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Australia's retail electricity markets: who is serving whom?

A report prepared for GetUp!

August 2016

Executive Summary

This report has been prepared for GetUp! We have been asked to analyse and comment on the retail electricity markets serving household electricity consumers in the National Electricity Market (NEM).

The business of providing electricity to households by electricity retailers encompasses the acquisition of electricity in bulk, the purchase of network services from distributors and then the sale of that electricity to small customers. Retailers incur expenses in the management of price risks and in marketing, advertising, sales, customer service, billing and revenue collection.

When electricity was provided by state and municipal electricity monopolies in Australia until the mid to late 1990s, the business of retailing electricity was described as one of the four main activities in the electricity industry (the others being generation, transmission on high voltage networks and distribution on the lower voltage networks). At that time retailing was described as, by far, the least expensive of the four activities. By comparison with electricity production and distribution, very little capital is required to provide the retail service.

This Report shows that in those parts of the NEM where retail markets have since been fully deregulated (opened to competition), charges for retailing electricity to households have grown to be a far bigger portion of the household electricity bill than the cost of producing the electricity that those households consume. A comparison of the deregulated retail markets in Victoria, New South Wales, South Australia and Queensland with the regulated retail market in the Australian Capital Territory (ACT) and the retail market in Great Britain (GB) reveals some remarkable (and worrying) information:

1. The Big Three retailers (AGL Energy, Energy Australia and Origin Energy) are charging two to three times more to sell electricity in NSW, VIC, SA and QLD than the regulated retailer in the ACT is charging.
2. The regulated retailer charges in the ACT are much lower than the retailer charge on the best offers from the Big Three in any region of the NEM.

3. The retailer charge on the average of the three cheapest offers from all retailers in NSW and QLD is about equal to the retailer charge in the ACT. But the retail charge on the cheapest offer from all retailers is higher in SA and Qld than the regulated offer in the ACT.

The comparison of Australia with Great Britain is also remarkable. In Britain, rising electricity prices have attracted political interest. The Competition and Markets Authority (CMA) concluded, amongst others, that the six largest retailers in Britain enjoy a position of unilateral market power over their inactive customer base, that these retailers have the ability to exploit such a position and that their prices have been above those that it expected should prevail in a well-functioning competitive market. The CMA estimates the charge for the retail service in Great Britain is 18% of the average household electricity bill. However this Report finds that in Australia's deregulated retail markets, the retail charge is around twice as high as a proportion of the bill and about three times as high, stated as an amount, as the charge in Britain.

In Australia, rising electricity prices are also having an increasingly significant impact on state government finances, through the payment of electricity bill concessions to eligible households. It would appear that the need for these concessions is explained not just by rising network charges but even more so in some states, by rising retailer charges.

Inevitably minds turn to the question of whether regulation will improve outcomes. While the comparison of Australia's deregulated markets with the ACT's retail market is stark, the comparison with the Queensland retail market - only fully deregulated since the start of this month - is less supportive of regulation. And, for all the criticism that the British authorities directed at their deregulated retail markets, if Australia's retail electricity markets were to achieve the outcomes achieved in Britain, retailer charges in Australia would be considerably lower.

In the context of rapid technology change it is valuable to have a market in which retail market participants are incentivised to discover what customers want and to take risks with investors' rather than customers' money, in finding the best ways to meet those wants. However, customer surveys suggest distrust in the electricity industry and in its institutions. It is understandable that many customers are demanding that

governments clamp down. A rush to intervene may make matters worse. But this can not be an excuse to do nothing. Comparatively little has been done to properly understand how retail markets really work. Deeper economic analysis of the retail market is needed to understand the distribution of costs and profits between engaged and disengaged customers and between incumbent and new entrant retailers. With insights gained from this the question of whether intervention of some form might improve outcomes should be considered.

Table of Contents

Executive Summary	2
1 Introduction	7
2 Retail market description.....	9
3 Methodology.....	11
4 International price comparison.....	14
5 Comparison of retail electricity bills.....	16
6 Comparison of retailers' charges.....	17
7 The Big Three's charges compared to those of other retailers	22
8 Summary of observations and conclusions	24
Appendix A: Load profile and other assumptions used in MarkIntell retailer charge estimates.....	27
Appendix B: Retail charge box plots	28
References	29

Table of Figures

Figure 1. International comparison of household electricity prices before taxes (at market exchange rates).....	14
Figure 2. Big Three annual household electricity bills distinguished by distribution zone	16
Figure 3. Annual charge for the provision of retail services to households by Big Three retailers distinguished by distribution zone in which they are located.....	17
Figure 4. Breakdown of household electricity bills in regional markets and Great Britain	18
Figure 5. Percentage breakdown of household electricity bill in select distribution zones	21
Figure 6. Retailers' charge in select distribution zones: average of Big Three average offers, average of Big Three best offers and average of three best offers (all retailers).....	22

1 Introduction

This report has been prepared for GetUp! We have been asked to analyse and comment on the retail electricity markets serving household electricity consumers in the National Electricity Market (NEM).

The business of providing electricity to households by electricity retailers encompasses the acquisition of electricity in bulk, the purchase of network services from distributors and then the sale of that electricity to small customers. Retailers incur expenses in the management of price risks and in marketing, advertising, sales, customer service, billing and revenue collection.

The focus of this report is to quantify how much retailers are charging households for this service, and from this to begin to assess whether retail markets are working in the interests of customers. Since retailers do not disclose how much they are charging for their services, the retailers' charge needs to be derived by subtracting the non-retail elements from the customers' total bill.

