State of Play

Quantifying the Competitive Outcomes of Retailing in the NEM

Finncorn Consulting's report for Energy Consumers Australia

Released for submission to the ACCC Retail Electricity Pricing Inquiry

30 November 2017

Table of Contents

Introduction

The ACCC's Retail Electricity Pricing Inquiry is an important opportunity to better-understand the competitive dynamics of retail electricity markets. While several other reviews have been undertaken by others, all building upon the preceding evidence and understanding, only the ACCC has the capacity and authority to fully-examine and reveal the outcomes of competition.

In this report, Finncorn presents long-term trends in publicly-disclosed information from a number of listed and unlisted electricity retailers. Our sample set is incomplete and the data has its limitations, but we hope this may provide some signposts towards the ACCC's more detailed examination of retailer businesses.

We advocate that this public source of information is considered more often in future market analysis, given its reliability as investor disclosure.

Clearly, some significant listed companies believe that disclosure of this type is not contrary to their commercial interests. Perhaps one outcome of the ACCC's work might be a recommendation that all electricity retailers regularly provide a reasonable body of operating data for public analysis – facts such as customer numbers, volumes sold and revenue earned in mass-market electricity and gas markets. We imagine a future where simple facts such as the average cost of electricity for consumers is available directly (obviating the need to analyse bill samples or speculate on what a portfolio of thousands of current and past electricity offers might comprise).

We have started from the premise that competition can only deliver lower costs for consumers if the efficiencies it drives outweigh the new costs it introduces. We take that a step further – it is a necessary but not a sufficient condition. Competition may still be ineffective in reducing consumer costs if the market dynamics do not see the more cost-effective retailers setting the price.

The data we have collected in this report suggests a rising trend in both the operating costs and the profitability of retailer businesses: Gross Margins, Cost to Maintain, Cost to Compete and EBIT have all trended higher despite a roll-out of price deregulation and competition.

In addition, we have tentatively examined the level of EBIT compared with an estimate of the Cost of Capital for one retailer – the only one where public data is adequate to attempt this. It may well be the case that EBIT available to the larger retailers is substantially more than required to meet their Cost of Capital.

All this taken together suggests to us that firstly, it seems unlikely that the net effect of competition has been to reduce costs in aggregate across the industry (in which case, it is impossible for consumers to benefit from lower prices in the face of higher gross and net margins).

Secondly, its seems it may be the higher-cost retailers setting prices, leading to sustainable Economic Profit for the cost-efficient retailers, and a further impost on consumers compared with an efficient state of competition.

This is our "State of Play Victoria" hypothesis – no more than a theory which appears to fit some incomplete evidence, to be sure, but perhaps a hypothesis worth testing more rigorously by the ACCC.

We thank the ACCC for the opportunity to provide this submission, and Energy Consumers Australia for encouraging and funding the work and providing extensive and valuable feedback. The errors which remain are entirely ours.

David Heard
Principal

Finncorn Consulting

30 November 2017

Executive Summary

Long-term trends in the public domain should be examined

The four largest Australian energy retailers publicly disclose data representing 11.1 million of the 13.2 million electricity and gas customer accounts in the NEM[1]. The top two companies are ASX-listed, and so the data on their 7.5 million customers is broad and extends over many years. This data is freely available, updated twice each year, sufficiently reliable for investors to trust and it tells some interesting stories.

However, this data is often overlooked by electricity market analysts, regulators and policy makers. This could be because the data is extensive (and can be confusing to assess when unfamiliar), the reporting methodology sometimes changes from year to year, and each company presents its data differently.

This report by Finncorn Consulting tackles that complexity, deconstructs electricity market reporting, and demonstrates how the information highlights important aspects of the competitive market structure and performance.

Operating costs and EBIT margins have risen alongside prices and gross margins

Our analysis demonstrates that it is not just final energy prices and retail gross margins that have been rising over the past decade: so too have the reported operating costs of retailers (costs associated with competition, and basic costs to maintain customer service) as well as the residual EBIT margins actually retained by retailers after these costs.

This is an interesting circumstance after years of deregulation and competition in retail energy markets, commencing in Victoria, which has spawned a plethora of very small "Tier 3" new-entrant retailers and an associated rise in consumer churn[2]. Prima facie this implies a higher level of total cost in the industry – fixed overhead costs driven by the number of retailers, and activity-based costs driven by marketing and churn as retailers swap consumer accounts with each other – typically, furiously paddling just to stay still in terms of market share.

Clearly, the total operating costs in the industry must be recovered from consumers through revenues in any sustainable market structure. Competition can only provide lower energy costs to consumers if (1) it drives more-than-offsetting operating cost reductions through efficiency and innovation; AND (2) if the competition is effective to ensure prices are set based on relatively efficient costs.

We question both legs of this. At this stage, such offsets are not easy to identify in the aggregate costs, nor is it clear that efficient-cost retailers are in fact the price-setters.

Take care judging the "fair" earnings for capital-intensive energy retailers…

As to whether such EBIT margins are too high, to low or just right – we cannot say with certainty. We point out one of the forgotten elements of retailer costs – the cost of capital – and show that this is material. The risk-management and working capital elements of retailing create the need for substantial capital support, and capital requires a fair return on the risk.

Our cautious conclusion from examining AGL's disclosure[3] is that they at least appear to enjoy EBIT substantially in excess of their Cost of Capital. If this is true, and if it is generalised to the other Tier 1 retailers (Origin and Energy Australia), then that would be an intriguing situation. In our opinion, it would most likely be because Tier 1 retailers, while lowest-cost, are NOT the price setters in the market but rather price-followers.

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[1] The National Electricity Market. We generalise to include mass-market gas customers in the NEM regions. We do not consider WA as until recently, the large Tier 1 players were not active there. Among the NEM regions we focus on retailing into the four large, competitive areas (with little consideration of the small and concentrated ACT, Tasmania and regional Queensland regions).

[2] Switching activity by customers. Expressed as a percentage, it is the gross number of customer accounts lost, divided by the starting base. Since it is evidence of a form of consumer engagement in the competitive market, it is often considered to be a good thing, and the more the better. We disagree.

[3] The disclosure of other retailers – even listed Origin – is not structured to allow a comparable analysis.

What is the State of Play - who sets the price in this type of market structure?

We take a particular interest in the structure of industry-wide costs – in total, and their distribution among the competitors – and what that may imply about price-setting and thus consumer outcomes. We use the example of (then) listed Australian Power and Gas to develop a hypothesis that a prevalence of small retailers in a market may in fact drive prices higher rather than lower.

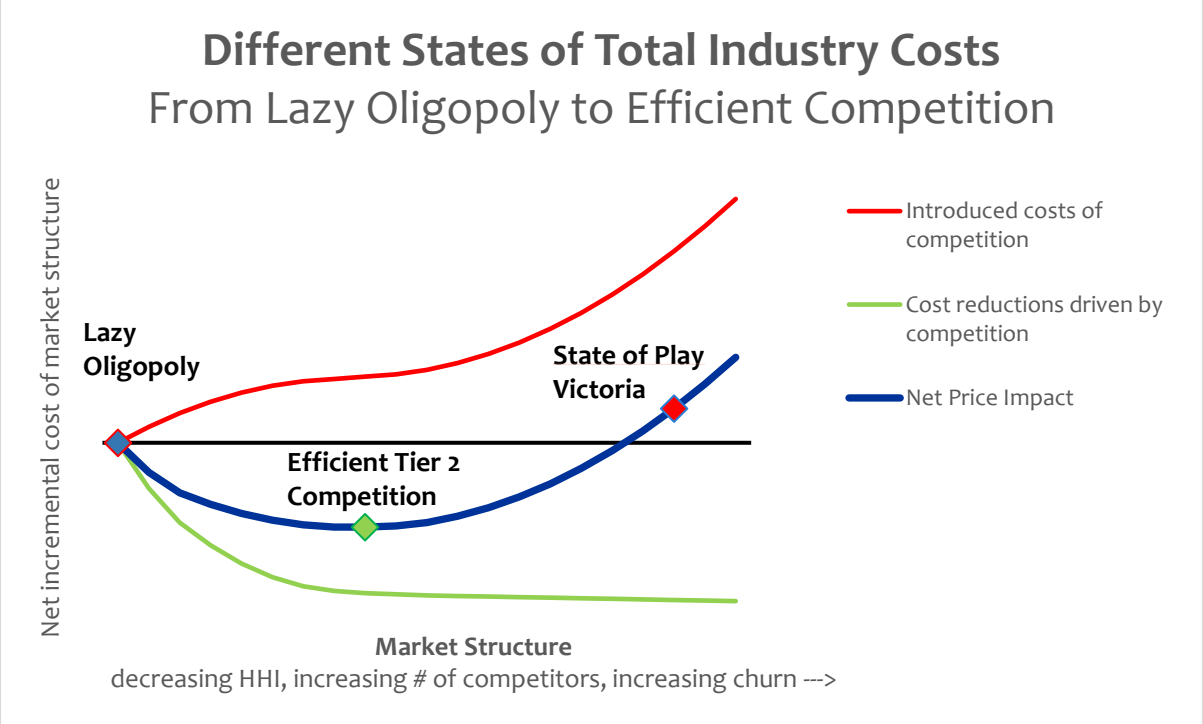
We consider that the operating cost per account for Tier 3 retailers, like Australian Power and Gas, is very likely to be well in excess of the few large, efficient Tier 1s, for several reasons including scale economies, scope economies and differences in customer bases – in other words, we expect the evidence for Australian Power and Gas is a good general indication of Tier 3 relative operating costs. The same is true for Cost of Capital. As a result, a market structure that sustainably supports Tier 3s must offer them the opportunity to recover these relatively high costs through price.

We contend this has likely driven the general level of tariffs: **we see Tier 3s as price-setters and Tier 1s as price-followers.**

In our view, Tier 1s have little incentive to rock the boat and drive out the higher-cost competitors in an environment where the quantity of competitors is considered a significant signal of "healthy competition". This likely results in comfortable levels of Tier 1 profitability, as they accept some loss of market share to higher-cost new-entrants in return for higher margins against their relatively low operating costs.

We refer to this possible competitive equilibrium state of prices set by high-cost players as "State of Play Victoria".

We suggest policy development should adapt to lean against such an outcome, and should not focus on either extreme of competitive market structures, but the optimum point for consumers somewhere in between.



Ultimately, we express our view of retail competition in the NEM in the figure above, and ask:

1. **Where are we now on this continuum?**
2. **Are we moving towards the optimum for consumers, or away from it?**

Policy Recommendations

For deregulated energy markets to ultimately deliver lower prices for consumers, we recommend:

1. **Encourage stronger "Tier 2" competition**. Reduce the focus on metrics such as churn rates, HHI[4] and quantity of retailers as poor proxies for competitive health, and even poorer proxies for consumers benefiting from competition.

   Barriers to entry in energy retailing are currently very low, while barriers to gaining efficient scale from that point appear very high. This has led to a hollowing-out of the marketplace, which lacks Tier 2 competitors who would have the capacity to cost-efficiently compete on a sustainable basis.

   Policy might on one hand restrict further licences for start-up retailers lacking any sustainable competitive advantages, while on the other, seek to encourage consolidation and "Tier 2" new entrants backed by some combination of (a) a degree of self-generation; (b) strong balance sheet to ride out volatility; and (c) existing scale and systems associated with mass-market retailing, to encourage economies of scale and scope.[5]

2. **Improve disclosure of energy retailing performance**, based on the benchmarks well-established by AGL and Origin.

   This might be a combination of basic public disclosure on overall customer numbers, volumes sold, and revenues at state level, and gross margins and EBIT margins overall, plus more sensitive price and margin disclosure (e.g. at state-level) to regulators. This would allow robust, systematic expert analysis of the industry over time rather than ad-hoc reviews and flawed analyses too reliant on unverifiable assumptions.

   As one example, a lack of disclosure of industry revenues means it is currently impossible to answer the simplest question: how much do Australian consumers spend on electricity?[6] Australian Bureau of Statistics indices based on standing offer levels are increasingly inaccurate and irrelevant as a proxy for this, while painstaking observation of the subset of current tariffs on public offer is also fraught with peril compared with the hidden back-book of consumer contracts.

3. **Promote hedge market liquidity.** Competing effectively with Tier 1 gentailers to the benefit of consumers requires relatively low operating costs, and relatively low cost of goods sold (including access to gas to offer dual-fuel to create economies of scope, and LGCs to satisfy obligations under the LRET[7]) – all of which are extremely challenging for other retailers. However, the greatest impediment to future competition may be risk management.

   The replacement of thermal generation with renewables is likely to greatly reduce available firm hedging (after Tier 1 gentailer self-hedging) to establish electricity supply costs within a reasonable degree of certainty. This may be an area where careful policy could help transform portfolios of uncorrelated renewable project outputs into tranches of viable hedge product available to retailers. In our view, this is a role state-based renewables schemes such as the proposed VRET[8] and the CEFC[9] might consider, as a consumer-focussed adjunct to their climate policy objectives.

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[4] Herfindahl–Hirschman Index, a number derived from the number of competitors and their comparative market share. Often quoted, but rarely is it explained what the "right" HHI is, or why. It seems the trajectory over time is believed to be the important thing.

[5] We are seeing signs of this: Alinta seeking a substantial generation position, and existing (Infigen) and new (Shell) renewables generators discussing retail strategies.

[6] The recent Victorian review took the trouble to collect and analyse 682 sample electricity bills as a brute-force method to overcome this problem.

[7] LGC = Large-scale Generation Certificates, created by renewable generators, procured by retailers and surrendered under the Large-scale Renewable Energy Target – the most material "green scheme" cost in retail tariffs.

[8] Victorian Renewable Energy Target - potentially a very large offtaker of new-build renewable projects, where the State of Victoria may find itself extremely long wholesale electricity prices.

[9] The Clean Energy Finance Corporation, which might effectively bring the sovereign credit rating to bear as an intermediary in hedge markets.

Structure of this report

In **Section 1**, we set out the energy retailer business model, noting that Economic Profit is the objective and that Gross Margin – often the sole focus of external analysis – is only one of four main elements driving profit. We set out the building-blocks of all four elements, and briefly highlight the forgotten two: Capital Employed and Weighted Average Cost of Capital ("WACC") which together drive Cost of Capital ("CoC").

In **Section 2**, we outline the broad structure of the competitive markets for energy retailing in the NEM, establishing our preferred 3-Tier segmentation and highlighting issues of relative scale and other areas of competitive advantage which we consider to be significant in driving retailer costs and thus, consumer pricing.

Section 3 investigates the retailer business model, drawing out some issues including dual-fuel advantages, the cost impact of relative churn rates, customer segmentation and customer value, and acquisition / retention strategies.

In **Section 4**, we set out our analysis of long-term disclosure by listed retailers to the level of Gross Margin, discussing some of the trends and relativities which are evident.

After brief **Interlude**, we continue the analysis in **Section 5**, where we focus on trends in retailer operating costs ("Cost to Serve" or "CtS"), as in the long run all retailers are exposed to the same wholesale markets for supply[10], and have limited ability to differentiate on Cost of Goods Sold ("CoGS"). In that case, Gross Margin will be driven by retailer's need to recover the CtS on top of this broadly common CoGS.

The comparison between AGL Energy and Australian Power and Gas (referred to by its ASX ticker "APK") is important in highlighting the relative CtS of Tier 1 and Tier 3 retailers in these sections.

Section 6 considers the evidence we have seen, and develops our hypothesis of several possible states of competitive equilibria in the market, with different outcomes for consumers.

This is in response to the default position of some other commentators who take a binary approach, seeing only the extremes of inefficient monopoly retailers, and a state of ever-more-perfect competition defined by higher churn, lower HHI, and more retailers.

In contrast, we suggest a competitive optimum for consumers is not "State of Play Victoria", nor a return to regulation that stifles competition and associated service and innovation benefits. Rather it would be a competitive market structure where regulators lean against excessive Tier 3 driven costs, and support a reasonable number of Tier 2 competitors with efficient scale and sustainable capability who can bring moderate CtS and CoC to bear. In so doing, they may act to lead pricing and drive Gross Margin, and consumer prices, downward.

[10] Although in the short run, retailers' Cost of Goods Sold is materially influenced by their particular short to medium term hedge position, which may be substantially in or out of the money at any point. These differences likely drive the competitive ebbs and flows, as we illustrate in the Australian Power and Gas vs. AGL case.

Data Sources

Public investor information

This report has been prepared based on the public information provided by ASX-listed energy retailers **AGL Energy Ltd**, **Origin Energy Ltd** and **Australian Power & Gas Company Ltd**, as well as more limited public information provided by **Energy Australia** (via its HK-listed parent company, China Light & Power) and **Snowy Hydro's** retail brands (Red Energy and Lumo Energy).

As shorthand and in charts, we refer to these as AGL, ORG, APK, EA and SHY respectively.

The source information includes information memoranda associated with transactions, audited financial statements, accompanying management discussion and analysis of operating performance, presentation materials prepared for investor audiences, and other relevant announcements made by the companies – all available from the websites of the ASX or the companies. Years (e.g. 2017 or FY17) are 12 months ending in June.[11]

Long-term analysis

- **AGL:** Information extends from **2005 to 2017**, commencing with information provided to support the demerger of AGL and Alinta from The Australian Gas Light Company in October 2006. Under this demerger, AGL appeared in its current form as an integrated generator & retailer (or "gentailer") focussed on the NEM (while Alinta held energy infrastructure assets and a retailer position in WA).
- **ORG:** Information extends from **2002 to 2017**, based on the similar demerger of ORG (as a gentailer) and Envestra (as an infrastructure owner / manager) from Boral in 2002.
- **APK:** Information spans **2006 to 2013**, a period which saw APK commence retail operations as a start-up, grow a fairly substantial customer base across the NEM, and ultimately be acquired under a takeover offer from AGL at the point it faced very serious financial strife.
- **EA:** Information covers **2012 to 2017**, from the point of a substantial bulking-up via acquisition of large NSW generation and retail business under privatisation.
- **SHY:** retail information extends from **2005 to 2017**. This period covers the introduction of the Red Energy retail business, and the September 2014 acquisition of Lumo Energy to reach ~1m customer accounts and clearly establish themselves as the 4th largest NEM retailer.

Other sources

In relation to overall market structure we have drawn upon current and past reports from market bodies including the Australian Energy Regulator's "State of the Energy Market" ("AER-SEM"), the Australian Energy Market Commissions' "Retail Energy Competition Review" ("AEMC-RECR") and associated public data accessible from their websites and that of the Australian Energy Market Operator ("AEMO").

[11] June is the common reporting date for all three ASX-listed subject companies and Snowy Hydro. EA has a December year-end but data has been re-arranged to matching June years, based on its semi-annual disclosures.

Methodology

Retail focus – with assumptions necessary on overheads, separating generation

This report focusses on the energy retailing operations and performance of the companies. APK was a pure retailer, but in the cases of EA, AGL, ORG and Snowy Hydro, we are required to separate retailing from other segments such as upstream gas, LNG and in particular, generation.

Non-gentailer[12] activities have been clearly reported separately, but the separation of gentailing disclosure into "Generation" and "Retailing" presents significant challenges.[13]

In some cases, identifying retail performance is assisted by clear separate segment reporting of retail. In other cases, a virtual segmentation is necessary, based on identifying generation pool revenues and operating costs from the detail of the disclosure, or in some cases extrapolating prior disclosures such as depreciation charges.

This introduces assumptions, particularly relating to where the costs and benefits of hedging, including implicit hedging between generation revenue and retail costs of goods sold, should be allocated.

Another challenging area is the treatment of corporate overheads, and the extent to which these are reported above the retailing operations, or allocated down as part of retail operating costs. AGL and ORG take different approaches, and the treatments have varied over time.

In these areas, we have described any material assumptions in the body of the report.

Small consumer focus – with assumptions necessary on large C&I margins for ORG

AGL, EA, and ORG deal with a combination of:

- "**mass-market**" small consumers (including, for their reporting, small to medium enterprises, or "SME");
- larger Commercial & Industrial ("**C&I**") customers; and
- very large wholesale counterparties who are more like trading peers than retail customers.

Our focus is on the mass market, and so we have separated this from the larger C&I and wholesale customers to the extent possible – important given the available margins are very different among these customer classes.

AGL recent reporting is very clear in this respect, while ORG do not disclose quite the same level of detail. We have chosen to apply AGL's disclosed C&I gross margins to ORG's C&I retail volumes to enable this segmentation. This may seem a significant assumption on the face of it, but we believe is justified on the basis that:

1. C&I energy retailing is strongly competitive based largely on tender processes which drive margins to relatively low and similar levels across retailers; and
2. The sensitivity to the assumption is relatively small: the large majority of electricity retailing gross margins are associated with mass-market, and moderate change in the assumed unit gross margin associated with C&I does not change the derived mass-market outcome for ORG materially.

This is supported by examining the reported gross margins of a fourth ASX-listed retailer, ERM Power, who specialise in C&I electricity retailing. We observe that ERM and AGL have similar reported gross margins in C&I retailing, so we consider it very likely that ORG's C&I margins are broadly consistent with these two.

However, we acknowledge this is a source of modest uncertainty in the results associated with ORG.

[12] "Generator-Retailer", the common term to describe entities with activities at both ends of the competitive markets for electricity, but not the intervening regulated transmission and distribution networks.

[13] In the case of Snowy Hydro, there is very scant information available for retailing alone – merely customer numbers and retailing EBITDA – and so that is all we have presented.

Limitations

Evolution of disclosure

Company disclosure of segment performance varies in nature between companies and over time.

Some elements of disclosure have been consistent over the time period, while others have emerged as the companies sought to better-explain their performance to investors. The general trend has been towards more comprehensive disclosure, but in some cases, detail has been reduced – perhaps due to concerns regarding commercial sensitivity. We present all available disclosure given this evolution.

Where restatements have been made in this information over time (for example, due to errors, changes in accounting policies, or changes in segment reporting) we have endeavoured to adopt the restated information as far back as provided by the companies – however this may introduce some discontinuities in the analysis. Generally these are not considered to be material, although in some cases we have used our judgement to ensure trends are not misleading as a result.

1. Retailer Business Model

In this section we outline how retailers endeavour to make money for their owners from mass-market energy retailing.

There are four building-blocks of profitability, but much previous analytical work has only focussed on the first and most transparent of these – the Gross Margin.

The second is the operating cost (known as Cost to Serve) which retailers face before they can report a profit. Subtracting these from Gross Margin to determine a retailer's overall Earnings Before Interest & Tax ("EBIT") yields a far more important metric than Gross Margin in assessing retailer performance and profitability, even if it is more challenging to measure.

We explain why any such analysis needs to look not only at electricity, but at the overall mass-market business of retailers – which in practice means considering their role as gas suppliers. This is necessary because Cost to Serve and EBIT apply to the overall mass-market customer base, regardless of the commodity supplied under each account.

EBIT is not the end of the story – it serves the purpose of delivering a return to the capital providers who invest to fund a retailer's operations.

