. This has helped reduce the wholesale market costs for 2010/11 and 2011/12 by 4.8 per cent.

Going forward, between 2011/12 and 2013/14, an increase of 39 per cent in the wholesale electricity component has been projected as a result of a tightening supply/demand balance. This tightening in the supply/demand balance is expected to lead to an increase in wholesale market prices in Queensland, as surplus demand is met by new entrant capacity, predominantly in the form of open cycle gas generation, which will be developed in response to the expanded renewable energy target and the carbon price.

As noted above, the wholesale energy component has been estimated for the period 2012/13 and 2013/14, as existing Queensland retail price determinations do not cover this period. Over that period, there is the potential for off-setting factors to place downward pressure on wholesale market prices which may reduce the projected impact of the tightening supply/demand balance on residential electricity prices. As a result, the prices in this report should be used to provide indicative trends in cost components rather than a definitive indication of future projected prices.

Retail component

Between the base year (2010/11) and the final year (2013/14) of the projection period, the retail component is projected to increase by 21 per cent in nominal terms. This is:

- equivalent to a nominal price increase in this component of 0.63c/kWh over that period; and
- a contribution of nine per cent to the overall projected increase in residential electricity prices over that period.

The increase in the retail component over the 2011/12 to 2013/14 period predominantly reflects an increased allowance that has been provided by the

Queensland Competition Authority (QCA) for customer acquisition and retention costs in recent years. This is as a result of the increasing number of new entrant retailers to Queensland, and consequent growth in customer switching rates.

Growth in other components, such as transmission and distribution, has also increased the calculated value of the retail margin over that period.

Green energy component

Between the base year (2010/11) and the final year (2013/14) of the projection period, the green energy component is projected to increase by 35 per cent in nominal terms. This is:

- equivalent to a nominal price increase in this component of 0.24c/kWh over that period; and
- is a contribution of four per cent to the overall projected increase in residential electricity prices over that period.

The SRES and the LRET combined are expected to contribute around four per cent of the total increase in residential electricity prices over the projection period.[35]

4.1.2 Projected trends in Queensland residential electricity prices from 2011/12 to 2013/14 under a carbon price

Summary

Taking into account a price on carbon, between the base year (2010/11) and the final year (2013/14) of the projection period, residential electricity prices in Queensland are projected to increase by 42 per cent in nominal terms. This is equivalent to a nominal increase of 8.59c/kWh in the total residential electricity price over this period.

The average annual growth rate of Queensland residential electricity prices over this three year projection period is expected to be approximately 12 per cent.

Table 4.2 shows that the predominant drivers for this overall price increase are significant increases in the wholesale energy and distribution components.

35 The cost of the RET from 2011/12 onwards and the SRES from 2010/11 onwards was sourced from external modelling undertaken for the AEMC. For the years 2012/13 and 2013/14 modelling of both schemes include the effect of a carbon price on outcomes. By comparison, the QCA's final retail price determination published in May 2011 included an estimated cost of the RET and SRES for 2011/12 of 0.48c/kWh and 0.30c/kWh respectively. The QCA's combined estimate of the cost of the RET and SRES is approximately 0.12c/kWh lower than the costs provided by our modelling.

Table 4.2 Queensland - projected retail electricity components with and without a carbon price

	Nominal percentage increase between 2010/11 - 2013/14		Nominal price increase between 2010/11 - 2013/14 (c/kWh)		Percentage of total price increase attributable to component	
	No carbon	With carbon	No carbon	With carbon	No carbon	With carbon
Transmission component	28	28	0.52	0.52	8	6
Distribution component	36	36	3.46	3.46	52	40
Wholesale energy component	32	67	1.82	3.81	27	44
Retail component	21	24	0.63	0.72	9	8
Green energy component (total)	35	13	0.24	0.09	4	1
Total	**32**	**42**	**6.67**	**8.59**	100	**100**

This table compares the information from table 4.1, projected movements of retail electricity components in the absence of a carbon price, with projected movements of the same components including a carbon price. It provides an illustration of how the imposition of a carbon price might impact on these components.

Wholesale energy and retail component

With the inclusion of a price on carbon, the wholesale energy component is expected to increase by 3.81c/kWh in nominal terms over the projection period. This compares with 1.82c/kWh in the absence of a price on carbon.

As a result of the increase in the wholesale energy component, the calculated retail component for Queensland is also expected to increase. This is due to the retail margin being calculated as a percentage of the total costs incurred by retailers in supplying electricity to customers.

The nominal increase in the total residential retail component, with the inclusion of a price on carbon, is 0.09c/kWh.

Green energy component

The inclusion of a price on carbon leads to a decrease in the green energy component over the projection period. For example, the nominal, combined LRET and SRES compliance costs decrease from 0.28c/kWh to 0.13c/kWh, under a carbon price. This is primarily due to a carbon price reducing the cost of the LRET by raising the wholesale price, thereby reducing the certificate price needed to bridge the gap between revenue available through the wholesale market and revenue needed for project viability.

As a result of the above, the nominal increase for the total green energy component over the projection period decreases from 35 per cent to 13 per cent under a carbon price.

Carbon price impact

Table 4.3 indicates the impact of a carbon price on residential retail prices. This is based on comparing projections, using the current methodology used by the regulator for retail price forecasting in Queensland, in the absence of a carbon price and under carbon price.

Table 4.3 Queensland – projected impact of carbon price on total residential electricity tariff in 2012/13 and 2013/14

Period	Year on year increase attributable to carbon price (c/kWh)	Percentage increase in residential price due to carbon price
2012/13	1.84	6.8%
2013/14	1.93	6.6%

Comparing projected price movements in the absence of a carbon price, table 4.6 shows that with the inclusion of a price on carbon, estimates of the total retail price for Queensland are projected to increase by 1.84c/kWh in 2012/13. Similarly, in the following year 2013/14, the expected increase in the total retail tariff as a result of a price on carbon is 1.93c/kWh.

That is, with carbon prices factored in, the total retail price in Queensland moves from 25.20c/kWh to 27.05c/kWh in 2012/13. This equates to a seven per cent increase. Similarly, in 2013/14 the total retail price increases by seven per cent with carbon factored in, from 27.36c/kWh to 29.28c/kWh.

4.2 New South Wales

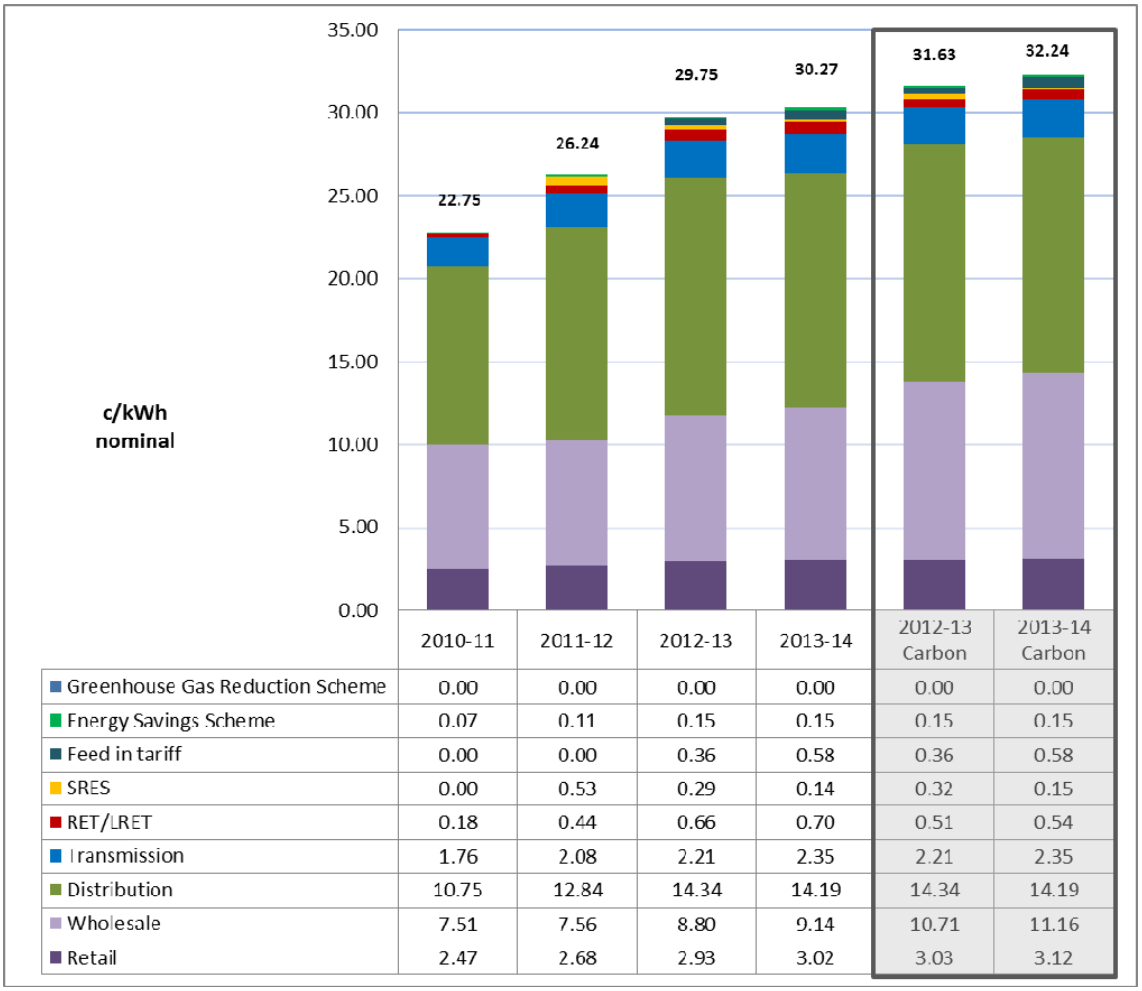
Figure 4.2 provides an indication of the future possible residential electricity prices in New South Wales between 2011/12 and 2013/14. The last two columns reflect the impact of a carbon price on these electricity prices on the final two years, 2012/13 and 2013/14.

It shows actual prices for 2010/11, the regulated price as determined by the Independent Pricing and Regulatory Tribunal of New South Wales (IPART) for 2011/12, and our projections of expected residential electricity prices in 2012/13 and 2013/14. Where possible the prices in IPART's regulated retail price determination for New South Wales, and the AER's distribution network determinations, have been used to derive prices for the projection period.

The prices in figure 4.2 are representative of the prices that residential customers on standing offer contracts may face over the projection period. Approximately 65 per cent of small customers (i.e. both residential and small business customers) remained on standing offer contracts in New South Wales as at December 2010.[36]

36 IPART, *Changes in regulated electricity retail prices from 1 July 2011*, June 2011, p. 1.

Figure 4.2 New South Wales - current and future possible residential electricity prices from 2010/11 to 2013/14



	2010-11	2011-12	2012-13	2013-14	2012-13 Carbon	2013-14 Carbon
Greenhouse Gas Reduction Scheme	0.00	0.00	0.00	0.00	0.00	0.00
Energy Savings Scheme	0.07	0.11	0.15	0.15	0.15	0.15
Feed in tariff	0.00	0.00	0.36	0.58	0.36	0.58
SRES	0.00	0.53	0.29	0.14	0.32	0.15
RET/LRET	0.18	0.44	0.66	0.70	0.51	0.54
Transmission	1.76	2.08	2.21	2.35	2.21	2.35
Distribution	10.75	12.84	14.34	14.19	14.34	14.19
Wholesale	7.51	7.56	8.80	9.14	10.71	11.16
Retail	2.47	2.68	2.93	3.02	3.03	3.12

In this graph, each bar represents the total residential retail price for a given financial year, with components (identified in the adjoining table) individually shown within the bar. Note that the final two years have been recalculated to incorporate a carbon price.

4.2.1 Trends in New South Wales residential electricity prices between 2011/12 and 2013/14 in the absence of a carbon price

Summary

Between the base year (2010/11) and the final year (2013/14) of the projection period, residential electricity prices are projected to increase by 33 per cent in nominal terms. This equates to an increase of 7.51c/kWh in the total residential electricity price over this period.

The average annual growth rate of New South Wales residential electricity prices over this three year projection period is expected to be approximately 10 per cent.

Of the increase indicated above, about 48 per cent is related to increases in the distribution component which are expected to go up by 32 per cent in nominal terms over the projection period as shown in table 4.4.

Table 4.4 New South Wales - projected movement of retail electricity cost components from 2011/12 to 2013/14 in the absence of a carbon price

	Nominal percentage increase between 2010/11 - 2013/14	Nominal price increase between 2010/11 - 2013/14 (c/kWh)	Percentage of total price increase attributable to component
Transmission component	34	0.59	8
Distribution component	32	3.44	46
Wholesale energy component	22	1.62	22
Retail component	22	0.55	7
Green energy component (total)	513	1.31	17
Total	**33**	**7.51**	**100**

This table identifies the nominal percentage change for electricity retail price components between the final year (2013/14) and the base year (2010/11) (column 1) and the nominal price difference for each identified component (column 2). It also indicates how much of the overall change in retail price over this period is attributable to each component (column 3). All values have been drawn from figure 4.2 however note that the individual green energy components, identified in figure 4.2, have been amalgamated in this table.

Transmission network component

Between the base year (2010/11) and the final year (2013/14) of the projection period, the transmission network component is projected to increase by approximately 34 per cent. This is:

- equivalent to a nominal price increase in this component of 0.59c/kWh over that period; and
- a contribution of approximately eight per cent to the overall projected increase in residential electricity prices over that period.

The transmission network component is projected to increase as a result of increased capital expenditure and higher rates of return on capital. The drivers for these expected increases are similar to those for the distribution component, which is explained in further detail below.

Distribution network component

Between the base year (2010/11) and the final year (2013/14) of the projection period, the distribution network component is projected to increase by approximately 33 per cent. This is:

- equivalent to a nominal price increase in this component of 3.44c/kWh over that period; and
- a contribution of approximately 46 per cent to the overall projected increase in residential electricity prices over that period.

There are a number of drivers behind the expected significant rise in the cost of providing distribution services in New South Wales:

- Maximum demand growth in New South Wales is projected to increase by between 2.7 per cent and 3.5 per cent a year between 2010/11 and 2013/14 (depending on the distribution area). Demand growth is expected to be highest in Endeavour Energy's distribution area, due to higher and more sustained peak temperatures in south and western Sydney, and the high uptake of air conditioners across its network.[37] This trend is resulting in an overall shift towards higher maximum demand in summer compared to winter in New South Wales.[38] As a result, significant increases in capital works are required to ensure this projected growth in maximum demand can be met.

- The need to replace ageing assets has served to further increase projected capital works over the next four years. Asset replacement is a particular issue for Ausgrid, the largest electricity distributor in Australia, which is anticipated to spend 46 per cent of its capital expenditure on replacements over the 2009/10 to 2013/14 regulatory period. Essential Energy and Endeavour Energy, the other two distributors in New South Wales, are both projected to spend over 20 per cent of their forecast capital expenditure on replacements over the same period.

- Additional capital expenditure over the current regulatory determination is also needed to meet the higher reliability standards for New South Wales distributors. In 2005, the New South Wales Minister for Energy amended the licence conditions of New South Wales distributors to require them to comply with new design, reliability, and performance requirements by 2012/13. This has contributed to further anticipated capital works by the distribution businesses, particularly Essential Energy, to meet these standards within the required timeframes.[39] The AER has advised that reliability and quality of service enhancements comprise around 10 per cent of the total capital expenditure by New South Wales distributors over the current regulatory period.

- Capital expenditure by New South Wales distribution businesses over the current five year regulatory period is expected to reach $14.4 billion ($2009), which is an increase of 80 per cent compared to the previous regulatory period. A higher rate of return on capital of 10.02 per cent than applied in previous regulatory determinations has also served to further increase the cost of undertaking capital expenditure. This rate of return reflects recent increases in debt financing costs, which has occurred following the global financial crisis.

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37 Note that Endeavour Energy is the new name for the Integral Energy network business following the privatisation of the retail businesses by the New South Wales Government.

38 Forecast maximum demand in the AER's regulatory distribution determination shows that in Essential Energy's distribution area that maximum demand will change from winter to summer between 2010/11 and 2011/12.

39 Essential Energy, then Country Energy stated in its regulatory proposal to the AER for the 2009/10 to 2013/14 regulatory period that there are currently 140 cumulative non-compliant feeders that exceed either both individual feeder standards or exceed only one of the individual feeder standards. Country Energy, Regulatory proposal 2009-2014, 2 June 2008, p. 131.

There are two further factors that have not been included in the calculations but which require some mention.

The current regulatory determinations allow distribution companies to apply to the AER for additional cost pass-throughs, if the circumstances in which they operate change sufficiently to meet the required materiality threshold. The New South Wales distribution companies are currently seeking compensation through the AER for what they term a loss of 'synergies' worth up to $100 million a year as a result of the privatisation of the retail arms of those companies to Origin Energy and TruEnergy.[40] If the AER agrees that there is a valid claim then there is a possibility that this will be an additional cost pass-through going forward.

Adding to the upward pressure on distribution costs is the decision of the New South Wales Government to charge New South Wales electricity customers up to an extra $12 per year from 2013 to help cover the costs of the solar bonus scheme. This extra money, which is collected by the distributors on behalf of the Government (and will therefore increase the distribution component by the amount collected), will go into the climate change fund to subsidise solar bonus customers who are being paid under the scheme for energy supplied back to the grid.

Wholesale energy component

Between the base year (2010/11) and the final year (2013/14) of the projection period, the wholesale energy component is projected to increase by approximately 22 per cent in nominal terms. This is:

- equivalent to a nominal price increase in this component of 1.62c/kWh over that period; and
- a contribution of approximately 22 per cent to the overall projected increase in residential electricity prices over that period.

As was noted earlier, the regulator in New South Wales currently assesses both the long-run marginal cost and market prices for wholesale energy when making its regulatory determination, then applies the higher of the two values in the cost build-up for the standing offer tariff in New South Wales.

Retail component

Between the base year (2010/11) and the final year (2013/14) of the projection period, the retail energy component is projected to increase by approximately 22 per cent. This is:

40 The distribution companies contend that their information technology and corporate systems have been developed to serve both the retail and network businesses on a common platform, therefore the separation of the retail business has created economic losses in terms of reduced efficiencies of scale and scope. The AER is in the process of establishing whether the distribution companies have a valid claim for a pass-through of costs going forward.

- equivalent to a nominal price increase in this component of 0.55c/kWh over that period; and
- a contribution of approximately seven per cent to the overall projected increase in residential electricity prices over that period.

The retail component is projected to increase as a result of an IPART decision to allow an increase in the retail margin from five per cent to 5.4 per cent of total costs for the 2010/11 to 2012/13 period, to reflect updated analysis of the systematic risks associated with electricity retailing.[41]

Higher customer acquisition and retention cost allowances, due to high levels of customer switching, were also approved by IPART. However, this increase was offset by a reduction in the retail operating cost allowance.

Green energy component

Between the base year (2010/11) and the final year (2013/14) of the projection period, the green energy component is projected to increase by approximately 513 per cent. This is:

- equivalent to a nominal price increase in this component of 1.31c/kWh over that period; and
- a contribution of approximately 17 per cent to the overall forecasted increase in residential electricity prices over that period.

Note that IPART did not include an SRES component in its pricing determination for 2010/11, therefore the large percentage is due to the SRES component starting from a zero base. Notwithstanding this, the combined impact of the Large-Scale Renewable Energy Target (LRET) and the Small-Scale Renewable Energy Scheme (SRES) will contribute around eight per cent of the expected increase in residential electricity prices in New South Wales. This is primarily as a result of the Commonwealth Government's transition from the previous Mandatory Renewable Energy Target (MRET) to the current, expanded Renewable Energy Target (RET).

The contribution to the feed-in tariff scheme (Solar Bonus Scheme) is expected to increase over the forecast period to comprise around two per cent of the total residential electricity price by 2013/14. IPART noted, in its final determination regarding changes in the regulated electricity retail prices from 1 July 2011 that the cost of the Solar Bonus Scheme has not been included in its estimate of green scheme costs.[42]

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41 IPART, *Review of regulated retail tariffs and charges for electricity 2010 – 2013 – electricity – final report*, March 2010.

42 IPART, *Change in regulated electricity retail prices from 1 July 2011, Electricity - Final report*, June 2011, p.9.

While the New South Wales Government proposes to offset the costs of the Solar Bonus Scheme against uncommitted funds in the Climate Change Fund for the year 2011/12[43], it announced, in September 2011, that in order to cover an expected budget deficit in future years, it would charge between $10-12 per household from 2012/13. These funds will be used to top up the government controlled Climate Change Fund.

We understand that the solar bonus scheme in New South Wales is now closed to new connections. Therefore, in this report, the feed-in tariff components projected for 2012/13 and 2013/14 have been taken from modelling undertaken by external consultants and consider the costs incurred under the current policy, and do not factor in the additional cost component proposed by the New South Wales Government above.

4.2.2 Projected trends in New South Wales residential electricity prices from 2011/12 to 2013/14 under a carbon price

Summary

Taking into account a price on carbon, between the base year (2010/11) and the final year (2013/14) of the projection period, residential electricity prices in New South Wales are projected to increase by 42 per cent in nominal terms. This is equivalent to a nominal increase of 9.48c/kWh in the total residential electricity price over this period.

The average annual growth rate of New South Wales residential electricity prices over the three year projection period is expected to be approximately 12 per cent.

Table 4.5 indicates that a significant portion of the projected price increase is attributable to increases in the wholesale energy component.

Table 4.5 New South Wales - projected retail electricity components with and without a carbon price

	Nominal percentage increase between 2010/11 - 2013/14		Nominal price increase between 2010/11 - 2013/14 (c/kWh)		Percentage of total price increase attributable to component	
	No carbon	With carbon	No carbon	With carbon	No carbon	With carbon
Transmission component	34	34	0.59	0.59	8	6
Distribution component	32	32	3.44	3.44	46	36
Wholesale energy component	22	49	1.62	3.65	22	38
Retail component	22	26	0.55	0.65	7	7
Green energy component (total)	513	452	1.31	1.16	17	12
Total	**33**	**42**	**7.51**	**9.48**	**100**	**100**

This table compares the information from table 4.4, projected movements of retail electricity components in the absence of a carbon price, with projected movements of the same components including a carbon price. It provides an illustration of how the imposition of a carbon price might impact on these components.

43 ibid.

Wholesale and retail energy components

With the inclusion of a price on carbon, the wholesale energy component is expected to increase by 3.65c/kWh in nominal terms over the projection period, compared with 1.62c/kWh in the absence of a price on carbon.

As a result of the increase in the wholesale energy component, the calculated retail component for New South Wales is also expected to increase. This is due to the retail margin being calculated as a percentage of the total costs incurred by retailers in supplying electricity to customers.

The incremental increase in the retail component with the inclusion of a price on carbon is 0.10c/kWh in nominal terms.

Green energy component

The inclusion of a price on carbon leads to a decrease in the green energy component over the projection period. For example, the nominal attributable increase in the LRET and SRES combined decreases from 0.66c/kWh to 0.51c/kWh under a price on carbon.

This is primarily due to a carbon price reducing the cost of the LRET by raising the wholesale price, thereby reducing the certificate price needed to bridge the gap between revenue available through the wholesale market and revenue needed for project viability. As a result, the nominal increase for the green energy component over the projection period decreases from 17 per cent to 12 per cent under a price on carbon.

Carbon price impact

Compared to projected price movements in the absence of a carbon price, table 4.6 shows that, with the inclusion of a price on carbon, estimates of the total retail price for New South Wales are projected to increase by 1.88c/kWh in 2012/13. Similarly, in the following year 2013/14, the expected increase in the total retail tariff as a result of a price on carbon is 1.97c/kWh.

Table 4.6 New South Wales – projected impact of carbon price on total residential electricity tariff in 2012/13 and 2013/14

Period	Year on year increase attributable to carbon price (c/kWh)	Percentage increase in residential price due to carbon price
2012/13	1.88	5.9%
2013/14	1.97	6.1%

That is, with carbon prices factored in, the total retail price in New South Wales moves from 29.75c/kWh to 31.63c/kWh in 2012/13. This equates to a six per cent increase. Similarly, in 2013/14 the total retail price increases by six per cent with carbon factored in from 30.27c/kWh to 32.24c/kWh.

4.3 Australian Capital Territory

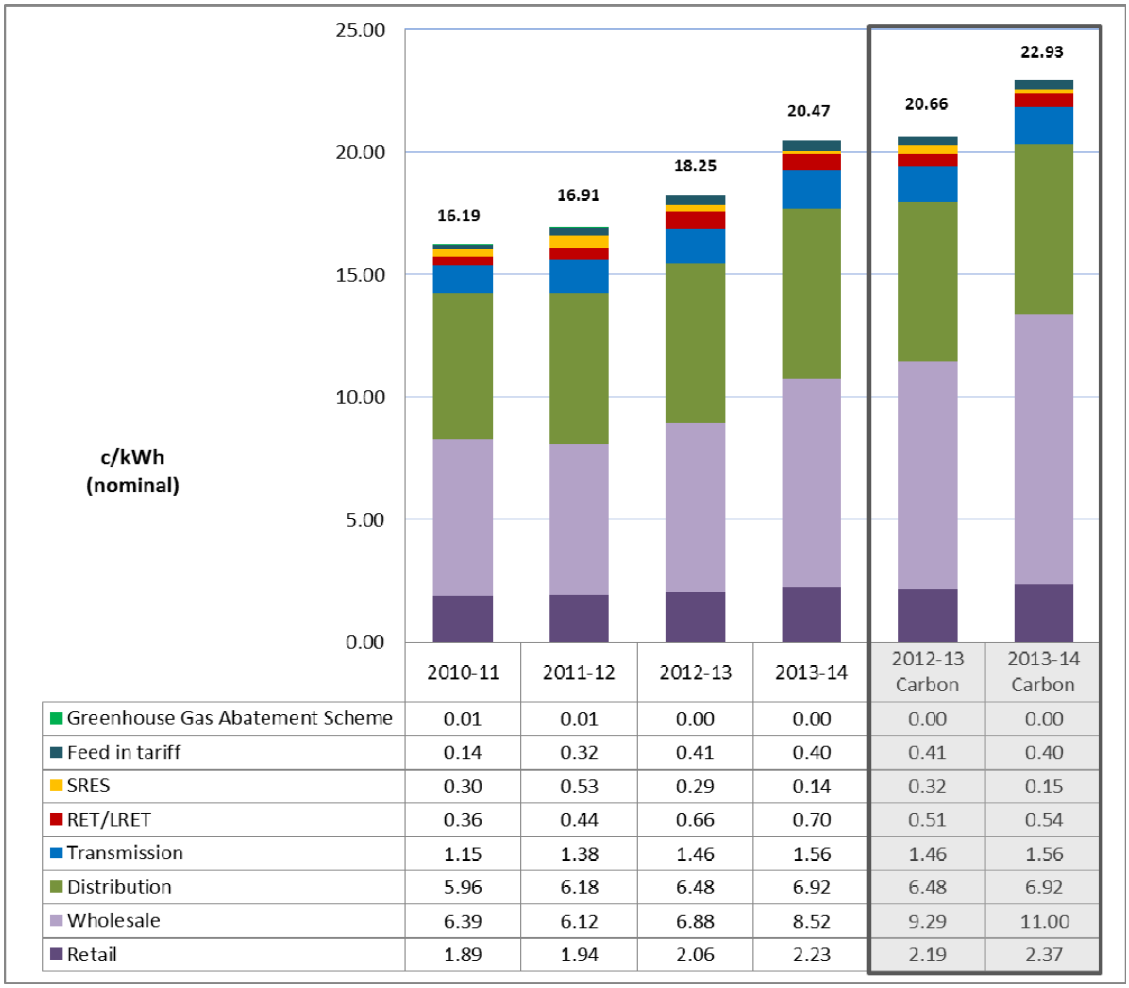
Figure 4.3 provides an indication of possible residential electricity prices in the Australian Capital Territory between 2011/12 and 2013/14. It shows actual prices for 2010/11, the expected regulated price as determined by the Independent Competition and Regulatory Commission (ICRC) for 2011/12, and a projection of expected residential electricity prices for 2012/13 and 2013/14.

