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RETAIL COSTS AND MARGIN

A REPORT FOR THE ESSENTIAL SERVICES COMMISSION

27 FEBRUARY 2019

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CONTENTS

1	**Introduction**	**1**
1.1	Background	1
1.2	Frontier Economics' engagement	1
1.3	This draft report	1
2	**Retail costs**	**3**
2.1	Defining retail costs	3
2.2	Benchmarking ROC and CARC	4
3	**Benchmarking retail costs**	**7**
3.1	Benchmarking ROC	7
3.2	Benchmarking CARC	12
3.3	Conclusion	15
4	**Retail margin**	**20**
4.1	Defining the retail margin	20
4.2	Estimating the retail margin	20
5	**Benchmarking retail margin**	**21**
5.1	Benchmarking the retail margin	21
5.2	Regulatory allowances for retail margin	22
5.3	Recommendation on retail margin using benchmarking approach	23
6	**The expected returns approach**	**24**
6.1	Rationale	24
6.2	Methodology	25
6.3	Results	30
6.4	Recommendation on retail margin using benchmarking approach	31

Figures

Figure 1: ACCC data on retail operating costs by state 5

Figure 2: ACCC data on customer acquisition and retention costs by state 6

Figure 3: Regulatory allowances for ROC 8

Figure 4: Market data on ROC 11

Figure 5: ROC reported by the ACCC 12
Figure 6: Regulatory allowances for CARC 13
Figure 7: Market data on CARC 14
Figure 8: CARC reported by the ACCC 15
Figure 9: Summary of most relevant ROC benchmarks 17
Figure 10: Summary of most relevant CARC benchmarks 18
Figure 11: ACCC data on customer acquisition and retention costs by state 19
Figure 12: ACCC data on EBITDA margin by state 22
Figure 13: Diversification eliminates asset-specific risk. 25

1 INTRODUCTION

Frontier Economics has been engaged to advise the Essential Services Commission (ESC) on allowances for retail costs and the retail margin for retailing electricity to small customers, for the purposes of determining the Victorian Default Offer (VDO).

1.1 Background

On 18 December 2018 the ESC received a terms of reference requesting that it develop a methodology and recommend a VDO that will be available to residential and small business electricity customers from 1 July 2019. The VDO will:

- be available from 1 July 2019
- be offered unconditionally by all licensed retailers to small customers
- be the price that a retailer can charge under the VDO arrangements
- be established as the basis for retail discounts
- adopt the terms and conditions for standing offers
- be based on current marketing standard and approaches.

A VDO price will be set for each distribution zone and be based on the efficient cost to run a retail business. The price will also include an allowance for a maximum retail profit margin and a modest allowance for customer acquisition and retention costs. The VDO will not include an allowance for headroom.

1.2 Frontier Economics' engagement

Frontier Economics has been engaged to provide advice on two aspects of the VDO:

- The wholesale energy cost component of retailers' cost to supply small customers from 1 July 2019, including the costs of complying with the Large-scale Renewable Energy Target (LRET) and the Small-scale Renewable Energy Scheme (SRES).
- The retail cost and retail margin components of retailers' cost to supply small customers from 1 July 2019.

This report covers the retail cost and retail margin components. We have provided a separate report that covers the wholesale energy cost component.

1.3 This draft report

This draft report provides our draft advice to the ESC on the retail cost and retail margin components of retailers' cost to supply. This draft report is structured as follows:

- Section 2 defines retail costs as consisting of retail operating costs and customer acquisition and retention costs and describes the benchmarking methodology that we use to estimate retail costs.
- Section 3 provides our advice on the benchmark allowance for retail operating costs and customer acquisition and retention costs.
- Section 4 defines the retail margin and describes our approaches to estimating the retail margin.

- Section 5 provides our advice on the benchmark allowance for retail margin.
- Section 6 sets out the expected returns approach to estimating the retail margin.

2 RETAIL COSTS

This section considers the framework for assessing retail costs. There are two methodological issues that need to be addressed in determining retail operating costs:

- What are retail costs, and for what benchmark firm are retail costs estimated?
- What is the methodology for determining retail costs?

2.1 Defining retail costs

Retail costs for electricity businesses in Australia are commonly disaggregated into retail operating costs (ROC) and customer acquisition and retention costs (CARC).

The ROC is the direct costs that retailers incur in running its business. While different retailers and regulators will categorise ROC in different ways, ROC is generally agreed to consist of the following:

- billing and revenue collection costs;
- call centre costs;
- customer information costs;
- corporate overheads;
- energy trading costs;
- regulatory compliance costs; and
- general marketing costs.

CARC is the cost of acquiring new retail customers and retaining new customers. Again, while these will be categorised in different ways, CARC is generally agreed to consist of the following:

- the costs of acquisition channels (such as third party comparison websites, telemarketing or door-to-door sales)
- the costs of retention teams
- marketing costs targeted at driving acquisition or retention.

Not all regulators in Australia provide an allowance for CARC in the regulated price. In particular, CARC is generally not provided for where retail contestability has not been introduced (on the basis that acquisition and retention costs need not be incurred where retail contestability has not been introduced).

An allowance for ROC and for CARC will, in principle, be set for a particular type of electricity business. This decision about the type of electricity business that should be used as the benchmark for determining an allowance for ROC and CARC can be important because different types of retail electricity businesses can have different costs. This was made apparent in the ACCC's Retail Electricity Pricing Inquiry report,[1] in which the ACCC pointed out that the data to which they have access indicated that the big three retailers – AGL, Origin Energy and EnergyAustralia – have lower ROC than state retailers – Aurora Energy, Ergon Energy and ActewAGL – and other retailers. Indeed,

[1] ACCC, *Restoring electricity affordability and Australia's competitive advantage*, Retail Electricity Pricing Inquiry, Final Report, June 2018 (**ACCC REPI Final Report**).

the ACCC pointed out that the difference between ROC for the big three retailers and other retailers was very significant. There are likely a number of reasons for different ROC for different types of electricity business. The ACCC noted that differences in size goes some way to explaining the significantly lower ROC of the big three retailers. The ACCC also noted significant differences in CARC (on a per customer basis) between the big three retailers and other retailers.

In practice, when estimating ROC and CARC using a benchmarking approach, as we discuss below, the opportunity to establish an estimate of efficient ROC and CARC for a particular type of electricity business is limited by the benchmark information that is available. As we will see, most of that information is for large mass-market retailers.

2.2 Benchmarking ROC and CARC

Regulators have tended to determine an appropriate allowance for retail costs using one or both of two approaches:

- An assessment of data on the retail costs of existing retailers.
- Benchmarking against allowances for ROC and CARC in other relevant regulatory decisions and against relevant public information on these costs.

The former approach, sometimes known as the "bottom-up" approach, relies on disaggregated information on the costs of the various activities that would be undertaken by a retailer supplying small customers in Victoria, which are aggregated to determine an efficient annual cost per customer for providing retail supply. Disaggregated cost information of this type is not publicly available. Where this approach has been adopted it is generally the case that retailers have provided detailed cost information to the regulator as part of the review process. A number of regulators have adopted this approach in the past, including IPART, the ERA, OTTER and the ACCC as part of its Retail Electricity Pricing Inquiry. Given the ESC's preference to rely on currently available information for this review, we are not applying a bottom-up approach for the purposes of this review.

The latter approach, typically known as the benchmarking approach, relies on aggregating the available information on the annual cost per customer for providing retail supply. Benchmarking can be undertaken against allowances from regulatory decisions in other jurisdictions, high level retail cost information that is often available in company financial reports, and any other relevant estimates of retail costs for electricity retailers. We are adopting a benchmarking approach to determining ROC and CARC for the purposes of this review.

It is worth noting that even though we are not reviewing actual cost data provided by retailers in Victoria, a benchmarking approach will be based, in part, on actual cost information from the retailers. There are a number of ways that this information on retailers' actual costs will be incorporated in the analysis:

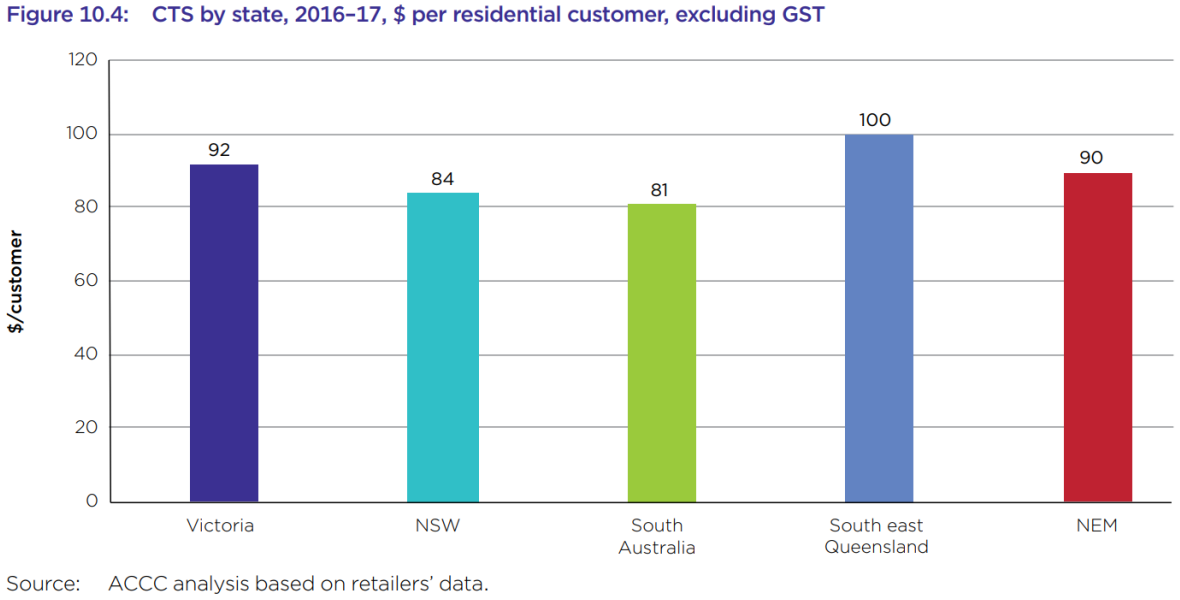
- by benchmarking against retailers' reported retail costs
- by benchmarking against regulatory decisions that have themselves been based, at least in part, on actual cost data provided by retailers
- by benchmarking against retail costs reported in the ACCC's REPI Final Report, as part of which ACCC had access to actual cost data provided by retailers.