When electricity was provided by state and municipal electricity monopolies in Australia until the mid to late 1990s, the business of retailing electricity was described as one of the four main activities in the electricity industry (the others being generation, transmission on high voltage networks and distribution on the lower voltage networks). At that time retailing was described as, by far, the least expensive of the four activities. By comparison with electricity production and distribution, very little capital is required to provide the retail service.

As this Report shows, in those parts of the NEM where retail markets have since been fully deregulated (opened to competition), charges for retailing electricity to households have grown to be a far bigger portion of the household electricity bill than the cost of producing the electricity that those households consume. In South Australia for example, the amount that households are paying for the retail service is around twice the amount they are charged for the production of the electricity that they consume.

The Report starts with a brief description of the retail market followed by an explanation of the methodology used in the calculations. Electricity prices paid by households in various parts of Australia are then compared with those paid in other wealthy countries that are members of the Organisation for Economic Cooperation and Development (OECD). The main section of the Report compares the retailers' charges in different parts of the NEM and also to those in Great Britain. The final subsection summarises the main points and concludes.

2 Retail market description

There are a little over 9.3 million residential customers in Victoria (VIC), New South Wales (NSW), South Australia (SA) and Queensland (QLD) where retail markets have been deregulated. Three retailers (AGL Energy, Origin Energy and EnergyAustralia, together “the Big Three”) supply electricity to around 95% of households in QLD, 90% in NSW, 80% in SA and 70% in VIC. In addition to the Big Three, there are another 16 retailers in NSW and VIC, 12 in SA and 9 in QLD that make offers to households.

Retail electricity markets were fully deregulated in Victoria in 2009, in SA in 2013, in NSW on 1 July 2015, and in South East Queensland on 1 July 2016. The retail electricity markets in Tasmania and the Australian Capital Territory remains regulated.

Retailers offer a range of tariffs to households with a variety of price structures:

- two-part,
- seasonal two-part,
- inclining and declining block rates with daily, monthly or quarterly blocks which may or may not be seasonal,
- time-of use-tariffs with five or seven day peak and off-peak charges, either or both of which may be seasonal,
- flexible tariffs (peak, shoulder and off-peak prices) some of which may or may not be seasonal,
- combinations of inclining and declining block rates with daily, monthly or quarterly blocks but also with time-of-use or flexible rates and some of which rates may or may not be seasonal.

A few retailers have recently introduced demand tariffs with annual or seasonal charges stated in cents per kW per day and, in one case, \$ per kW per month.

Almost all retailers offer tariffs with conditional discounts and a few offers have no discounts or have unconditional discounts. Conditionality is typically related to paying bills on time, or direct debt or on-line account arrangements. Discounts are calculated usually on the energy consumed. Conditional discounts typically make a reasonable

difference to bills (at least 10%). Discounts are typically calculated with reference to the retailers' standing offers (these are offers they are obliged to make), and apply for "benefit periods" of various durations, after which the conditional discounts are partly or fully withdrawn.

All retailers have an obligation to publish "standing offers". These change less frequently than market offers are often used as the reference point against which retailers express their discounts. The use of discounts is pervasive (all but a small number of retailers use discounts as a key part of their marketing strategy). Almost all discounts are time-limited.

A couple of retailers offer discounts that are expressed as a volume rather than a price – for example the tenth month's power is free, or free power on Saturdays or at certain times of the day. A couple of retailers now also offer "all you can eat" deals which entail fixed payments regardless of consumption. Retailers rarely offer non-priced incentives, but when they do they usually take the form of airmiles or free cinema tickets.

Retailers sometimes offer up-front incentives to attract customers. These typically take the form of sign-on bonuses, but sometimes only if customers join directly not through switching sites. The commercial switching sites only include offers from a subset of retailers. The commercial switching sites are paid by retailers through up-front payments per customer switch or through trailing commissions.

Some retail offers have exit fees, but these are often small. A few retailers offer fixed-price multi year contracts but these often have high exit fees and usually do not have conditional discounts.

Retailers typically make a large range of different offers to households. These result in very different charges. Appendix B, produced by MarkIntell Insight (described below) contains box plots showing the range of the retailers bills to households in all NEM regions for each retailer, based on all offers that all retailers made to households on 2 August 2016.

3 Methodology

The objective of this analysis is to estimate, as accurately as possible, the retailers' charges to the greatest number of residential customers. Retailers do not separately identify the retail charge in customers' bills. It therefore needs to be derived by subtracting from the total retail bill, the charges for network services (which can be estimated accurately), charges for metering (which again can be estimated accurately) and charges for the federal and jurisdictional government environmental certificate programs, feed-in tariff cost recovery, and electricity production costs. The federal and most jurisdictional (state and territory) government environmental charges are comparatively insignificant. This leaves estimates of wholesale charges as the one contentious area. The approach to estimating this is described at the end of this subsection.

The first step in the calculation is to establish the amounts that households are paying for electricity. This depends on which of the retailers' current and historic offers the households have accepted (and indeed how those historic offers will have changed since they were published). This information is, obviously, commercially confidential. However the offers that retailers make to new customers is known with certainty. Assuming that there is not a significant gap between the prices retailers are charging their existing customers from the offers they make to new customers, by analysing their offers to new customers it is possible to establish an estimate of retail charges paid by the greatest number of households.

Retailers make a range of offers to their new customers including some offers with fixed prices, some with time-limited entitlements to conditional discounts and some with no discounts. In establishing the charge paid by the majority of customers we have taken the average of the offers from the Big Three retailers. This is calculated as the average of two hypothetical bills:

- the bills assuming that the conditional discounts are received, and
- the bills assuming that the conditional discounts are not received.