Although it has often been overlooked in past analyses, energy retailing is relatively capital-intensive compared with other forms of retailing such as groceries. The other two building blocks are the size of this investment (Capital Employed) and the required return on that investment (the Weighted Average Cost of Capital or "WACC"). Together these represent a real cost in any sustainable industry: the Cost of Capital.

If measuring Cost to Serve and EBIT is challenging, Capital Employed and WACC are even more so. We take a shot at it, and find that (1) a material proportion of EBIT is necessary to meet this Cost of Capital; and (2) differences in WACC mean this quantity varies materially between classes of retailer.

Only earnings in excess of this level – known as Economic Profit – should be of any concern in relation to the competitive market performance, and only if those Economic Profits are durable and widespread among the industry.

We examine the vertically-integrated business model pursued by several retailers, combining generation and retailing into a "gentailer", and discuss the advantages this offers. These include reduction in the frictional costs of risk management or hedging for both businesses (by internalising the transactions) gaining preferred access to liquidity (by the same mechanism), and lowering the WACC (by virtue of a better balance sheet, enabled by the more stable earnings performance across a generation and retailing portfolio than an independent generator or retailer).

We explain how we treat the advantages of this business model in seeking to compare retailers regardless of this structural choice.

Finally, we set out our generic "tariff stack" where we distinguish between those things a retailer cannot control in the long-run (such as wholesale electricity costs, a benchmark cost to manage risk, and network charges) with those things they can control or influence – particularly their operating costs.

This establishes a framework for our analysis of the reported performance of retailers.

Building-blocks of retailer profitability

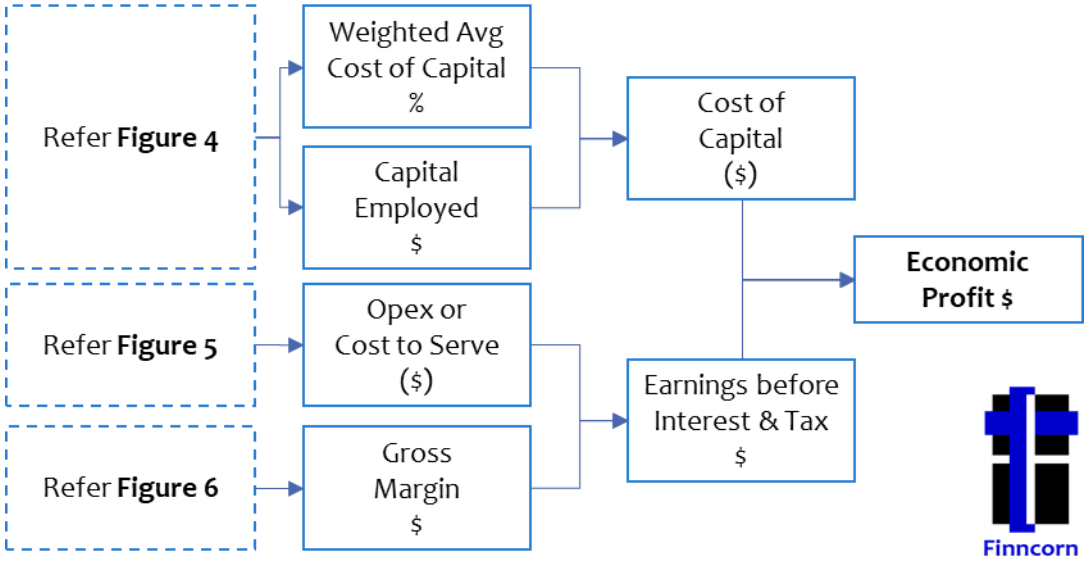
It is important to understand the business model pursued by energy retailers, before seeking to interpret their behaviour and results, and in particular retailer profitability.

At the simplest level, retailer management teams are seeking to earn **Economic Profit**: residual earnings in excess of the cost of servicing the capital provided to the business.[14]

Note that if a retailer were to earn zero economic profit, both their debt and equity capital providers would be exactly satisfied, by definition. However, remuneration incentives are often tied to achievement of equity outperformance.

Note in **Figure 1** there are four major influences on Economic Profit – most retailer analysis has focussed on just one element, the Gross Margin.

Figure 1 – Breakdown of Retailer Economic Profit



In this report we will certainly focus on the EBIT half of the story, Gross Margin and Cost to Serve, as the majority of disclosure is directed to these elements.

However we first briefly address the other, less obvious half of the story – the Cost of Capital.

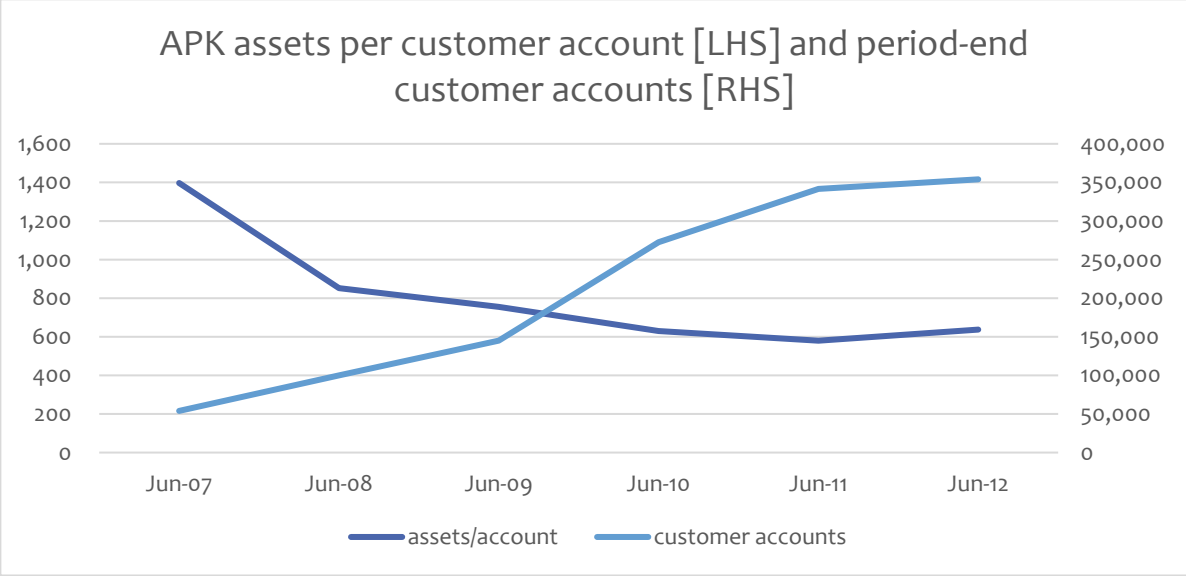
[14] One version of this is Stern Stewart's Economic Value Added or EVA®. We are being more general.

Capital costs in energy retailing

One reason there has been a lack of analysis on the Cost of Capital is a lack of information, particularly about retailer-specific capital employed. Finncorn is not in a better position than any other public analyst – but there are a couple of interesting sources of data to consider.

Firstly, we consider information about APK. This was a pure retailer – and appeared to settle at about $600 of assets[15] per customer account as shown in **Figure 2** below.

Figure 2 – APK capital employed



Secondly, we examine AGL's segment disclosure. From FY07-14, this was for a Retail segment excluding risk management (which was captured in their Merchant segment, along with generation assets).

From FY14 onwards, the new "Energy Markets" segment includes the risk management activity and associated capital employed (but helpfully, does NOT include generation assets, which are part of the Group Operations segment).

Simply looking at this figure divided by the number of customers is likely to be misleading, because:

- AGL's segment reporting includes a C&I retail customer base, with relatively few but very large customers[16]; and
- there are presumably substantial risk management activities associated with generation as well as retail.[17]

As a result, in our analysis we have attempted to provide an idea of AGL's mass-market capital employed by allocating the reported segments assets by the total megawatt-hours ("MWh")[18] of annual sales, and then allocating to mass-market customers based on their proportional load.

[15] Total assets from the reported balance sheet.

[16] In electricity, about 14,000 C&I customers with average load of 800 MWh per annum, compared with about 2.2m mass-market customers with average load of 6.2 MWh per annum. Capital – including working capital and capital associated with the collateral required for market operations and hedging – is likely to be proportional to load volume, not account numbers.

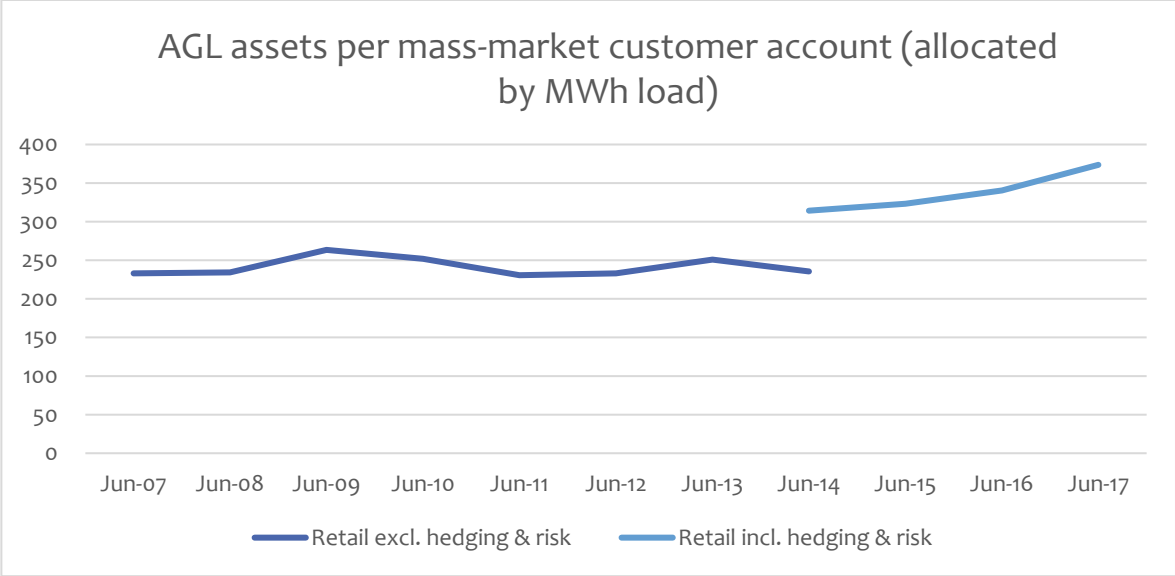
[17] If we do this, the result is substantially higher assets per customer than APK, of about $1,000 for FY07-14 (excluding risk management) and $1,335 in FY14 rising to $1,514 in FY17 under the current reporting including risk management.

[18] A MWh is the common unit of energy in wholesale electricity, and is equal to 1,000 kWh, the unit used in mass-market billing. A price of $100/MWh is equal to 10c/kWh.

Under this approach, per-customer assets reported in this segment are substantially lower than APK reported, at around $250 per mass-market account excluding hedging and risk over FY07-14, and $314 rising to $374 per mass-market account including hedging and risk over FY14-17.

This is shown below in **Figure 3**.

Figure 3 – AGL capital employed in retail segment



This appears to indicate AGL's assets per customer are substantially lower than APKs, with FY14 (where both segment versions were reported) indicating $79 per customer tied up in hedging and risk management, on top of about $235 per customer in other retail capital.

There is an important difference between AGL and APK: As AGL is vertically integrated, much of its retail hedging is achieved through internal generation assets – representing a large quantity of capital employed.

So an APK versus AGL comparison is not really like-for-like, but indicates an important advantage of vertical integration: AGL has devoted substantial capital to generation, and can earn an independent "merchant" return driven by wholesale pool prices. In addition, both AGL's generation and retail businesses are able to avoid capital[19] which would otherwise be employed to reduce volatility by hedging both electricity sales and electricity purchases, since they deal with each other as an internal transaction.

A material "hidden" cost – and another cost advantage for Tier 1 gentailers

Looking at both these examples, it seems reasonable to estimate the assets required to serve mass-market customers may be somewhere in the range of $300 to $600 per mass-market customer per annum.

This is not immaterial – we can roughly estimate:

- **For equity-funded APK, a 15% expected rate of return** for that risky equity would suggest **$90 in annual EBIT per customer was required** to meet the cost of ~$600 in capital per mass-market customer.
- **For investment-grade AGL, a 9% WACC[20]** would demand **$32 in EBIT** from $354 in FY17 capital per mass-market customer.

[19] Not necessarily fixed-asset capital (like a physical generator), but the capital tied up in supporting hedging obligations including the initial margin and liquid collateral required by risk-management counterparties.

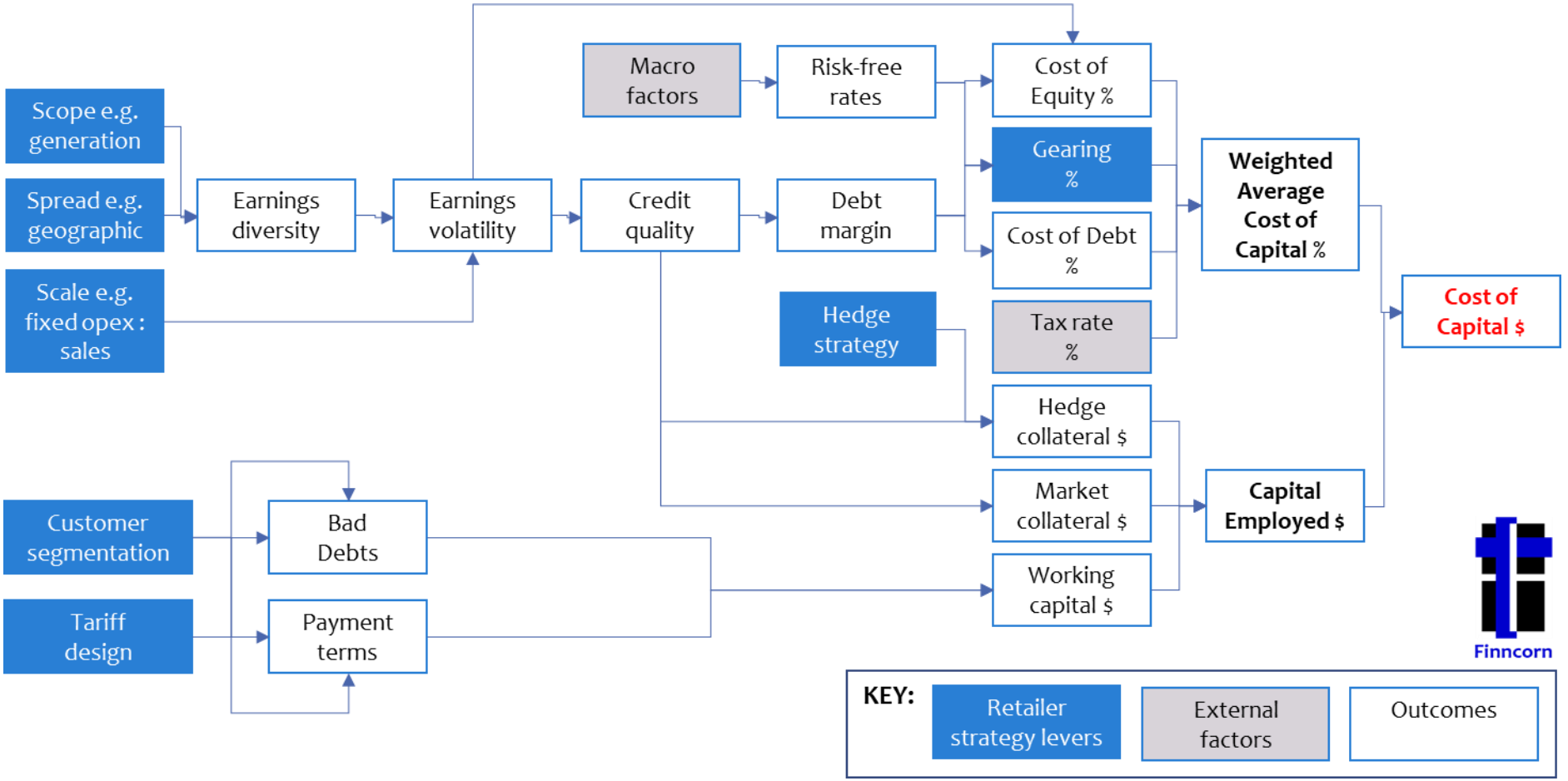
[20] Why 9%? AGL's enterprise value is about $19bn at a $25 share price. Equity market value is $16bn, while net debt is $3bn, or 17% of the total. We use risk-free rates of 2.5% (10-year A$ government bonds), and allow a 4.5% pre-tax cost of debt (2% over risk-free rates). For cost of equity, we assume 10% based on a market risk premium of 7.5%, and a beta of 1.0. It is a reasonable indicative WACC.

In our view, it is not reasonable to claim a particular level of EBIT per customer earned by a retailer is too high, too low or just right without considering the appropriate Cost of Capital of that retailer, and their capital employed in retailing.

Figure 4 overleaf highlights some of the detail which leads eventually to Cost of Capital.

We suggest **a more detailed understanding of retailer Capital Employed and Cost of Capital is essential to any analysis of retailer profitability** – not least because it highlights one of several important distinctions between the costs experienced by large (Tier 1) and very small (Tier 3) segments – as we discuss at length later in this report.

Figure 4 – Influences on WACC, Capital Employed and Cost of Capital for energy retailers



EBIT in energy retailing

The Cost of Capital (and any Economic Profit in excess of that), must be funded from Earnings Before Interest & Tax.[21] EBIT itself is comprised of:

- **Gross Margin**: Revenues charged to customers, less the Cost of Goods Sold ("CoGS") – which for energy retailers is principally external costs for wholesale electricity, wholesale gas, LGCs[22], and associated transmission and distribution network costs; and
- **Cost to Serve**: also known as Operating Expenses. These are the internal costs of the retailer associated with management, marketing, customer service, bad debts and competitive activities.

A lot of emphasis has been placed on measuring Gross Margin, sometimes referred to as the "Retailer Charge". Sometimes, analyses conclude these are relatively high, or trending higher.

Clearly this is valuable to observe, but it is only the beginning of the story – for example, if retailer Gross Margins are judged to be "high", we should next question:

1. **Are those Gross Margins flowing through to fund Economic Profits** for retailer equity owners – perhaps indicating some structural issues with the competitive market? OR
2. **Are they merely reflecting the need to recover high Cost to Serve** – is EBIT high?
3. **Are they reflecting relatively high levels of Capital Employed** in energy retailing – perhaps compared with other classes of retailer facing different capital demands?
4. **Are they reflecting a relatively high WACC** – is the retailer or the industry bringing an efficient investment structure to bear?

Cost to Serve in energy retailing

Just as it is difficult to form conclusions about profitability without looking at Cost of Capital, it is even more difficult to do so without examining Cost to Serve. In our view, this area has been under-analysed in the past.

The bulk of this report examines the publicly-disclosed information on both Gross Margin and Cost to Serve over a relatively long period. **Figures 5 and 6** overleaf outline the components of Gross Margin and Cost to Serve.

To examine electricity, it is necessary to examine gas in tandem

Note that for Gross Margin, we separate electricity from gas, as there is clearly a simple basis to do so with the distinct nature of electricity and gas CoGS – both the physical commodity and the associated network and environmental costs. Retailers report in this way – the data is available.

For Cost to Serve there is no distinction made between electricity and gas, and sometimes we implicitly assume the cost is equivalent between serving an electricity or a gas mass-market account.[23]

This reflects the style of reported data, which in turn suggests retailers see little clear basis to allocate costs between electricity and gas, when many of the expenses are generic to the customer account rather than the commodity.

A consequence of this is that any comprehensive analysis of electricity retailing cannot occur in isolation of gas retailing.

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[21] EBIT may then be applied to satisfy (in order) the demands of debt capital (through interest), taxation, and equity capital (through dividends and retained earnings).

[22] LGC = Large-scale Generation Certificates, created by renewable generators, procured by retailers and surrendered under the Large-scale Renewable Energy Target – the most material "green scheme" cost in retail tariffs.

[23] This is probably reasonable as an estimate for broad analysis, but in fact there are elements of difference. For example, if electricity accounts have larger revenue than gas accounts on average, this would drive lager relative Cost to Serve based on working capital costs, bad & doubtful debt expenses, and possibly larger hedging-related capital costs for managing volatile electricity prices. It would be interesting to see further work done on this difference in future.

