NERA
ECONOMIC CONSULTING

Prices and Profit Margin Analysis for the NSW Retail Competition Review

A report to the Australian Energy Market Commission

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Contents

List of Tables

List of Figures

1. Introduction

NERA Economic Consulting (NERA) has been engaged by the Australian Energy Market Commission (the Commission) to analyse retail market prices and retailer profit margins. It is our understanding that the Commission will consider this study as part of its review of competition in the New South Wales (NSW) electricity and gas retail markets (the Review).

The scope of the Commission's review is the market for retail supply of electricity and natural gas ('gas') to small customers in NSW. A small customer is defined as one consuming less than 160 MWh of electricity per annum, and less than 1 TJ of natural gas per annum.[1]

The principal aim of this study was to estimate retail profit margins (ie, the proportion of revenue in excess of costs), using both:

- regulated retail prices; and
- prices observed in market offers.

Our study estimates retail profit margins for both electricity and gas supply for the period from 1 January 2002 to 31 December 2012.

Our estimates of retail profits must be interpreted within the context of all of the analysis that the AEMC is undertaking as part of the Review. Observations of adequate retail profit margins are a necessary, but not sufficient, condition to support effective competition in the retail sector. Barriers to entry can prevent new players entering the market, or limit incumbents' ability to expand and compete affecting observed margins. Our review does not examine these barriers to entry or any other factors relevant to a consideration of the effectiveness of retail competition in New South Wales.

The remainder of this report is structured as follows:

- **chapter two** gives a high-level description of the key parts of our methodology, namely:
  - determining the profile of a representative user;
  - calculating the retail cost bases for electricity and gas; and
  - estimating the retail profit margin.
- **chapter three** presents our analysis and estimates of the electricity retail cost base;
- **chapter four** presents our analysis and estimates of the gas retail cost base;
- **chapter five** provides an analysis of historical prices for electricity and gas, both in terms of regulated tariffs and offers available in the market; and
- **chapter six** presents our results, ie, our estimates of the retail profit margin for electricity and gas.

[1] Australian Energy Market Commission, "Review of Competition in the Retail Electricity and Natural Gas Markets in New South Wales," December 13, 2012.

2. Methodology

The purpose of our study is to estimate retail profit margins to supply electricity and gas to small customers in New South Wales over an eleven year period – 1 January 2002 to 31 December 2012. In this Chapter, we describe and explain the reasons for using our methodology to estimate profit margins.

2.1. Overview of the approach

Our approach to estimating retail profit margins involves three steps:

- estimation of the retail cost base;
- collection of data for regulated tariffs and market offers; and
- calculation of the implied retail profit margin.

We have considered profit margins for standalone electricity and gas supply to small retail customers. However, in Chapter 6 we present estimated profit margins to supply both electricity and gas (ie, dual fuel) to a small retail customer.

2.1.1. Representative customer approach

Our methodology uses a 'representative customer' as the unit of measurement for the cost base and revenues, to allow a profit margin to be estimated. An alternative approach would have been to use total costs and revenues for existing energy retailers in NSW, ie, to measure the industry profit margin directly.

We have used a representative customer approach because:

- aggregated costs and revenues of existing energy retailers are unlikely to be representative of those profit margins that might be expected to be received by a new entrant retailer, seeking to enter the market and so attract customers;
- obtaining data on actual retailer costs and revenues is difficult given the commercially sensitive nature of the information; and
- if aggregated data were available, it would be difficult to identify those costs and revenues directly attributable to the supply of energy to small retailers, as compared to other customers or other services that might be provided.

In summary, the representative customer approach allows for a direct consideration of profit margins that might be faced by a new entrant, which is relevant to an assessment of the effectiveness of competition.

2.1.2. Sensitivity of the results to wholesale energy costs

Any estimate of the profit margin earned by an energy retailer is inherently uncertain. The uncertainty arises because profit margins are estimated using assumptions about the cost base, and because small variations in the cost base can have large effects on the implied retail margin.

The cost component hardest to estimate is wholesale energy costs.[2] Wholesale energy costs are difficult to measure for a point in time, because:

- wholesale gas costs are a function of long-term bilateral contracts between market participants, and so there is little publicly available information upon which to base wholesale gas cost assumptions; and
- wholesale electricity costs depend on the availability and cost of a diverse collection of hedging instruments (including managing these risks by a physical hedge involving vertical integration) that cannot be fully observed.

In our experience, wholesale energy costs tend to represent between 25 and 50 per cent of a retailer's cost base, and energy sector retail margins are typically less than 10 per cent. Therefore, a small change in wholesale energy costs can have a large impact on the estimated retail profit margin. To account for the uncertainty of wholesale energy costs we have therefore also estimated profit margins using high and low wholesale electricity and gas cost assumptions.

2.2. Representative customer profiles

We have developed two principal representative customer profiles – one for electricity supply and one for gas supply – to represent a 'typical' small customer. We refer to these as the **standard electricity** and **standard gas** customers throughout this report.

The two key variables that drive the cost to supply energy customers are geographic location within the network, and a customer's usage profile. As a consequence, we have carefully considered both of these variables in our choice of the representative customer.

2.2.1. Electricity

Our standard electricity customer is assumed to consume 7.5 MWh annually and pays a residential tariff. We have adopted a value of 7.5 MWh after examining historic consumption volumes for small customers within the Ausgrid distribution network area,[3] as well as electricity demand trends in NSW over the study period.[4]

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2 Throughout this report, we refer the costs incurred by retailers in purchasing wholesale energy as 'wholesale energy costs'. This is not to be confused with the *production* cost of wholesale energy, which would be significantly lower.

3 Ausgrid, < http://www.ausgrid.com.au/Common/About-us/Sharing-information/Data-to-share>, viewed on 18 December 2012.

4 As published by AEMO and, prior to 1 July 2009, NEMMCO.

For the purposes of this report, we have adopted the same annual consumption assumption for each distribution network for which we estimate the cost base to supply the standard electricity customer. We have also assumed that the standard customer's consumption level remains unchanged over the course of the study period.

We recognise that these assumptions do not precisely reflect the variations in consumption that are driven by geographic location and usage patterns over time. Indeed, IPART has adopted an assumption of 7 MWh for its customer impact analysis in its most recent price review.[5] Nevertheless, in our opinion, these assumptions are unlikely to be material to any of the findings set out in this report.

Regulated retail electricity charges and network charges vary greatly depending on location, and so we have estimated the profit margin to supply our standard electricity customer in each of the three distribution areas in NSW, namely:

- Ausgrid (formerly EnergyAustralia);
- Endeavour Energy(formerly Integral Energy); and
- Essential Energy (formerly Country Energy).

Finally, we assume that the standard electricity customer in each distribution area has a load profile that matches the net system load profile (NSLP) in that distribution area, and has no controlled load.[6] We assume that our standard electricity customer is charged an all-day tariff. However, we consider the sensitivity of estimated profit margins to the use of time-of-use (TOU) tariffs as part of our sensitivity analysis.

2.2.2. Gas

Our standard gas customer is assumed to consume 25 GJ annually and pays a residential tariff.[7] We have chosen 25 GJ after examining historic residential consumption volumes for customers within Jemena Gas Networks (JGN) distribution area.[8]

Before 1 July 2009, small customers across the JGN were subject to a single network tariff irrespective of the customer's location within the network. However, since 1 July 2009 JGN has distinguished between users based on their location from Wilton. Customers in the Wilton section of the network pay JGN's *V-Coastal* network tariff, and customers in other sections of the network pay JGN's *V-Country* network tariff.

For our standard gas customer we have used the V-Coastal network tariff. This is because most small customers are within the area where the V-Coastal network tariff is charged.

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5 IPART, "Review of Regulated Retail Tariffs and Charges for Gas 2010-2013 - Final Report," June 2010.

6 We recognise that many customers in NSW have a controlled load portion of their usage. However, in our opinion the exclusion or inclusion of controlled load is unlikely to have a material effect on the findings presented in this report.

7 Residential customers account for the vast majority of revenue earned from small gas customers.

8 Jemena Gas Networks NSW, "JGN 2011 Calendar Year LGA Average Gas Consumption Data.," 2012.

Quarterly consumption profile

A customer's total gas use and profile of use over a year can have a significant effect on the total annual gas bill, and also the total retail cost base. This is because the retail tariff is typically charged to gas customers quarterly, and is structured into declining blocks for both regulated and market offers (ie, the usage charge decreases as volume increases). High gas volumes in some quarters that are offset by lower gas use in other quarters can lead to lower bills as compared to a customer with a flat gas usage profile throughout a year.

In reality, residential customer gas volumes do vary substantially on a quarter by quarter basis, reflecting the predominant use of gas for spatial heating during winter. Our standard gas customer is assumed to use gas given the demand profile set out in Table 2.1. This profile has been constructed using quarterly gas volumes delivered to Sydney via major transmission pipelines, as published on the National Gas Bulletin Board. We have assumed that residential load profiles are the residual profile after subtracting commercial and industrial gas consumption[9] (assumed to be constant between each quarter) from total gas volumes delivered to Sydney.

Table 2.1
Quarterly demand profile for a standard gas customer

Quarter	Gas consumption
January to March	7%
April to June	31%
July to September	44%
October to December	18%

In the absence of detailed residential load-profile information, Table 2.1 is our best estimate of the demand profile of a residential gas customer. However, we recognise that a different assumption could have a significant effect on our results.

2.2.3. Sensitivity analysis

Our representative customers for electricity and gas allow us to estimate the retail margin to supply a 'typical' small customer in each distribution area. That said, the margin earned for a specific customer will also be affected by that customer's own energy use profile and structure of the tariff to which they are subject.

We have therefore considered the sensitivity of our representative customer profit margins to the choice of demand profile and tariff structure. In addition to the standard electricity and

[9] Residential consumption volumes were sourced from Jemena Gas Networks NSW, "JGN 2011 Calendar Year LGA Average Gas Consumption Data.," 2012.

gas customers, we have undertaken a sensitivity analysis for five additional customer profiles, as set out in Table 2.2.

Table 2.2
Summary of customer profiles for sensitivity analysis

Profile	Segment	All-day or TOU	Electricity Usage (MWh)	Gas Usage (GJ)
Electricity – Standard	Residential	All-day	7.5	-
Electricity – TOU	Residential	TOU	7.5	-
Electricity – Small	Residential	All-day	4	-
Electricity – Commercial	Commercial	All-day	20	-
Gas – Standard	Residential	-	-	25
Gas – Business	Business	-	-	400
Dual Fuel	Residential	All-day	5	25

We note the following points:

- The **TOU electricity customer** profile is identical to the standard electricity customer profile, except that they pay a TOU tariff. This allows a meaningful comparison between TOU and all-day tariffs.
- The **small electricity customer** has been assumed to have annual usage that is roughly half of the standard customer's usage, ie, a level that can give an indication of retail margins for small consumers of electricity.
- We assume that the **commercial electricity customer** has annual consumption of 20 MWh per annum, ie, half of 40 MWh at which a new tariff structure applies for larger commercial customers. We have also assumed that this commercial customer has a load profile which is based on that of the Citipower distribution network in Victoria.[10]
- We assume that the **commercial gas customer** has annual consumption of 400 GJ. This is in line with average levels of gas consumption for business customers in the JGN distribution area.
- We assume that the **dual fuel customer** has annual electricity consumption of 5 MWh and annual gas consumption of 25 GJ. The assumption here is that a customer that has a dual fuel contract substitutes gas for electricity to some degree.

It is necessary to emphasise that the additional customer profiles have been constructed for the purpose of a sensitivity analysis. We have made assumptions so that we can compare results with the standard electricity and gas customers.

[10] The Citipower distribution network covers the commercial sector of Melbourne, and largely reflects a commercial load profile. As a result, it is a good proxy for a commercial customer's load profile.

2.3. Estimation of the retail cost base

The retail cost base to supply electricity or gas comprises four components:

- wholesale energy costs;
- network costs;
- retailer operating costs; and
- the retail margin.

The retail margin is the focus of our analysis, but to assess the margin requires that we consider each of the components and its relative size. We describe our methodology for estimating each component alongside our results in Chapters 3 and 4.

2.4. Analysis of retail energy tariffs

The Independent Pricing and Regulatory Tribunal of NSW (IPART) determines regulated retail tariffs for electricity and gas in NSW. IPART conducts regulated retail electricity and gas tariff reviews every three years, and performs annual tariff reviews to adjust tariffs in line with changes in the consumer price index and, if required, other major changes in costs (eg, costs arising from the introduction of the carbon pricing scheme). The information on regulated retail tariffs for electricity and gas was obtained from reports published by IPART, and each of the retailers.

In addition to regulated tariffs, we have also collected information on the 'market offers' that retailers have made to supply residential gas and electricity. A 'market offer' is any contract negotiated between a retailer and a customer, who agrees on a non-regulated retail tariff and associated conditions of supply.

By making market offers, retailers can offer identified groups of customers alternative tariff structures, which reflect the cost of supplying those customers. Customers that are cheaper to supply can therefore use market offers – if available – to lower their bills.

Chapter 5 of this report includes an analysis of market offers. It examines both the tariffs and conditions applied to market offers.

2.5. Data sources

Our analysis has been based on a combination of publicly available information, and a limited amount of data provided by retailers in response to a request for information that was made as part of this study.

2.5.1. Information requests from retailers

To assist with our estimation of profit margins, we developed a request for information, which was sent to retailers by the AEMC. Given the short timeframe for our study, we requested only information that we were aware had been submitted to IPART as part of previous retail tariff reviews.

Unfortunately, very little of the information that we requested was provided by retailers. This likely reflects the tight timeframe within which we requested information be provided, which was necessary given our own reporting timelines. In addition, some retailers indicated that the requested information was not available.

The key purpose for the information request was to obtain data on retailer operating costs. In the absence of obtaining this information, we used IPART's estimates of retail operating costs developed for its previous tariff reviews. We have used the limited data that was provided by retailers solely as a cross-check of our assumptions related to retail operating costs.

2.5.2. Market offer data

In comparison to regulated retail tariffs, information on tariffs contained within historic market offers is less readily available. That said, since late 2010 IPART has required retailers to provide information about any market offers that are offered to customers in New South Wales. We were fortunate that IPART provided us with a copy of its database of market offers for retail electricity and gas.

Despite extensive searching, we were unable to uncover any information on market offers for electricity and gas prior to 2010. As a consequence, our analysis of market offers is limited to the period from October 2010 to December 2012.

