Oakley Greenwood

Review of the Thwaites report and associated research

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Executive summary

Background – the Thwaites review

In November 2016, the Victorian government announced that an independent panel headed by John Thwaites would "examine the operation of the Victorian electricity and gas retail markets and provide options that would improve outcomes for consumers"[1].

This review was established in response to the Victorian government's concern regarding the generally observed increases in electricity prices and bills, particularly following the announcement of the closure of the Hazelwood generator.

The Thwaites report was released in August 2017 and identified a set of 11 recommendations for improving consumer outcomes.

The scope of this review

The Australian Energy Council commissioned Oakley Greenwood (OGW) to undertake:

- A critical review of the research underpinning the Thwaites report, and
- A critical review of the Thwaites report itself, including
  - An assessment of the potential ramifications, in both the short and long-term, of implementing the Thwaites recommendations; and
  - An assessment of the link between the research findings and the recommendations.

Main findings of the OGW review of the analysis of the retail gross margin in residential electricity bills

The main findings of our review of the analysis of the retail gross margin in residential electricity bills are as follows:

- The analysis provided by Carbon and Energy Markets (CME) of the gross margins that are likely being achieved in the retail electricity market are likely to be materially overstated. This is the result of:
  - Choices in the methodological approach it used to construct the offer it chose to represent the market offers available in the residential retail electricity market;
  - Factual errors in its calculations; and
  - The use of assumptions in the calculation of the retail gross margin that do not align with audited information published by two Tier 1 retailers, or information available from a survey of customers' bills that was also commissioned by the Thwaites review.

1 Victoria Department of Environment, Land, Water and Planning, Review of electricity and gas retail markets in Victoria, Terms of Reference, available at https://engage.vic.gov.au/review-electricity-and-gas-retail-markets-victoria

- In total, our review suggests that the CME analysis is likely to overstate the retail gross margin by at least 30%. This level of apparent over-statement in the CME analysis suggests that additional work should be undertaken prior to policy decisions being made. We note that the ACCC is also looking into the retail electricity market and will have access to time series data on retailers' costs, revenues and gross margins. This will provide a database far superior to the information CME has had access to, and therefore the ability to provide more granular and more statistically reliable result to serve as an input to policy formulation.

Main findings regarding the recommendations put forward by the Thwaites review

Recommendations 3 – 11 of the Thwaites report appear reasonable in principle and build on activities already underway to improve customer experience with the retail energy market. However, Recommendations 1 and 2 are more complex and technical in character.

In addition, the recommendations have been put forward with no discussion of:

- the alternative policies (if any) that were considered,
- the costs as compared to the benefits of the recommended policies,
- the likely interactions between the recommended policies, and particularly whether they are synergistic or will have contradictory effects, or
- their likely individual or combined impacts on the competitive market.

The centrepiece recommendation – that retailers be required to provide a Basic Service Offer – is likely to significantly reduce the level of competition and innovation in the retail electricity market. Our primary concerns regarding this recommendation are:

- The Basic Service Offer will likely result in a significant reduction in retail competition
  - The Basic Service Offer would be set based on the regulator's view of the efficient costs to run a retail business. If the Tier 1 retailers have lower cost structures due to the economies of scale in their operations, as the Thwaites report contends, this base for the regulated price will put the most pressure on Tier 2 and particularly Tier 3 retailers – the very retailers that, to date have offered the lowest prices and a great deal of the innovation in the market, and
  - It should also be noted that because almost all of the Tier 2 and Tier 3 retailers have a significant proportion of their customer base in Victoria, and losses in this market are likely to reduce their overall scale in ways that could seriously jeopardise the viability of their operations throughout the NEM.

  Another source of threat to these retailers in the Basic Service Offer is that it would be set at a level that would exclude consideration of customer acquisition costs as a part of the efficient costs of a retail business operation. This ignores the fact that smaller retailers who are seeking to build a customer bases will necessarily have to incur costs to do so.

  Moreover, the introduction of a Basic Service Offer is likely to reinforce the status quo bias cited by CSIRO in research it undertook as an input to the Thwaites review. This is discussed in more detail below, and would be to the dis-benefit of smaller retailers.
- The Basic Service Offer is likely to reduce innovation, at a time when the prospects for advancements in innovation are likely to be increasing due to the availability of interval metering and new beyond the meter products and services.

  Whilst the Thwaites report indicates that it believes different price/service trade-offs will still be enabled under the Basic Service Offer, in our opinion, this is an unlikely outcome.

The Basic Service Offer is also likely to reinforce the status quo bias cited by CSIRO in research it undertook as an input to the Thwaites review. The status quo bias is essentially the propensity for customer to perceive risk in an unknown offer or service. It is possible that the Basic Service Offer might have the effect of reinforcing the status quo bias in to the detriment of new entrants and new forms of product/service offerings.

It is recognised that the electricity landscape is changing rapidly. PV, battery, electric vehicles and advanced controls and the availability of smart metering and communications are all providing customers more choices and options for savings – and opportunities to make the electricity supply system operate more efficiently. New products and services that could potentially be offered by retailers to customers wiling to engage with the market include:

- integrated on-site energy services such as PV/battery
- embedded networks in new developments
- peer-to-peer energy trading
- centralised back-up power to customers who place a high reliance on onsite energy provision (PV/Battery)
- network support services, through either the aggregation of services beyond-the-meter from end customers or through having equity stakes in beyond-the-meter assets
- reliability services to the wholesale market.

Interestingly, one of the supporting principles espoused by the Thwaites report is that a "*competitive market is likely better placed to respond to changes in the energy sector and new technologies*". We agree with this, but are concerned that the Basic Service Offer by reducing competition and reinforcing the status quo bias, may significantly diminish the incentive for innovation in the market at a time when other developments in the market will be increasing the scope and benefits available from innovative products and services,

- The Basic Service Offer homogenises the market and potentially penalises a significant portion of the customer base

  The Basic Service Offer is a blunt tool to use in seeking to protect vulnerable and disadvantaged customers, and customers that could, but choose not to or find it too difficult to engage with the market. It is likely to have unintended and significant consequences in that it is likely to penalise the 30% of customers per year that switch retailers, and which has resulted in 38% of customers having moved to Tier 2 or Tier 3 retailers.

- The Basic Service Offer disregards the impact that regulatory risk imposes on the industry and customers

  The introduction of a Basic Service Offer would require the ESC to set a regulated price, based on certain prescribed principles. Doing so in a market as dynamic and complex as electricity is very difficult. It requires the application of a number of assumptions and complex financial analysis. Where these calculations are not correct, the regulated decision will impose risk and cost on consumers of the industry.

  In particular, the requirement that the Basic Service Offer and market offers remain fixed for a period of at least 12 months will impose risks on the retailers who are exposed to the volatility of the wholesale market. This will make the Basic Service Offer riskier for retailers and potentially put upward pressure on market offers as it would be imprudent for a retailer to not price this risk exposure into their market offers.

Additional detail on the shortcomings in the analysis of the retail gross margin in residential electricity bills

Further detail on the three primary problematic areas in CME's analysis of retail gross margins includes:

- Choices in the methodology used to construct the offer it chose to represent the market that are not always appropriate.
  - In Part A of its analysis, CME assumes that the overall effectiveness or efficiency of the market can usefully and accurately be understood and assessed through the use of a single offer constructed to 'represent' the market as a whole. This seems unlikely given both the lack of information available about the distribution of key factors that affect the gross margin, such as the distribution of customers across the available offers, and the proportion of the discounts that customers are eligible for that they are actually receiving.

    An analysis of different types of customer as defined by their characteristics on the key factors that affect the retail gross margin would have been a useful addition in assessing the range of outcomes likely to characterise the market.
  - Including green offers

    In Part A of its analysis, CME makes no mention of excluding green power offers, hence we assume it has included both green and non-green offers in the single representative offer. However, it is our understanding that only about 7% or 8% of customers are on green power offers, and these offers appear to exhibit higher prices on average than the offers that do not include green power. Using the median of all of the market offers, which we what understand CME has done, would therefore over-estimate the average retail price and the subsequent retail gross margin because it is not weighted for the proportion of customers on 'regular' and green power offers.
  - Using the median offer

    In Part A of the CME analysis, CME chose the median offer of each retailer (in terms of the bill that a 4000 kWh customer would incur on the offer), weighted by the market share of each retailer as the representative market offer to be used in quantifying the gross margin.

    The use of a median price implicitly assumes (among other things) that there are as many people on worse offers as on better offers. This is unlikely to be an appropriate assumption given that according to research undertaken for the Thwaites review itself, switching is primarily motivated by the desire to get a lower price.
  - The assumption made about the discounts available and achieved by customers

    In Part of its analysis, CME assumes that half the customers are on market offers through which they receive conditional and unconditional discounts, and the other half are on offers that only provide unconditional discounts. This assumption rests on a number of considerations about the number of customers that switch annually, how long the typical customer remains with a given retailer and the benefit period (the duration for which benefits are available) in a typical market offer.

Our analysis suggests the switching rate used in this set of considerations is likely to be materially understated. This is based on published data from AEMO and the fact that the CME analysis does not appear to have adjusted the switching rates it uses for the fact that (a) they include customers on standing offers, and (b) they did not include new customers, the majority of whom will likely be on market offers with active benefit periods. By not accounting for these matters, CME reduces the proportion of customers on discounts which results in an overstatement of the gross margin.

It is also worth noting the sample of customer bills that was collected as part of the research undertaken for the Thwaites review offered information on the exact nature of those discounts contained in the offers that 686 residential customers were on as at 31 May 2017, and the proportion of customers that achieved conditional discounts at least for the months for which bills were available. This could have been used to provide some real-world behavioural data on the distribution of various types of discounts in the market offers customers are on, and the extent to which those discounts are reducing customers' bills.

- Using the median duration of market offers to determine wholesale price

  The use of the median duration of offers has an impact on the wholesale price that was used in the analysis of the retail gross margin.

  There is no statistical reason to use the median, and the information presented in the CME report indicates that the distribution of market offer durations is significantly skewed such that the average market offer duration is materially shorter than the median market offer duration.

  The use of the median (which is of a longer duration than the average) pushes back the point in time of the wholesale price used. Given the fact that wholesale prices have risen relatively significantly since the beginning of the year, a longer duration will reduce the impact of those increases, and increase the apparent retail gross margin.

- It is not clear that CME has taken into account the impact of losses on retailers' cost structure

  The CME report makes no mention as to whether or not it has accounted for the cost the retailer pays for energy losses[2]. On the assumption that it hasn't, it would mean that a customer that consumes 4000 kWh requires an additional amount of energy to be generated and paid for by retailers to account for the losses (typically somewhere in the range of 5% to 8% depending on the location of the customer) that occur in delivering that energy over the transmission and distribution systems.

2 The CME report follows on from the Jacobs report's calculation of wholesale costs. However, as noted on page 40 of the Jacobs report, Jacobs did not include losses in its calculation of wholesale costs.

- We note that CME's analysis of customers within the relevant consumption range (i.e., 4000kWh) in Part B of its report reflects only 36 customers' bills, which is obviously a very small sample. The specific details (in terms of discounts applicable, applicable retailer and distribution region) of those specific customers has not been published, so it is difficult to comment on the specifics of the customers that make up this sub-sample. Even assuming that these 36 customers are a representative sample, in terms of the retailers that serve them, there is still a risk that the market offers that those 36 offers are on are not actually representative of the offers the other over 2 million residential customers are on. For example, how many were on green power? How many were on more favourable market offers than non-favourable offers, and does this align with the broader distribution across the entire population? Without some form of calibration, the figures reported as the gross margin for a 4000 kWh customer are difficult to place significant weight on.

- Factual errors in various parts of the calculation

  The CME analysis calculates the impact of several components of the retail bill incorrectly as discussed below.