It is also important to recognise that there are some short-comings with the benchmarking approach. In particular, because the available benchmark information tends to be information on total retail costs, with very little dis-aggregated line-item cost data available, there is limited information available to adjust for any differences in costs between the characteristics of benchmark firms or jurisdictions and

the characteristics of retail supply to small customers in Victoria. However, in practice we do not expect that this is likely to be a significant issue in the context of this review. The best information of which we are aware on jurisdictional differences in retail costs is the estimates of ROC (referred to by the ACCC as cost to serve) and CARC on a state-by-state basis that was reported in the ACCC's REPI Final Report, which is reproduced in **Figure 1** and **Figure 2**.

Figure 1 shows that the ACCC's data indicates that the retail operating costs in Victoria are more or less at the mid-point of retail operating costs across the NEM, which suggests that benchmarking retail operating costs against these other jurisdictions should provide a reasonable estimate of retailer operating costs in Victoria.

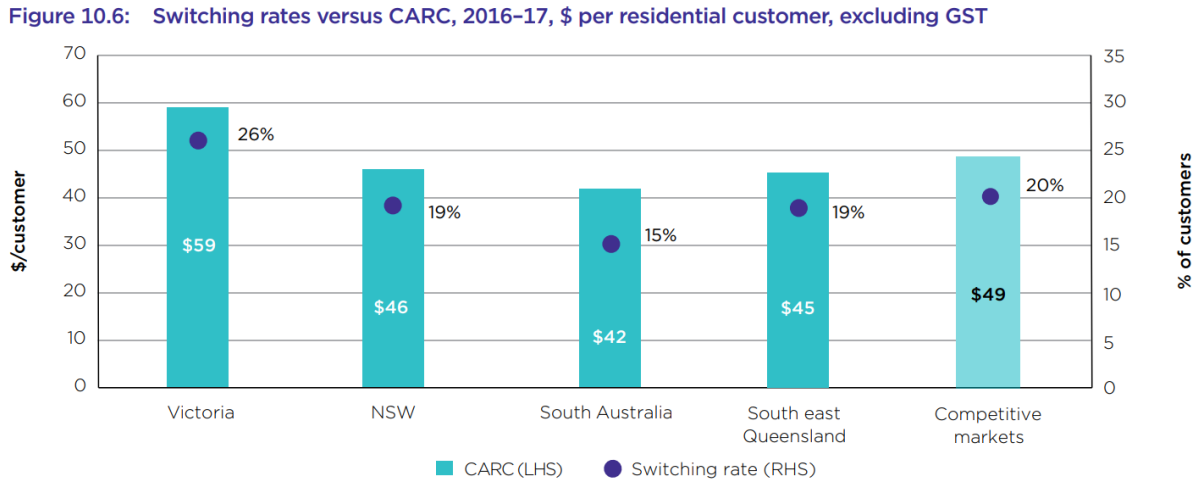
Figure 1: ACCC data on retail operating costs by state



Source: ACCC REPI Final Report, page 223.

However, **Figure 2** shows that the ACCC's data indicates that the CARC in Victoria is about $10/customer/annum higher than across the other competitive markets in the NEM. The ACCC note that there is a correlation between CARC and switching rates; it is clear from the ACCC's data that Victoria has both the highest CARC in the NEM and the highest switching rates. The relationship between CARC and switching rates is complex: more customer acquisition activity (and, therefore, cost) is likely to result in higher switching rates, but higher switching rates are also likely to require retailers to engage in more acquisition and retention activity in order to maintain (or grow) their customer base. This suggests that benchmarking CARC against these other jurisdictions might underestimate CARC for the competitive market in Victoria. However, given that the ESC's terms of reference note that the VDO should include a 'modest allowance' for CARC, there is a question about the relevance of the switching rates and CARC for competitive markets that the ACCC has reported. We will discuss this further in Section 3.3.

Figure 2: ACCC data on customer acquisition and retention costs by state



Source: ACCC analysis based on retailers' data.
Note: 'Competitive markets' is the average of Victoria, NSW, south east Queensland, and South Australia.

Source: ACCC REPI Final Report, page 230.

3 BENCHMARKING RETAIL COSTS

This section benchmarks retail costs against relevant allowances and provides our advice on the allowance for retail costs for the VDO.

We separately benchmark ROC and CARC. There is the need to exercise caution with this approach: different retailers or regulators may allocate costs between ROC and CARC in different ways, which could raise issues with individually benchmarking ROC and CARC. The alternative of benchmarking the sum of ROC and CARC would minimise these issues. However, in our view, the requirement in the ESC's terms of reference to include a 'modest allowance' for CARC requires us to consider CARC in isolation to ROC.

3.1 Benchmarking ROC

We benchmark ROC against other regulatory allowances for ROC for supplying electricity to small customers, against available market data on ROC for mass market customers and against the data on ROC for electricity retailers in the ACCC's REPI Final Report.

Regulatory decisions

Figure 3 summarises the allowances for ROC in regulatory decisions in Australia since 2007. We have benchmarked against the following regulators:

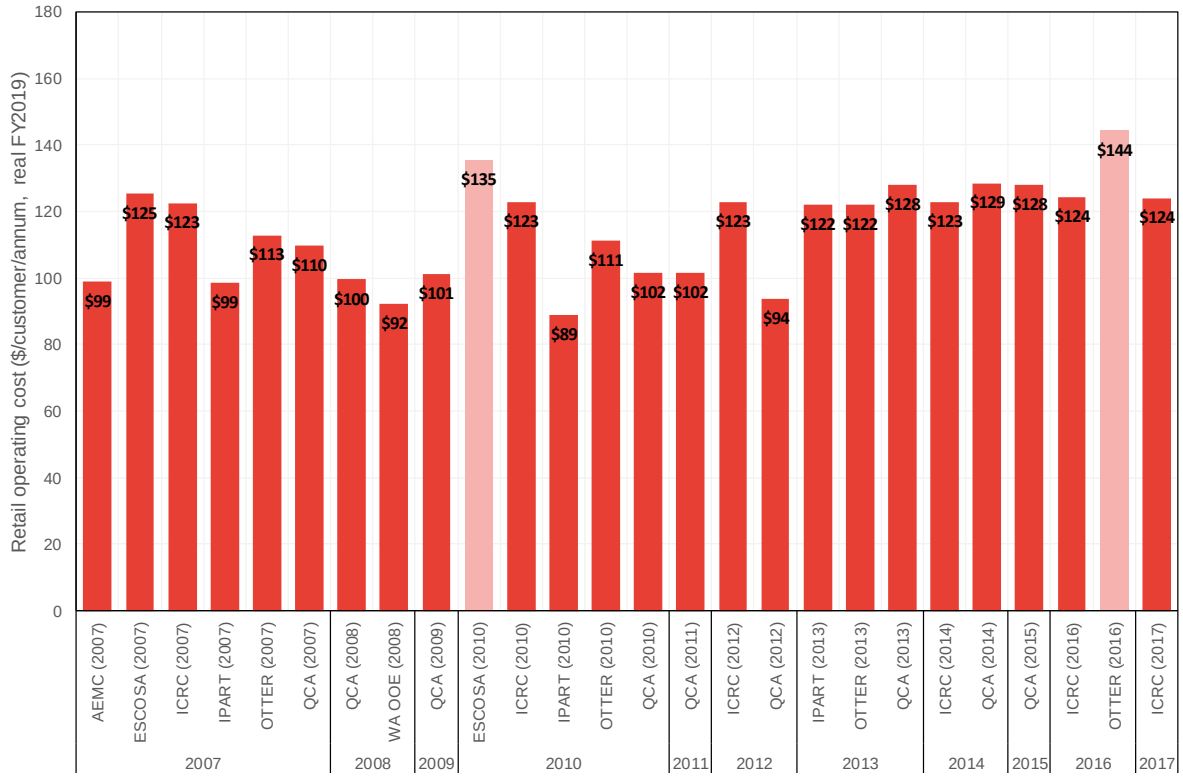
- the Essential Services Commission of South Australia (ESCOSA)
- the Independent Competition and Regulatory Commission (ICRC) in the ACT
- the Independent Pricing and Regulatory Tribunal (IPART) in NSW
- the Office of the Tasmanian Economic Regulator (OTTER)
- the Queensland Competition Authority (QCA)
- the Office of Energy (OOE) in Western Australia.

In **Figure 3** the allowances for ROC from ESCOSA in 2010 and from OTTER in 2016 are shaded because these allowances include both ROC and CARC (whereas other regulators that have allowed for CARC have typically separately identified an allowance for CARC, as we will see in Section 3.2).

Figure 3 does not include the most recent decisions from the QCA, since these decisions have been based on an approach to estimating retail costs and retail margin that does not result in separate allowances for ROC, CARC and the retail margin. For this reason these estimates are not particularly helpful for this benchmarking exercise. We note, however, that the QCA concluded that the result of this approach was an allowance for total retail costs for residential customers that was close to the previous allowance.

Excluding the ESCOSA and OTTER decisions discussed above, **Figure 3** shows that the regulatory allowance for ROC over this period has been between $89/customer/annum and $129/customer/annum. However, in the more recent regulatory decisions since 2013 (which include decisions from IPART, the ICRC, the QCA and OTTER) the regulatory allowance for ROC has been between $122/customer/annum and $129/customer/annum.

Figure 3: Regulatory allowances for ROC



Source: Frontier Economics analysis of regulatory decisions

Market data

In our view these differences are likely to be significantly affected by differences in the way that these costs are reported by AGL and Origin Energy.

- One source of difference could be the way that costs are allocated between ROC and CARC. As we will see in Section 3.2, over this same period AGL's reported CARC has been materially higher than Origin Energy's, suggesting that some of the difference in ROC is a matter of cost allocation.
- A second source of difference could be the group of customers for which ROC is reported. As far as we can tell, neither AGL nor Origin Energy are specific about the category of customers to which the reported ROC relates: AGL's reported ROC relates to the 'Consumer Market' but it is not clear whether this is only residential customers or also includes small business customers. Origin Energy's reported ROC relates to electricity and natural gas accounts, and may include all customers, not just small customers. If so, this would explain why there is a difference in reported ROC, since there is typically a higher ROC per customer associated with large customers.
- A third source of difference could be that categories of costs that are classed as cost to serve or cost to maintain. It may be that costs that are typically considered retail operating costs in regulatory determinations are not classified as cost to serve or cost to maintain by AGL or Origin Energy, or that costs that are not typically considered retail operating costs in regulatory determinations are classified as cost to serve or cost to maintain by AGL or Origin Energy.