2.6. Understanding the results

The remainder of this report sets out our results in detail. The results are presented in:

- nominal terms unless otherwise stated; and
- on a financial year basis to align with annual changes to regulated retail tariffs and network charges, which take effect on the 1st of July each year.

In addition, over the course of the period of our analysis (ie, 2002 through to 2012) the electricity distribution network providers changed names. For simplicity, we refer to the distribution business' current name for all periods of our analysis, eg, we refer to the 'Essential Energy' distribution area, rather than 'Country Energy'.

3. Electricity Retail Cost Base

The total cost to supply electricity to residential customers is the sum of:

- wholesale electricity costs;
- network costs, ie, the cost of using the electricity transmission and distribution network to transmit electricity from a generator to a customer; and
- retail operating costs, ie, the cost of billing, call-centres, and marketing costs.

This chapter describes our approach to estimating each of these cost base components, and presents our results.

3.1. Wholesale electricity costs

Wholesale electricity costs encompass all of the costs involved in buying electricity to supply to customers including the cost of:

- purchasing electricity from the National Electricity Market (NEM), and managing spot market risk, either by purchasing hedging instruments or through vertical integration, ie, direct ownership of generation assets;[11]
- complying with state and Commonwealth government requirements, including for example, obligations to purchase a proportion of electricity load from renewable energy (ie, the Renewable Energy Target Scheme) and to save energy (ie, the Energy Savings Scheme);
- ancillary services, such as frequency and network control;
- the cost of bank guarantees required by AEMO to participate in the spot market;
- NEM participant fees; and
- adjustments to account for electricity losses within the transmission and distribution networks.

The remainder of this section describes how we have estimated each of these cost components.

3.1.1. Electricity purchase costs

There are two principal methods that are used to estimate electricity purchase costs, namely:

- **a market based approach** – ie, by analysing implied purchase costs by combining information on forward contract prices with assumptions about an efficient hedging strategy; and

[11] All retailers are required to purchase electricity through the NEM. Settlement prices vary on a half hourly basis and can increase up to the market price cap of $12,900/MWh and decrease to -$1,000/MWh.

- **a long run marginal cost (LRMC) approach** – ie, by using estimates of the LRMC[12] for the market to approximate the efficient wholesale costs that would need to be incurred to satisfy an increment of demand.[13]

Every regulator that determines retail electricity tariffs uses a different approach to estimate wholesale electricity purchase costs. For example, IPART has used the higher of an LRMC estimate and market-based estimate,[14] whereas the Queensland Competition Authority (QCA) uses an exclusively market-based approach.[15] The purchase cost difference resulting from applying each approach is particularly pronounced in the current wholesale market environment where declining demand for electricity is depressing spot (and so contract) prices.

For this study we have chosen to estimate electricity purchase costs of our standard electricity customer using wholesale prices based on estimates of the LRMC for New South Wales for the period 2002 to 2012. Specifically:

- for the period 2001-02 to 2004-05, we have used an average incremental cost LRMC estimate;
- for the period 2005-06 to 2011-12, we have used the perturbation[16] LRMC estimates previously calculated by us for the AEMC when it was examining concerns about generator market power in the NEM;[17] and
- for 2012-13, we have added a cost of carbon to our 2011-12 LRMC estimate, based on IPART's estimate of the carbon pass-through for 2012-13 of $19.

Figure 3.1 shows our assumed electricity purchase costs by year, and low and high sensitivities that reflect a 10 per cent increase or decrease in the electricity purchase costs.

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12 LRMC is the cost of serving a permanent incremental change in demand in a market, assuming all factors of production can be varied. It is therefore a long run concept and takes into account that firms have the option to expand capacity to meet increases in demand.

13 The two main methods that can be used to estimate the LRMC is the perturbation approach and the average incremental cost approach (AIC). The perturbation approach calculates the LRMC by estimating the change in the least cost program of generation capacity expansion plus operating costs arising from a permanent increase (or decrease) in electricity demand and dividing this cost estimate by the present value of the revised demand forecast relative to an initial demand forecast. In contrast, the AIC approach calculates the LRMC by dividing the least cost program of generation capacity expansion plus operating costs to satisfy forecast demand by the present value of the additional demand supplied (assuming the supply demand balance is maintained).

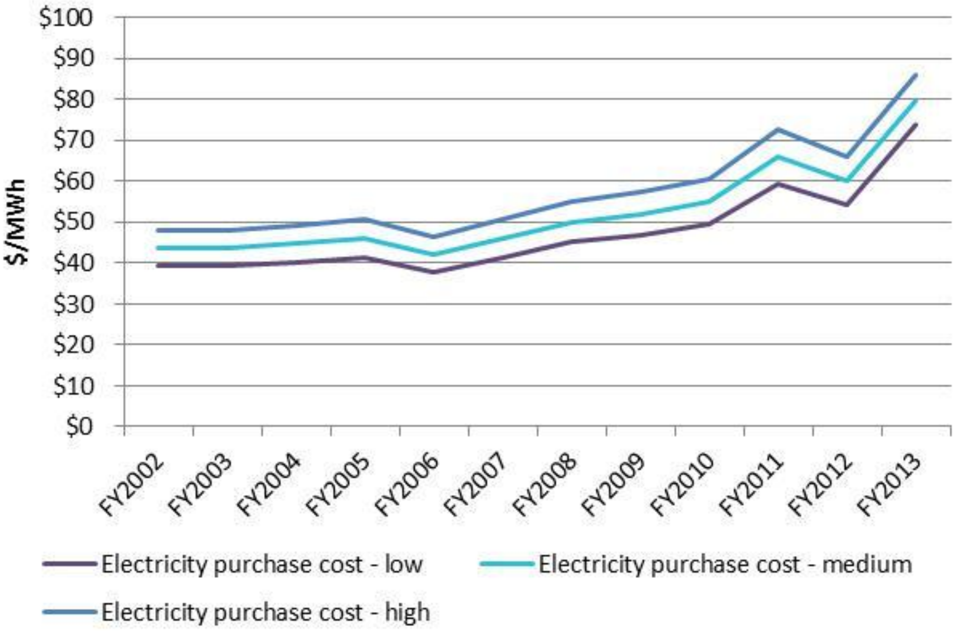
14 IPART , "Changes in the regulated electricity retail prices from 1 July 2012", June, 2012.

15 QCA , "Regulated Retail Electricity Prices 2012-13", May 2012.

16 In our opinion, the perturbation approach is preferred over an average increment cost approach methodology for estimating the LRMC because it more closely aligns with the principles underpinning the concept of LRMC. That said, we have used an AIC approach for those use for which we did not have a perturbation estimate of the LRMC available. Our earlier study estimating the LRMC highlights that the AIC provides a good approximation of the likely estimate of the LRMC if a perturbation approach was used.

17 NERA Economic Consulting, "Benchmarking NEM Wholesale Prices Against Estimates of Long Run Marginal Cost," April 12, 2012.

Figure 3.1
Electricity purchase costs



We have chosen to base our estimate of the wholesale electricity purchase costs on estimates of the LRMC. Our reasoning behind this choice is that a new-entrant retailer will need to remain in the market for a long-term time horizon in order to make a reasonable return. Retailers have considerable start-up costs, as they must invest in billing systems, and initial advertising to build a customer base. We would therefore expect that a new-entrant would not enter the market without the intention of remaining for a reasonable period of time, a period which in our opinion could be assumed to be between five and ten years.

In this context, market measures of the cost of wholesale electricity that vary according to short to medium term fluctuations in demand are less relevant than the underlying cost of building new generation to meet a fixed long term change in demand. We have therefore opted in favour of using estimates of the market LRMC for the NSW region of the NEM.

3.1.2. Cost of certificate schemes

Renewable Energy Certificates

Retailers have been required to buy renewable energy certificates based on their purchases of wholesale electricity since 2001. This requirement was initially called the Mandatory Renewable Energy Target scheme, which was designed to support an additional 9.5 TWh of generation from renewable sources by 2010.

In August of 2009, the scheme was renamed the Renewable Energy Target (RET), and the target was increased to require 45 TWh of additional renewable generation by 2020, with the increased certificate targets applying from 2010 onwards.[18]

In June of 2010, the Commonwealth passed legislation to split the RET Scheme into two separate schemes, namely:

- the Large-scale Renewable Energy Scheme (LRES), requiring the surrender of Large-scale Generation Certificates (LGCs); and
- the Small-scale Renewable Energy Scheme (SRES), requiring the surrender of Small-scale Technology Certificates (STCs).

Each year the Clean Energy Regulator sets the renewable power percentage (RPP) and the small-scale technology percentage (STP), which set retailers' annual certificate liabilities:

$$LGC\ Liability = RPP\ \times Wholesale\ Electricity\ Purchases$$

and

$$STC\ Liability = STP\ \times Wholesale\ Electricity\ Purchases.$$

The SRES and LRES require retailers to surrender certificates to the Clean Energy Regulator to meet their liabilities. Retailers face a penalty of $65 for each certificate that they fail to surrender, and this penalty is not tax deductible.

We have estimated retailers' total renewable energy certificate costs on a per MWh basis, by multiplying the RPP and STP by the annual average certificate price.[19]

Energy Savings Scheme

Retailers in New South Wales have been required to comply with the Energy Savings Scheme (ESS) since 1 July 2009. The ESS creates a financial incentive to engage in energy savings activities, by placing an obligation on retailers to purchase Energy Savings Certificates (ESCs) based on their electricity sales. ESCs are created by undertaking energy savings activities that are approved by IPART. Retailers that fail to meet their obligations are required to pay a penalty of $24.50 per MWh. [20]

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[18] "Renewable Energy (Electricity) Amendment Bill 2009 No. , 2009" (Parliament of the Commonwealth of Australia, August 20, 2009).

[19] Annual average prices were calculated based on data published by d-cyphaTrade.

[20] Note that ESCs are denoted in CO2-equivalent tonnes to be compatible with the Greenhouse Gas Abatement Scheme. Certificate shortfalls are converted into MWh using an assumed emission factor of 0.94.

We have estimated the ESS cost per MWh to be equal to the effective scheme target multiplied by the certificate cost[21] and the penalty conversion factor of 0.94, as defined in the scheme legislation.

Greenhouse Gas Abatement Scheme

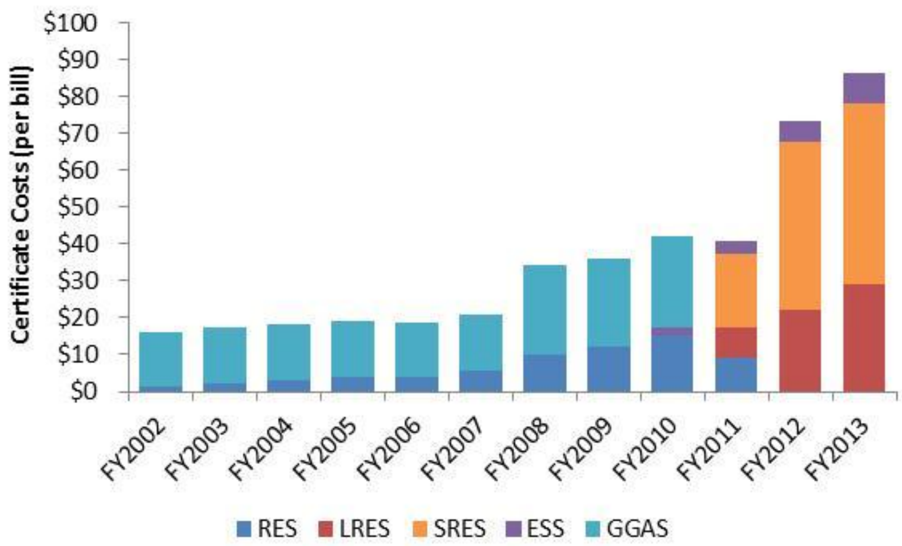
The Greenhouse Gas Abatement Scheme (GGAS) commenced in 2003 and closed upon the introduction of the Commonwealth carbon tax on 1 July 2012. The GGAS placed an obligation on electricity retailers and other scheme participants to achieve annual emissions reduction targets. Retailers were required to purchase NSW Greenhouse Abatement Certificates (NGACs) based on their share of the electricity market.

We have based our estimates of NGAC costs on the per MWh allowances for GGAS costs made in IPART determinations.

Total cost of certificate programs

A breakdown of total certificate costs by financial year is shown in Figure 3.2. The total annual cost of certificate programs for our standard electricity customer has risen from $16 in 2001-02 to around $70 in 2011-12.[22]

Figure 3.2
Cost of certificate programs for a standard electricity customer



Note: Wholesale costs vary slightly by distribution area due to differences in loss factors. This figure is based on the Ausgrid distribution area.

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21 Cost per certificate estimates are based on information from DataBuild report. page 2, DataBuild, "Energy Savings Scheme Cost Effectiveness Analysis Report," October 2011.

22 The annual costs for the second half of 2012 may not be reflective of the 2012-13 cost, as it is likely that SRES costs will fall substantially in the first half of 2013.

3.1.3. Other costs

The remaining wholesale cost components represent a small proportion of the total electricity wholesale costs. We have estimated these remaining costs as follows:

- **Ancillary service costs –** Weekly estimates of total ancillary service costs for 2011 and 2012 indicate that they cost on average $0.65 per MWh – a value that we have assumed for the entire study period;[23]
- **NEM participant fees –**the AEMO estimates that NEM participant fees have been between 30 and 40 cents per MWh from 2006-07 to 2011-12.[24] We have assumed that these costs are $0.35 per MWh for the entire study period.
- **Bank guarantee costs** – We have been unable to find any information related to bank guarantee costs, and so we have used a value of $0.10/MWh – a number that has been assumed in a previous analysis of prices and profit margins in Victoria for the AEMC.[25]

In total, the remaining costs sum up to approximately $8 per bill for our standard electricity customer.

3.1.4. Wholesale electricity costs

Total wholesale electricity costs have been rising steadily since 2002-03, with larger increases since about 2008-09 – Figure 3.3. In real terms, electricity purchase costs have increased by around 45 to 50 per cent over the study period.

The most significant change in the wholesale electricity costs over the study period arises from the rising contribution of certificate scheme costs. In 2002-03 certificate scheme costs represented 6 per cent of the total wholesale electricity costs. This rose to 10 per cent in 2009-10, and represents 13 per cent in 2012-13. In addition, the carbon tax represented 22 per cent of the wholesale cost in 2012-13.