The wholesale energy and retail components have been estimated for 2012/13 and 2013/14 as the ICRC's determination does not cover the whole projection period. The retail price components attributable to the feed-in tariff and Greenhouse Gas Abatement Scheme have been based on information obtained from the Australian Capital Territory Government.

The prices in figure 4.3 are representative of the prices that residential customers on standing offer contracts may face over the projection period. Approximately 18 per cent of residential electricity customers remained on the transitional franchise tariff in the Australian Capital Territory as at June 2011.[44]

44 Based on information obtained from the Australian Capital Territory Government.

Figure 4.3 Australian Capital Territory - current and future possible residential electricity prices from 2010/11 to 2013/14



	2010-11	2011-12	2012-13	2013-14	2012-13 Carbon	2013-14 Carbon
Greenhouse Gas Abatement Scheme	0.01	0.01	0.00	0.00	0.00	0.00
Feed in tariff	0.14	0.32	0.41	0.40	0.41	0.40
SRES	0.30	0.53	0.29	0.14	0.32	0.15
RET/LRET	0.36	0.44	0.66	0.70	0.51	0.54
Transmission	1.15	1.38	1.46	1.56	1.46	1.56
Distribution	5.96	6.18	6.48	6.92	6.48	6.92
Wholesale	6.39	6.12	6.88	8.52	9.29	11.00
Retail	1.89	1.94	2.06	2.23	2.19	2.37

In this graph, each bar represents the total residential retail price for a given financial year, with components (identified in the adjoining table) individually shown within the bar. Note that the final two years have been recalculated to incorporate a carbon price.

4.3.1 Projected trends in Australian Capital Territory residential electricity prices from 2011/12 to 2013/14 in the absence of a carbon price

Summary

Between the base year (2010/11) and the final year (2013/14) of the projection period, residential electricity prices in the Australian Capital Territory are projected to increase by approximately 26 per cent in nominal terms. This is equivalent to a nominal increase of 4.27c/kWh in the total residential electricity price over this period.

The average annual growth rate of Australian Capital Territory residential electricity prices over this three year projection period is expected to be approximately eight per cent.

Table 4.7 shows that the main driver over the projection period is increases in the wholesale energy component.

Table 4.7 Australian Capital Territory - projected movement of retail electricity cost components from 2011/12 to 2013/14 in the absence of a carbon price

	Nominal percentage increase between 2010/11 - 2013/14	Nominal price increase between 2010/11 - 2013/14 (c/kWh)	Percentage of total price increase attributable to component
Transmission component	36	0.41	10
Distribution component	16	0.96	22
Wholesale energy component	33	2.13	50
Retail component	18	0.34	8
Green energy component (total)	53	0.43	10
Total	**26**	**4.27**	**100**

This table identifies the nominal percentage change for electricity retail price components between the final year (2013/14) and the base year (2010/11) (column 1) and the nominal price difference for each identified component (column 2). It also indicates how much of the overall change in retail price over this period is attributable to each component (column 3). All values have been drawn from figure 4.3 however note that the individual green energy components, identified in figure 4.3, have been amalgamated in this table.

Transmission network component

Between the base year (2010/11) and the final year (2013/14) of the projection period, the transmission network component is projected to increase by approximately 36 per cent in nominal terms. This is:

- equivalent to a nominal price increase in this component of 0.41c/kWh over that period; and
- a contribution of approximately ten per cent to the overall forecasted increase in residential electricity prices over that period.

The projected growth in the transmission component reflects the growth projected in New South Wales, as the Australian Capital Territory is serviced by the New South Wales transmission business.

Distribution network component

Between the base year (2010/11) and the final year (2013/14) of the projection period, the distribution network component is projected to increase by approximately 16 per cent in nominal terms. This is:

- equivalent to a nominal price increase in this component of 0.96c/kWh over that period; and
- a contribution of approximately 22 per cent to the overall forecasted increase in residential electricity prices over that period.

Over the current regulatory determination period, significant capital works on the distribution network in the Australian Capital Territory are anticipated. This is primarily to build and augment substations and improve the security of the electricity supply into the Australian Capital Territory. A 69 per cent increase in capital expenditure is expected in the current five year regulatory period on the distribution network, compared with the previous regulatory period.

However, relatively small average annual increases in maximum demand of 0.6 per cent per year, and a reduction in average annual energy consumption of 0.1 per cent each year over the 2009/10 to 2013/14 regulatory period, is forecast. In particular:

- Maximum demand and energy consumption were revised down during the AER's determination process to take into account slowing economic growth, following the global financial crisis and the impact of the proposed Carbon Pollution Reduction Scheme prevalent at the time.

- The Australian Capital Territory electricity distributor has also indicated that the winter peak demand has also been falling, due in part to increased energy efficiency and the movement of consumers to gas heating.

- The Australian Capital Territory electricity distributor's rate of return on capital investments for the current regulatory period of 8.79 per cent is also lower than other network businesses, as it did not seek a merits review if its determination by the Australian Competition Tribunal.[45]

Wholesale energy component

Between the base year (2010/11) and the final year (2013/14) of the projection period, the wholesale energy component is projected to increase by approximately 33 per cent in nominal terms. This is:

- equivalent to a nominal price increase in this component of 2.13c/kWh over that period; and

- a contribution of approximately 50 per cent to the overall forecasted increase in residential electricity prices over that period.

The nominal wholesale electricity component is projected to fall from 6.39c/kWh in 2010/11 to 6.12c/kWh in 2011/12, largely as a result of lower market prices. This may reflect a softening in demand following the global financial crisis.

45 It is estimated that if ActewAGL Distribution had received the same increase in its rate of return as the New South Wales distribution businesses following their merits review with the Australian Competition Tribunal (that is 10.02 per cent), that ActewAGL Distribution's maximum allowed revenue would have increased by $8 million to $10 million per year over its regulatory determination. It is estimated that this would have resulted in a 1.5 per cent increase in residential electricity prices in the Australian Capital Territory over the regulatory period.

However, between 2011/12 and 2013/14, the wholesale electricity component is then projected to increase significantly from 6.12c/kWh to 8.52c/kWh, reflecting an anticipated tightening of the supply/demand balance following a recovery in demand.

Retail component

Between the base year (2010/11) and the final year (2013/14) of the projection period, the retail component is projected to increase by approximately 18 per cent. This is:

- equivalent to a nominal price increase in this component of 0.34c/kWh over that period; and
- a contribution of approximately eight per cent to the overall projected increase in residential electricity prices over that period.

The increase in the retail component reflects the increase in the retail margin from five to 5.4 per cent, which was considered necessary by the jurisdictional regulator to provide retailers with an appropriate return on their investment.

Green energy component

Between the base year (2010/11) and the final year (2013/14) of the projection period, the green energy component is projected to increase by approximately 53 per cent. This is:

- equivalent to a nominal price increase in this component of 0.43c/kWh over that period; and
- a contribution of approximately ten per cent to the overall projected increase in residential electricity prices over that period.

Until recently, the Australian Capital Territory had in place a gross feed-in tariff scheme which, due to its popularity, had undergone a number of significant changes to design and payments since it came into effect in 2009. The scheme, which was last revised on 12 July 2011, was closed at midnight on 13 July 2011 when the cap was reached.[46] Nevertheless the scheme is expected to contribute between 0.9 and two per cent to the total residential electricity price increase over the total 2010/11 to 2013/14 period.

The combined impact of the Large-Scale Renewable Energy Target (LRET) and the Small-Scale Renewable Energy Scheme (SRES) is projected to contribute around four per cent of the expected increase in residential electricity prices in the Australian Capital Territory.

46 Australian Capital Territory Government media release, Thursday 14 July 2011.

Compliance with the Greenhouse Gas Abatement Scheme is projected to comprise only a small proportion of the total residential electricity price in the Australian Capital Territory, and the scheme is expected to cease with the introduction of a carbon price.

4.3.2 Projected trends in Australian Capital Territory residential electricity prices from 2011/12 to 2013/14 under a carbon price

Summary

Taking into account a price on carbon, between the base year (2010/11) and the final year (2013/14) of the projection period, residential electricity prices in Australian Capital Territory are projected to increase by 42 per cent in nominal terms. This is equivalent to a nominal increase of 6.74c/kWh in the total residential electricity price over this period.

The average annual growth rate of Australian Capital Territory residential electricity prices over this three year projection period is expected to be approximately 12 per cent.

Table 4.8 shows that with a price on carbon, 68 per cent of the projected increase is attributable to an increase in the wholesale energy component, which is expected to increase in nominal terms by 72 per cent over the projection period.

Table 4.8 Australian Capital Territory - projected retail electricity components with and without a carbon price

	Nominal percentage increase between 2010/11 - 2013/14		Nominal price increase between 2010/11 - 2013/14 (c/kWh)		Percentage of total price increase attributable to component	
	No carbon	With carbon	No carbon	With carbon	No carbon	With carbon
Transmission component	36	36	0.41	0.41	10	6
Distribution component	16	16	0.96	0.96	22	14
Wholesale energy component	33	72	2.13	4.61	50	68
Retail component	18	25	0.34	0.48	8	7
Green energy component (total)	53	34	0.43	0.28	10	4
Total	**26**	**42**	**4.27**	**6.74**	**100**	**100**

This table compares the information from table 4.7, projected movements of retail electricity components in the absence of a carbon price, with projected movements of the same components including a carbon price. It provides an illustration of how the imposition of a carbon price might impact on these components.

Wholesale energy and retail component

The effect of a carbon price on the wholesale energy component is essentially the same for the Australian Capital Territory and New South Wales however, given that the regulators in both jurisdictions employ different methodologies in calculating the wholesale energy component of the standing offer tariff, the resulting projection appears markedly different.

With the inclusion of a carbon price, the wholesale energy component of the residential electricity tariff in the Australian Capital Territory is expected to increase by 4.61c/kWh, compared with 2.13c/kWh in the absence of a price on carbon.

As a result of this increase, the calculated retail component for the Australian Capital Territory is also expected to increase. This is due to the retail margin being calculated as a percentage of the standing offer price. The nominal increase in the retail component with the inclusion of a price on carbon is 0.14c/kWh.

Green energy component

As with New South Wales, the inclusion of a price on carbon reduces the green energy component over the projection period. This is primarily due to the reduction in the compliance obligations related to LRET.

In the Australian Capital Territory, the percentage of the total price increase attributable to green energy compliance obligations is expected to decrease from ten to four per cent over the projection period, with the inclusion of a price on carbon.

Carbon price impact

Applying the current ICRC methodology used for forecasting retail tariffs to include a carbon price, table 4.9 shows that estimates of the total retail price for the Australian Capital Territory are projected to increase by 2.41c/kWh in 2012/13, and 2.47c/kWh in 2013/14.

Table 4.9 Australian Capital Territory - projected impact of carbon price on total residential electricity price in 2012/13 and 2013/14

Period	Year on year increase attributable to carbon price (c/kWh)	Percentage increase in residential price due to carbon price
2012/13	2.41	11.7%
2013/14	2.47	10.8%

The inclusion of a carbon price leads to a 12 per cent increase in the overall retail price, moving from 18.25c/kWh to 20.66c/kWh in 2012/13.

The impact decreases slightly in 2013/14 to a total retail price increase of 11 per cent, moving from 20.47c/kWh to 22.93c/kWh.

4.4 Victoria

Figure 4.4 outlines possible residential electricity prices in Victoria between 2010/11 and 2013/14. It depicts actual prices for 2010/11, estimated prices for 2011/12 and forecast residential electricity prices for 2012/13 to 2013/14.

As retail price regulation was removed in Victoria at the beginning of 2009, the wholesale and retail components for the whole projection period have been estimated.

Premium feed-in tariff payments have also been estimated for the whole projection period.

The prices paid in figure 4.4 are representative of the standing offer contract prices that may be paid by residential electricity customers in Victoria over the projection period.

While as at June 2008, approximately 46 per cent of all electricity and gas customers remained on standing offer contracts,[47] updated information on the proportion of residential electricity customers that currently remain on standing offer contracts in Victoria is limited. However, the Essential Services Commission of Victoria notes that currently around 65 per cent of Victorian customers have entered competitive market contracts with their own or a new retailer.[48]

Given the high degree of customer switching between retailers in Victoria, the prices in figure 4.4 are likely to be representative of only a small proportion of the total number of residential electricity customers.

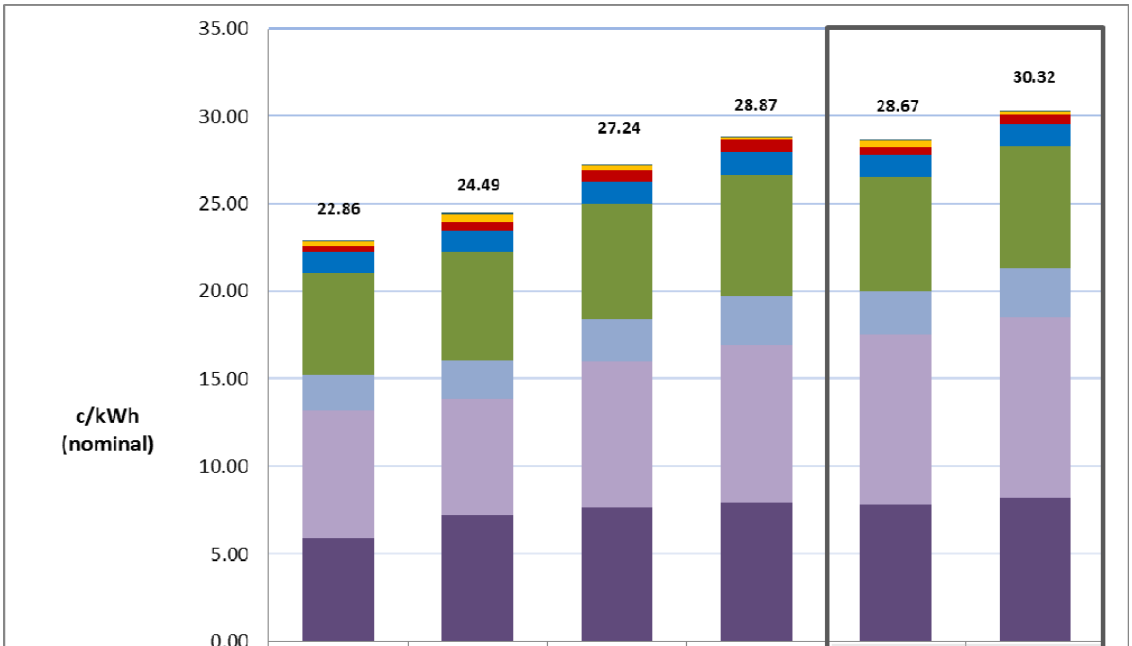
The majority of residential electricity customers in Victoria are supplied on market contracts, which can provide discounts of around 10 - 20 per cent on standing offer contract prices.[49] The deregulation of retail price regulation in Victoria has resulted in limited publicly available information on retailer's wholesale and retail costs. As a result, the prices in figure 4.4 provide an indication of possible trends in standing offer contract prices in Victoria only.

47 Essential Services Commission, *Energy retailers: comparative performance report – customer service 2007/08*, December 2008

48 Essential Services Commission, *Energy retailers: comparative performance report – pricing 2009-10*, December 2010, p. IV.

49 This discount is based on a comparison of standing offer prices and market contract prices on www.yourchoice.vic.gov.au.

Figure 4.4 Victoria - current and future possible residential electricity prices from 2010/11 to 2013/14



	2010-11	2011-12	2012-13	2013-14	2012-13 Carbon	2013-14 Carbon
Premium feed in tariff	0.03	0.07	0.08	0.08	0.08	0.08
SRES	0.30	0.53	0.29	0.14	0.32	0.15
RET	0.25	0.44	0.66	0.70	0.51	0.54
Transmission	1.27	1.21	1.24	1.27	1.24	1.27
Distribution	5.82	6.19	6.53	6.96	6.53	6.96
Metering	2.01	2.20	2.47	2.77	2.47	2.77
Wholesale	7.31	6.64	8.36	9.00	9.71	10.32
Retail	5.88	7.22	7.61	7.94	7.81	8.23

In this graph, each bar represents the total residential retail price for a given financial year, with components (identified in the adjoining table) individually shown within the bar. Note that the final two years have been recalculated to incorporate a carbon price.

4.4.1 Projected trends in Victorian residential electricity prices from 2011/12 to 2013/14 in the absence of a carbon price

Summary

Between the base year (2010/11) and the final year (2013/14) of the projection period, residential electricity prices in Victoria are projected to increase by 26 per cent in nominal terms. This is equivalent to a nominal increase of 6.01c/kWh in the total residential electricity price over this period.

The average annual growth rate of Victorian residential electricity prices over this three year projection period is expected to be approximately eight per cent.

Table 4.10 shows that 35 per cent of the total residential price increase is due to increases in the retail component over the projection period.

Table 4.10 Victoria - projected movement of retail electricity cost components from 2011/12 to 2013/14 in the absence of a carbon price

	Nominal percentage increase between 2010/11 - 2013/14	Nominal price increase between 2010/11 - 2013/14 (c/kWh)	Percentage of total price increase attributable to component
Transmission component	1	0.01	0
Distribution component	20	1.14	19
Metering component	38	0.76	13
Wholesale energy component	23	1.69	28
Retail component	35	2.07	34
Green energy component (total)	59	0.34	6
Total	**26**	**6.01**	**100**

This table identifies the nominal percentage change for electricity retail price components between the final year (2013/14) and the base year (2010/11) (column 1) and the nominal price difference for each identified component (column 2). It also indicates how much of the overall change in retail price over this period is attributable to each component (column 3). All values have been drawn from figure 4.4 however note that the individual green energy components, identified in figure 4.4, have been amalgamated in this table.

Transmission network component

Between the base year (2010/11) and the final year (2013/14) of the projection period, the transmission network component is projected to increase by one per cent in nominal terms. This is:

- equivalent to a nominal price increase in this component of 0.01c/kWh, over that period; and
- does not contribute towards an increase in the overall projected residential electricity price over that period.

The main reason for this marginal increase over the projection period is a reduction in the cost pass through allowances for 2011. According to the AER, transmission businesses were not permitted to recoup: charges relating to transmission connection charges; inter-distribution charges; or payments to embedded generators. This consequently lowered the effective tariffs in 2011 relative to 2010. Our projections escalate the transmission component based on the actual tariffs in 2011; therefore the lower base has resulted in a lower transmission component at the end of the period relative to the base year. However, the AER has indicated that these charges are likely to be passed through to customers in 2012, which may cause a step increase greater than that projected in this report. Therefore, going forward there is the possibility that the transmission component may be higher than estimated here.

Notwithstanding the above caveat, capital expenditure on the Victorian transmission network is forecast to increase by 91 per cent compared to the previous regulatory control period, as a result of a substantial refurbishment and redevelopment program. This includes refurbishment of a number of terminal stations, which are expected to have a high risk of failure during the current regulatory determination. In summary, the transmission network business is forecast to spend $1 billion more in capital

expenditure over the 2011 to 2015 regulatory period compared with the 2008/09 to 2012/13 regulatory period.

The underlying cost of undertaking transmission and distribution capital expenditure is expected to increase over the next few years as a result of higher rates of return (compared to previous regulatory periods) and real increases in input costs, such as aluminium, steel, and copper.

Distribution network component

Between the base year (2010/11) and the final year (2013/14) of the projection period, the distribution component is projected to increase by 20 per cent in nominal terms. This is:

- equivalent to a nominal price increase in this component of 1.14c/kWh, over that period; and
- a contribution of 19 per cent to the overall projected increase in residential electricity prices over that period.

It should be noted that there is potential for the distribution component to change, as the AER's distribution determination is currently under merits review at the Australian Competition Tribunal.

However, under the AERs current distribution determinations, the five electricity distributors in Victoria are forecast to spend a total of $4.57 billion on capital expenditure. Consequently, the increase in the distribution component is related to a number of contributing factors:

- forecast increases in capital expenditure on the distribution network, which is expected to increase by 46 per cent in total compared to the previous regulatory period;
- this increasing capital expenditure is as a result of relatively strong annual increases in maximum demand, which is forecast to increase by between two and four per cent on average each year between 2011 and 2015, depending on the distribution area. Maximum demand is forecast to increase by the most in eastern Victoria, as a result of the increasing penetration of air conditioners and greater duration of their use; and
- additionally, increases in capital expenditure are also required by the Victorian distribution networks to replace ageing assets and to meet new safety obligations following the Victorian bushfires.[50]

50 For example, all distributors in Victoria are now required to develop and implement Energy Safety Management Schemes, which have led to a steep increase in replacement expenditure. Further safety obligations may be placed on Victorian distributors following the consideration of the measures proposed by the Victorian Bushfires Royal Commission by the Victorian Government, which may result in the need to pass further costs through over the regulatory period. In relation to

Metering

Between the base year (2010/11) and the final year (2013/14) of the projection period, the metering component is projected to increase by 38 per cent in nominal terms. This is:

- equivalent to a nominal price increase in this component of 0.76c/kWh, over that period; and
- a contribution of 13 per cent to the overall projected increase in residential electricity prices over that period.

This increase is primarily as a result of the cost pass through to consumers allowed by the AER to cover the cost of the roll-out of smart meters in Victoria. The projections in this report reflect the AERs final determination for Victorian advanced metering infrastructure that was approved and published by the AER in October 2011.[51]

Wholesale energy component

Between the base year (2010/11) and the final year (2013/14) of the projection period, the wholesale energy component is projected to increase by 23 per cent in nominal terms. This is:

- equivalent to a nominal price increase in this component of 1.69c/kWh, over that period; and
- a contribution of 28 per cent to the overall projected increase in residential electricity prices over that period.

Between 2010/11 and 2011/12, the wholesale electricity component is forecast to fall due to softer demand growth as the result of the global financial crisis, in addition to slower economic growth in the state. Given this expected decrease, retail operating costs and retail margins are forecast to comprise a larger proportion of the standing offer price over these years.[52]

Between 2011/12 and 2013/14, demand for electricity is expected to recover and a tightening in the demand/supply balance is forecast. This is likely to increase

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that enquiry, new legislation to impose further bushfire safety requirements on Victorian network companies was introduced into State Parliament in September 2011. The Act extends the obligation to mitigate bushfire risks to the whole of electricity company's supply networks, rather than just their at-risk supply networks after Energy Safe Victoria found the current distinction was unworkable, due to the fluid nature of the boundaries between low-risk and high-risk network areas.

51 AER, *Final Determination - Victorian Advanced Metering Infrastructure Review: 2012-15 budget and charges applications (Public Version)*, October 2011.

52 It should also be noted that in Victoria, the entire retail margin is included in the retail component. In other jurisdictions, wholesale retail margins may include an additional retail margin as part of the wholesale allowance provided by jurisdictional regulators. As noted above, these figures should be interpreted with caution.

wholesale market electricity prices in 2012/13. However, in Victoria this increase is not expected to be as great as in other jurisdictions, such as New South Wales and Queensland, as new wind capacity is forecast to emerge in Victoria and South Australia in response to the expanded Renewable Energy Target (RET). This new capacity is expected to dampen rises in wholesale market electricity prices in Victoria during 2012/13.[53]

Retail component

Between the base year (2010/11) and the final year (2013/14) of the projection period, the retail component is projected to increase by 35 per cent in nominal terms. This is:

- equivalent to a nominal price increase in this component of 2.07c/kWh, over that period; and
- a contribution of 34 per cent to the overall projected increase in residential electricity prices over that period.

As noted above, the retail component of the Victorian standing offer tariff should be interpreted with caution. As residential retail prices in Victoria are not regulated, no data exists for the typical retail component in the cost build-up. It has therefore been estimated by removing the known cost components from the weighted average standing offer price calculated for Victoria.

Given that the retail component is estimated and that very few customers are on the standing offer tariff, the retail component for the majority of Victorian residential consumers is likely to be lower than has been estimated in this report.

Green energy component

Between the base year (2010/11) and the final year (2013/14) of the projection period, the green energy component is projected to increase by 59 per cent in nominal terms. This is:

- equivalent to a nominal price increase in this component of 0.34c/kWh, over that period; and
- a contribution of six per cent to the overall projected increase in residential electricity prices over that period.

Like other jurisdictions, the combined impact of the Large-Scale Renewable Energy Target (LRET) and the Small-Scale Renewable Energy Scheme (SRES) is expected to contribute around four per cent of the total increase in residential electricity prices, as a result of the transition from the previous Mandatory Renewable Energy Target (MRET) to the current, expanded Renewable Energy Target (RET).

53 We understand that in Victoria there is also the Victorian Energy Efficiency Target, which was not included in our analysis.

On the other hand, Victoria's premium feed-in tariff comprises a relatively small proportion of the total residential electricity price. While in nominal terms it is expected to increase by 220 per cent over the projection period, in 2010/11 the feed-in tariff is expected to comprise 0.1 per cent of the total residential electricity price and is not expected to comprise a significant component of future price increases (0.3 per cent in 2013/14).

4.4.2 Projected trends in Victorian residential electricity prices from 2011/12 to 2013/14 under a carbon price

Summary

Taking into account a price on carbon, between the base year (2010/11) and the final year (2013/14) of the projection period, residential electricity prices in Victoria are projected to increase by 33 per cent in nominal terms. This is equivalent to a nominal increase of 7.46c/kWh in the total residential electricity price over this period.

The average annual growth rate of Victoria residential electricity prices over this three year projection period is expected to be approximately ten per cent.

As shown in table 4.11, of that increase, 40 per cent and 31 per cent is forecast to be attributable to increases in the wholesale energy and retail components, which are expected to increase in nominal terms by 41 per cent and 40 per cent respectively over the forecast period.

Table 4.11 Victoria - projected retail electricity components with and without a carbon price

	Nominal percentage increase between 2010/11 - 2013/14		Nominal price increase between 2010/11 - 2013/14 (c/kWh)		Percentage of total price increase attributable to component	
	No carbon	With carbon	No carbon	With carbon	No carbon	With carbon
Transmission component	1	1	0.01	0.01	0	0
Distribution component	20	20	1.14	1.14	19	15
Metering component	38	38	0.76	0.76	13	10
Wholesale energy component	23	41	1.69	3.02	28	40
Retail component	35	40	2.07	2.35	34	31
Green energy component (total)	59	32	0.34	0.19	6	3
Total	**26**	**33**	**6.01**	**7.46**	**100**	**100**

This table compares the information from table 4.10, projected movements of retail electricity components in the absence of a carbon price, with projected movements of the same components including a carbon price. It provides an illustration of how the imposition of a carbon price might impact on these components.

Wholesale energy and retail component

With the inclusion of a carbon price, the wholesale energy component of the residential electricity tariff in Victoria is expected to increase to 3.02c/kWh, compared with 1.69c/kWh in the absence of a price on carbon.