Because of the difficulty identifying the basis on which the market data on ROC is reported, we have reservations in drawing too many conclusions from this data. Ordinarily, we would think that AGL's market data is worth including in a benchmarking exercise because we do not think the issues discussed above would too problematic:

- AGL's reported CARC is reasonably consistent with CARC benchmarks from regulatory decisions and from the ACCC's REPI Final Report, which suggests that AGL have not allocated costs between ROC and CARC in a way that is materially different from the way regulators and other retailers have.
- AGL's 'Consumer Segment' would appear to relate to small customers; even if it includes some larger customers, this would imply that the ROC for small customers would be lower than that reported by AGL.

However, AGL's submission to the ESC states that its reported cost to serve excludes centrally managed expenses or corporate costs, which would generally be included in regulatory allowances for retail operating costs. Given this, if we are to give any weight to AGL's market data we consider that we should also give some weight to Origin Energy's market data. Given that the estimates both show an apparent trend over time, we think the most recent estimates, which have shown some convergence, would be appropriate.

Figure 4 summarises the ROC reported by AGL and Origin Energy. Each of these businesses report retail operating costs (referred to as cost to serve or cost to maintain) in their Annual Reports.

It is clear from In our view these differences are likely to be significantly affected by differences in the way that these costs are reported by AGL and Origin Energy.

- One source of difference could be the way that costs are allocated between ROC and CARC. As we will see in Section 3.2, over this same period AGL's reported CARC has been materially higher than Origin Energy's, suggesting that some of the difference in ROC is a matter of cost allocation.
- A second source of difference could be the group of customers for which ROC is reported. As far as we can tell, neither AGL nor Origin Energy are specific about the category of customers to which the reported ROC relates: AGL's reported ROC relates to the 'Consumer Market' but it is not clear whether this is only residential customers or also includes small business customers. Origin Energy's reported ROC relates to electricity and natural gas accounts, and may include all customers, not just small customers. If so, this would explain why there is a difference in reported ROC, since there is typically a higher ROC per customer associated with large customers.
- A third source of difference could be that categories of costs that are classed as cost to serve or cost to maintain. It may be that costs that are typically considered retail operating costs in regulatory determinations are not classified as cost to serve or cost to maintain by AGL or Origin Energy, or that costs that are not typically considered retail operating costs in regulatory determinations are classified as cost to serve or cost to maintain by AGL or Origin Energy.

Because of the difficulty identifying the basis on which the market data on ROC is reported, we have reservations in drawing too many conclusions from this data. Ordinarily, we would think that AGL's market data is worth including in a benchmarking exercise because we do not think the issues discussed above would too problematic:

- AGL's reported CARC is reasonably consistent with CARC benchmarks from regulatory decisions and from the ACCC's REPI Final Report, which suggests that AGL have not allocated costs between ROC and CARC in a way that is materially different from the way regulators and other retailers have.
- AGL's 'Consumer Segment' would appear to relate to small customers; even if it includes some larger customers, this would imply that the ROC for small customers would be lower than that reported by AGL.

However, AGL's submission to the ESC states that its reported cost to serve excludes centrally managed expenses or corporate costs, which would generally be included in regulatory allowances for retail operating costs. Given this, if we are to give any weight to AGL's market data we consider that we should also give some weight to Origin Energy's market data. Given that the estimates both show

an apparent trend over time, we think the most recent estimates, which have shown some convergence, would be appropriate.

Figure 4 that the reported ROC is very different between AGL and Origin Energy. Over the last six years AGL has reported ROC that has been between $69/customer/annum and $84/customer/annum. In contrast, over the same period Origin Energy has reported ROC that has been between $119/customer/annum and $168/customer/annum.

In our view these differences are likely to be significantly affected by differences in the way that these costs are reported by AGL and Origin Energy.

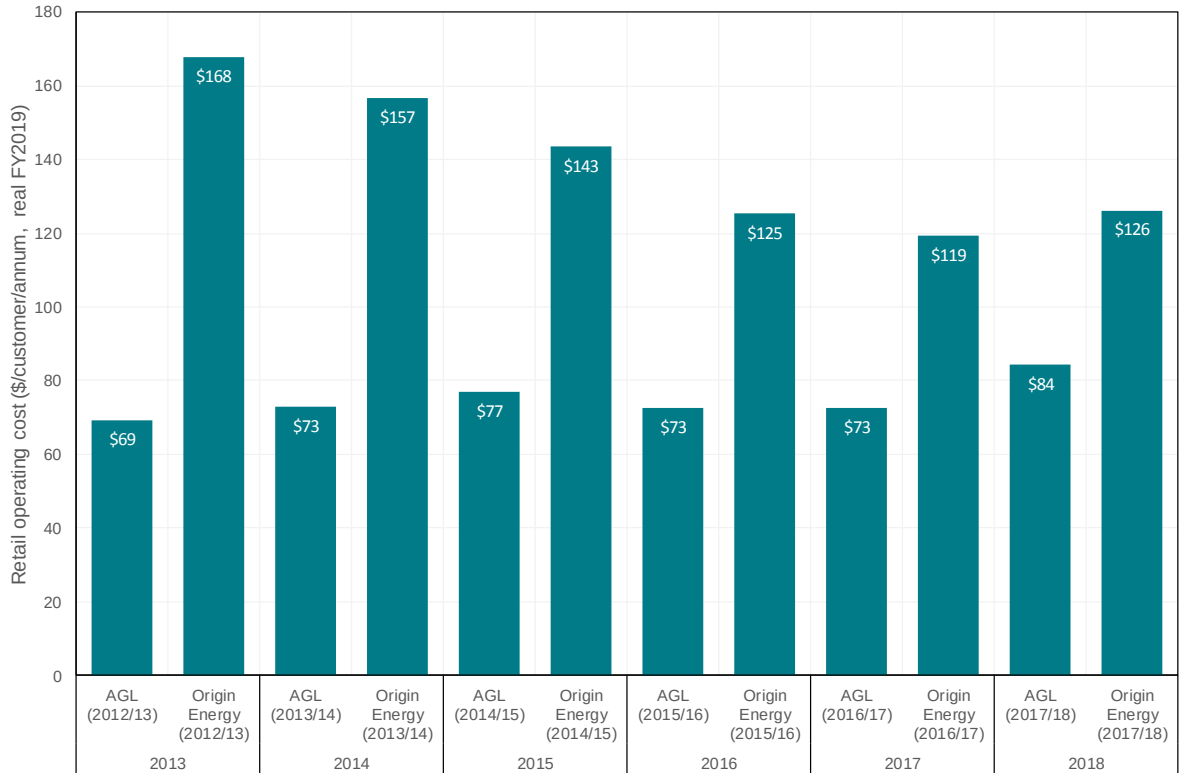
- One source of difference could be the way that costs are allocated between ROC and CARC. As we will see in Section 3.2, over this same period AGL's reported CARC has been materially higher than Origin Energy's, suggesting that some of the difference in ROC is a matter of cost allocation.
- A second source of difference could be the group of customers for which ROC is reported. As far as we can tell, neither AGL nor Origin Energy are specific about the category of customers to which the reported ROC relates: AGL's reported ROC relates to the 'Consumer Market' but it is not clear whether this is only residential customers or also includes small business customers. Origin Energy's reported ROC relates to electricity and natural gas accounts, and may include all customers, not just small customers. If so, this would explain why there is a difference in reported ROC, since there is typically a higher ROC per customer associated with large customers.
- A third source of difference could be that categories of costs that are classed as cost to serve or cost to maintain. It may be that costs that are typically considered retail operating costs in regulatory determinations are not classified as cost to serve or cost to maintain by AGL or Origin Energy, or that costs that are not typically considered retail operating costs in regulatory determinations are classified as cost to serve or cost to maintain by AGL or Origin Energy.

Because of the difficulty identifying the basis on which the market data on ROC is reported, we have reservations in drawing too many conclusions from this data. Ordinarily, we would think that AGL's market data is worth including in a benchmarking exercise because we do not think the issues discussed above would too problematic:

- AGL's reported CARC is reasonably consistent with CARC benchmarks from regulatory decisions and from the ACCC's REPI Final Report, which suggests that AGL have not allocated costs between ROC and CARC in a way that is materially different from the way regulators and other retailers have.
- AGL's 'Consumer Segment' would appear to relate to small customers; even if it includes some larger customers, this would imply that the ROC for small customers would be lower than that reported by AGL.

However, AGL's submission to the ESC states that its reported cost to serve excludes centrally managed expenses or corporate costs, which would generally be included in regulatory allowances for retail operating costs. Given this, if we are to give any weight to AGL's market data we consider that we should also give some weight to Origin Energy's market data. Given that the estimates both show an apparent trend over time, we think the most recent estimates, which have shown some convergence, would be appropriate.

Figure 4: Market data on ROC



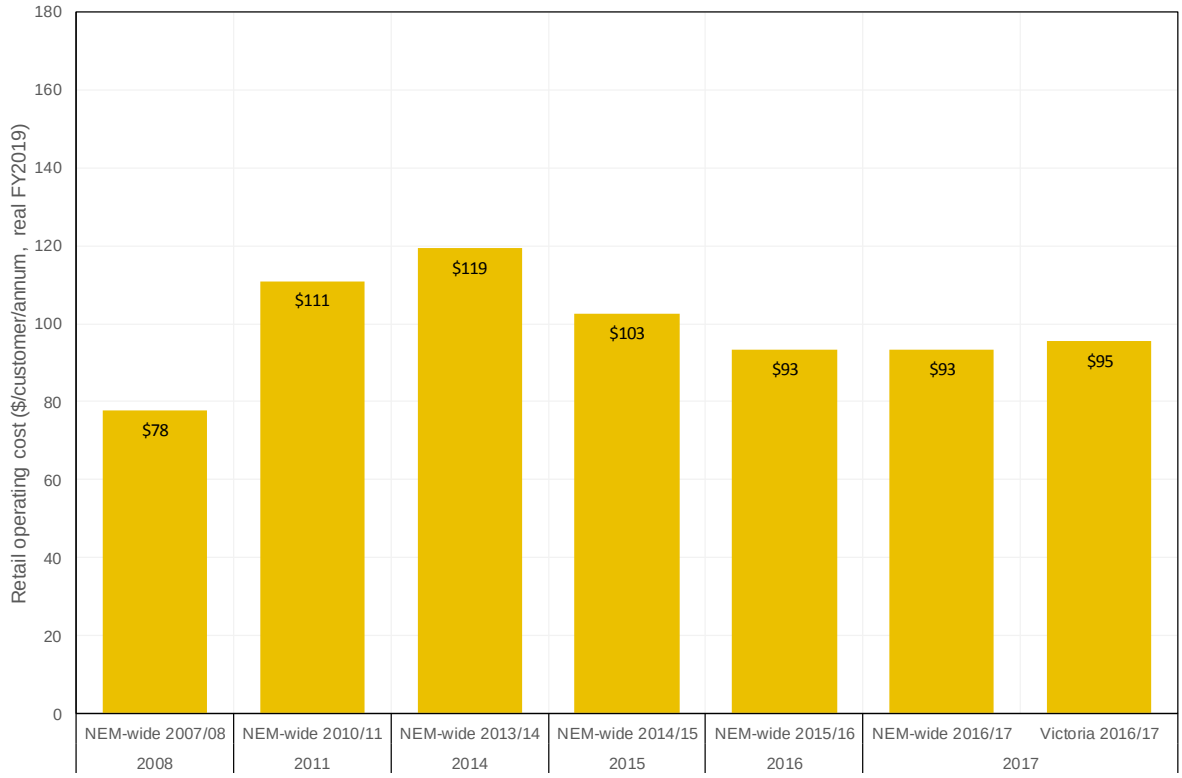
Source: Frontier Economics analysis of company reports

ACCC's Retail Electricity Pricing Inquiry

Figure 5 summarises the allowances for ROC in the ACCC's REPI Final Report. **Figure 5** shows ROC estimates for the NEM as a whole for a number of historical years, as well as a ROC estimate for Victoria for 2016/17.