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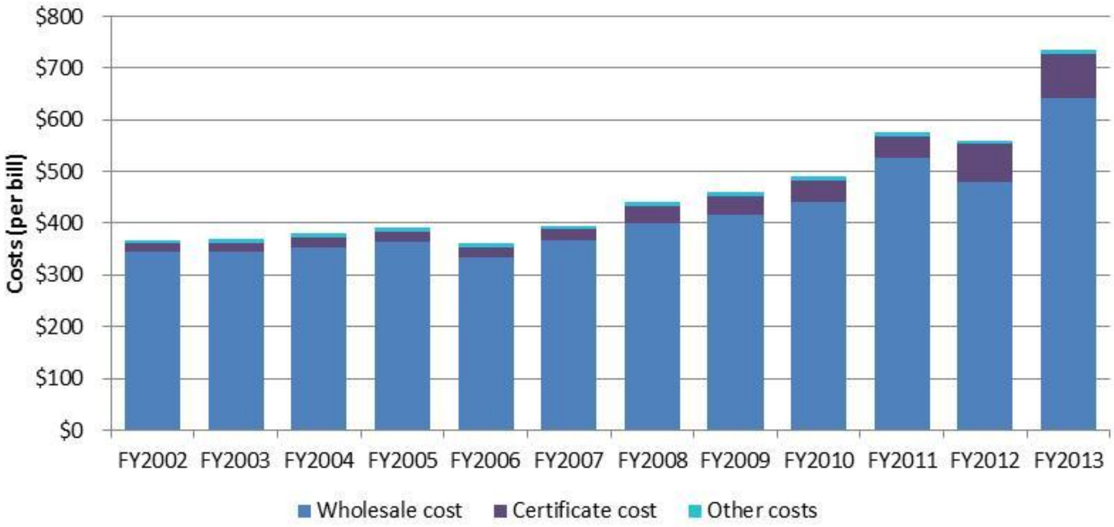
23 Australian Energy Market Operator website, <http://www.aemo.com.au/Electricity/Data/Ancillary-Services/Payments>, viewed on 19 December 2012.

24 Australian Energy Market Operator, “AEMO Final Budget and Fees 2012/13,” May 23, 2012, pp. 13.

25 CRA International, “Impact of Prices and Profit Margin Analysis on Energy in Victoria,” November 8, 2007.

Figure 3.3
Wholesale electricity costs for a standard electricity customer



Note: Wholesale costs vary slightly by distribution area due to differences in the assumed loss factors. This figure is based on the Ausgrid distribution area.

3.2. Electricity network costs

Electricity network costs are recovered via network use of system (NUOS) charges, which include:

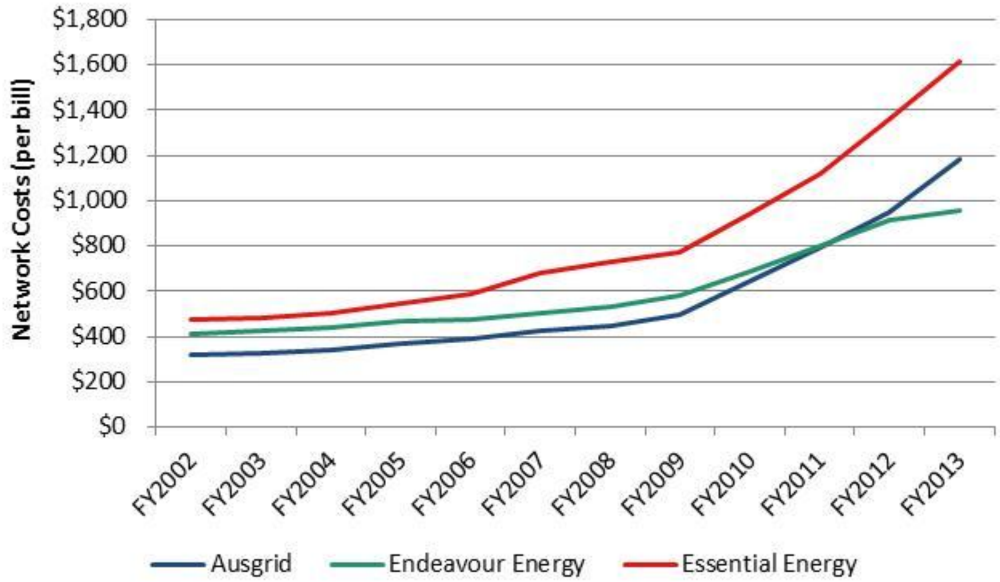
- the distribution use of system (DUOS) charge; and
- the transmission use of system (TUOS) charge.

The NUOS charge varies by distribution area because of differences in the size and geographic density of the customer base, and in the cost to build and maintain each network. Although the cost to build and maintain the electricity network is mostly fixed, around 80 per cent of network charges for our standard electricity customer were recovered through usage charges.

To estimate network costs we collected annual network pricing information for each of the three distribution areas, and then calculated the total network charges to supply our standard electricity customer in each distribution area.

Figure 3.4 provides a comparison of network costs in each distribution area. Network costs in all three distribution areas have risen markedly from 2008-09 onwards, with the increases in the Ausgrid and Essential Energy distribution areas most pronounced. Network costs are highest in Essential Energy's distribution area, reflecting the reduced population density of regional New South Wales that increases the per user costs.

Figure 3.4
Standard electricity customer network costs



3.3. Retail operating costs for electricity

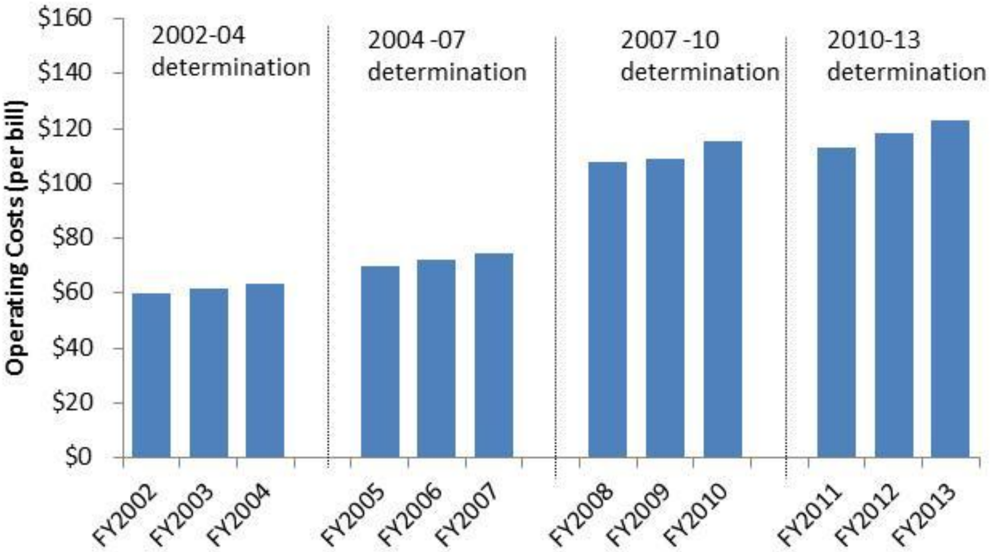
Retail operating costs are the costs that a retailer incurs to operate its business, including billing costs, call-centre costs, and marketing costs associated with acquiring new customers. Apart from managing wholesale electricity market cost uncertainties, retailers compete on the basis of their ability to administer supply to customers at the lowest cost.

IPART divides retail operating costs into two categories, namely:

- the costs associated with operating a retail business, including providing a billing system and a call centre; and
- the cost associated with retaining and winning new customers, the customer acquisition and retention costs.

As we outlined in Chapter 2, we were unable to obtain sufficient information directly from retailers on their operating costs. As a consequence, we have used historical estimates of retailer operating costs developed by IPART as part of its retail tariff determinations and verified where possible using retailer information – Figure 3.5.

Figure 3.5
Assumed electricity retail operating costs



Our understanding is that the marked increase in the retail operating cost allowance from 2006-07 to 2007-08 was driven by a change in the methodology adopted by IPART to estimate retail operating costs.[26]

The change from 2010-11 to 2012-13 reflects an increase in retailers' responsibilities and compliance costs, mainly related to:

- conducting smart meter trials;
- managing the cost of complying with new government policies, ie, the RET, ESS and the NSW feed-in Tariff Scheme;
- compliance in advance of the introduction of the National Energy Customer Framework.

3.4. Summary of the electricity retail cost base

Figure 3.6 through to Figure 3.8 summarise the electricity retail cost base for our standard electricity customer in the Ausgrid, Endeavour Energy, and Essential Energy distribution areas, respectively.

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[26] IPART, "Promoting Retail Competition and Investment in the NSW Electricity Industry - Regulated Electricity Retail Tariffs and Charges for Small Customers 2007 to 2010," June 2007.

Figure 3.6
Cost base for a standard electricity customer – Ausgrid

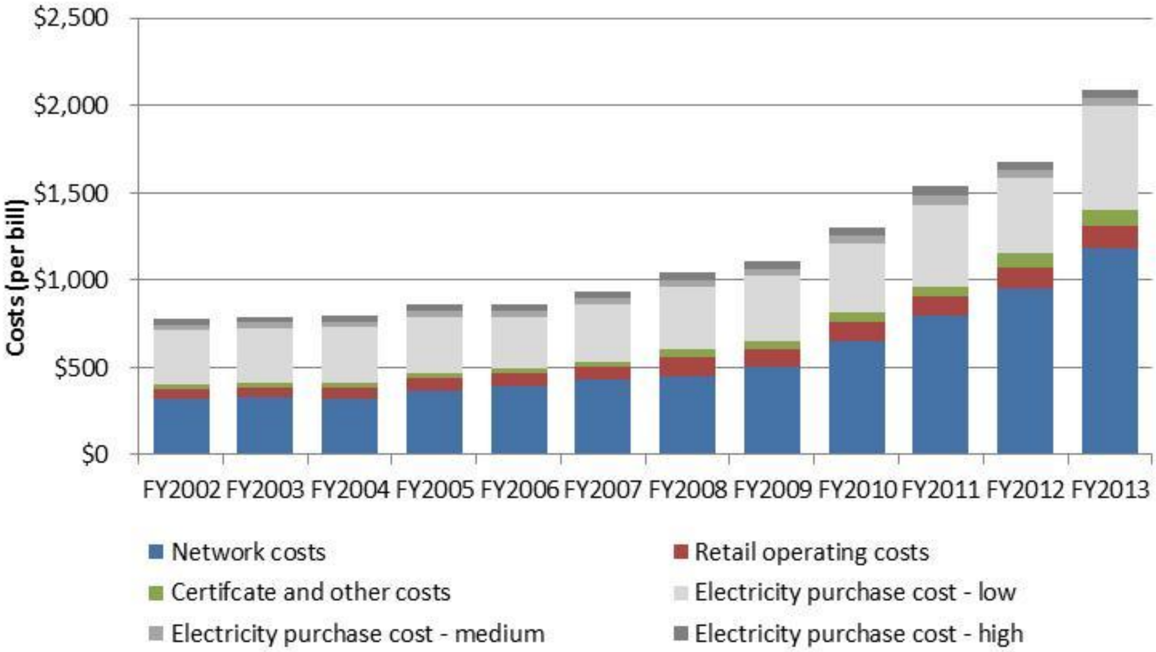


Figure 3.7
Cost base for a standard electricity customer – Endeavour Energy

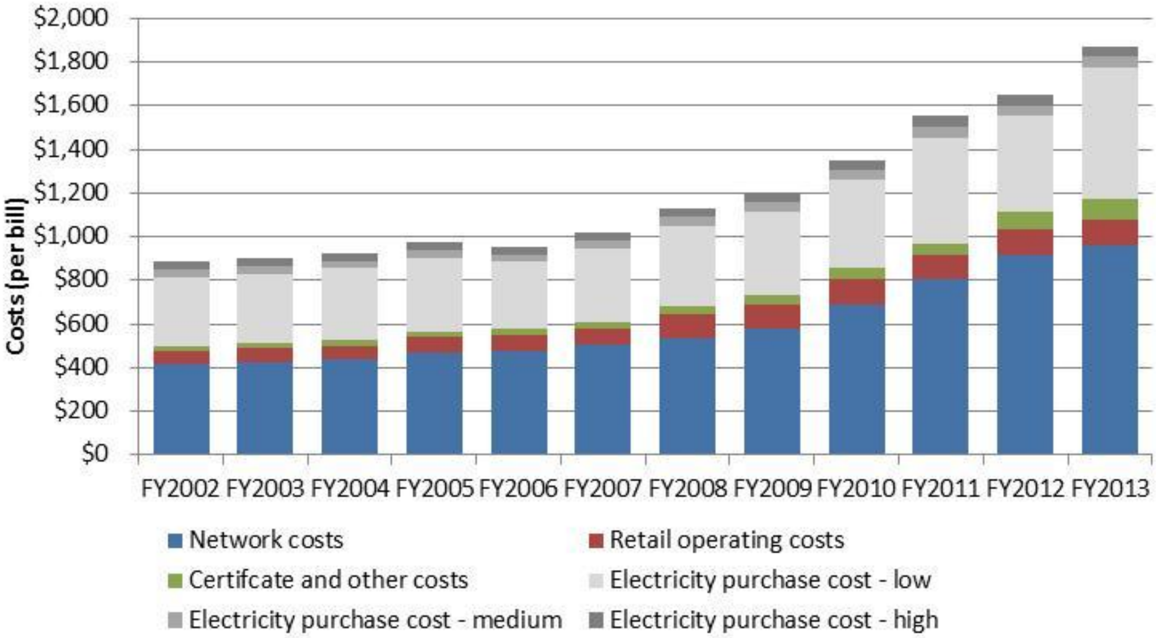
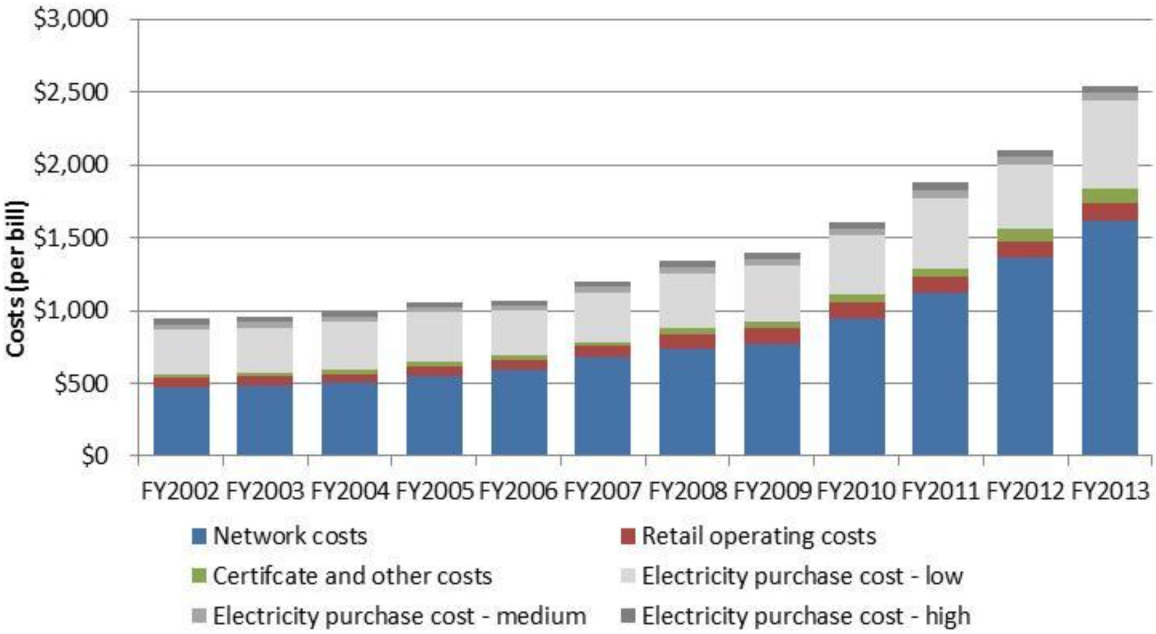