Figure 5 – Influences on Gross Margin for energy retailers

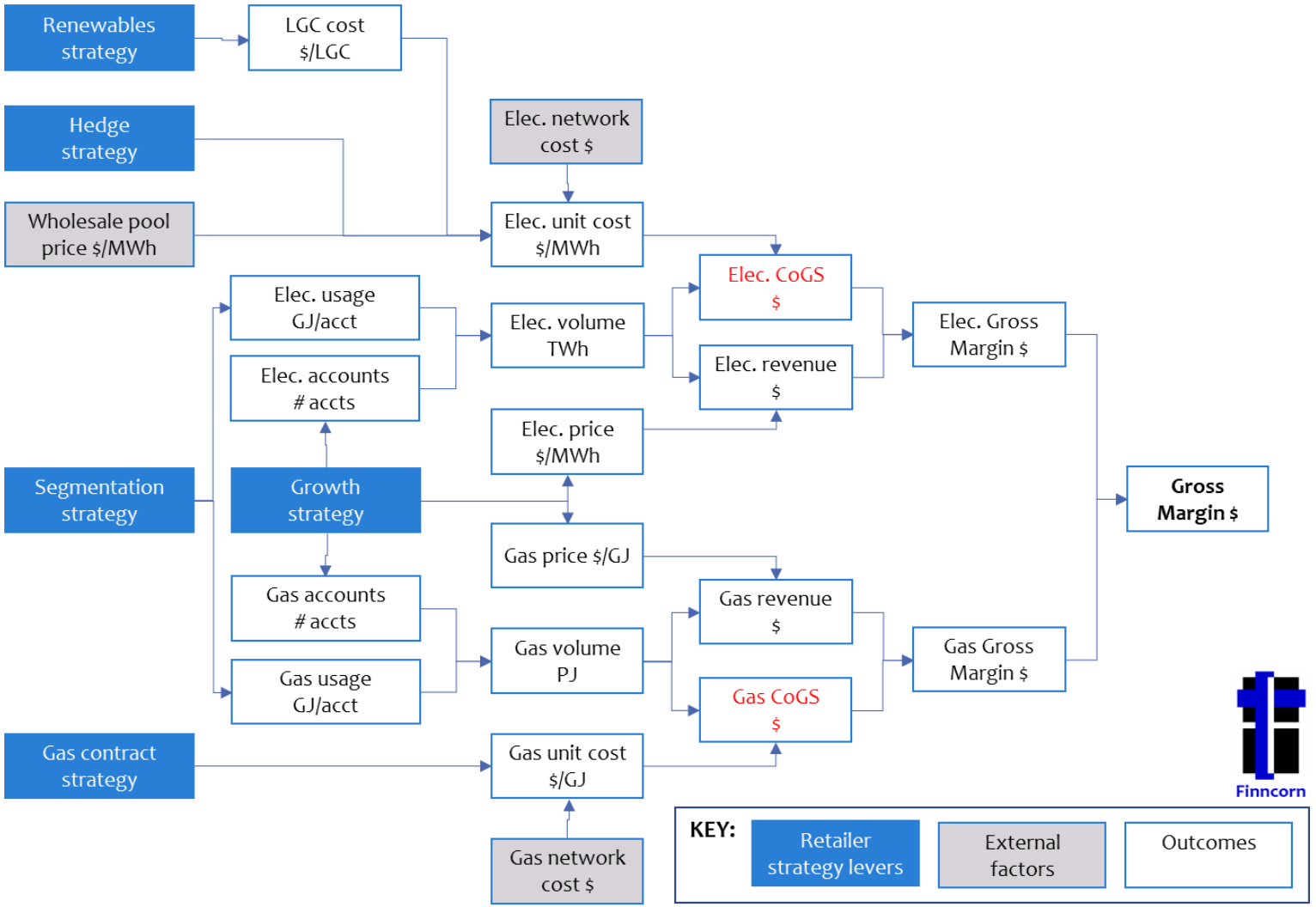
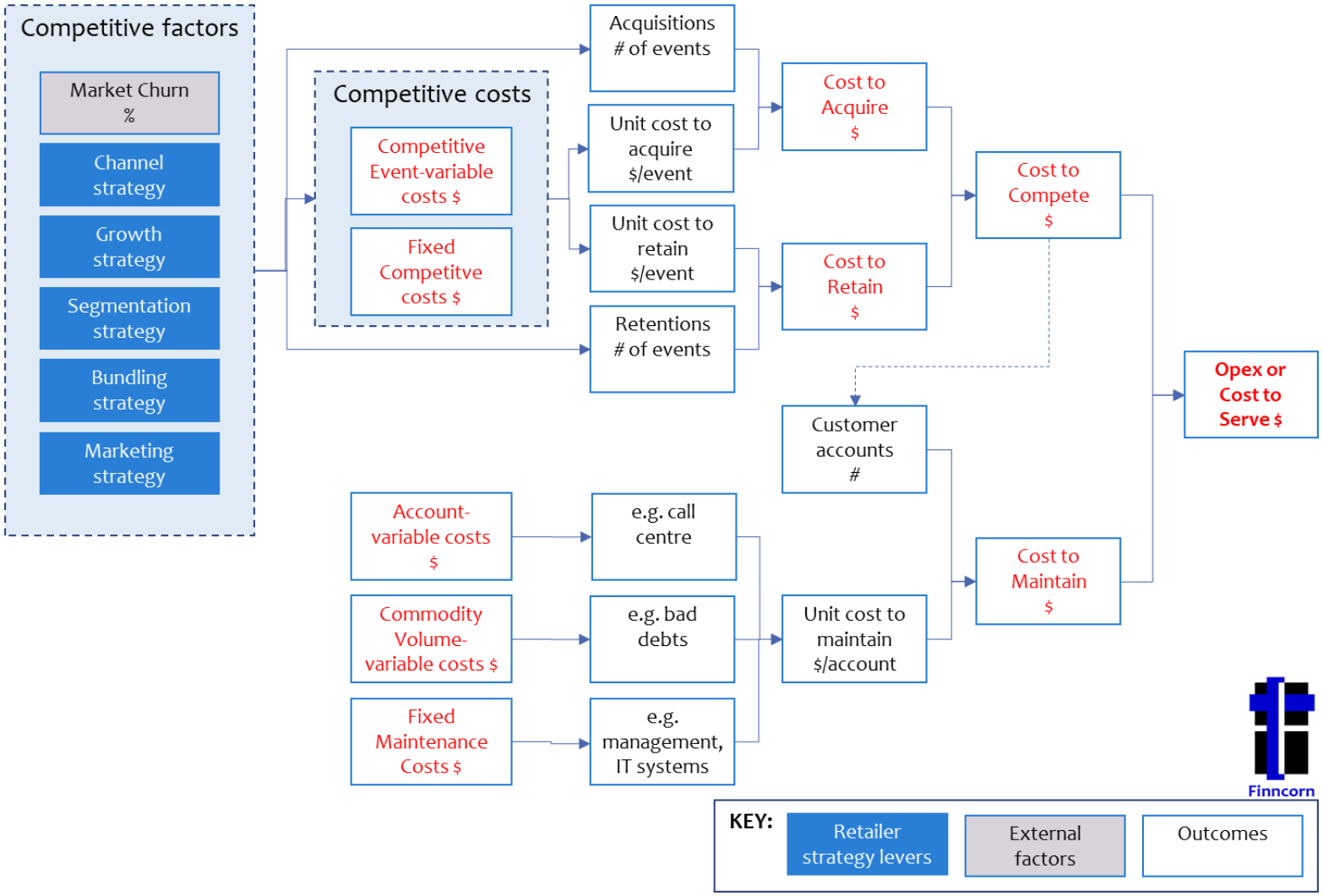


Figure 6 – Influences on Cost to Serve for energy retailers



Gentailing versus retailing – a hedge liquidity and cost-reduction strategy

As we will discuss, a notable difference between retailer segments (Tiers 1, 2 and 3, defined in the following section) is whether they are vertically integrated electricity businesses with generation assets or not, and if so, to what extent.

A vertically integrated business model can be easily decomposed into separate retailing and generation businesses thanks to the existence of the NEM's gross pool settlement structure – and we believe it is more useful to primarily consider these as two completely separate and independent businesses, and then look at how they interact in practice.

Importantly, the two businesses – generation and retail – are not physically linked in a seamless value chain. There is no wire connecting one business with the other:

- All generation bids into the market against other generators, is dispatched to the pool by AEMO via the transmission network, and receives the market-clearing half-hourly settlement pool price (adjusted for loss factors).
- All retail supply is purchased from the pool at various points in the distribution network, and pays the half-hourly pool price (plus network charges).
- Gentailers are not balanced in the long term – they are typically substantially long or short generation on an annual basis in aggregate, and between the NEM regions.
- Neither are they balanced in the short-term – generation output fluctuates with availability, wholesale prices and weather (in the case of renewables), while retail load varies with weather and season (e.g. for heating and cooling) and customer behaviour.

Given the substantial mismatches, we think it is better to start by considering a purely merchant (or unhedged) business model for each of generation and retail – assuming they do nothing more than sell into and buy from the wholesale pool. Such a strategy is uncommon as it implies a high degree of earnings volatility, but it is a natural starting-point.[24]

In practice, both generation and retail businesses typically hedge this risk to some extent, by entering into overlaying financial derivatives which smooth out this volatility – in particular, giving retailers the confidence to offer their customers fixed tariffs over a medium term (months to a few years) despite the potential for very high spot market prices.

Sensible retailer hedges should carry a cost, on average, compared with enduring the highly-volatile merchant exposure[25]. This cost is preferable to the existential threat to a retailer of exposure to high prices, or the implications to capital employed and WACC if such a retailer were to hold financial resources in reserve as a buffer against such outcomes.

Looked at this way, the question of gentailing benefits simply becomes one of asking: **how much cheaper or easier is it for a retailer to hedge when vertically integrated** – how much more does a hedge cost a non-integrated retailer?

As the existence of many non-integrated retailers shows, it is possible to adequately manage risk by dealing at arms-length with generators (including the generation arms of gentailers) and other market intermediaries to establish a hedge. Given these alternative buyers, it is reasonable to assume that rational gentailers will sell hedges on a comparable basis to either their own retail arms, or to separate retailers.

[24] Much more so for retailers, where spot prices might average $80/MWh, but can spike as high as $14,400/MWh. Merchant generation is "safer" as the price will be positive on average (although with some periods below zero when demand is low and renewables assets are producing more than demanded).

[25] It is beyond the scope of this report, but (in short) due to the need to purchase call options and structurally over-hedge in order to construct a prudent hedge book against the "nightmare scenario" of high prices and higher-than-expected load – the proverbial stinking hot Thursday afternoon in February.

So, we think it is useful to assume generation businesses are run on an arms-length transfer pricing basis when they sell hedges internally.[26] However, there are three key benefits enjoyed by vertically integrated gentailers (compared with their non-integrated competitors) which can be significant:

1. **Preferential access to hedge liquidity:** In a market where dispatchable generation is increasingly concentrated with the large Tier 1 gentailers, there appear to be challenges sourcing an adequate quantity of hedges. Gentailers benefit from a first call on their own generation's hedge business.
2. **Avoiding bid-offer spreads and capital costs:** There are frictional costs in establishing external hedges, including pricing spreads, and the need to post collateral (or at least consume credit lines). By dealing internally, any trading profits are internalised, and the need to post collateral is avoided given the exposures net off within the group. As we have noted, Cost of Capital is often overlooked, but is a very real element of industry costs.
3. **Virtuous circle in the balance sheet:** The diversity of generation and retail earnings components leads to more stable overall earnings despite the volatile nature of each component.[27] This allows for a lower cost of capital, a more creditworthy balance sheet, and the ability to establish longer, more stable hedge positions as a result (compared with a stand-alone retailer of the same scale).

Looked at the other way around, non-integrated retailers may struggle to find the hedges they need, as they are only offered the residual exposure after gentailers self-hedge. They may incur costs in bid-offer spreads and draw down their balance sheet capacity when they do hedge. And they may lack the balance sheet quality necessary to establish longer-term hedges desirable to support a sustainable retail business.

How we treat the gentailer hedge advantage

We cannot put a number on this advantage, but conceptually we think of it like this. The wholesale cost of electricity supply for any retailer is comprised of:

1. the merchant pool price at which they actually buy the electricity;
2. modified by the particular hedge position they hold at that time; and
3. adjusted for additional costs related to a lack of vertical integration into generation.

The first element is common for all retailers regardless of their structure or hedge strategy (for supplying a given customer base) and is totally outside their control – it is a common pass-through (like network costs) and so best removed from consideration of retailer performance.

The second element is related to both hedge strategy (a degree of choice) and the realities of hedging actually available based on the retailer's own balance sheet quality and the liquidity of the hedge markets.

Whether by choice, necessity or a combination, each retailer will have a different hedge "black box" modifying their costs, and this may be a substantial cost advantage or disadvantage at any point in time. Some strategies might prove to be systemically better than others, but over the long run hedged costs will generally track wholesale spot and forward market conditions with a lag, and so over the long run, are likely to deliver similar cost positions to all retailers. For that reason, we are aware of this as an explanation for short-term retailer performance, but do not see it as a systemically important element in assessing long-term retailer performance.

The third element is assumed to be a cost unique to non-integrated retailers. This is the only element we believe to be a systemic, long-term differentiator in favour of gentailers. It might be significant, but should not be conflated with several other advantages gentailers typically enjoy – discussed more fully in the following section.

[26] And if not, this is just shifting earnings within a business and doesn't mean much: a gentailer with a desire to grow its retail customer base through low prices might choose to notionally sell cheap hedges to its retail arm, or it might equally choose to sell hedges to them at fair value, and subsidise the retail losses with generation profits. The outcome is the same for the overall business both financially and competitively.

[27] When merchant generation profits rise with wholesale prices, retailer margins will tend to be compressed, and vice-versa. A favourable portfolio effect.

The retail tariff stack

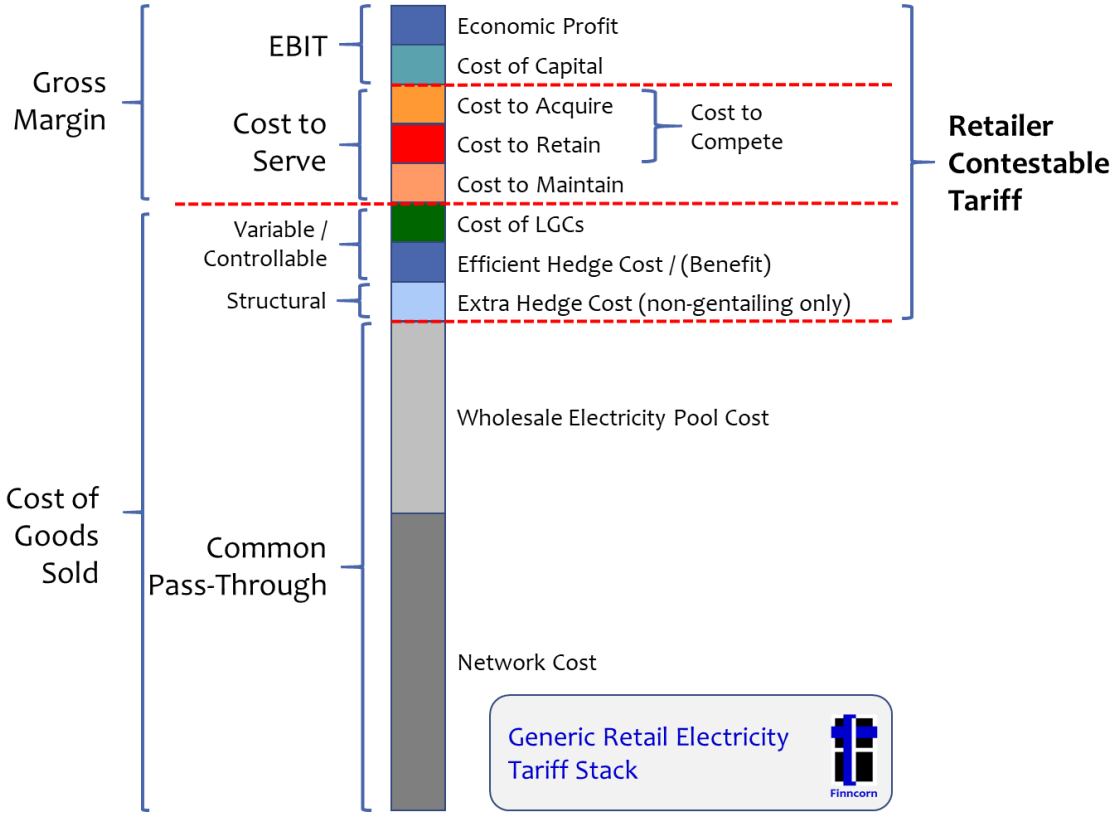
Figure 7 shows how we bring this together in deconstructing electricity prices for this report.

We will largely ignore the common pass-through costs, because retailers are price-takers: they cannot influence much of their Cost of Goods Sold ("CoGS"). They have no control over the size of the network costs they attract (under current network tariff structures), nor can they do other than purchase the electricity supply they need, when they need it, from the wholesale pool at the common price.

When looking at retailer competition it is much more productive to focus on the elements retailers CAN control, which we call the Retailer Contestable Tariff:

- **the structural choice to be an integrated gentailer** with associated benefits in lower hedging costs;
- **the hedge strategy employed** – choices about risk and return lead to retailers holding different hedge positions at any point in time, impacting their hedged CoGS and competitiveness. On average, a prudent hedge policy of a sustainable retailer would imply a cost, not a benefit.
- **LGCs** are a controllable element of CoGS, because (unlike wholesale electricity or network costs) retailers may choose how, when and at what price to acquire them. We think it is more useful to view LGCs (and similar, more minor market-priced green certificates) as elements of retailers' CoGS, rather than as a separate, abstract "green schemes" cost. Governments make the rules for green schemes, but retailers procure and bundle them into tariffs.
- **Cost to Serve** as the most visible element of retailer costs embedded into tariffs.
- **Cost of Capital** as the less-visible (but no less real) component of retailer costs, necessary to sustain retailer businesses given the substantial capital they require.
- **Economic Profit as the residual** – if sustained over a long period for a large proportion of the industry, this would indicate a lack of effectiveness of competition in driving efficient pricing.

Figure 7: The generic tariff stack (not to scale, for clarity – network costs are closer to half the tariff)



2. Retail Market Structure

In this section we outline the broad structure of energy retailing in the National Electricity Market.

We establish our preferred 3-tier structure based on eight characteristics. This distinction forms an important element of our later consideration of competitive market performance.

In doing so, we highlight issues of relative scale and the impact of this on cost positions, as well as other areas of competitive advantage which we consider to be significant in driving retailer costs and thus consumer pricing.

In our view, the large Tier 1s are inexorably lower-cost competitors and currently enjoy substantial advantages compared with the other tiers of retailer. These include some areas rarely touched on in past analyses, such as access to long-term and relatively low-cost wholesale gas and LGC supply.

Putting aside the marketing noise and the large headline discounts, we begin to question whether these structural issues imply Tier 3 retailers simply cannot be a sustainable source of pricing tension and thus a driver of lower costs for consumers of energy. This is a theme we develop further throughout the rest of this report.

Three Tiers, not Two

Typically, analysts and market commentators have simply contrasted the "Big 3" gentailers with the large number of smaller retail competitors – but in our view, to understand competitive dynamics the market is best divided into three segments or tiers, not two.

In our taxonomy, Tier 1 retailers score highly on most or all of the characteristics set out in **Table 1** below, while Tier 3s have few if any of these characteristics. What differentiates Tier 2s is that they possess enough of the characteristics that they may offer genuine, sustainable competitive challenge to the Tier 1s.

TABLE 1 – Retailer Segmentation Model

Characteristic	Typical Tier 1 Retailer	Typical Tier 2 Retailer	Typical Tier 3 Retailer
Examples	**The "Big 3": AGL, Origin, Energy Australia**	**Snowy Hydro (via Red and Lumo brands)**	**Mojo, Momentum, Click**
Vertical integration into generation	**Extensive** Internal trading allows substantial self-hedging against baseload and peak demand.	**Partial** Some degree of baseload and/or peaking generation provides meaningful self-hedging.	**Little or none** Reliant on trading spot and derivative markets to establish a hedge against wholesale volatility.
Earnings volatility with wholesale electricity price levels and volatility	**Muted** Volatility in retail earnings and wholesale (generation) earnings tend to offset each other.	**Somewhat muted** A degree of owned generation provides some buffer against earnings volatility associated with wholesale price changes.	**High** Very exposed to a squeeze in retail earnings as wholesale prices rise or become more volatile – particularly if wholesale costs are less-hedged than competitors.
Balance Sheet	**Strong** Investment grade, can access both substantial debt and credit facilities to support hedging.	**Fairly strong** Capacity to support appropriate hedging obligations and ride out difficult short-term conditions.	**Weak** Largely equity-funded with little buffer against difficult conditions and limited ability to establish substantial hedging.
Cost of Capital	**Low** Good low-cost debt capacity (given asset backing in generation and earnings stability) and associated reasonable cost of equity.	**Fairly Low** Likely to have some debt capacity and a reasonable cost of equity based on a less-risky business model than Tier3.	**High** Not typically able to support debt, funded by high-cost equity given the earnings and survival risks.
Economies of Scale	**Strong** Multi-million mass-market customer bases to spread fixed costs. Present in all key competitive NEM regions.	**Moderate** Customer bases from 500,000 upward allow for reasonable spreading of fixed costs. Present in several NEM regions.	**Weak** Customer base may be very small, and fixed costs become very large per-account. Likely to have commenced in Victoria[28] and be pursuing entry strategies for other deregulated NEM regions.

[28] Due to the higher gross margins which a number of studies contend are available there.

Characteristic	Typical Tier 1 Retailer	Typical Tier 2 Retailer	Typical Tier 3 Retailer
Economies of Scope	**Multiple** Access to stable long-term gas supply and associated pipeline capacity to support gas retailing. Ability to diversify into SME and C&I segments as well as mass-market. Ability to develop and offer additional services including financing customers. Significant portfolios of long-term renewable energy generation (owned or contracted) with supply of LGCs at a competitive cost.	**Some** Able to secure gas in at least some regions. May have credible niche offerings such as green power, C&I supply. Some access to renewable energy portfolio supply and associated LGCs, but may be limited in size or term due to their balance sheet limitations.	**Limited** May struggle to secure the wholesale gas supply necessary to retail gas effectively. Unlikely to have scale or balance sheet required to compete in the C&I market. May have few options for LGCs other than spot and short-term traded markets, exposing the retailer to volatility in this element of their costs.
Sophisticated Systems	**Strong** Although a costly struggle to establish, Tier 1s have systems with strong capacity to offer diverse products, bill accurately, exploit scale efficiencies in cost to serve, and differentiate between customers based on value to drive acquisition and retention strategies.	**Good** Capacity and incentive to be investing in robust systems to support material customer bases.	**Challenged** Initial start-up systems may be very simple and low-cost, but may not scale well or offer the full advantages needed to compete smarter, not harder. Systems investment needs may be a trigger point for consolidation.[29]
Churn	**Lower than average** Acquired legacy customer bases include a "rump" of disengaged sticky consumers. Dual-fuel offers drive retention. Systems allow for preferential segmentation of low-churn customers.	**High** Likely to have grown a customer base from scratch, so likely experiencing the higher churn rates associated with that type of active and engaged base.	**Very high** Likely to have grown a customer base from scratch, so likely experiencing the higher churn associated with that type of active and engaged base. May also see churn driven by growing pains – limitations of service, systems, or aggressively growth-focussed marketing tactics.

[29] We understand this was the case for Lumo Energy, in its parent's decision to divest to Snowy.

The classification of retailer competitors in this way is important as we develop our hypothesis of competitive dynamics. This is our short-hand characterisation of the three tiers:

- **Tier 1 are the formidable low-cost competitors.** They may not be as nimble or innovative as other retailers and may be susceptible to disruption. Their strategies may tilt towards defence rather than offence. But ultimately they have the capacity to compete strongly on prices based on low per-customer costs, and can (at worst) follow fast on innovation, investing heavily when required.
- **Tier 2 are the potentially-sustainable competitors to Tier 1.** They may lack some of the cost advantages, but they have a fighting chance of competing, including investing for growth and riding out turbulence. They may possess a useful combination of fighting weight and the hunger of a challenger rather than an incumbent.
- **Tier 3 need to have something special.** Barriers to entry are low. It is also relatively easy to grow an initial customer base, if they have a fortunate low-cost supply hedge position for a while, or the wholesale market is quiescent, and they can contend with the losses associated with acquisition costs and lack of scale. But growing against the tide of a high-churn, general mass-market customer base to efficient scale seems a Sisyphean task for most. However, one strategy for value-creation is to attain a moderate scale and attract a consolidation bid – but this does little to aid long-term efficient competition in the interests of consumers. In our view, a sustainable Tier 3 requires a genuinely innovative business model which provides customer value through increasing service or decreasing costs – ideally avoiding rather than confronting the advantages of Tier 1.