Figure 5 shows that the ACCC's data on the NEM-wide ROC indicates it has been between $78/customer/annum (but not since 2007/08) and $119/customer/annum. The most recent estimates of NEM-wide ROC are $93/customer/annum, much the same as the most recent estimates of ROC for Victoria of $95/customer/annum.

Figure 5: ROC reported by the ACCC



Source: ACCC REPI Final Report.

3.2 Benchmarking CARC

We benchmark CARC against other regulatory allowances for CARC for supplying electricity to small customers, against available market data on CARC for mass market customers and against the data on CARC for electricity retailers in the ACCC's REPI Final Report.

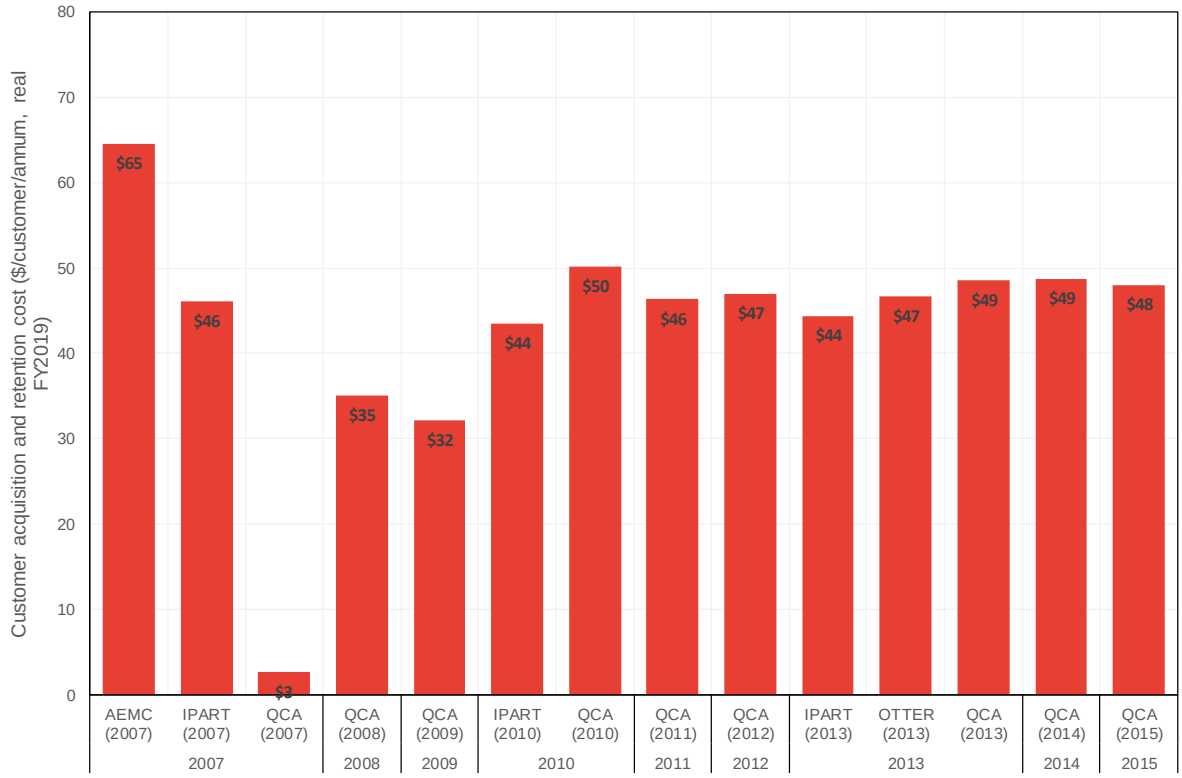
Regulatory decisions

Figure 6 summarises the allowances for CARC in regulatory decisions in Australia since 2007. We have benchmarked against IPART, the QCA and OTTER (except for OTTER's most recent decision, which did not separately identify ROC and CARC). The ICRC and WA OOE have not allowed for CARC in their regulated decisions. ESCOSA's decision – like OTTER's most recent decision – did not separately identify ROC and CARC.

Figure 6 does not include the most recent decisions from the QCA, since these decisions have been based on an approach to estimating retail costs and retail margin that does not result in separate allowances for ROC, CARC and the retail margin. For this reason these estimates are not particularly helpful for this benchmarking exercise. We note, however, that the QCA concluded that the result of this approach was an allowance for total retail costs for residential customers that was close to the previous allowance.

Figure 6 shows that the regulatory allowance for CARC over this period has been between $2/customer/annum and $65/customer/annum. However, in the more recent regulatory decisions since 2013 (which include decisions from IPART, the QCA and OTTER) the regulatory allowance for CARC has been between $44/customer/annum and $49/customer/annum.

Figure 6: Regulatory allowances for CARC



Source: Frontier Economics analysis of regulatory decisions

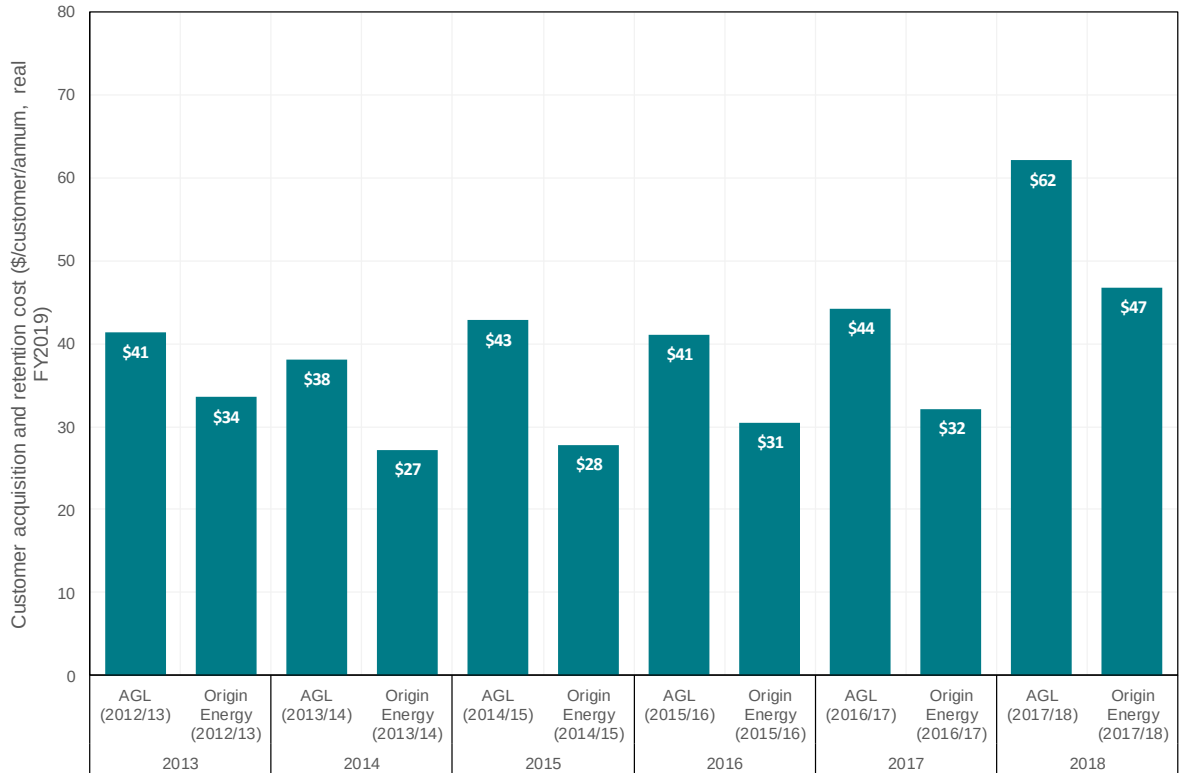
Market data

Figure 7 summarises the CARC reported by AGL and Origin Energy. Each of these businesses report CARC (referred to as cost to grow or cost to acquire/maintain) in their Annual Reports.

It is clear from **Figure 7** that the reported CARC is very different between AGL and Origin Energy. Over the last six years AGL has reported CARC that has been between $41/customer/annum and $62/customer/annum. In contrast, over the same period Origin Energy has reported CARC that has been between $27/customer/annum and $47/customer/annum.

As discussed in relation to ROC, in our view these differences are likely to be significantly affected by differences in the way that these costs are reported by AGL and Origin Energy. Because of the difficulty identifying the basis on which the market data on CARC is reported, we have reservations in drawing too many conclusions from this data. However, as we discussed, we do think that AGL's market data may be a useful benchmark for both ROC and CARC.