Figure 3.8
Cost base for a standard electricity customer – Essential Energy



Our estimates of the electricity cost base highlight that:

- From 2001-02 to 2012-13 the total cost of supply has increased:
  - by 174 per cent in the Ausgrid distribution area;
  - by 111 per cent in the Endeavour Energy distribution area; and
  - by 175 per cent in the Essential Energy distribution area.
- Absent the one-off increase in wholesale costs caused by the carbon price in 2012-13, between 75 to 90 per cent of the increase in total cost of supply can be attributed to increases in network costs.
- The cost of certificate programs has increased substantially over the study period, driven mainly by increases in the RET, and the splitting of the scheme into large-scale and small-scale components.
- Retail operating costs have declined as a proportion of the total cost base over the course of the study period, from 6 to 8 per cent to 2 to 3 per cent. If the retail profit margin expressed in percentage terms were constant over the period, in absolute dollar terms the profit margin per customer for retailers would have been increasing in line with the cost base.

4. Gas Retail Cost Base

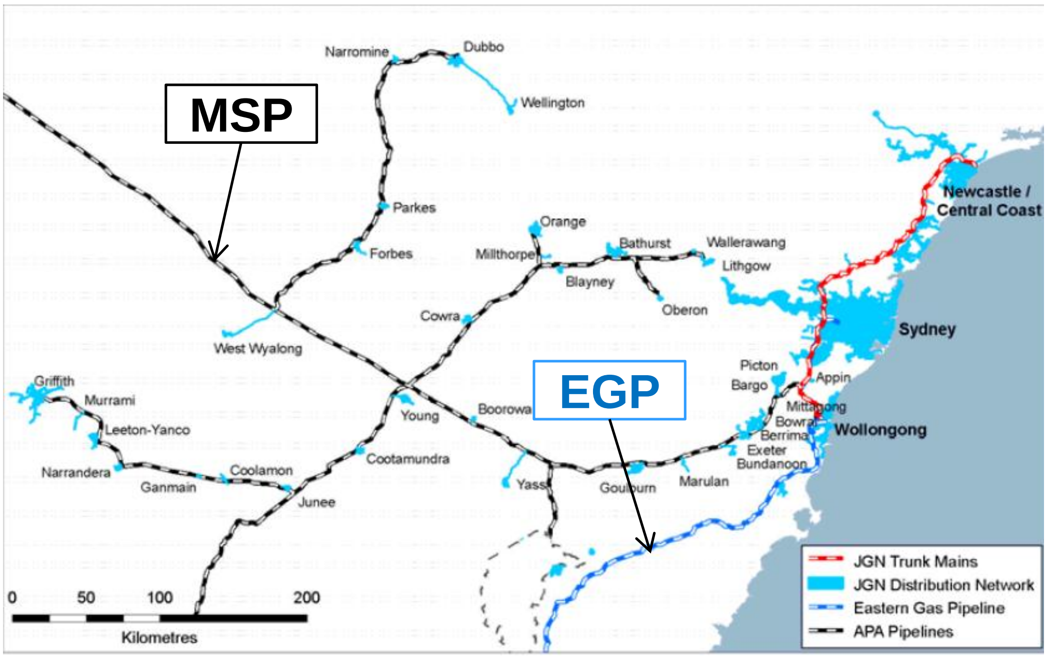
This Chapter describes our approach to estimating each of the components of the gas retail cost base, and presents our results.

4.1. Gas supply to Sydney

Up until 2000, gas supplied to Sydney was sourced almost exclusively from the Cooper Basin via the Moomba-to-Sydney Pipeline (MSP). The Eastern Gas Pipeline (EGP) was completed in August of 2000, allowing for gas to be supplied to Sydney from the Longford processing plant in Victoria.

Both the MSP and the EGP carry gas into the distribution network, owned and operated by Jemena Gas Networks (JGN). JGN was formerly Alinta Gas Networks, which acquired the distribution network assets from AGL in late 2006. A map of the major transmission and distribution pipeline infrastructure is provided in Figure 4.1.

Figure 4.1
NSW gas transmission and distribution network



Source: Reproduced from Jemena Gas Networks (NSW Ltd) Access Arrangement Information, 25 August 2009.

4.2. Wholesale cost of gas

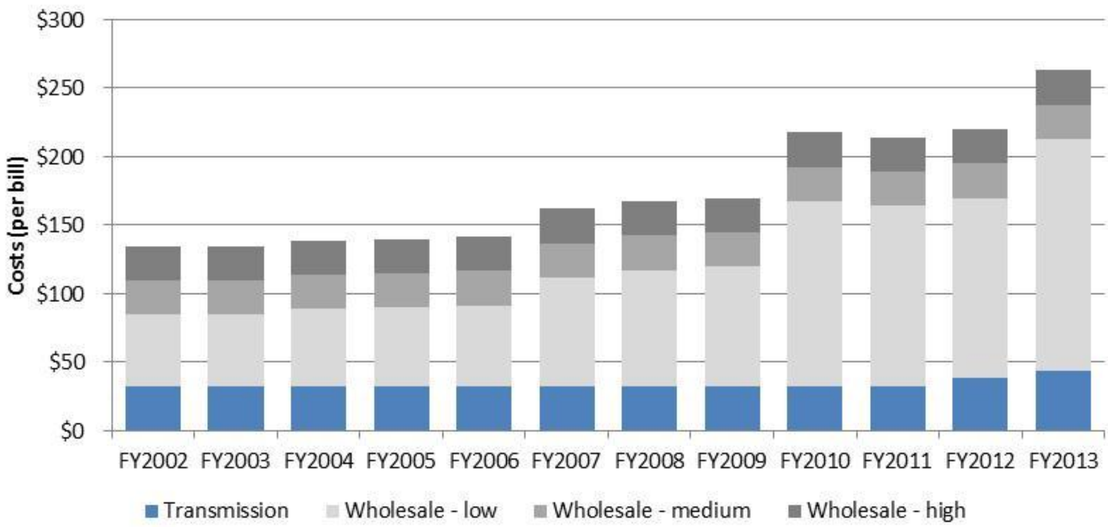
The wholesale cost of gas is estimated by multiplying wholesale gas prices by usage volumes. Wholesale gas prices are set in bilateral contracts between a relatively small number of gas producers and consumers. The confidential nature of the specific terms of these contracts means that there is little publicly available information upon which to base wholesale gas price assumptions. This is a significant source of uncertainty in estimating wholesale gas costs.

Given the lack of concrete information on wholesale gas prices, our approach has necessarily involved using benchmarks of wholesale prices over the course of the study period. Specifically:

- for the period 2006-07 to 2012-13, we have used estimates of the delivered price of gas to electricity generators in the New South Wales Central NTNDP region, as published by ACIL Tasman, as our benchmark of wholesale gas prices; and
- for the period prior to 2006-07, we have benchmarked the wholesale gas price against annual weighted average prices in the Victorian Declared Wholesale Gas Market.[27]

ACIL Tasman's wholesale gas prices are published on an 'as delivered' basis, with transmission costs calculated based on published reference tariffs for each pipeline.[28] ACIL Tasman's reports do not explicitly state these transmission costs. Therefore, we have established an estimate of the relative contribution of transmission costs based on published reference tariffs for the EGP. Figure 4.2 shows our assumed wholesale gas costs by year, and low and high sensitivities that reflect a $1 per GJ increase or decrease in the wholesale purchase price.

Figure 4.2
Wholesale cost of gas for a standard gas customer



Our approach to estimating wholesale gas prices (and so wholesale gas costs) means that there are two disconnects in our series – one between 2005-06 and 2006-07 and the other between 2008-09 and 2009-10. The jumps in costs between these periods arise because of the frequency with which the wholesale gas prices have been updated. As a consequence,

27 The Declared Wholesale Gas Market (DWGM) is a spot market that facilitates trades between market participants in Victoria. Market participants submit daily bids to inject or withdraw gas at different points within the network. The market operator, AEMO, sets a daily price to ensure that demand requirements are met across the network at minimal cost. The DWGM only applies to balance transfers, and not the contracted gas that that is supplied within the network.

28 ACIL Tasman, "Fuel Resource, New Entry and Generation Costs in the NEM - Final Report," April 2009, pp. 43.

these estimates should be treated as indicative of the wholesale cost of gas over the entire period, rather than representative of the actual wholesale gas cost in any one year.

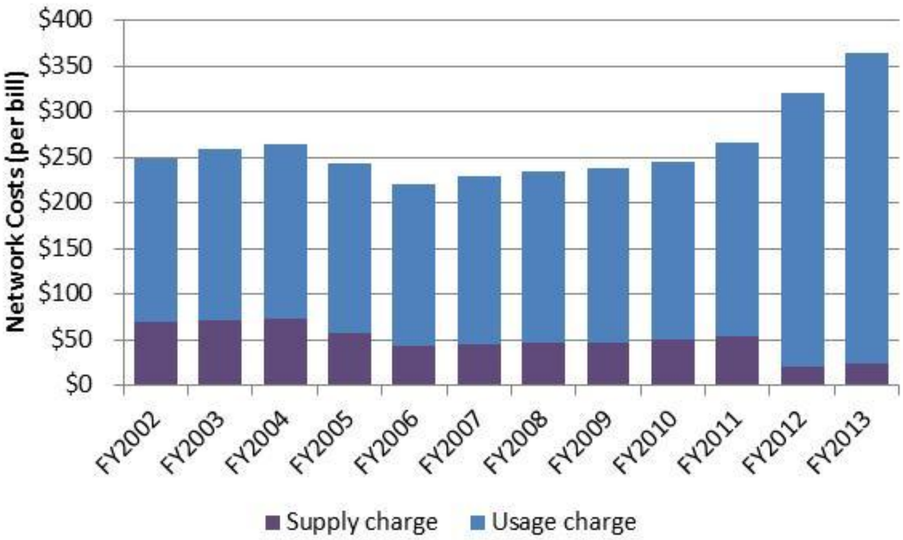
In the 2010-13 gas retail price determination, IPART set a wholesale gas cost allowance based on submissions provided by each major retailer. IPART did not publish a detailed breakdown of the wholesale gas cost allowance due to confidentiality concerns. In general, in the period governed by the 2010-13 determination, our estimates are moderately lower than IPART's wholesale gas cost allowance.

4.3. Gas network costs

Gas network costs are the cost of constructing, maintaining and operating the reticulated distribution network that delivers gas from major transmission nodes to households and businesses. By convention, gas network costs do not include transmission costs because pipeline transmission costs tend to be negotiated as part of wholesale gas supply contracts.

The gas distribution costs for our standard gas customer declined from 2003-04 to 2009-10, but increased markedly in the last three years – Figure 4.3. The decrease in costs from 2004-05 reflects decreases in regulated gas network tariffs, as determined by IPART over that period. Since 2009-10 regulated gas network costs have been rising in response to a higher cost of capital allowance and increased capital expenditure and operating expenditure.[29]

Figure 4.3
Distribution costs for a standard gas customer



Finally, the proportion of gas distribution network costs attributable to the supply charge has decreased since 2009-10. As a consequence, a much higher proportion of the network costs are attributed to the usage charge component.

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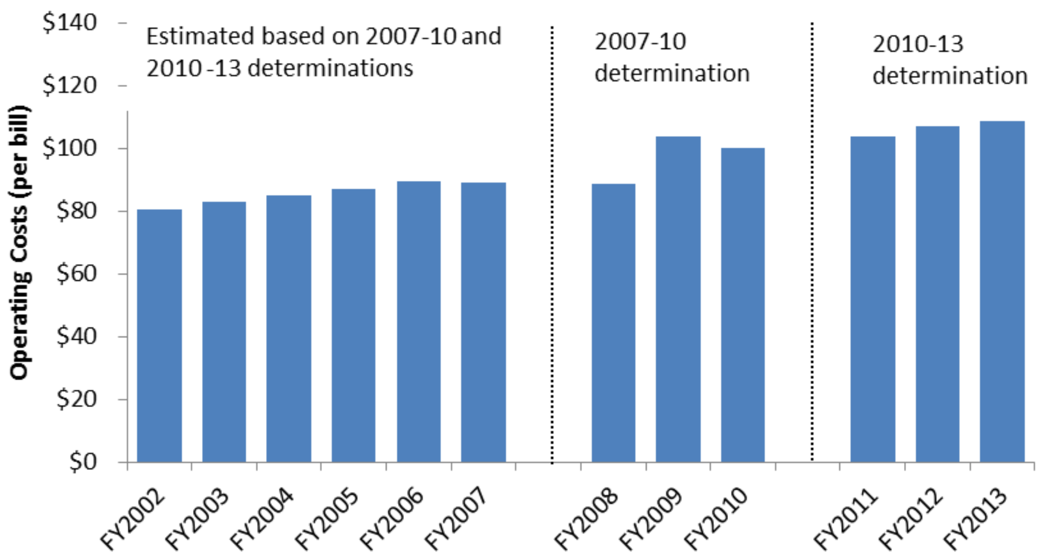
29 Australian Energy Regulator, "Jemena Access Arrangement Proposal for the NSW Gas Networks - Draft Decision," February 2010, pp. iv.