  - The CME analysis spreads the costs of the VEET over the entire consumption base – including large customers. These costs have not been recovered from larger customers to date (though a mechanism to do so in currently being considered). This error reduces the cost of VEET in the representative bill of a small customer, and thereby increases the retail gross margin as calculated by CME.
  - In Part A of its report CME appears to have calculated the impact of network charges on the bill of a residential customer incorrectly. In particular, the CME calculation – as compared to information provided by a Victorian electricity distributor – under-estimates the proportion of the 4000 kWh consumed by a typical residential customer that would be billed at the higher Block 2 rate. This skews this component of the bill lower, thus increasing the retail gross margin.
  - PFiT costs have been spread over the entire consumption base – including large customers. This is incorrect as the PFiT is recovered through NUoS tariffs, and moreover, a number of retailers only recover it from residential and small commercial customers. Again, this tends to reduce the cost of the PFiT in the bill of a small customer, and thereby increases the retail gross margin
  - Each of these choices and errors overstates the retail gross margin. Their combined effect is likely to overstate the gross margin by about 30%.

- Ignoring relevant information that is publicly available including the annual reports of publicly traded retailers (i.e., AGL and Origin)

  The CME report does not refer to the annual report of either Origin or AGL. These documents report the gross margins, operating costs and net profit (i.e., earnings before interest and taxes) of these businesses electricity retail operations. The figures that are presented are subject to an independent audit.

  The gross margin reported by Origin for its NEM-wide electricity retail operations was $254[3]. This was for the half year ended 31 December 2016.

3 Origin Energy, *Operating and Financial Review, For the half year ended 31 December 2016, This report is attached to and forms part of the Directors' Report*, page 16

The gross margin per customer account reported by AGL NEM-wide was $217 for FY17, and $216 for FY16[4].

By contrast, Part B of the CME analysis calculates a gross margin of $423 in Victoria. Combining the CME gross margin for Victoria, AGL's gross margin for its electricity retail operations in the NEM and AGL's customer numbers in Victoria and the other NEM jurisdictions, results in the average gross margin per customer in the other states being $134. Given that AGL also reports its average operating costs per customer as $113, this implies that AGL is operating its retail business for a net profit of about $20 per customer per year in the other states. It does not seem likely that they would do so.

There is no evidence that CME referred to these publicly available reports or reconciled its figures with the figures reported in them.

The AGL Annual Report also notes that its gross margin has been very stable for the past several years, while wholesale electricity costs have increased by 12% in nominal terms since 2012. The Jacobs report shows an even more dramatic increase – of over 100% -- from about $40/MWh in early 2015 to about $85/MWh in April 2017. This would indicate that the retail gross margin has not been the primary cause of bill increases over the past several years.

Conclusions

Our review concludes that the Thwaites review has not provided a sufficiently accurate assessment of the retail electricity market to serve as a basis for policy formulation.

Although a number of the recommendations made in the Thwaites report are intuitively reasonable and build on other efforts that are currently underway, its primary recommendation – implementation of a regulated Basic Service Offer – will likely reduce competition and innovation, and particularly impact the smaller and new entrant retailers that, to date, have offered the lowest prices and a great deal of the innovation in the market. It will also likely undercut the effectiveness of a number of the other recommendations in the report and other initiatives that are already underway in the market.

The ACCC inquiry has access to significantly more and more detailed data on retail costs, revenue (including the effects of discounts) and will therefore be able to provide a more granular analysis of the retail electricity market than that available from the Thwaites review.

4 AGL Energy, *FY17 Full-Year Results,* 10 August 2017, page 19

1. Introduction

1.1. Scope of this review

Oakley Greenwood (OGW) was commissioned by the Australian Energy Council to provide an independent review of the Victorian government's *Independent review into the electricity and gas retail markets in Victoria*, which is referred to throughout this report as the Thwaites review.

Specifically, we were engaged to:

- Review the research underpinning the Thwaites report, which was to comprise a critical review of particularly the Jacobs, CME and CSIRO reports with a lesser focus on the Newgate report.

  This review was to focus on the robustness of the data, assumptions, methodology and analysis that the Thwaites report relied upon in developing its findings and recommendations, including:

  - Did the research use the right/best data?
  - What assumptions were used and are they appropriate?
  - Was the methodology that was used appropriate?
- Review of the Thwaites report itself. This review was to:
  - Assess the Thwaites report, in particular the potential ramifications, in both the short and long-term, of implementing the key recommendations
  - Assess the link between the findings and recommendations, (e.g., were the findings of the CME and Jacobs report used correctly?)

1.2. Overview and limitations of the approach

The study was undertaken through:

- a detailed review and assessment of the data, methodologies and calculations undertaken in the research that served as inputs to the Thwaites review,
- consideration of other data sources and approaches that could have been used, and
- a critical assessment of the nature and implications of the recommendations provided in the Thwaites report, both singly and in combination, and the process by which they were developed and evaluated.

This review was commenced on 23 August 2017, so was limited to a relatively short timeframe. It was undertaken without access to any of the spreadsheets, models or data used in the research underpinning the Thwaites review. We had access only to the PDF versions of the research and Thwaites reports that were available from the DELWP website. This has meant that we have had to draw conclusions about the methodologies, assumptions and approaches adopted in the various reports based purely on what has been described in these reports. Where these reports are inaccurate, or fail to mention certain adjustments that have been made in order to derive a certain input used in their analysis, we have been unable to take this into account in our response

1.3. Structure of this report

The remainder of this report is structures as follows:

- Section 2 provides an assessment of the Thwaites report itself, including:

- the criteria used to assess whether the competitive energy market is delivering outcomes in the best interests of consumers; and
- Recommendations 1 and 2 put forward to the Victorian government by the Thwaites report.

- Section 3 provides an assessment of the work undertaken by Carbon and Energy Markets (CME) in estimating the gross margin that characterises the market offers available to residential customers in the retail electricity market. This is a central concern to the Thwaites review, and as a result we devote considerable attention to CME's analysis of it.
- Section 4 provides brief comments on the Jacobs report which provided the current and forward contract prices which are an important input to CME's analysis of the retail gross margin.
- Section 5 provides brief comments on the CSIRO report which appears to have been influential in assisting the Thwaites review identify policy and program initiatives it recommended to the Victorian government.

1.4. A note on terminology

Although they are not separately itemised, a residential electricity bill is comprised of the following components:

1) Wholesale electricity costs
2) Network charges, which include charges for the use of the transmission system, use of the distribution system, and metering charge
3) The retail portion of the bill, which is comprised of:
   a) Policy costs that are collected in the retail portion of the bill, which in Victoria include the costs of the Victorian Energy Efficiency Target (VEET) and the Commonwealth government's Large-scale Renewable Energy Target (LRET)
   b) The internal costs of running the retail business (billing, call centre, marketing and acquisition, and hedging)
   c) Profit margin.
4) GST

The Thwaites review uses the term 'retailer's charge' to refer to the sum of items 3b and 3c. This report refers to the sum of those items as the retail 'gross margin'.

2. Comments on the Thwaites review report

This section of the report reviews the *Independent Review into the Electricity & Gas Retail Markets in Victorian* (August 2017), hereafter referred to as the Thwaites report.

In particular, we comment on

- The criteria used in the report to assess whether the competitive energy market in Victoria is or is not delivering outcomes in the best interest of consumers (as enunciated on page 23 of the Thwaites report), and
- The content and implications of the recommendations reached in the Thwaites report.

Where appropriate we also comment on elements of the research on which the Thwaites report based its conclusions and recommendations. Further discussion of several of these research reports is presented in later sections of this report.

2.1. Comments on the criteria used to assess whether the competitive energy market is delivering outcomes in the best interests of consumers

The Thwaites review cites the following criteria as evidence that the competitive energy market is not delivering outcomes that are in the best interests of consumers:

- *significant increases to energy prices;*
- *a retail charge that is significantly higher than retail costs that would be incurred in a regulated or efficient market;*
- *significant differences between the cheapest offers available in the market and the prices that consumers are actually paying (even with their existing retailer) - suggesting that competition is not effectively constraining the pricing behaviour of retailers; and*
- *large increases to the fixed component of retail bills that do not reflect underlying changes to network tariffs, and the failure of the market to deliver low (or zero) fixed charge products for consumers.*[5]

Table 1 below provides comments on those criteria and the evidence presented in relation to them.

Table 1: Assessment of the criteria used as to why outcomes are not in the best interests of consumers and the evidence presented regarding them

Criteria used	Comment
Significant increases to energy prices	The only time-series analysis undertaken as part of the Thwaites review work appears to be the Jacobs analysis, which focused on de-composing the standing offers, *not* market offers.

5 Thwaites report, page 23.

Criteria used	Comment
	We note that less than 10% of customers are on standing offers, hence they have limited relevance to any assessment of the broader market. The Thwaites report itself notes that since "prices were deregulated in 2009, the existence of standing offers has become increasingly irrelevant and may have contributed to some of the issues in the current market"[6]. Neither the Thwaites report nor the Jacobs report presents any evidence that gross margins on *market offers* have, on average, been increasing. More pertinently, the publicly available empirical (and audited) information reported by both Origin and AGL in their annual reports indicates that retail gross margins for electricity (across their NEM-wide customers) have been relatively stagnant, whereas wholesale margins have increased materially in the last year. For example, on page 16 of "AGL Energy FY17 Full-Year Results" (10 August 2017), AGL reports that "Consumer Margins" in electricity increased from $463m (FY16) to $485m (FY17), or 4.7% in nominal terms, whereas wholesale margins increased from $1,383m (FY16) to $1,549m (FY17) or 12% in nominal terms.
A retail charge that is significantly higher than retail costs that would be incurred in a regulated or efficient market	This appears to be based on the work undertaken by Carbon and Energy Markets (CME). In our opinion, the CME report contains a number of methodological errors and erroneous assumptions that are likely to lead to a systemic over-estimation of the retail gross margin in Victoria. The major issues in this regard relate to: ■ Incorrect assumptions regarding the types of customers the VEET scheme applies to, which depresses the amount of the scheme's costs that CME assumes is recovered from residential customers. ■ An incorrect methodology for determining how the costs of the Premium Feed-in Tariff (PFIT) are recovered, which reduces the costs assumed to be recovered from residential customers. ■ In part A of the CME report, inconsistent assumptions as to the amount of energy that would be consumed in block 1 and block 2 by a 4000kWh customer in AusNet Services' service territory, as compared to the data AusNet Services has published in their Annual Pricing Proposal. This leads to an underestimate of the weighted average network tariff applicable to Victorian customers. Even absent this, we are unable to reconcile CME's calculations with our own calculations, and again, CME's result is lower (hence leading to a higher retail gross margin). ■ CME's use of a median offer duration period (of 5 months) to determine wholesale costs, despite stating that the median is actually 4.5 months, and more importantly, despite the distribution of market offer durations being clearly skewed towards a much shorter duration period (i.e., they are not normally distributed). The use of the median, instead of the average, materially depresses the wholesale costs that are assumed to be reflected in CME's retail charge. This appears to be further compounded by the fact that the CME report does not mention making any allowance for losses in its calculation of wholesale costs, and

6 Independent Review into the Electricity and Gas Retail Markets in Victoria, page 55,

Criteria used	Comment

- In part A of the CME report, the switching rates quoted for customers on market offers are below the most recent actual switching rates published by AEMO, and are applied to an incorrect customer base, given the purpose of the calculation. In relation to the latter, the switching rates quoted appear to relate to all customers, rather than being characteristic of those customers on market offers (which is the underlying purpose of the calculation). There are also a number of other areas of concern in relation to this calculation, which, if rectified, would lead to significantly more customers being assumed to be receiving discounts than what CME has assumed, and hence a significantly lower retail gross margin.

We note that every one of these assumptions and errors leads to a systemic over-estimation of the retail gross margin in Victoria. We note that if the adjustments we believe are warranted are made, the retail gross margin would be reduced materially as compared to the figure calculated by CME. These issues, as well as others identified, are discussed in more detail in later sections of this report.