Figure 7: Market data on CARC



Source: Frontier Economics analysis of company reports

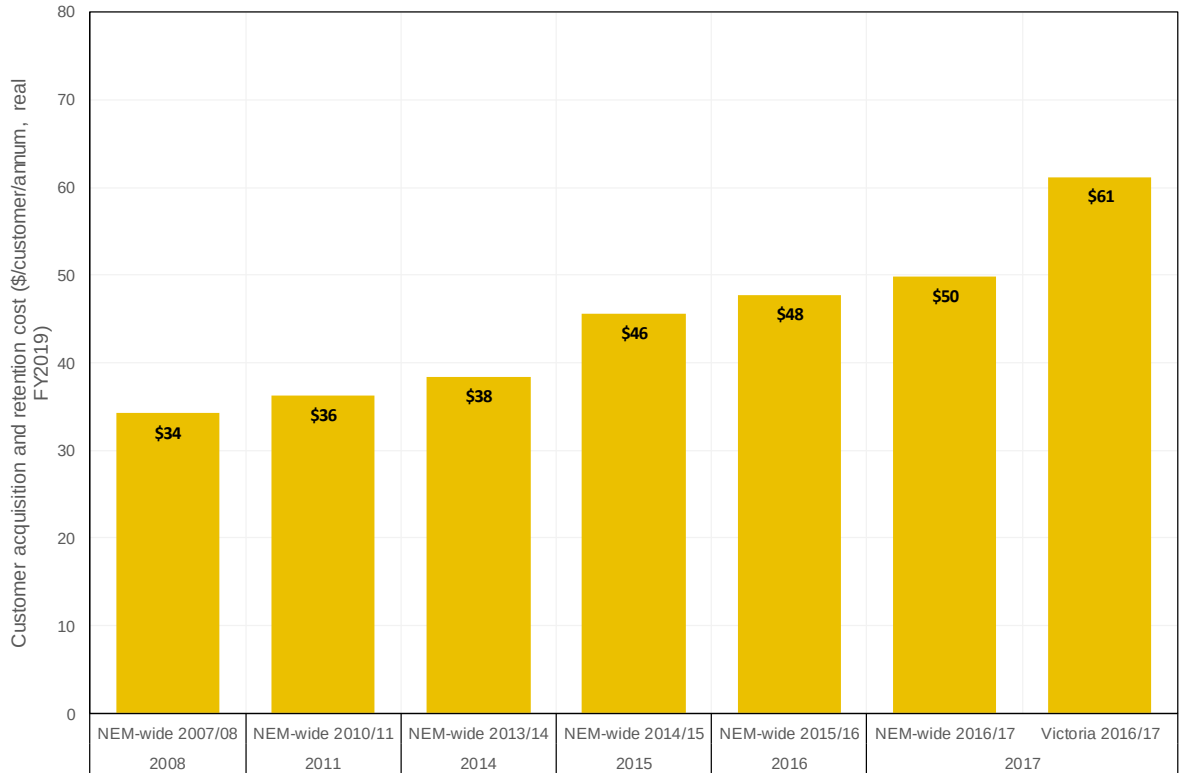
ACCC's Retail Electricity Pricing Inquiry

Figure 8 summarises the allowances for CARC in the ACCC's REPI Final Report. **Figure 8** shows CARC estimates for the NEM as a whole for a number of historical years, as well as a CARC estimate for Victoria for 2016/17.

Figure 8 shows that the ACCC's data on the NEM-wide CARC indicates it has been between $34/customer/annum (but not since 2007/08) and $50/customer/annum (most recently). The most recent estimates of CARC for Victoria is $61/customer/annum. As we have seen previously, this is related to the higher switching rates in Victoria than the rest of the NEM.

The ACCC did release information on CARC for the big three retailers and for other retailers. When reported on the basis of CARC across the entire customer base (as we report it throughout this report), the ACCC noted that CARC per customers was significantly lower for the big three retailers – at $40/customer/annum – than for other retailers – at $87/customer/annum.

Figure 8: CARC reported by the ACCC



Source: ACCC REPI Final Report.

3.3 Conclusion

Recommendations on ROC

As discussed, there are three sources of data against which we have benchmarked ROC, the most relevant of which are:

- The more recent regulatory decisions, since 2013, have provided an allowance for ROC between $122/customer/annum and $129/customer/annum.
- The most recent market data from AGL is for ROC of $84/customer/annum and from Origin Energy is for ROC of $126/customer/annum.
- The ACCC's REPI Final Report indicates that NEM-wide ROC has historically been between $78/customer/annum and $119/customer/annum. The most recent estimates of NEM-wide ROC are $93/customer/annum, much the same as the most recent estimates of ROC for Victoria of $95/customer/annum.

Obviously this gives a wide absolute range to the estimate ROC – from a low of $84/customer/annum to a high of $129/customer/annum, as shown in **Figure 9Error! Not a valid bookmark self-reference.**.

One approach to determining an allowance from this range of estimates would be to take a simple average of these estimates, which would provide a ROC allowance of $114/customer/annum.

However, we think there is an argument to give relatively more weight to estimates from the ACCC's REPI Final Report and the most recent market estimates. The reason is that these estimates are more recent than the regulatory determinations. For instance:

- For the most recent ICRC reviews, the ROC allowance has been escalated by CPI each year. The last time an allowance was determined other than through escalation of the previous year was the ICRC's 2014 determination. For this determination the ICRC adopted IPART's then most recent allowance of $110/customer/annum (nominal) from its 2013 review, which was based on information up to 2012.
- For the most recent QCA decisions we benchmark against, the ROC allowance has been escalated by CPI each year. As with the ICRC, the last time an allowance was determined other than through escalation of the previous year was the QCA's 2014 determination and, for this determination, the QCA also adopted IPART's then most recent allowance of $110/customer/annum (nominal) from its 2013 review, which was based on information up to 2012.

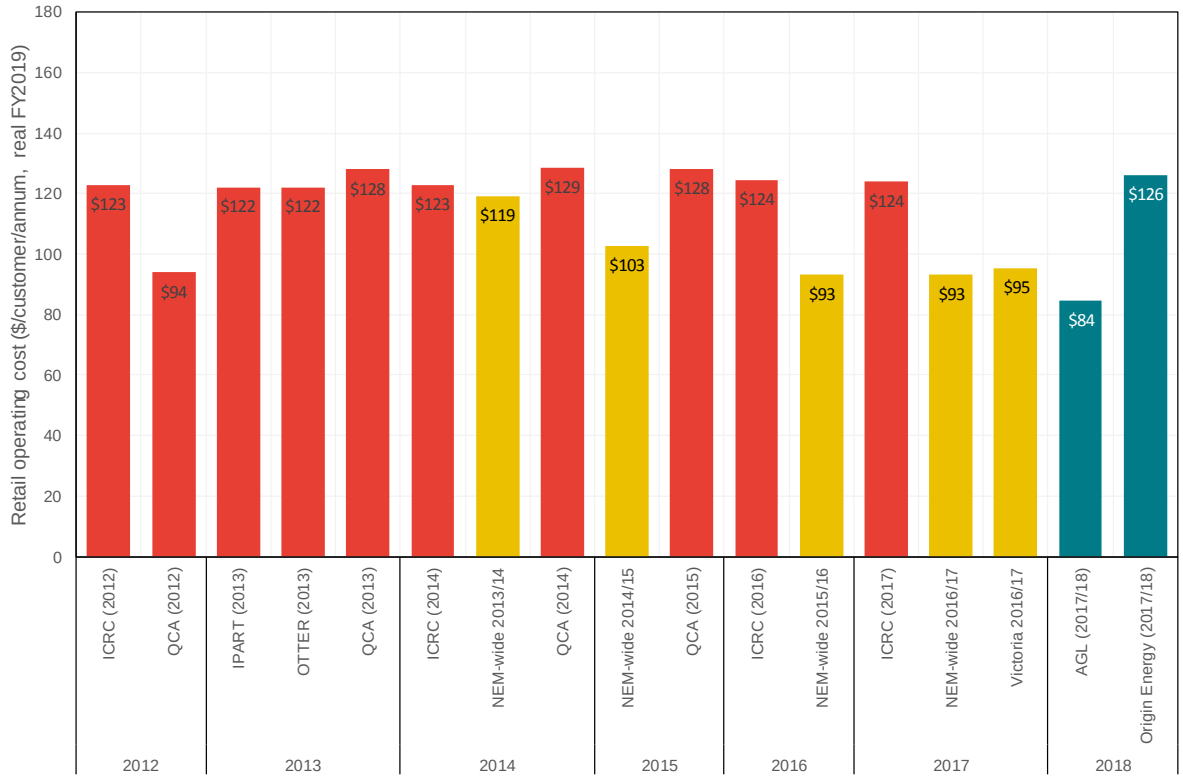
Since all of these most recent regulatory allowances are essentially benchmarked to IPART's 2013 determination of ROC of $110/customer/annum, we think it is prudent to give more weight to the more recent data from the ACCC's REPI Final Report and AGL and Origin Energy's market data. We would also note that the ACCC's time series data suggests that ROC was highest around the time that IPART was marking its 2013 decision.

Of the ACCC's REPI Final Report and the recent market data, we think it is prudent to give more weight to the ACCC's REPI Final Report. The ACCC had access to data from 18 retailers over a number of years, which it examined and 'cleaned' for inconsistencies or potential errors. We think this is likely to be a far more representative data set than relying only on the most recent information reported by AGL and Origin Energy in its annual reports, which may be subject to issues relating to allocation of costs or definition of customer groups.

Based on this, we think a reasonable range for benchmark retail operating costs is between $90/customer/annum (real FY2019) and $114/customer/annum (real FY2019):

- The low end of this range is the average of the most recent estimate for Victoria from the ACCC's REPI and the most recent estimate from AGL's market data (implicitly giving equal weight to these two sources).
- The upper end of this range is the average of all the benchmark estimates that we have considered.
- The more recent NEM-wide and Victorian retail operating costs reported in the ACCC's REPI Final Report – which we consider should be given the most weight – fall within this range, being between $93/customer/annum (real FY2019) and $103/customer/annum (real FY2019).

Figure 9: Summary of most relevant ROC benchmarks



Source: Frontier Economics

Recommendations on CARC

Putting to one side, for the moment, the requirement that the VDO price include a 'modest' allowance for CARC, we would propose to adopt the same approach to recommending CARC as we did to recommending ROC.

As discussed, there are three sources of data against which we have benchmarked CARC, the most relevant of which are:

- The more recent regulatory decisions, since 2013, have provided an allowance for CARC between $44/customer/annum and $49/customer/annum.
- The most recent market data from AGL is for CARC of $62/customer/annum and from Origin Energy is for CARC of $47/customer/annum.
- The ACCC's REPI Final Report indicates that NEM-wide CARC has historically been between $34/customer/annum and $50/customer/annum, being the most recent estimate. The most recent estimates of CARC for Victoria is $61/customer/annum

As with ROC, this gives a wide absolute range to the estimate CARC – from a low of $38/customer/annum to a high of $62/customer/annum, as shown in **Figure 9**.

One approach to determining an allowance from this range of estimates would be to take a simple average of these estimates, which would provide a ROC allowance of $49/customer/annum.