The carbon pass-through for Victoria is projected to be lower than the average emissions intensity of Victorian generation, reflecting price competition from lower-emissions generation sources in the regions with which Victoria is connected (namely New South Wales, South Australia and Tasmania). In particular, the Victorian pass-through outcome from the modelling is affected by competition from lower emissions natural gas and wind (South Australia) and hydro (Tasmania), resulting in a clear divergence from New South Wales pass-through outcomes.

As a result of this increase in the wholesale energy component, the calculated retail component for Victoria is also expected to increase. The incremental increase in the retail component, with the inclusion of a price on carbon, is 0.28c/kWh in nominal terms.

Green energy component

The inclusion of a price on carbon reduces the green energy component over the projection period. This is primarily due to a carbon price reducing the cost of the LRET by raising the wholesale price, thereby reducing the certificate price needed to bridge the gap between revenue available through the wholesale market and revenue needed for project viability.

Carbon price impact

Compared to projected price movements in the absence of a carbon price, and using the current methodology for forecasting retail tariffs, table 4.12 shows that, with the inclusion of a price on carbon, estimates of the total retail price for Victoria are projected to increase by 1.43c/kWh in 2012/13. Similarly, in the following year 2013/14, the expected increase in the total retail tariff as a result of a price on carbon is 1.45c/kWh.

Table 4.12 Victoria - projected impact of carbon price on retail residential electricity price from 2012/13 to 2013/14

Period	Year on year increase attributable to carbon price (c/kWh)	Percentage increase in residential price due to carbon price
2012/13	1.43	5.0%
2013/14	1.45	4.8%

That is, with carbon prices factored in, the total retail price in Victoria moves from 27.24c/kWh to 28.67c/kWh in 2012/13. This equates to a nominal five per cent increase. Similarly, in 2013/14 the total retail price increases nominally by five per cent with carbon factored in from 28.87c/kWh to 30.32c/kWh.

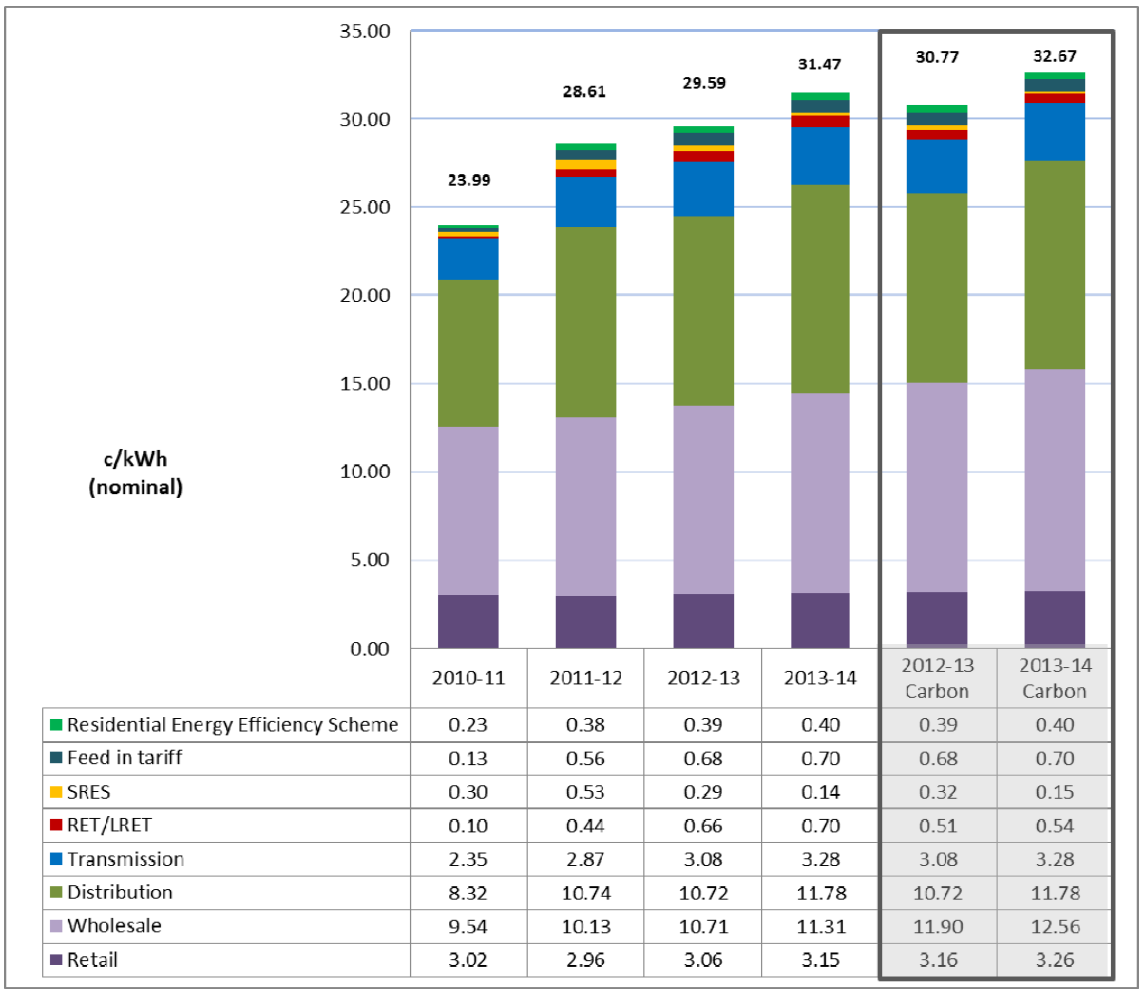
4.5 South Australia

Figure 4.5 outlines possible residential electricity prices in South Australia between 2010/11 and 2013/14. It depicts actual prices for 2010/11, estimated prices for 2011/12,

and our projections of residential electricity prices for 2012/13 and 2013/14. Jurisdictional and AER determinations have been used to derive prices for the projection period.

The prices in figure 4.5 are representative of the prices that residential electricity customers on standing offer contracts in South Australia may face over the projection period. Approximately 26 per cent of residential electricity customers in South Australia remained on standing offer contracts as at 30 June 2011.[54] Therefore, these projections should be interpreted with caution as the majority of customers in South Australia are likely to be on market offers.

Figure 4.5 South Australia - current and future possible residential electricity prices from 2010/11 to 2013/14



	2010-11	2011-12	2012-13	2013-14	2012-13 Carbon	2013-14 Carbon
Residential Energy Efficiency Scheme	0.23	0.38	0.39	0.40	0.39	0.40
Feed in tariff	0.13	0.56	0.68	0.70	0.68	0.70
SRES	0.30	0.53	0.29	0.14	0.32	0.15
RET/LRET	0.10	0.44	0.66	0.70	0.51	0.54
Transmission	2.35	2.87	3.08	3.28	3.08	3.28
Distribution	8.32	10.74	10.72	11.78	10.72	11.78
Wholesale	9.54	10.13	10.71	11.31	11.90	12.56
Retail	3.02	2.96	3.06	3.15	3.16	3.26

In this graph, each bar represents the total residential retail price for a given financial year, with components (identified in the adjoining table) individually shown within the bar. Note that the final two years have been recalculated to incorporate a carbon price.

54 ESCOSA, *Energy Retail market - June 2011 Quarter*.

4.5.1 Projected trends in South Australia residential electricity prices from 2011/12 to 2013/14 in the absence of a carbon price

Summary

Between the base year (2010/11) and the final year (2013/14) of the projection period, residential electricity prices in South Australia are projected to increase by 31 per cent in nominal terms. This is equivalent to a nominal increase of 7.47c/kWh in the total residential electricity price over this period.

The average annual growth rate of South Australian residential electricity prices over this three year projection period is expected to be approximately nine per cent.

As shown in table 4.13, of the projected increase in the residential retail electricity price, 42 per cent is related to increases in the distribution component, and 19 per cent is related to increase in the wholesale energy component.

Table 4.13 South Australia - projected movement of retail electricity cost components from 2011/12 to 2013/14 in the absence of a carbon price

	Nominal percentage increase between 2010/11 - 2013/14	Nominal price increase between 2010/11 - 2013/14 (c/kWh)	Percentage of total price increase attributable to component
Transmission component	40	0.93	12
Distribution component	42	3.46	46
Wholesale energy component	19	1.77	24
Retail component	4	0.13	2
Green energy component (total)	156	1.19	16
Total	**31**	**7.47**	**100**

This table identifies the nominal percentage change for electricity retail price components between the final year (2013/14) and the base year (2010/11) (column 1) and the nominal price difference for each identified component (column 2). It also indicates how much of the overall change in retail price over this period is attributable to each component (column 3). All values have been drawn from figure 4.5 however note that the individual green energy components, identified in figure 4.5, have been amalgamated in this table.

Transmission network component

Between the base year (2010/11) and the final year (2013/14) of the projection period, the transmission component is projected to increase by 40 per cent in nominal terms. This is:

- equivalent to a nominal price increase in this component of 0.93c/kWh, over that period; and
- a contribution of 12 per cent to the overall projected increase in residential electricity prices over that period.

The increase in the transmission network component is the result of a 61 per cent increase in capital expenditure over the currently regulatory period compared to the

previous regulatory period. Thirty nine per cent of forecast capital expenditure on the transmission network will be spent on the replacement of ageing assets throughout the transmission network.

Increased levels of capital expenditure are also required to meet higher reliability standards due to changes in the South Australian Transmission Code, which came into effect in July 2008.

A higher rate of return on capital, as allowed by the Australian Energy Regulator (AER) in its transmission network determination is also expected to contribute to the increase in this component.

Distribution network component

Between the base year (2010/11) and the final year (2013/14) of the projection period, the distribution component is projected to increase by 42 per cent in nominal terms. This is:

- equivalent to a nominal price increase in this component of 3.46c/kWh, over that period; and
- a contribution of 46 per cent to the overall projected increase in residential electricity prices over that period.

Increases in the contribution of distribution services is a key driver in the increasing cost of residential electricity prices in South Australia, with the nominal price increasing from 8.32c/kWh to 11.78c/kWh. The distribution component in South Australia is projected to increase as a result of increasing maximum demand and higher rates of return on capital compared to previous regulatory periods. Maximum demand is forecast to increase by 2.4 per cent a year between 2009/10 to 2014/15.

In addition, almost 50 per cent of the South Australian electricity distributor's forecast capital expenditure will be driven by increases in demand. In total, $1.5 billion ($2009) in capital expenditure is forecast to be spent on the distribution network in South Australia over the current regulatory period, which is an increase of 117 per cent on the level of capital expenditure that was spent in the previous regulatory period.

This increase in maximum demand is largely driven by the growing use of air conditioners during summer heatwaves, despite customers consuming less energy on average as a result of energy efficiency programs. As a result, the costs of providing distribution services must be recovered from a smaller volume of electricity sold.

The higher rate of return on capital allowed by the AER compared to previous regulatory periods has also contributed to increasing distribution costs. The rate of return for the South Australian distribution network is 9.76 per cent for the 2010/11 to 2014/15 period. This reflects a slight easing of debt premiums following the global financial crisis, compared to the rates of return that were set for other network businesses in 2009.

The distribution component in this projection is inclusive of the changes resulting from the ruling by the Australian Competition Tribunal on 19 May 2011.[55] The orders from the Australian Competition Tribunal allow ETSA Utilities (the electricity distributor in South Australia) to recover an additional $301 million over the current regulatory period to 2014/15, which has resulted in an increase in the contribution of the distribution component between 2010/11 and 2011/12.

Wholesale energy component

Between the base year (2010/11) and the final year (2013/14) of the projection period, the wholesale component is projected to increase by 19 per cent in nominal terms. This is:

- equivalent to a nominal price increase in this component of 1.77c/kWh, over that period; and
- a contribution of 24 per cent to the overall projected increase in residential electricity prices over that period.

Wholesale electricity market prices are highly volatile in South Australia due to high summer peak demand. To assist retailers in accommodating this volatility, the South Australian energy regulator, the Essential Services Commission of South Australia (ESCOSA), applies a floor and cap approach to the standing contract price, which includes the wholesale price.

For the purpose of calculating the wholesale electricity component in this report, the average of the floor and cap prices published by ESCOSA in its determination have been used. Higher than expected long-run marginal costs of generation in South Australia have resulted in a significant increase in forecasted wholesale electricity prices between 2011/12 and 2013/14, equivalent to an increase of 11 per cent.

In addition to volatile demand, a number of other factors unique to the South Australian energy market appear to contribute to higher wholesale prices on average, compared with other jurisdictions. These factors include:

- a relatively small market;
- a high dependence on gas fired generation, which is on average more costly than coal fired generation; and
- relatively limited interconnection capability, which limits the amount of potentially cheaper electricity than can be imported from other jurisdictions.

The wholesale component comprises about 35 per cent of the total residential electricity price in South Australia.

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55 AER homepage, *Amendments to distribution determination - Australian Competition Tribunal orders* (19 May 2011).

Retail component

Between the base year (2010/11) and the final year (2013/14) of the projection period, the retail component is projected to increase by four per cent in nominal terms. This is:

- equivalent to a nominal price increase in this component of 0.13c/kWh, over that period; and
- a contribution of two per cent to the overall projected increase in residential electricity prices over that period.

Green energy component

Between the base year (2010/11) and the final year (2013/14) of the projection period, the green energy component is projected to increase by 156 per cent in nominal terms. This is:

- equivalent to a nominal price increase in this component of 1.19c/kWh, over that period; and
- a contribution of 16 per cent to the overall projected increase in residential electricity prices over that period.

The main driver of increases in the green energy component is expansion of the cost pass-through for the feed-in tariff scheme from 2012/13. Over the projection period, the feed-in tariff component is forecast to increase by 442 per cent in nominal terms, which is equivalent to 0.57c/kWh or 7.6 per cent of the projected increase in residential electricity prices.

The impact of the Large-Scale Renewable Energy Target (LRET) and the Small-Scale Renewable Energy Scheme (SRES) are expected to contribute five per cent of the total increase in residential electricity prices, as a result of the expanded Renewable Energy Target (RET).[56]

On the other hand, the Residential Energy Efficiency Scheme is not expected to significantly drive increases in the residential electricity price over the projection period.

56 The costs of the LRET and SRES from 2011/12 onwards have been sourced from modelling undertaken for the AEMC. ESCOSA's combined estimated cost of the LRET and SRES in nominal terms are: 0.99c/kWh for 2011/12; 1.01c/kWh for 2012/13; and 1.02c/kWh for 2013/14. These costs are, in the main, higher than those modelled for the AEMC.

4.5.2 Projected trends in South Australia residential electricity prices from 2011/12 to 2013/14 under a carbon price

Summary

Taking into account a price on carbon, between the base year (2010/11) and the final year (2013/14) of the projection period, residential electricity prices in South Australia are projected to increase by 36 per cent in nominal terms. This is equivalent to a nominal increase of 8.68c/kWh in the total residential electricity price over this period.

The average annual growth rate of South Australian residential electricity prices over this three year projection period is expected to be approximately 11 per cent.

Table 4.14 shows that of the projected increase, 35 per cent is projected to be attributable to increases in the cost of wholesale energy, which is expected to increase in nominal terms by 32 per cent over the projection period.

Table 4.14 South Australia – projected retail electricity components with and without a carbon price

	Nominal percentage increase between 2010/11 - 2013/14		Nominal price increase between 2010/11 - 2013/14 (c/kWh)		Percentage of total price increase attributable to component	
	No carbon	With carbon	No carbon	With carbon	No carbon	With carbon
Transmission component	40	40	0.93	0.93	12	11
Distribution component	42	42	3.46	3.46	46	40
Wholesale energy component	19	32	1.77	3.02	24	35
Retail component	4	8	0.13	0.24	2	3
Green energy component (total)	156	136	1.19	1.03	16	12
Total	**31**	**36**	**7.47**	**8.68**	**100**	**100**

This table compares the information from table 4.13, projected movements of retail electricity components in the absence of a carbon price, with projected movements of the same components including a carbon price. It provides an illustration of how the imposition of a carbon price might impact on these components.

Wholesale energy and retail component

With the inclusion of a carbon price, the wholesale energy component of the residential electricity price in South Australia is expected to increase to 3.02c/kWh, compared with 1.77c/kWh in the absence of a price on carbon.

As a result of this increase, the calculated retail component for South Australia is also expected to increase by 0.11c/kWh in nominal terms. This is due to the retail margin being calculated as a percentage of the total standing offer price.

Green energy component

The inclusion of a price on carbon reduces the green energy component over the projection period, primarily due to the reduction in compliance obligations relating to LRET.

For South Australia, the percentage of the total price increase attributable to the green energy component is expected to decrease from 16 to 12 per cent over the projection period with the inclusion of a price on carbon.

Carbon price impact

Compared to projected price movements, and applying the current methodology for forecasting retail tariffs, in the absence of a carbon price table 4.15 shows that, with the inclusion of a price on carbon, estimates of the total retail price for South Australia are projected to increase by 1.18c/kWh in 2012/13. Similarly, in the following year 2013/14, the expected increase in the total retail price as a result of a price on carbon is 1.21c/kWh.

Table 4.15 South Australia - projected impact of carbon price on total residential electricity price in 2012/13 and 2013/14

Period	Year on year increase attributable to carbon price (c/kWh)	Percentage increase in residential price due to carbon price
2012/13	1.18	3.8%
2013/14	1.21	3.7%

That is, with carbon prices factored in, the total retail price in South Australia moves from 29.59c/kWh to 30.77c/kWh in 2012/13. This equates to a four per cent increase. Similarly, in 2013/14 the total retail price increases by four per cent with a carbon price factored in from 31.47c/kWh to 32.67c/kWh.

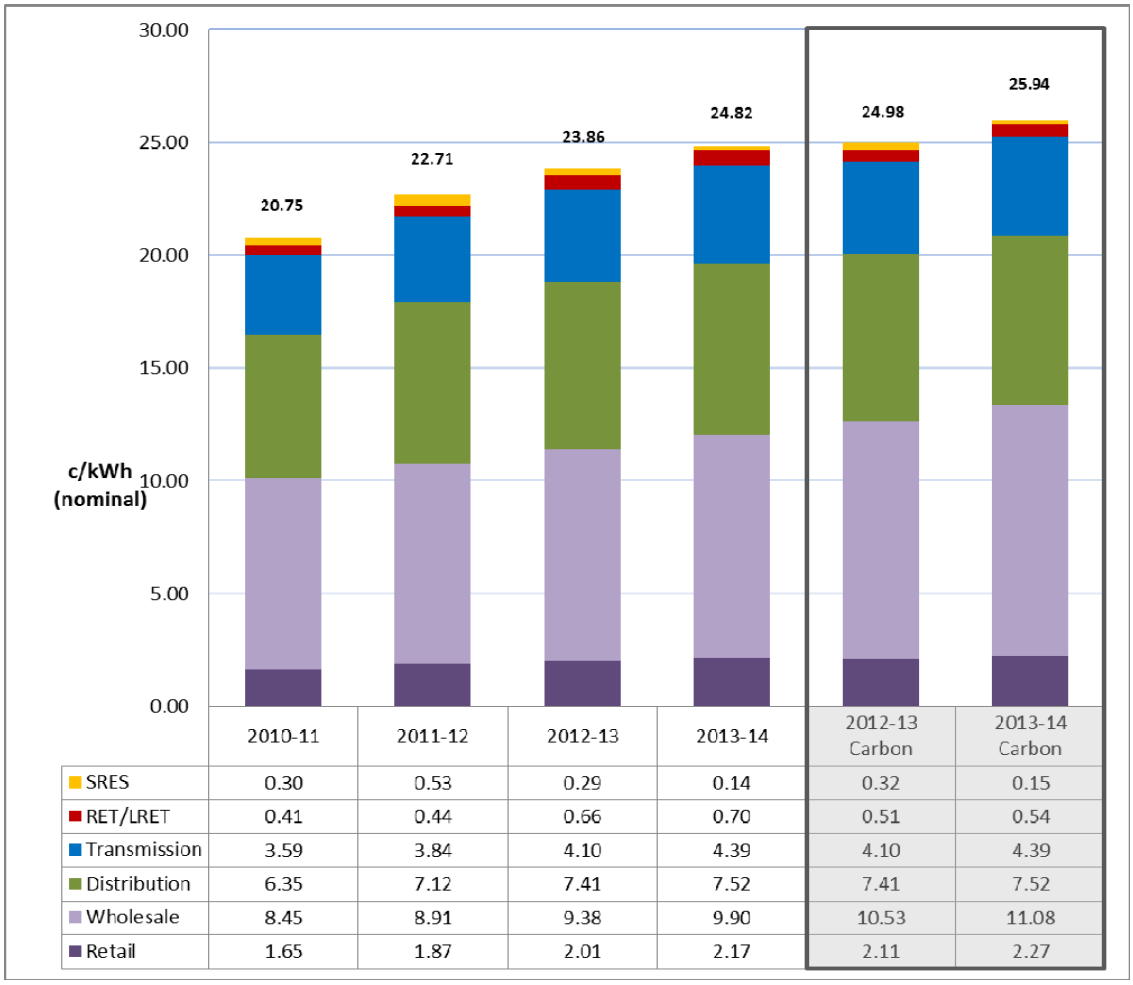
4.6 Tasmania

Figure 4.6 sets out the possible residential electricity prices in Tasmania between 2010/11 and 2013/14. It shows actual prices for 2010/11, estimated prices for 2011/12 and projected residential electricity prices for 2012/13 and 2013/14. Jurisdictional and Australian Energy Regulator (AER) determinations have been used where available to derive the prices for the projection period.

As full retail contestability has not yet been introduced to residential electricity customers in Tasmania, all residential electricity customers are currently supplied under standing offer contracts. The Tasmanian Government announced in December 2009 that it would not proceed to full retail contestability for small business and residential customers at this point, but would continually review the costs and benefits of doing so.[57]

57 Office of the Tasmanian Energy Regulator, *Investigation of maximum prices for electrical services on mainland Tasmania*, October 2010, p. 4.

Figure 4.6 Tasmania - current and future possible residential electricity prices from 2010/11 to 2013/14



	2010-11	2011-12	2012-13	2013-14	2012-13 Carbon	2013-14 Carbon
SRES	0.30	0.53	0.29	0.14	0.32	0.15
RET/LRET	0.41	0.44	0.66	0.70	0.51	0.54
Transmission	3.59	3.84	4.10	4.39	4.10	4.39
Distribution	6.35	7.12	7.41	7.52	7.41	7.52
Wholesale	8.45	8.91	9.38	9.90	10.53	11.08
Retail	1.65	1.87	2.01	2.17	2.11	2.27

In this graph, each bar represents the total residential retail price for a given financial year, with components (identified in the adjoining table) individually shown within the bar. Note that the final two years have been recalculated to incorporate a carbon price.

However, on 1 July 2011 retail contestability was extended to standing offer contestable customers, also known as 'tranche 5a customers' in Tasmania. These customers consume between 50 and 150 MWh of electricity per annum, and have an approximate annual electricity spend of over $10 000.[58]

As yet the date for full retail contestability for the remaining Tasmanian residential electricity customers has not been announced by the Tasmanian Government.

58 Aurora Energy homepage, information about competition and contestability.

4.6.1 Projected trends in Tasmania residential electricity prices from 2011/12 to 2013/14 in the absence of a price on carbon

Summary

Between the base year (2010/11) and the final year (2013/14) of the projection period, residential electricity prices in Tasmania are projected to increase by 20 per cent in nominal terms. This is equivalent to a nominal increase of 4.07c/kWh in the total residential electricity price over this period.

The average annual growth rate of Tasmanian residential electricity prices over this three year projection period is expected to be approximately six per cent.

As shown in table 4.16, the main driver for increases in retail electricity prices in Tasmania is related to increases in the distribution and transmission components. These are projected to increase in nominal terms by 18 and 22 per cent respectively, over the projection period.

Table 4.16 Tasmania - projected movement of retail electricity cost components from 2011/12 to 2013/14 in the absence of a carbon price

	Nominal percentage increase between 2010/11 - 2013/14	Nominal price increase between 2010/11 - 2013/14 (c/kWh)	Percentage of total price increase attributable to component
Transmission component	22	0.80	20
Distribution component	18	1.17	29
Wholesale energy component	17	1.45	36
Retail component	32	0.52	13
Green energy component (total)	18	0.13	3
Total	**20**	**4.07**	**100**

This table identifies the nominal percentage change for electricity retail price components between the final year (2013/14) and the base year (2010/11) (column 1) and the nominal price difference for each identified component (column 2). It also indicates how much of the overall change in retail price over this period is attributable to each component (column 3). All values have been drawn from figure 4.6 however note that the individual green energy components, identified in figure 4.6, have been amalgamated in this table.

Transmission network component

Between the base year (2010/11) and the final year (2013/14) of the projection period, the transmission component is projected to increase by 22 per cent in nominal terms. This is:

- equivalent to a nominal price increase in this component of 0.80c/kWh, over that period; and
- a contribution of 20 per cent to the overall projected increase in residential electricity prices over that period.

The increase in the transmission component is the result of a 70 per cent increase in capital expenditure, compared to the previous regulatory determination. This is as a result of increased replacement expenditure, increases in the Tasmanian reliability standards for transmission, and higher input costs due to the minerals boom.

A high rate of return on capital of 10.04 per cent, as allowed by the AER, is also contributing to the overall increase in this component.

Distribution network component

Between the base year (2010/11) and the final year (2013/14) of the projection period, the distribution component is projected to increase by 18 per cent in nominal terms. This is:

- equivalent to a nominal price increase in this component of 1.17c/kWh, over that period; and
- a contribution of 29 per cent to the overall projected increase in residential electricity prices over that period.

The distribution component is forecast to increase in nominal terms over the projection period from 6.35c/kWh to 8.32c/kWh. This increase is related to increased capital expenditure over the current regulatory period, as approved by the AER, which is forecast to increase by 36 per cent compared to the previous regulatory period. Over the 2008/09 to 2011/12 regulatory period, $631 million ($2009) in capital expenditure is forecast to be spent on the Tasmanian distribution network.

The main drivers of the increasing capital expenditure on the distribution network include: increasing customer demand; the need to replace ageing assets, the need to meet higher reliability standards; and higher rates of return on capital compared to previous regulatory periods. In particular:

- maximum demand is forecast to increase by two per cent per annum and energy consumption is expected to increase by two per cent per annum over the next ten years in Tasmania. This is due to continued customer demand for new connections, growth in demand from existing connections and major new commercial developments. Strong economic growth over the last few years has also resulted in reduced spare capacity in many parts of the network, resulting in the need for an expansion in the distribution network.
- Asset replacements on the distribution network are expected to comprise 23 per cent of total capital expenditure on the distribution network over the current regulatory period. This is a significant increase in capital expenditure for the distribution network and the distributor is forecast to spend approximately 80 per cent more on asset replacements during the next regulatory period compared with the last two years of the previous regulatory period.

- Higher reliability standards in the Tasmanian Electricity Code for distribution have also required augmentations in a number of Tasmanian regional centres.

Wholesale energy component

Between the base year (2010/11) and the final year (2013/14) of the projection period, the wholesale energy component is projected to increase by 17 per cent in nominal terms. This is:

- equivalent to a nominal price increase in this component of 1.45c/kWh, over that period; and

- a contribution of 36 per cent to the overall projected increase in residential electricity prices over that period.

The Tasmanian Economic Regulator makes an allowance of wholesale electricity purchase costs based on the long-run marginal cost of electricity generation when determining the maximum allowed revenue for Aurora Energy.