An alternative approach would be to use the best (cheapest) offer of each of the Big Three and use this as the basis of the comparison. We have not used this approach as it is unlikely to properly represent the average tariff of the Big Three's customers. Specifically, while a new customer might be expected to select an offer that is close to the best available, the retailers' standard commercial model, as described, is to attract customers with discounts but to progressively withdraw those discounts over time. Properly assessing the average bill paid by households means that it is necessary to adjust for the reality that many customers that were enticed with discounts, will no longer be receiving those discounts. We have however run sensitivities on our results, by using averages of the Big Three's best offers. We have also examined the best (cheapest) offers in each regional market from any retailer and compared them to the Big Three's average and best offers in those regions.

All the data and computation for this analysis is performed using the commercially available MarkIntell Insight web application. MarkIntell is a division of Carbon and Energy Markets (CME). Retailers are obliged to publish electricity price fact sheets for all the generally available retail offers they make to households and small businesses. MarkIntell Insight automatically mines the data from all electricity price fact sheets from all licensed retailers operating in VIC, NSW, QLD and SA (around 1400 documents). These data are then stored in a database that also contains all network service provider tariffs. The MarkIntell database is updated several times each month, and commenced retail market coverage from April 2016 in Victoria, May 2016 in New South Wales and June 2016 in Queensland and South Australia.

The data used in the analysis in this Report was obtained from the market on 2 August 2016 and covers every retail offer disclosed in every electricity fact sheet applicable to residential customers on 2 August 2016. This means 1,293 retail offers from 19 retailers in VIC, 1,121 offers from 19 retailers in NSW, 160 offers from 12 retailers in QLD and 113 offers from 15 retailers in SA. All of these tariffs are priced using the applicable load profile and demand assumptions shown in Appendix A. To ensure a like-for-like comparison of the retailers, the basis of comparison is a household consuming 4,800 kWh per year without controlled load, without solar panels and not in receipt of government concessions or other forms of subsidy.

The (federal) environment and wholesale charges used in this analysis reflects the wholesale price assumptions shown in Appendix A. The wholesale charge is based on the demand-weighted average spot price in each NEM region for the last nine calendar years plus an uplift of \$10 per MWh in compensation of arrangement, hedging, regulatory and other costs. Comparing these estimates with spot market prices at different times might suggest that the estimates we have used are either too high or too low. By taking a long term average price we believe we have used the least biased estimate.

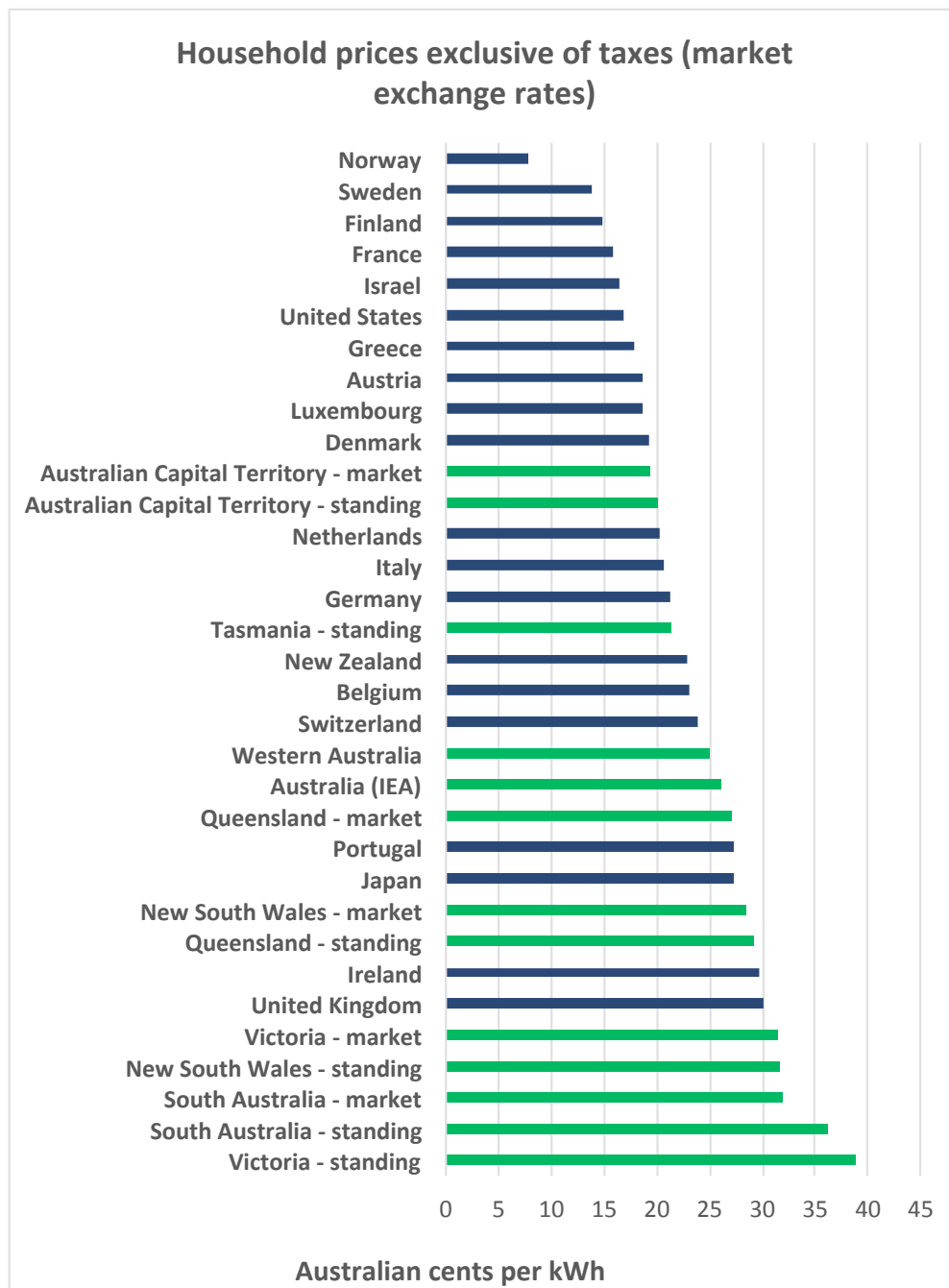
An alternative way to estimate the wholesale price would be to base it on the amount that retailers choose to pay to households with rooftop solar panels that feed electricity back into the electricity grid, at times. There is a floor on this feed-in price in some regional markets (Victoria, Queensland and until recently South Australia) but no ceiling. The wholesale prices we have assumed in each market are higher in all cases than the regulated floor price and higher than the feed-in prices that all but one retailer offers to households with rooftop solar.