A further material concern we have with Part A of the CME report is that it weights each retailer's *median* market offer by market share[7] to determine the 'representative' retail bill. We believe that the use of the median offer is unlikely to be appropriate for this purpose, given the objective of the analysis would appear to be to determine the retail gross margins that are generated by retailers, not the retail gross margins that are generated by their median offers. For CME's approach to align with what we understand the objective to be, CME must implicitly assume that each retailer's customers are normally distributed around the mean (i.e., the mean and median are the same). Conceptually, this makes little sense in a competitive market, where we know at least 30% of customers are switching retailers, presumably with the primary aim of achieving a lower price[8]. Moreover, reliance on the median market offer fails to have regard for the potentially different service offerings that are being provided across the suite of offers. In particular, a review of data in the government's Victorian Energy Compare website for a number of retailers' offers in one distribution area reveals that:

- A significantly higher proportion of the "worst" (in dollar terms) 50% of offers provided the customer with the ability to take up green power, as compared to the "best" (in dollar terms) 50% of offers. For example, for a 4000 kWh customer in the Citipower region, EnergyAustralia provided 24 offers, and of the 12 best-priced offers, 6 provided customers with the ability to take up some percentage of green power, whereas every one of the 12 worst-priced offers provided customers with the ability to take up green power. A similar pattern was observed for Origin Energy: out of a total of 72 offers in the Citipower area, 23 of the 36 (63.9%) best-priced offers included a green power option, whereas 31 of the 36 (86.1%) worst-priced offers did.

7 CME also weights offers by distribution region, and by discount/no conditional discounts. We provide additional comments on those aspects of the CME methodology in Section 3.

8 AEMO, *National Electricity Market Monthly Retail Transfer Statistics*, July 2017 and comment on page 9 of the CSIRO report.

Criteria used	Comment
	Importantly, it is our understanding that green power appears to make up only a small proportion of customer accounts. For example, Origin, which we understand has the largest number of green power accounts, has previously stated that around 200,000 of its 2.7 million customer accounts (or around 7%) are on green power[9].
	Quite simply, if the number of customers on green power is low, yet green power offers make up a higher proportion of higher price offers, using the median of all of the market offers (which we assume CME has done as it has not mentioned filtering out green power offers) will over-estimate the average retail price and the subsequent retail gross margin.
	Put another way, green power is essentially a niche product. Given that, including green power offers in the available offers that customers are choosing from is inappropriate (and will tend to increase the average bill, given that the bill associated with green power offers appears to be skewed to the higher end of all offers)
	In relation to Part B of CME's report, the reported gross margins appear to be based on a sample of around 36 customers. Even assuming that that these 36 customers are a representative sample, in terms of the retailers that are represented, there is still a risk that the market offers that those 36 offers are on are not actually representative of the offers the other over 2 million residential customers are on. For example, how many of these customers were receiving discounts? How many were on green power? How many were on more favourable market offers than not, and does this align with the broader distribution across the entire population?
	Without some form of calibration, the figures reported as being the gross margin for a 4000 kWh customer are difficult to place significant weight on. This is further compounded by CME's reliance on a number of the input figures it has used in Part A of its analysis that we believe may be incorrect (for example, VEET scheme costs, PFIT costs and wholesale costs).
	Finally, there appears to be no attempt to reconcile any of the analysis with the financial information reported by retailers. For example, AGL reports its gross margin per customer as $217 in FY17, and $216 in FY16[10]. Whilst these are NEM-wide figures, if the CME result of $423 were in fact correct, then based on the gross margins reported by AGL and its customer numbers in each of the states, AGL's gross margin in Victoria would have to be around 315% of that in NSW, QLD and SA (where the gross margin per customer would average $134.50). Given published retail prices in these jurisdictions, this does not appear to be realistic.

9 Origin Energy, *Submission on draft Program Rules Version 10*, 29 February 2016.

10 AGL Energy, "*FY17 Full-Year Results",* 10 August 2017, page 45.

Criteria used	Comment
Significant differences between the cheapest offers available in the market and the prices that consumers are actually paying (even with their existing retailer) – suggesting that competition is not effectively constraining the pricing behaviour of retailers	In almost all markets, there will be a range of prices reflecting various factors affecting the supply and demand for that product or service. This occurs even for the most "commoditised" of products, from bread (think how much a loaf of bread costs at a franchise such as Brumbies and Bakers Delight as compared to the local corner store), to insurance (medical, car, house and contents), to banking products such as mortgages; almost every market exhibits a similar attribute. For example, a recent search for car insurance showed very similar features (dispersion between low and high cost prices) to those reported by CME for electricity. In particular, we used the ISELECT search engine to assess the costs of taking out comprehensive car insurance for a 2014 Holder Cruze. The quotes ranged from $659.25 (Budget Direct), through to $782.17 (Virgin Money) – a difference of close to 20%. All 7 quotes had excesses of either $800 or $850, so differences in this level of service would not have materially contributed to the difference. The median price was $774.21 (AI Insurance), or 17% more than the least cost provider. Now we are not suggesting that the above analysis constitutes anywhere near a comprehensive review of the car insurance market, nor even of the offers available for this specific quote (NB: If we extended the search beyond just ISELECT, the range would almost certainly have been even larger). However, it provides a relatively simple demonstration of the fact that similar features are exhibited in other markets.
Large increases to the fixed component of retail bills that do not reflect underlying changes to network tariffs, and the failure of the market to deliver low (or zero) fixed charge products for consumers.	The Thwaites report appears to take retailers to task for the amount of their costs that are recovered via the fixed charge and the fact that the fixed charge portion of the bill has increased. The Thwaites report states that the fixed charges in the retail bill do not reflect underlying changes to network tariffs, and that "the retail component of the fixed charge has increased faster than the network fixed charge"[11]. It also notes the "failure of the market to deliver low (or zero) fixed charge products for consumers"[12]. Interestingly, the Jacobs report clearly notes that the majority of a retailer's costs are fixed (i.e., they do not vary with energy consumption)[13]. This is consistent with our understanding of retailers' cost structures. In addition, economic efficiency is actually maximised when a retailer moves to a pricing structure that reflects this cost structure. It is also worth noting that the pricing principles that underpin the Distribution Pricing Rules which are enshrined in the National Electricity Rules specify the setting of cost-reflective variable charges, and the recovery of fixed costs and sunk costs in a non-distortionary way (which is operationalised via the adoption of a fixed charge). The move by retailers to recover more of their fixed costs through the fixed charge – which the Thwaites report criticises – is in fact leading to more cost-reflective retail variable charges (i.e., the retail variable charge now better reflects the marginal cost to a retailer of supplying an extra unit of energy), which incentivises consumers to make efficient consumption and investment decisions.

11 Thwaites report, page 13.

12 Ibid., page 23.

13 See for example the discussion on page 98 of the Jacobs report.

Criteria used	Comment
	Conversely, setting variable charges that do not reflect the marginal cost of supply will lead to inefficient consumption and investment decisions, raising the cost of supply to all customers in the long-run. Finally, there are good commercial drivers for retailers to move to more cost-reflective retail variable charges, as this minimises their volumetric risk (as variable revenue fluctuates in line with variable costs), hence minimising profit volatility. Quite simply, the Thwaites report takes issue with something that, from an economic perspective, should be supported, and something that will benefit all consumers in the long-term.

2.2. Comments on key recommendations in the Thwaites report

The Thwaites report makes eleven recommendations.

The following sections provide comments on recommendations 1 and 2, which are the key recommendations in the report.

2.2.1. Comments on Recommendation 1: the Basic Service Offer

Recommendation 1 would "require all retailers to provide a Basic Service Offer that is not greater than a regulated price, based on annual usage, to be determined by the ESC".

In implementing the regulated price, the Thwaites report recommends that:

- The regulated price should be based on the efficient cost to run a retail business;
- The regulated price should include an allowance for a maximum retail profit margin; and
- The regulated price must not include customer acquisition and retention costs or headroom.

This recommendation brings up several issues of concern, as described below.

Issue 1: The Basic Service Offer will likely result in a significant reduction in retail competition

There is a real risk that the introduction of a Basic Service Offering, in the form proposed by the Thwaites review, would regulate the smaller retailers operating in Victoria out of existence. This is because:

- the Basic Service Offer would reflect the "efficient costs to run a retail business", and, if the Thwaites report is correct, Tier 1 retailers are likely to have lower cost structures than other retailers[14] due to their economies of scale. Presumably, this means that one of their cost structures (or a theoretical construct of that cost structure) would be used to derive the basic service offering, thus pricing smaller retailers out of the market[15], and
- the Basic Service Offer as recommended would exclude any customer acquisition costs (e.g., marketing costs), which would limit the possibility of a smaller retailer executing what has become a popular strategy: to accept lower returns in the short term in order to attract new customers, with a view to bringing down their average cost (per customer) to serve in the longer-term.

Moreover, the introduction of a Basic Service Offering is likely to reinforce the Status Quo bias cited by CSIRO (this is discussed in more detail below), which would be to the dis-benefit of smaller retailers.

In short, the Thwaites report's commentary around cost structures (i.e., that Tier 1 retailers have lower cost structures), when combined with its proposed approach to regulation and its likely reinforcement of the Status Quo bias, will almost certainly lead to a significant diminishment in retail competition, and potentially the establishment over time of an oligopoly. In doing so, the proposal actually penalises the smaller Tier 2 and Tier 3 retailers, as they are the ones who would be likely forced out of the retail market under this approach, yet they appear to have been the ones who have innovated the most and delivered the most benefits to the market since deregulation, and in doing so, have captured around 38% of the market. It should also be noted that, by extension, such an outcome would have broader ramifications for the national retail market, given the national presence of most retailers, and the already mentioned issue of economies of scale.

14 For example, the report states that: "*The Victorian electricity retail market has three large Tier 1 retailers, four medium Tier 2 retailers and 18 small retailers. The three Tier 1 retailers are vertically integrated 'gentailers' that generate electricity as well as retail it. They have significant market advantages over their competitors, including large pre-existing customer bases, established systems, and the ability to obtain lower cost wholesale energy and renewable energy certificates. The large retailers also have lower customer acquisition and retention costs as they have customers to lose rather than customers to gain. The cost difference between large and small retailers appears substantial*".

15 Further to the first point, if the ESC did simply pick the cheapest retailer in the market (or a theoretical construct of that retailer), then this implicitly assumes that that retailer would be able to scale up its business to service the entire Victorian market, without incurring any diseconomies of scale (i.e., without its unit costs increasing). This effectively assumes that the existing, cheapest retailer's unit costs, are a reasonable reflection of the unit costs of serving the marginal Victorian customer.

Whilst the Thwaites report acknowledges that "regulation of prices may reduce competitors in the market", it justifies this by saying that "however, the counter point is that the expansion of market competitors in Victoria has not reduced energy retail prices"[16]. First, it is not clear that the Thwaites report fully appreciates the fact that its proposal is very likely to deliver a significant advantage to the very retailers they take most issue with throughout their report – the Tier 1 retailers. Second, the Thwaites report provides no substantive empirical analysis to support the statement that prices would have been lower in Victoria had there been no retail competition. In particular, no counter-factual case (i.e., without competition case) has been analysed. The only "evidence" appears to come from the CME report, which, on face value, shows higher retail gross margins in Victoria. However, as was mentioned earlier and is discussed in detail in a later section of this report, in our opinion there are numerous incorrect or highly questionable modelling assumptions that are likely to materially skew the results of the CME analysis towards producing a higher retail gross margin.

Issue 2: The Basic Service Offer is likely to reduce innovation, at a time when the prospects for advancements in innovation are likely to be increasing

One of the supporting principles espoused by the Thwaites report is that a *"competitive market is likely better placed to respond to changes in the energy sector and new technologies"*. We completely agree with this.

Whilst the Thwaites report indicates that it believes different price/service trade-offs will still be enabled under the Basic Service Offer, in our opinion, this is an unlikely outcome.