When making an estimate of the electricity supply costs, the regulator must:[59]

- take into consideration the price that Aurora Energy would pay to purchase electricity in Victoria, transport it to Tasmania and supply customers on regulated tariffs; and
- must be more than or equal to the long-run marginal cost of electricity generation by a notional electricity generator – that generates in an efficient and cost-effective manner - to supply electricity to customers on regulated tariffs.

The wholesale energy component is projected to increase in nominal terms from 8.45c/kWh to 9.90c/kWh over the projection period.

Retail component

Between the base year (2010/11) and the final year (2013/14) of the projection period, the retail component is projected to increase by 32 per cent in nominal terms. This is:

- equivalent to a nominal price increase in this component of 0.52c/kWh, over that period; and

- a contribution of 13 per cent to the overall projected increase in residential electricity prices over that period.

As Aurora Energy's[60] operating costs are not expected to increase in real terms over the projection period, this nominal increase appears to be related to an increase in the value of the retail margin. As the retail margin comprises 3.8 per cent of the total standing offer price, increases in the components of residential electricity prices will serve to increase the value of the retail margin.

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59 *Electricity Supply Industry (Price Control) Regulations 2003*, Part 3, Division 3, regulation 32.

60 This is the Tasmanian Government owned retail and distribution business.

Green energy component

Between the base year (2010/11) and the final year (2013/14) of the projection period, the green energy component is projected to increase by 18 per cent in nominal terms. This is:

- equivalent to a nominal price increase in this component of 0.13c/kWh, over that period; and
- a contribution of three per cent to the overall projected increase in residential electricity prices over that period.

Increases in the green energy component for Tasmania are projected to contribute around two per cent of the expected total increase in residential electricity prices. This increase is made up of both the Large-Scale Renewable Energy Target (LRET) and the Small-Scale Renewable Energy Scheme (SRES) components.

Between 2010/11 and 2013/14, the share of the LRET component is expected to increase in nominal terms by 71 per cent, while the corresponding share of the SRES component is expected to decrease by 53 per cent over the same period.

There are no feed-in tariff schemes or any other additional state based schemes in Tasmania that contribute to the total residential electricity price.

4.6.2 Projected trends in Tasmanian residential electricity prices from 2011/12 to 2013/14 under a carbon price

Summary

Taking into account a price on carbon, between the base year (2010/11) and the final year (2013/14) of the projection period, residential electricity prices in Tasmania are projected to increase by 25 per cent in nominal terms. This is equivalent to a nominal increase of 5.19c/kWh in the total residential electricity price over this period.

The average annual growth rate of Tasmanian residential electricity prices over this three year projection period is expected to be approximately eight per cent.

Table 4.17 shows that of the total retail price increase, 51 per cent is forecast to be attributable to an increase in the cost of the wholesale energy component, which is expected to increase in nominal terms by 31 per cent over the forecast period.

Table 4.17 Tasmania - projected retail electricity components with and without a carbon price

	Nominal percentage increase between 2010/11 - 2013/14		Nominal price increase between 2010/11 - 2013/14 (c/kWh)		Percentage of total price increase attributable to component	
	No carbon	With carbon	No carbon	With carbon	No carbon	With carbon
Transmission component	22	22	0.80	0.80	20	15
Distribution component	18	18	1.17	1.17	29	23
Wholesale energy component	17	31	1.45	2.62	36	51
Retail component	32	38	0.52	0.62	13	12
Green energy component (total)	18	-3	0.13	-0.02	3	0
Total	**20**	**25**	**4.07**	**5.19**	**100**	**100**

This table compares the information from table 4.16, projected movements of retail electricity components in the absence of a carbon price, with projected movements of the same components including a carbon price. It provides an illustration of how the imposition of a carbon price might impact on these components.

Wholesale energy and retail component

With the inclusion of a carbon price, the wholesale energy component of the residential electricity tariff in Tasmania is expected to increase by 2.62c/kWh, compared with 1.45c/kWh in the absence of a price on carbon. This is primarily driven by changing natural gas prices, as gas-fired generation is the marginal generator in determining the long-run marginal cost of electricity supply in Tasmania.

While hydroelectricity is the main electricity generation type current utilised in Tasmania for electricity supply, the Tasmanian regulator's methodology was used in modelling the impact of a carbon price on the wholesale electricity component over the projection period. Therefore, as there is little opportunity to construct large-scale hydroelectricity and there are few commercial coal reserves in Tasmania, there is no new coal-fired generation or hydroelectricity available in modelling of the long-run marginal cost and the generation mix consists exclusively of open cycle/closed cycle gas turbines and a minor wind generation component. That is, gas-fired generation feeds into the higher wholesale energy costs.

As a result of the increase in wholesale energy costs, the calculated retail component for Tasmania is also expected to increase. This is due to the retail margin being calculated as a percentage of the total costs incurred by retailers in supplying electricity to customers. The incremental increase in retail costs with the inclusion of a price on carbon is 0.10c/kWh in nominal terms, which is consistent with other jurisdictions.

Green energy component

Similar to other jurisdictions, as a result of the inclusion of a price on carbon, the green energy component is expected to decrease in Tasmania over the forecast period. This is primarily due to a carbon price reducing the cost of the LRET by raising the wholesale price, thereby reducing the certificate price needed to bridge the gap between revenue available through the wholesale market and revenue needed for project viability.

As Tasmania does not operate a dedicated feed-in tariff scheme or other state-based green energy schemes, the absolute value of the green energy component is projected to be less under a price on carbon, compared with the current regulated retail price. That is, the green energy component in Tasmania is projected to decrease by approximately three per cent in nominal terms between 2010/11 and 2013/14.

Carbon price impact

Compared to projected price movements in the absence of a carbon price, and applying the current methodology for forecasting retail tariffs, table 4.18 shows that, with the inclusion of a price on carbon, estimates of the total retail price for Tasmania are projected to increase by 1.13c/kWh in 2012/13. Similarly, in the following year 2013/14, the expected increase in the total retail price as a result of a price on carbon is 1.12c/kWh.

Table 4.18 Tasmania - projected impact of carbon price on total residential electricity price in 2012/13 and 2013/14

Period	Year on year increase attributable to carbon price (c/kWh)	Percentage increase in residential price due to carbon price
2012/13	1.13	4.5%
2013/14	1.12	4.3%

That is, with carbon prices factored in, the total retail price in Tasmania moves from 23.86c/kWh to 24.98c/kWh in 2012/13. This equates to a five per cent increase. Similarly, in 2013/14 the total retail price increases by four per cent with a carbon price factored in from 24.82c/kWh to 25.94c/kWh.

4.7 Western Australia

Figure 4.7 sets out an indication of the actual price and costs of providing residential electricity services in Western Australia between 2010/11 and 2013/14. It shows the estimated actual cost of providing services for 2010/11 and projections for 2011/12 to 2013/14. Projections for 2012/13 and 2013/14 have been based on the trends of each component in Western Australia for the previous three years, as prices for 2012/13 and 2013/14 have not been determined by the Western Australian Government.

As full retail competition is yet to be introduced in Western Australia for residential electricity customers, all residential electricity customers in Western Australia remain on standing offer contracts. The Office of Energy in Western Australia has indicated that it will be commencing a review of the costs and benefits of introducing further retail contestability.

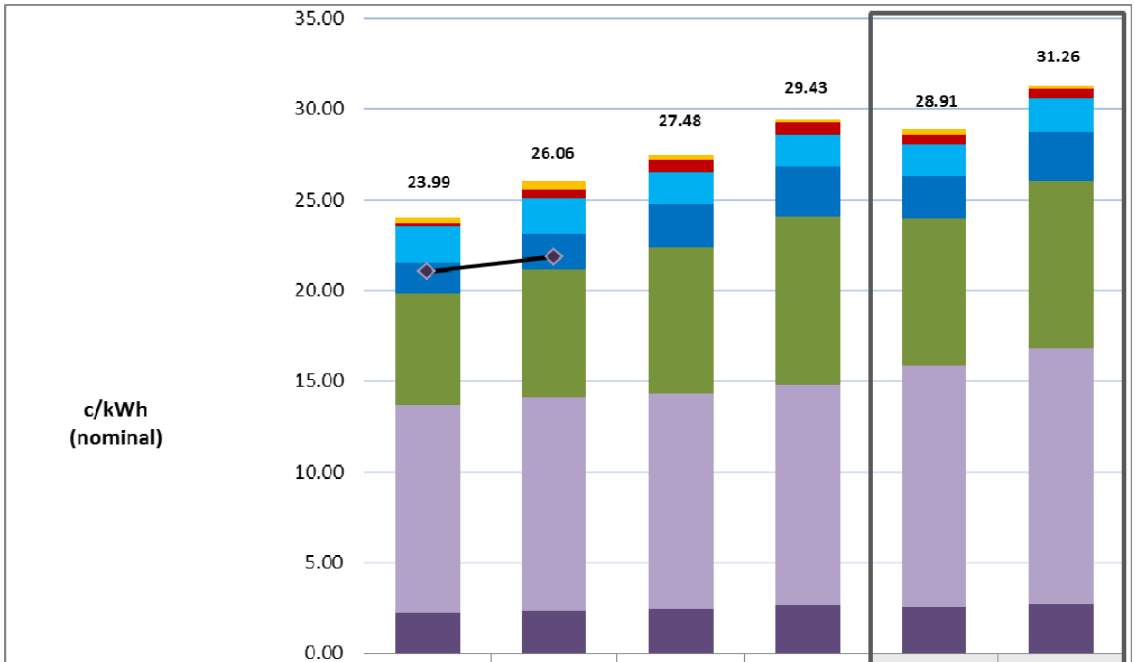
The data in figure 4.7 was provided by the Western Australian Government and represents the actual price of providing residential electricity services in the South West Interconnected System (SWIS). The Western Australian Government is currently reviewing these costs. The prices that customers pay are lower than the actual price of

providing these services, as the Western Australian Government provides a tax payer funded community service obligation (CSO) payment to the retailers to fund the difference between the actual price of supplying energy in the SWIS, and the price paid by consumers.

In addition to the CSO payment provided by the Western Australian Government, customers in the SWIS also pay a separate contribution, called the Tariff Equalisation Contribution (TEC). The TEC is used to fund the difference between the cost of supplying electricity in the SWIS and the cost of supplying electricity outside the SWIS and comprises approximately four per cent of the price stack for the supply of electricity to residential customers in the SWIS.

Together, the Western Australian Government's CSO payments and the TEC ensure that there is a uniform price for residential electricity services across Western Australia.

Figure 4.7 Western Australia - current and future possible residential electricity prices from 2010/11 to 2013/14



	2010-11	2011-12	2012-13	2013-14	2012-13 Carbon	2013-14 Carbon
SRES	0.30	0.53	0.29	0.14	0.32	0.15
RET/LRET	0.18	0.44	0.66	0.70	0.51	0.54
Tariff Equilisation Contribution	1.97	1.94	1.78	1.81	1.78	1.81
Transmission	1.75	2.02	2.34	2.71	2.34	2.71
Distribution	6.12	7.03	8.08	9.28	8.08	9.28
Wholesale	11.43	11.73	11.85	12.16	13.37	14.10
Retail	2.24	2.36	2.49	2.62	2.51	2.67
Customer price	21.03	21.87				

In this graph, each bar represents the total residential retail price for a given financial year, with components (identified in the adjoining table) individually shown within the bar. Note that the final two years have been recalculated to incorporate a carbon price.

The Western Australian Government has estimated that the current residential electricity price is 21.87c/kWh in the SWIS (2011/12), which is approximately 16 per cent less than the actual price of providing residential electricity services.

In April and July 2010, retail electricity prices were increased by 7.5 and ten per cent respectively by the Western Australian Government. These increases followed increases in retail electricity prices in April and July 2009, of ten and 15 per cent, undertaken to bring tariffs closer to cost reflective levels.

Prior to these increases, the retail electricity prices in Western Australia had not increased for over ten years. It is uncertain whether these prices will increase further over the projection period as they are set at the discretion of the Western Australian Government.

4.7.1 Projected trends in Western Australian residential electricity prices from 2011/12 to 2013/14 in the absence of a carbon price

Summary

Between the base year (2010/11) and the final year (2013/14) of the projection period, residential electricity prices in Western Australia are projected to increase by 23 per cent in nominal terms. This is equivalent to a nominal increase of 5.43c/kWh in the total residential electricity price over this period.

The average annual growth rate of Western Australian residential electricity prices over this three year projection period is expected to be approximately seven per cent.

Table 4.19 shows that, over the projection period, the actual price associated with providing residential electricity services is expected to increase by 23 per cent in nominal terms, which equates to a price increase of 5.43c/kWh.

Table 4.19 Western Australia - projected movement of retail electricity cost components from 2011/12 to 2013/14 in the absence of a carbon price

	Nominal percentage increase between 2010/11 - 2013/14	Nominal price increase between 2010/11 - 2013/14 (c/kWh)	Percentage of total price increase attributable to component
Transmission component	55	0.96	18
Distribution component	52	3.16	58
Wholesale energy component	6	0.73	13
Retail component	17	0.38	7
Green energy component (total)	75	0.36	7
Total	**23**	**5.43**	**100**

This table identifies the nominal percentage change for electricity retail price components between the final year (2013/14) and the base year (2010/11) (column 1) and the nominal price difference for each identified component (column 2). It also indicates how much of the overall change in retail price over this period is attributable to each component (column 3). All values have been drawn from figure 4.7 however note that the individual green energy components, identified in figure 4.7, have been amalgamated in this table.

Transmission and distribution component

Between the base year (2010/11) and the final year (2013/14) of the projection period, the transmission and distribution components are projected to increase by 52 per cent. This is:

- equivalent to a nominal price increase in these components of 4.12c/kWh, over that period; and
- a contribution of 76 per cent to the overall projected increase in residential electricity prices over that period.

Distribution services are forecast to contribute 58 per cent of the total increase in residential electricity prices, while transmission services are expected to contribute 18 per cent of the total increase in prices.

In September 2011, Western Australia's networks corporation, Western Power, announced its plans for capital investment over the next five years from 1 July 2012. Those plans call for a total investment of $8.523 billion, which comprises capital expenditure of $5.810 billion and operating expenditure of $2.714 billion.[61]

According to the revenue proposal from Western Power, the key areas of investment over the next regulatory period include, capital investment relating to:

- growth and security - (better protecting the network against outages) - $3.373 billion includes: building infrastructure to support growth - enabling connection of 130 000 new customers and providing for increasing levels of consumption per customer. More than 50 per cent of this investment is driven by specific customer requirements and connections;
- safety - $1.222 billion for (amongst other things), replacing and reinforcing 164 000 wooden poles across the network in the next five years as part of a 20 year program; addressing other high risk public safety issues (such as power line failures and mitigating bush fires), and replacing service lines connecting homes and businesses; and
- maintaining service - $1.214 billion to be spent on measures to maintain average reliability standards with some targeted improvement in some rural areas (currently power is supplied on average for 99.96 per cent of the time in metropolitan areas and 99.92 per cent of the time in rural areas).

The final overall price will be determined by Western Australian Government once the Economic Regulation Authority (ERA) has sought public comment and completed its analysis of Western Power's revenue proposal. This analysis is expected to take approximately nine months.

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61 Western Power homepage, www.westernpower.com.au/aboutus/mediaCentre/mediaReleases/western_powers_five_year_investment_plan.html.

As a result of this proposed increase in investment needs, the Western Australian Government may be required to increase the network cost pass-through to residential electricity supply costs, thereby increasing costs above those forecast in this report.

Wholesale energy component

Between the base year (2010/11) and the final year (2013/14) of the projection period, the wholesale energy component is projected to increase by six per cent in nominal terms. This is:

- equivalent to a nominal price increase in this component of 0.73c/kWh, over that period; and
- a contribution of 13 per cent to the overall projected increase in residential electricity prices over that period.

Compared with other jurisdictions, the wholesale energy component is relatively high in Western Australia, and increasing wholesale prices have had a greater impact on the residential electricity price.

The differential between wholesale electricity prices in Western Australia and other jurisdictions is the result of a number of factors:

- higher coal and natural gas costs in Western Australia, due to competition for these resources with the mining industry, and robust international demand for liquid natural gas. As coal prices typically shadow natural gas prices in Western Australia, the difference between coal and natural gas prices remains smaller than in other jurisdictions;
- the relatively small scale of the Western Australian market, which is not interconnected with the rest of the country, which results in higher wholesale electricity costs. This is because all of Western Australia's electricity demand must be met from generation within Western Australia;
- the small Western Australian market also has resulted in relatively small scale new capacity, which limits the economies of scale that can be achieved with larger generating units; and
- labour and materials costs are also generally higher in Western Australia, due to increased competition for these resources due to the commodities boom.

Retail component

Between the base year (2010/11) and the final year (2013/14) of the projection period, the retail component is projected to increase by 17 per cent in nominal terms. This is:

- equivalent to a nominal price increase in this component of 0.38c/kWh, over that period; and

- a contribution of seven per cent to the overall projected increase in residential electricity prices over that period.

Other retail components of the price stack for residential electricity supply in Western Australia, such as the tariff equalisation contribution and retail costs, are not expected to have a significant impact on overall movements in the cost of providing residential electricity services over the projection period.

Green energy component

Between the base year (2010/11) and the final year (2013/14) of the projection period, nominal green energy costs are projected to increase by 75 per cent. This is:

- equivalent to a nominal price increase in this cost component of 0.36c/kWh, over that period; and
- a contribution of seven per cent to the overall projected increase in residential electricity prices over that period.

4.7.2 Projected trends in Western Australian residential electricity prices from 2011/12 to 2013/14 under a carbon price

Summary

Taking into account a price on carbon, between the base year (2010/11) and the final year (2013/14) of the projection period, residential electricity prices in Western Australia are projected to increase by 30 per cent in nominal terms. This is equivalent to a nominal increase of 7.26c/kWh in the total residential electricity price over this period.

The average annual growth rate of Western Australian residential electricity prices over this three year projection period is expected to be approximately nine per cent.

As outlined in table 4.20 of the total increase, 37 per cent is forecast to be attributable to an increase in the wholesale energy component, which is expected to increase in nominal terms by 23 per cent over the projection period.

Table 4.20 Western Australia - projected retail electricity components with and without a carbon price

	Nominal percentage increase between 2010/11 - 2013/14		Nominal price increase between 2010/11 - 2013/14 (c/kWh)		Percentage of total price increase attributable to component	
	No carbon	With carbon	No carbon	With carbon	No carbon	With carbon
Transmission component	55	55	0.96	0.96	18	13
Distribution component	52	52	3.16	3.16	58	43
Wholesale energy component	6	23	0.73	2.67	13	37
Retail component	17	19	0.38	0.43	7	6
Green energy component (total)	75	43	0.36	0.21	7	3
Total	**23**	**30**	**5.43**	**7.26**	**100**	**100**

This table compares the information from table 4.19, projected movements of retail electricity components in the absence of a carbon price, with projected movements of the same components including a carbon price. It provides an illustration of how the imposition of a carbon price might impact on these components.

Wholesale energy and retail components

With the inclusion of a carbon price, the wholesale energy component of the residential electricity tariff in Western Australia is expected to increase by 2.67c/kWh, compared with 0.73c/kWh in the absence of a price on carbon.

The primary reason for this large increase is that the long-run marginal cost of serving residential load in Western Australia is higher than in all NEM states, due largely to high gas prices, and higher assumed capital costs (reflecting smaller unit sizes and higher labour and general materials costs) in Western Australia. Therefore the introduction of a carbon price results in around an 18-19 per cent increase in the long-run marginal cost of serving residential load in Western Australia.

This higher wholesale energy component flows through to an incremental increase in the retail margin that raises the retail component over the projection period.

Green energy component

Under a carbon price, the green energy component in Western Australia is expected to increase by 43 per cent in nominal terms over the projection period. The total nominal increase between 2010/11 and 2013/14, with the inclusion of a price on carbon, is 0.21c/kWh. This equates to approximately three per cent of the expected increase in the total residential electricity tariff.

Carbon price impact

Compared to projected price movements in the absence of a carbon price, and applying the current methodology for forecasting retail prices, table 4.21 shows that, with the inclusion of a price on carbon, estimates of the total retail price for Western Australia are projected to increase by 1.43c/kWh in 2012/13. Similarly, in the following year 2013/14, the expected increase in the total retail tariff as a result of a price on carbon is 1.83c/kWh.

Table 4.21 Impact of carbon price on total residential electricity tariff for 2012/13 and 2013/14

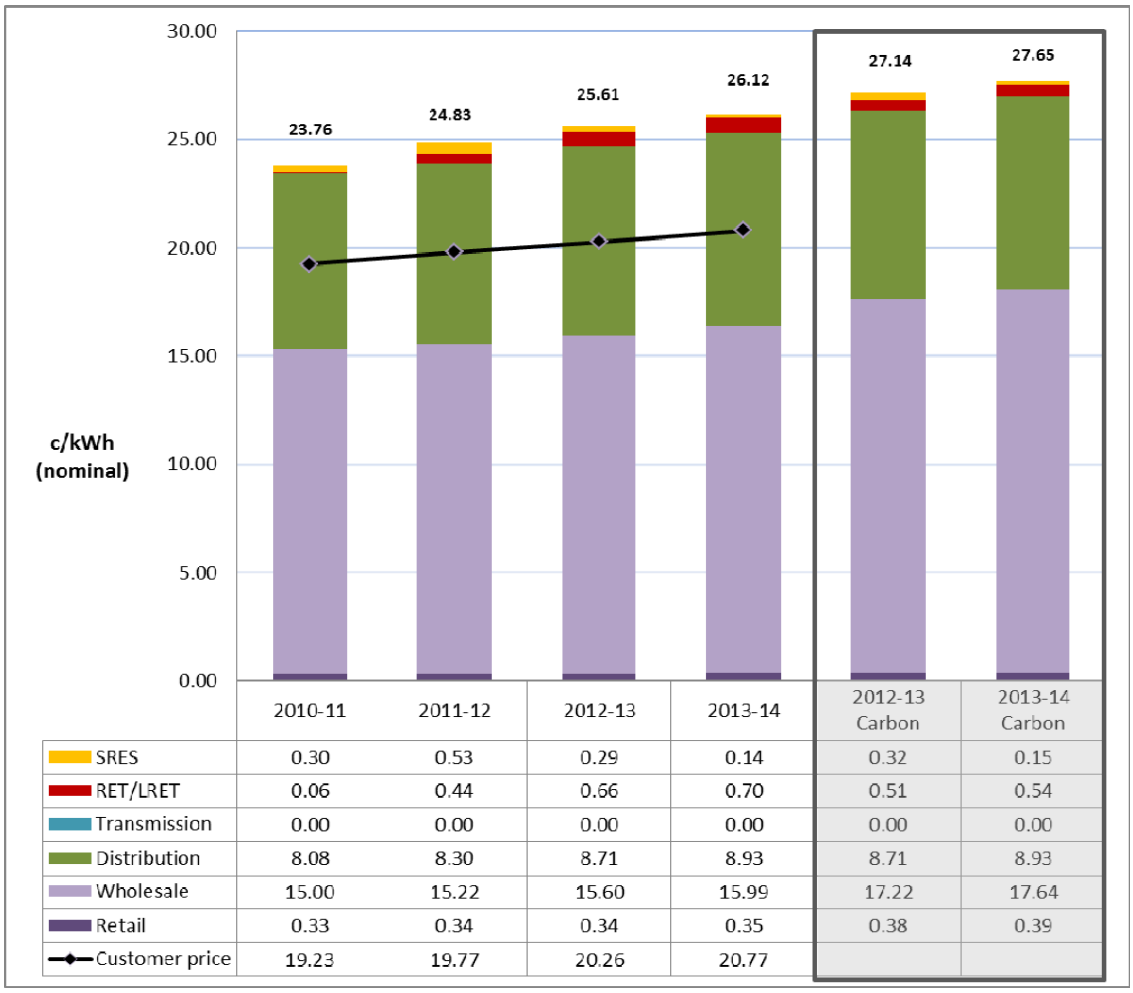
Period	Year on year increase attributable to carbon price (c/kWh)	Percentage increase in residential price due to carbon price
2012/13	1.43	4.9%
2013/14	1.83	5.9%

That is, with carbon prices factored in, the total retail price in Western Australia moves from 27.48c/kWh to 28.91c/kWh in 2012/13. This equates to a five per cent increase. Similarly, in 2013/14 the total retail price increases by six per cent with a carbon price factored in from 29.43c/kWh to 31.26c/kWh.

4.8 Northern Territory

Figure 4.8 sets out an indication of the actual price of providing residential electricity services in the Northern Territory between 2010/11 and 2013/14.

Figure 4.8 Northern Territory - current and future possible residential electricity prices from 2010/11 to 2013/14



	2010-11	2011-12	2012-13	2013-14	2012-13 Carbon	2013-14 Carbon
SRES	0.30	0.53	0.29	0.14	0.32	0.15
RET/LRET	0.06	0.44	0.66	0.70	0.51	0.54
Transmission	0.00	0.00	0.00	0.00	0.00	0.00
Distribution	8.08	8.30	8.71	8.93	8.71	8.93
Wholesale	15.00	15.22	15.60	15.99	17.22	17.64
Retail	0.33	0.34	0.34	0.35	0.38	0.39
Customer price	19.23	19.77	20.26	20.77		

In this graph, each bar represents the total residential retail price for a given financial year, with components (identified in the adjoining table) individually shown within the bar. Note that the final two years have been recalculated to incorporate a carbon price.

Figure 4.8 shows the estimated price of providing services for 2010/11, and the projected prices for 2011/12 to 2013/14. Data on each component for the projection period was provided by the Northern Territory Government. As residential electricity prices in the Northern Territory are not cost reflective, figure 4.8 sets out both the actual price associated with providing residential electricity services, and the prices that end-use residential customers may pay.

Full retail contestability was introduced in the Northern Territory on 1 April 2010. However, as yet no new retailers have entered the retail electricity market. The Northern Territory Utilities Commission (NTUC) has recommended that further supporting frameworks may be required to create the necessary conditions to create a competitive retail electricity market, particularly in light of the small size of the market. As a result, it is likely that the majority of residential customers in the Northern Territory remain on regulated tariffs.

Subsidies by the Northern Territory Government limit the prices paid by retail electricity customers and also ensure that households, and small to medium businesses, pay a uniform tariff across the Northern Territory. This means that the prices that residential electricity customers pay in the Northern Territory are approximately 24 to 26 per cent less than the actual price associated with providing retail electricity services.

Retail electricity prices for small customers are set by the Regulatory Minister by issuing Electricity Pricing Orders. In 2009, the Regulatory Minister announced the following increases in residential electricity prices:

- 18 per cent in 2009/10;
- five per cent in 2010/11; and
- consumer price index in 2011/12.

In data provided by the Northern Territory Government, residential electricity prices for 2012/13 and 2013/14 have been escalated by the consumer price index.

4.8.1 Projected trends in Northern Territory residential electricity prices from 2011/12 to 2013/14 in the absence of a carbon price

Summary

Between the base year (2010/11) and the final year (2013/14) of the projection period, residential electricity prices in Northern Territory are projected to increase by ten per cent in nominal terms. This is equivalent to a nominal increase of 2.36c/kWh in the total residential electricity price over this period.

The average annual growth rate of Northern Territory residential electricity prices over this three year projection period is expected to be approximately three per cent.

As shown in table 4.22, between 2010/11 and 2013/14 the price associated with providing residential electricity services is expected to increase by ten per cent in nominal terms, which is an increase of 2.36c/kWh.