Who's who in the retailer zoo

TABLE 2: Our retailer segmentation

Tier 1	Tier 2	Tier 3
Origin Energy **AGL** **Energy Australia**	**Snowy Hydro** (Red Energy, Lumo Energy) and **Engie** (Simply Energy)[30]	Around 20 mass-market retailers of varying scope and geographical coverage.
Regionally, **Ergon Energy** (in regional QLD), **ActewAGL** (in the ACT) and **Aurora Energy** (in Tasmania) have dominant retail positions. However, these players are strategically limited to their small home markets and so have little impact on the broader market structure.	**Alinta's** JV arrangement with state-owned **CS Energy** for SEQ, which may see them emerge as a "synthetic Tier 2" in that region at least. They are the preferred bidder for 1,000 MW of low-cost generation assets in Victoria which would see them clearly established as a small Tier 2. **HydroTas** (Momentum), **Meridian** (Powershop) and **Pacific Hydro** have partial generation coverage, but lack the scale of customer base and the access to substantial firm generation necessary for us to view them as credible Tier 2s. Several generation-backed retailers are emerging with a focus on C&I customers – but like **ERM**, these will not influence mass-market.	The AEMC recently listed 23 electricity and one gas retailer outside Tiers 1 and 2 (after the failures of **Urth Energy** and **GoEnergy** in the past year). We ignore Tasmanian specialists **Aurora** and **TasGas Retail**, **Ergon** in regional Queensland, and C&I specialists **ERM Power**. Estimated customer bases[31] of the larger Tier 3 retailers include: • **Alinta** at 189,000 • **Click Energy** (recently acquired by Amaysim) at 135,000 • **Momentum** at 134,000 • **Powershop** at 80,000

[30] Engie's closure of Hazelwood and sale of Loy Yang A means their status is less-clear in future. Will Alinta take their place?

[31] Various sources including 2016 / 2017 press statements, Alinta investor disclosures and data presented in the AER-SEM May 2017.

Why Tier 1s are inexorably lower cost competitors…

The characteristics of Tier 1 retailers mean they achieve lower costs per mass-market customer in several respects:

1. Lower operating costs based on sheer orders-of-magnitude scale advantages against significant fixed costs.
2. Lower per-account costs to serve, when spreading fixed costs over dual-fuel accounts serving the same customer.
3. Lower hedging costs based on preferential access to liquidity, and the lower cost of the financial facilities which support hedge commitments.
4. Lower cost of capital, meaning a lower profit margin is demanded to service debt and equity providers.
5. Lower churn leads to lower "Cost to Compete" – the acquisition and retentions activity necessary to maintain or grow a customer base in the face of switching.
6. Better systems lead to lower costs to serve – for example, by enabling:
    a. Product design and customer segmentation reduce B&DD[32] expenses, by picking the right customers and encouraging them to pay on time.
    b. Targeting effort and investment to retain customers who are the least cost to serve (the most profitable).

… and currently also enjoy short to medium term gas and LGC cost advantages

In addition to their long-term advantages, Tier 1 retailers currently tend to enjoy relatively low wholesale input costs for both gas and LGCs – due to their prior long-term contracting with gas suppliers and renewable energy projects (or outright ownership of upstream gas and/or renewables assets), and the recent rises in spot prices and current contract offers.

This assumes the lowest-cost sources of gas and LGCs are applied first to their highest-margin mass-market load – as demonstrated by AGL and Origin as they set out their gas and LGC positions to investors.

Consequently, lower-margin C&I customers are offered pricing based more closely on shorter-term prices – with less earnings at risk if those customers contract elsewhere.

We expect few Tier 3s would hold a comparable "back book" of either low-cost gas or low-cost LGCs to apply to their current pricing to mass-market consumers.

Questioning the perception of Tier 3s as price leaders

Tier 3 retailers popularly enjoy a reputation for driving down customer pricing – but, lacking many of the advantages of Tier 1 competitors there is little if any clear evidence that this could be sustainable.

In Finncorn's opinion, only sustainable, low-cost competitors can sustainably deliver lower prices to consumers.

In the following sections of this report, we consider whether in fact the presence of Tier 3s actually contribute to driving prices higher.

[32] Bad & Doubtful Debts – the significant expense of customers who do not pay their bills.

A question of scale

Figure 8 shows that at end-December 2016[33] Tier 1 retail energy businesses account for 80% of mass-market customers[34] in the four large, competitive NEM regions of VIC, NSW, SA and SEQ. Collectively they hold 10.1m of the 12.6m mass-market electricity and gas accounts. Of the remaining 2.5m accounts, we estimate 1.6m are with the Tier 2s (Snowy Hydro and Simply Energy), leaving 0.9m accounts to be shared between 20 Tier 3s.

FIGURE 8

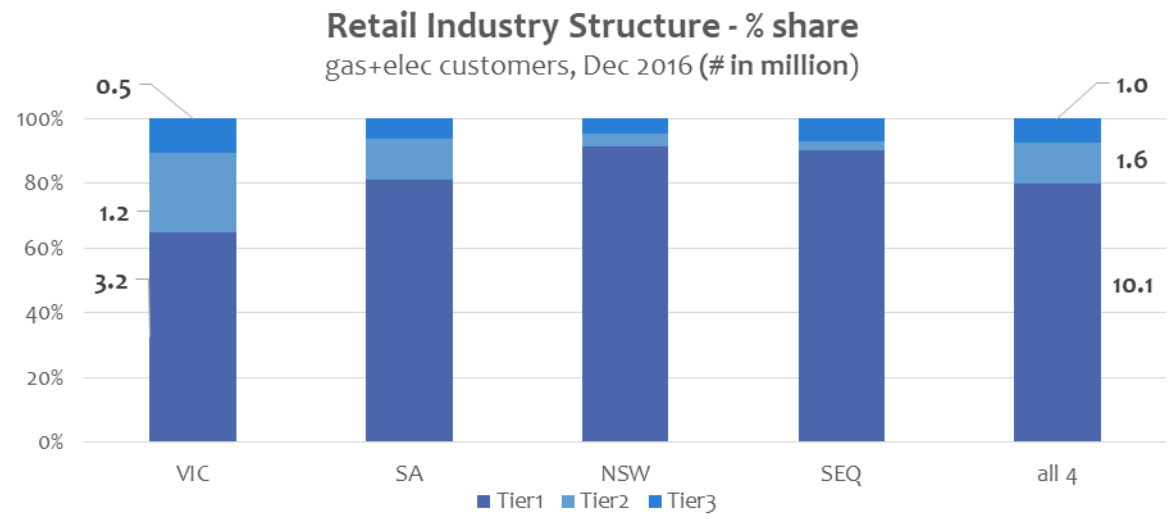


FIGURE 9

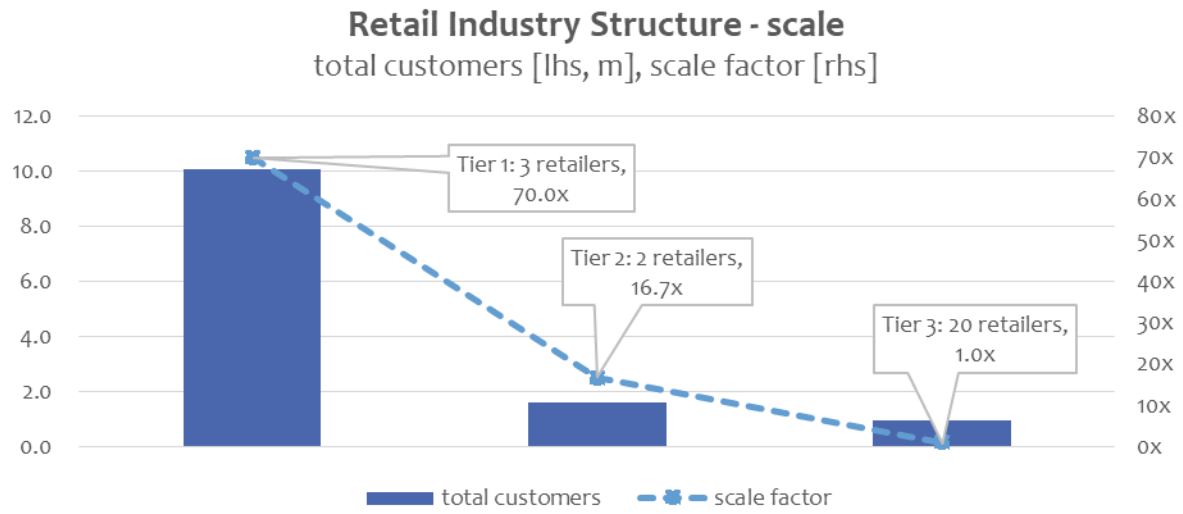


Figure X above shows the scale difference, considering the number of retailers in each Tier:

- The average Tier 1 has 70 times the average Tier 3 customer base of 48,000 accounts;
- Tier 2s have 10-20x the Tier 3 average scale (but Tier 1 boast over 4 times the scale of Tier 2).

[33] The data date for the most current AER-SEM May 2017 from which Tier 2 customer number estimates are drawn.

[34] 79% of mass-market electricity customers, 82% of mass-market gas customers.

This matters because a material share of retailer operating costs are fixed or lumpy in nature – they are variable neither with volume sold, nor with the number of accounts. Examples of these costs are classic "corporate overhead" such as senior management and other central and support functions, some compliance costs, some systems costs and some marketing costs such as call centre overheads and advertising spend.

A quick look at relative operating costs at Tier 1 versus Tier 3 scale

We look much more closely at costs later in this report, but as an indication, note that AGL's reported operating costs in 2017 were $413mn, while customer accounts averaged 3.66mn, so their reported operating costs were $113 per customer.

For a Tier 3 retailer of average size (holding 48,000 accounts), being competitive with AGL on per-account costs would allow for total annual operating costs of $5.4m – to cover not just fixed costs, but all costs.

If the CEO is taking home $480,000, each customer is paying her $10 a year.

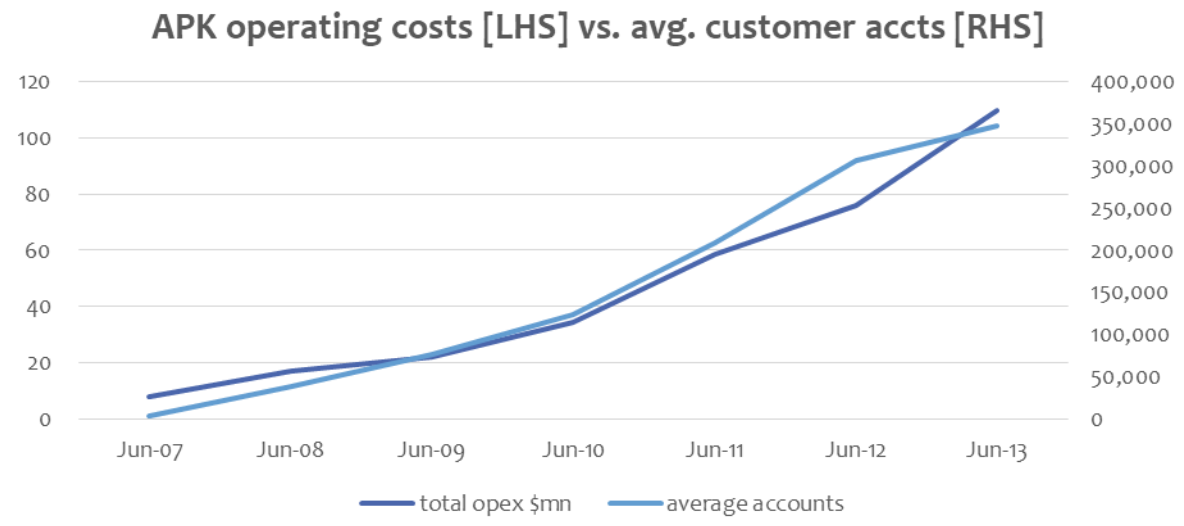
Hard data is scant for Tier 3s, but we make good use of APK throughout this report. **Figure 10** shows APK's average customer numbers, and APK's total operating costs over the 2007-13 life of the company.

APK was not promoted as a high-cost / high-service retailer – quite the reverse. Yet costs grew from $8m at start-up to $110m with 347,000 customers – these costs are:

- over ¼ of AGL's total costs today;
- serving less than 10% of AGL's customer base today;
- at a rate of nearly three times the AGL operating cost per account – that is, APK were over $200 per customer per year more expensive in their operations.

In our view, this data point is telling evidence of the improbability of Tier 3 retailers operating at levels of cost efficiency necessary to threaten Tier 1 competitors on pricing.

FIGURE 10



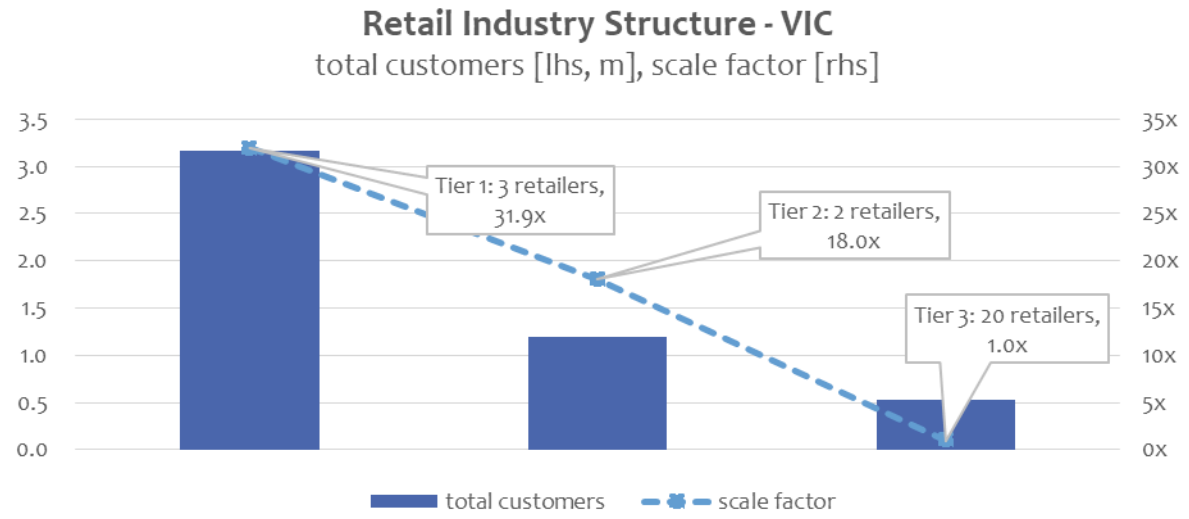
The experience in Victoria – what can we learn?

Victoria has the longest exposure to full-throated retail energy competition, and boasts the least Tier 1 concentration at 65% of mass-market electricity and gas customers. The Tier 2s share is 24%, while 16 Tier 3s account for 11% share.

(Conversely, this means ex-Victoria, the NEM is much more concentrated in the hands of larger retailers: Across NSW, SA and SEQ the shares are 89.2% Tier 1, 5.3% Tier 2 and 5.5% Tier 3.)

Figure 11 shows the Tier 1 scale advantage over Tier 3 in Victoria remains very substantial at 32 times the average mass-market customer base.

FIGURE 11



Around 55% of all Tier 3 customers in the NEM are in Victoria.

Tier 2 are more than half the average scale of Tier 1 in Victoria, suggesting they have gained comparable retailing scale in that particular NEM region.

(The converse is that ex-Victoria, Tier 2s are only about 1/10th the scale of the Tier 1s.)

In our view, although the Tier 2s are in a clearly stronger position to compete in Victoria than elsewhere, this may not be particularly relevant when competition is based on national scale and costs.

However, if a structure with relatively stronger Tier 2s at the expense of both Tier 1 and Tier 3 were to develop nationally, we believe it could lead to more cost-competitive outcomes for consumers – as we will discuss later in this report.

3. Retailer Strategies

In this section we investigate the retailer business model, drawing out some issues including dual-fuel advantages, the cost impact of relative churn rates, customer segmentation and customer value, and acquisition / retention strategies.

Bundling strategies are well-known, but one bundle which is often overlooked is the hidden bundling of environmental certificates – particularly Large-Scale Generation Certificates created under the Large-Scale Renewable Energy Target – with mass-market electricity.

In our view this is currently a substantial cost differentiator between retailers, depending on their ability to secure long-term renewable offtake and thus access LGCs at their competitive cost, as opposed to elevated spot prices.

A range of retailer strategies

There are several key strategies employed by electricity retailers which we consider important in understanding performance.

Bundlers

Many electricity retailers offer a bundle of products and/or services – most commonly gas, but also mobile phone, internet, insurance – for example **Dodo** and **Click Energy** offer to bundle mobile phone subscriptions with energy products.

Less apparent to consumers (as they are not separately identified) the costs of various renewable energy and energy efficiency policies are compulsorily bundled with electricity – most materially, the cost of LGCs.

Segmenters

Some retailers seek particular favourable characteristics among mass-market customers, which they preferentially target. These include efforts to achieve above-average volume, higher margin, better credit quality and/or lower propensity to churn.

For example, a retailer might target above-average volume customers – such as **Mojo** which does so through product design: a fixed-margin product independent of volume consumed.

Another might target weaker credit-quality customers in a low-cost brand that may rely on limited service and credit enhancement such as requiring direct debit or pre-pay.

Sometimes the characteristics may be a customer preference: such as **Powershop** seeking green-conscious customers, and also highly-engaged customers who wish to "trade" their supply costs actively.

Capability to employ such strategies may be driven by strong IT capability, or by selecting appropriate channels to market.

Channel Specialists

Retailers employ a varied range of channels to acquire and retain customers, at varying costs – door-knocking, telesales, online via third-party comparator sites, or via proprietary channels such as the retailer's own website or social media.

Certain channels may deliver "better" customers – for example **Snowy Hydro's** DirectConnect channel for house movers is an innovative channel to gain customers at that point of enforced switching, even though many of those customers may not wish to engage, and so might prove to have a low propensity to churn away.

Niche Specialists

As an extreme form of segmentation, some retailers forego the broad mass-market in order to target only a limited niche. Give the advantages of scale, we think this is a formidable challenge. In our view, it is difficult to identify successful customer niche strategies in the mass-market that can deliver the necessary scale to be cost-efficient. Outside the mass-market, ERM Power have shown a niche Commercial & Industrial ("C&I") strategy is viable.

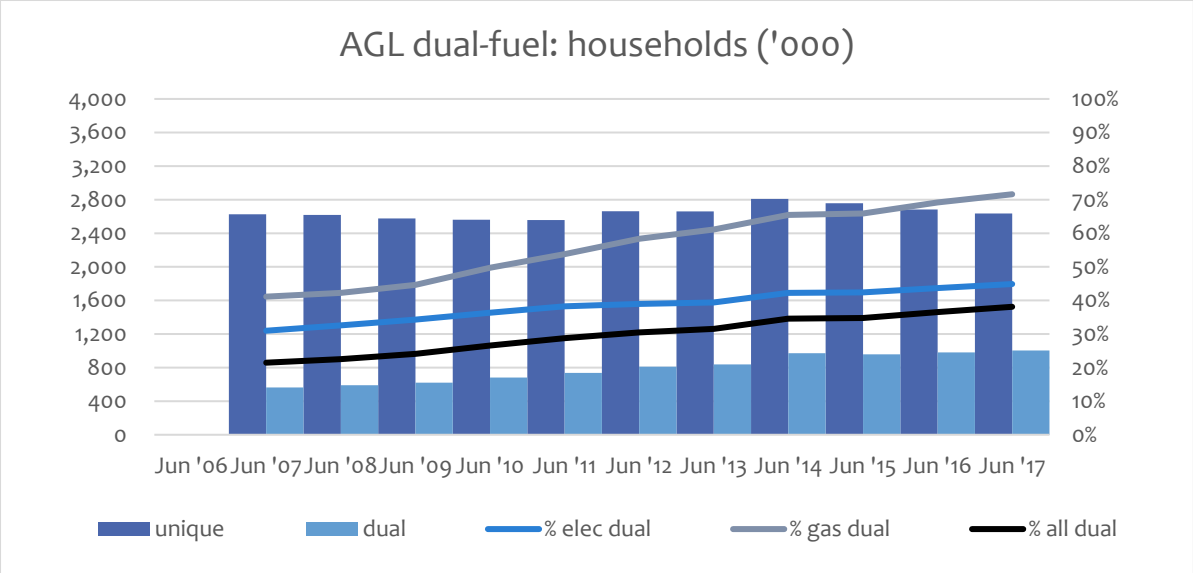
One interesting example is retailers focused on consumer energy assets such as rooftop solar and (perhaps soon) energy storage. Such retailers can offer more sophisticated services including energy management and possibly financing of the assets. Another example is embedded-network retailers, who exist only to serve their particular customer base within the development.

Bundling – the "dual-fuel" strategy

Bundling electricity supply with other comparable products – especially gas – is a key strategy.

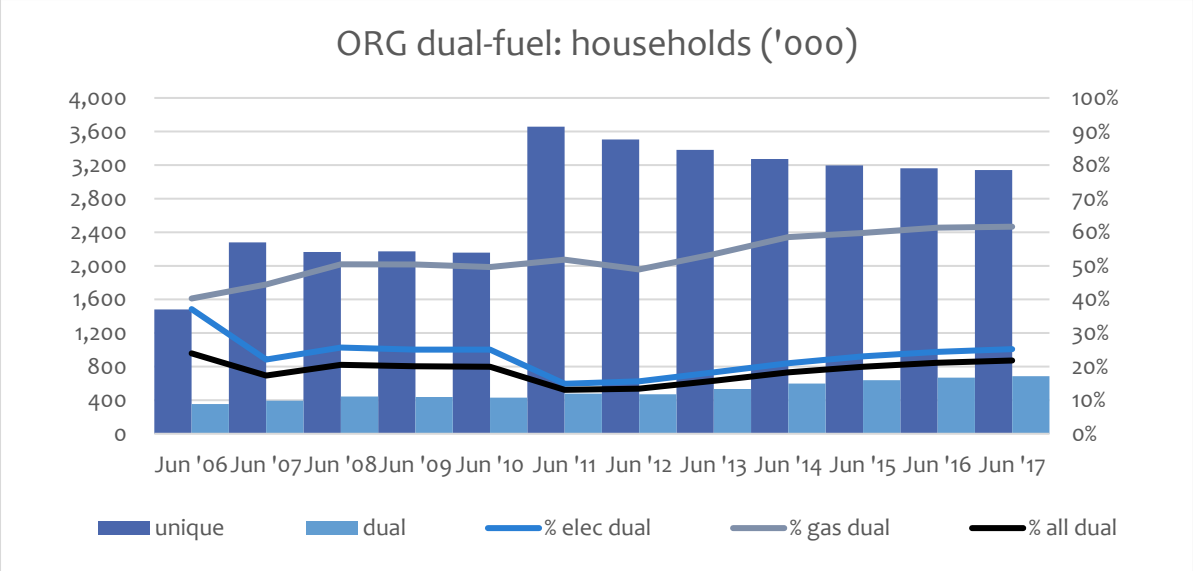
Retailers describe this as a "dual-fuel" strategy, and both AGL and ORG have pursued this approach over many years, as shown in **Figures 12 and 13** below. They have each substantially increased the proportion of their customers holding dual-fuel accounts over time.

FIGURE 12



In AGL's case, at June 2017 we estimate 72% of gas customers also have an electricity account with AGL, while 45% of electricity customers also have a gas account with AGL. Of the 2.635m unique households served by AGL, 38% have both gas and electricity accounts with AGL.[35] Their dual-fuel penetration has increased from 21% in 2007 on this measure.