4.4. Retail operating costs for gas

As was the case for electricity, without information from retailers about their operating costs we have used historic retail operating costs developed by IPART as part of its retail gas tariff determinations and verified where possible using retailer information – Figure 4.4.[30]

Figure 4.4
Assumed retail operating cost



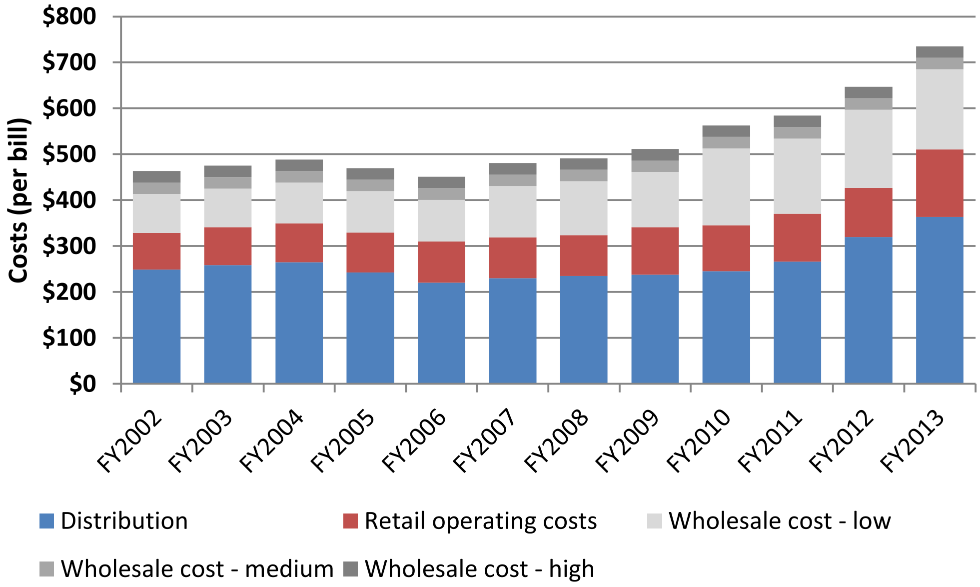
The gas retail operating cost allowance was not explicitly stated by IPART prior to the 2007-10 determination. For this period, we have assumed that gas retail operating costs remain constant in real terms at the median of IPART's retail operating cost allowance from 2007 to 2013.

4.5. Summary of the gas retail cost base

Figure 4.5 summarises our estimates of the total gas retail cost base to supply our standard gas customer for the period 2001-02 to 2012-13.

30 IPART states the retail cost allowance as a range, giving a maximum and minimum value. We have adopted the midpoint of this range for our estimate of retail operating costs.

Figure 4.5
Cost base for a standard gas customer



The total cost of gas supply has increased over the study period, but not to the same extent as electricity. Most of the increase in costs has occurred since 2009-10, and it has been mainly driven by increased distribution network costs.

Our estimates of the wholesale cost of gas have also increased. They now account for a higher proportion of the standard gas customer's bill.

5. Regulated Retail Tariffs and Market Offers

This Chapter sets out our analysis of bills and tariffs for our standard electricity and gas customers. We examine the bills that customers pay for both regulated tariffs and using competitive offers available in the market, and the structure of these tariffs.

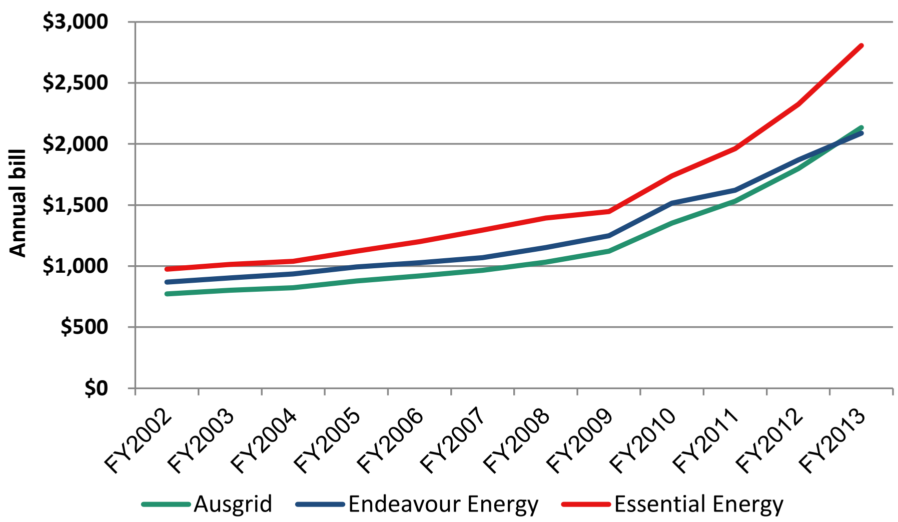
5.1. Regulated prices

In this section we examine bills with regulated electricity and gas prices for our standard electricity and gas customers, for the period 2002 to 2012.

5.1.1. Electricity bills

The electricity bill for our standard electricity customer has risen substantially over the study period, with an average annual increase of 9.3 per cent across all three distribution areas – Figure 5.1. The specific size of the electricity bill varies substantially across distribution areas, mostly due to differences in network costs. The standard electricity customer's bill was highest in Essential Energy's distribution area, most likely reflecting the geographic size of the distribution network compared to the number of customers served within the area.

Figure 5.1
Estimated standard electricity customer bills by distribution area



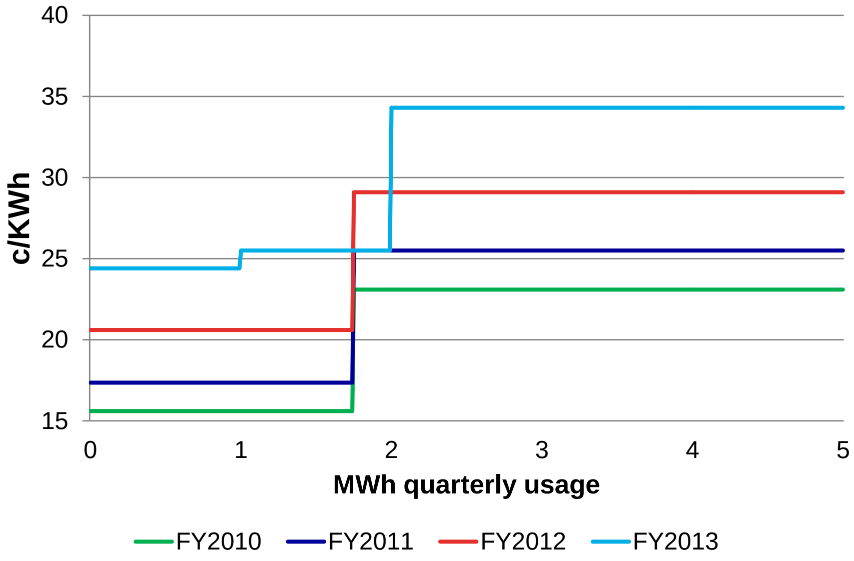
5.1.2. Electricity tariffs

Bill increases are a function of changes in the level and structure of the regulated tariff, both of which are subject to change over time. In this section, we examine changes in regulated retail tariffs over time, and how those changes relate to changes in network tariffs. For the purposes of this section, we focus our analysis on usage charges, ie, the charges that vary depending upon a customer's quarterly usage profile.

Tariffs in the Ausgrid distribution area

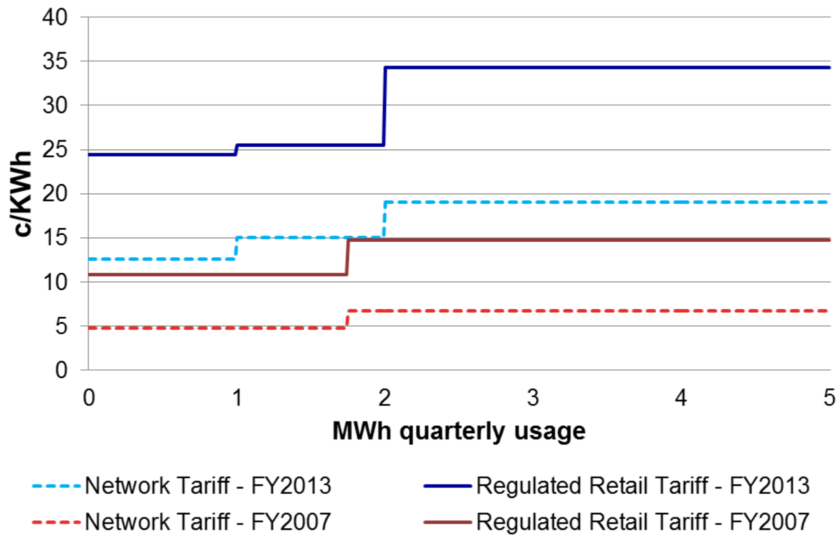
Figure 5.2 provides a comparison of the regulated retail tariff structure in the Ausgrid distribution area from 2009-10 to 2012-13. Retail tariffs have increased substantially from 2009-10 to 2011-12, but in 2012-13 there has also been a shift from a two-block to a three-block tariff structure. As can be seen in the figure, this has led to a *decrease* in the tariff paid for usage between 1.75 and 2 MWh per quarter.

Figure 5.2
Usage charges for regulated retail tariffs – Ausgrid distribution area



The regulated tariff structure reflects the network tariffs in the relevant distribution area. Figure 5.3 shows regulated and network tariffs for 2006-07 and 2012-13 for the Ausgrid distribution area.

Figure 5.3
Regulated retail and network tariffs – Ausgrid distribution area



This figure highlights that the structure of the network tariff dictates the structure of the regulated retail tariff. However, we can also see that the relative levels of network tariffs and retail tariffs have varied over time depending on usage volumes.

Tariffs in the Endeavour Energy distribution area

Figure 5.4 compares the usage charges in the Endeavour Energy distribution area from 2009-10 to 2012-13. The two-block tariff has been in place since 2002-03, but the level has increased substantially over time.

Figure 5.4
Usage charges for regulated tariffs – Endeavour Energy distribution area

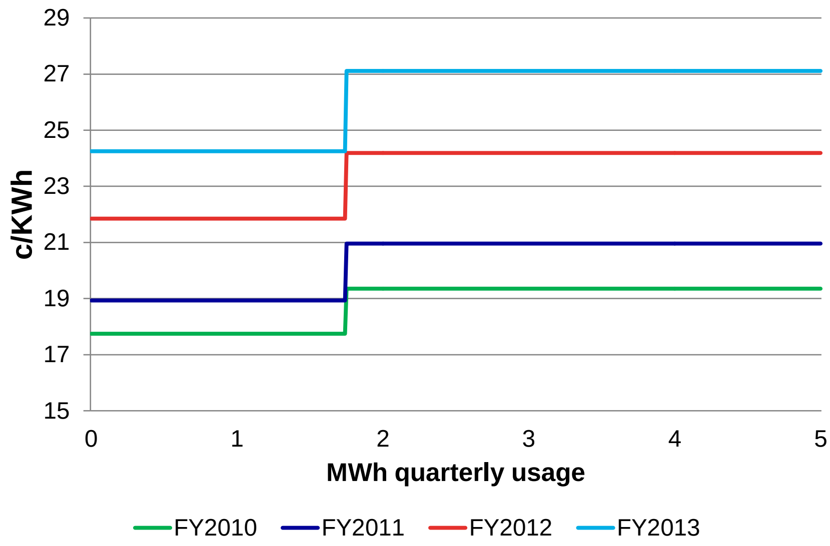
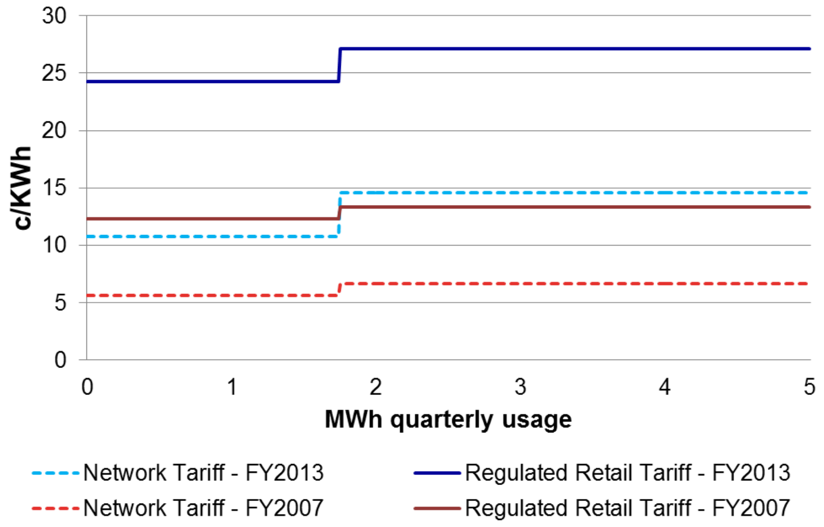


Figure 5.5 shows regulated retail and network tariffs for 2006-07 and 2012-13 for the Essential Energy distribution area. In 2012-13, the difference between regulated retail tariffs and network tariffs is slimmer for the second tariff block, and so retail margins decrease as usage increases.

Figure 5.5
Regulated retail and network tariffs – Endeavour Energy distribution area



Tariffs in the Essential Energy distribution area

Figure 5.6 compares regulated retail tariffs in the Essential Energy distribution area from 2009-10 to 2012-13. A single-block tariff has been in place for the entire study period, and so only the level of the tariff has changed.