Table 4.22 Northern Territory - projected movement of retail electricity cost components from 2011/12 to 2013/14 in the absence of a carbon price

	Nominal percentage increase between 2010/11 - 2013/14	Nominal price increase between 2010/11 - 2013/14 (c/kWh)	Percentage of total price increase attributable to component
Distribution component	11	0.85	36
Wholesale energy component	7	0.99	42
Retail component	8	0.03	1
Green energy component (total)	134	0.48	20
Total	**10**	**2.36**	**100**

This table identifies the nominal percentage change for electricity retail price components between the final year (2013/14) and the base year (2010/11) (column 1) and the nominal price difference for each identified component (column 2). It also indicates how much of the overall change in retail price over this period is attributable to each component (column 3). All values have been drawn from figure 4.21 however note that the individual green energy components, identified in figure 4.21, have been amalgamated in this table.

The key drivers of residential electricity prices over the projection period relate to the need for increased capital expenditure in generation and distribution infrastructure.

Wholesale energy, network and retail components

Power and Water Corporation, the integrated provider of electricity generation, network and retail services in the Northern Territory, has estimated that approximately $1.3 billion in infrastructure investment is required over the next five years. In addition, $311 million is also required for repairs and maintenance. Over 2010/11, a number of capital works are planned by Power and Water Corporation including:[62]

62 Power and Water Corporation, 2010, *Annual Report-2010*, pp. 5-7.

- the installation of two new turbines at Channel Island Power Station at a cost of $120 million, which will provide an additional 90 MW to the Darwin-Katherine grid. This will allow refurbishment to occur to existing infrastructure, while meeting increasing electricity demand;

- the commissioning of three new engines at Owen Springs Power Station at a cost of $126 million, to meet future demand in Alice Springs;

- the completion of the new Archer zone substation at a cost of $27 million, which will provide secure power supplies to the growing city of Palmerston; and

- the implementation of an asset management capability project to improve information systems on the condition of assets to provide greater reliability.

Over the 2009/10 to 2013/14 regulatory period, NTUC has approved a three per cent real average increase in network prices. This increase is the result of an expected rise in Power and Water Corporation's network input costs and an under-funding of their costs during the previous regulatory period, as input prices in the energy sector increased at a higher rate than was forecast. The NTUC has estimated that approximately one third of Power and Water Corporation's projected capital works program on the Northern Territory's distribution network over the next five years is of a remedial nature, following past poor asset management practices and the diversion of financing away from the maintenance and renewal of existing network assets.[63]

Further increases in capital expenditure on the distribution network over the current regulatory determination are also expected, as Power and Water Corporation implements measures from the Davies Enquiry. The Davies Enquiry was established by the Northern Territory Government in response to concerns about the continued security of supply to the northern suburbs of Darwin, following a series of equipment failures at the Casuarina Zone Substation and surrounding network in late September and early October 2008. The enquiry made 11 recommendations to improve maintenance effectiveness, asset management, and leadership and supervision. The Northern Territory Government has indicated that Power and Water Corporation will implement all of the recommendations from the Davies Enquiry.

Power and Water Corporation had also indicated that there is likely to be a significant increase in its operational and maintenance costs over the current regulatory determination. In addition to higher materials and equipment costs, it considers its operational and maintenance costs will increase as a result of:[64]

- real wages growth because of a tight labour market;

- the ageing nature of its infrastructure, which requires increased expenditure to maintain reliability and security of supply; and

63 Northern Territory Utilities Commission, March 2009, *Final determination - network pricing: 2009 regulatory reset*, p. 23.

64 ibid. p. 67.

- increasing demand for electricity, particularly in the Darwin area.

According to data received from the Northern Territory Government, the distribution component comprises approximately 42 per cent of the price paid by customers. This component is projected to contribute 36 per cent of the increase in the price of providing residential electricity services over the projection period.

Similarly, the wholesale electricity component comprises approximately 78 per cent of the price paid by customers, and is projected to contribute 42 per cent of the expected increase in the price associated with providing residential electricity services.

Green energy component

The Large-Scale Renewable Energy Target (LRET) and the Small-Scale Renewable Energy Scheme (SRES) are forecast to contribute close to 20 per cent of the total increase in residential electricity prices, as a result of the expansion in the target from the previous Mandatory Renewable Energy Target (MRET) to the current Renewable Energy Target (RET).

4.8.2 Projected trends in Northern Territory residential electricity prices from 2011/12 to 2013/14 under a carbon price

Summary

Taking into account a price on carbon, between the base year (2010/11) and the final year (2013/14) of the projection period, residential electricity prices in Northern Territory are projected to increase by 16 per cent in nominal terms. This is equivalent to a nominal increase of 3.89c/kWh in the total residential electricity price over this period.

The average annual growth rate of Northern Territory residential electricity prices over this three year projection period is expected to be approximately five per cent.

We did not undertake any independent modelling of the impact of a price on carbon for the Northern Territory, but applied, as an approximation, the national average carbon uplift percentage. That is, six per cent for 2012/13 and 6.45 per cent for 2013/14. As a result of that approximation, the total price associated with supplying residential customers in the Northern Territory as shown in table 4.23, with the inclusion of a price on carbon, is projected to increase in nominal terms by 16 per cent over the projection period. This compares with ten per cent in the absence of a price on carbon.

Of the expected 3.88c/kWh increase in the total retail electricity price, 68 per cent is projected to be attributable to wholesale energy component increases.

Table 4.23 Northern Territory - projected retail electricity components with and without a carbon price

	Nominal percentage increase between 2010/11 - 2013/14		Nominal price increase between 2010/11 - 2013/14 (c/kWh)		Percentage of total price increase attributable to component	
	No carbon	With carbon	No carbon	With carbon	No carbon	With carbon
Distribution component	11	11	0.85	0.85	36	22
Wholesale energy component	7	18	0.99	2.64	42	68
Retail component	8	19	0.03	0.06	1	2
Green energy component (total)	134	91	0.48	0.33	20	8
Total	**10**	**16**	**2.36**	**3.89**	**100**	**100**

This table compares the information from table 4.22, projected movements of retail electricity components in the absence of a carbon price, with projected movements of the same components including a carbon price. It provides an illustration of how the imposition of a carbon price might impact on these components.

Wholesale and retail components

With the inclusion of a price on carbon, the wholesale energy component is estimated to increase in nominal terms by 18 per cent between 2010/11 and 2013/14. That increase equates to a projected 2.64c/kWh increase in 2013/14, compared with 0.99c/kWh projected in the absence of a price on carbon. The addition of a price on carbon also marginally increases the retail component over the forecast period.

Green energy component

Similar to other jurisdictions, the proportion of the green energy component is expected to decrease in the Northern Territory over the forecast period. This is primarily due to a carbon price reducing the cost of the LRET by raising the wholesale price, thereby reducing the certificate price needed to bridge the gap between revenue available through the wholesale market and revenue needed for project viability. That is, under a carbon price, the green energy component in the Northern Territory is expected to decrease by 91 per cent in nominal terms over the forecast period.

The total nominal price increase between 2010/11 and 2013/14 with the inclusion of a price on carbon is 0.33c/kWh, which equates to approximately eight per cent of the expected increase in the total residential electricity price. By comparison, without a price on carbon, the green energy component is expected to increase in nominal terms by 0.48c/kWh and account for approximately 20 per cent of the expected increase.

Carbon price impact

Compared to projected price movements in the absence of a carbon price, and applying the current methodology for forecasting retail tariffs, table 4.24 shows that, with the inclusion of a price on carbon, estimates of the total retail price for the Northern Territory are projected to increase by 1.53c/kWh in 2012/13. Similarly, in the following year 2013/14, the expected increase in the total retail tariff as a result of a price on carbon is 1.53c/kWh.

Table 4.24 Northern Territory - projected impact of carbon price on total residential electricity price in 2012/13 and 2013/14

Period	Year on year increase attributable to carbon price (c/kWh)	Percentage increase in residential price due to carbon price
2012/13	1.53	5.6%
2013/14	1.53	5.5%

That is, with carbon prices factored in, the total retail price in the Northern Territory moves from 25.61c/kWh to 27.14c/kWh in 2012/13. This equates to a six per cent increase. Similarly, in 2013/14, the total retail price increases by six per cent with a carbon price factored in and moves from 26.12c/kWh to 27.65c/kWh.

A Data sources and methodology

This Appendix sets out the data sources and methodologies used to derive the possible future residential electricity prices in this report for each state and territory. The jurisdictions were consulted on the AEMC's proposed approach, data sources and methodology in late June 2011, and the comments that were received have been taken into account in preparing this report.

A.1 Queensland

Table A.1 Data sources and methodologies used for Queensland residential electricity prices

Data type	Data source
Wholesale energy component	For 2010/11 and 2011/12, the wholesale energy component (including other purchase costs such as ancillary services, AEMO fees etc) were derived from the Queensland Competition Authority's (QCA's) 'Benchmark Retail Cost Index for Electricity: 2011-12'. For 2012/13 and 2013/14, the wholesale energy component was estimated. Market prices and long-run marginal cost prices were modelled by an external consultant for these years. These prices were then combined using the methodology employed by QCA in its benchmark retail cost index.
Transmission component	For 2010/11 and 2011/12, the transmission component was provided by the AER based on its existing Queensland transmission determination and the actual prices paid by consumers. For 2012/13 and 2013/14, the transmission component was estimated by the AER through escalating the transmission component in 2011/12 by the X factor in the current transmission determination.
Distribution component	For the whole projection period, the distribution component was provided by the AER based on its Queensland distribution determination.
Retail component	For 2010/11 and 2011/12, the retail operating component (including customer acquisition and retention costs) was derived from the QCA's 'Benchmark Retail Cost Index for Electricity: 2011-12' . The retail margin of 5 per cent was re-calculated by the AEMC on the total residential electricity price, in accordance with the QCA's determination. This margin was recalculated to take into account the distribution and transmission data provided by the AER, which had been updated since the QCA made its determination. For 2012/13 and 2013/14, the retail operating component was

Data type	Data source
	estimated by escalating the retail component by the historical annual average increase for the period 2009/10 to 2011/12.
Feed-in tariff	The feed-in tariff for the whole projection period was derived using the feed-in tariff payment costs and administrative costs in the AER's existing distribution determination for Energex and Ergon Energy. These figures were then converted to a c/kWh figure by dividing the AER approved costs of the scheme for each distributor by the forecast energy consumption for each relevant year. To convert the AER's figures which were in 2009/10 dollars to nominal dollars, the CPI assumptions in the AER's Queensland distribution determination were used. The c/kWh impact of the feed-in tariff was then subtracted from the distribution component provided by the AER, to ensure there was no double counting as the feed-in tariff is recovered through the distribution component.
RET/LRET and SRES component	For 2010/11, the RET component was sourced from the QCA's determination. For 2011/12 onwards the LRET component was estimated by modelling undertaken by external consultants. Modelling by external consultants provided the SRES component for the whole projection period.
Queensland Gas Scheme	The Queensland Gas Scheme for 2010/11 and 2011/12 was sourced from the QCA's 'Benchmark Retail Cost Index for Electricity: 2011-12'. For 2012/13 and 2013/14, the Queensland Gas Scheme was estimated on the basis of escalation of the 2011/12 component by the CPI assumptions in the AER's Queensland distribution determination.
State residential electricity prices	A state average of Queensland's residential electricity prices was derived by using the residential electricity prices for Energex and Ergon Energy for the whole projection period. A state average was then calculated by the number of residential customers in each of Energex's and Ergon's distribution areas to derive a weighted state average. The number of residential customers by distribution area was provided by the AER.

A.2 New South Wales

Table A.2 Data sources and methodologies used for New South Wales residential electricity prices

Data type	Data source
Wholesale energy component	For 2010/11 and 2011/12 the wholesale component (including other purchase components such as ancillary services, AEMO fees etc) was derived from the Independent Pricing and Regulatory Tribunal's 'Final report - changes in regulated

Data type	Data source
	electricity retail prices for 1 July 2011' (IPART's determination). For 2012/13 and 2013/14, the wholesale component was derived from modelling undertaken by external consultants. Both the market prices and long-run marginal prices were modelled and the greater of the two (as per the IPART determination) was used. Wholesale energy prices were subsequently weight averaged by distribution area and combined with the other purchase components from the IPART determination (NEM fees and ancillary services etc) to estimate the wholesale energy component.
Transmission component	The transmission component was provided by the AER for the whole projection period based on its New South Wales transmission determination.
Distribution component	The distribution component was provided by the AER for the whole projection period based on its existing New South Wales distribution determination.
Retail component	For the years 2010/11 to 2012/13, the retail operating component (including customer acquisition and retention costs) was derived from IPART's determination. A retail margin of 5.4 per cent was recalculated on the total residential electricity price, which is in accordance with the margin and methodology specified in IPART's determination. This recalculated margin took into account updated distribution and transmission costs provided by the AER. For 2013/14, the retail operating component was escalated by the average annual increase in the IPART determination for the period 2009/10 to 2012/13. Similarly the retail margin for this year was also recalculated at 5.4 per cent.
Feed-in tariff	The IPART determination does not include an allowance for the feed-in tariff in the years 2010/11 and 2011/12, therefore it has not been included. For 2012/13 and 2013/14, the feed-in tariff component has been estimated from information contained in the New South Wales Government budget for the cost of the Climate Change Fund. The feed-in tariff component has been removed from the distribution component to avoid double counting. It is anticipated that these costs will be collected through distribution charges. Note that the New South Wales feed-in tariff scheme is now closed to new applications, therefore, this cost pertains to the past impact of the solar bonus scheme.
RET/LRET and SRES component	For 2010/11, the LRET component was sourced from IPART's determination. For 2011/12 onwards the LRET component was estimated by modelling undertaken by external consultants. Modelling by external consultants provided the SRES component for the whole projection period.
Greenhouse Gas Scheme	The Greenhouse Gas Scheme was not included as a component in the IPART determination, therefore was not included in 2010/11 and 2011/12. The determination also noted that the New South Wales Government announced that the Greenhouse Gas Scheme would be discontinued once a

Data type	Data source
	national carbon price mechanism is in place. As such, given the Australian Government's clean energy future legislation, it has not been included as a component in 2012/13 and 2013/14.
Energy Saving Scheme	For the years 2010/11 to 2012/13, the Energy Saving Scheme was derived from IPART's determination. To derive nominal figures from IPART's figures which were in 2009/10 dollars, the CPI figures contained in the AER's New South Wales distribution determination were used. For 2013/14, the annual average increase in the Energy Saving Scheme over the period 2009/10 to 2012/13 was used.
State residential electricity prices	A state average of New South Wales residential electricity prices was derived by using the residential electricity prices for each New South Wales distributor for the whole projection period. A state average was then calculated by the number of residential customers in each New South Wales distributor's distribution area to derive a weighted state average. The number of residential customers by distribution area was provided by the AER.

A.3 Victoria

Table A.3 Data sources and methodologies used for Victorian residential electricity prices

Data type	Data source
Wholesale energy component	For 2010/11, the wholesale component was taken from last year's, 'Possible Electricity Price Movements: 1 July 2010 to 30 June 2011' report. For the remainder of the projection period, the wholesale market energy price was estimated by using modelled trends in Victoria's wholesale electricity market prices by external consultants (this included costs associated with hedging arrangements). These trends were applied to the NEM average NEM fees and ancillary services and the network loss factors for Victoria to estimate the wholesale energy component.
Transmission component	The transmission component was provided by the AER for the whole projection period based on its Victorian transmission determination.
Distribution component	The distribution component was provided by the AER for the whole projection period based on the Essential Services Commission of Victoria's (ESCV's) distribution determination for 2010 and the AER's distribution determination for 2011 to 2013.
Metering component	Metering costs were provided by the AER for the whole projection period and are based on the costs included in its 'Final Determination: Victorian Advanced Metering

Data type	Data source
	Infrastructure Review 2012-15 budget and charges applications: Public version'.
Feed-in tariff	The feed-in tariff component for the whole projection period was modelled by external consultants.
Retail component	The retail component was estimated by subtracting estimated wholesale and network components from the standing offer price for 2010/11 and 2011/12. For 2010/11, the standing offer price in last year's, 'Possible Electricity Price Movements: 1 July 2010 to 30 June 2011' report was used. For 2011/12, standing offer prices for the three retailers with the largest market share in Victoria (AGL, Origin Energy and TRUenegry) in each of the five distribution areas were used. An average standing offer price for each distribution area was calculated and these averages were weighted by the number of residential electricity customers in each distribution area to derive the Victorian 2011/12 standing offer price. For 2012/13 and 2013/14, the retail component was estimated by escalating it by the national trend in the retail component between 2011/12 and 2013/14.
RET/LRET and SRES components	For 2010/11 the LRET component was taken from last year's, 'Possible Electricity Price Movements: 1 July 2010 to 30 June 2011' report. For 2011/12 onwards the LRET component was estimated by modelling undertaken by external consultants. Modelling by external consultants provided the SRES component for the whole projection period.
State residential electricity prices	A state average of Victorian residential electricity prices was derived by using the residential electricity prices for each Victorian distributor for 2010. A state average was then calculated by the number of residential customers in each Victorian distributor's distribution area to derive a weighted state average. The number of residential customers by distribution area was provided by the AER. The state average of Victorian network prices for the projection period were derived in the same way.

A.4 Australian Capital Territory

Table A.4 Data sources and methodologies used for ACT residential electricity prices

Data type	Data source
Wholesale energy component	For 2010/11 and 2011/12 the wholesale component (including other purchase components such as ancillary services, AEMO fees etc) was derived from the Independent Competition and Regulatory Authority's (ICRC's) 'Retail Prices for Non-contestable Electricity Customers 2010-2012' and 'Final Decision Retail Orices for Non-contestable Customers 2011-2012' reports.

Data type	Data source
	For 2012/13 and 2013/14, the wholesale market energy price was modelled by external consultants. These prices were then escalated by the hedging factor used by the ICRC in its most recent determination with the other purchase components to calculate the wholesale energy component.
Transmission component	The transmission component was provided by the AER for the whole projection period based on its New South Wales transmission determination for Transgrid.
Distribution component	The distribution component was provided by the AER for the whole projection period based on its existing ACT distribution determination.
Retail component	For 2010/11 and 2011/12, the retail operating component was derived from the ICRC's determination. A retail margin of 5.4 per cent for 2010/11 and 2011/12 was recalculated on the total residential electricity price, which is in accordance with the margin and methodology specified in ICRC's determination. This recalculated margin took into account updated distribution and transmission costs provided by the AER. For 2012/13 and 2013/14, the retail operating component was estimated by escalating that component by the average annual increase in the ACT over the period 2009/10 to 2011/12. Similarly, the retail margin was recalculated using a margin of 5.4 per cent of the total residential electricity price and added to the retail operating component to estimate the total retail component.
Feed-in tariff	The feed-in tariff component for 2010/11 and 2011/12 was estimated from the ICRC's determination and information obtained from the ACT Government. The feed-in tariff component for the remainder of the projection period was determined from information provided by the ACT Government.
RET/LRET and SRES components	For 2010/11 the LRET component was sourced from ICRC's determination. For 2011/12 onwards the LRET component was estimated by modelling undertaken by external consultants. Modelling by external consultants provided the SRES component for the whole projection period..
Greenhouse Gas Abatement Scheme	For 2010/11 and 2011/12, the Greenhouse Gas Abatement Scheme component was estimated from the ICRC's determination. For the remainder of the projection period, a Greenhouse Gas Abatement scheme component was not included as the ACT Government announced that this scheme would be discontinued once a national carbon price mechanism is in place.

A.5 South Australia

Table A.5 Data sources and methodologies used for South Australian residential electricity prices

Data type	Data source
Wholesale energy component	For 2010/11, the wholesale component (including other purchase components such as ancillary services, AEMO fees etc) was derived from ESCOSA's '2007 Review of Retail Electricity Standing Contract Price Path: Final inquiry report and price determination' and ESCOSA's '2010 Review of Retail Electricity Standing Contract Price Path - Final Decision', as the 2010/11 year was split between these two determinations. Averages of quarters was used to derive figures for July to December 2010 and then this was then averaged again with figures for the January to June 2011 period. To derive nominal figures from ESCOSA's figures, the CPI figures contained in the AER's SA distribution determination were used. For 2011/12 to 2013/14, the wholesale component (including other purchase costs such as ancillary services, AEMO fees etc) was derived from ESCOSA's '2010 Review of Retail Electricity Standing Contract Price Path: Final Decision'. As the wholesale costs for these years are expressed in ranges, the average of the ranges was used. To derive nominal figures from ESCOSA's figures, the CPI figures contained in the AER's SA distribution determination were used.
Transmission component	The transmission component was provided by the AER for the whole projection period based on its SA transmission determination.
Distribution component	The distribution component was provided by the AER for the whole projection period based on its existing SA distribution determination.
Retail component	For 2010/11, the retail operating component was derived from ESCOSA's '2007 Review of Retail Electricity Standing Contract Price Path: Final inquiry report and price determination' and ESCOSA's '2010 Review of Retail Electricity Standing Contract Price Path: Final Decision', as the 2010/11 year was split between these two determinations. Averages of quarters was used to derive figures for July to December 2010 and then this was then averaged again with figures for the January to June 2011 period. To derive nominal figures from ESCOSA's figures, the CPI figures contained in the AER's SA distribution determination were used. A retail margin of 10% was recalculated based on the nominal retail operating component and the wholesale energy component in accordance with the methodology in ESCOSA's report. For 2011/12 to 2013/14, the retail operating component was derived from ESCOSA's '2010 Review of Retail Electricity Standing Contract Price Path: Final Decision'. As the retail operating component for these years is expressed in ranges, the average of the ranges was used. To derive nominal figures from ESCOSA's figures, the CPI figures contained in the

Data type	Data source
	AER's SA distribution determination were used. A retail margin of 10% was recalculated based on the nominal retail operating component and the wholesale energy component in accordance with the methodology in ESCOSA's report.
Feed-in tariff	Feed-in tariff costs for SA were provided by the SA Government for the whole projection period. These costs were based on data contained in ETSA Utilities' Revised Regulatory Proposal 2010-15, as well as further information sourced from ETSA Utilities. The estimated costs are calculated using assumptions regarding the total number of installed systems and the amount of energy fed into the grid. The actual costs will be based on actual installation rates.
RET/LRET and SRES components	For 2010/11, the LRET component in last year's, 'Possible Electricity Price Movements: 1 July 2010 to 30 June 2013' report was used. For 2011/12 onwards the LRET component was estimated by modelling undertaken by external consultants. Modelling by external consultants provided the SRES component for the whole projection period.
Residential Energy Efficiency Scheme	For 2010/11, the pass through from this scheme was based on the costs in ESCOSA's '2010 Review of Retail Electricity Standing Contract Price Path: Final Decision'. For 2011/12 to 2013/14, the pass through from this scheme was also derived from the ESCOSA's '2010 Review of Retail Electricity Standing Contract Price Path: Final Decision'. As this component is expressed in ranges in this report, the average of the ranges was used. To derive nominal figures from ESCOSA's figures, the CPI figures contained in the AER's SA distribution determination were used.

A.6 Tasmania

Table A.6 Data sources and methodologies used for Tasmanian residential electricity prices

Data type	Data source
Wholesale energy component	For the 2010/11, the wholesale energy component (including other purchase components such as ancillary services, AEMO fees etc) were provided by the Office of the Tasmanian Energy Regulator (OTTER), based on its '2010 Investigation of maximum prices for declared retail services on mainland Tasmania' (for 2011/12 and 2012/13). For 2011/12, the wholesale energy component was based on OTTERs 'Statement of reasons, Approval of: Retail tariffs for non-contestable tariff customers from 1 July 2011 in accordance with the 2010 Price Determination'. For 2012/13 and 2013/14, the wholesale energy component was based on modelling of the long-run marginal cost of supply in Tasmania by external consultants with the inclusion of other purchase components such as AEMO fees and ancillary services.

Data type	Data source
Transmission component	The transmission component was provided by the AER for the whole projection period based on its existing Tasmanian transmission determination.
Distribution component	The distribution component was provided by the AER for 2010/11 and 2011/12 based on OTTER's existing Tasmanian distribution determination. For 2012/13 and 2013/14, the distribution component was taken from Aurora Energy's regulatory proposal submitted to the AER for its distribution determination over the regulatory period 2012/13 to 2017/18 and is based on residential customers.
Retail component	For 2010/11, the retail component was based on the retail price components provided by OTTER, based on its '2010 Investigation of maximum prices for declared retail services on mainland Tasmania'. For 2011/12, the retail component was derived from OTTERs 'Statement of reasons, Approval of: Retail tariffs for non-contestable tariff customers from 1 July 2011 in accordance with the 2010 Price Determination'. For 2012/13 and 2013/14, the retail component was calculated from annual average increase in the retail component published in the 2010 Price Determination applied to the result from 2011/12. This was due to the allowance increasing beyond that initially considered in the 2010 Price Determination.
RET/LRET and SRES components	For 2010/11, the LRET component in last year's, 'Possible Electricity Price Movements: 1 July 2010 to 30 June 2013' report was used. For 2011/12 onwards the LRET component was estimated by modelling undertaken by external consultants. Modelling by external consultants provided the SRES component for the whole projection period.

A.7 Western Australia

Table A.7 Data sources and methodologies used for the WA residential electricity prices

Data type	Data source
Wholesale energy component	The wholesale energy component for 2010/11 and 2011/12 was provided by the WA Government. For 2012/13 and 2013/14, the wholesale energy component was estimated by escalating the costs in 2011/12 by the annual average trend observed in this component between 2009/10 and 2011/12.
Transmission component	The transmission component for 2010/11 and 2011/12 was provided by the WA Government.

Data type	Data source
	For 2012/13 and 2013/14, the transmission component was estimated by escalating the costs in 2011/12 by the annual average trend observed in this component between 2009/10 and 2011/12..
Distribution component	The distribution component for 2010/11 and 2011/12 was provided by the WA Government. For 2012/13 and 2013/14, the distribution component was estimated by escalating the costs in 2011/12 by the annual average trend observed in this component between 2009/10 and 2011/12.
Retail component	The retail component for 2010/11 and 2011/12 was provided by the WA Government. For 2012/13 and 2013/14, the retail component was estimated by escalating the costs in 2011/12 by the annual average trend observed in this component between 2009/10 and 2011/12.
RET/LRET and SRES components	The LRET component for 2010/11 was provided by the WA Government. For 2011/12 onwards the LRET component was estimated by modelling undertaken by external consultants. Modelling by external consultants provided the SRES component for the whole projection period..
Tariff equalisation costs	Tariff equalisation costs for the whole projection period was provided by the WA Government.

A.8 Northern Territory

Table A.8 Data sources and methodologies used for the NT residential electricity prices

Data type	Data source
Wholesale energy component	The wholesale energy component for the whole projection period was provided by the NT Government.
Distribution component	The distribution component for the whole projection period was provided by the NT Government.
Retail component	The retail component for the whole projection period was provided by the NT Government.
RET/LRET and SRES components	For 2010/11, the LRET component in last year's, 'Possible Electricity Price Movements: 1 July 2010 to 30 June 2013' report was used. For 2011/12 onwards the LRET component was estimated by modelling undertaken by external consultants. Modelling by external consultants provided the SRES component for the whole projection period.