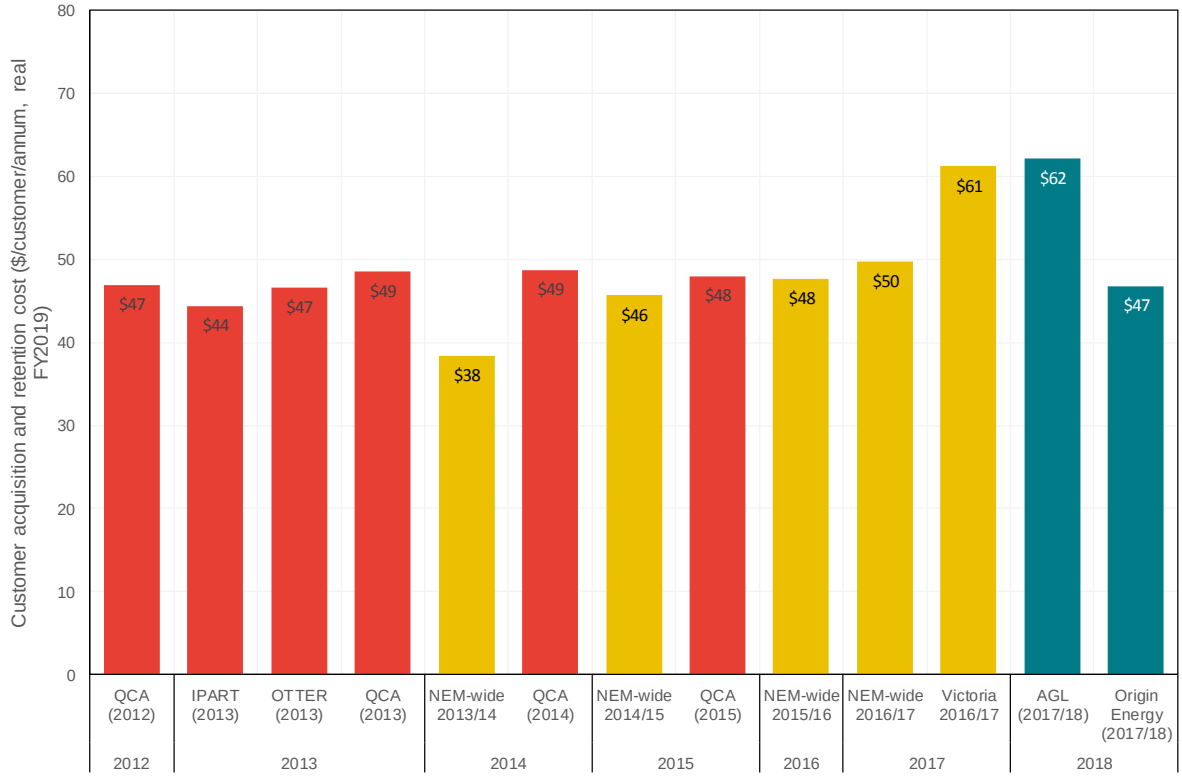
However, we think there is an argument to give relatively more weight to estimates from the ACCC's REPI Final Report and the recent market data. The reason is that these estimates are more recent than the regulatory determinations. Other than the QCA's determinations, the most recent regulatory

determination of CARC are from 2013, based on data from 2012. And for the most recent reported QCA decisions, the CARC allowance has been escalated by CPI each year. The last time an allowance was determined other than through escalation of the previous year was the QCA's 2013 determination.

And, as with ROC, and for the same reasons, we think it is prudent to give more weight to the ACCC's REPI Final Report.

Developing a range for CARC on a similar basis as the range for ROC suggests a reasonable range for benchmark CARC is between $47/customer/annum (real FY2019) and $62/customer/annum (real FY2019).

Figure 10: Summary of most relevant CARC benchmarks



Source: Frontier Economics

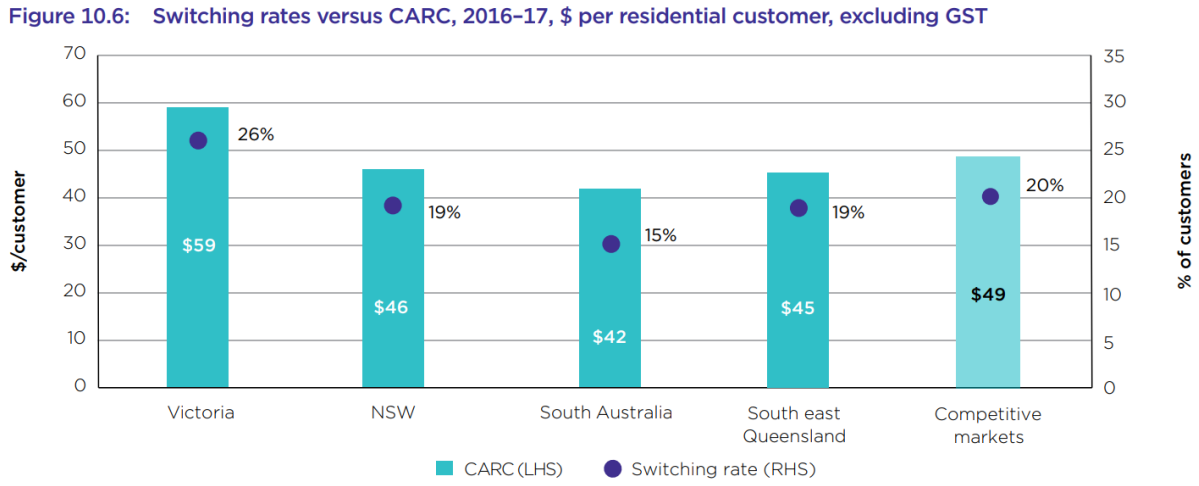
However, it is not clear to us that this would be consistent with a 'modest' allowance for CARC. We think that there are a number of other ways to think about what might be a 'modest' allowance for CARC.

One approach would be to treat this allowance as a 'modest' allowance on the basis that it is more reflective of the CARC costs the ACCC reported for the big retailers, and materially lower than the CARC costs the ACCC reported for other retailers.

Another approach would be to suppose that a 'modest' allowance for CARC would be an allowance for CARC that would be more consistent with lower rates of switching, on the basis that lower switching rates might be expected for the VDO. Based on the ACCC's data, previously shown as **Figure 2** and reproduced as **Figure 11** below, the state with the lowest switching rates is South Australia, with

15 per cent switching. South Australia also has the lowest CARC of $42/customer/annum ($2016/17). This could be used as the basis for setting a 'modest' allowance for CARC.

Figure 11: ACCC data on customer acquisition and retention costs by state



Source: ACCC analysis based on retailers' data.
Note: 'Competitive markets' is the average of Victoria, NSW, south east Queensland, and South Australia.

Source: ACCC REPI Final Report, page 230.

Another approach would be to provide an allowance that was based on retention costs rather than acquisition costs, on the basis that the sorts of sales channels that are ordinarily relied upon for market offers may not be necessary for the VDO. While information distinguishing between acquisition costs and retention costs is limited, AGL's Annual Reports have previously reported that retention costs have been between $19 and $31 per retention, while acquisition costs have been between $125 and $156 per acquisition. Assuming the same rate of retention and acquisition, this suggests that retention costs are around 15% of total CARC. Applying this 15% to a CARC allowance between $47/customer/annum (real FY2019) and $62/customer/annum (real FY2019) would result in an estimate of CARC (based on retention only) of between $7/customer/annum and $9/customer/annum.

4 RETAIL MARGIN

This section considers the framework for assessing the retail margin. As with retail costs, there are two methodological issues that need to be addressed in determining the retail margin:

- What is the retail margin, and for what benchmark firm is the retail margin estimated?
- What is the methodology for determining the retail margin?

4.1 Defining the retail margin

The retail margin for electricity businesses in Australia represents the return that a retailer requires in order to attract the capital needed to provide a retailing service. The retail margin that is required will depend on the level of risk that a retailer faces: the greater the risk the greater the retail margin that is required in order that capital invested in the business earns an appropriate return.

An allowance for the retail margin will, in principle, be set for a particular type of electricity business. In practice, however, as with retail costs, the opportunity to establish an estimate of the retail margin for a particular type of electricity business is limited by the information that is available.

4.2 Estimating the retail margin

Regulators have tended to determine an appropriate allowance for retail costs using one or more of three approaches:

- **The bottom-up approach** – is similar to the approach used to calculate the return on capital for regulated network businesses. It calculates the margin that is required to provide a return on capital that is based on an estimate of the weighted average cost of capital for the retail multiplied by an estimate of the retailer's asset value (including intangibles and working capital).
- **The benchmarking approach** – relies on aggregating the available public information on the retail margin. Benchmarking the retail margin is similar in principle to benchmarking retail costs although, as we shall see, there are issues with benchmarking the retail margin against companies' financial reports that do not arise when benchmarking retail costs.
- **The expected returns approach** – seeks to estimate the margin that is required in order to compensate investors in the business for systematic risk.

We apply the benchmarking approach in Section 5 and the expected returns approach in Section 6.

5 BENCHMARKING RETAIL MARGIN

This section benchmarks the retail margin against relevant allowances and provides our advice on the allowance for the retail margin for the VDO using the benchmarking approach.

5.1 Benchmarking the retail margin

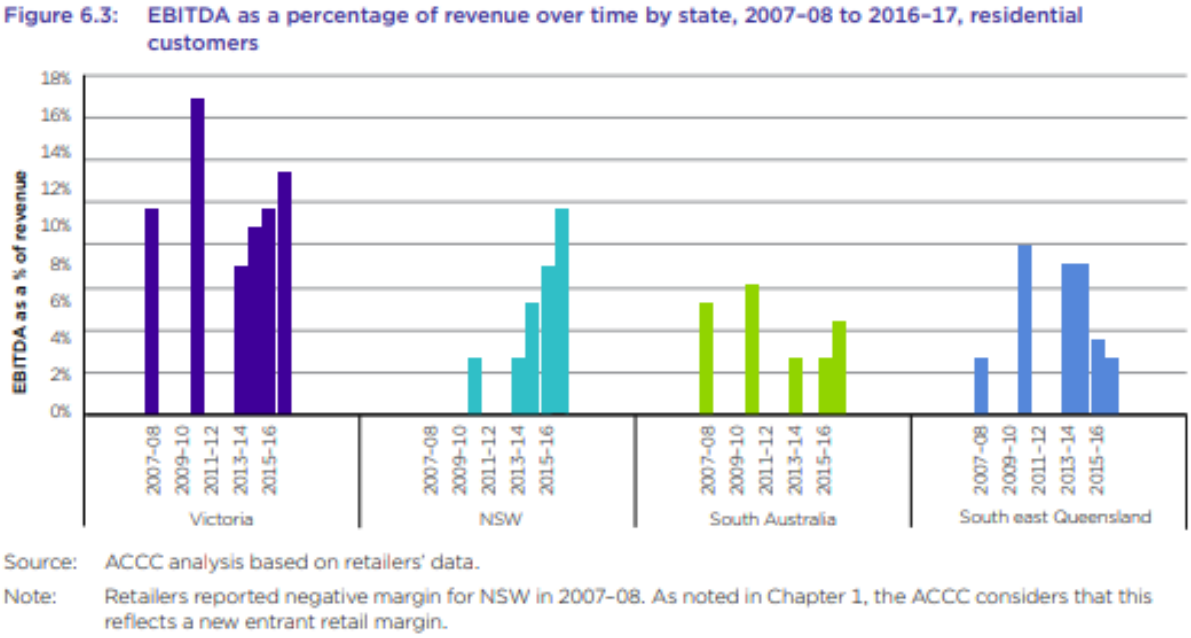
When we benchmarked retail costs, we benchmarked against other regulatory allowances, against available market data for electricity retailers and against data in the ACCC's REPI Final Report.