FIGURE 13



ORG's dual-fuel penetration is less than AGL's. At June 2017, 62% of ORG's gas customers also have an electricity account with ORG, and 25% of ORG's electricity customers also have a gas account with ORG. Of ORG's 3.142m unique customers, 22% purchase both gas and electricity from them. ORG has been steadily growing this penetration since acquiring NSW electricity customers in FY11.

[35] In FY17 AGL reported 2.237m electricity accounts, 1.402m gas accounts, thus 3.639m total accounts. They reported 2.008m dual-fuel accounts. We assume the vast bulk of the dual-fuel accounts are simply 1.004m unique customers, each holding one electricity account and one gas account with AGL. That implies AGL serves 2.635m unique customers, 1.004m of which are dual-fuel. The same approach is taken with ORG.

In our view, the objectives of a dual-fuel strategy are threefold:

1. **Spreading operating cost** – many of the costs to serve mass-market customers are fixed with respect to customer numbers – particularly corporate overheads, IT systems and marketing. Compared with an electricity-only case, AGL and ORG are able to spread those fixed costs over 62% and 41% more accounts respectively.
2. **Increasing stickiness** – Customers find some convenience in sourcing both gas and electricity from one provider, and are sometimes offered inducements to combine their business in this way. This is likely to be one reason why AGL and ORG report churn rates well below market averages, which directly translates to lower operating costs.
3. **Flexibility in cross-subsidising** – When a customer buys both fuels, the retailer can take an overall view of customer profitability which might allow for (e.g.) very competitive electricity pricing despite a mediocre wholesale cost of electricity supply, provided gas margins are high enough to compensate. Currently, their strong portfolios of relatively low-priced gas are likely to place Tier 1 retailers in this position – wholesale gas prices for newer retailers have risen sharply. This might assist if an electricity hedge position turned out to be temporarily uncompetitive, allowing a Tier 1 retailers to retain their customer base despite that unfortunate circumstance.

The benefits are very difficult to quantify, but in our view a dual-fuel capability appears to have been – and may still be – almost essential in establishing a financially-sustainable energy retailer.

Tier 3 barriers to "dual-fuel"

Despite the attractions, according to the AER-SEM May 2017, among the Tier 3s energy retailers only around a quarter (Alinta, Click, CovaU, Dodo, Metered, Momentum and Savant) offer gas as well as electricity.

In our view, the reported and evident difficulty in accessing wholesale gas supply for small retailers is a substantial barrier to Tier 3 sustainable growth.

Whereas electricity can be obtained from the pool with relative ease, gas supply requires a significant bilateral agreement to be reached with a gas supplier and potentially transmission providers. Some Tier 3s cannot offer the creditworthiness to support a gas supply agreement, nor can they easily commit to relatively firm, substantial volumes if they are very small. Even if these challenges can be overcome, supply costs are likely to be higher than long-standing buyers' existing pricing, so it would not provide an obvious margin opportunity.

LGCs – a hidden, compulsory bundle

All retailers are required to acquit LGCs annually in proportion to their electricity sales[36], and so retailers procure LGCs and pass that cost through to consumers in electricity prices. To a lesser or greater extent, the Tier 1 retailers have covered their expected mass-market LGC requirements for the long term, often by contracting to buy LGCs at fixed or escalating prices out to the 2030 end-date of the scheme.

When spot and short-term forward LGC prices are high – as they are at time of writing – this can be a disadvantage for smaller retailers. New entrants will lack a historical back-book of LGCs contracted with renewable projects. If Tier 3s seek to contract with new projects, they may find they lack the volume certainty and/or creditworthiness to ink a long-term deal. In that case, they will be driven to buying at spot prices.

The Clean Energy Regulator's tracking of shortfall on the 2016 statutory target highlights many Tier 3s did not surrender their full LGC volume – likely expecting (or hoping) for lower spot prices in 2017 / 2018 and the ability to make good in future years. The following table is taken directly from the CER's website: link to: CER LRET demand data.

[36] For 2017, this has been set at 14.22% by the Clean Energy Regulator. If demand growth were flat, this would rise to about 18% from 2020 and be maintained at that level through 2030.

2016 Statutory LGC demand and shortfall

Data as at 01/08/2017

Liable entity	LGC shortfall percentage of liability (percentage of total LGC liability)
Qenergy Limited	100
Next Business Energy Pty Ltd	100
COzero Energy Retail Pty Ltd	100
GoEnergy Pty Ltd	100
SparQ Pty Ltd	100
Globird Energy Pty Ltd	100
Sanctuary Energy Pty Ltd	100
OzGen Retail Pty Ltd	100
CovaU Pty Limited	99.71
Online Power & Gas Pty Ltd	98.31
People Energy Pty Ltd	96.53
1st Energy Pty Ltd	90.69
ERM Power Retail Pty Ltd	84.22
Alinta Energy Retail Sales Pty. Ltd.	35.66
Alinta Sales Pty Ltd	35.58
Perth Energy Pty Ltd	9.99
Blue NRG Pty. Ltd.	9.52
IPOWER 2 PTY LIMITED and IPOWER PTY LIMITED TA Simply Energy	9.29
Amanda Energy Pty Ltd	6.48
GridX Power Pty Ltd	4.89
Progressive Green Pty Ltd	1.07
Karara Energy Pty Ltd	1.05

This creates a substantial current advantage for those with low-cost LGC supply. The difference between the ceiling price of LGCs of $93[37] and a possible long-term contract price of $40 is 0.75c/kWh in 2017, or around $50 per annum for a typical mass-market customer of 6.7MWh.

Spot pricing for LGCs has been elevated recently, approaching the $93 ceiling at times. Thus we would expect some Tier 3s to be pricing in up to $50 per customer per annum more for the LGC bundle than the actual cost to the Tier 1s.

We do note however:

1. Tier 1s have made substantial long-term commitments to renewables projects in the past, in order to enjoy the current situation where their cost of LGC supply is relatively low;
2. The reverse applied only a short time ago when LGC prices were depressed, and the same may occur in future if the LRET build-out is comfortably met and LGC prices reflect an oversupply. Once the 2020 LRET level is achieved and any undersupply of LGCs to that point is absorbed, the expectation is that LGC prices will fall materially in the remaining period to 2030 due to LGC supply from any additional projects.

Other Bundling – emerging strategies?

Dual-fuel strategies are tried and tested, but in general, customer relationships in electricity and the infrastructure of customer service and regular billing systems are potentially valuable assets. They may be directed towards offering similar products including telecommunications services and insurance, or combined with finance products such as "no money down" solar PV.

Success in expanding energy retailing to other bundled products is not obvious in comparable international energy markets, but we expect to see further attempts made in the NEM given the limited ability to bundle gas.

Customer segmentation strategies

Customer numbers are reported in a manner which suggest they are homogeneous, but for more sophisticated retailers, segmenting the mass-market customer base is a key strategy – sorting the higher-value from the lower-value customers can be very rewarding.

[37] $65 "penalty price" applies, but is not tax-deductible, so effectively $92.86 for an entity paying tax at 30%.

Retailers will consider the characteristics of a customer, and seek to segment based on:

1. **Products** – preferring dual-fuel to single-fuel customers (for the reasons discussed), or possibly preferring higher-margin gas to lower-margin electricity.
2. **Volume** – in general, higher-volume customers may allow for higher gross margin capture. Other than less-common declining-block tariff structures, retailers do not generally offer customers discounts for using more energy.
3. **Creditworthiness** – Bad and Doubtful Debts ("B&DD") are a substantial component of overall retailer opex, and the large pass-through of wholesale and network costs means a bad debt write-off is painful for a retailer. Conditions related to paying on time, by direct debit and/or monthly are all helpful in reducing this expense (and working capital) and either dissuading poor credit customers in the first place, or mitigating the impact with penalties when they fail to pay.
4. **Churn propensity** – some customers have a history of chasing discounts and changing retailers, whereas others have demonstrated stickiness. Every churn or retain event costs retailers money.
5. **Margin** – some customers are on highly-competitive market tariffs, while others are on legacy standing offers or aged market contracts. In a market seemingly arranged to reward disloyalty by demanding customers shop around regularly to obtain discounts, the quiet, contented customers become more profitable than the squeaky wheels.

Larger retailers claim a highly-sophisticated capability to use big-data analytics and state-of-the-art Customer Relationship Management ("CRM") systems to identify individual customers, and customer types, by value. However, in some cases the Tier 1s have appeared hamstrung by their systems, particularly around integrations of acquisitions and introduction of new systems. In this case size is not necessarily an advantage in segmentation (if there are problems with systems and execution), whereas Tier 3s can choose niche strategies from day 1 based on segmentation.

Overall, the Tier 1s appear to have the upper hand with customer segmentation because:

- their legacy customer bases contain many of the high-margin and low-churn propensity customers by default;
- they can offer dual-fuel;
- their systems can identify the best customers to acquire and retain; and
- they have a large enough customer base and no aggressive growth ambitions, so can afford to shed modest numbers of low-quality customers.

The Tier 3s are on the other side of this – by definition, growing a customer base of high propensity to churn customers with relatively high price sensitivity. These are the lower-value customers which Tier 1s have allowed to leave (by not offering attractive retention offers to them).

Even if Tier 3s had the systems in place to identify customers by attractiveness, the drive to add numbers for the sake of scale may mean that in practice, they do not segment as effectively as Tier 1s.

Segmentation in practice – AGL vs. APK in 2013

APK (and its 354,000 customers) was acquired by AGL in late 2013. APK had grown rapidly since 2007, assisted by relatively competitive medium-term wholesale contracts for both gas supply, and electricity hedging.[38]

However, APK's Tier 3 disadvantages overwhelmed it, with relatively high operating costs due to a lack of scale, and also a relatively low-value customer base acquired substantially via door-knocking.

The metrics from 2013 in **Table 3** show that APK's customers were materially lower-volume, at 74% of AGL's average level for electricity and 87% for gas (normalising for the spread of customers across regions for each). They were customers with relatively poor credits who generated around five times the rate of

[38] We devote more time to lessons from APK compared with Tier 1 retailers later in this report.

B&DD expense compared with AGL. Perhaps worst of all for APK, the churn propensity of these customers was very high, departing APK at 2.5x the rate of AGL's customer base.

The result was a stalled growth in customers, rising costs (especially the "Cost to Compete" needed to hold the line against very high churn) and EBIT losses. Without active strategies to mitigate this outcome, any generic Tier 3 is susceptible to this fate.

TABLE 3

Segmentation metrics - 2013		APK	AGL
Volume sold	MWh/acct	5.4	7.2
Creditworthiness	$ of B&DD expense per account	71	14
Churn propensity	churn %	45%	18%
Cost to Compete	$ per account	59	36
EBIT	$ per account	-24	102

Channel strategies

Channel strategies can materially impact retailer competitiveness, as the channels by which retailers organically attract clients vary dramatically in cost, and in terms of the value of the customer they yield.

At one extreme, door-knocking can be expensive, but has also proven to be very effective in quickly driving acquisitions, and can be targeted to some extent based on neighbourhood-level demographics. Nevertheless, door-knocking has been somewhat discredited as a strategy due to the million-dollar fines for misleading selling, but more fundamentally due to the high cost of acquisition versus the customer value (as the APK example illustrates).

At the other end of the cost spectrum, a well-known brand can enjoy very low-cost customer-led acquisitions via their website or social media channels – although the expense of broad brand marketing should be considered, which will be substantial for new-entrant brands.

Commercial price comparator websites like iSelect can be a double-edged sword. They are perhaps too important to ignore if you are a retailer seeking growth, but (a) the comparator website takes a substantial commission and (b) the resultant customers are by definition price-sensitive with high churn propensity, since they have chosen to compare price.

Here, the value of innovation seems to accrue to the comparator website, not the retailer.

One useful strategy is alliances of brands with clubs or associations where the target customer base is expected to be of better quality than average – in terms of churn propensity, volume, creditworthiness. The "right" football clubs and professional industry bodies are examples.

Another strategy is to use association with social or environmental causes to tap into a non-price driver. Powershop's association with GetUp! is one example – simplifying and driving action based on certain consumers' willingness to use their energy purchases as a means to address climate change.

Loyalty is a key driver – and retailers have joined with more established programmes such as FlyBuys and airlines to offer rewards. This is a useful push-back against the typical reward for disloyalty via discounting when customers churn, or threaten to do so.

The "killer app" of recent times is perhaps DirectConnect: Lumo Energy developed (and Snowy Hydro acquired) a business which simplified the connection of utilities including electricity and gas as people move house. The owner's brands are among the subset of energy utilities offered. House moves represent a large proportion of churn and those moving are under time pressure – so DirectConnect appears to have been a valuable element of the Lumo Energy acquisition.

Customer niche strategies

Successful mass-market examples are hard to identify – perhaps because the opportunities for valued-added niche retailing to customers with behind-the-meter energy asset is still immature.

However, the example of ERM Power as a successful niche player in C&I (a high-volume but low-margin segment of electricity retailing) might foreshadow some conditions for mass-market success.

ERM Power have successfully competed with the Tier 1 Gentailers as a new entrant. Their rapid rise to ~20% C&I market share is based on several capabilities:

- **Focus** – the Tier 1 players have devoted little attention to large C&I customers based on their minor earnings contribution, whereas ERM chose to build a business designed to suit C&I needs for cost-competitiveness and service quality.
- **Cost** – ERM is a relatively small business with limited overhead, essential to compete for very low-margin business. As one example, their IT systems are fit-for-purpose to serve C&I customers who have particular stringent needs, but do not require the extensive capability of systems used to offer myriad tariffs and accurate billing to millions of mass-market customers.
- **Service** – ERM has recognized the specific needs of sophisticated corporate energy consumers, and consistently ranks highest in meeting those needs. We presume that translates to some degree of non-price preference for ERM over competitors.

It is an open question whether similar capabilities might be applied to mass-market niches, and deliver sustainable competitive advantage to the niche player. In particular, the Tier 1 retailers view mass-market customers as their primary focus, delivering the lion's share of their retail earnings. They will readily defend the mass-market customer base against credible threats, unlike the C&I example.

4. Long-Term Trends in Retailer Performance

In this section we bring together the facts from long-term reporting of electricity and gas retailer performance, including trends in customer numbers, volumes sold, average prices, cost of goods sold, and gross margins.

We review the reported operational and financial metrics for AGL, Origin, Australian Power & Gas and (to the limited extent possible) EnergyAustralia, and Snowy Hydro's retail brands (Red Energy and Lumo Energy).

Even at the relatively simple level of Gross Margins, there are challenges. In the case of Origin, it is not possible to accurately separate and present a retail electricity Gross Margin from their integrated reporting across their gentailing businesses. Instead, we present a notional "Unhedged Origin" case, which serves the purpose of illustrating why risk-management through hedging is essential to sustainable electricity retailing.

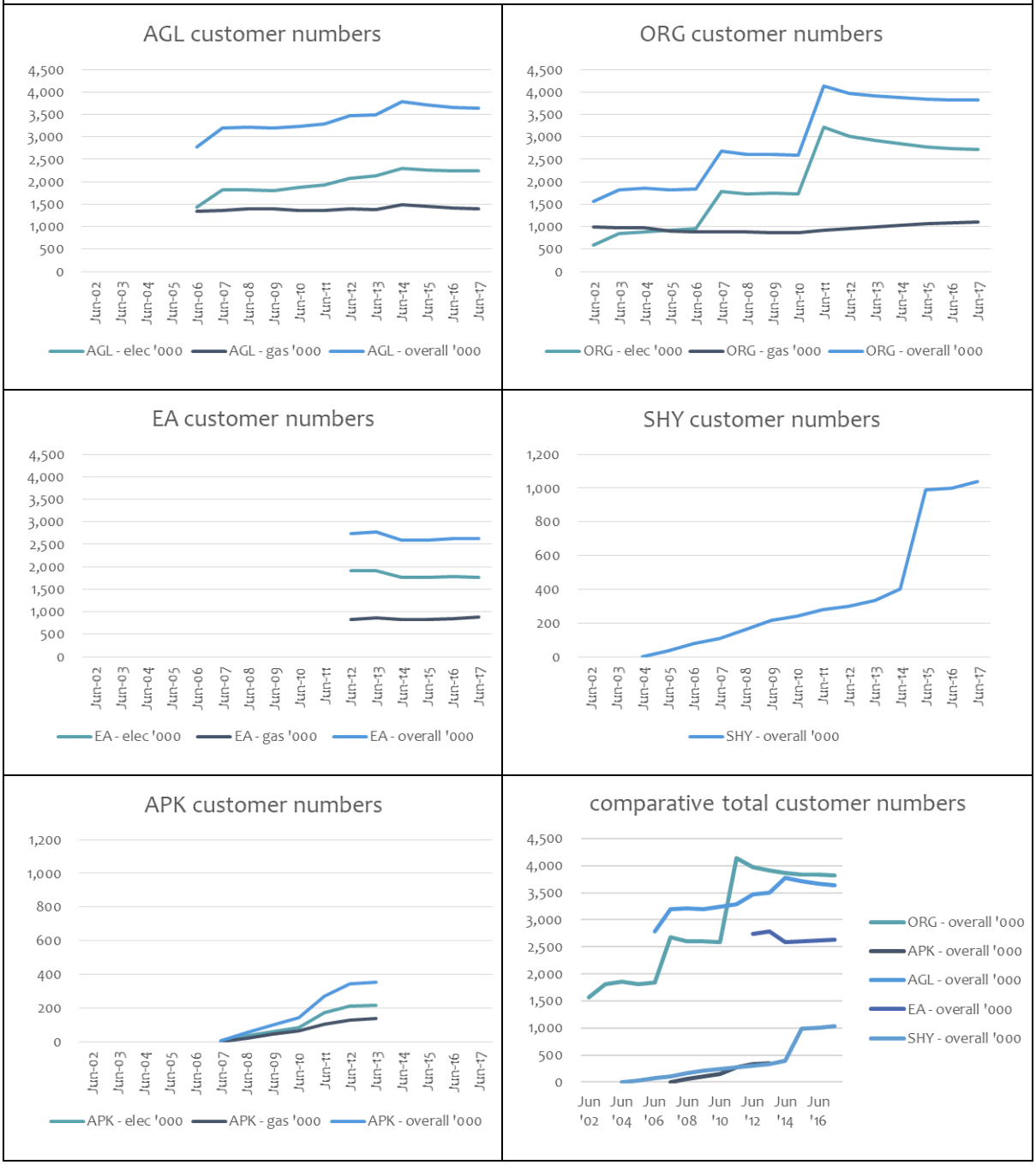
We find the trends useful in understanding the competitive dynamics.

- All Tier 1 customer numbers appear to flat-line or decay absent acquisitions.
- Gross margins for AGL have trended steadily upwards in both electricity and gas.

This sets the scene for the next level of analysis – which concerns operating costs and EBIT.

Customer numbers

Figure 14 – Customer numbers (thousands)

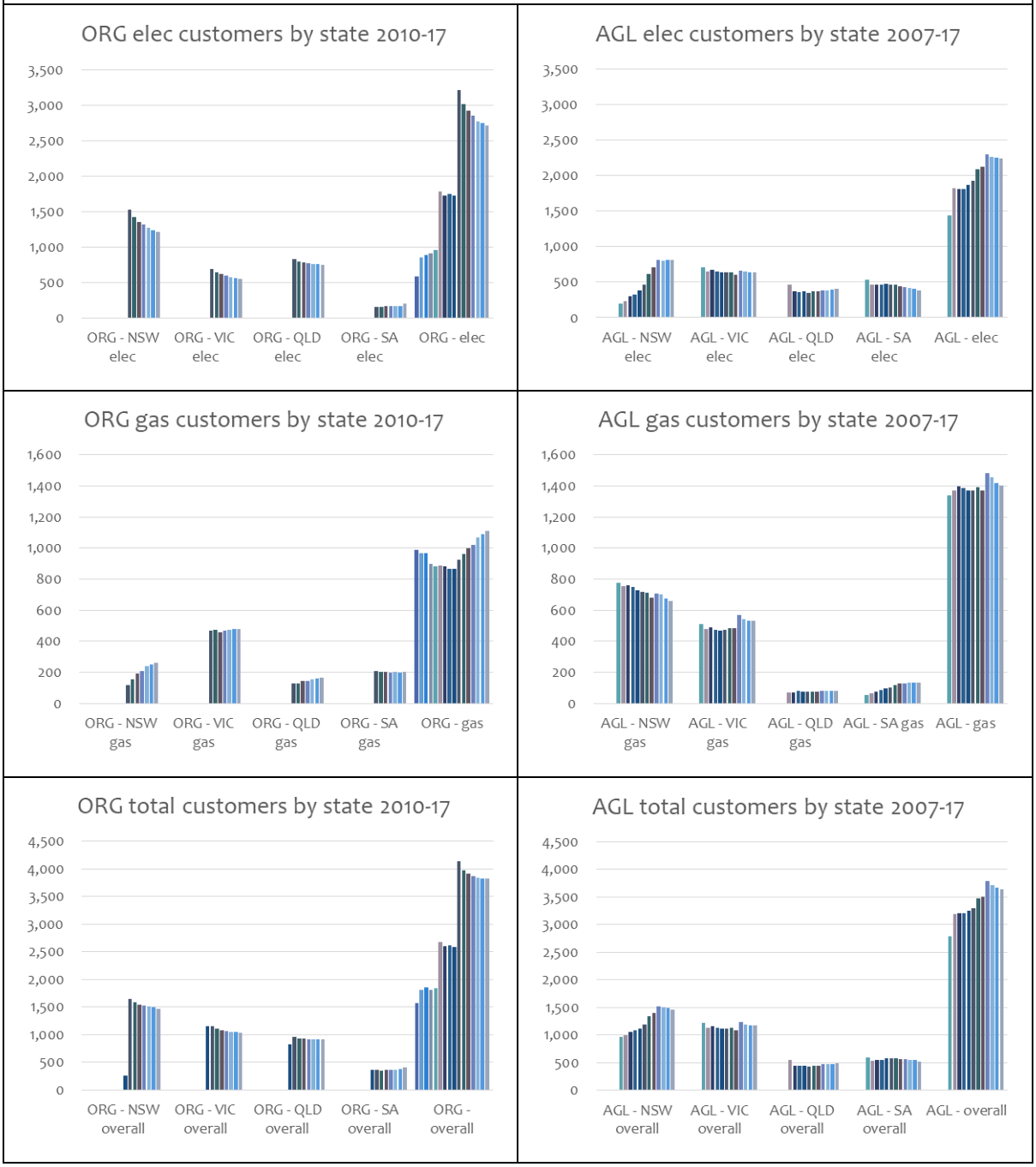


All companies report customer numbers. Several "bumps" are evident as ORG bought Queensland and NSW retailers (FY07 & FY11), AGL bought APK (FY14), and SHY bought Lumo Energy (FY15).

More notable for competitive behaviour is the general flat-lining of Tier 1s' customers (after a decay post-acquisitions). That may be due to one or more factors: acquiring high-churn customer bases (e.g. APK), competitive response (e.g. AGL's customer acquisition campaign in NSW in FY12-14) or internal factors (EA's billing system problems to FY14).