B Electricity prices by distribution area and average annual bill impacts

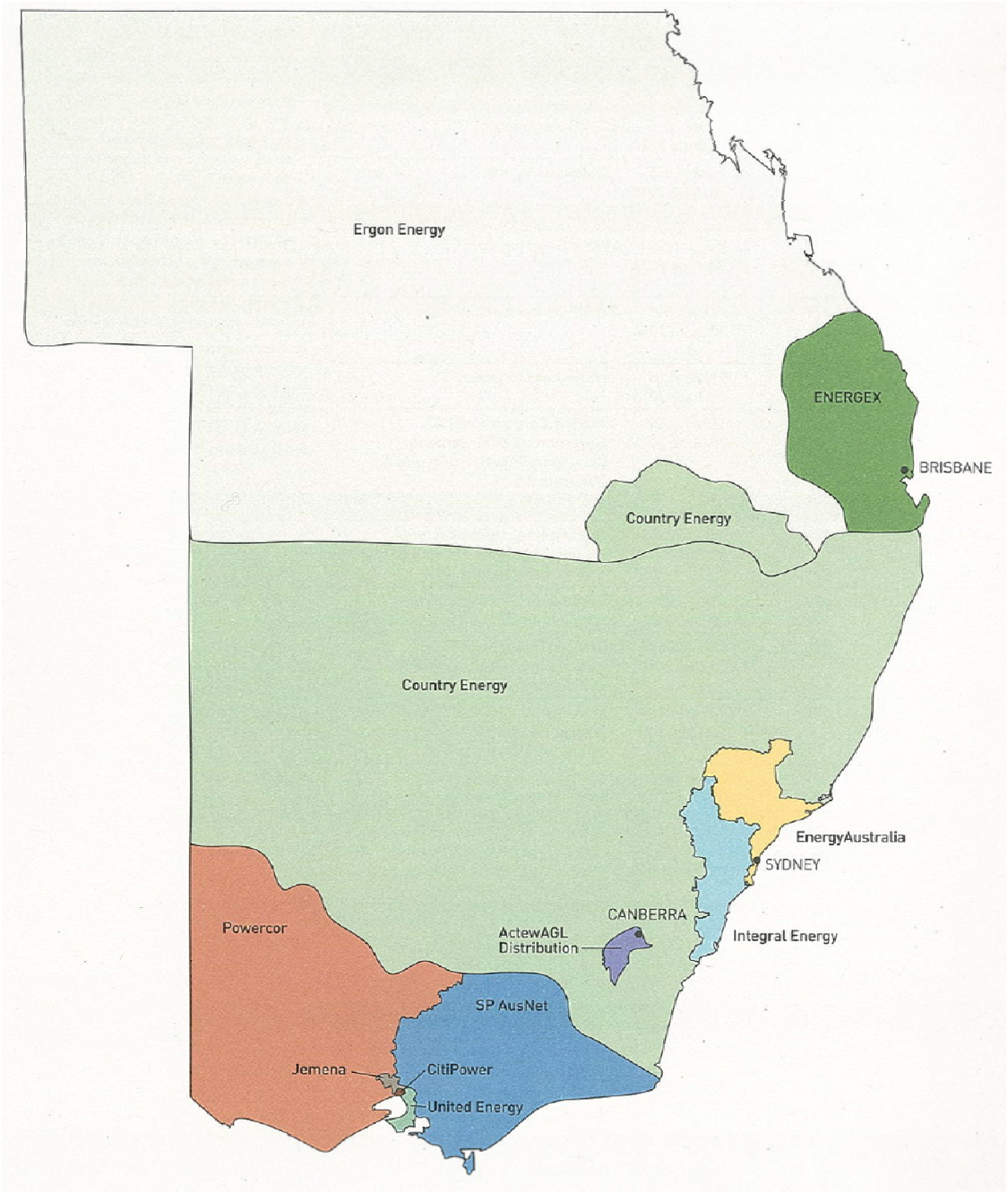
This Appendix outlines additional data, which has been used in the preparation of this report. It outlines the future possible residential electricity prices by distribution area in each state and territory, which have been used in deriving weighted average state and territory average prices. It also sets out average annual bill impacts of possible residential electricity prices going forward for each state and territory based on the average annual consumption. These average annual bill impacts are calculated both in the absence of, and inclusion of, a price on carbon.

With the exception of Western Australia and the Northern Territory, the average annual consumption for the NEM jurisdictions was obtained from the AER. In most cases the value of the average annual consumption used in this report is lower than that used in the 'Future possible retail electricity price movements: 1 July 2010 to 30 June 2013' report published in 2010. This is as a result of the AER incorporating recently observed reductions in household consumption of electricity. Therefore, over the Projection period, there is the potential for consumption to fall further, which would reduce a customer's average bill impact. In addition, the average annual consumption of each residential customer will depend on a number of factors such as: the size and type of their household and property; the type and number of appliances that are used; and the proportion of time that is spent at the residence, among many other factors. As a result, the average annual bill impacts in this Appendix are intended to provide an indication of possible annual impacts only.

B.1 Possible residential electricity prices by distribution area

This section outlines possible residential electricity prices by distribution area going forward for each state and territory in Australia. For Western Australia and the Northern Territory, residential prices are based on the actual price incurred to supply electricity services, as the prices paid by consumers in these jurisdictions are not cost-reflective. Figure B.1 below outlines the distribution areas of the national electricity market in south-east Australia.

Figure B.1 Distribution areas in Queensland, New South Wales and Victoria



B.1.1 Queensland

Queensland has two electricity distribution companies:

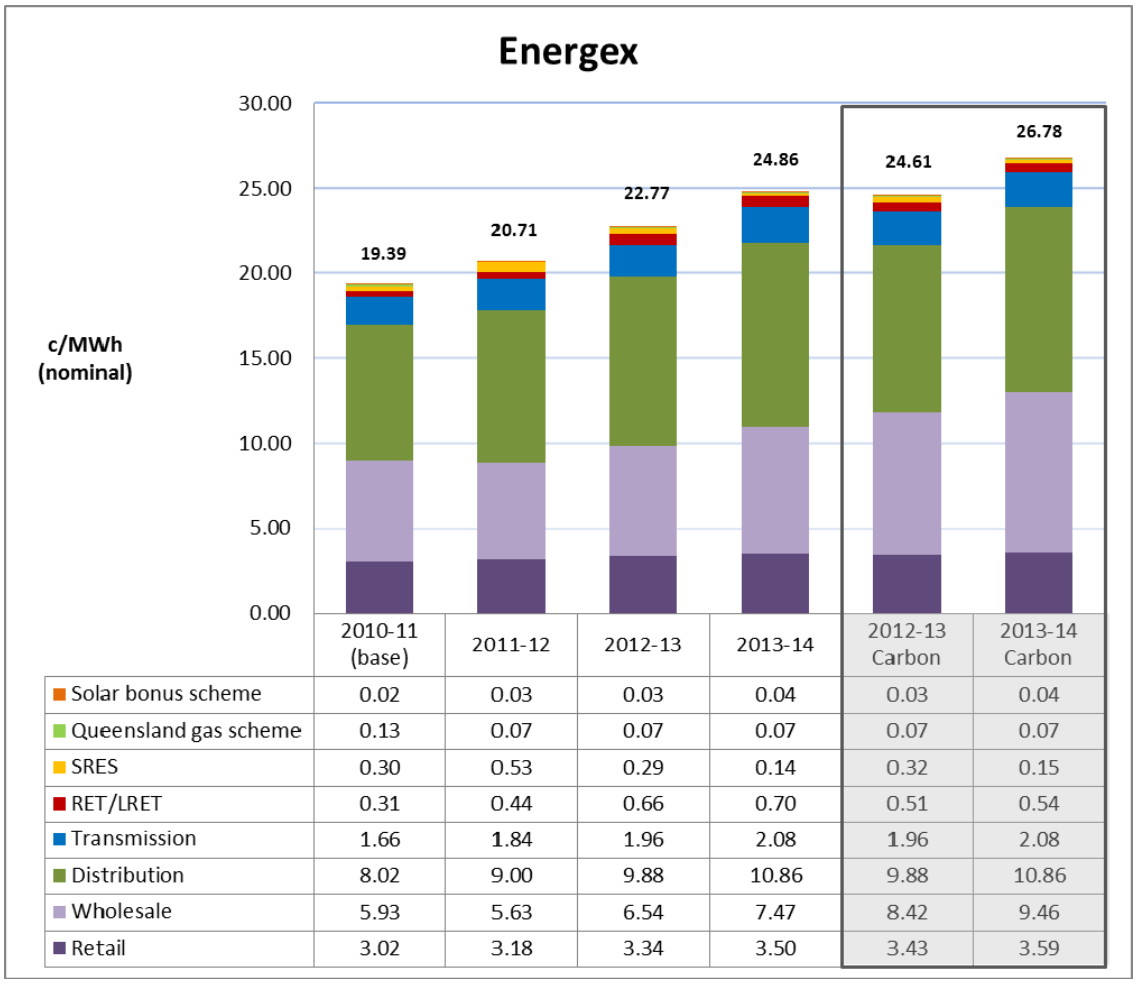
- Energex, which has a distribution area which encompasses Brisbane, the Gold Coast, and the Sunshine Coast and surrounds; and
- Ergon Energy, which has a distribution area, which encompasses country and regional Queensland.

Energex's distribution area has approximately 64 per cent of Queensland's residential electricity customer connections, while Ergon Energy has the remaining 36 per cent of the State's residential electricity customer connections in its distribution area.

Figures B.2 and B.3 below, set out possible future residential electricity prices over the projection period for each of the distribution areas in Queensland.

Figure B.2 Queensland: projected prices by distributor – Energex

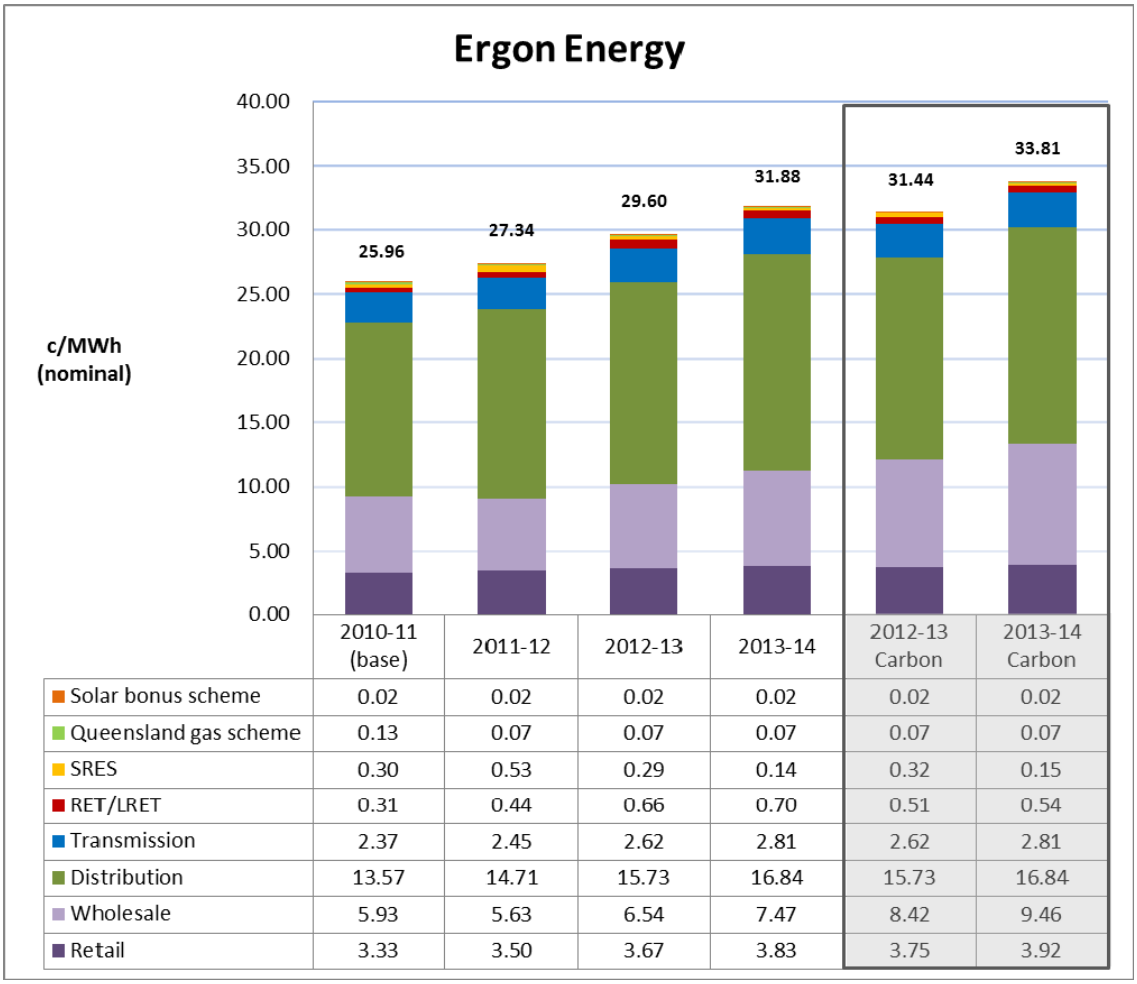
Based on a residential customer with an annual consumption of 6,000 kWh.



	2010-11 (base)	2011-12	2012-13	2013-14	2012-13 Carbon	2013-14 Carbon
Solar bonus scheme	0.02	0.03	0.03	0.04	0.03	0.04
Queensland gas scheme	0.13	0.07	0.07	0.07	0.07	0.07
SRES	0.30	0.53	0.29	0.14	0.32	0.15
RET/LRET	0.31	0.44	0.66	0.70	0.51	0.54
Transmission	1.66	1.84	1.96	2.08	1.96	2.08
Distribution	8.02	9.00	9.88	10.86	9.88	10.86
Wholesale	5.93	5.63	6.54	7.47	8.42	9.46
Retail	3.02	3.18	3.34	3.50	3.43	3.59

Figure B.3 Queensland: projected prices by distributor - Ergon Energy

Based on a residential customer with an annual consumption of 7,000 kWh.



	2010-11 (base)	2011-12	2012-13	2013-14	2012-13 Carbon	2013-14 Carbon
Solar bonus scheme	0.02	0.02	0.02	0.02	0.02	0.02
Queensland gas scheme	0.13	0.07	0.07	0.07	0.07	0.07
SRES	0.30	0.53	0.29	0.14	0.32	0.15
RET/LRET	0.31	0.44	0.66	0.70	0.51	0.54
Transmission	2.37	2.45	2.62	2.81	2.62	2.81
Distribution	13.57	14.71	15.73	16.84	15.73	16.84
Wholesale	5.93	5.63	6.54	7.47	8.42	9.46
Retail	3.33	3.50	3.67	3.83	3.75	3.92

B.1.2 New South Wales

New South Wales has three electricity distribution companies:

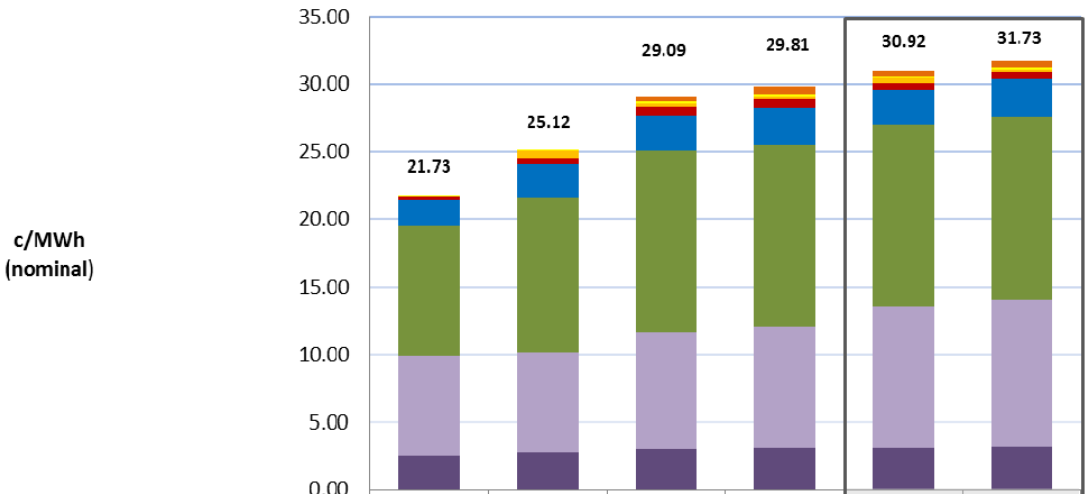
- Ausgrid, which has a distribution area that encompasses inner, northern and eastern metropolitan Sydney and surrounds;
- Endeavour Energy, which has a distribution area that encompasses southern and western metropolitan Sydney and surrounds; and
- Essential Energy, which has a distribution area that encompasses country and regional New South Wales and southern Queensland.

In regards to the allocation of residential electricity customer connections across New South Wales, Ausgrid has approximately 46 per cent of New South Wales residential customer connections; Endeavour Energy has 32 per cent; and Essential Energy has 22 per cent.

Figures B.4, B.5 and B.6 below set out possible residential electricity prices over the projection period in each of the New South Wales distribution areas.

Figure B.4 New South Wales: projected prices by distributor – Ausgrid

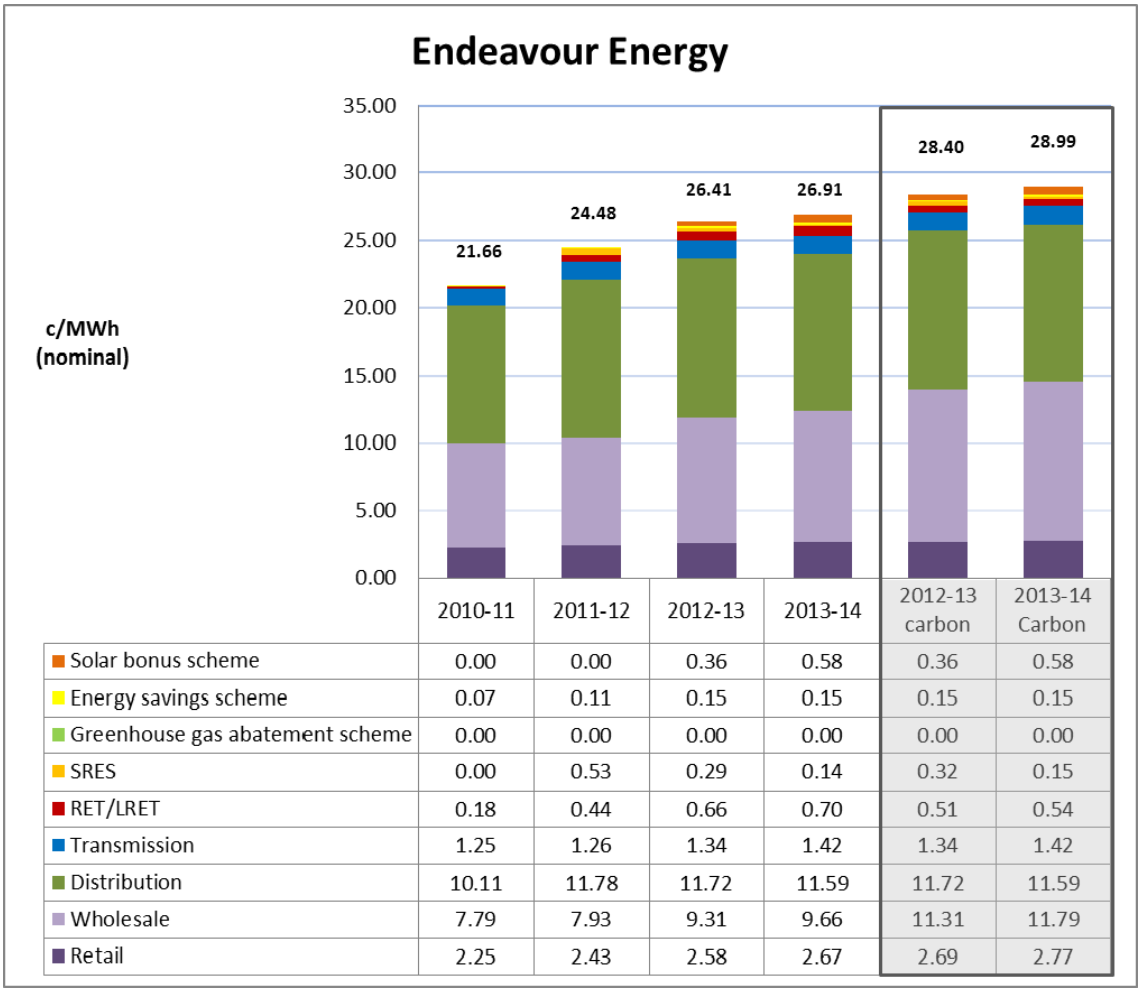
Based on a residential customer with an annual consumption of 5,000 kWh.



	2010-11	2011-12	2012-13	2013-14	2012-13 Carbon	2013-14 Carbon
Solar bonus scheme	0.00	0.00	0.36	0.58	0.36	0.58
Energy savings scheme	0.07	0.11	0.15	0.15	0.15	0.15
Greenhouse gas abatement scheme	0.00	0.00	0.00	0.00	0.00	0.00
SRES	0.00	0.53	0.29	0.14	0.32	0.15
RET/LRET	0.18	0.44	0.66	0.70	0.51	0.54
Transmission	1.95	2.44	2.59	2.76	2.59	2.76
Distribution	9.56	11.41	13.46	13.47	13.46	13.47
Wholesale	7.44	7.45	8.57	8.90	10.43	10.88
Retail	2.52	2.74	3.01	3.11	3.10	3.20

Figure B.5 **New South Wales: projected prices by distributor - Endeavour Energy**

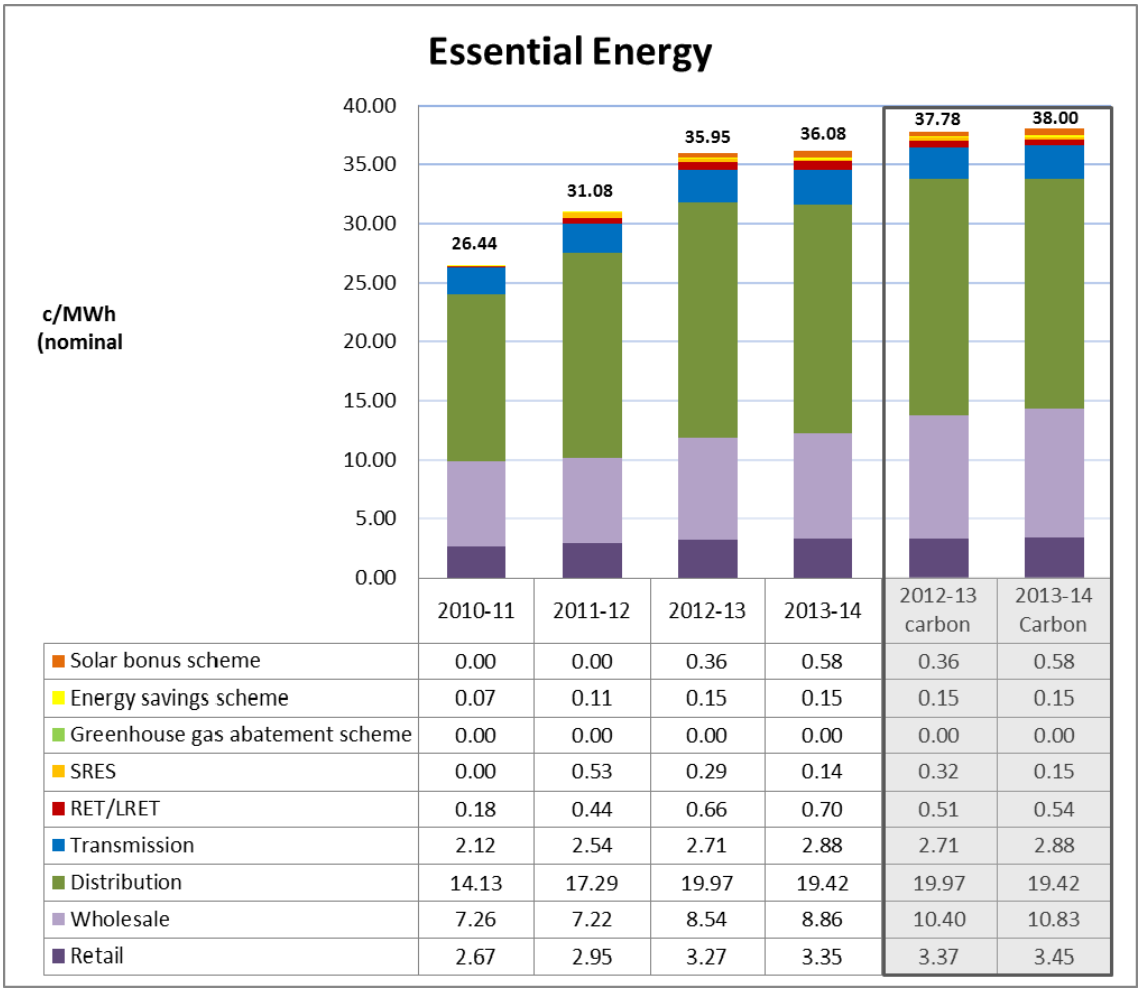
Based on a residential customer with an annual consumption of 6,000 kWh.



	2010-11	2011-12	2012-13	2013-14	2012-13 carbon	2013-14 Carbon
Solar bonus scheme	0.00	0.00	0.36	0.58	0.36	0.58
Energy savings scheme	0.07	0.11	0.15	0.15	0.15	0.15
Greenhouse gas abatement scheme	0.00	0.00	0.00	0.00	0.00	0.00
SRES	0.00	0.53	0.29	0.14	0.32	0.15
RET/LRET	0.18	0.44	0.66	0.70	0.51	0.54
Transmission	1.25	1.26	1.34	1.42	1.34	1.42
Distribution	10.11	11.78	11.72	11.59	11.72	11.59
Wholesale	7.79	7.93	9.31	9.66	11.31	11.79
Retail	2.25	2.43	2.58	2.67	2.69	2.77

Figure B.6 New South Wales: projected prices by distributor - Essential Energy

Based on a residential customer with an annual consumption of 5,000 kWh.