Finally, it should be noted that we have assumed that all retailers are paying the same wholesale price. It might be argued that this favours the Big Three (relative to the new entrant retailers) because the Big Three in each market have sufficient generation capacity to meet their customers' needs and so are largely or completely insulated from extreme prices in the mandatory spot market. We think this is a plausible consideration. However we have not attempted to adjust our analysis in recognition of it and so we suggest that the estimates of the retail margins that we have derived are likely to understate the effective retail margins of the Big Three and overstate the retail margins of the new entrant retailers that depend on contracts most likely negotiated with one of the Big Three, to hedge their wholesale market spot price risks.

4 International price comparison

It is helpful in understanding the retail market in Australia, to compare prices in Australia to those in other countries. Mountain (2016) compares household electricity prices in Australia with those in other comparable OECD countries. Figure 1 below, is drawn from that report.

Figure 1. International comparison of household electricity prices before taxes (at market exchange rates)

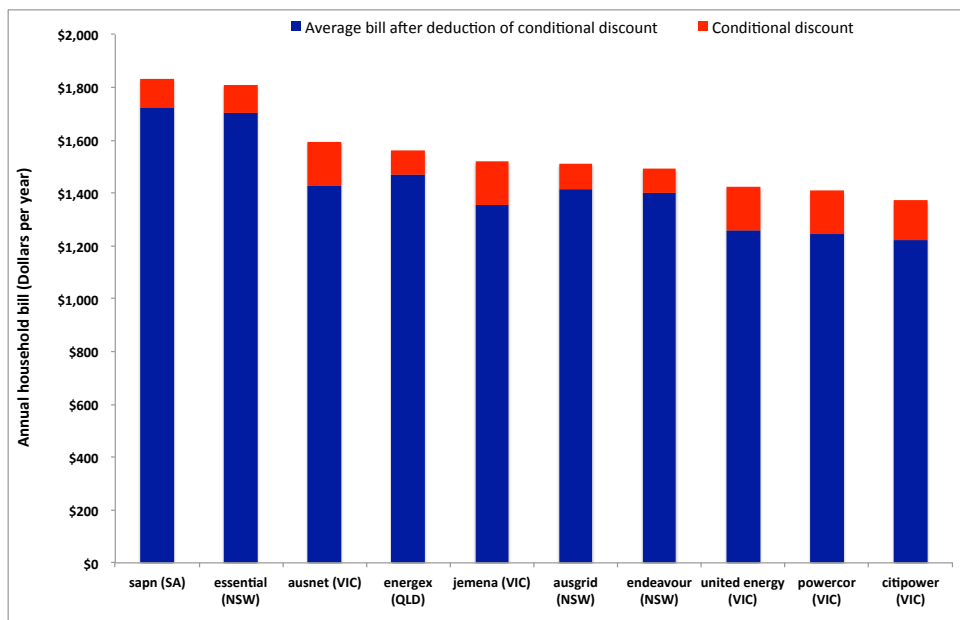


The Australian data used in Figure 1 is drawn from the Australian Energy Markets Commission's estimates of representative offers to households. The comparison uses market exchange rates and is before sales and excise taxes. It shows that household electricity prices, other than for households in the Australian Capital Territory, are higher than those in other similarly wealthy countries. Using purchasing power parity rates of exchange, the comparison is slightly less harsh on Australia. Including sales and excise taxes raises the prices in some countries, particularly in Denmark and Germany so that comparisons that include these taxes show that prices in Australia are near the top but not the most expensive.

5 Comparison of retail electricity bills

Figure 2 below, constructed according to the methodology described earlier, shows the average annual household electricity bill in the twelve distribution zones in SA, VIC, NSW and QLD, for households supplied by a Big Three retailer. The blue bars show the bills assuming that conditional discounts are received and the red bars show the value of the conditional discounts. Electricity bills in South Australia are the highest and about comparable to those paid by households supplied by retailers operating in the Essential Energy distribution zone in New South Wales.

Figure 2. Big Three annual household electricity bills distinguished by distribution zone



6 Comparison of retailers' charges

Figure 3 compares the Big Three retailers' charges – that is how much they charge to provide their retail service to households based on the methodology described earlier. This figure shows that the charge for the provision of retail services after deduction of conditional discounts is the lowest in Victoria, with slightly higher retail charges for households in South East Queensland and in two of the three New South Wales distribution zones. Retailer charges are higher in South Australia and one of the three New South Wales distribution zones.

However it is important to note that in this comparison, the charges for smart meters in Victoria have been deducted in the calculation of retail charges. By comparison, meter charges are included in the calculation of the retail charges in the other states where there has not been a policy of mandatory installation of smart meters. The metering charges in the other states are much smaller since they recover the costs of largely depreciated accumulation meters rather than the remotely read smart meters in Victoria installed pursuant to regulation. If Victoria's metering charges were to be treated in the same way as they are in the other states (i.e. absorbed in the charge for retail services), the retailers' charge in Victoria would be \$109 to \$206 *higher* (the range depending on which distribution zone) than the amounts shown in Figure 3.