When it comes to benchmarking the retail margin there are, in our view, issues with benchmarking against available market data for electricity retailers and against data in the ACCC's REPI Final Report.

One issue is that a principle task of electricity retailers is to manage risk on behalf of their customers. Retailers do this by agreeing to supply their customers' future electricity consumption at a price that is set for a period in advance and at a price that is much less variable than the half-hourly spot price at which retailers are settled for the customers' consumption. In doing so, retailers take on the risk of exposure to the half-hourly spot price on their customers behalf. There will be some periods during which a retailer's reported financial performance will be good, because the hedging position that the retailer has entered into has been advantageous or because spot prices have been lower than expected; this would be reflected in a strongly positive margin. There will also be some periods during which a retailer's reported financial performance will be poor, because the hedging position that the retailer has entered into has been disadvantageous or because spot prices have been higher than expected; this would be reflected in a weakly positive margin or even a negative margin. An indication of this is provided by the EBITDA as a percentage of revenue that was reported in the ACCC's REPI Final Report, and which is reproduced in **Figure 12**.

In a competitive market the average margins earned by a retailer over time would be expected to provide an appropriate return to attract the capital needed to provide a retailing service. But in any particular year or over any particular number of years there is the risk that the observed margin will not reflect the 'efficient' margin required in order to attract the capital needed to provide a retailing service.

Figure 12: ACCC data on EBITDA margin by state



Source: ACCC REPI Final Report, page 146.

Another issue with benchmarking against available market data for electricity retailers and against data in the ACCC's REPI Final Report is that these benchmarks may reflect margins that are systematically higher than the 'efficient' margin required in order to attract the capital needed to provide a retailing service. This would be expected to be the case, for instance, if there were evidence that the market was not operating competitively.

For these reason, when it comes to the retail margin, we benchmark only against other regulatory allowances.

5.2 Regulatory allowances for retail margin

We benchmark against the most recent regulatory allowances for the retail margin, which confines our consideration to decisions by the QCA, the ICRC, OTTER and IPART.

QCA

Our benchmarking of the retail margin from the QCA does not include the most recent decisions from the QCA, since these decisions have been based on an approach to estimating retail costs and retail margin that does not result in separate allowances for ROC, CARC and the retail margin. As discussed in the context of retail costs, for this reason these estimates are not particularly helpful for this benchmarking exercise. We note, however, that the QCA concluded that the result of this approach was an allowance for total retail costs for residential customers that was close to the previous allowance.

The QCA's 2015 decision was the latest that incorporated a specific amount for the retail margin. That amount was 5.7% of total costs (including the retail margin). This retail margin was rolled forward from the QCA's 2013 decision, at which point the QCA based the retail margin on the allowance of 5.7% used by IPART in its 2013 decision.

ICRC

The ICRC's most recent decisions – from 2014 to 2016 – also provided a retail margin of 5.7% of total costs (including the retail margin), although the ICRC express that as 6.04% of total costs excluding the retail margin. As with the QCA, this allowance was based on the retail margin on the allowance of 5.7% used by IPART in its 2013 decision.

OTTER

OTTER's most recent decisions – its 2013 and 2016 decisions – also provided a retail margin of 5.7%, benchmarked against the QCA, the ICRC and IPART. Some adjustments were made to the retail margin in the first period to account for differences in switching.

IPART

IPART's most recent decision – its 2013 decision – provide a retail margin of 5.7%. In coming to this decision IPART had regard to three approaches to estimating the retail margin: benchmarking, the expected returns approach and the bottom-up approach. The retail margin of 5.7% was chosen from within a recommended range for the retail margin of 5.3% to 6.1%.

5.3 Recommendation on retail margin using benchmarking approach

Given that each of the most recent regulatory decisions from the QCA, the ICRC, OTTER and IPART provide for a retail margin of 5.7% of total costs (including the retail margin), this seems the obvious choice when benchmarking the retail margin.

As noted above, each of these allowances is ultimately based on IPART's allowance of 5.7%, which was chosen from within a range for the retail margin of 5.3% to 6.1%. This suggests that a retail margin from within this range would also be reasonable.

6 THE EXPECTED RETURNS APPROACH

This section explains the rationale and methodology underpinning the expected returns approach to estimating a regulated retail margin, and presents our recommendation on the retail margin using the expected returns approach.

6.1 Rationale

The expected returns approach to estimating the retail margin was first developed by SFG Consulting for IPART for the purposes of determining the allowed retail margin for regulated electricity retailers in NSW.[2] The key objective of the expected returns approach is to estimate the minimum retail margin required in order to compensate equity investors in a notional electricity retailer for the systematic (i.e., non-diversifiable) risk they bear when committing equity capital to the firm.

In financial economics, risk is defined as the likelihood of the variability of actual returns from investment around the expected (average) return associated with that investment.[3] The total risk borne by investors in any asset may be decomposed into two components:

- Non-systematic risk – that is, risk that can be eliminated through diversification. Risk that can be eliminated in this way is asset-specific risk; and
- Systematic risk – that is, risk that cannot be diversified away. This risk represents variability in the returns of the asset that is correlated with changes in the returns of all assets in the economy (i.e., the 'market' as a whole).

The relationship between total risk, non-systematic risk and systematic risk is represented graphically in **Figure 13** below. This Figure shows that an investor's exposure to non-systematic risk falls as they become increasingly diversified. However, their exposure to systematic risk remains unchanged, regardless of the extent to which they are able to diversify their asset holdings.

A fundamental principle in financial economics is that investors in efficient and competitive capital markets can expect to be compensated only for systematic risk.[4] This is because, in such markets, an investor that sought compensation for risk that could be diversified away would be outbid quickly by many other well-diversified investors who required a lower return from the same investment. The market price for risk would, by this means, be bid down to the level where all investors in the market may expect to be compensated only for systematic risk. That is, in efficient and competitive capital markets, the minimum return required by an investor will correspond to the return required to compensate for non-diversifiable risk.

Economic regulators seek to mimic the outcomes that would obtain in competitive markets by setting cost allowances equal to the efficient level of costs. This is because in competitive markets, cost inefficiencies are driven out by the process of competition and competitive tension between rivals. The

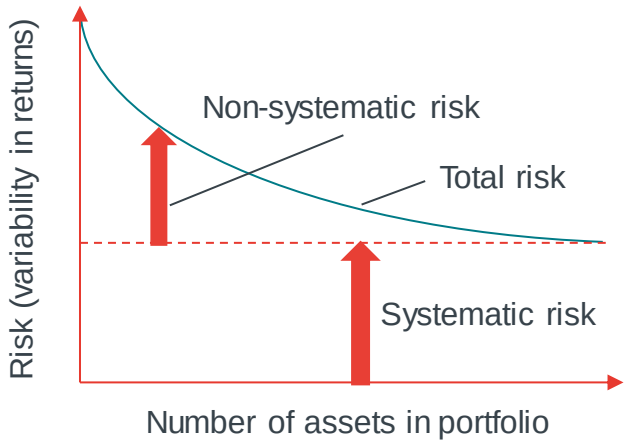
[2] IPART triangulated the regulated retail margin using the expected returns approach, the benchmarking approach and the bottom-up approach.

[3] See, for example: Damodaran, A. (2001), Corporate Finance: Theory and Practice, 2nd edition, John Wiley & Sons: New Jersey, p. 150.

[4] This is one of the key insights from the theory of the Capital Asset Pricing Model (CAPM).

implication of this for the ESC is that it should set a regulated retail margin that (in expectation) just compensates investors in regulated electricity retailers for systematic risk but no more.

Figure 13: Diversification eliminates asset-specific risk.



Source: Brealey, Myers and Allen (2014), Principles of Corporate Finance, 11th ed, McGraw-Hill: New York, Figure 7.11

That is not to say that non-systematic (i.e., asset-specific) risks should be ignored altogether by regulators. Rather, any relevant asset-specific risks should be addressed through other cost allowances rather than the retail margin.

6.2 Methodology

The expected returns approach involves five main steps:

1. Derive an estimate of the benchmark Weighted Average Cost of Capital (WACC) for a notional retailer.
2. Forecast the future cash flows and returns of the notional retailer under different economic conditions.
3. Forecast the future returns on the market in different states of the market.[5]
4. Use the forecast returns of the notional retailer and the market to compute the implied systematic risk of the notional retailer.
5. Solve for the retail margin that equalises the systematic risk implied by the retailer's forecast cash flows and the systematic risk associated with the benchmark WACC.

We explain each of these steps in turn in further detail below.

6.2.1 Step 1: Derive estimate of the benchmark WACC for a notional retailer

The first step is to derive an estimate of the *Weighted Average Cost of Capital* (*WACC*) of a notional retailer. The WACC represents the weighted average of the minimum rates of return that equity

[5] The 'market' in this context refers to the market for all assets in the economy. In principle, this market would include all assets, tradeable (including all financial and real assets) and non-tradeable (including human capital). In practice, the returns on the market are estimated using data on the stock market, assuming that a well-diversified stock index such as the All Ordinaries Index is a reasonable proxy for the market as a whole (which is, by definition, a perfectly diversified asset).

investors and debt investors in the retailer require in order to commit equity and debt capital to the business. The cost of equity and the cost of debt are weighted by an estimate of the gearing of the business, as shown in the formula below:

$$WACC = Cost\ of\ equity \times (1 - Gearing) + Cost\ of\ debt \times Gearing$$

One of the inputs to the cost of equity is an estimate of the systematic risk exposure of the notional retailer, captured by a parameter known as *beta*.[6] The cost of equity within the estimated WACC is therefore the minimum rate of return required in order to compensate equity investors for the systematic risk they would take on by investing in the notional retailer.

We have been instructed by the ESC to use the WACC parameters presented in **Table 1**.