Figure 5.6
Usage charges for regulated retail tariffs – Essential Energy distribution area

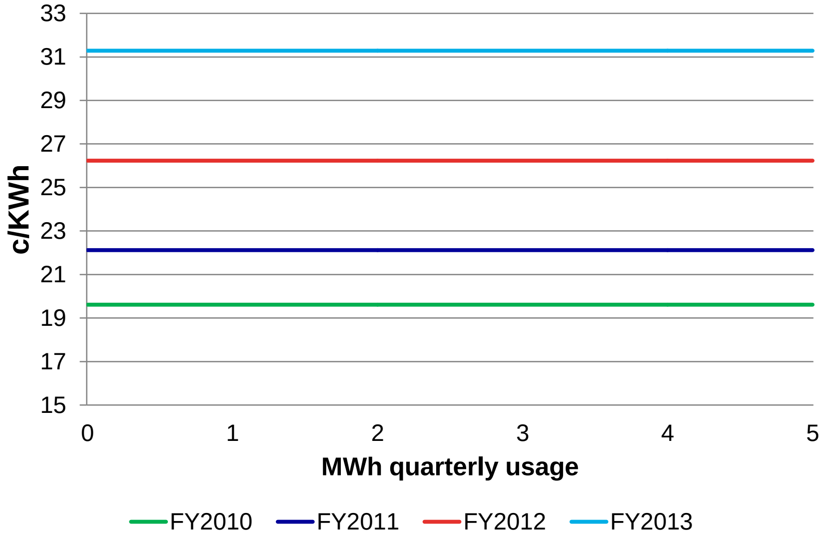
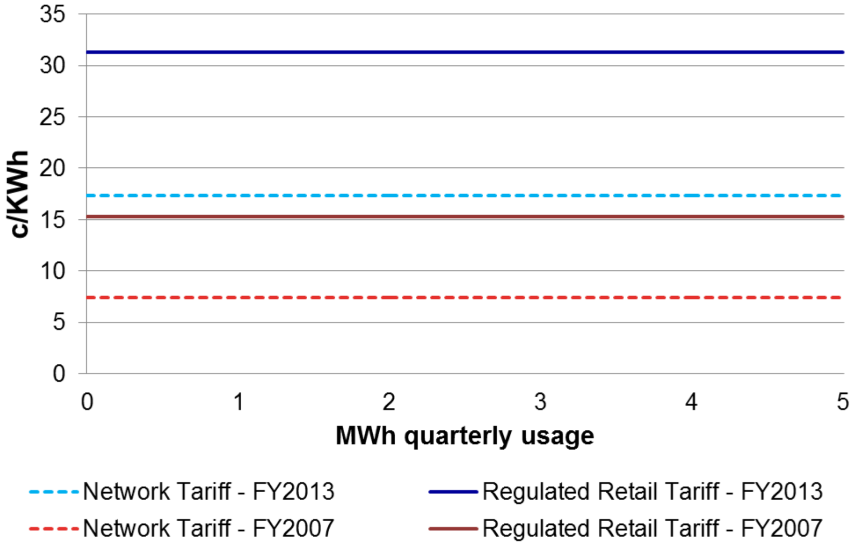


Figure 5.7 compares regulated retail and network tariffs for 2006-07 and 2012-13 for the Essential Energy distribution area. Network usage tariffs now account for around 55 per cent of the regulated usage tariff, versus 40 per cent in 2006-07.

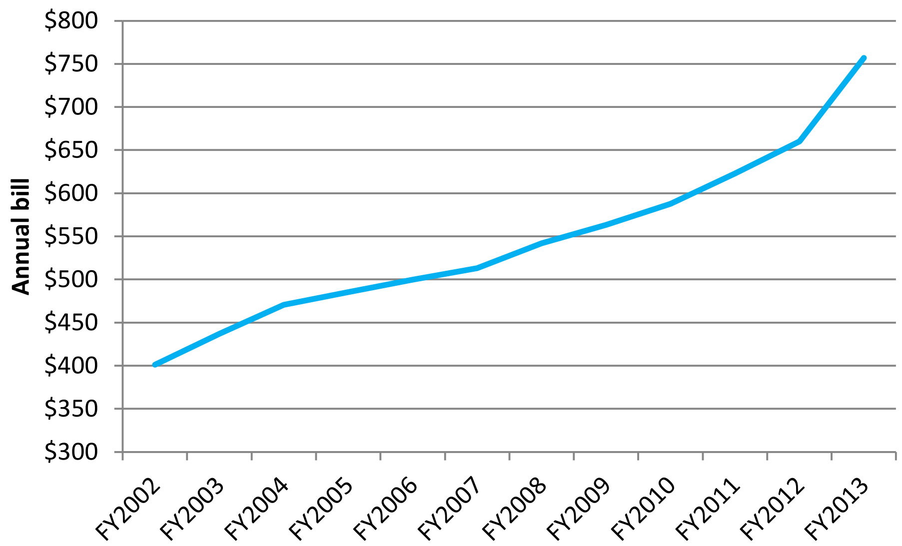
Figure 5.7
Regulated retail and network tariffs – Essential Energy distribution area



5.1.3. Gas bills

The bill for our standard gas customer with regulated tariffs has increased at an average annual rate of 5.9 per cent over the study period – Figure 5.8. That said, the standard gas customer's bill has increased at a higher rate in the last two years, as higher costs for use of the Jemena Distribution Network have been incorporated into regulated retail tariffs.

Figure 5.8
Estimated standard gas customer bill



The rate of increase of electricity bills has been higher than for gas bills over a comparative period. This means that gas has become a relatively cheaper source of residential energy over the study period.

5.1.4. Gas tariffs

Figure 5.9 provides a comparison of the regulated retail tariff structure for gas from 2009-10 to 2012-13. Tariffs have increased substantially for usage volumes up to 4 GJ per quarter from 2009-10 to 2011-12. However, tariffs for usage volumes over this level have remained relatively constant.

Figure 5.9
Usage charges for regulated retail gas tariffs

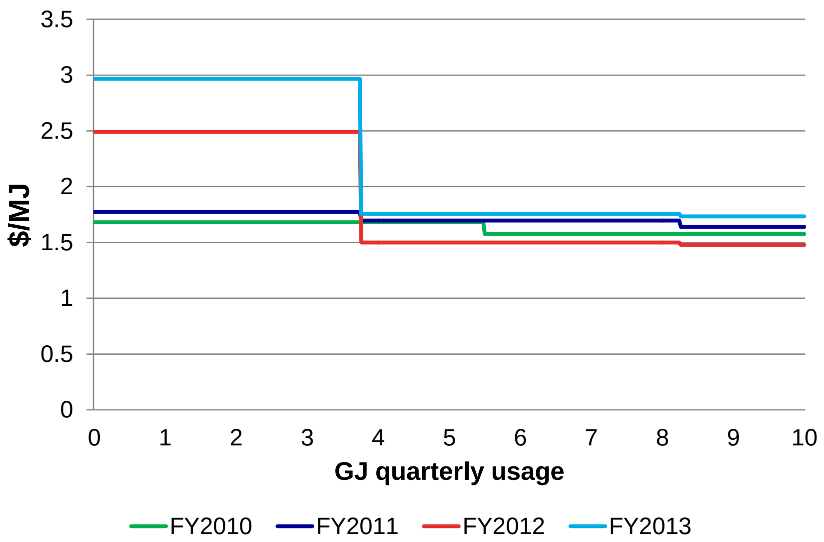
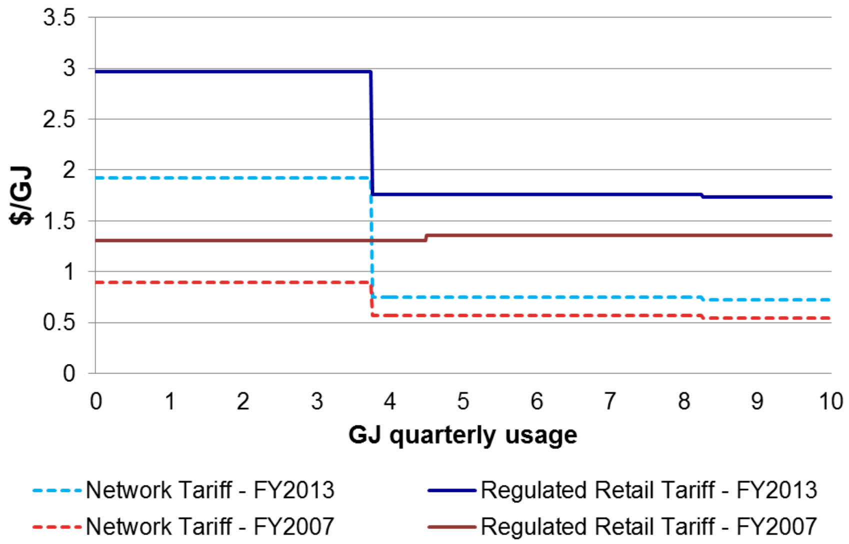


Figure 5.10 shows regulated gas tariffs and distribution tariffs for 2006-07 and 2012-13. This figure highlights that the change in regulated tariffs has been driven by a change in distribution charges.

Figure 5.10
Regulated retail and network tariffs for gas – FY2007 and FY2013



5.2. Market offers

To understand how standard customer bills change under market offers as compared to regulated tariffs we were fortunate to have been given access to IPART's market offer database. Since late 2010, IPART has required electricity and gas retailers to provide it with information on any market offers made.

The resultant database provides detailed information about each market offer, including:

- the distribution area, or region, where the offer was available;
- the first date that the offer was made available;
- the various tariffs and tariff structures that were payable under the offer; and
- any additional 'special discounts' that were available to users, as described later in this section.

At the time of our study, the IPART database consisted of 133 unique offers that were relevant to our study and did not contain clear errors. There were 102 offers for electricity, 22 for dual fuel, and 9 for gas. In some instances, offers appear to have contained errors that may have arisen through the forms being incorrectly completed by retailers. Where there is a clear error, we have removed the offer from the data set.

Each offer in the database was expressed as a 'discount' to a 'standard rate'. In some instances, the discount was only available so long as the customer met certain criteria, eg, paying bills on time, or paying via direct debit. In addition, the standard rate used for a number of market offers did not correspond to the regulated tariff, with the standard rate often being higher or lower than the regulated tariff.

For the purposes of this report, we have termed market offers that required the customer to meet some additional criteria ‘special discounts’, with all other market offers involving ‘normal discounts’.

In the case of special discounts, if the standard rate is higher than the regulated tariff, then a customer that does not meet the criteria for receiving the discount can pay a rate that is higher than the regulated tariff. Moreover, some of these special offers contained late fees that would further increase penalties for failing to pay on time.

The offers within the IPART database contained a number of different tariff structures, but these reflected the different network costs in different distribution areas. Some gas market offers also specified a seasonal tariff, with higher charges in winter, when gas demand is at its peak.

Notably, we observed limited innovation in the structure of tariffs. Almost all market offers contained similar tariff structures to that of the regulated tariff. The main differences between market offers were in the size of the percentage discount offered, and differences in the requirements for one-off payments. In our opinion, the lack of innovation in the structure of tariffs reflects the desirability for retailers to pass network cost risks directly through to customers by matching the network tariff structure in retail tariff market offers.

Different market offers contained different conditions under which the retailer could change the price. Some market offers specified that prices could only change after an increase in the regulated price, but others indicated that prices could change within a period of written notice, eg, 10 days, and others indicated that prices were subject to change at any time.

Finally, our analysis does not take into account differences between market offers relating to connection and late payment fees. That said, we observed that these fees varied substantially across the set of market offers. In some instances these fees were waived as a substitute for providing other discounts as part of the offer.

5.2.1. Electricity

We have compared the market offers to supply electricity with each other, and with regulated tariffs, by measuring the difference in the annual bill for our standard electricity customers. For the purposes of this analysis, we have assumed that all discounts available with a market offer are realised. That is, customers are assumed to pay on time, pay via direct debit, and remain on contracts as required to realise the discount provided by a market offer.

Bills with market offers

Figure 5.11 through to Figure 5.13 compare our standard customer’s bill with both market offers and the relevant regulated tariffs in the Ausgrid, Endeavour Energy, and Essential Energy distribution areas. The standard electricity customer bill with a market offer (represented by a dot) appears both above and below the regulated tariff line. This means that in some instances, shifting to a market offer would have increased the standard electricity customer’s bill (ie, if the dot is above the regulated tariff line) or decreased the representative customer’s bill (ie, if the dot is below the regulated tariff line). This highlights that market offers do not necessarily make all customers better off.

Figure 5.11
Standard electricity customer bills with market offers – Ausgrid

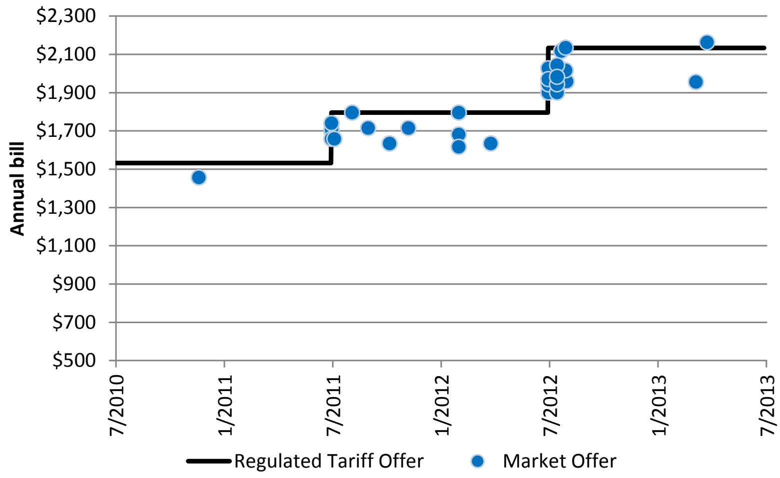


Figure 5.12
Standard electricity customer bills with market offers – Endeavour Energy

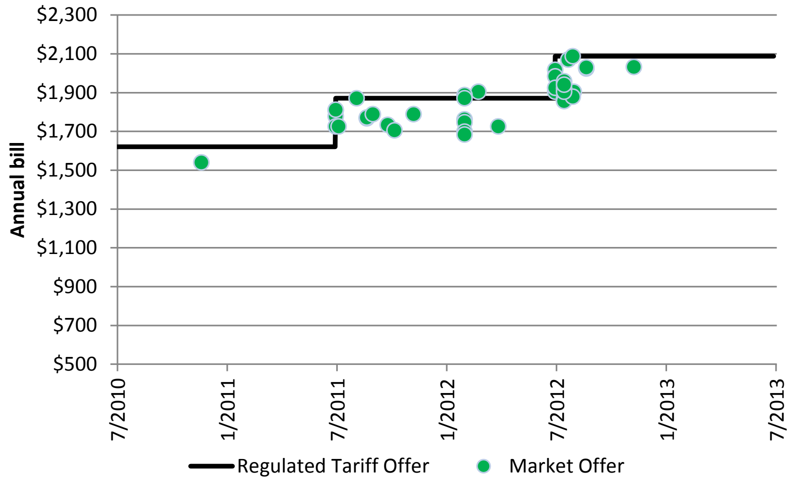
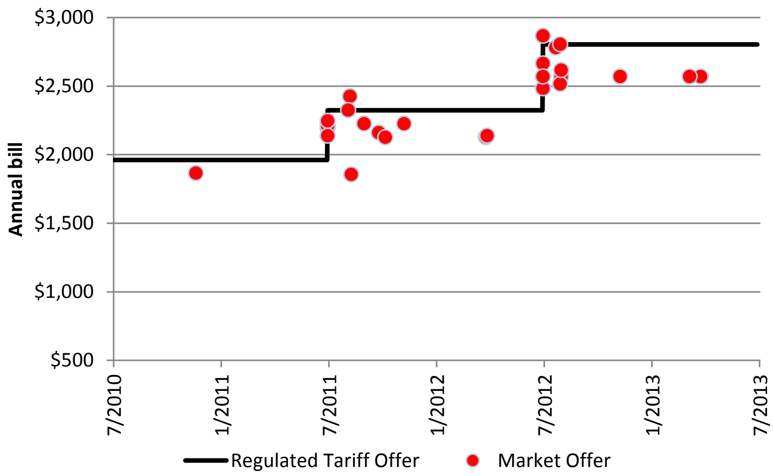


Figure 5.13
Standard electricity customer bills with market offers – Essential Energy



The data highlights that most market offers are made in July and August, immediately following changes in the regulated tariff. Most of these offers would have led to a lower bill for our standard electricity customer – indicated by points that fall below the regulated tariff line in Figures 5.11 to 5.13.