Customer numbers by state and product

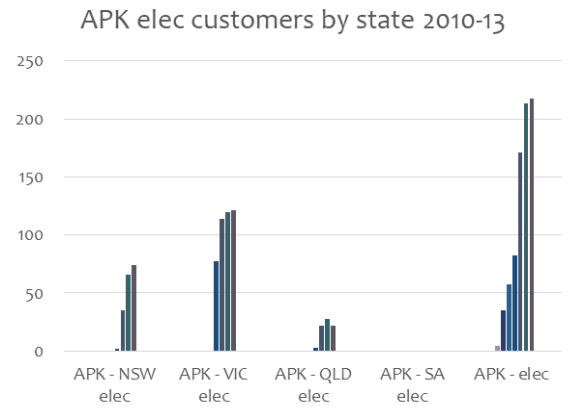
Figure 15 – Customer numbers by state, AGL & ORG[39] (thousands)

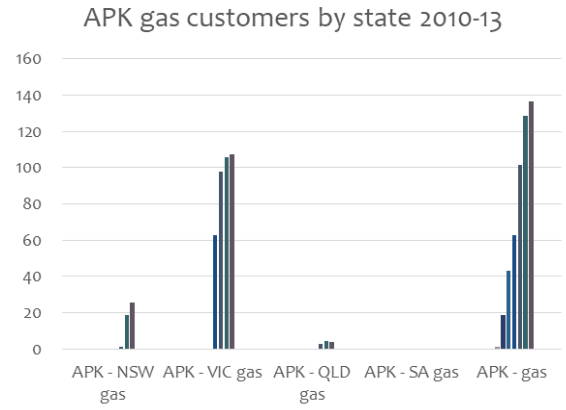


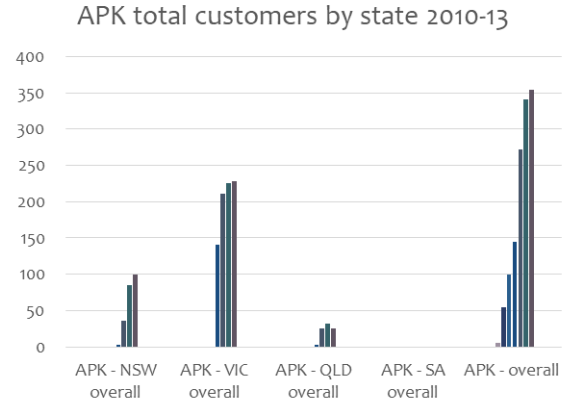
Only AGL and ORG currently report customers by state. Notable is ORG's overall decay in electricity customers (other than in SA) but stable / growing gas customers, especially in NSW where they are converting many acquired electricity customers to dual-fuel. For AGL, their FY12-14 organic growth effort with NSW focus ("Project Storm") capped off by the FY14 APK acquisition is the main story. They appear to have been the major donor of NSW gas customers to ORG.

[39] ORG breakdown by state has only been reported from 2010 onwards. When they last reported this detail in December 2013, EA's customer base of 1.8mn was weighted to NSW (1.0mn) and VIC (0.6mn) with less than 0.1mn in each of QLD and SA.

Figure 16 – Customer numbers by state, APK (thousands)





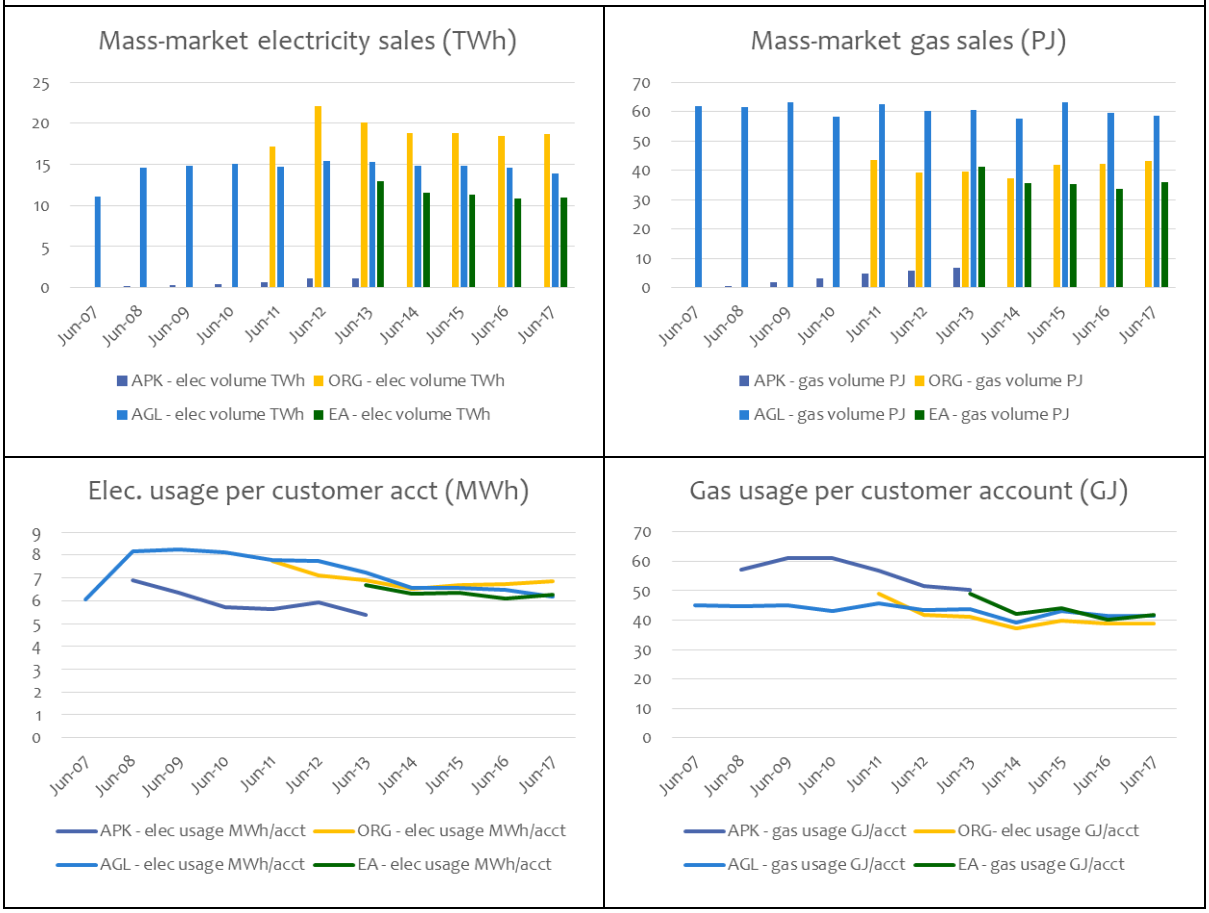


APK's state-by-state breakdown of customers tells us a little about Tier 3 start-up retailing at that time.

The highly-developed VIC market was the initial and major focus, supported by good medium-term electricity hedges and gas supply. NSW grew quite rapidly as a secondary focus, while the price-regulated QLD market stalled, apparently due to lack of hedge availability. APK did not even target the tough SA market: at that time SA was regulated for retail prices and concentrated for generator hedges.

Volumes and usage trends

Figure 17 – Electricity and gas volumes (mass-market)



Only AGL and ORG currently report volumes in the mass-market segment (EA reports overall retail volumes including C&I, which is not comparable). Overall volumes sold to mass-market customers have been trending downwards for the Tier 1 retailers (excluding acquisitions) – particularly in electricity.[40]

This is a result of lower per-account usage over the past decade, off about 25% for electricity. That is driven by a variety of factors often cited: rooftop solar PV penetration, generally more energy-efficient homes and appliances (net of air-conditioning additions) as the household stock is tuned over, and milder weather (warmer winters in particular).

Another factor is likely to be price elasticity of demand with consumers using less as prices rise.

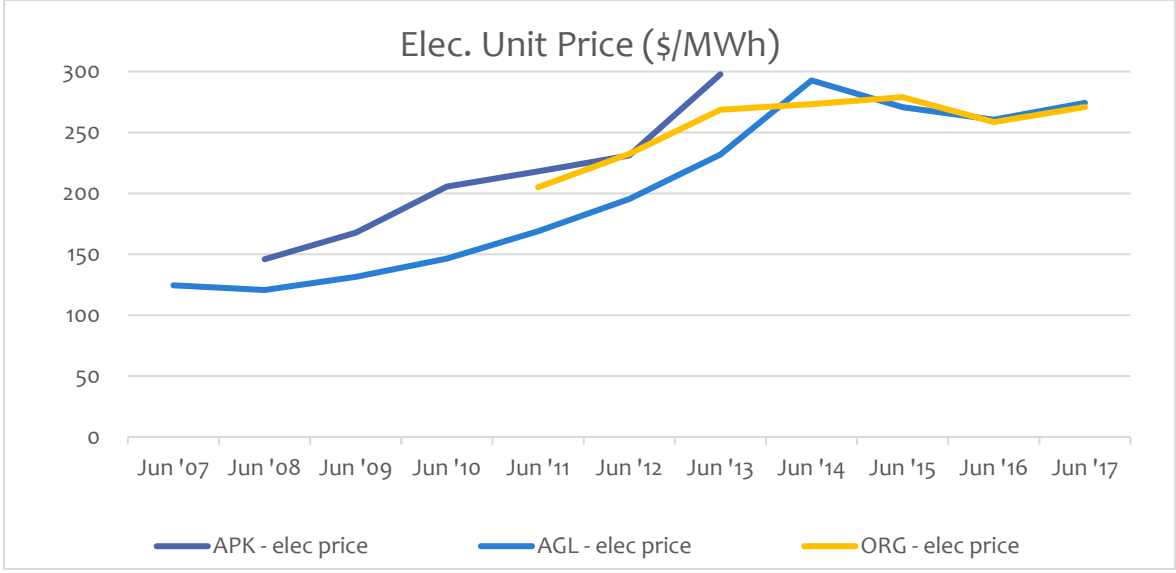
This may manifest as "everyday" behaviour such as turning off the flat-screen TV rather than leaving it on stand-by, as well as encouraging efficiency-based investment choices like PV, insulation and star-rated appliances.

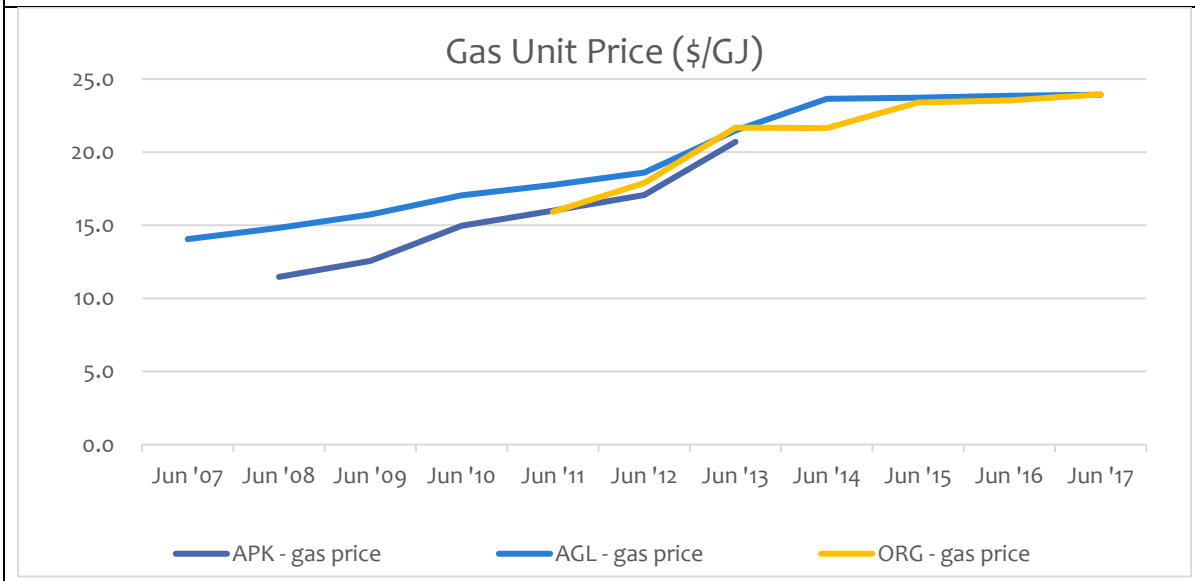
Whatever the causes, the effect for retailers is declining revenues for a given per-unit energy price. Given many costs in the price stack are not variable with usage, this effect can explain a trend upwards in fixed charges to recover fixed costs – to a point.

[40] Note APK's substantially higher gas usage per customer – which is partly explained by their heavy weighting towards high-usage VIC customers. However, the lower electricity usage per customer is NOT explained by this skew in customer number by state.

Unit prices (mass-market)

Figure 18 – Electricity and gas unit prices (mass-market)





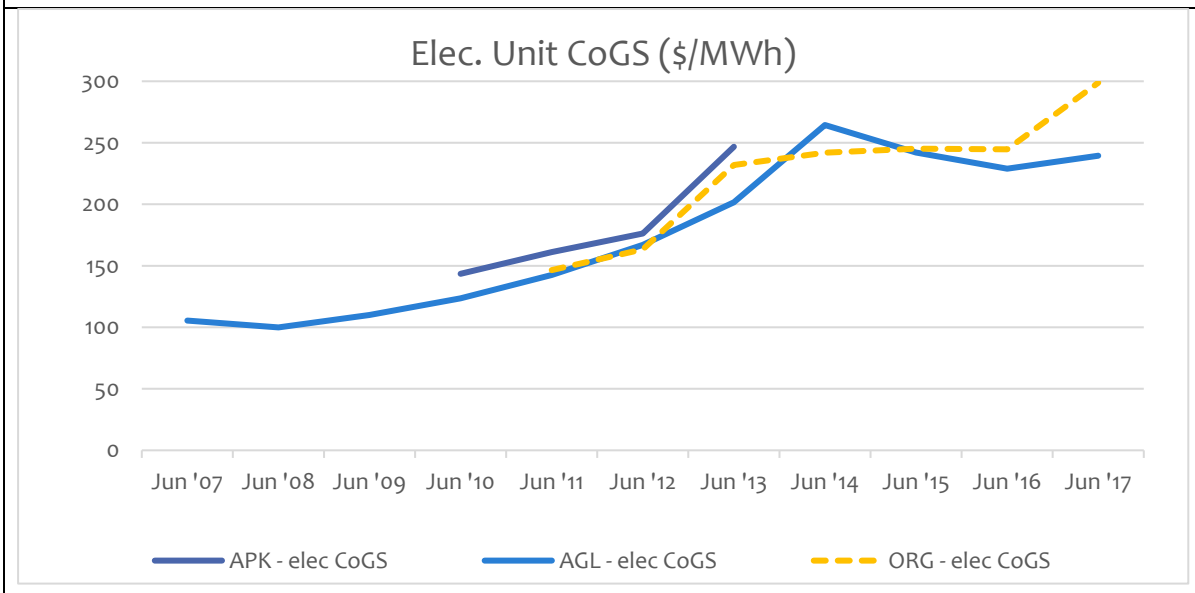
Only AGL and ORG currently report revenues (and allow average prices to be calculated) in the mass-market segment. Total prices (i.e. the full bill, inclusive of pass-through costs like network charges) have risen sharply: 120% in 10 years for electricity and 70% in 10 years for gas, in the case of AGL (likely a good proxy for the whole market).

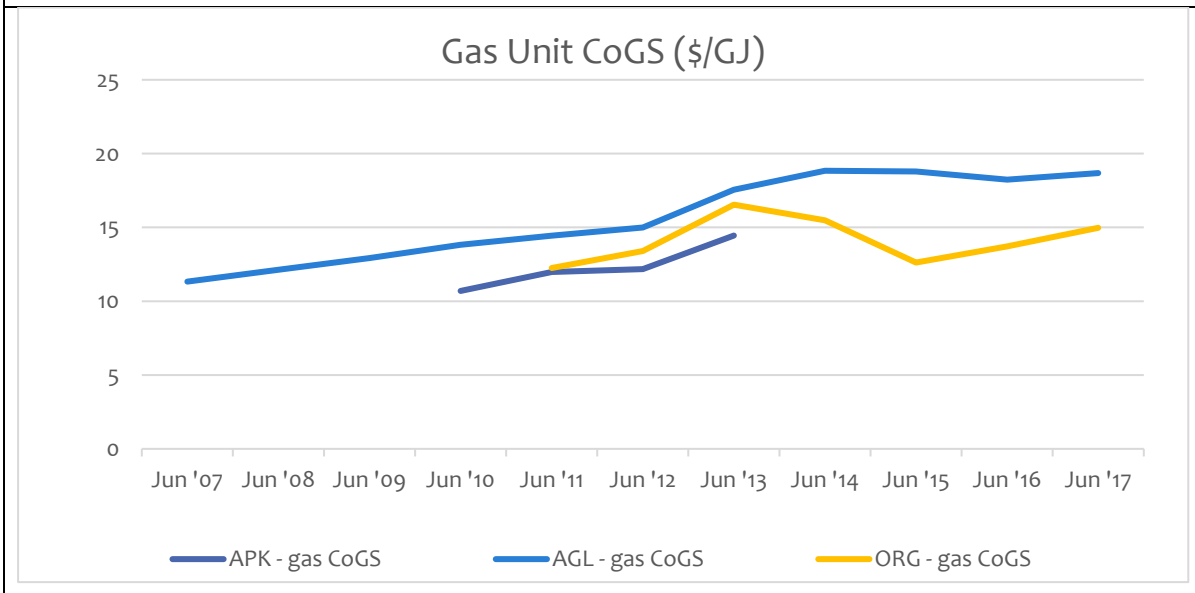
Although this NEM-wide average does not account for differences in weighting between state customer bases, it is notable that AGL and ORG end up collecting a very similar price as each other, for both gas and electricity, and those prices have been fairly flat for about the past four years.

It is also interesting to note that APK was price-competitive on gas, **but APK was not a cheap electricity retailer**, especially given its over-exposure to Victoria with associated lower network costs. This suggests marketing-driven growth rather than price-driven growth in APK's customer base – not ideal for consumers.

Cost of Goods Sold (mass-market)

Figure 19 – Electricity and gas unit CoGS (mass-market). NOTE WELL the ORG line is notional, unhedged.





Only AGL and ORG currently report gross margins in the mass-market segment, allowing CoGS to be calculated: The wholesale cost of electricity, regulated networks charges and other pass-through costs such as environmental certificates which retailers procure in the course of supplying their customers.

Gas prices are rising, but ORG has a lower-cost portfolio of supply contracts than AGL – and is winning gas customers as a likely result. APK was a low-cost gas supplier at the time, consistent with its competitive gas pricing, but had a relatively high cost of electricity – a full 5c/kWh higher than AGL in their final year.

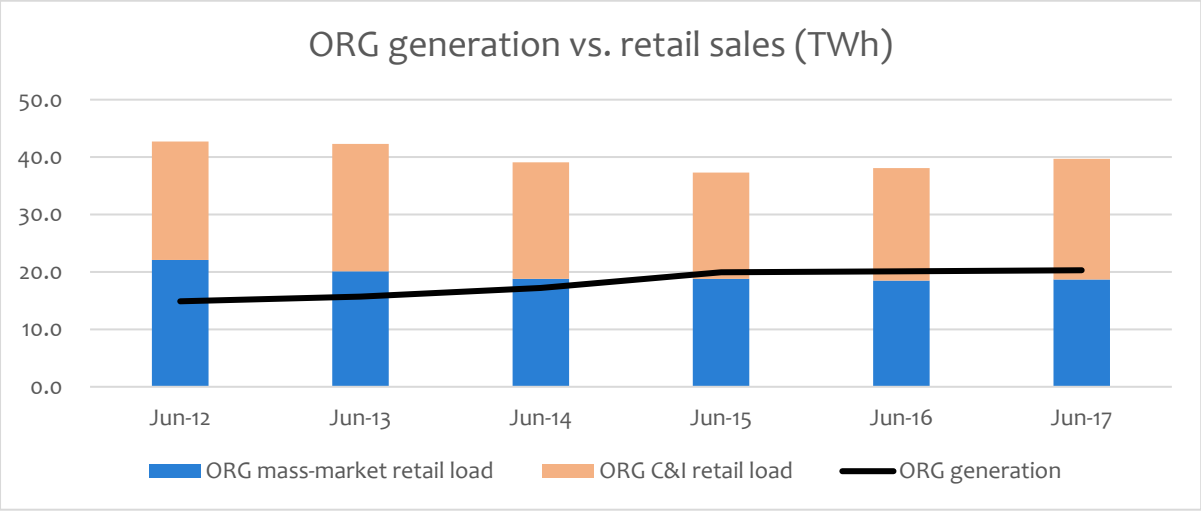
As reported, AGL's and APK's CoGS include hedging. In AGL's case this includes hedging via undisclosed transfer pricing with their generation assets. **In ORG's case, the electricity comparison now becomes very tenuous** due to limitations in their reporting breakdown between generation, retail, and the sub segments of C&I and mass-market retail – our approach is explained overleaf. The outcome above is roughly a "what-if" unhedged case: if ORG's retail division supplied its mass-market load at wholesale spot prices. IF they had been unhedged, it would have led to a sharp rise in CoGS in FY17.

Deconstructing ORG's mass-market retail performance – the unhedged case

We describe how and why we notionally separate ORG's mass-market retail performance from its broader reported figures, coincidentally providing a rough proxy for an unhedged mass-market retailer.

Firstly, note from **Figure 20** that ORG generates about half of its retail electricity load, and its load is roughly equally split between the mass-market customers who are the subject of this report ("Consumer & SME" in ORG parlance), and large C&I customers ("Business"). This has been the case for the past three or four years.

Figure 20 – ORG's gentailing balance is roughly 50% short generation



ORG's reporting provides substantially less detail than AGL's, for the purposes of separately identifying the performance of mass-market energy retailing, as distinct from C&I retailing (a much lower-margin sub-segment) and electricity generation.

ORG reports an "Energy Markets" segment, including generation, as well as electricity, gas and LPG retailing to customers large and small, and newer services including solar PV installation. The Energy Markets segment is ORG's gentailing business as a whole.[41]

Separating out ORG's notional "Merchant Generation", leaving "Half-Hedged Retail"

From Energy Markets, a notional "Merchant Generation" segment can be extracted, because ORG reports wholesale pool revenue (from the sale of dispatched generation) and its generation operating cost, which include fuel costs and cash operating costs for the generation portfolio (but not depreciation and amortisation of those assets).

Subtracting the generation operating cost from wholesale pool revenue yields a "Merchant Generation EBITDA". This notional measure represents the earnings ORG's generation business would have delivered, if it undertook no hedging of its electricity sales into the wholesale pool market.