Figure 3. Annual charge for the provision of retail services to households by Big Three retailers distinguished by distribution zone in which they are located.

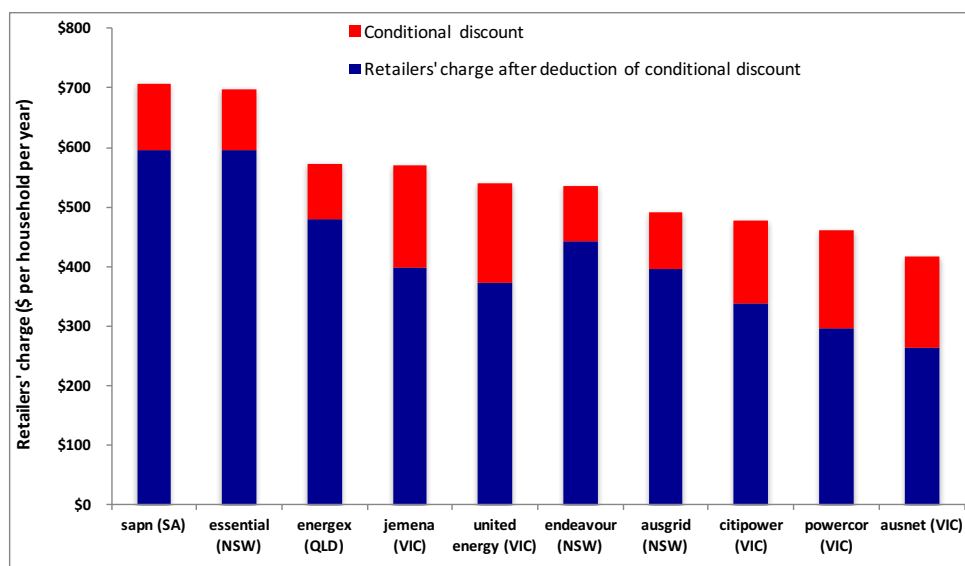
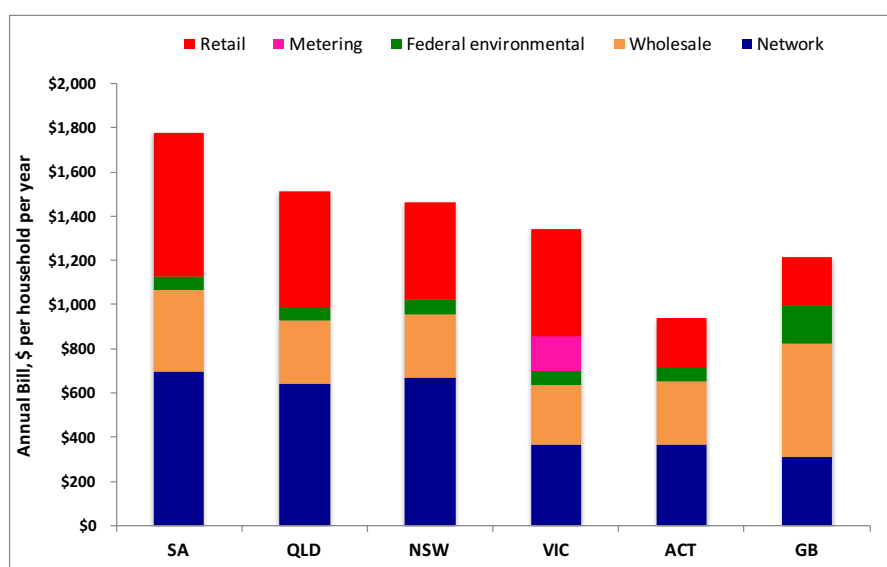


Figure 4 delves deeper into the break-down of retail bills into charges for network services, wholesale energy, metering, environmental (i.e. the federal environmental certificate schemes) and the retailers' charge. For the sake of illustrative brevity, the calculations are shown for households located in one distribution zone in each of NSW (in Ausgrid's area of distribution) and VIC (in United Energy's area of distribution). The reference to Queensland relates to Energex's area of distribution where the retail market has been deregulated. The observations that might be made of the information in Figure 8 are relevant also for supply to households in the other distribution zones in VIC and NSW. At this stage we also introduce the regulated charge in the Australian Capital Territory (ACT)¹ and the charges in the deregulated retail market in Great Britain (GB) into the comparison².

Figure 4. Breakdown of household electricity bills in regional markets and Great Britain



¹ This is based on the breakdown of the prices of each component estimated in 2016, provided in the AEMC's report - see AUSTRALIAN ENERGY MARKETS COMMISSION 2015. 2015 Residential Electricity Price Trends, Final Report. Sydney. - and adjusted to reflect a consistent level of consumption - 4,800 kWh per year. The amount shown is likely to be a slight over-estimate particularly of retail charges since the AEMC's prices were based on a considerably higher level of annual consumptions and we have applied the prices consistent with that calculation to a lower - 4,800 kWh per annum amount.

² The data for Great Britain is based on the price information in the CMA's Final Report - see COMPETITION AND MARKETS AUTHORITY 2016. Energy Market Investigation. Final Report. London: Competition and Markets Authority. - applied to a 4,800 kWh customer and converted to Australian Dollars at market exchange rates (average rates in 2015 as estimated by the OECD). If purchasing power parity rates of exchange had been used, the amounts would be about 12% higher than those shown.