Table 5.1 provides a summary of our analysis of the bill reductions that are available to the standard electricity customer through the use of market offers. The mean discount available over the period was 6 per cent in the Ausgrid and Endeavour Energy distribution areas, and 5 per cent in the Essential Energy distribution area.

Table 5.1
Analysis of reduction in bill available via market offers

	Ausgrid	Endeavour Energy	Essential Energy
Number of offers	31	41	30
Mean Discount	6%	6%	5%
Interquartile Range	(4%, 8%)	(4%, 8%)	(3%, 8%)

Table 5.1 also shows the interquartile range (ie, values lying between the 25^{th} and 75^{th} percentiles) of discounts – a good measure of the range of offers after removing outlying observations. The interquartile range shows that over half of the market offers provided a discount between 4 and 8 per cent in the Ausgrid and Endeavour Energy distribution areas, and between 3 and 8 per cent in the Essential Energy distribution area.

5.2.2. Gas

Between October 2010 and December 2012 there were 16 unique offers for the retail supply of gas to residential customers in the JGN gas distribution area, of which 9 were for residential customers and 7 were commercial.

Bills with market offers

Figure 5.14 shows annual bills for our standard gas customer with a market offer compared to the regulated tariff. To provide a comparison, the figure also includes annual bills for a commercial customer with 400 GJ of annual usage, as assumed in our sensitivity analysis.

Figure 5.14
Market gas offers versus regulated offers over time

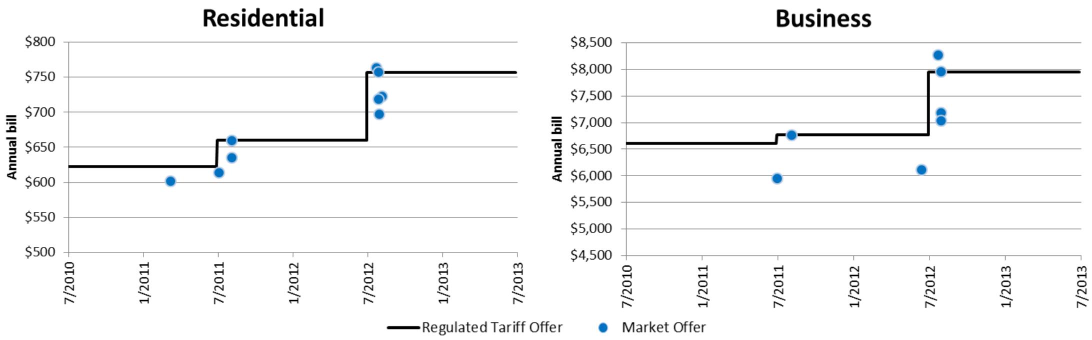


Table 5.2 provides a summary of our analysis of the bill reductions that are available to the standard gas customer through the use of market offers. The mean discount available is 4 per cent for residential customers and 5 per cent for commercial customers. However, we emphasise that the limited number of gas market offers means that it is difficult to draw firm conclusions about the extent of discounting in the market.

Table 5.2
Average reduction in gas bill available via market offers

	Residential	Commercial
Number of offers	9	7
Mean Discount	4%	5%
Range of Discounts	(0% to 8%)	(0% to 12%)

5.2.3. Dual fuel

Between October 2010 and December 2012 there were 22 unique dual fuel market offers made to residential customers in relevant distribution areas.

Table 6.4 compares a customer's bill with a dual fuel market offer (ie, an offer from a retailer to provide both electricity *and* gas) against the standalone electricity and gas bills with market offers. The discounts applied to the electricity, gas, and dual fuel bills are the average discount available across all market offers in that time period.

The implied dual fuel discount is shown in the right-hand column. This can be interpreted as the average saving that a customer makes on their bill through the use of a dual fuel market offer. The range of the results is between a $2 bill increase through the use of dual fuel market offers to a saving of $86.

Table 5.3
Bills for dual fuel market offers versus standalone gas and electricity

	Electricity Bill	Gas Bill	Dual Fuel Bill	Implied Dual Fuel Discount
FY2012				
Ausgrid	$1,695	$636	$2,311	$21
Endeavour Energy	$1,772	$636	$2,368	$40
Essential Energy	$2,213	$636	$2,780	$70
FY2013				
Ausgrid	$2,004	$731	$2,722	$13
Endeavour Energy	$1,956	$731	$2,689	-$2
Essential Energy	$2,631	$731	$3,276	$86

In general, it appears that retailers are willing to provide additional discounts for customers that move to dual fuel contracts. However, the small number of observations (ie, 22 unique market offers) limits our ability to draw any firm conclusions about the underlying retail operating costs for dual fuel supply.

In particular, an argument could be made that the implied dual fuel discounts presented in Table 5.3 are indicative of reduced retail operating costs to supply dual fuel customers. We would expect that the retail operating costs to supply a dual fuel customer would be lower than to supply two standalone gas and electricity contracts, if only because of reduced customer acquisition costs. However, in the absence of more detailed information on retail operating costs, there is insufficient evidence to draw this conclusion.

6. Estimates of the Implied Retail Margin

This Chapter sets out estimates of retail profit margins for the supply of electricity and gas to small customers. Our results are presented for two time periods:

- 2001-02 to 2006-07; and
- 2007-08 to 2012-13.

6.1. Retail margin for the supply of electricity

Table 6.1 sets out our estimates of the retail margin to supply our standard electricity customer on a regulated tariff, which vary according to the New South Wales distribution area and wholesale cost scenario.

For the medium wholesale cost scenario, our estimates range from 5 per cent (Ausgrid distribution area between 2006-07 and 2012-13) to 10 per cent (both Essential Energy distribution area between 2001-02 and 2006-07, and Endeavour Energy distribution area between 2007-08 and 2012-13). In general, the retail margins were around 3 to 4 per cent higher for the low wholesale cost scenario, and 3 to 4 per cent lower for the high wholesale cost scenario.

Overall, the estimated retail margins were lowest in the Ausgrid distribution area and highest in the Essential Energy distribution area. Between the two time periods, margins:

- decreased by 1 per cent for the Ausgrid distribution area;
- increased by 4 per cent for the Endeavour Energy distribution area; and
- decreased by 1 per cent for the Essential Energy distribution area.

Table 6.1
Implied retail margin for electricity by distribution area

Distribution area	Low Wholesale Cost	Medium Wholesale Cost	High Wholesale Cost
FY2002-FY2007			
Ausgrid	10%	6%	2%
Endeavour Energy	10%	6%	2%
Essential Energy	13%	10%	6%
FY2008-FY2013			
Ausgrid	9%	5%	2%
Endeavour Energy	13%	10%	7%
Essential Energy	11%	9%	6%

Comparison with retail margin allowances set by IPART

As part of its retail price determinations, IPART has set retail margin allowances of:

- between 1.5 and 2.5 per cent prior to 1 July 2004;[31]
- 2 per cent for the 2004-2007 price determination;[32]
- 5 per cent in the 2007-2010 price determination;[33] and
- 5.4 per cent in the 2010-2013 price determination.[34]

Our retail margins with the medium wholesale cost scenario are higher than those allowed by IPART. In our opinion, the differences arise because of our lower wholesale electricity costs assumptions. Our results benefit from using more up-to-date information to estimate wholesale electricity costs rather than needing to forecast those costs. This conclusion is supported by our results in the high wholesale cost scenario, which are reasonably close to IPART's allowance for the retail margin.

Comparison with retail margins in other jurisdictions

Regulators in other jurisdictions set retail margin allowances as part of their retail electricity price determinations – Table 6.2.

Table 6.2
Retail margin allowances by regulators across Australia

Jurisdiction	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
ACT	3.0%	4.0%	5.0%	5.4%	5.4%	5.4%	5.4%
NSW	2.0%	5.0%	5.0%	5.0%	5.4%	5.4%	5.4%
QLD	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
SA	5.0%	5.0%	5.0%	5.0%	5.4%	5.4%	5.4%
TAS	2.9%	2.9%	2.9%	2.9%	3.7%	3.7%	3.7%

Source: ICRC, IPART, QCA, ESCOSA, and OTTER retail price determinations

Our estimated retail margins for electricity are generally higher than those allowed by IPART and other regulators. Given the uncertainty that is inherent in estimating electricity purchase costs, we consider that our findings are reasonable.

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31 IPART, "Mid-term Review of Regulated Retail Prices for Electricity to 2004 - Report and Determination to the Minister for Energy," June 2002.

32 IPART, "NSW Electricity Regulated Retail Tariffs 2004/05 to 2006/07 - Final Report and Determination," June 2004.

33 IPART, "Promoting Retail Competition and Investment in the NSW Electricity Industry - Regulated Electricity Retail Tariffs and Charges for Small Customers 2007 to 2010," June 2007.

34 Ibid. IPART, "Review of Regulated Retail Tariffs and Charges for Electricity 2010-13, Final Report," March 2010.

Information published by retailers

We have also endeavoured to compare our findings with information published by the retailers themselves about their retail margins. In particular, annual reports published by each of the major energy retailers contain references to gross and operating margins, sometimes on a per customer basis.

Although we have identified a number of documents that cite 'margins' earned by each of these energy businesses, we do not consider that any of these figures provides a meaningful basis for comparison with our analysis. In particular, where information is published by each of the major energy retailers, it is often in an aggregated form, and does not differentiate between customer classes (ie, residential versus commercial), regions (ie, New South Wales versus other states), and the type of energy (ie, electricity versus gas). Moreover, it is often unclear whether margins are exclusive to the retail business or if instead the margin is indicative of all profits earned by a vertically integrated energy business.

Implied margins with market offers

Our estimates of the implied margin with regulated tariffs are consistent with the findings from our analysis of market offers. In particular, the average discounts available with market offers tend to be less than or equal to the implied margin in each distribution area.

However, we note that some market offers appear to offer slightly larger discounts than our estimates of the retail margin. This is to be expected – retailers may have different cost bases to supply customers, and this will be reflected in the size of the discount that they make available to customers.

Perhaps most significantly, new entrant retailers are likely to face different costs to incumbents, and these will be reflected in different margins offered to customers. It is reasonable to assume that an incumbent retailer incurs lower costs to supply its existing customers than a new entrant retailer would incur to acquire those customers. Our analysis has focussed on the average cost to supply a new customer, but we would expect that in practice costs for new-entrants and incumbents would vary, reflecting the different economies of scale exhibited by new entrants and incumbents. For example, new-entrants may face higher (per certificate) costs to comply with certificate schemes than larger retailers, because these costs exhibit economies of scale.

6.1.1. Sensitivity analysis

To understand how profit margins vary in line with tariff structures and usage profiles, we have investigated the sensitivity of our estimated retail margins to a number of different assumptions.[35] For electricity, our sensitivity analysis involved considering three alternative customer profiles, namely:

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[35] Section 2.2.3 describes the sensitivities we have investigated in greater detail.

- a customer on a time-of-use (TOU) tariff with the same usage and load profiles as the standard representative electricity customer;
- a small residential customer with annual electricity usage of 4 MWh and the same load profile as the standard representative electricity customer; and
- a commercial customer with annual electricity usage of 20 MWh and a commercial load profile, as discussed in Chapter 2.

Table 6.3 sets out the results of our sensitivity analysis.

Table 6.3
Results of sensitivity analysis – electricity

Distribution area	Standard Customer	TOU customer	Small residential customer	Commercial customer
FY2002-2007				
Ausgrid	**6%**	3%	4%	10%
Endeavour Energy	**6%**	-5%	3%	10%
Essential Energy	**10%**	12%	6%	11%
FY2008-2013				
Ausgrid	**5%**	12%	1%	16%
Endeavour Energy	**10%**	4%	8%	12%
Essential Energy	**9%**	9%	7%	9%

Margins for time-of-use customers

Our sensitivity analysis indicates that there are significant differences between the retail margin for customers on a TOU tariff compared with the margins for customers on an all-day tariff. Specifically:

- from 2001-02 to 2006-07 the average margin for a TOU customer in the Endeavour Energy distribution area was minus 5 per cent, compared with 6 per cent for the all-day tariff;
- from 2007-08 to 2012-13 the margin for a TOU customer in the Ausgrid distribution area was 12 per cent, compared with 5 per cent for the all-day tariff.

The negative margin for the Endeavour Energy distribution area indicates that TOU customers were not profitable prior to 2006-07. That said we have been unable to locate any data on the number of customers on a TOU tariff, which might support such a finding.

It is helpful to compare the cost bases and margins for all-day tariff and TOU customers in each distribution area, to identify the drivers of variation in margins in recent years. Figure 6.1 to Figure 6.3 compare the components of bills for the standard electricity customer (ie, paying an all-day tariff) and for the TOU customer. Each chart includes labels that indicate the values of the retail margin and network components, ie, the two cost components that vary depending on whether a customer pays an all-day or a TOU tariff.