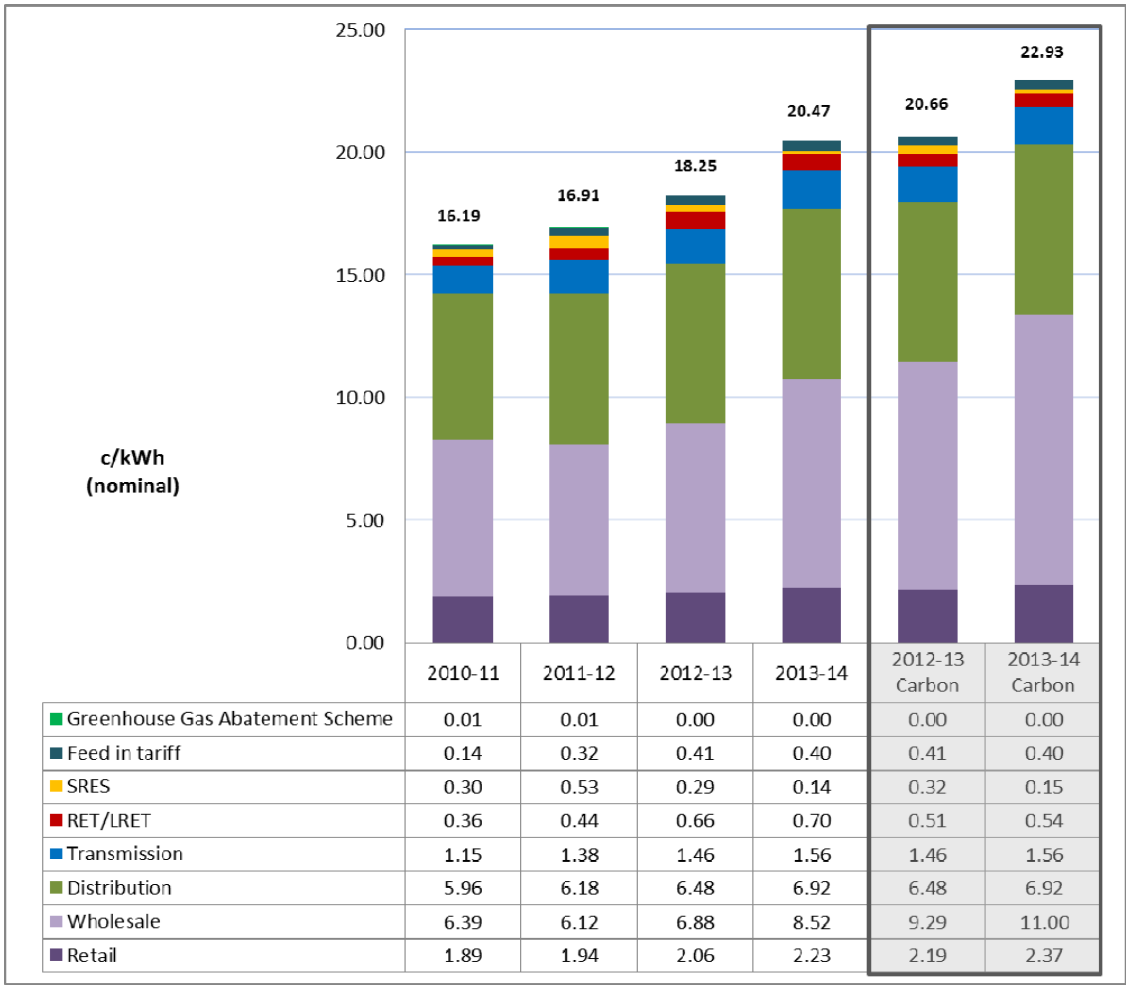
	2010-11	2011-12	2012-13	2013-14	2012-13 carbon	2013-14 Carbon
Solar bonus scheme	0.00	0.00	0.36	0.58	0.36	0.58
Energy savings scheme	0.07	0.11	0.15	0.15	0.15	0.15
Greenhouse gas abatement scheme	0.00	0.00	0.00	0.00	0.00	0.00
SRES	0.00	0.53	0.29	0.14	0.32	0.15
RET/LRET	0.18	0.44	0.66	0.70	0.51	0.54
Transmission	2.12	2.54	2.71	2.88	2.71	2.88
Distribution	14.13	17.29	19.97	19.42	19.97	19.42
Wholesale	7.26	7.22	8.54	8.86	10.40	10.83
Retail	2.67	2.95	3.27	3.35	3.37	3.45

B.1.3 Australian Capital Territory

The ACT has one electricity distribution company, ActewAGL Distribution, which serves all of the ACT. As a result, the prices below are the same as the prices presented for the ACT in Chapter 4. Figure B.7 below sets out possible residential electricity prices over the projection period for the ACT.

Figure B.7 Australian Capital Territory: projected prices by distributor – ActewAGL

Based on a residential customer with an annual consumption of 7,000 kWh.



	2010-11	2011-12	2012-13	2013-14	2012-13 Carbon	2013-14 Carbon
Greenhouse Gas Abatement Scheme	0.01	0.01	0.00	0.00	0.00	0.00
Feed in tariff	0.14	0.32	0.41	0.40	0.41	0.40
SRES	0.30	0.53	0.29	0.14	0.32	0.15
RET/LRET	0.36	0.44	0.66	0.70	0.51	0.54
Transmission	1.15	1.38	1.46	1.56	1.46	1.56
Distribution	5.96	6.18	6.48	6.92	6.48	6.92
Wholesale	6.39	6.12	6.88	8.52	9.29	11.00
Retail	1.89	1.94	2.06	2.23	2.19	2.37

B.1.4 Victoria

Victoria has five distribution companies:

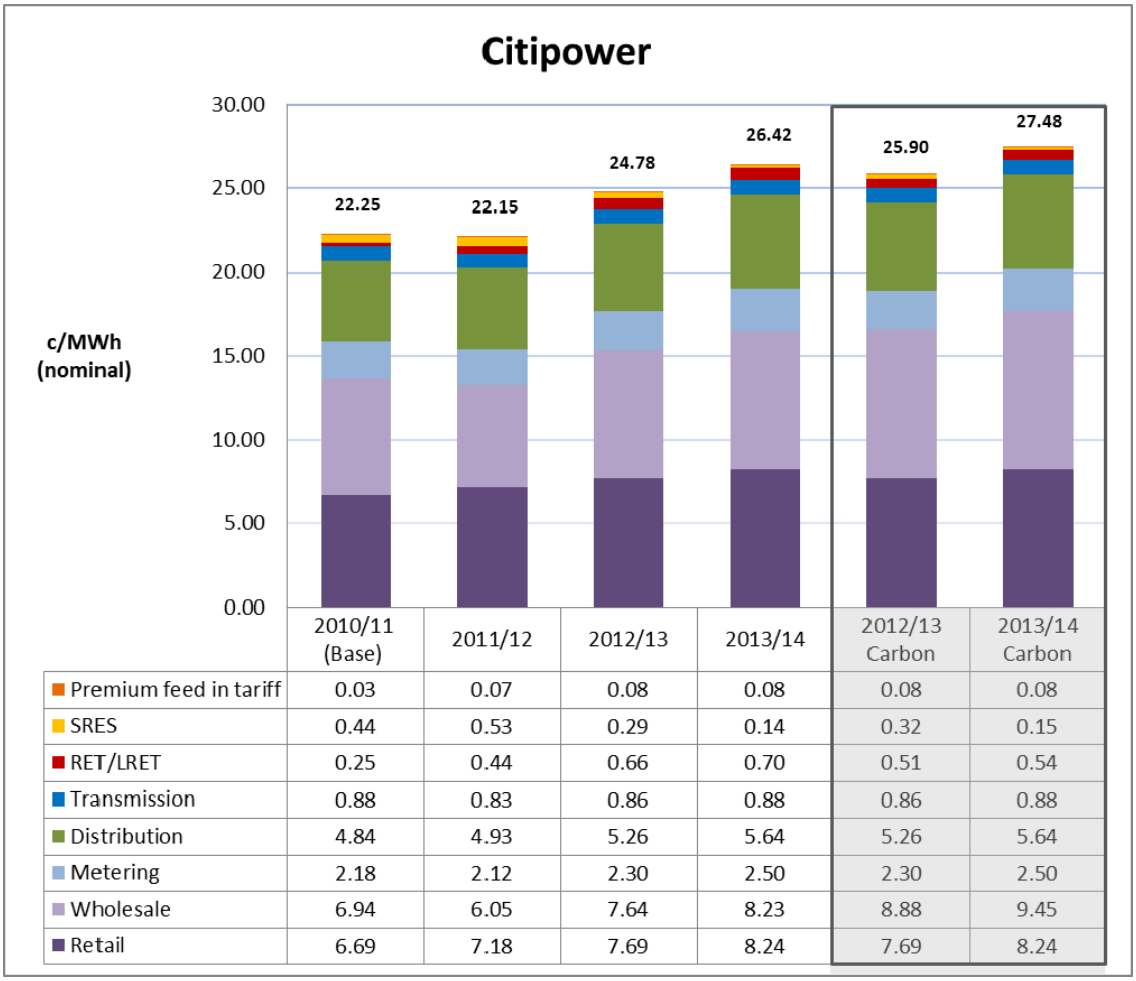
- Citipower, which has a distribution area that encompasses inner metropolitan Melbourne;
- United Energy Distribution, which has a distribution area that encompasses south eastern metropolitan Melbourne;
- Jemena, which has a distribution area which encompasses western metropolitan Melbourne;
- SPI Electricity, which has a distribution area that encompasses eastern Victoria; and
- Powercor, which has a distribution area that encompasses western Victoria.

In regards to the allocation of Victorian residential electricity customer connections between these five distribution companies: Citipower has approximately ten per cent of residential electricity customers in its distribution area; United Energy Distribution has approximately 28 per cent; Jemena has approximately 14 per cent; SPI Electricity has approximately 22 per cent and Powercor has approximately 26 per cent.

Figures B.8, B.9, B.10, B.11, and B.12 below set out possible residential electricity prices over the projection period for each Victorian distribution company.

Figure B.8 Victoria: projected prices by distributor – Citipower

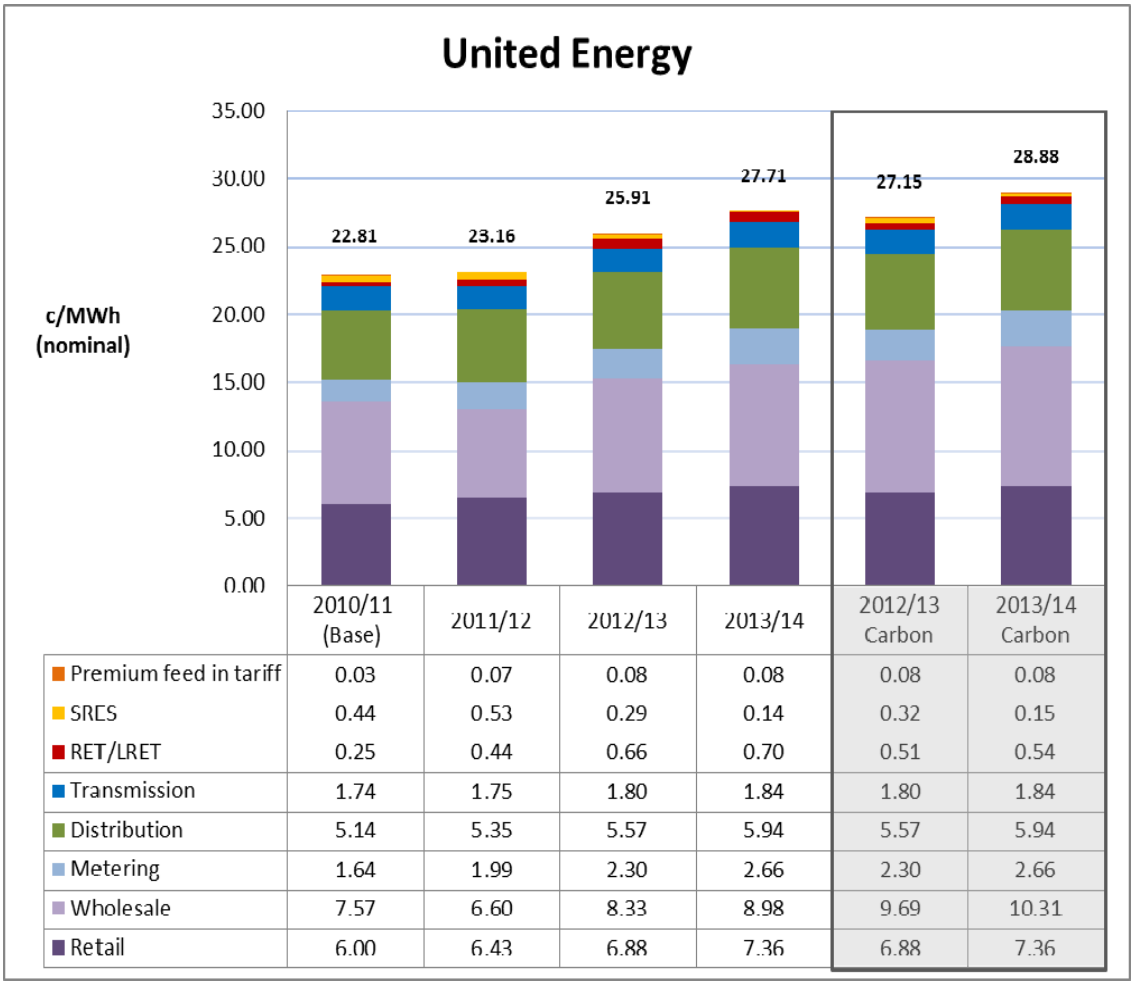
Based on a residential customer with an annual consumption of 4,500 kWh.



	2010/11 (Base)	2011/12	2012/13	2013/14	2012/13 Carbon	2013/14 Carbon
Premium feed in tariff	0.03	0.07	0.08	0.08	0.08	0.08
SRES	0.44	0.53	0.29	0.14	0.32	0.15
RET/LRET	0.25	0.44	0.66	0.70	0.51	0.54
Transmission	0.88	0.83	0.86	0.88	0.86	0.88
Distribution	4.84	4.93	5.26	5.64	5.26	5.64
Metering	2.18	2.12	2.30	2.50	2.30	2.50
Wholesale	6.94	6.05	7.64	8.23	8.88	9.45
Retail	6.69	7.18	7.69	8.24	7.69	8.24

Figure B.9 Victoria: projected prices by distributor - United Energy

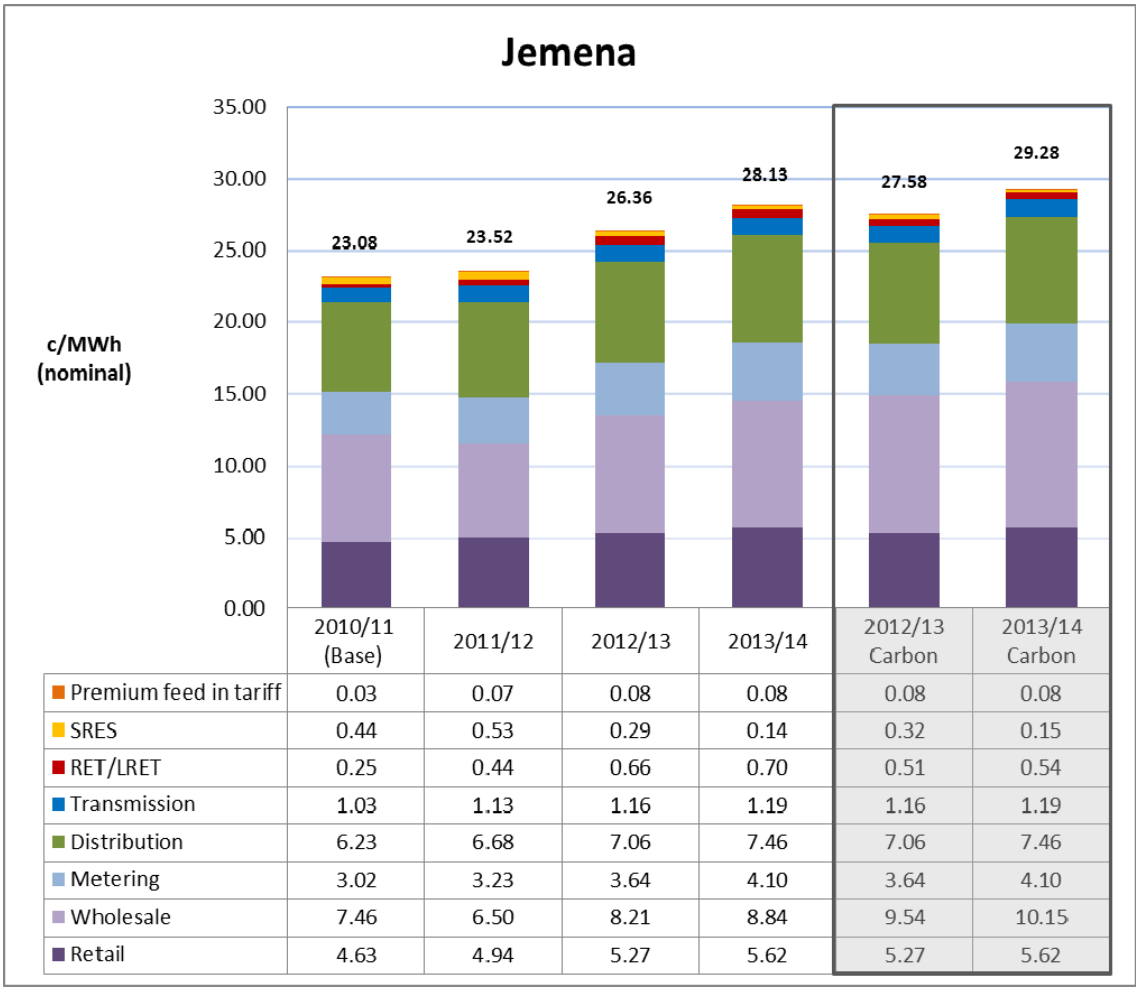
Based on a residential customer with an annual consumption of 5,000 kWh.



	2010/11 (Base)	2011/12	2012/13	2013/14	2012/13 Carbon	2013/14 Carbon
Premium feed in tariff	0.03	0.07	0.08	0.08	0.08	0.08
SRES	0.44	0.53	0.29	0.14	0.32	0.15
RET/LRET	0.25	0.44	0.66	0.70	0.51	0.54
Transmission	1.74	1.75	1.80	1.84	1.80	1.84
Distribution	5.14	5.35	5.57	5.94	5.57	5.94
Metering	1.64	1.99	2.30	2.66	2.30	2.66
Wholesale	7.57	6.60	8.33	8.98	9.69	10.31
Retail	6.00	6.43	6.88	7.36	6.88	7.36

Figure B.10 Victoria: projected prices by distributor – Jemena

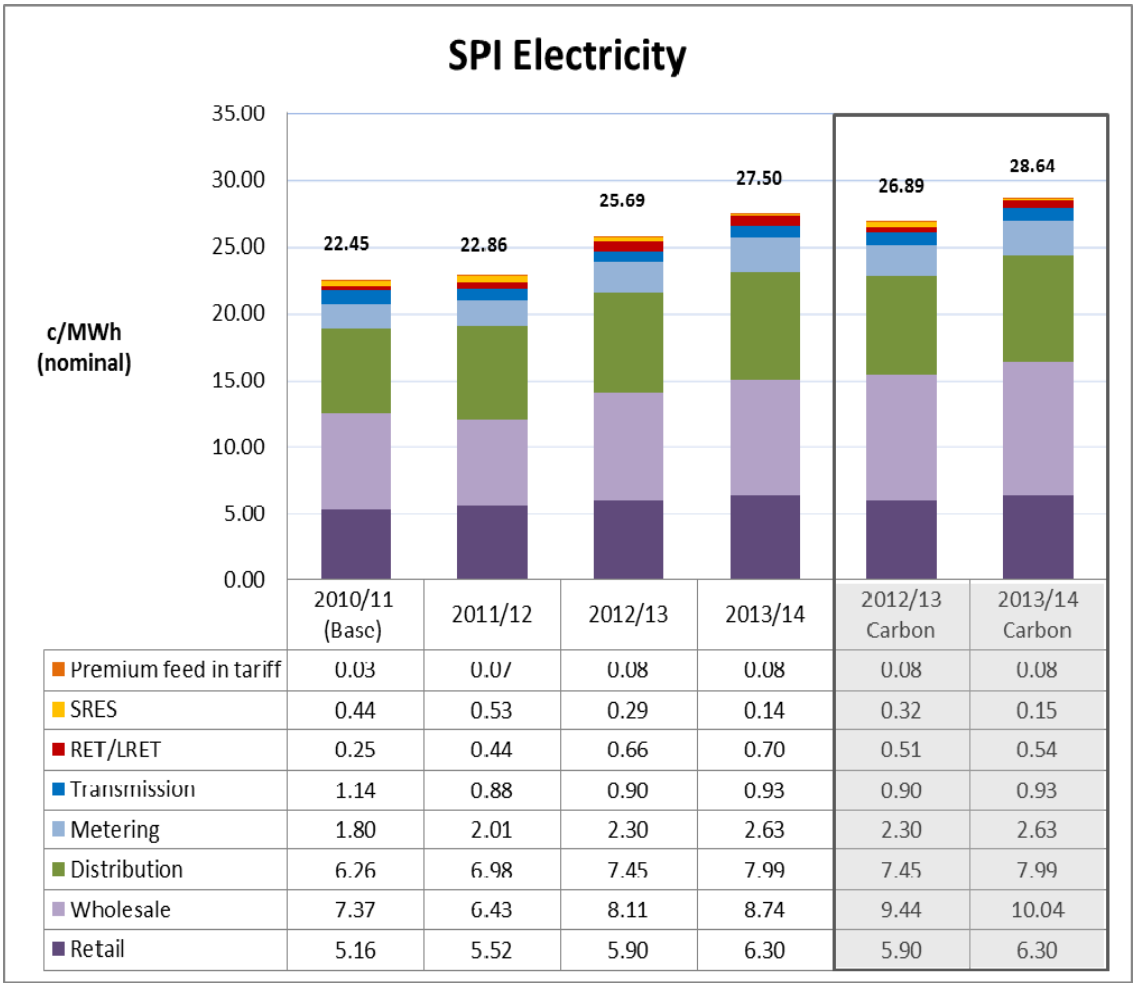
Based on a residential customer with an annual consumption of 4,500 kWh.



	2010/11 (Base)	2011/12	2012/13	2013/14	2012/13 Carbon	2013/14 Carbon
Premium feed in tariff	0.03	0.07	0.08	0.08	0.08	0.08
SRES	0.44	0.53	0.29	0.14	0.32	0.15
RET/LRET	0.25	0.44	0.66	0.70	0.51	0.54
Transmission	1.03	1.13	1.16	1.19	1.16	1.19
Distribution	6.23	6.68	7.06	7.46	7.06	7.46
Metering	3.02	3.23	3.64	4.10	3.64	4.10
Wholesale	7.46	6.50	8.21	8.84	9.54	10.15
Retail	4.63	4.94	5.27	5.62	5.27	5.62

Figure B.11 Victoria: projected prices by distributor - SPI Electricity

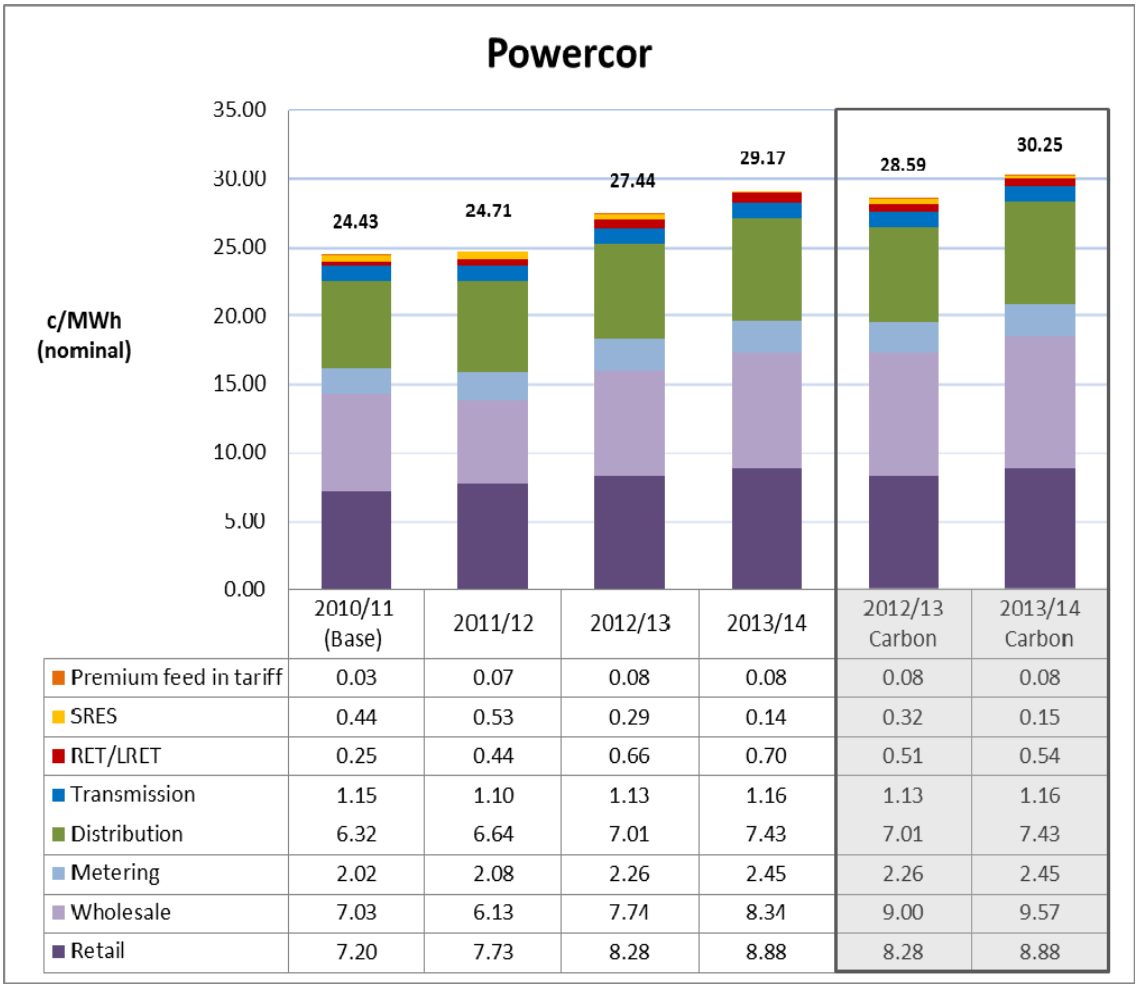
Based on a residential customer with an annual consumption of 5,000 kWh.



	2010/11 (Basc)	2011/12	2012/13	2013/14	2012/13 Carbon	2013/14 Carbon
Premium feed in tariff	0.03	0.07	0.08	0.08	0.08	0.08
SRES	0.44	0.53	0.29	0.14	0.32	0.15
RET/LRET	0.25	0.44	0.66	0.70	0.51	0.54
Transmission	1.14	0.88	0.90	0.93	0.90	0.93
Metering	1.80	2.01	2.30	2.63	2.30	2.63
Distribution	6.26	6.98	7.45	7.99	7.45	7.99
Wholesale	7.37	6.43	8.11	8.74	9.44	10.04
Retail	5.16	5.52	5.90	6.30	5.90	6.30

Figure B.12 Victoria: projected prices by distributor – Powercor

Based on a residential customer with an annual consumption of 4,750 kWh.