Several observations can be made about the information in Figure 4:

- The federal environmental charges in Australia now comprise a relatively insignificant proportion of the household electricity bill.³
- The charge for the provision of retail services in the ACT and in Great Britain are between a half and a third of those in the other states in Australia where retail markets have been deregulated.
- The difference in wholesale charges in the various states of Australia is not a significant part of the explanation of differences in retail charges to households.

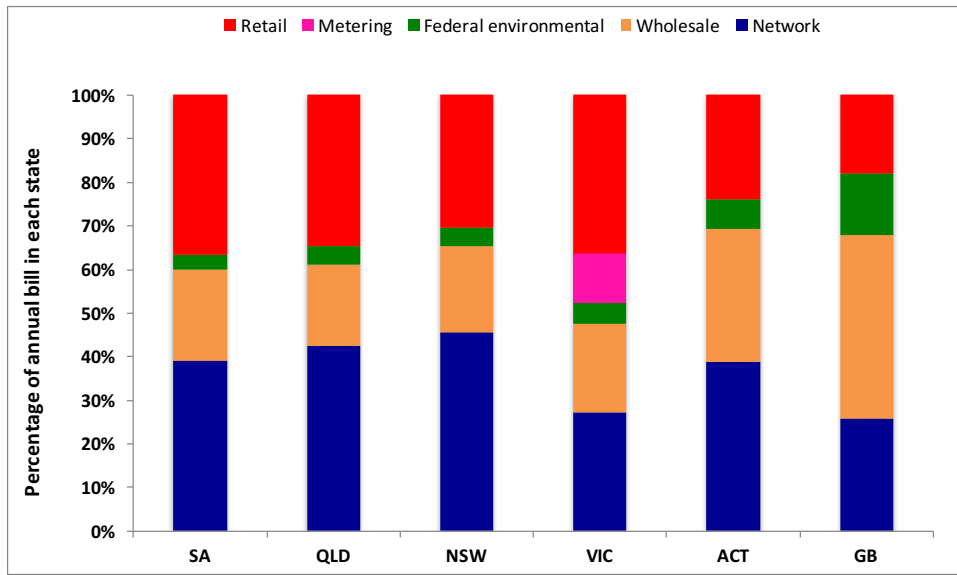
Additional insights can be extracted by expressing the information in Figure 4 as a percentage of the total bill in each state/country. This is shown in

³ It should be noted that in addition to the federal certificate schemes there are a number of state-based feed-in tariff and energy efficiency certificate schemes. The cost of these schemes are passed on to end customers through charges to retails and in some cases charges in network tariffs. Most of these charges are relatively insignificant (less than \$35 per household per year) except in the ACT, QLD and SA. In these states, if the green bars were to assumed to represent the full environmental charge (both federal and jurisdictional) the green bars should increase by \$51, \$120 and \$72 respectively and the size of the blue bars decrease commensurately from their depiction in Figure 8.

Figure 5. As discussed earlier, a comparable representation of the retail charge in Victoria with those in the other states should also include the metering charges in Victoria.⁴ In this case, the retail charge in Victoria is by far the largest as a percentage of the bill. However, excluding the metering charge, the retail charges in Victoria make up an approximately comparable proportion of the bill to those of households located in those other states (i.e. around 35% of the bill). The proportion of the bill is significantly lower in the ACT (24%) and lower still in Britain (18%).

⁴ So, in Victoria, the black bar in Figure 9 should be seen as part of the red bar in order for Victoria to be comparable to the other states. A counter argument is that the smart meter costs are levied on retailers under Victoria's mandatory smart meter policy and so should be treated as if they are not costs. If this convention is applied then the retailer charge in Victoria can not be fairly compared to those in the other states since in those states the metering charges are reflected in the calculation of their retail charges.

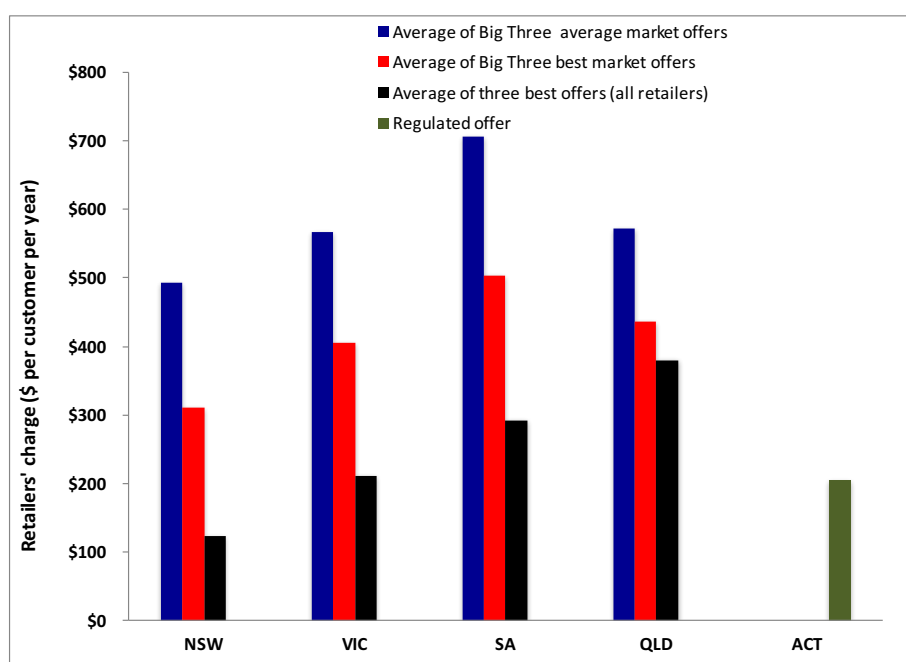
Figure 5. Percentage breakdown of household electricity bill in select distribution zones



7 The Big Three's charges compared to those of other retailers

Finally, in the methodology we explained that sensitivities were performed comparing margins on the average of the Big Three's average offers with those on the average of the Big Three's best (cheapest) offers, and with the average of the three best offers available from all retailers. Again, for the sake of illustrative brevity, the calculations are shown for households located in one distribution zone in each of NSW (in Ausgrid's area of distribution) and VIC (in United Energy's area of distribution). The reference to Queensland relates to Energex's area of distribution where the retail market has been deregulated. The result of this analysis is shown in Figure 6.