Removing this from Energy Markets EBITDA, we then are left with a notional "Half-Hedged Retail" segment. This represents the performance of the retail business if – mirroring the Merchant Generation sales as a transfer price – ORG Retail acquired the equivalent wholesale electricity from the pool and did not hedge that cost (covering around half its needs). The other half is deemed to be acquired under conventional retailer hedging arrangements.

In reality, there is no doubt a transfer price which reflects hedging between the retail and generation division – but there is no disclosure to indicate what this might be.

[41] The other segments are the Integrated Gas business comprising LNG and upstream gas exploration & production, and Corporate comprising overhead and new business costs of $66m (before interest, tax and minorities) in FY17.

Separating out C&I customers, leaving "Unhedged Retail Mass-Market"

Next, we notionally separate the lower-margin C&I retail sales of electricity and gas. For this, we assume ORG's gross margins are identical to those reported by AGL, which also broadly cross-checks with ERM Power's C&I margin in the case of electricity.[42]

Because the margins in these highly-competitive sub-segments are small (e.g. we are assuming $75m in C&I electricity gross margin for ORG in FY17 within $1,425m of integrated Energy Markets electricity gross margin), the accuracy of this assumption is not material: a +/- $1/MWh error (which is the rough range AGL have reported over many years) would make little difference.

In allocating a small but positive gross margin to C&I sales, we implicitly assume the C&I sales are the half that is hedged: the low unit gross margins in C&I occur because suppliers like ORG bid into auctions based on the forward market at the time, and lock in the exposure when they win a C&I supply contract.

Therefore, the remaining half of electricity sales to mass-market are exposed to the unhedged portion of electricity costs.

Why present this notional ORG retail mass-market performance? As an example unhedged retailer

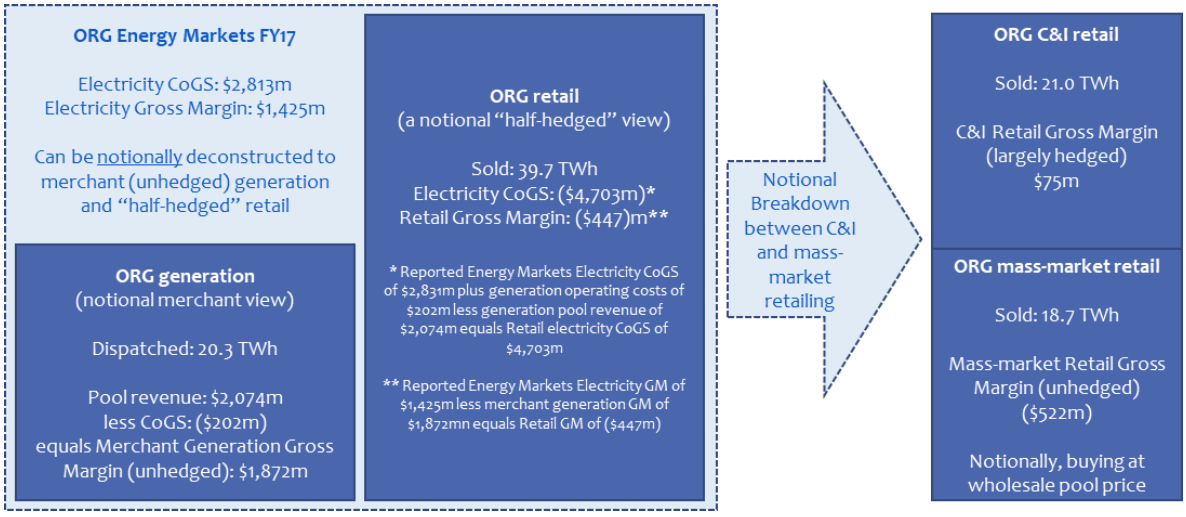
In reality, ORG's retail business almost certainly hedges its entire purchases, including via internal hedges with ORG's generation assets. As a result, the ORG Unhedged Retail Mass-Market performance is not meant to represent a real outcome for Origin. Total gentailing earnings are accurate, but this split is notional.

However, we include it because in this sense, the performance is coincidentally an example of how volatile retailer earnings might be, if they did not hedge.

This highlights the importance of (a) retailers with the financial capacity to hedge and (b) adequate hedge liquidity. In current conditions of high wholesale prices, unhedged retailers are likely to be suffering substantial losses because their mass-market prices move upward more slowly than their costs. This in turn reflects mass-market price-setting based on the smoothing and lagging impact of most retailers' hedging.

Figure 21 sets out the notional deconstruction of ORG's Energy Market electricity gross margin, based on FY17 reported figures.

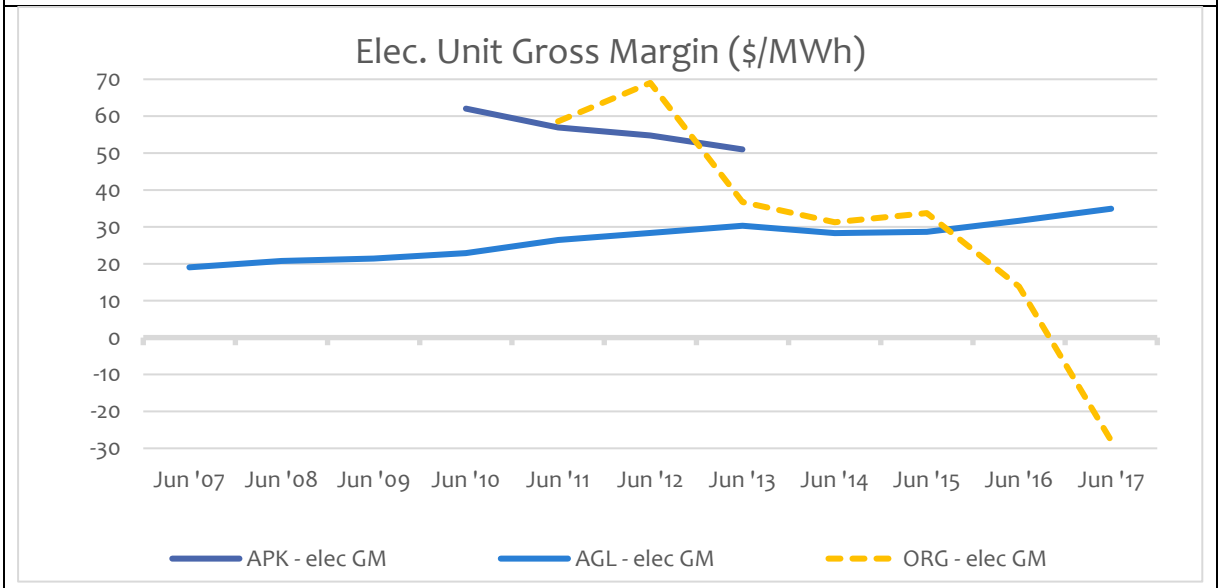
Figure 21 – FY17 reported figures as an example of deconstructing ORG to mass-market unhedged retail



[42] AGL's FY17 unit gross margin to C&I was $3.57/MWh for electricity, and has ranged from $2.59/MWh to $4.49/MWh over the past 7 years. For gas, it was $0.97/GJ and has trended up to this level from $0.46/GJ 7 years ago.

Gross margins – Electricity (mass market)

Figure 22 – Electricity unit gross margins (mass-market). NOTE WELL the ORG line is notional, unhedged.



In electricity, AGL have steadily grown their unit gross margin from $19/MWh to $35/MWh over 10 years, a compound annual growth rate of 6% per annum. This has occurred in the face of sharply rising retail prices (up 120%) and falling demand (down 24% per account since 2008).

APK were a high-margin electricity retailer in addition to being high priced.

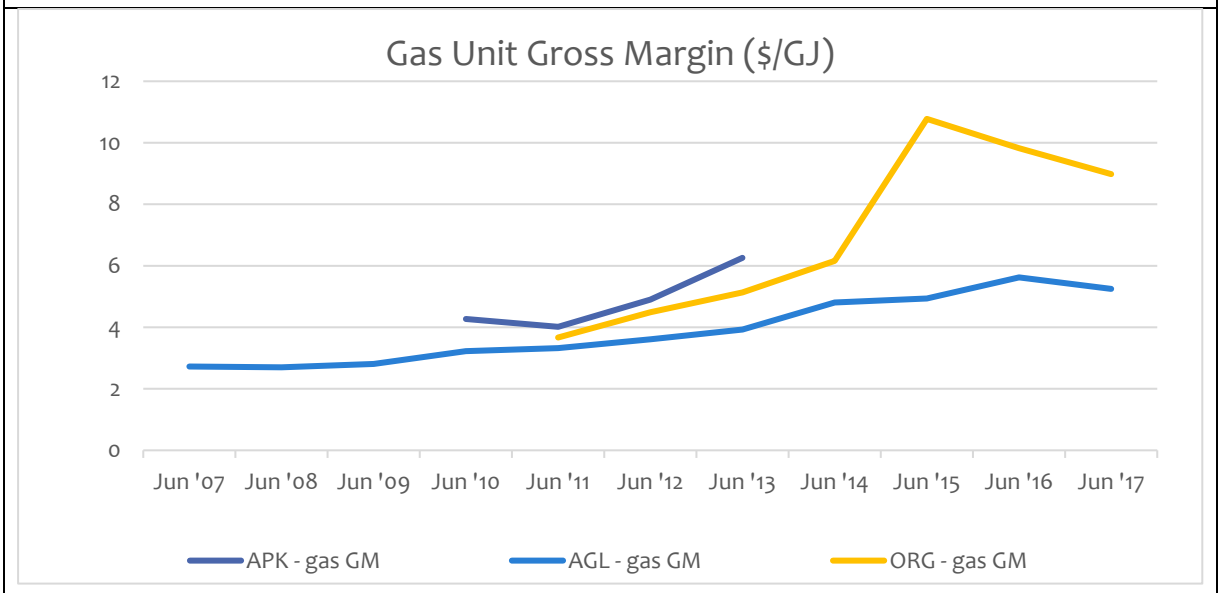
The "Unhedged ORG" case makes it clear that recent wholesale prices rise would have driven unhedged retailers pricing competitively with AGL to substantial losses at the gross margin level. This is would be a completely unsustainable situation given operating costs and cost of capital must be funded from gross margins.

Conversely, in the several-year period prior to FY16 & FY17 "Unhedged ORG" (or perhaps Tier 3 new-entrants in a similar position) would have been highly profitable due to relatively depressed wholesale prices.

Those unhedged or under-hedged competitors would have enjoyed electricity CoGS lower than those of well-hedged competitors like AGL, whose hedged CoGS are a lagging average over past years, including some higher priced wholesale costs from the previous cycle of higher wholesale pool prices.

Gross margins - Gas (mass market)

Figure 23 – Gas unit gross margins (mass-market)



In gas, AGL's performance is similarly impressive. Unit gross margin in gas has expanded 93% over 10 years, up 7% per annum and only dipping back slightly in FY17. Again, this was in the context of a 70% increase in retail prices over that period, during which time demand per account fell 8%.

APK is also a similar story in gas as in electricity – a materially higher margin than AGL in gas at that time. Although in the case of gas, they were sharing some of this with consumers via lower pricing than AGL.

ORG is an interesting case, but we note two sources of uncertainty:

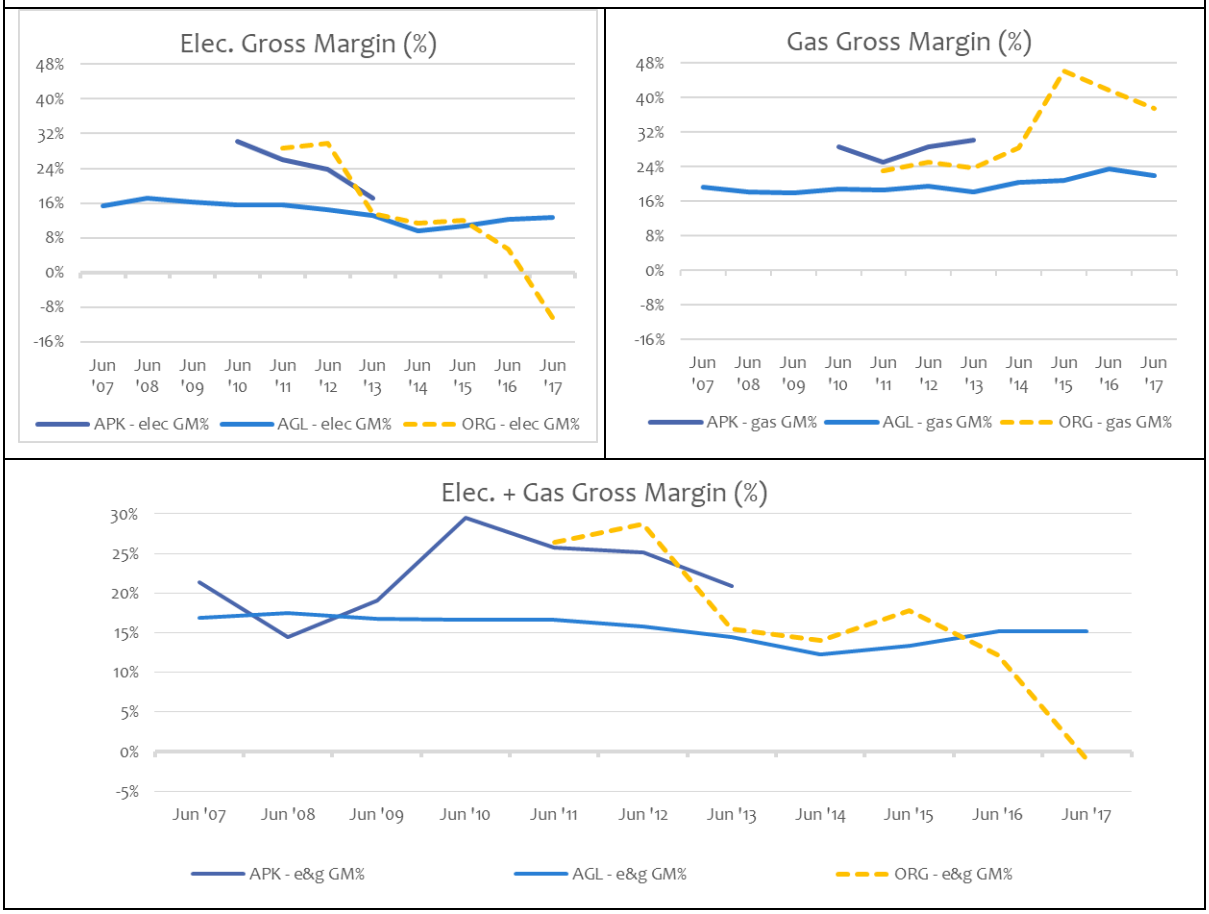
1. as discussed earlier, the assumed split of gas gross margins between ORG's C&I and mass market customers (we assume they earn AGL's disclosed C&I gross margin[43], with the remainder being mass market); and
2. transfer pricing – it may be that ORG's upstream business has supplied ORG's retail business at low cost in the period analysed. The recent sale of ORG's upstream business to Beach Energy with associated gas sales agreements will formalise this position for the future.

However, it would seem that ORG's relatively low gas supply costs (with substantial self-supply via their own upstream gas segment) translates to strong gross margins. That conclusion is circumstantially supported by ORG's success in gaining mass-market gas customers while pricing competitively (but perhaps not any more competitively than necessary).

[43] This was $0.97/GJ in FY17, and has trended up from $0.24/GJ in FY07. As for electricity we have assumed ORG's C&I margins would be similar but this may be a less-valid assumption for gas. Unlike the C&I electricity case, there is no observable and hedgable forward market upon which C&I gas pricing might be based, so pricing and margins might be more dispersed.

Gross margins – in percentage of revenue terms (mass market)

Figure 24 – Electricity and gas GM as % of revenue. NOTE WELL the ORG line is notional, unhedged.



When expressed as a percentage of revenue, gross margins appear flatter because of the large increases in price over the period. Evidently, gas gross margins are higher than electricity, perhaps reflecting the relatively difficulty in sourcing wholesale gas supply, and limited transparency on supply costs.

Combined across electricity and gas mass-market customers, AGL has oscillated around 15% gross margin over a decade.

While it is relatively common to look at gross margins in these terms, we are cautious about anchoring expectations to gross margins as a percentage of revenue when a large amount of the revenue (such as network costs) is a pass-through for the retailer, and does not drive retailers' costs[44].

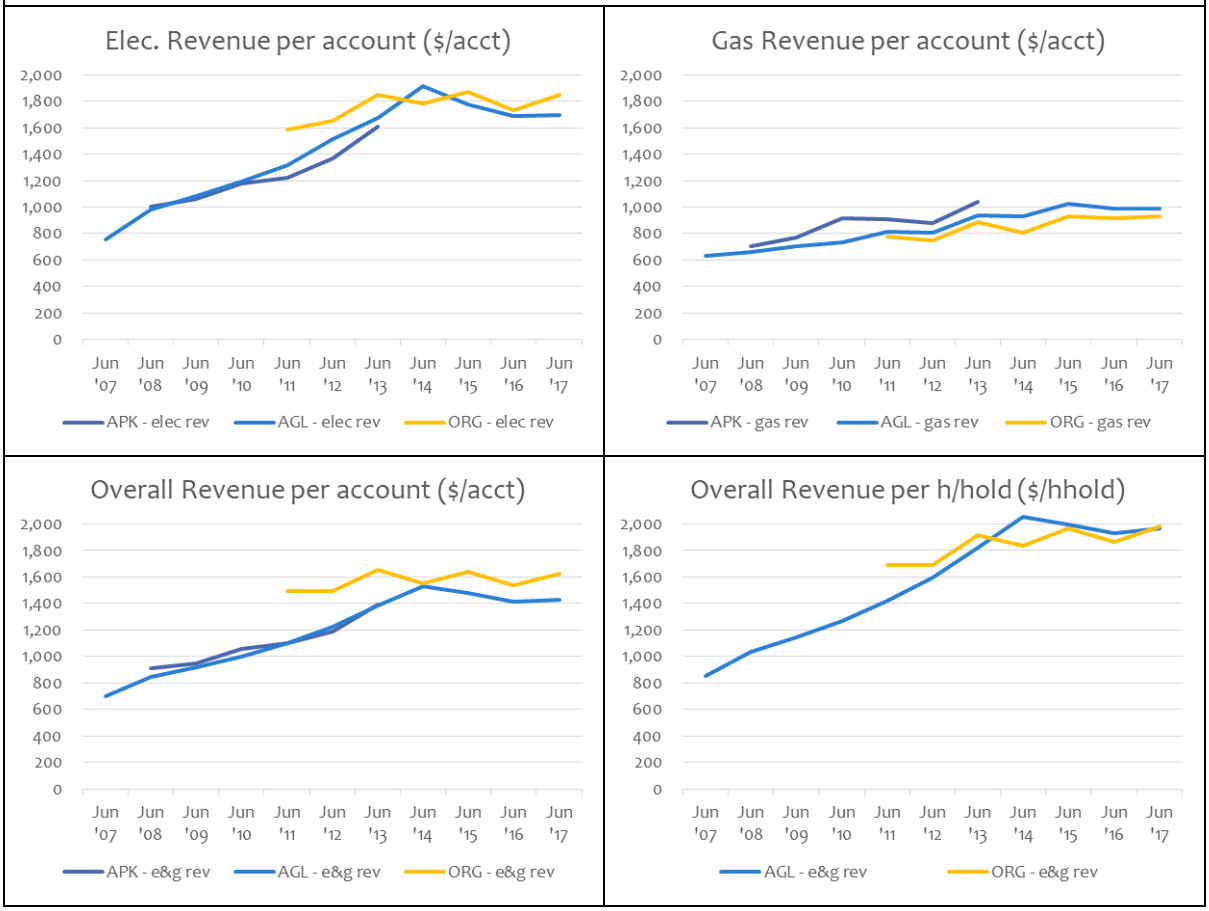
Recalling that electricity prices have risen 120% over the past 10 years, a stable gross margin in percentage terms would imply a similar rise in retailer gross margins per unit of electricity supplied. On the face of it, we do not see a clear argument why a retailer would deserve to earn such an increase in its margins simply because the cost of the product they on-sell has risen by that amount.

Once again, the facts show APK in its hey-day was a much higher gross margin retailer overall than AGL, so its presence is unlikely to have driven lower prices for its customers in our view.

[44] Other than a relatively minor impact to revenue-related expenses such as bad & doubtful debts and the return on working capital invested.

Revenue per account (mass market)

Figure 25 – Mass-market electricity and gas revenue per customer account



Revenues and gross margins in per-unit of usage terms, and gross margins as percentages of revenue, can seem somewhat abstract. Looking at these metrics on a per-account basis takes a consumer's viewpoint – how much do they pay for the energy they need?

This is also a key concern of retailers, given electricity or gas volume drives few retailer costs beyond the pass-through of CoGS.

Per-account revenue has risen over the period, but more recently flat-lined for both electricity and gas. The extent of the per-account increase is muted compared with per-unit prices due to the reduction in usage per account (shown earlier).

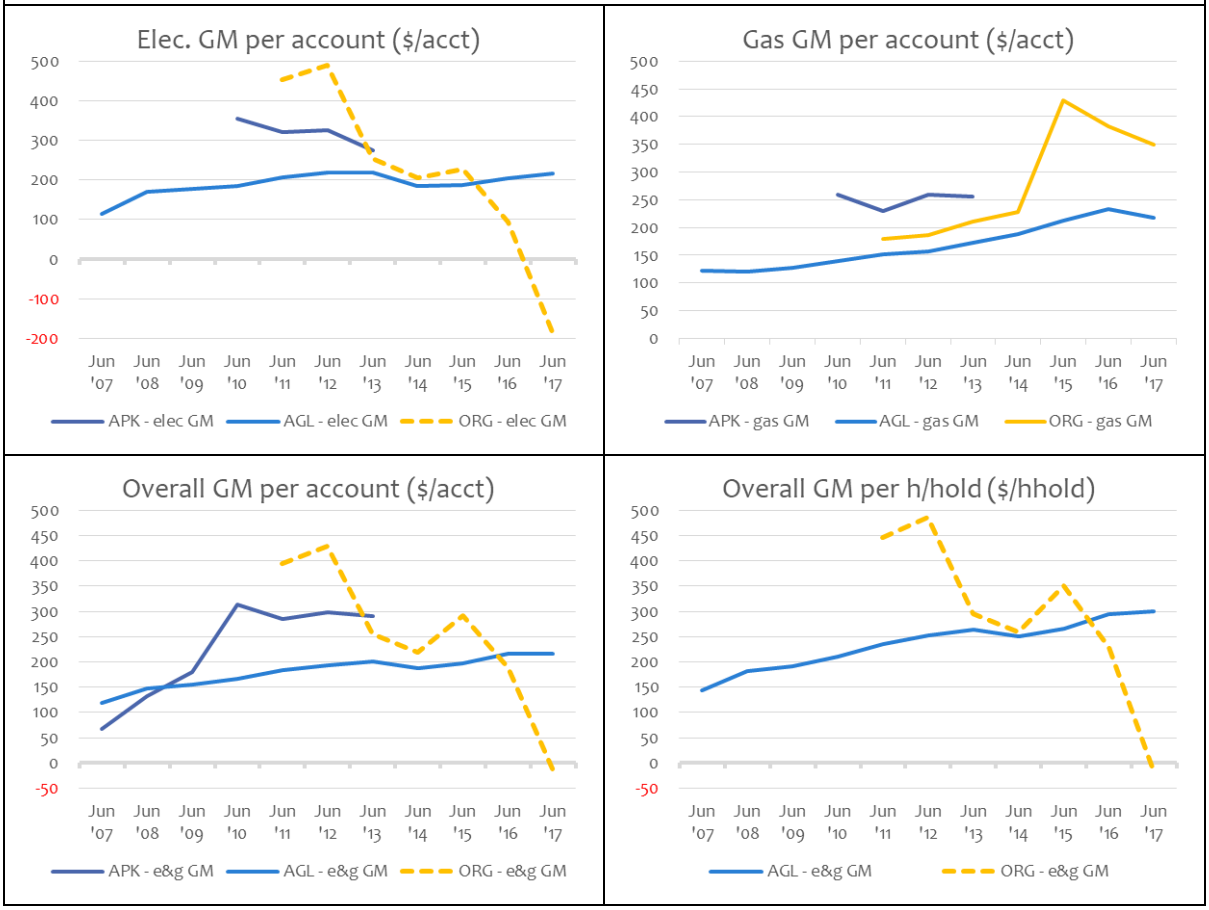
With AGL and ORG, the dual-fuel numbers allow a further measure: average revenue per household (i.e. treating dual-fuel customers as a single household). This has grown more strongly than per-account, because both retailers have increased dual-fuel penetration and so increased their 'share of energy wallet' among their unique households.