This will reinforce issues around the status quo bias, which the CSIRO describes as follows:

> *"Much of people's behaviour is habitual, and people typically prefer doing as they have always done. As a result, people often retain default options rather than instigating change. This effect occurs even in instances where the alternative choices are 'rationally' preferable, because people prefer familiarity and predictable outcomes over unproven new alternatives"*[17]

In the future, various new or more advanced price/service offers could potentially be provided by retailers. These include:

- integrated on-site energy services such as PV/battery,
- embedded networks in new developments,
- peer-to-peer energy trading,
- centralised back-up power to customers who place a high reliance on onsite energy provision (PV/Battery),
- network support services, through either the aggregation of services beyond-the-meter from end customers or through having equity stakes in beyond-the-meter assets, and
- reliability services to the wholesale market.

These will be driven by amongst other things, technology changes such as lower costs for distributed energy resources, a richer suite of available information being readily available (e.g., a better understanding of smart meter information, and how it can be used) and a change to market arrangements. These are all factors that have not been in evidence until quite recently, hence why they have not manifested to any material extent up until now in the competitive market.

16 Thwaites report, page 55.

17 CSIRO report, page 8.

In short, the Thwaites report's Basic Service Offer, which is likely to reduce competition and reinforce the impact of status quo bias in the market, would significantly diminish the incentive for innovation in the market. This would come at a time when there are developments in the marketplace that should have the effect of increasing the scope for innovation and the offering of different price/service offerings.

Issue 3: The Basic Service Offer may penalise the approximately 38% of customers who have moved to a Tier 2 or Tier 3 retailer

The Thwaites report states as a principle that "*passive consumers should not be blamed for not navigating the retail energy market*". In operationalising this via the introduction of a Basic Service Offer, the Thwaites report is likely to penalise those customers who are on a better deal (including the 38% of residential customers who have already moved to second or third Tier retailers), or the 30% of customers who are willing to invest the time and effort to seek out a better deal every year.

Issue 4: The Basic Service Offer imposes a threshold test on the retail electricity market that has not been imposed on other markets

The Thwaites report appears to be concerned that:

- there is a range of offers at different prices (i.e., there is an upward sloping supply curve),
- the offers available from certain providers appear to be consistently higher than others, and
- too many market offers are available, and this is confusing the consumer and making it difficult to effectively engage in the market.

In almost all markets, there will be a range of prices, even for relatively commoditised products. From bread (franchises such as Brumbies and Bakers Delight are likely to charge different prices as compared to the local corner store), to insurance (medical, car, house, contents etc), to banking, almost every market exhibits some of these same attributes.

Issue 5: The Basic Service Offer disregards the impact that regulatory risk imposes on the industry and customers

The introduction of a Basic Service Offer would require the ESC to set a regulated price, based on certain prescribed principles.

On face value, this seems feasible and easy, yet, as acknowledged in the Thwaites report, the energy industry is exceedingly complex, and very dynamic.

An example of the complexity is illustrated in the CME report. Even disregarding any errors in that report, CME (quite rightly) have had to make numerous assumptions to come up with an average or representative retail gross margin. Small changes in any one of those assumptions could have changed the result materially. The same complexities will confront the ESC, in its potential future role in developing a regulated retail bill.

The concern is that one wrong assumption made by a party that has no financial "skin in the game" can have significant consequences for commercial businesses (and their shareholders) and more importantly consumers. At worst, if the ESC were to adopt a suite of assumptions that led to a regulated retail charge that is not commercially viable at the margin, retailers might choose to leave the market.

Furthermore, and importantly, the Basic Service Offer fails to take into account the dynamic nature of the electricity market. Wholesale electricity prices are volatile, and the adoption of a regulated Basic Service Offer fails to account for this. For example, information contained in the CME report indicates that a raft of new market offers was instituted in February through May of this year, even though quite a few offers had been published only a few months earlier at the end of December. This is almost certainly linked to the significant increase in wholesale prices over that short-period. Combined with the requirement that "any prices they [retailer] are offering [remain fixed] for a minimum of 12 months" (as proposed in Recommendation 4A) this could result in those offers including higher risk premiums (we note that while this recommendation provides exemptions in unforeseen circumstance, this only applies to changes in network charges).

Prescribing the adoption of a regulated, presumably annually updated, Basic Service Offer, when retailers are exposed to a volatile, dynamic, wholesale market, imposes significant risk on those businesses (we note that similar factors contributed to the Enron scandal in California in 2001). To manage this risk, retailers may choose to exit the market, or to adopt contracting strategies that seek to mimic the approach (and timing assumptions) used by the ESC in developing its Basic Service Offer. This may occur, even though it is unlikely to be the most efficient solution in all circumstances.

2.2.2. Comments on Recommendation 2: Abolish the requirement for retailers to offer standing offers

We understand the rationale for abolishing standing offers if a Basic Service Offer is introduced. However, as has been discussed above, we believe that a Basic Service Offer should not be introduced. In this context, we believe that some form of Standing Offer should be retained.

If, as a result of this, there are still concerns around the potential implications for the less than 10% of customers who are still on standing offers, then this should be addressed through:

- The tax / transfer system, with customers' eligible for some form of concession (i.e., vulnerable customers) being assisted to move to a better market offer, and
- Leveraging off the package of changes retailers recently agreed to with the Federal Government, including requiring them to write to customers on such offers to let them know they may be able to obtain a better detail, and to direct them to Government comparison websites.

In addition, the Thwaites report does not deal with how a Basic Service Offer would operate in place of the Standing Offer in terms of the consumer protections it represents. The Standing Offer currently includes broad terms and conditions (as found in the Retail Code), such as customer entitlements to paper bills and payment in person. This reflects the role of a Standing Offer to deliver supply to a small customer on fair terms even before that customer has engaged with a retailer or provided explicit informed consent to enter a market contract. These deemed terms and conditions are deliberately broad to protect customers who have not yet made choices about the terms on which they would like to receive their electricity.

3. The CME report

CME provided two reports to the Thwaites review:

- *The retail electricity market for households and small businesses in Victoria, Analysis of offers and bills* (electricity report), and
- *Victorian retail gas market for residential and small business customers, Description and analysis of commonly available offers* (gas report).

Both reports examine the retail offers that are available to residential and small energy consumers, but the electricity report also includes an analysis of a sample of bills that were collected as part of the market research undertaken by Newgate Research.

This section of our report provides comments on the electricity report. We have concentrated on the electricity report for three reasons: (a) the fact that it includes an analysis of actual bills as well as an assessment of available offers, (b) there is significantly more concern at present with electricity bills than gas bills, at least among residential and small business customers, and (c) while gas is an important energy source, alternatives to its use exist for almost all residential and small business end-use applications.

Comments are provided on the following aspects of the CME electricity report:

- characterisation and assessment of the offers available in the retail electricity market;
- specific errors in the calculation of several components of the retail bill; and
- analysis of a sample of customers' bill.

Comments are further split out between Part A versus Part B of the CME report.

3.1. Discussion of Part A

3.1.1. Characterisation and assessment of the offers available in the retail electricity market

Methodological approach

As noted in the Thwaites report, CME constructed a representation of the annual bill that a residential and a small business customer would incur by:

> *selecting each retailer's median market and standing offer for each network area, and weighting each offer by the number of customers on standing and market offers for each retailer, as well as weighting offers from each distribution network area based on customer numbers. The estimate also assumed that 50 per cent of consumers receive conditional discounts and 50 per cent do not.*[18]

The median offer was selected from those that were available in the market in May 2017.

Elsewhere in the report, it is made clear that:

- the distribution of customers in terms of number and consumption across the offers is not known;
- the distribution of customers across offers that differ with regard to the discounts they offer and their actual receipt of the available discounts within each offer is not known
- the number and nature of other incentives that customers may have received when taking up an offer is not known.

18 See footnote 17 on page 11 of the Thwaites report.

The CME report makes assumptions and choices in selecting point estimates for each of these unknown distributions in constructing the representative offer, calculating an annual bill and then disaggregating that bill into its component parts, with particular emphasis on the retail charge (which is comprised of the retailer's internal operating costs and profit, and is generally referred to as the gross margin).

As discussed in the following three sections, the outcome of the analysis is very sensitive to the choices that have been made regarding the three factors above, and this sensitivity is not discussed in the CME report.

Our view is that this is a serious flaw given the difference in results when different and equally plausible assumptions are made, and the fact that the analysis is being used not only to characterise the entire market, but to serve as the basis for policy decisions that will affect all consumers – and could have impacts that could vary widely for different customer subgroups, the size and composition of which are unknown.

In our view, some other approach – perhaps made up of a series of customer types – would have been a better basis for assessing the composition of the bills of residential and small business customers and whether and what policy actions would be appropriate.

Which market offer is used

On page 35 of the CME report, CME states that:

> *The estimate of the price on Standing Offers uses the median offer of each retailer. The estimate [of] the price in Market Offers uses a weighted average of the median price assuming that half of all customers on Market Offers receive all conditional and unconditional discounts, and that the other half are on offers that receive only unconditional discounts*[19].

Our view is that this approach creates a substantial risk of error[20]. In particular, if a retailer's customers are *not* normally distributed around a mean retail offer, then the median and mean will be different. For example, if one assumes that customers are more likely to be on one of a retailer's more attractive offers, then the actual average retail gross margin achieved by that retailer would be less than the retail gross margin that is produced by the retailer's 'median' market offer. Conceptually, this is more likely to be the case in a competitive market, where we know at least 30% of customers are switching retailers primarily to achieve lower prices.

Moreover, reliance on the median of all of a retailer's market offers fails to have regard for the potentially different service offerings that are being provided across the suite of offers. In particular, based on a recent review of data in the government's Victorian Energy Compare website for a number of retailers' offers in one distribution area, we observed that a significantly higher proportion of the "worst" (in dollar terms) 50% of offers provided the customer with the ability to take up green power, as compared to the "best" (in dollar terms) 50% of offers. For example, for a 4000kWh customer in the Citipower region, EnergyAustralia provided 24 offers, and of the 12 best-priced offers, 6 provided customers with the ability to take up some percentage of green power, whereas every one of the 12 worst-priced offers provided customers with the ability to take up green power. A similar pattern was observed for Origin Energy: out of a total of 72 offers in the Citipower area, 23 of the 36 best-priced offers (63.9%) included a green power option, whereas 31 of the 36 worst-priced offers (86.1%) did.

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19 CME report, page 35.

20 This section considers the potential errors introduced by the use of the median offer. Potential errors introduced by the assumption made in the CME report regarding the proportion of customers receiving discounts is discussed below.

Importantly, it is our understanding that green power comprises a small proportion of customer accounts. For example, Origin, which we understand has the largest number of green power accounts, has previously stated that around 200,000 of its 2.7 million customer accounts (or around 7%) are on green power[21].

If the number of customers on green power is low, yet green power offers make up a higher proportion of higher price offers, then using the median will over-estimate the average retail price and the subsequent retail gross margin. This would seem to be the case in regard to market offers given the fact that one of the primary reasons customers switch to these offers is to get a lower price.

In sum, it is difficult to understand why one would assume that the median offer is the most likely to offer an accurate representation of the market, particularly if it does not filter out offers with different service characteristics. To do so requires that we believe there is an equal probability of a customer being on the least-cost offer as on the absolute highest cost offer, an equal probability of a customer being on second least-cost offer and second highest cost offer, and so on.

Overall, in our opinion, the use of the median market offer is unlikely to be fit for the current purpose.

A fit-for-purpose approach would include disaggregation of the dataset into those with green power features, and those without, and weighting these by the number of customers on those different types of market offers. The impact of different approaches and assumptions should also be tested . This testing would consider the use of a number of different combinations of assumpions regarding the market offer the customer is on, and the proportion of discounts for which the customer is eligible that are actually received. We consider the impact of this failure to test and disaggregate to be material; without such analyses, it is impossible to accept the analysis in the CME report as being an accurate or representative estimate of gross margins in retail residential electricity bills.