Table 1: WACC parameters (nominal, vanilla)

COST OF CAPITAL	LOW	BASE	HIGH
Risk-free rate	2.50%	2.81%	3.12%
Market risk premium	5.75%	6.00%	6.25%
Equity beta	1.00	1.00	1.00
Gearing	20%	20%	20%
Debt premium	2.0%	2.5%	3.0%
Gamma (value of imputation credits)	50%	50%	50%
Inflation	2.5%	2.5%	2.5%
Cost of equity	8.25%	8.81%	9.37%
Cost of debt	4.50%	5.31%	6.12%
WACC	6.07%	6.55%	7.03%

Source: Parameter inputs provided by ESC

6.2.2 Step 2: Forecast future cash flows and returns of retailer

The second step is to forecast the future cash flows of the notional retailer using:

- a 'placeholder' assumed average retail electricity price;
- forecast retail demand for electricity under different future states of the world (i.e., under varying economic conditions);
- assumed costs faced by the retailer; and
- an estimate of future inflation.

These forecast cash flows are then used to compute the annualised equity returns to the notional retailer over a 10-year horizon.

[6] As explained in section 6.2.4, beta in this context is defined as the covariance of returns on the market and returns to the notional retailer, divided by the variance of returns on the market.

Placeholder average retail electricity price

The placeholder retail electricity price is simply an assumed starting price used to obtain a future series of cash flows for the notional retailer, allowing for inflation. The precise starting level for this price is unimportant as this is the variable that is adjusted in Step 5 (below) to solve for the required margin.

Forecast growth in demand

The future demand for electricity is assumed to grow in exact proportion to the change in GDP. That is, we assume that a 1% increase/reduction in GDP is associated with a 1% increase/reduction in electricity demand. This assumption is based on the notion that demand for electricity is closely linked to economic growth, and was the basis of IPART's analysis when it applied the expected returns approach.[7] We estimated the annual variation in future demand by examining the historical standard deviation in GDP between 1960 and 2018.[8] This resulted in a base estimate of the annual change in demand of 1.7%.

Assumed costs

As the analysis was focused on estimating an appropriate retail margin rather than a price we assumed that total costs would equal $100/MWh in expectation, before applying inflation. However, these costs can be decomposed into variable and fixed costs, such that if demand increases the total costs would increase on a per MWh basis (reflecting higher variable costs).

To estimate the proportion of fixed costs we have used current estimates of each of the components of retail supply (including WEC, green costs, network tariffs, retail costs, retail margin and other costs) and, of those, have assumed that all retail costs, the fixed component of network tariffs, an amount for depreciation and amortisation and 8% of WEC is fixed. This is consistent with the approach that was previously adopted for IPART.

Also relevant to the cashflows are the levels of capital expenditure and depreciation. It is the difference between the two that is relevant to the expected returns analysis; we assumed that capex minus depreciation is equal to 0.52% of expected total costs in each year, consistent with values previously adopted for IPART.[9]

Estimated future inflation

The future rate of inflation used in the model is assumed to be the midpoint of the Reserve Bank of Australia's inflation target range, 2.5%. This inflation rate is used to escalate costs within the model.

Constructing future cash flows

The cash flows of the notional retailer are constructed by building a binomial tree out to a horizon of 10 years, which represents:

- the future revenues of the retailer, which, in each year, would be impacted by demand either increasing or falling by 1.7% as demand changes in line with changes in GDP; and
- the future costs of the retailer, which will change as variable costs change in line with volumes.

Beyond year 10, cash flows are assumed to grow at a constant rate equal to the estimated long-run inflation rate of 2.5%.

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[7] See SFG, The association between changes in electricity demand and GDP growth, 2 October 2009, and SFG, Estimation of the regulated profit margin for electricity retailers in New South Wales, 16 March 2010.

[8] GDP growth taken from ABS series 5206.0.

[9] The estimated retail margin is relatively insensitive to this parameter.

Constructing the returns implied by the forecast cash flows

Next, the we calculate the annualised equity returns implied by the forecast cash flows. This is done by:

- Calculating a set of present values of the future cash flows of the retailer at year 10 (the *terminal values*) under various future states of the world that depend on how economic conditions have changed over time. These present values are computed using the assumed WACC of the retailer;
- Calculating the expected (i.e., probability-weighted) present value of the cash flows of the retailer between year 0 and year 10 (the *opening value*), again using the assumed WACC of the retailer; and
- Calculating the return to equity associated with each of the possible states of the market in year 10.

6.2.3 Step 3: Forecast future returns on the market

Next, we derive forecasts of the returns associated with investing in the stock market as a whole over a 10-year future horizon. The process we follow in order to do this mirrors the process used to forecast the returns of the retailer. We use the historical standard deviation of returns on the Australian stock market over the period 1900 to 2018,[10] to build a binomial tree that represents the future path of the stock market over a 10-year forward-looking horizon under different future states of the world. In each year the market index is assumed to either grow by one standard deviation more than expected, or one standard deviation less than expected.[11] This process results in a set of terminal values for the market index at year 10 that differ depending on how market conditions may evolve between year 0 and year 10. The forecast returns on the market are then calculated using the terminal values of the index and the starting value of the index.

6.2.4 Step 4: Calculate systematic risk implied by forecast future cashflows of the retailer

Having derived the future returns on the market and the returns of the retailer over a 10-year horizon, the systematic risk associated with the retailer's forecast cash flows are computed using the standard relationship implied by the Capital Asset Pricing Model (CAPM):

$$Systematic\ risk = \frac{Covariance\ (Market\ Returns, Retailer\ Returns)}{Variance\ (Market\ Returns)}$$

The overall estimate of systematic risk is derived as the probability weighted estimate of systematic risk under each possible future path of returns between year 0 and year 10. We refer to this overall estimate as the *implied* estimate of systematic risk, since it is the estimate of systematic risk implied by the forecast future cash flows of the notional retailer.

6.2.5 Step 5: Calculate the retail margin consistent with benchmark systematic risk

The final step is to compare the *implied* estimate of systematic risk with the *benchmark* level of systematic risk (i.e., beta) used in the WACC estimate:

- If the implied estimate of systematic risk is lower than the benchmark beta, that would imply that the forecast cash flows of the notional retailer are not risky enough to be consistent with

[10] Data presented by Brailsford, Handley and Maheswaran (2012) is appended to All Ordinaries accumulation returns.

[11] The base value of one standard deviation is 22%.

benchmark level of systematic risk. This implies that the retail margin underpinning the forecast cash flows of the retailer is too high (thereby cushioning its returns too much) and so would need to be adjusted downwards in order to be consistent with the benchmark beta.

- Conversely, if the implied estimate of systematic risk is higher than the benchmark beta, that would imply that the cash flows of the notional retailer are too risky relative to the benchmark beta. Under these circumstances, the retail margin is too low (providing an insufficient buffer to the returns of the retailer) relative to the benchmark level of systematic risk.

In order to arrive at a retail margin that is consistent with the benchmark level of systematic risk, we adjust the placeholder price in Step 1 above until the implied beta is equal to the benchmark beta. Thus, we solve for the regulated retail margin that ensures that the expected cash flows of the notional retailer is sufficient to cover its systematic risk.

In addition to three values for WACC (low, base and high), we allow different values for market volatility, demand (GDP) volatility and the share of total costs represented by fixed costs.

Table 2: Parameter values considered

	LOW	BASE	HIGH
WACC	6.07%	6.55%	7.03%
Standard deviation of market returns	12%	17%	22%
Non-volume-related costs (share of total costs)	25%	30%	35%
Standard deviation of GDP growth	1.2%	1.7%	2.2%

Source: Frontier Economics analysis

We perform the analysis for 81 potential scenarios: with three different states and four variables the number of scenarios is $3^4 = 81$.

In addition to the base scenario (base values for all four variables) we consider a reasonable range for the EBIT margin to encompass the middle third of the rank-ordered estimated margins derived in the 81 scenarios.[12] This was the approach followed by IPART's adviser, SFG, when it implemented the expected returns approach. SFG explained the rationale for taking the middle third of ranked estimates as follows:[13]

> *A base case estimate for the required margin is computed using the mid-points of the assumptions discussed above. Similarly, a range for the required margin could be estimated with reference to the extreme (maximum and minimum) assumptions. However, this approach would result in a wide and relatively meaningless margin range. That is, the probability that all assumptions are at the extreme end of the reasonable range is small. For this reason, our margin analysis considered 81 potential scenarios. Each assumption outlined at the end of the previous section was assumed to take one of*

12 Thus, the low range of the margin would be the 28th smallest of the 81 estimated margins.

13 SFG, Estimation of the regulated profit margin for electricity retailers in New South Wales, 4 June 2013, pp. 13-14.

three values: high-point, mid-point and low-point. This resulted in a potential distribution for the required margin that incorporates uncertainty in the key assumptions. Our approach is to assume a reasonable range that incorporates the middle third of the 81 potential outcomes. In other words, the low and high results reported in Table 4 reflect the 33rd and 67th percentiles, of projections for each year.

We agree with this rationale and have therefore adopted this approach here to derive a reasonable range for the retail margin.

6.3 Results

The retail margin estimates are presented below in **Table 3**.

Table 3: EBIT margin range

	LOW	BASE	HIGH
EBIT margin	3.5%	4.2%	4.8%

Source: Frontier Economics analysis

In addition, we undertook sensitivity analysis of the retail margin by varying each of the four variables in **Table 2** in turn to understand the impact of each on the total margin. For each variable of interest, we compare the estimated retail margin under low, base and high values of the variable, keeping the remaining three variables at their base value.

As **Table 4** shows, the margin is relatively insensitive to WACC: keeping all other variables at base values, the margin increases by 0.2% when the assumed WACC is increased from the low scenario to the high scenario—a difference of 96 basis points.

Table 4: Sensitivity of the estimated retail margin to four variables considered

PARAMETER VARIED	LOW	BASE	HIGH	HIGH MINUS LOW
WACC	4.1%	4.2%	4.2%	0.2%
Market volatility	6.1%	4.2%	3.1%	-3.0%
GDP volatility	3.1%	4.2%	5.3%	-2.2%
Fixed share	3.6%	4.2%	4.7%	-1.1%

Source: Frontier Economics analysis

The margin is however sensitive to the other three variables of interest:

- Keeping all other variables at base values, the margin decreases by 3.0% going from the low market volatility scenario to the high market volatility scenario.

- Keeping all other variables at base values, the margin increases by 2.2% going from the low GDP volatility scenario to the high GDP volatility scenario.
- Keeping all other variables at base values, the margin increases by 1.1% going from the low fixed cost share scenario to the high fixed cost share scenario.

6.4 Recommendation on retail margin using benchmarking approach

We recommend a range for the retail margin of 3.5% to 4.8%, consistent with the estimates presented in **Table 3**.

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