Figure 6. Retailers' charge in select distribution zones: average of Big Three average offers, average of Big Three best offers and average of three best offers (all retailers)



Several observations follow from this:

- The Big Three are willing to offer their services on their best offers for considerably less than on the average of their offers.

- The retailer charge in the average of the three best offers from all retailers is considerably lower than the retailer charge in the average of the best offer from the Big Three except in Queensland where the gap is not large.
- Except in New South Wales, the regulated retailer charge in the ACT is lower than the average of the retailer charge on the three cheapest offers for any retailer. This gap is particularly large in South Australia and Queensland.
- It is not shown in this chart, but the best offer from all retailers in NSW and VIC has a lower retailer charge than on the regulated offer in the ACT.

In summary a few retailers in NSW and VIC charge less, on their best offers, for the provision of retail services than on the regulated offer in the ACT. All other retailers are charging more than the ACT even on their best offers. The gap between the retailer charge in the ACT and the Big Three retailers' charges is large even on the Big Three's best offers.

8 Summary of observations and conclusions

The comparisons reveal some remarkable (and worrying) information about deregulated retail markets in Australia:

4. The Big Three are charging two to three times more to sell electricity in NSW, VIC, SA and QLD than the regulated retailer in the ACT is charging.
5. The regulated retailer charges in the ACT are much lower than the retailer charge on the best offers from the Big Three in any region of the NEM.
6. The retailer charge on the average of the three cheapest offers from all retailers in NSW and QLD is about equal to the retailer charge in the ACT. But the retail charge on the cheapest offer from all retailers is higher in SA and QLD than the regulated offer in the ACT.

Different assumptions on wholesale charges will affect the estimate of retailer charges. Are the wholesale charge estimates that we have used implausibly low or implausibly high? If so, the comparison of Australia to Britain will be affected, but the comparison of the charges in the deregulated markets in SA, VIC, NSW and QLD relative to those in the ACT will not be affected. If it is argued that the wholesale price assumptions we have used are implausibly low, how can this be consistent with the evidence that all but a small handful of retail offers have lower voluntary feed-in prices?

The comparison of Australia with Great Britain is also remarkable. In Britain, rising electricity price have attracted high levels of political interest. The Competition and Markets Authority (CMA) concluded, amongst others, that the six largest retailers in Britain enjoy a position of unilateral market power over their inactive customer base, that these retailers have the ability to exploit such a position and that their prices have been above those that it expected should prevail in a well-functioning competitive market. The CMA estimates the charge for the retail service in Great Britain is 18% of the average household electricity bill. However this Report finds that in Australia's deregulated retail markets, the retail charge is around twice as high as a proportion of the bill and about three times as high as an amount, as the charge in Britain. Why?

In Australia, rising electricity prices are also having an increasingly significant impact on state government finances, through the payment of electricity bill concessions to eligible households. It would appear that the need for these concessions is explained not just by rising network charges but even more so in some states, to rising retailer charges.

The direction of policy over the last decade has been towards ever greater retail market deregulation. While in Victoria, the electricity retail market has been fully deregulated for seven years, the markets are at an earlier stage in the other states. Considering the characteristics of the retail electricity market: repeated purchases of complex products, apparently high levels of customer apathy accompanied by high search and switching costs, might it be inevitable that deregulated retail markets are associated with high retail margins to incumbents? If so, what does this mean for the ability of new entrant retailers to provide effective competitive rivalry?

Inevitably minds turn to the question of whether regulation will improve outcomes. While the comparison of Australia's deregulated markets with the ACT is stark, the comparison with the Queensland retail market – only fully deregulated since the start of this month - is less supportive of regulation. And, for all the criticism that the British authorities directed at their deregulated retail markets, if Australia's retail electricity markets were to achieve the outcomes achieved in Britain, retailer charges in Australia would be considerably lower.

Retail markets are changing quickly. Through distributed photovoltaic generation and possibly also the rapid deployment of batteries in future, the retail markets as we understand them today might soon change beyond recognition. In this context it is particularly valuable to have retail market participants that are strongly incentivised to discover what customers want and to take risks with investors' rather than customers' money, in finding the best ways to meet those wants.

However, customer surveys suggest distrust in the electricity industry and in its institutions. It is understandable that many customers are demanding that governments clamp down. A rush to intervene may make matters worse. But this can not be an excuse to do nothing. Comparatively little has been done to properly understand how these markets really work. It is now possible to monitor every

commonly available retail offer, and how they change over time. This information, and deeper economic analysis of the retail market, is needed to understand the distribution of costs and profits between engaged and disengaged customers and between incumbent and new entrant retailers. With insights gained from this the question of whether intervention of some form might improve outcomes should be considered.