Assumptions regarding discounts

We also consider that the treatment of discounts in the CME aproach creates a bias. CME states on page 35 that it assumes that:

> *half of all customers on Market Offers receive all conditional and unconditional discounts, and that the other half are on offers that receive only unconditional discounts.*

In footnote 6, CME states that:

> *This approach is equivalent to assume* [sic] *that in the market half of customers receive discounts equivalent to the offers made to new customers and the other half have either lost their discounts as their introductory discounts have lapsed or they or have failed to meet the conditions of the conditional discounts by [not] paying their bills on time.*

The CME report justifies this assumption by stating that the rationale for the 50/50 weighting is as follows:

> *• Data from the Australian Energy Market Operator shows that the typical annual residential switching rate (after excluding new homes in Victoria) is around 15-20% per year.*
>
> *• Assuming this switching rate applies consistently to all consumers, the typical rate at which customers switch suppliers is every 4 to 6.7 years (the inverse of the annual switching rate).*

21 Origin Energy, *Submission on draft Program Rules Version 10*, 29 February 2016.

• This is well beyond the duration of the benefit period of all discounts. Many, probably most, customers will therefore be receiving none or at most some reduced discount (if they were always receiving the full introductory discounts why would retailers make them conditional and restrict them to defined "benefit periods").

• On the other hand, some retailers may not withdraw all discounts at the end of the benefit period and some customers may obtain cheaper offers from their existing retailers without switching.

Firstly, we note that:

- there is a good reason to make some discounts conditional. For example, a pay-on-time discount should logically only be achieved if the customer pays on time, and
- similarly, the use of a defined benefit period can be an appropriate way of recognising that conditions can change.

More specifically, we note that:

- CME's estimate of the "*typical annual residential switching rate (after excluding new homes in Victoria)*" of around 15-20% per year, looks to be materially below current rates, based on several considerations.
  - For example, based on the document: "*National Electricity Market Monthly Retail Transfer Statistics July 2017*", the latest annualised transfer rate (based on the month of July 2017) is closer to 29%. If we look at the difference between July 2016 and July 2017, the number of customers transferred in Victoria over the period was 9,062,271 - 8,286,327, or 775,944 transfers. If we allow for around 50,000 new customers[22], and the number of NMIs being in the order of 2.75 million[23], the switching rate is around 26.4% *for existing customers* (775,944-50,000/2.75m), not between 15-20% as assumed by CME.
  - In addition to the above, simply relying on the AEMO switching rates would, in our opinion, lead to a systemic underestimation of the switching rates of those customers *on market offers*, which is the objective of the calculation. The reason being is that there are around 10% of customers still on standing offers who have never switched. Their inclusion in the calculation brings down the relevant switching rate. Given that CME's methodology only applies the result of this calculation to the determination of the number of customers on *market offers* who are likely to be obtaining discounts, any calculation of the switching rate needs to remove the effect of the 10% of customers who are on standing offers and who have never switched. A simple way of doing this would be to reduce the estimated number of NMIs in Victoria by 10% to get 2,475,000 (90%*2,750,000, which reflects an estimate of the number of NMI's on market offers), and then determine the switching rate based on this baseline figure. This comes to 29.33%, or 3.4 years.

22 This is based on the change in the distribution business' customer numbers between 2015 and 2016, as per RIN data.

23 Estimated based on the document: AEMO, *National Electricity Market Monthly Retail Transfer Statistics,* July 2017.

- The above figure does not account for the fact that many existing customers will obtain cheaper offers from their existing retailers without technically switching[24] – a point that CME acknowledges in their report, but does not explicitly account for in its calculations. This could either be because an existing customer rings up their existing retailer, and "threatens" to switch retailers if they are not provided with a better offer, or simply because their research leads them to choose a new offer, but from their existing retailer. The former is a low-cost means of managing one's electricity cost (e.g., a 5-minute phone call), hence it is likely to represent a feature of customers' existing behaviour. If it was assumed that this form of switching represents 2 out of every 10 recorded switches – which is likely to be conservative in our opinion - then the "true" switching rate for those customers on market offers would be more like 35%, or around 1 in 2.85 years.
- Furthermore, in the above adjustments, we subtracted the impact of new customers. In reality, a significant majority of the approximately 50,000 new customers connecting to the electricity system each year are likely to be on market offers that are within their benefits period (because these customers will have been on those offers for less than 1 year), hence approximately 1.8% additional NMIs should be considered as receiving discounts using CME's methodology.

- CME's assumption that half of the customers on market offers receive discounts equivalent to the offers made to new customers, and the other half receive no discounts, is also open to question, given information from the sample data.
  - In particular, we note that in Part B of the CME report, which provides some information about the offers of a sample of 686 residential customers who provided copies of their electricity bills, CME states (see page 52) that around 1/7 (14%)[25] had no discounts. Presumably, this means that the remaining 86% were eligible to receive at least some form of discount, based on the conditions and benefits period associated with their retail offer.
  - Other information reported indicates suggests that 67.5% of those customers are eligible for some type of conditional discount.

In summary, we consider that if CME's original analysis, which reflected a switching rate of 15%-20% (which led CME to assume that 50% of customers are likely to be receiving conditional discounts), is likely to be materially below actual levels. In particular, if the CME methodology were to be updated to reflect a switching rate of 35% for *existing customers on market offers* as well as the likelihood fact that a significant majority of new customers would be receiving discounts for at least the first year, then it must lead to a material increase in the assumption that only half of all customers on market offers are receiving all conditional and unconditional discounts. This will have a material impact on the end result. For example, CME states that:

> *if the conditions are not met, annual charges are typically in the range from $1,300 to $1,500 per year. If the conditions are met, the annual charge is most frequently in the range from $1,100 to $1,200 per year.*[26]

24 According to AEMO, there needs to be a change in FRMP for a switch to be created.

25 In fact, the data table in the CME report suggests that it is actually about 1/8 (12.3%).

26 CME report, page 26

Our interpretation of this is that CME is indicating that if a customer meets the conditions for the available discounts, their bill will typically be $200-$300 less, which, based on the CME methodology, translates into a $200-$300 reduction in a retailer's gross margin[27]. Presumably then, for every 10% increase in the number of customers assumed to be receiving discounts, the average retail gross margin that CME would calculate using its methodology reduces by around $25 (10%*$250, being the midpoint of the bill reductions stemming from the applications of conditional discounts).

Overlaying the information above on CME's original estimate that 50% of customers are likely to be receiving all the conditional discounts they are eligible for and the other 50% are receiving only the unconditional discounts in their offer, our revised estimate would be that between 60% and 70% of customers are likely to be receiving conditional discounts. The mid-point of that range (65%) is 15 percentage points higher than the CME assumption, which would reduce the average retail gross margin by around $37.50 (15%*$250).

3.1.2. Estimate of wholesale costs

On page 38 of its report, CME discusses its decision to choose an offer duration of 5 months.

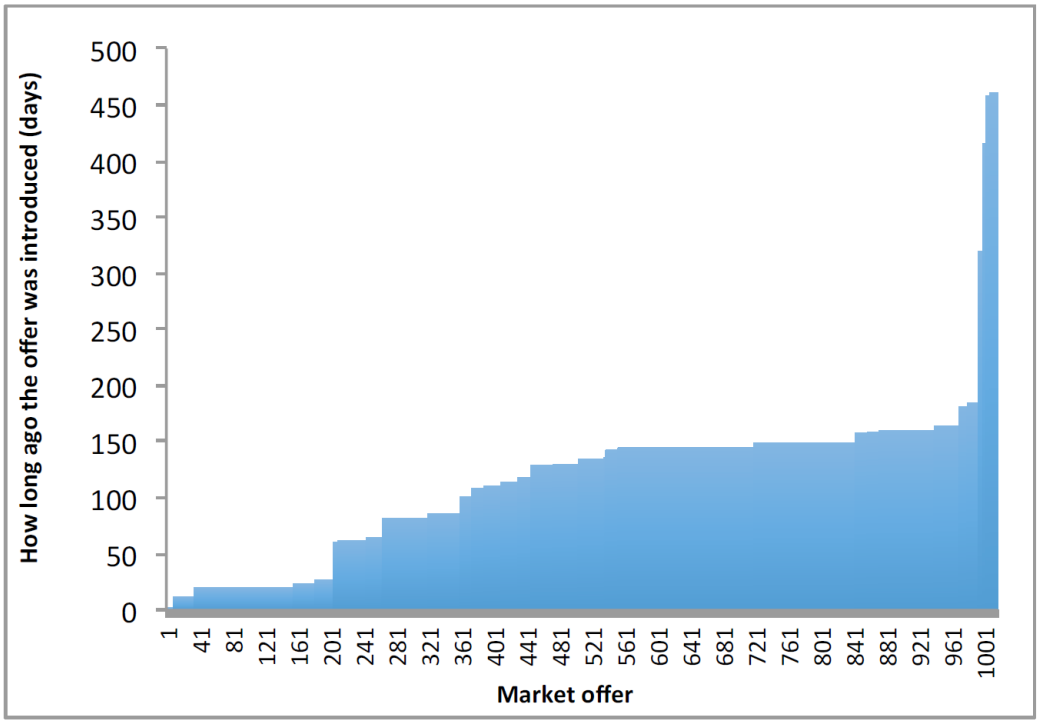
Specifically, CME states that:

> *As at 30 May 2017 the median offer had been introduced to the market 135 days earlier (4.5 months). Three quarters of all offers had been introduced to the market just under 5 months ago. From this information we chose an offer duration of 5 months, in other words that for the purpose of analysing wholesale prices we assume that the market offer for the representative customer was first made available to the market five months back from the end of 30 May.*

CME uses this methodology to arrive at a wholesale cost of $66/MWh.

In support of the above statement, CME provides the following figure which is the "offer duration, all market offers, residential customers at 30 May 2017".

27 In practice, this is not entirely correct, as the discounts are generally associated with a "pay on time" requirement, which has a consequential benefit to the retailer in the form of better cashflow and lower bad debts.



Source: Figure 13, CME report, page 38.

We take on face value, the derivation of the above figure[28].

However, disregarding the essentially unsubstantiated[29] decision by CME to increase the offer period to 5 months relative to the 4.5 month median figure quoted, we believe that there are two other substantive issues stemming from adopting this approach (particularly when combined with some of the other assumptions and methodologies used by CME):

- First, it is clear from the information presented that the distribution of market offer durations is *significantly* skewed (i.e., offer periods are not normally distributed around a mean), therefore, the use of the "median" market offer duration will, based on the data presented, *grossly* underestimate the average market offer duration of the entire dataset; and
- Second, by applying the median market offer duration *of the entire dataset*, to each retailer, implies that the timing of each individual retailer's market offers is distributed in a similar pattern to all market offers available at the end of May.

We also note that the median offer used to assess market offer duration is based on how long each retailer's market offers had been available as at 30 May 2017 – it is not the median offer based on the customer bill that was discussed above.

28 Notwithstanding that there appear to be a different number of market offers reflected in information contained in page 21 of the CME document (1476 on page 21 versus 1017 on page 37).

29 Given that median figures have been routinely used in the rest of the CME report and no statistical significance is provided for the use of the 75% percentile value as a threshold.

Median verus average market offer duration

Without access to the underlying data CME has used, it is impossible to determine exactly what the "average" offer duration is. However, based on the graphical presentation of the data in the CME report (and reproduced above), the average duration is more likely to be around 3.7 months (based on 43% of offers of 155 days duration, 2% at 350 days, 20% at 20 days and 35% at 100 days), not 5 months. Given the changes in the wholesale market around that time, this is likely to have a material impact (see below).

Impact of applying the median of the entire dataset to each retailer

If the distribution of an individual retailer's suite of market offers differs to the overall dataset, then there is a risk that the wholesale cost ascribed to that specific retailer in relation to its median market offer will be incorrect. This issue is likely to be off particular importance, given that CME weights each retailer's median bill by its market share.

So for example, if AGL was more likely than other retailers to have updated its market offers over the first 3 months of 2017, their median (and average) offer period would be of a much shorter duration than the overall dataset. As the forward price of energy rose in early 2017, these higher wholesale costs would be implicitly reflected within AGL's median (and average) market offer, which in turn would have been used by CME to calculate its weighted average retail bill. However, in this example, despite CME's weighted average retail bill being implicitly affected by the higher wholesale costs underpinning AGL's median market offer, these higher wholesale costs (as compared to the median of the overall dataset) are not reflected in CME's wholesale cost analysis.