Figure 6.1
Customer bills for TOU and all day tariffs – Ausgrid distribution area

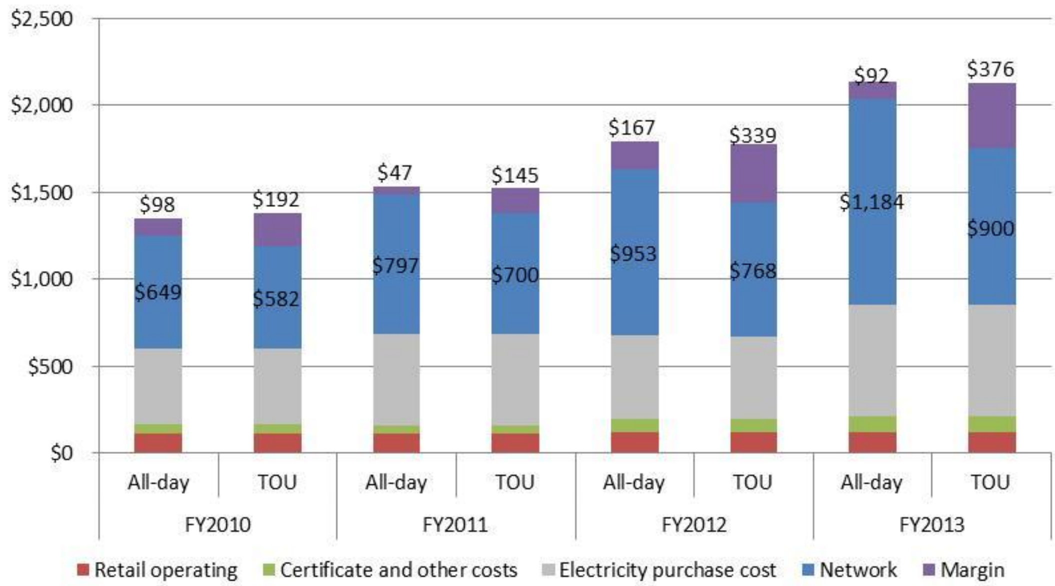


Figure 6.2
Customer bills for TOU and all day tariffs – Endeavour Energy distribution area

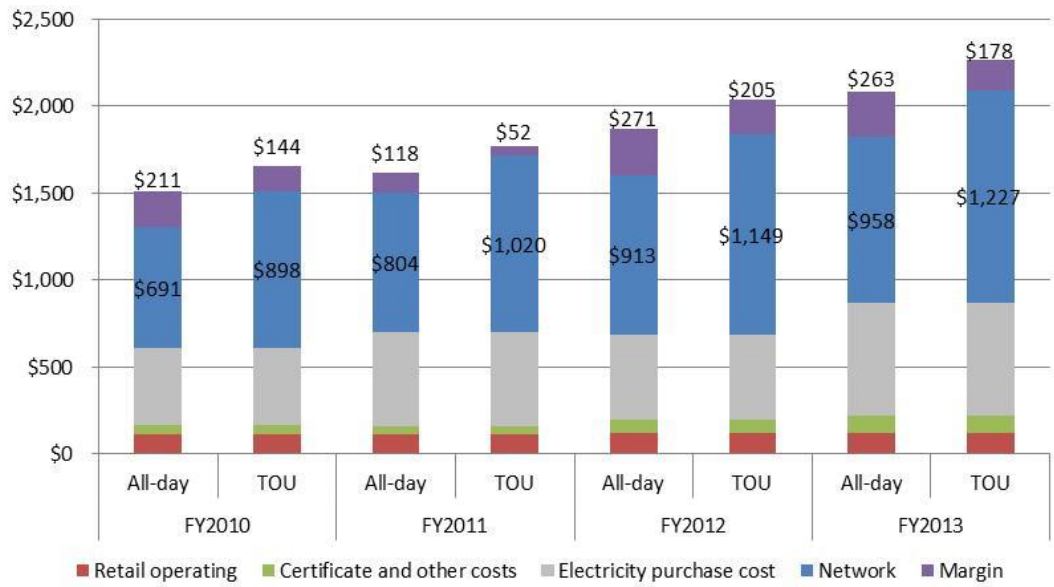
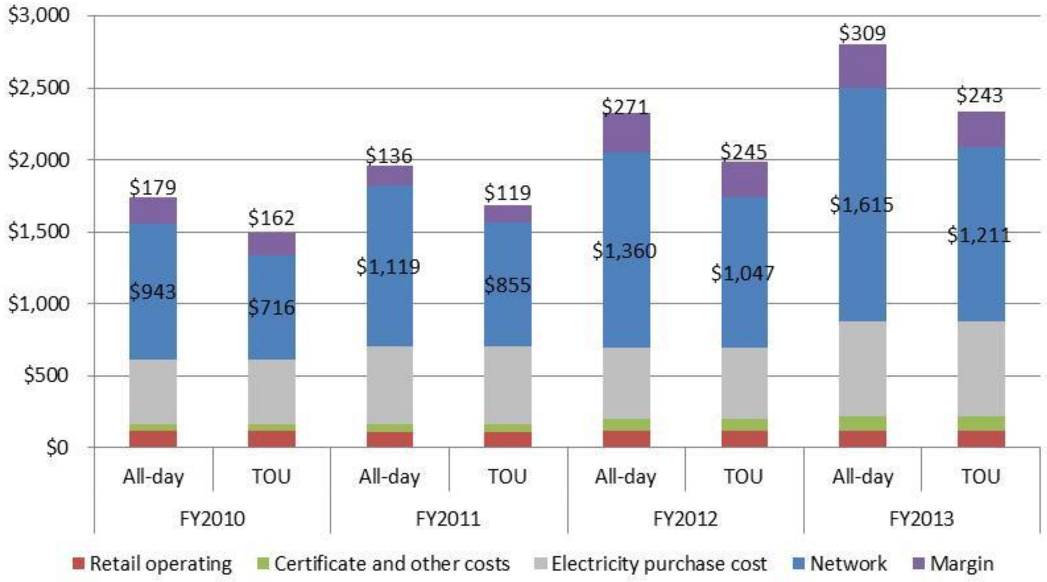


Figure 6.3
Customer bills for TOU and all day tariffs – Essential Energy distribution area



In the Ausgrid distribution area, the retail margin to supply the TOU customer was significantly higher than for a customer on an all-day tariff from 2009-10 to 2012-13. The higher margin results from lower network costs for the TOU customers. The lower network costs for TOU customers might be explained by our assumption of no difference in the load profile of TOU as compared to all-day tariff customers. In practice, the margin for a TOU customer might be similar to an all-day tariff customer because of differences in the associated load profile.

However, it is important to note that the estimated bill for the standard electricity customer is very similar under both tariff types. Therefore, the standard electricity customer in the Ausgrid distribution area would not face a higher bill if they shifted from an all-day to a TOU tariff.

In the Endeavour Energy distribution area, the retail margin to supply customers on a TOU tariff is generally lower than to supply customers on an all-day tariff. This is mainly the result of higher network costs to supply the TOU customer, which also result in higher bills relative to the standard electricity customer.

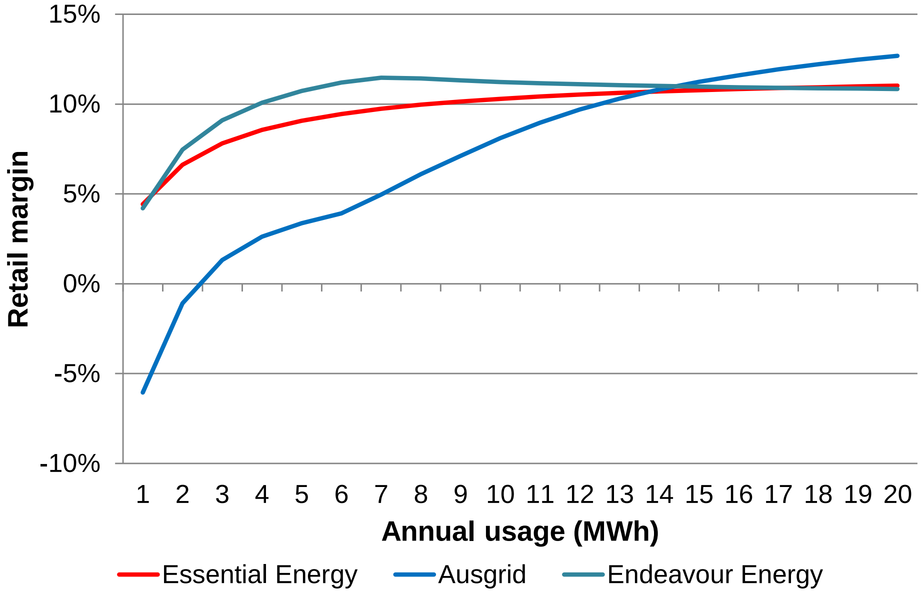
In the Essential Energy distribution area, the retail margins for the TOU and all-day customers are roughly the same. However, TOU customers face lower network charges and so their bills are lower than customers on an all-day tariff.

Small residential customers

The estimated retail margins were lower to supply residential customers with lower electricity usage across all three distribution areas. More generally, our results suggest that retail margins for customers on regulated residential tariffs generally increase as a customer's electricity usage increases. This occurs because the average total cost to supply a customer generally decreases as volume increases.

Figure 6.4 highlights this outcome, by plotting the average estimated retail margin against customer usage for the period 2007-08 to 2012-13 for each distribution area. The results show that margins generally increase as usage increases, although Endeavour Energy's margin decreases slightly for usage volumes beyond 7 MWh.

Figure 6.4
Average residential retail margin versus annual usage (2007-08 to 2012-13)



The figure also highlights that margins can vary considerably depending on a customer's usage. Retailer margins to supply electricity in the Essential Energy and Endeavour Energy distribution areas are *not* overly sensitive to variations in usage assumptions. That said, generally, retail margins are higher in these two distribution areas than in the Ausgrid distribution area for all levels of usage below around 13 MWh per annum.

The retail margin in the Ausgrid distribution area is negative to supply customers with usage volumes less than 2.5 MWh per year. This indicates that the cost to supply these customers exceeds a retailer's revenue from the regulated tariff. However, we expect that relatively few customers would exhibit such a low level of consumption.

The 'kink' in the Ausgrid retail margin curve in Figure 6.1 reflects a change from the first to the second regulated retail tariff block under the inclining block tariff. At 7 MWh of annual usage, the average network tariff increases by around 3.8c/KWh but the regulated tariff increases by 6.6c/KWh, increasing the retailer's margin. The retail margin increases sharply as annual usage volumes pass 7 MWh.

Commercial customers

Retail margins to supply commercial customers were generally higher than those to supply the standard representative customer. This is perhaps partially due to the significantly higher volume of electricity demanded by our assumed commercial customer, which for a residential customer would have also suggested a significantly higher margin.

Nevertheless, higher margins for commercial customers may reflect the fact that many small commercial customers have lower usage volumes than we have assumed. Therefore, it is possible that tariffs have been set to target a lower margin for these smaller customers. However, to draw this conclusion we would need data that gave an indication of the distribution of small customer usage profiles.

6.2. Retail margin for the supply of gas

Table 6.4 sets out our estimates of the retail margin to supply the standard gas customer on a regulated tariff, which vary according to the wholesale gas cost scenario.

The retail margin for the medium wholesale gas cost scenario ranges from 7 to 10 per cent. For the 2010-2013 retail gas price determination, IPART set retail tariffs assuming a retail margin of 7 per cent.[36]

Table 6.4
Implied retail margins to supply a standard gas customer

	Low Wholesale Cost	Medium Wholesale Cost	High Wholesale Cost
FY2002-2007	12%	7%	1%
FY2008-2013	14%	10%	6%

In the medium wholesale gas cost scenario, our results are similar to the retail margin used by IPART in the 2010-2013 retail price determination. Our higher estimate of retail margins for the period from 2007-08 to 2012-13 is largely a result of our assumed lower wholesale gas costs.

6.2.1. Sensitivity analysis

In our sensitivity analysis we consider two additional profiles in comparison to our standard gas customer profile:

- a commercial gas customer with annual usage of 400 GJ, a value in line with consumption data published by JGN;[37] and
- a residential dual fuel customer with 25 GJ of annual gas usage, and 5 MWh of annual electricity usage, (ie, lower than for the standard representative customer) reflecting an assumption that a customer’s gas usage results in overall lower electricity consumption.

Table 6.5 sets out the results of our sensitivity analysis for gas.

[36] IPART, “Review of Regulated Retail Tariffs and Charges for Gas 2010-2013 - Final Report,” June 2010, pp. 3.

[37] Jemena Gas Networks NSW, “JGN 2011 Calendar Year LGA Average Gas Consumption Data.,” 2012.

Table 6.5
Results of sensitivity analysis – gas

Implied margin for gas retailer	Standard Customer	Commercial	Dual fuel (Ausgrid)	Dual fuel (Endeavour Energy)	Dual fuel (Essential Energy)
FY2002-2007	7%	14%	4%	4%	6%
FY2008-2013	10%	17%	5%	9%	9%

Commercial customers

The estimated retail margin for our commercial customer is significantly higher than for our representative residential customer for both the FY2002-2007 and FY2008-2013 time periods – almost double the margins with the medium wholesale gas cost scenario.

The higher margin reflects:

- the underlying gas network declining block tariff structure, which therefore decrease network costs as gas volumes increase, and
- the regulated gas retail tariff not having an equivalent declining block tariff structure.

The net effect of these different tariff structures is that retail margins increase significantly under the regulated retail gas tariff, as gas volumes increase.

Dual fuel

The final sensitivity involved investigating retail margins for customers with a dual fuel contract. While dual-fuel contracts do not involve ‘regulated tariffs’ by definition, we have nonetheless calculated a dual fuel retail margin assuming retail tariffs to determine what margin is available to allow market offer discounts to be made to attract customers.

The results suggest that the implied retail margin for a dual-fuel customer in the Ausgrid distribution area is similar to the retail margin for our representative electricity customer (ie, approximately 5 per cent). The higher margin associated with the supply of gas is offset almost completely by the lower margin to supply electricity arising from the lower assumed electricity consumption.

6.3. Summary and conclusion

In summary, our analysis of the retail margins highlights that:

- retail margins to supply gas are generally higher than for the supply of electricity to our representative customers;
- the retail margins for the period 2008-2013 are higher compared with the period 2002-2007, for both electricity and gas supply;
- the retail margin generally increases with both gas and electricity usage, as average network costs decrease with increasing usage; and

- the range of estimated margins for the standard electricity and standard gas customers is consistent with the margins used by IPART as part of its retail price determinations.

In conclusion, our estimates of the retail profit margins for gas and electricity are broadly in line with allowances set by IPART as part of its retail price determinations for electricity and gas supply. Moreover, the margins that we have estimated tend to be consistent with, or greater than, the margins allowed in other Australian jurisdictions.

In our opinion the regulated retail tariff profit margins to supply gas and electricity were adequate to support effective competition in New South Wales between 2002 and 2012.

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