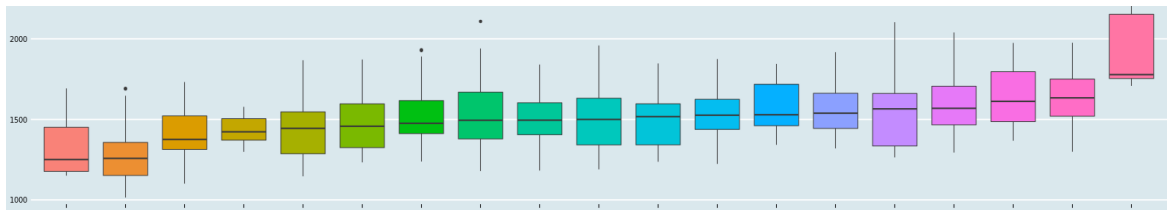
Appendix A: Load profile and other assumptions used in MarkIntell retailer charge estimates

Name	Description	Value
FSP	0.15	Flexible Summer Peak
FNSP	0.15	Flexible Non-Summer Peak
FSS	0.25	Flexible Summer Shoulder
FNSS	0.25	Flexible Non-Summer Shoulder
FSO	0.1	Flexible Summer Off-Peak
FNSO	0.1	Flexible Non-Summer Off-Peak
TP5	0.55	Time of use 5day, proportion annual demand, peak
TO5	0.45	Time of use 5day,proportion annual demand, off-peak
TP7	0.65	Time of use 7day, proportion annual demand, peak
TO7	0.35	Time of use 7day,proportion annual demand, off-peak
SUM	0.5	Summer proportion in seasonal flat rate
NSUM	0.5	Non-summer proportion in seasonal flat rate
STNSP	0.1	Annual demand proportion, peak non-summer
STSP	0.2	Annual demand proportion, peak summer
STSOP	0.45	Annual demand proportion, off-peak summer
STNSOP	0.25	Annual demand proportion, off-peak non-summer
D	4800	Consumption Annual demand (kWh)
CL0	0	Controlled load / dedicated circuit - Annual demand (kWh)
CL1	0	NSW Controlled load 1 / dedicated circuit - Annual demand (kWh)
CL2	0	NSW Controlled load 2/ dedicated circuit - Annual demand (kWh)
SEO	0	Solar export to the grid - Annual demand (kWh)
STC	40	Small-scale technology certificates (\$ per certificate)
LGC	70	Large-scale Renewable certificates (\$ per certificate)
W	60, 57, 77, 59	Average annual wholesale price (\$/MWh) for NSW,VIC,SA, QLD respectively

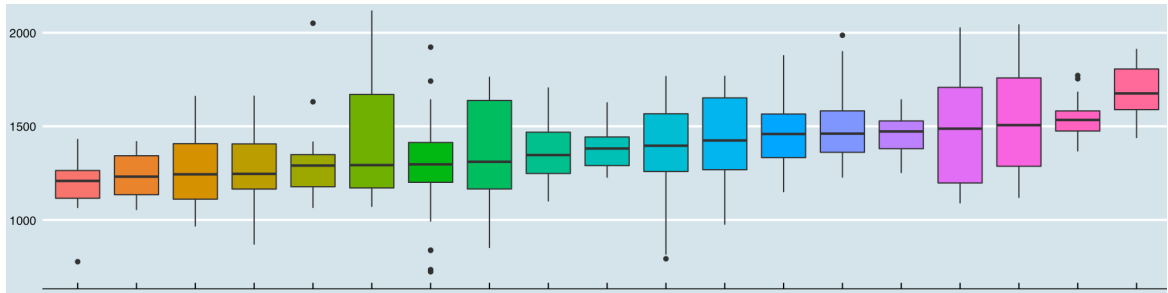
Appendix B: Retail charge box plots

This appendix sets out box plots (obtained from MarkIntell) of the annual retail charge for each retailer selling to residential customers in each state with one box per retailer. The upper and lower limits of the boxes demarcate the upper and lower quartile of these retail charges, the bar in the middle of the box demarcates the median and the whiskers of each box show the values 1.5 times the upper and lower quartile. Dots represent outliers.

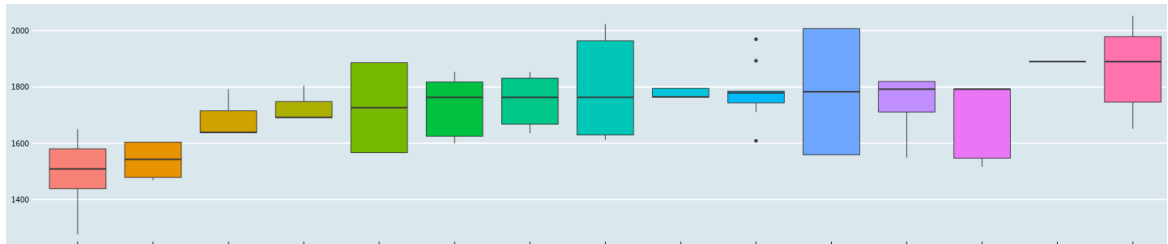
New South Wales



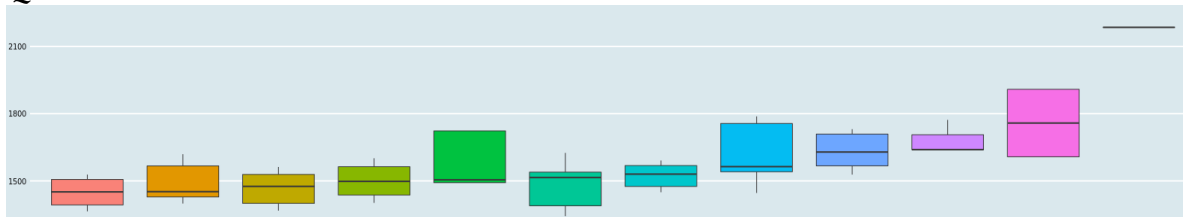
Victoria



South Australia



Queensland



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