We also note that the CME report makes no mention as to whether or not it has accounted for the cost the retailer pays for energy losses[30]. On the assumption that it hasn't, it would mean that a customer that consumes 4000 kWh requires an additional amount of energy to be generated and paid for by retailers to account for the losses[31] (typically somewhere in the range of 5% to 8% depending on the location of the customer[32]) that occur in delivering that energy over the transmisison and distribution systems. Weighting the distribution loss factor by residential customer numbers indicates a distribution loss factor of around 7% is likely to be reasonable. Transmission losses vary by location, but are generally significantly lower than distribution loss factors (in the range of close to 0 to 3%)[33].

If losses have not been accounted for, the gross margin analysis in th CME reportwill be inflated by an amount representing the cost of these losses.

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30 The CME report follows on from the Jacobs report's calculation of wholesale costs. However, as noted on page 40 of the Jacobs report, Jacobs did not include losses in its calculation of wholesale costs.

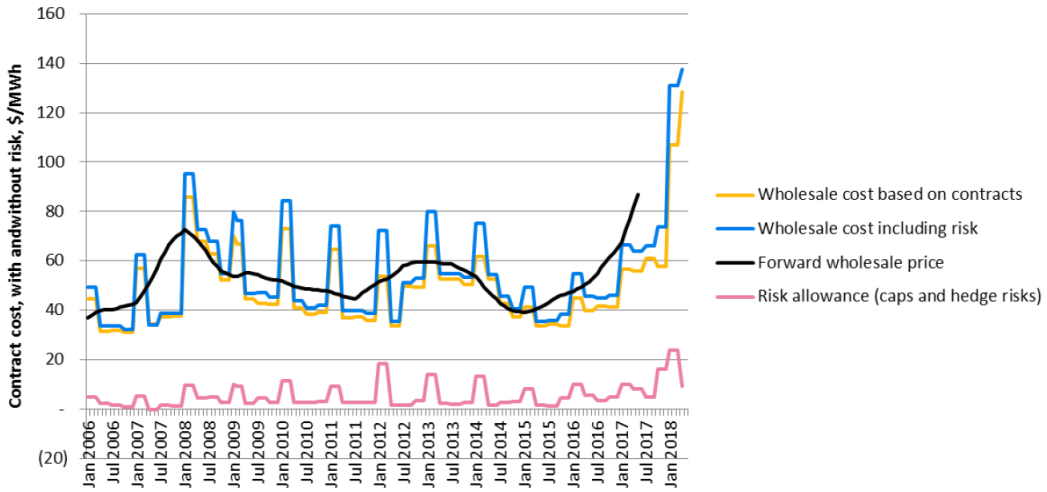
31 More specifically, the retailer pays at the transmission connection point for the energy consumed by its customers in that area. That volume of energy is scaled up for distribution losses and is also adjusted to account the transmission marginal loss factor.

32 It is noted that distribution loss factors are generally highest in the Powercor and AusNet Services areas, the two distribution businesses with the largest customer bases.

33 The ESC's *Minimum Electricity Feed-In Tariff to Apply from 1 July 2017, Decision (Final)*, February 2017 estimates a total network weighted state-wide loss factor of 7.4%.

Conclusion on CME's proposed methodolgy

Given that wholesale prices have materially changed over the first couple of months of 2017, all of the factors discussed in this section are likely to materially affect the result of the CME analysis. For example, looking at the Jacobs' report, which CME utilised to estimate the wholesale costs of serving residential customers, the forward wholesale price spikes up early in 2017 – concidentially just after the cut-off point that CME has used.

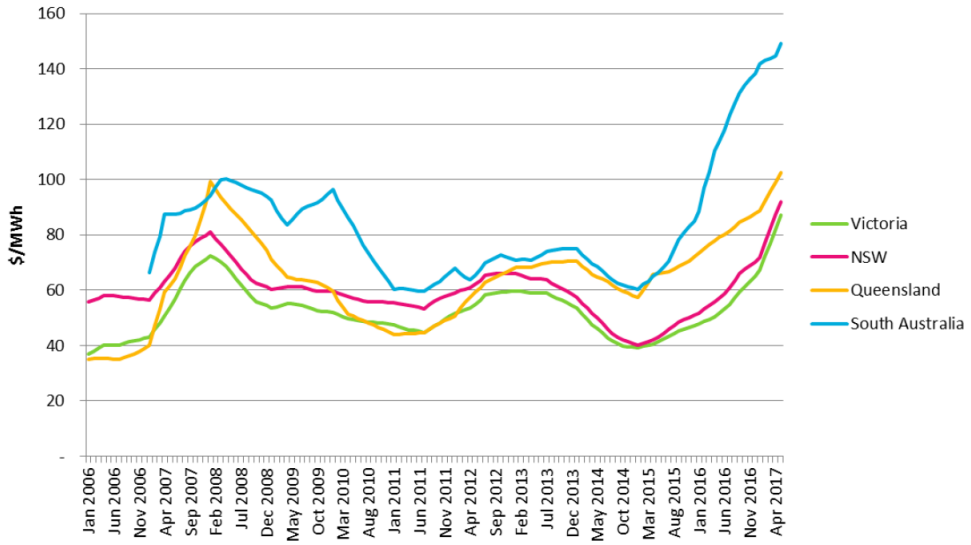


Source: Figure 35, Jacobs report, page 46.

On page 45, Jacobs describes the above figure ('Blended monthly contract and risk value') as follows:

> *'also shows a 'forward wholesale price' which is a load weighted average of the current and following eleven months of the blue series in the chart. It is expected that this series is reflective of the costs retailers may be facing when pricing a retail customer on a forward looking basis. This assumption largely assumes that retailers have been able to hedge most of their load around a year ahead of time. Some retailers may delay hedging larger portions of load in later quarters depending on their risk management strategy'.*

The impact of this assumption on the wholesale price for Victorian customers that is used in the CME analysis is illustrated in Figure 37 of the Jacobs report, which we assume served as the source of information on the wholesale forward costs used by CME.



Source: Figure 37, Jacobs report, page 47.

Based on this, if the average used for the duration of market offers were changed to 3.7 months from the 5 months assumed in the CME report, the wholsale price would appear to be in the order of $78/MWh[34]. This would reduce the calculated retail gross margins by $48 for a 4000 kWh customer, or over 11% (based on the retail gross margin reported in the Executive Summary of the CME report). If this were then also adjusted for losses, it would reduce the gross margin by a further $22 – resulting in a total downward adjustment of $70 for a 4000 kWh customer.

3.2. Specific calculation errors in Part A

3.2.1. VEET scheme costs attributable to residential customers

On page 41 of the CME report states that:

> *This is estimated based on the Victoria Government's 2017 Victorian Energy Efficiency Certificate (VEEC) liability priced at $16 per certificate based [on] the average of the previous 12 months' prices, published by Green Energy Trading, and assuming the cost is spread evenly over the 37 TWh distributed by Victoria's distributors each year.*

The main issue with CME's approach is that it assumes that the cost is "*spread evenly over the 37 TWh distributed by Victoria's distributors each year*". On the basis that the 37TWh reflects all energy distributed by Victoria's distributors, this assumption implicitly recovers the cost of the scheme from ALL customers through a higher volumetric charge. However, recovering the costs of the scheme from all customers is inconsistent with the rules of the scheme that pertained at the time the CME analysis represents (i.e., May 2017) - which was that the scheme did NOT apply to "large users".

34 We note that CME actually used the "average of Jacobs' monthly wholesale price estimates for 10 months starting from 1 January 2017 (5 months back from 30 May 2017)", whereas our understanding of the Jacobs' figure is that this is a load-weighted average of the following 12 months. It is unclear what this would be if this were only 10 months.

For example, in its *Explanatory Note -Large Energy Users' Scheduled Activity Premises* (Version 1.0 – 1 August 2017)[35], the Essential Services Commission states that:

> *Prior to 1 August 2017, premises of large energy users, which were previously registered participants in the Environmental Protection Agency's Environment and Resource Efficiency Plans (EREP) program, were excluded from the VEET scheme. The introduction of amended Principal Regulations on 1 August 2017 provides for new arrangements for these premises (called scheduled activity premises in the Principal Regulations) within the VEET scheme.*

It further states that:

> *Occupiers of SAPs are excluded from the VEET scheme unless they opt-in to the scheme by providing the ESC with effective notification. SAPs which 'opt-in' to the VEET scheme are able to create and register VEECs for eligible upgrades undertaken at their premises. However, premises which 'opt-in' to the VEET scheme also become prescribed customers for the purposes of the definition of scheme acquisition in the Act (i.e. the premises creates a liability for their energy retailer in respect of electricity or gas consumed at the premises) following the registration of VEECs for the premises.*

Whilst it is not entirely clear how many "large users" were excluded from the VEET prior to August 2017, one earlier document[36] published by the Environment Protection Authority (EPA) indicates that around 248 sites met the EREP threshold. Despite their relatively small number, these sites make up a significant proportion of overall usage, so any allocation methodology that utilises total consumption will grossly underestimate the true amount that is recovered from eligible customers.

Furthermore, the proposed approach makes no allowance of the costs incurred by retailers in complying with the scheme. Those costs were estimated in 2012 at $0.76 per certificate[37].

At $16 per certificate, and a requirement to create 5.9M certificates in 2017[38], and a conservative[39] administrative cost of $0.76 per certificate, the overall cost is $98.9M[40].

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35 Available at https://www.veet.vic.gov.au/Public/Public.aspx?id=Home.

36 EPA, "Environment and Resource Efficiency Plans (EREP)", accessed from http://www.epa.vic.gov.au/business-and-industry/lower-your-impact/~/media/Files/bus/EREP/docs/Overview.pdf

37 NERA Economic Consultants and Oakley Greenwood, *Analysis of Compliance Costs for a National Energy Savings Initiative*, Final Report for the Department of Climate Change and Energy Efficiency, December 2012). That study found that the cost of compliance borne by retailers (2012) was $0.76 per certificate surrendered, without consideration of (a) establishment costs (which can be assumed to have been amortised by now, except possibly for any alterations or additions required by changes in the program), or (b) the costs borne by the ESC for administering the program. ESC costs were recovered via a $1 charge included in the cost of registering each certificate and the fees paid by certificate creators in registering to be approved to install specific VEET measures. We assume those costs were recovered by certificate creators in the certificate price.

38 https://www.veet.vic.gov.au/Public/Public.aspx?id=Overview

39 It is conservative in that it assumes that there has been no nominal increase in compliance costs since 2012.

40 It should be noted that whilst the VEET scheme activities cover both the electricity and gas sectors, most certificates created are in the electricity sector. For example, out of the 5.8m certificates created 2015, 4.55m were for "Installing a low energy lamp in place of an existing 12-volt halogen lamp" and "GLS lamps". A further 478k certificates were created for "Undertaking a lighting upgrade", and a further 192k for "Installing a low energy downlight fitting in place of an existing 12-volt halogen downlight fitting". ESC, *Victorian Energy Efficiency Target Scheme*, Performance Report 2015, pages 22-24.

If this were spread across the 2.493m residential customers (as per the distribution businesses 2016 RINs), then the cost per customer would be $39.65, instead of the $10.20 CME appears to have ascribed to it in its analysis.

If the approximately 300,000 non-residential customers (again, as per 2016 RIN statements) were also included in the group of customers to which these costs are allocated, the above amount would reduce marginally to about $35.40 per customer per annum.

If, instead if the amount were spread in proportion to the number of certificates created, then based on 2015 information[41], with around 4,993,000 VEECs created in the residential sector and 801,000 VEECs created in the non-residential sector, residential customers would receive around 86% of the costs. This would equate to around $34.11 per residential customer. Using information recently released for 2016[42], residential customers would be allocated 40% of the costs of the VEET, equating $15.85 per residential customer.