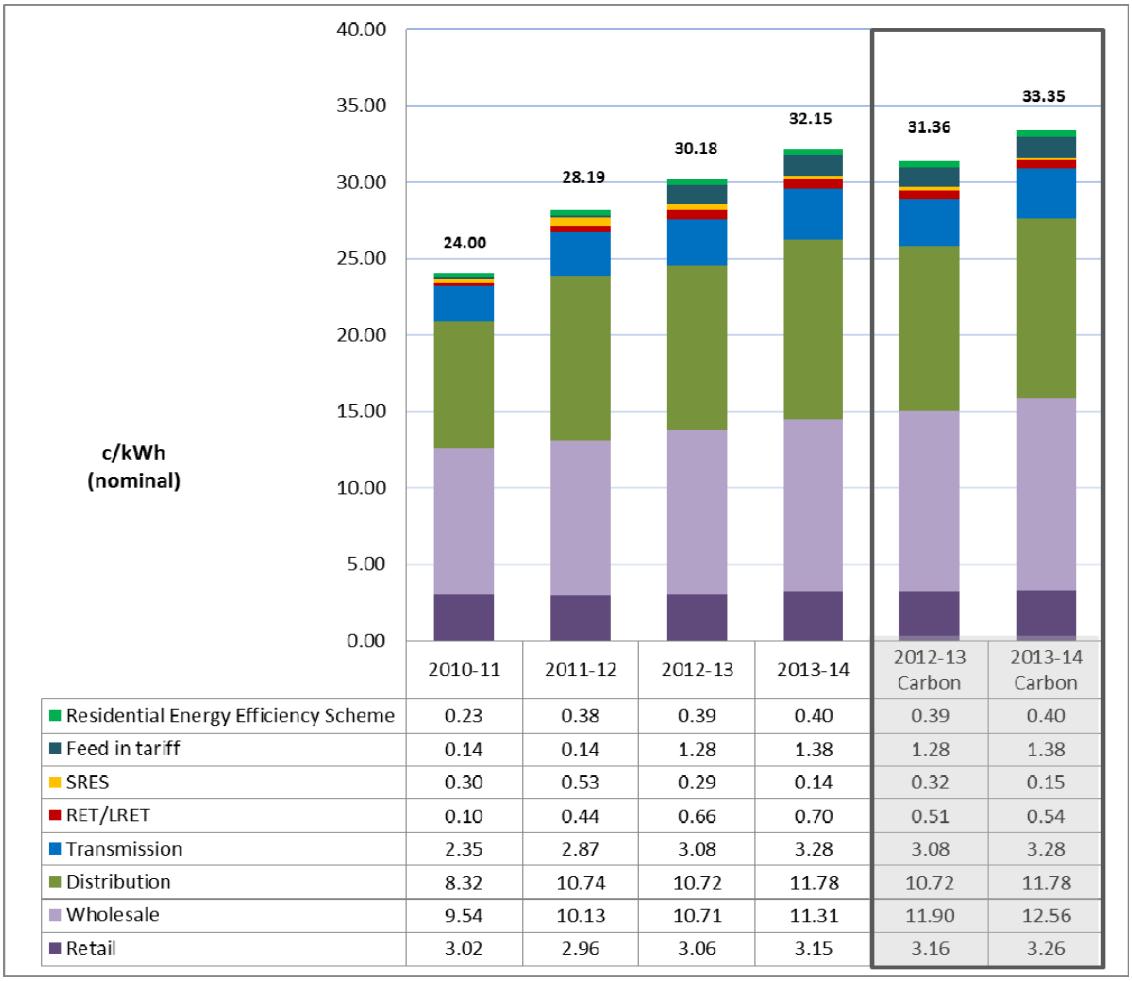
	2010/11 (Base)	2011/12	2012/13	2013/14	2012/13 Carbon	2013/14 Carbon
Premium feed in tariff	0.03	0.07	0.08	0.08	0.08	0.08
SRES	0.44	0.53	0.29	0.14	0.32	0.15
RET/LRET	0.25	0.44	0.66	0.70	0.51	0.54
Transmission	1.15	1.10	1.13	1.16	1.13	1.16
Distribution	6.32	6.64	7.01	7.43	7.01	7.43
Metering	2.02	2.08	2.26	2.45	2.26	2.45
Wholesale	7.03	6.13	7.71	8.31	9.00	9.57
Retail	7.20	7.73	8.28	8.88	8.28	8.88

B.1.5 South Australia

South Australia has one distribution company, ETSA Utilities, which serves all of the state. As a result, the prices below are the same as the prices presented for South Australia in Chapter 4. Figure B.13 below sets out possible residential electricity prices over the projection period for South Australia.

Figure B.13 South Australia: projected prices by distributor - ETSA Utilities

Based on a residential customer with an annual consumption of 5,000 kWh.



	2010-11	2011-12	2012-13	2013-14	2012-13 Carbon	2013-14 Carbon
Residential Energy Efficiency Scheme	0.23	0.38	0.39	0.40	0.39	0.40
Feed in tariff	0.14	0.14	1.28	1.38	1.28	1.38
SRES	0.30	0.53	0.29	0.14	0.32	0.15
RET/LRET	0.10	0.44	0.66	0.70	0.51	0.54
Transmission	2.35	2.87	3.08	3.28	3.08	3.28
Distribution	8.32	10.74	10.72	11.78	10.72	11.78
Wholesale	9.54	10.13	10.71	11.31	11.90	12.56
Retail	3.02	2.96	3.06	3.15	3.16	3.26

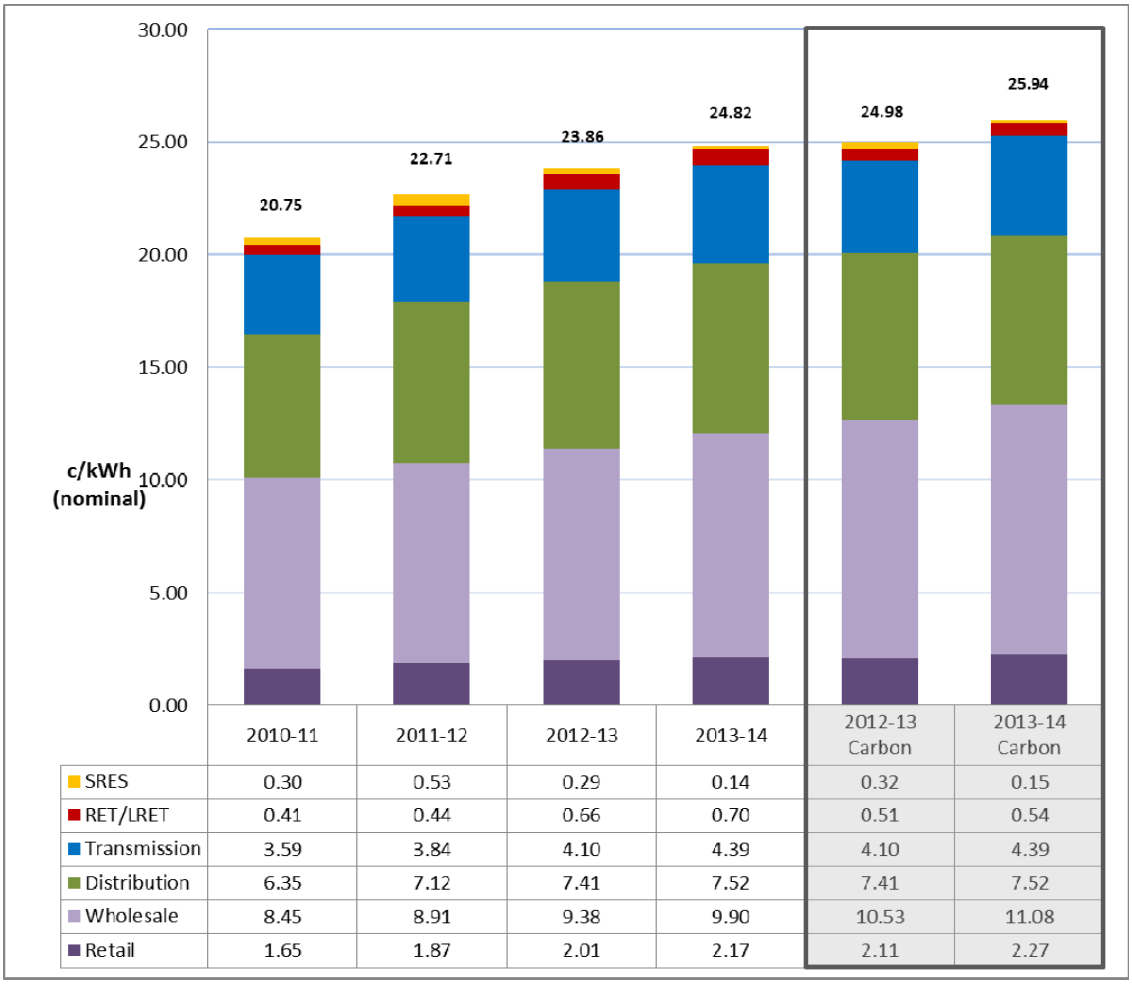
B.1.6 Tasmania

Tasmania has only one distribution company, Aurora Energy, which services all of Tasmania. As a result, the prices below are the same as the prices presented for Tasmania in Chapter 4.

Figure B.14 below sets out possible residential electricity prices for Tasmania over the projection period.

Figure B.14 Tasmania: projected prices by distributor - Aurora Energy

Based on a residential customer with an annual consumption of 9,500 kWh.



	2010-11	2011-12	2012-13	2013-14	2012-13 Carbon	2013-14 Carbon
SRES	0.30	0.53	0.29	0.14	0.32	0.15
RET/LRET	0.41	0.44	0.66	0.70	0.51	0.54
Transmission	3.59	3.84	4.10	4.39	4.10	4.39
Distribution	6.35	7.12	7.41	7.52	7.41	7.52
Wholesale	8.45	8.91	9.38	9.90	10.53	11.08
Retail	1.65	1.87	2.01	2.17	2.11	2.27

B.1.7 Western Australia

Western Australia has two distribution companies:

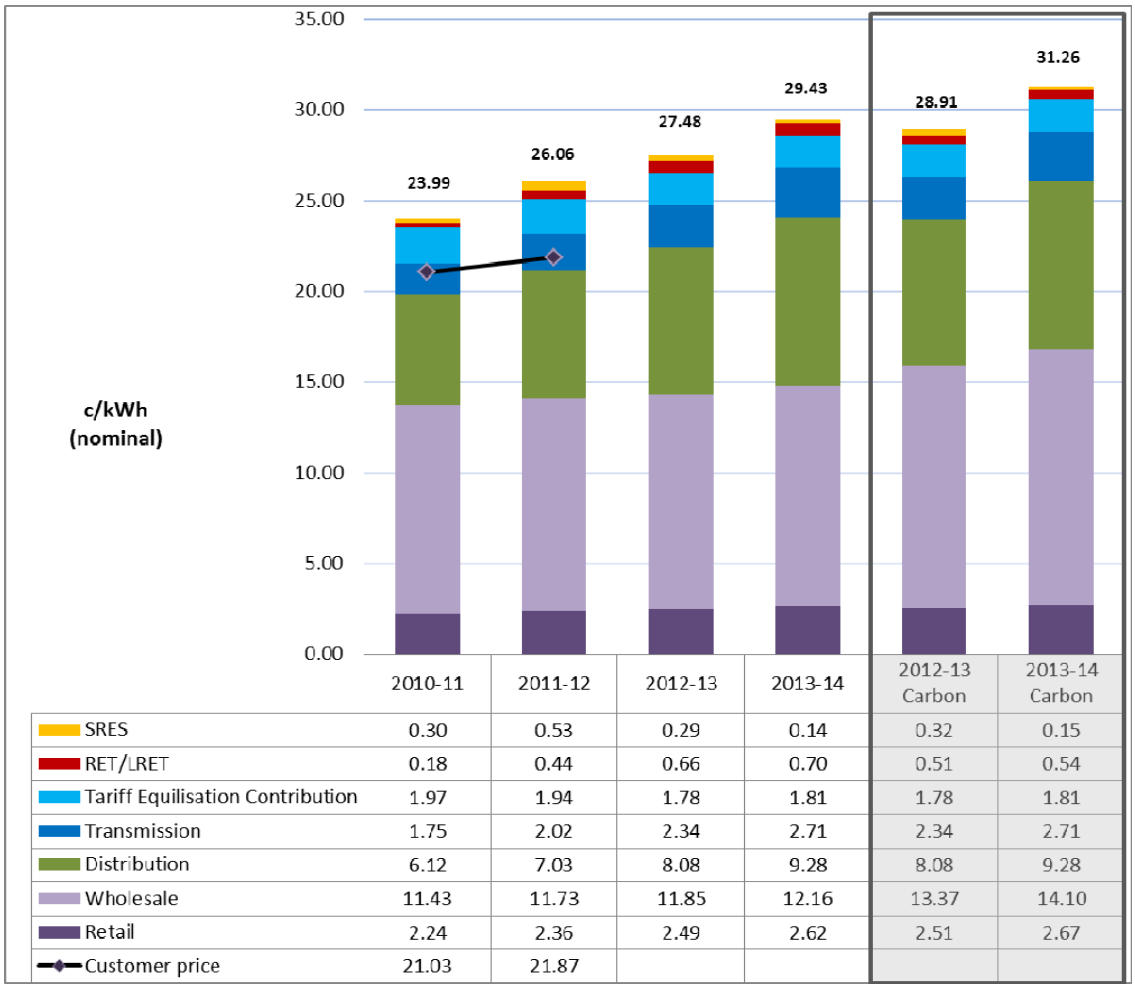
- Western Power, which has a distribution area that encompasses south western, Western Australia; and
- Horizon Power, which has a distribution area that encompasses north western, Western Australia.

However, as data was only available on the price of providing residential electricity services in Western Power's distribution area, for the purposes of this report we have solely focussed on Western Power's supply to residential customers. As a result, the data below is the same as the data presented in Chapter 4 for Western Australia.

Figure B.15 below sets out possible residential electricity services over the projection period for Western Australia. Both the price that customers pay and the price to supply customers with electricity is depicted.

Figure B.15 Western Australia: projected prices by distributor - Western Power

Based on a residential customer with an annual consumption of 6,067 kWh.



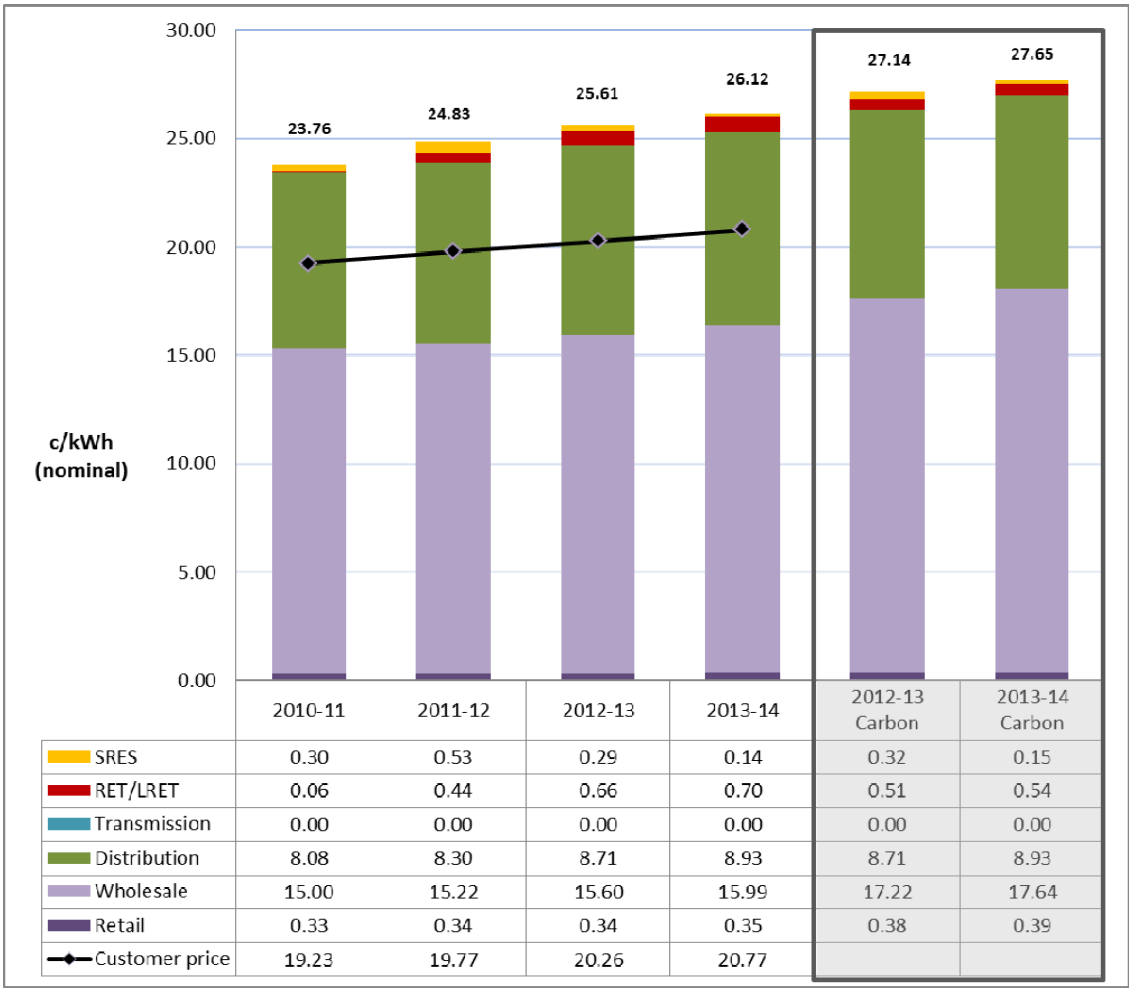
	2010-11	2011-12	2012-13	2013-14	2012-13 Carbon	2013-14 Carbon
SRES	0.30	0.53	0.29	0.14	0.32	0.15
RET/LRET	0.18	0.44	0.66	0.70	0.51	0.54
Tariff Equilisation Contribution	1.97	1.94	1.78	1.81	1.78	1.81
Transmission	1.75	2.02	2.34	2.71	2.34	2.71
Distribution	6.12	7.03	8.08	9.28	8.08	9.28
Wholesale	11.43	11.73	11.85	12.16	13.37	14.10
Retail	2.24	2.36	2.49	2.62	2.51	2.67
Customer price	21.03	21.87				

B.1.8 Northern Territory

The Northern Territory has only one distribution company, Power and Water Corporation, which serves all of the Northern Territory. As a result, the prices below in Figure B.16 are as shown in Chapter 4 for the Northern Territory.

Figure B.16 Northern Territory: projected prices by distributor - Power and Water Corporation

Based on a residential customer with an annual consumption of 5,000 kWh.



	2010-11	2011-12	2012-13	2013-14	2012-13 Carbon	2013-14 Carbon
SRES	0.30	0.53	0.29	0.14	0.32	0.15
RET/LRET	0.06	0.44	0.66	0.70	0.51	0.54
Transmission	0.00	0.00	0.00	0.00	0.00	0.00
Distribution	8.08	8.30	8.71	8.93	8.71	8.93
Wholesale	15.00	15.22	15.60	15.99	17.22	17.64
Retail	0.33	0.34	0.34	0.35	0.38	0.39
Customer price	19.23	19.77	20.26	20.77		

B.2 Average annual bill impacts by state and territory

This section outlines the average annual bill impacts of residential electricity prices over the projection period by state and territory. In the case of Western Australia, the bill impacts are in relation to the price incurred in supplying electricity to consumers. The average annual bill impacts are calculated both in the absence of, and inclusion of, a price on carbon.

The prices in this section are nominal and GST exclusive and are based on the average annual consumption in each state and territory. The average annual consumption figures were provided by the AER for each NEM state and territory. For Western Australia, the average annual consumption was sourced from the government and for the Northern Territory, as no data was available; we have used a consumption figure of 5,000 kWh to provide an indication of potential bill impacts.

B.3.1 Queensland

Based on a residential customer in Queensland with an annual consumption of 6,500 kWh.

Table B.1 Average annual bill impact in Queensland

Component	2010/11	2011/12	2012/13	2013/14	2012/13 + Carbon	2013/14 + Carbon
Transmission	$118.59	$127.85	$142.58	$152.21	$142.58	$152.21
Distribution	$619.53	$686.17	$777.87	$844.24	$777.87	$844.24
Wholesale	$367.32	$350.35	$425.11	$485.41	$547.18	$614.66
Retail	$193.95	$205.04	$224.61	$234.97	$230.31	$240.94
Feed in tariff	$1.22	$1.50	$1.84	$2.11	$1.72	$2.14
RET/LRET	$17.53	$22.37	$43.08	$45.60	$33.15	$35.10
SRES	$18.71	$35.92	$18.73	$9.20	$20.80	$9.75
Queensland Gas Scheme	$7.99	$4.04	$4.33	$4.44	$4.33	$4.44
TOTAL	$1,344.85	$1,433.25	$1,638.15	$1,778.18	$1,757.93	$1,903.47

B.3.2 New South Wales

Based on a residential customer in New South Wales with an annual consumption of 5,500 kWh.

Table B.2 Average annual bill impact in New South Wales

Component	2010/11	2011/12	2012/13	2013/14	2012/13 + Carbon	2013/14 + Carbon
Transmission	$96.90	$114.48	$121.73	$129.48	$121.73	$129.48
Distribution	$591.42	$705.99	$788.78	$780.43	$788.78	$780.43
Wholesale	$413.22	$415.56	$484.15	$502.44	$588.97	$613.81
Retail	$135.77	$147.61	$161.19	$166.06	$166.52	$171.46
Feed in tariff	$0.00	$0.00	$20.00	$31.67	$20.00	$31.67
RET/LRET	$10.12	$24.35	$36.46	$38.58	$28.05	$29.67
SRES	$0.00	$29.09	$15.85	$7.78	$17.60	$8.17
Greenhouse Gas Reduction Scheme	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Energy Savings Scheme	$3.96	$6.00	$8.03	$8.25	$8.03	$8.25
TOTAL	$1,251.39	$1,443.07	$1,636.19	$1,664.71	$1,739.68	$1,772.94

B.3.3 Australian Capital Territory

Based on a residential customer in the ACT with an annual consumption of 7,000 kWh.

Table B.3 Average annual bill impact in the ACT

Component	2010/11	2011/12	2012/13	2013/14	2012/13 + Carbon	2013/14 + Carbon
Transmission	$80.50	$96.60	$102.20	$109.20	$102.20	$109.20
Distribution	$417.35	$432.31	$453.93	$484.52	$453.93	$484.52
Wholesale	$447.02	$428.08	$481.83	$596.36	$650.06	$769.96
Retail	$132.00	$135.95	$144.07	$155.86	$153.17	$165.55
Feed in tariff	$9.54	$22.27	$28.60	$27.76	$28.60	$27.76
RET/LRET	$25.16	$30.99	$46.40	$49.11	$35.70	$37.80
SRES	$21.18	$37.03	$20.17	$9.91	$22.40	$10.50
Greenhouse Gas Abatement Scheme	$0.83	$0.79	$0.00	$0.00	$0.00	$0.00
TOTAL	$1,133.58	$1,184.02	$1,277.20	$1,432.71	$1,446.06	$1,605.29

B.3.4 Victoria

Based on a residential customer in Victoria with an annual consumption of 4,750 kWh.

Table B.4 Average annual bill impact in Victoria

Component	2010/11	2011/12	2012/13	2013/14	2012/13 + Carbon	2013/14 + Carbon
Transmission	$60.13	$57.39	$58.88	$60.43	$58.88	$60.43
Distribution	$276.23	$293.83	$310.33	$330.50	$310.33	$330.50
Metering	$95.71	$104.44	$117.28	$131.79	$117.28	$131.79
Wholesale	$347.01	$315.40	$397.10	$427.50	$461.16	$490.30
Retail	$279.24	$342.93	$361.26	$377.37	$370.98	$390.93
Premium feed in tariff	$1.19	$3.09	$3.80	$3.80	$3.80	$3.80
RET	$12.10	$21.03	$31.48	$33.32	$24.43	$25.62
SRES	$14.25	$25.13	$13.69	$6.72	$15.08	$7.06
TOTAL	$1,085.85	$1,163.23	$1,293.83	$1,371.44	$1,361.94	$1,440.43

B.3.5 South Australia

Based on a residential customer in South Australia with an annual consumption of 5,000 kWh.

Table B.5 Average annual bill impact in South Australia

Component	2010/11	2011/12	2012/13	2013/14	2012/13 + Carbon	2013/14 + Carbon
Transmission	$117.46	$143.39	$153.84	$164.08	$153.84	$164.08
Distribution	$416.03	$536.76	$535.97	$589.12	$535.97	$589.12
Wholesale	$477.14	$506.60	$535.30	$565.53	$594.95	$628.13
Retail	$150.96	$148.19	$152.79	$157.27	$158.16	$162.75
Feed in tariff	$6.45	$28.16	$34.16	$34.93	$34.16	$34.93
RET/LRET	$5.00	$22.00	$33.14	$35.08	$25.71	$26.97
SRES	$15.13	$26.45	$14.41	$7.08	$15.88	$7.43
Residential Energy Efficiency Scheme	$11.43	$19.09	$19.69	$20.19	$19.69	$20.19
TOTAL	$1,199.58	$1,430.63	$1,479.31	$1,573.26	$1,538.37	$1,633.60

B.3.6 Tasmania

Based on a residential customer in Tasmania with an annual consumption of 9,500 kWh.

Table B.6 Average annual bill impact in Tasmania

Component	2010/11	2011/12	2012/13	2013/14	2012/13 + Carbon	2013/14 + Carbon
Transmission	$340.79	$364.80	$389.82	$416.92	$389.82	$416.92
Distribution	$603.25	$676.40	$703.95	$714.40	$703.95	$714.40
Wholesale	$802.94	$846.26	$891.18	$940.38	$1,000.24	$1,052.19
Retail	$156.75	$177.65	$190.95	$206.15	$200.45	$215.65
RET/LRET	$38.95	$42.05	$62.97	$66.64	$48.45	$51.30
SRES	$28.75	$50.25	$27.38	$13.45	$30.40	$14.25
TOTAL	$1,971.43	$2,157.42	$2,266.24	$2,357.94	$2,373.31	$2,464.72

B.3.7 Western Australia

Based on a residential customer in WA with an annual consumption of 6,067 kWh.

Table B.7 Average annual bill impact in WA

Component	2010/11	2011/12	2012/13	2013/14	2012/13 + Carbon	2013/14 + Carbon
Transmission	$106.05	$122.67	$141.97	$164.42	$141.97	$164.42
Distribution	$371.36	$426.57	$490.21	$563.02	$490.21	$563.02
Wholesale	$693.46	$711.78	$718.64	$737.87	$811.16	$855.39
Retail	$135.90	$143.18	$150.80	$158.98	$152.28	$161.99
RET/LRET	$10.92	$26.86	$40.21	$42.56	$31.20	$32.73
SRES	$18.36	$32.09	$17.48	$8.59	$19.26	$9.01
Tariff Equilisation Contribution	$119.64	$117.94	$107.99	$109.81	$107.99	$109.81
TOTAL	$1,455.69	$1,581.10	$1,667.30	$1,785.24	$1,754.08	$1,896.36

B.3.8 Northern Territory

Based on a residential customer in the Northern Territory with an annual consumption of 5,000 kWh.

Table B.8 Average annual bill impact in the Northern Territory

Component	2010/11	2011/12	2012/13	2013/14	2012/13 + Carbon	2013/14 + Carbon
Distribution	$403.83	$415.17	$435.59	$446.56	$435.59	$446.56
Wholesale	$749.97	$761.15	$780.01	$799.65	$861.00	$882.00
Retail	$16.35	$16.80	$17.22	$17.65	$18.80	$19.50
RET/LRET	$2.88	$22.13	$33.14	$35.08	$25.71	$26.97
SRES	$15.13	$26.45	$14.41	$7.08	$15.88	$7.43
TOTAL	$1,188.16	$1,241.70	$1,280.37	$1,306.01	$1,356.98	$1,382.46

Abbreviations

AEMC	Australian Energy Market Commission
AER	Australian Energy Regulator
Commission	See AEMC
ERA	Economic Regulatory Authority
GST	goods and services tax
LRET	Large-scale Renewable Energy Target
MCE	Ministerial Council on Energy
NEM	National Electricity Market
NT	Northern Territory
SRES	Small-scale Renewable Energy Scheme
SWIS	South West Interconnected System
WA	Western Australia