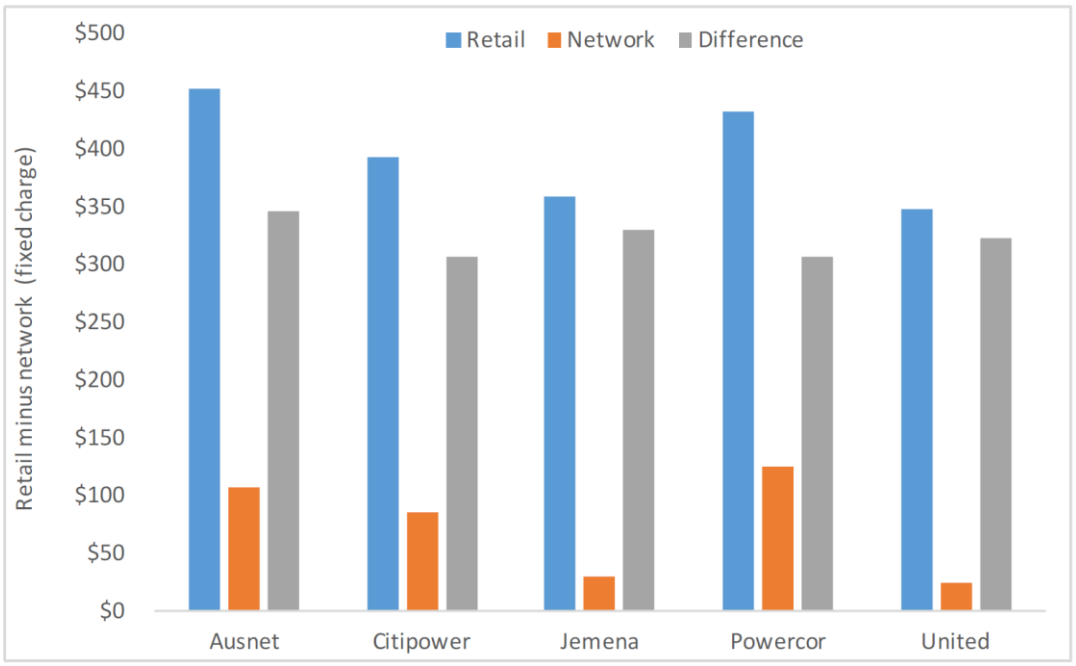
If, instead, it was based on the proportion of usage in residential and small commercial customers, then based on 2016 RIN data, residential customers would receive 62% of the costs, equating to around $24.60 per customer.

One further comment is that the recovery of these costs is, in our opinion, likely to be done via an increase in the fixed charge (i.e., it is likely to be done on a per customer basis), as opposed to an increase in the variable charge. This is supported by the analysis reported by CME in Figure 10 on page 28 (reproduced below), which to us indicates that the difference between the retail variable charge and the network variable charge primarily goes towards covering the marginal cost of procuring electricity from the wholesale market and hedging [43], whereas the contribution to the recovery of fixed costs (and gross margin) tends to come from the large difference between the retail fixed charge and the network fixed charges.

41 ESC, *Victorian Energy Efficiency Target Scheme, Performance Report 2015*, August 2016.

42 ESC, *VEET Performance Report 2016, Victorian Energy Efficiency Target Scheme*, August 2017.

43 This is particularly the case, if our proposed adjustments to the methodology for deriving wholesale costs is adopted.



Source: CME, *The retail electricity market for households and small businesses in Victoria; Analysis of offers and bills*, July 2017, Page 19

3.2.2. Premium Feed-in Tariff Scheme

Page 41 of the CME report states that:

> *This is based on 2016 data of aggregate eligible feed-in volume of 120 GWh priced at $600 per MWh and spread evenly over the 37 TWh distributed by Victoria's distributors each year.*

The distribution businesses recover the costs of these schemes, and hence they are already reflected in Network Use of System Charges (NUoS)[44]. Whilst CME has not specifically stated in its report that it has used published NUoS tariffs to calculate the network component of the bill, we assume this is the case. If so, it is inappropriate to include any additional costs associated with feed-in tariffs (i.e., it would be a double count).

44 On page 63 of their report, Jacobs also note that: "*Networks are able to estimate the required payments each year and include these amounts in their tariff determinations adjusting estimated future tariffs for over and underpayments annually as needed. Where this has occurred, it would be reasonable to assume that cost recovery components are included in the distribution tariffs under 'jurisdictional' charges, so no additional amounts are included in the Jacobs' estimates of retail price. In all cases where distributors are responsible for providing feed-in tariff payments, the distributors would have been aware of the feed-in tariffs prior to the latest tariff determination, so it is reasonably safe to assume inclusion*".

However, if CME has not used NUoS tariffs to calculate network charges, but rather, it has added each distribution business' Distribution Use of System Charges (DUoS) and Transmission Use of System (TUoS) charges together (effectively leaving out Jurisdictional Charges, which in turn is the category of charges that reflects the cost to distribution businesses of the premium feed-in tariff and transitional feed-in tariff arrangements), then CME's approach would still be incorrect. Again, this is because of the assumption that costs are "*spread evenly over the 37 TWh distributed by Victoria's distributors each year*", whereas in actuality, some business only recover these costs from residential and small commercial customers, and not necessarily equally across those two customer classes in any event.

As an example, the following figure is an extract from Powercor's Annual Pricing Submission. It shows that Powercor recovers no money via Jurisdictional Scheme tariffs from its High Voltage or Subtransmission customers. Citipower uses the same approach.

Jurisdictional Tariff 2017	Code	Available to new customers?	Fixed	Demand Charges			Usage			Summer Time of Use Tariffs			Non-Summer Time of Use Tariffs		
				Jan-Dec	Dec-Mar	Apr-Nov	Anytime	Peak	Off-peak	Pk	Sh	Opk	Pk	Sh	Opk
			$ pa	$/kVA pa	$/kW/month	$/kW/month	c/kWh	c/kWh	c/kWh	c/kWh	c/kWh	c/kWh	c/kWh	c/kWh	c/kWh
Residential Single Rate	D1	Yes	-	-	-	-	0.40	-	-	-	-	-	-	-	-
Climate Saver	D1CS	No	-	-	-	-	-	0.40	0.40	-	-	-	-	-	-
Climate Saver Interval	D3CS	No	-	-	-	-	-	0.40	0.40	-	-	-	-	-	-
Residential - Flexible Pricing	P13R	Yes	-	-	-	-	-	-	-	0.40	0.40	0.40	0.40	0.40	0.40
Residential Docklands - Flexible Pricing	P13RDK	Yes	-	-	-	-	-	-	-	0.40	0.40	0.40	0.40	0.40	0.40
Climate Saver - Flexible Pricing	P13RCS	No	-	-	-	-	-	-	-	0.40	-	-	0.40	-	-
Docklands single rate	P1DK	Yes	-	-	-	-	0.40	-	-	-	-	-	-	-	-
Residential Two Rate 5d	D2	No	-	-	-	-	-	0.40	0.40	-	-	-	-	-	-
Docklands Two Rate 5d	D2DK	No	-	-	-	-	-	0.40	0.40	-	-	-	-	-	-
Residential Interval	D3	No	-	-	-	-	-	0.40	0.40	-	-	-	-	-	-
Residential Two Rate 5d - controlled load[1]	D2OP	Yes	-	-	-	-	-	-	0.40	-	-	-	-	-	-
Docklands Two Rate 5d - controlled load[1]	D2DKOP	Yes	-	-	-	-	-	-	0.40	-	-	-	-	-	-
Dedicated circuit[1]	DD1	Yes	-	-	-	-	-	-	0.40	-	-	-	-	-	-
Hot Water Interval[1]	D3HW	Yes	-	-	-	-	-	-	0.40	-	-	-	-	-	-
Residential Demand	DD	Yes	-	-	-	-	0.40	-	-	-	-	-	-	-	-
Non-Residential Single Rate	ND1	Yes	-	-	-	-	0.39	-	-	-	-	-	-	-	-
Non-Residential Flexible Pricing	P14G	No	-	-	-	-	-	-	-	0.39	0.39	0.39	0.39	0.39	0.39
Non-Residential Two Rate 5d	ND2	No	-	-	-	-	-	0.39	0.39	-	-	-	-	-	-
Non-Residential Interval	ND5	No	-	-	-	-	-	0.39	0.39	-	-	-	-	-	-
Non-Residential Two Rate 7d	ND3	No	-	-	-	-	-	0.39	0.39	-	-	-	-	-	-
Non-Residential Demand	NDD	Yes	-	-	-	-	0.39	-	-	-	-	-	-	-	-
Medium business	NDM	Yes	-	-	-	-	-	0.39	0.39	-	-	-	-	-	-
Public Lighting	PL2	Yes	-	-	-	-	-	0.39	0.39	-	-	-	-	-	-
Large low Voltage	LLV	Yes	-	-	-	-	-	0.37	0.37	-	-	-	-	-	-
High Voltage	HV	Yes	-	-	-	-	-	-	-	-	-	-	-	-	-
High Voltage Docklands	HVD	Yes	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtransmission	ST	Yes	-	-	-	-	-	-	-	-	-	-	-	-	-

Source: Powercor, *2017 Pricing Proposal*, page 44.

3.2.3. Network charges

On page 40 of their report, CME states:

> *The network charge in each distribution region is based on the relevant 2017 rates specified in the published tariff sheets of each distribution network service provider, for two-part (flat rates) and block tariffs for residential customers.*

Firstly, as discussed above, it is not clear from the report whether CME has relied upon published NUoS tariffs to calculate the network component of the bill (which includes the recovery of Jurisdictional charges), or whether it has added the DUoS and TUoS charges to get a tariff, excluding Jurisdictional charges.

Assuming it is the former, then our analysis indicates a slight discrepancy between CME's number ($415) and our number of $420, which to be clear, is a weighted average network charge using 2016 residential customer number information (from the distribution businesses RINs). In undertaking this comparison, we made the following key assumptions that we think align with CME's paper:

- Consumption by United Energy's customers is evenly spread across both its Summer Peak Energy and Non-Summer Peak Energy charge – as per our understanding of CME's assumptions in Appendix B; and

- Consumption only occurs in Block 1 of AusNet Services' block tariff (we assume that this is consistent with CME's assumptions, as CME makes no mention of block 2 usage assumptions in its Appendix B).

Notwithstanding the above, we believe the above assumptions, particularly the assumption that customers will on average, not "hit" AusNet Services' higher block 2 charge, are almost certainly unrealistic.

Information from AusNet Services' most recent Annual Tariff Proposal[45], as shown in the figure below, supports our opinion.

NEE11						
	Base Case	Very Low	Low	Average	High	Very High
Energy	4.20 MWh	1.26 MWh	2.94 MWh	4.20 MWh	5.46 MWh	7.14 MWh
Existing	$ 551.93	$ 235.58	$ 416.35	$ 551.93	$ 687.51	$ 868.28
Proposed	$ 559.47	$ 242.74	$ 423.73	$ 559.47	$ 695.21	$ 876.20
Change	1.37%	3.04%	1.77%	1.37%	1.12%	0.91%

Source: AusNet Services, *Electricity Distribution Annual Tariff Proposal 2017*, 1 January, page 39.

We 'reverse engineered' the level of consumption AusNet Services' must have assumed it will charge on average at block 1 rates versus block 2 rates, to derive its base case bill. By our calculations, to replicate the $559.47 bill (ex GST), 3000 kWh must be consumed at the block 1 charge (9.9564 c/kWh) and 1200 kWh must be consumed at the block 2 charge (12.819 c/kWh), plus the $107 fixed charge.

Even assuming that the difference between AusNet Services' 4200 kWh base case and CME's 4000 kWh average is all in block 2, this still leaves 1000 of the 4000 kWh consumption figure being charged at block 2 rates. By our estimation, this increases the average AusNet Services NUoS bill from $505 under CME's assumptions to $534 using AusNet's Services' underlying assumptions.

Applying this assumption would increase the overall weighted average NUoS charge to $428.25, as compared to the $415 reported by CME.

3.3. Summary of observations Part A

The following table summarises the changes in the retail gross margin as calculated in Part A of the CME report that would result from the concerns discussed in the sections above.

Table 2: Summary of potential changes to the retail gross margin as calculated in Part A of the CME report

Component	Comment	Estimated incremental impact
VEET	Incorrect assumptions regarding the types of customers the VEET scheme applies to, which depresses the amount of the scheme's costs that CME assumes is recovered from residential customer.	$5 - $25
Wholesale	CME's use of a median offer duration period (of 5 months) to determine wholesale costs, instead of the average, materially depresses the wholesale costs that are assumed to be reflected in CME's retail charge.	$70

45 AusNet Services, *Electricity Distribution Annual Tariff Proposal 2017*, 1 January, page 39.

Component	Comment	Estimated incremental impact
	This appears to be further compounded by the fact that the CME report does not mention making any allowance for losses in its calculation of wholesale costs.	
PFIT	An incorrect methodology for determining how the costs of the Premium Feed-in Tariff (PFIT) are recovered, which reduces the costs assumed to be recovered from residential customers.	NA
Network	In part A of the CME report, CME appears to have adopted assumptions as to the amount of energy that a 4000kWH AusNet Services customer would consume in block 1 and block 2 that are inconsistent with AusNet Services' own reported assumptions. This leads to an underestimate of the weighted average network tariff applicable to Victorian customers. We are also unable to reconcile CME's calculations with our own calculations, and again, CME's result is slightly lower (hence leading to a higher retail gross margin).	$15 - $20
Retail Offers		
-Eligibility for discounts	The switching rates quoted by CME for customers on market offers appear to be below the most recent actual switching rates published by AEMO, and moreover, are applied to an incorrect customer base, given the purpose of the calculation.	$37.50
-Use of median	CME weights each retailer's median market offer by market share to determine the 'representative' retail bill. We believe that the use of the median offer is unlikely to be appropriate for this purpose, given the objective of the analysis would appear to be to determine the retail gross margins that are actually generated by retailers, not the retail gross margins that would be generated by their median offers.	Unknown, but could be significant

Source: OGW analysis

It should be noted that the figures above reflect our best estimate, given the data available and the time allowed to complete this report. For each component, there will be a feasible range, however, our view is that the figures above are likely to be an underestimate, given the issues around the use of the median and, to a lesser extent, the eligibility of customers for discounts and their achievement of those discounts.

3.4. Summary of observations on Part B

CME also had access to and undertook some analysis of the actual bills received from 686 residential customers that participated in the market research undertaken by Newgate Research for the AEMC's *Retail competition review: final report* (30 June 2016).

We note that the bills collected by Newgate included information on:

- The distributor and retailer
- The number of days in the billing period and the date of the bill;
- The volume of energy used and the price consumers pay for different tariffs; and
- The types of plans consumers are on and the types of discounts they receive.

In particular, we note that the database established by Newgate included a description of the discounts available to the customer, and the billing information itself would have identified both the size of any conditional discounts available to the customer and whether they had been earned in that particular billing period. None of that information appears to have been used as a check on any of the assumptions made in the analysis conducted in Part A of the CME report.

We also note that the analysis of customers within the relevant consumption range (i.e., 4000kWh) reflected only 36 customers' bills[46], which is obviously a very small sample. The specific details (in terms of discounts applicable, applicable retailer and distribution region) of those specific customers has not been published, so it is difficult to comment on the specifics of the customers that make up this sub-sample.

Even assuming that that these 36 customers are a representative sample, in terms of the retailers that are represented, there is still a risk that the market offers that those 36 offers are on are not actually representative of the offers the other over 2 million residential customers are on. For example, how many were on more favourable market offers than non-favourable offers, and does this align with the broader distribution across the entire population?

Without some form of calibration, the figures reported as being the gross margin for a 4000 kWh customer are difficult to place significant weight on.

This is further compounded by CME's statement that the calculation of environmental and metering charges in their Part B analysis is as set out in its Part A analysis. As detailed in our comments on Part A, there are errors in the way the VEET scheme and PFIT calculations have been undertaken. A more minor observation is in relation to metering charges is that in Part A, CME stated that "*this is the based on the prices in distributors' tariff sheets for single element meters weighted by the number of customers in each distribution area*". Whilst this is most likely a reasonable basis, there is a minor risk that because of the small sample size, even a small number of customers on other types of meters (e.g., two-element meters in AusNet Services area[47]) might influence the margin calculated in Part B.

Finally, CME also states in Part B that the wholesale prices are established as described in Part A. CME indicates that the application of the wholesale price methodology described in Part A results in a wholesale charge of $61.6/MWh for electricity billed in this December 2016 to April 2017 period. At a general level, given CME's reference to Part A, similar concerns to those we expressed earlier are likely to be equally relevant to this calculation. From a transparency perspective, it is difficult to confirm this calculation, as no further details of the calculation are provided in Part B.

3.5. Comparison of CME results with publicly available information

Given the uncertainties around the input assumptions, it is worthwhile comparing and contrasting CME's reported results for a 4000 kWh customer with other information in the public domain. To this end, we note that both AGL and Origin have reported "gross margins" in their recent Annual Reports.

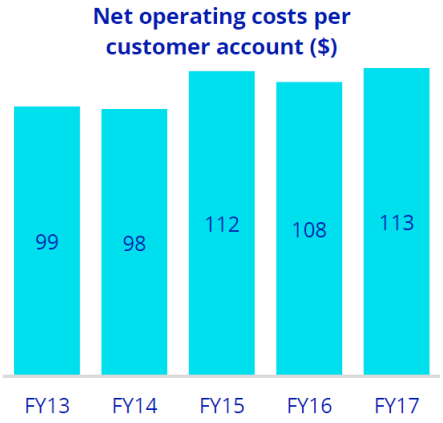
46 We have focused on this component of Part B, because the reported retail gross margin of $423 appears to have been a key driver of the Thwaites review's recommendations (outside of the apparent price dispersion in the market, which we have addressed previously).

47 For example, AusNet Services has a single phase, two-element meter with contactor, which is more than 10% more expensive than a single-element meter. It is our understanding that at these make up around 20% of all single-phase meters.

The gross profit margin reported by Origin was $254[48]. This was for the half year ended 31 December 2016. The gross margin per customer account reported by AGL was $217 for FY17, and $216 for FY16[49].

AGL also report net operating costs per customer of around $110 over the last three years.

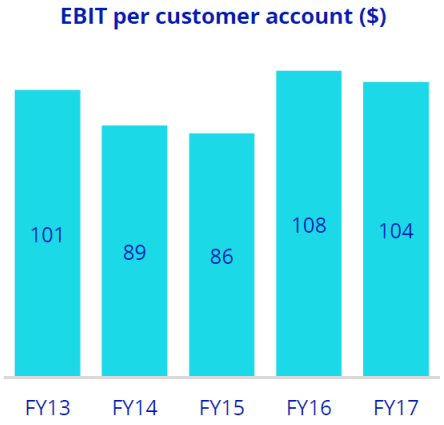
Figure 1: Net operating costs per customer account



Source: AGL Energy, *FY17 Full-Year Results*, 10 August 2017, page 47.

When combined with AGL's reported gross margins, this leaves the following reported EBIT per customer.

Figure 2: EBIT per customer account



Source: AGL Energy, *FY17 Full-Year Results*, 10 August 2017, page 47.

Whilst these figures are across all of Australia, it is noted that AGL has a sizable percentage (28.5%) of its customers in Victoria (638k of 2237k).

48 Origin Energy, *Operating and Financial Review, For the half year ended 31 December 2016.* page 16.

49 AGL Energy, *FY17 Full-Year Results,* 10 August 2017, page 19.

Table 3: AGL reported "consumer electricity" customer numbers and gross margin

State	Customer numbers^	Consumer customer margin*
NSW	807000	
Victoria	638000	
SA	388000	
QLD	404000	
TOTAL	**2,237,000**	**$485,000,000***

Source: ^AGL Energy, *FY17 Full-Year Results, 10 August 2017*, page 44; *page 16*

If we overlay the CME margin analysis on the above results, we generate the following margins for the other states.

Table 4: AGL reported "consumer electricity" customer numbers and customer margin if the CME margin is correct

State	Customer Numbers	Consumer Customer Margin if CME analysis correct
NSW	807000	134.5
Victoria	638000	423*
SA	388000	134.5
QLD	404000	134.5
TOTAL	**2,237,000**	**$485,000,000**

Source: OGW analysis; CME page 3*

In our opinion, this level of difference in retail gross margin across the different states is unlikely to be plausible. In particular, given AGL's reported cost to serve data indicates that its net operating cost per customer is around $113, the application of the above mentioned gross margins for non-Victorian states ($134.50) would mean that AGL is barely covering its cost to serve for those customers, leaving margins of less than 1.5% for over 70% of AGL's residential retail customers.

Furthermore, CME's analysis implies that AGL, along with the other two Tier 1 retailers, have some of the highest margins in Victoria (which means they would have even higher margins than the reported weighted average of $423). If this were the case, and AGL was actually achieving margins that were materially in excess of $423, it would also imply that AGL's NSW, QLD and SA customers make virtually no contribution to EBIT per customer (and are possibly making a negative contribution).

Finally, CME's implied differences in gross margins are not explained by differences in retail prices across the various jurisdictions AGL operates in. That is, the observable differences in retail prices in the different markets would not, on face value, provide any indication that after normalising for the differences in wholesale and network prices, retail prices in Victoria are likely to reflect around $300 in higher gross margin.

Based on the published data and the information presented in this section, it is our view that it is likely that the CME analysis materially overstates the margins that retailers are achieving in the Victorian electricity market.

4. The Jacobs report

The Jacobs report[50] presents the results of research on "the wholesale and market costs associated with electricity and gas supply" and provided "advice in relation to retail pricing, cost of supply and standing offer and margin outcome for consumers" [51]

While the Thwaites report presented output from the Jacobs report concerning the change in fixed costs and gross margins in electricity retailers' standing offers, it did not analyse market offers. Given the low percentage of Victorian residential and small business customers on standing offers, this part of the Jacobs analysis is not particularly relevant to, or reflective of, what is happening in the broader market (i.e., for the 90% of customers who are on market offers).

The part of the Jacobs analysis that is most relevant to the Thwaites review's findings and recommendations is its assessment of wholesale prices, which are then used as an input to the CME analysis of retailers' market offer gross margins. Several of the key aspects of the Jacobs analysis that inform the wholesale prices used in the CME analysis have been discussed in the previous section and are not repeated here.

One important aspect of the Jacobs report that was alluded to but not explored in detail in the previous section concerns the approach it took to estimating the forward contract prices that the retailers were assumed to have used in informing the market offers they put into the market in the 5 months leading up to 31 May 2017 (see the discussion in the section entitled 'Median verus average market offer duration').

The approach Jacobs used in estimating the forward price is based on the assumption that retailers will purchase hedges for the entirety of their load periodically over the course of either 1 or 2 yers prior to each quarter of the year for which the hedges are being purchased. This approach is quite standard, and was routinely used in the cost build-up approaches used in setting regulated prices in most of the NEM states.

50 Jacobs, *Retail price review, A report for the Department of Environment, Land, Water and Planning*, Version 1 I 1, 11 August 2017.

51 Ibid., page 11.

5. The CSIRO report

The CSIRO report "draws primarily on behavioural science to explore why consumer engagement in the Victorian retail energy market is not higher, and to suggest potential interventions to improve the level of engagement".

The CSIRO analysis is undertaken at the 'many consumers' level, and though it provides a number of useful insights on the drivers for and barrier to engagement, it does so in a very general way, and makes no attempt to treat the consumer base as anything other than a homogeneous group – or a group that should be addressed in terms of those segments that are least able or willing to engage.

Our view is that this is simplistic and actually can result in acting against the interests of vulnerable customers – who would be better off if customers who are willing to adjust their consumption in ways that provides benefits to them by reducing costs for the supply chain – were encouraged to do so by economically efficient market offers.

The CSIRO report offers a number of potential interventions for increasing engagement. The benefits and costs of these interventions are not quantified. This may have not been within the scope given to CSIRO. However, several of these interventions have been taken up in the Thwaites recommendation. This seems premature without such quantification.