The similarities between AGL and ORG are apparent again here, with almost identical revenue per household in the past few years.

APK did not report dual-fuel statistics.

Gross Margin per account (mass market)

Figure 26 – Electricity and gas gross margin per account. NOTE WELL the ORG line is notional, unhedged.



Through the turbulence of price rises and usage falls, AGL has managed to hold around $200 of GM per electricity account over many years with a modest upward trend, while substantially growing gas GM per account.

As a result, AGL's overall GM per account and per household is up strongly over the period of analysis: more than doubling in the case of per-household from under $150 in FY07 to a peak of $299 in the most recent year.

APK, far from driving down prices as fans of Tier 3 competitors might expect, was collecting around $300 per account over FY10-13, a time when AGL was managing this up from $166 to $200.

Our theoretical "Unhedged ORG" remains a cautionary (albeit notional) tale of the highs and lows of retailing volatility if retailers do not hedge their wholesale market exposure.

Interlude: Gross Margin trends beg some questions

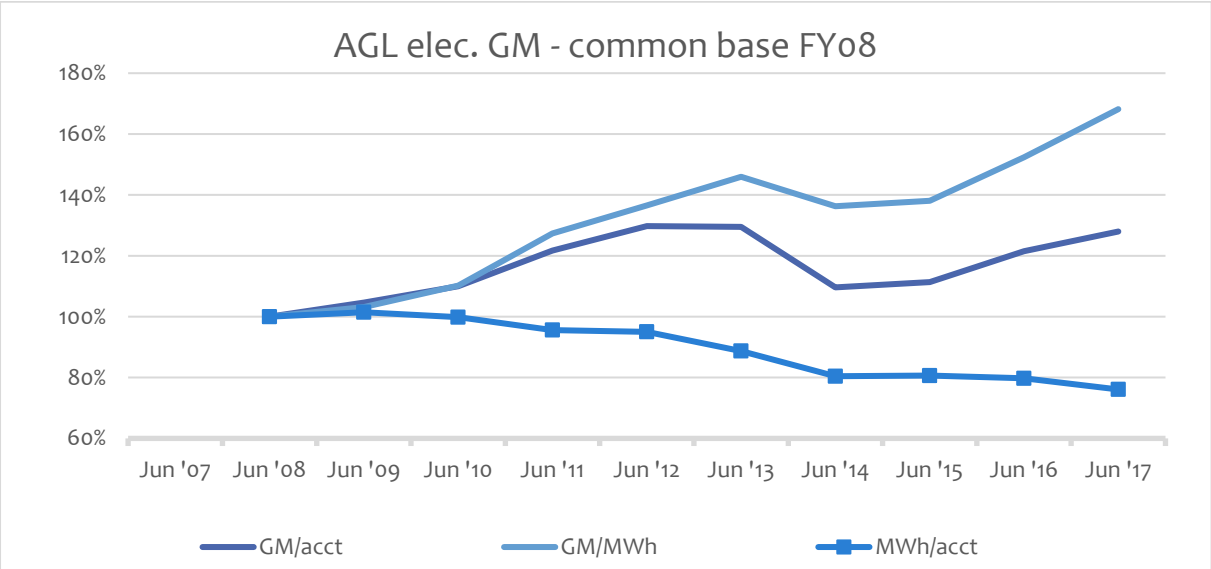
In this brief section we recap on the case-study of AGL's mass market retail electricity Gross Margin over the past 10 years. It has trended strongly upwards. We consider the questions that raises for the performance of competitive electricity markets.

We use AGL because it is the only retailer to have made reliable disclosure over this period – as we have noted, Origin's disclosure is only reliable to assess their integrated electricity generation and retailing performance.

Implicitly we assume AGL is typical of the industry, and represents a reasonable proxy for its close peers, the other two Tier 1 retailers ORG and EA in the Tier 1 cohort.

Figure 27 below shows the evolution of AGL's mass-market electricity retail gross margin over 10 years. It is expressed on a common base from FY08 in two ways: per-unit of energy, and per-account. We contrast these with usage per account.[45]

Figure 27 – AGL's electricity Gross Margin trends



This period includes the intensification of full-throated retail competition in Victoria (as measured by increased churn rates and increases in the quantity of competitors), and the spreading of full price deregulation and the Victorian model of competition to the other large NEM markets with a considerable growth of competitors and churn evident in those markets now too.

As such, the strong increases in the gross margin metrics seem inconsistent with any expectation that competition would drive margins downwards. What is the explanation?

A number of other analyses have stopped at about this point, often concluding that the apparent trend in gross margins over time (or in more recent studies, in Victoria compared with other NEM markets) is evidence enough that competition is not working as it (perhaps?[46]) should to drive down price for consumers.

[45] The decline in usage is partly attributed to the scale-up of rooftop solar PV from negligible levels over this period, as well as general improvements in efficiency, and some price elasticity effects.

[46] Recent commentary from Phil Lewis of VaasaETT suggests any such expectation may be misplaced, based on a global analysis.

We think more questions need to be asked and answered before conclusions of that nature can be drawn. These include:

1. **What are the gross margins funding?** How are those gross margins allocated across (a) covering retailer operating costs; (b) providing a fair return to capital providers (the Cost of Capital); and (c) if those obligations have been met, potentially generating returns in excess of the Cost of Capital, or Economic Profit?
2. **How are returns distributed?** Is the AGL example really typical of all retailers (or even all Tier 1 retailers) at gross margin level? What about at EBIT level, after considering different levels of operating costs driven by scale differences and other factors?

With the limited public disclosure available these are difficult questions to address, but we have done what we believe is appropriate and possible:

- In Section 1, we briefly touched on the **Cost of Capital**, finding (a) it is potentially a material component for retailers with substantial capital employed to support market and hedging collateral requirements as well as customer working capital; and (b) it may differ materially in scale between retailers with higher or lower WACCs due to their structure.
- In the upcoming Section 5, we look at the key question of **operating costs**, and thus the residual EBIT available to fund the Cost of Capital and Economic Profits (if any). We find large differences between Tier 1s AGL and ORG, and our sole source of public Tier 3 data, APK.
- Finally, in Section 6, we consider what this apparent cost differential among retailers might mean if the APK operating costs and Cost of Capital are generalised to the Tier 3 cohort. If that is the case, it appears that the market operates to ensure prices are set high enough to cover these Tier 3 costs – we ask the question **"Who Sets The Price?"** – is it the most cost-efficient operators (the Tier 1s) or are they following higher-cost competitors upwards?

This informs our generalised theory of how the NEM's competitive energy markets may work in practice – possibly leading to **"State of Play Victoria"** – a hypothesis of a pricing equilibrium that is higher-cost for consumers, despite the outward signs of competitive activity. If that hypothesis holds, we expect it would see Tier 1s enjoying sustained Economic Profits due to their lower cost positions.

We contrast that with the potential future of a more genuinely competitive market structure, where more and stronger Tier 2s might act to set the price more often, and bring their reasonable scale and other advantages to bear. As material threats to Tier 1s, that would be more likely to spur competitive responses based on efficient costs and therefore efficient price levels for consumers.

But first, to operating costs…

5. Long-Term Trends in Retailer Operating Costs, Competitive Activity and EBIT

In this section we focus on trends in retailer operating costs, to address the questions raised by apparent rising trends in Gross Margin.

Operating costs are termed Cost to Serve, and can be usefully divided into Cost to Compete (the costs driven by the acquisition and retention of customers in competitive markets) and Cost to Maintain (the costs required to provide billing, manage customer enquiries, and other activities even in the absence of any competitive market activity).

Cost to Maintain has trended mildly higher over the long term for AGL, while Origin appears to have reversed that trend in recent years after suffering a substantial increase between FY11 and FY13, associated with acquisition integration and systems investment.

Cost to Compete is driven by the quantity of competitive activity and we examine trends here too. There are increasing numbers of competitive "events" – acquisitions and retentions – reported by AGL and Origin. We find that Cost to Compete has been steadily rising for both AGL and Origin.

Taken together, the long-term trend is of rising Cost to Serve. This is not consistent with expectations that an increasingly-competitive retail energy market would drive more efficient costs and lower prices for consumers.

Once again, the APK example is used to draw comparisons between Tier 1 and Tier 3 retailer performance, and we show that all aspects of APK's Cost to Serve were substantially higher than AGL or Origin.

Finally we examine trends in EBIT – which is to ask whether Gross Margins have risen more or less quickly that Cost to Serve. The data is scant, as Origin's disclosure does not allow for an isolation of retailing EBIT. In AGL's case, EBIT has trended steadily upwards over a decade.

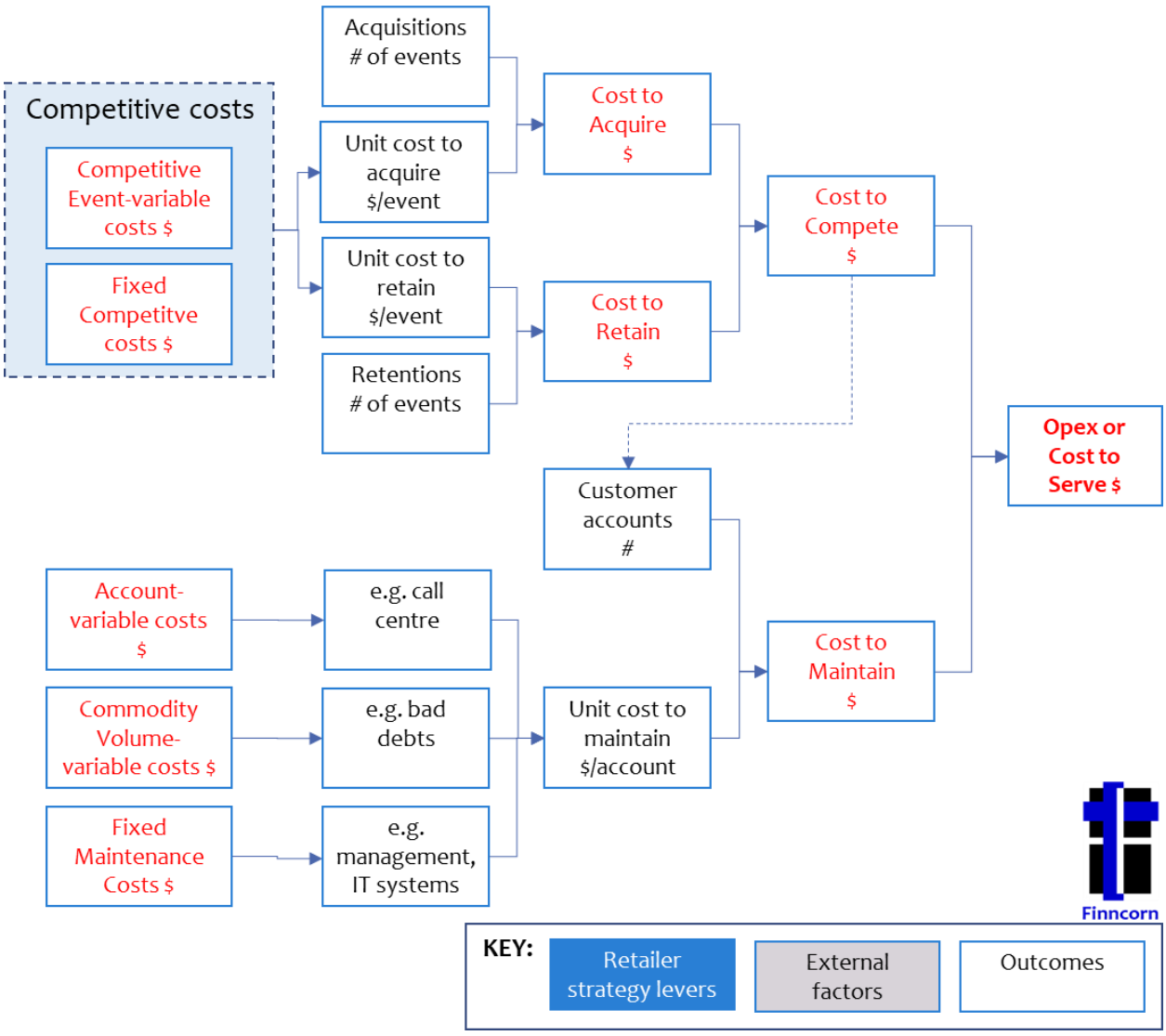
With some rare disclosure from Snowy Hydro, we see that they too have delivered a steady upwards trend in EBIT to levels broadly similar to AGL by FY16, although in this case one driver will have been their scale efficiencies as they grew from a small-scale start-up to a large Tier 2 of over 1 million mass-market customers.

In this section we deal with the mass-market operating costs funded by retailers' gross margins.

The structure and terminology are set out in **Figure 28** below. AGL and ORG have made good disclosures over the long-term on many of these elements, while APK's disclosure was less-detailed, but relatively straightforward to compare.

Note that mass-market electricity and gas customers are grouped together from this point: retailers do not attempt to separately allocate their operating costs between the commodities.[47]

Figure 28 – Operating Costs for energy retailing



[47] In some cases, reported operating costs may include some component for other activities such as solar PV installation and services (e.g. ORG to FY13, AGL from FY16), but these are not material compared with the large bulk of costs associated with serving the mass-market electricity and gas customer base.

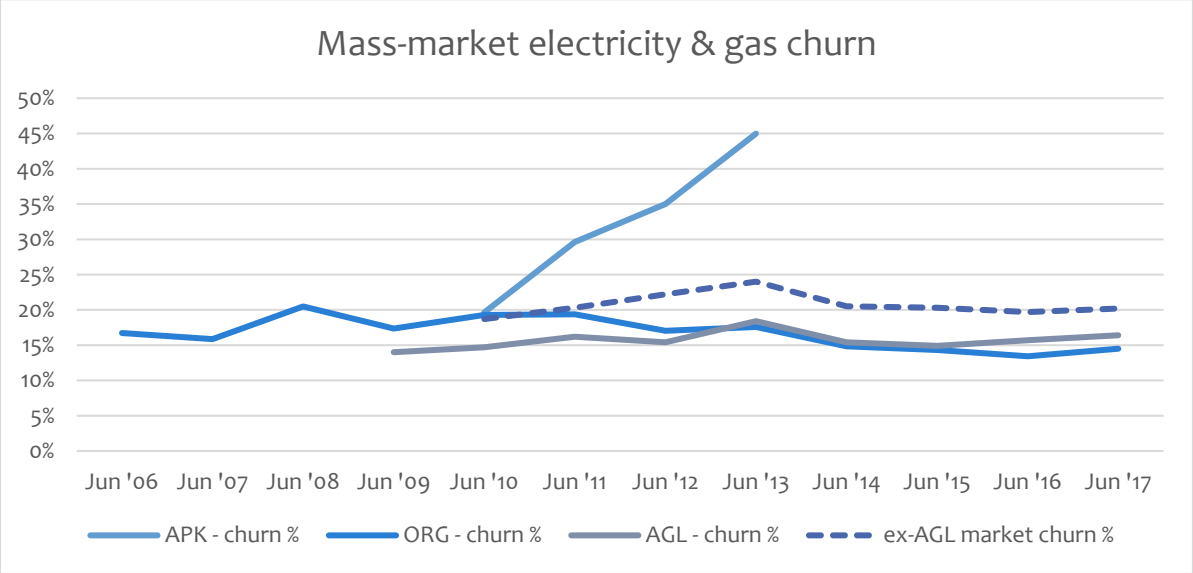
Competitive activity

Churn is defined as the number of customer losses in a year, divided by the starting base of customers.

Figure 29 shows churn for AGL, ORG, APK, as well as AGL's reporting of the rest-of-market churn (excluding AGL). It is notable that the Tier 1s here both show lower-than-market churn, while APK is obviously much higher (in fact, artificially low in the earlier years as it was growing so fast, customers had not yet reached the point of starting to churn away in representative quantity).

The size and relative low churn of AGL and ORG strongly suggests Tier 2 and Tier 3 retailers suffer substantially higher churn in general – i.e. APK may not be exceptional.

Figure 29 - Churn



In NEM regions, and particularly in Victoria, retailers experience a large number of competitive "events" associated with churn.

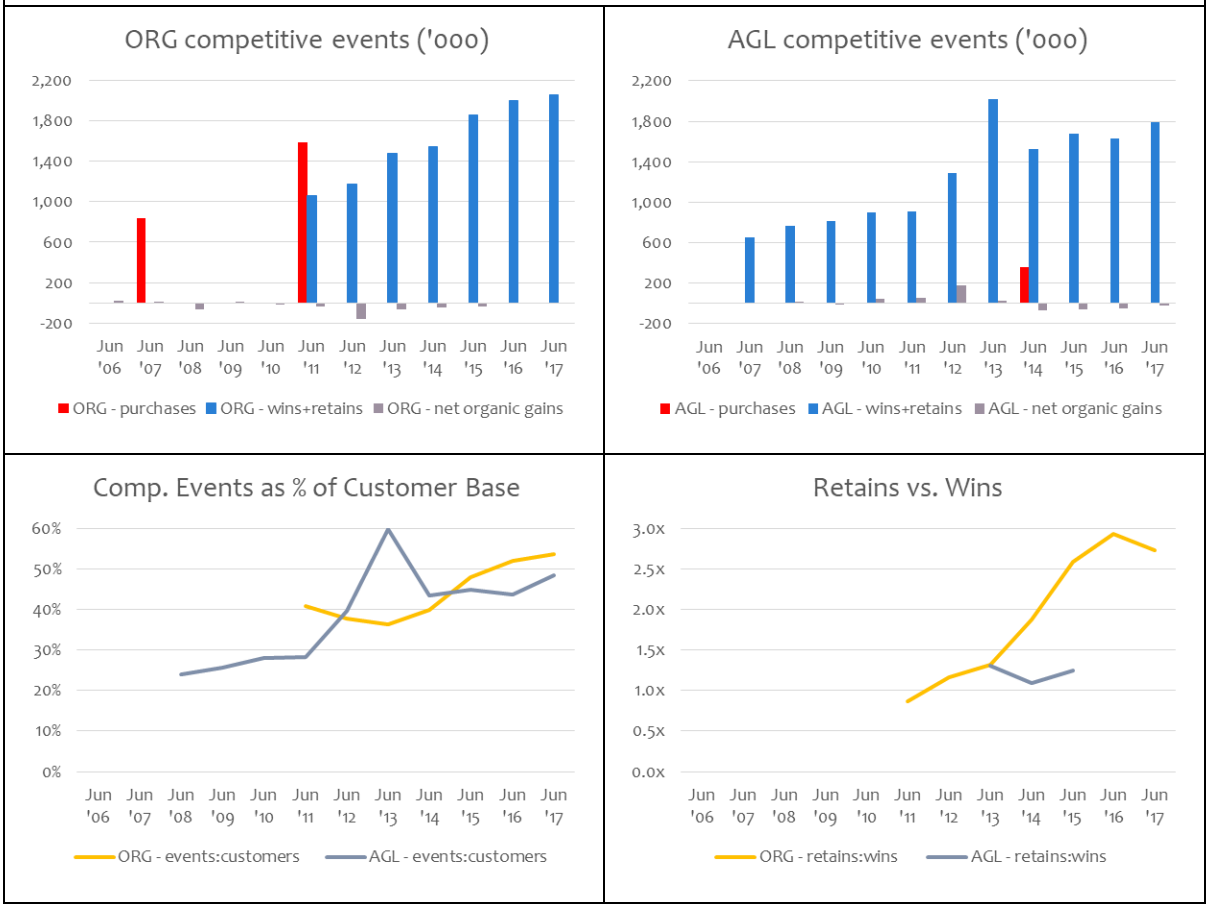
Although the gross number of competitive events over a year may be very large, the net result is often a relatively small gain or loss of customers.

As a result, relatively modest churn and slowly-evolving customer numbers for the Tier 1 retailers can be misleading. In fact, retailers may be working furiously to replace lost customers with new ones and possibly even grow slightly ("acquisitions"), while also taking action to hold onto customers who have threatened or notified their intention to churn away ("retentions").

Figure 30 overleaf shows the quantity of these competitive events over time for AGL and ORG, and how they have been split between acquisitions and retentions.

Note the very large quantity of competitive events to yield very small organic gains and losses in customer numbers. AGL's Project Storm in FY12 clearly drove customers in from ORG's newly-acquired NSW retail businesses, but by FY13 the effect had been neutralised and AGL gained very few net customers. This is likely to be one reason why AGL was keen to acquire APK in early FY14, allowing them to gain inorganically and "tick the box" on their publicly-stated customer growth ambitions.

Figure 30 – Competitive Activity – inorganic purchases, organic retentions and wins (acquisitions)[48]



Total competitive events have been ramping upwards over time for both AGL and ORG. Although AGL only reported this for a few years, the trend for ORG shows a rapidly and materially increasing ratio of retentions to wins.

This is rational - we will see it appears to be about five times cheaper (in terms of the cost of the event) to retain a good customer than to lose them, and have to win back a replacement.

Both AGL and ORG are now experiencing competitive events at around 50% of their customer base each year – substantially more competitive activity than a churn metric might suggest.

If this is the scale of competitive activity experienced by Tier 1s, with their lower-than-market churn and sanguine approach of holding customer numbers flat or mildly declining, we suggest the equivalent metrics for growing Tier 2 and Tier 3 retailers would be substantially higher.

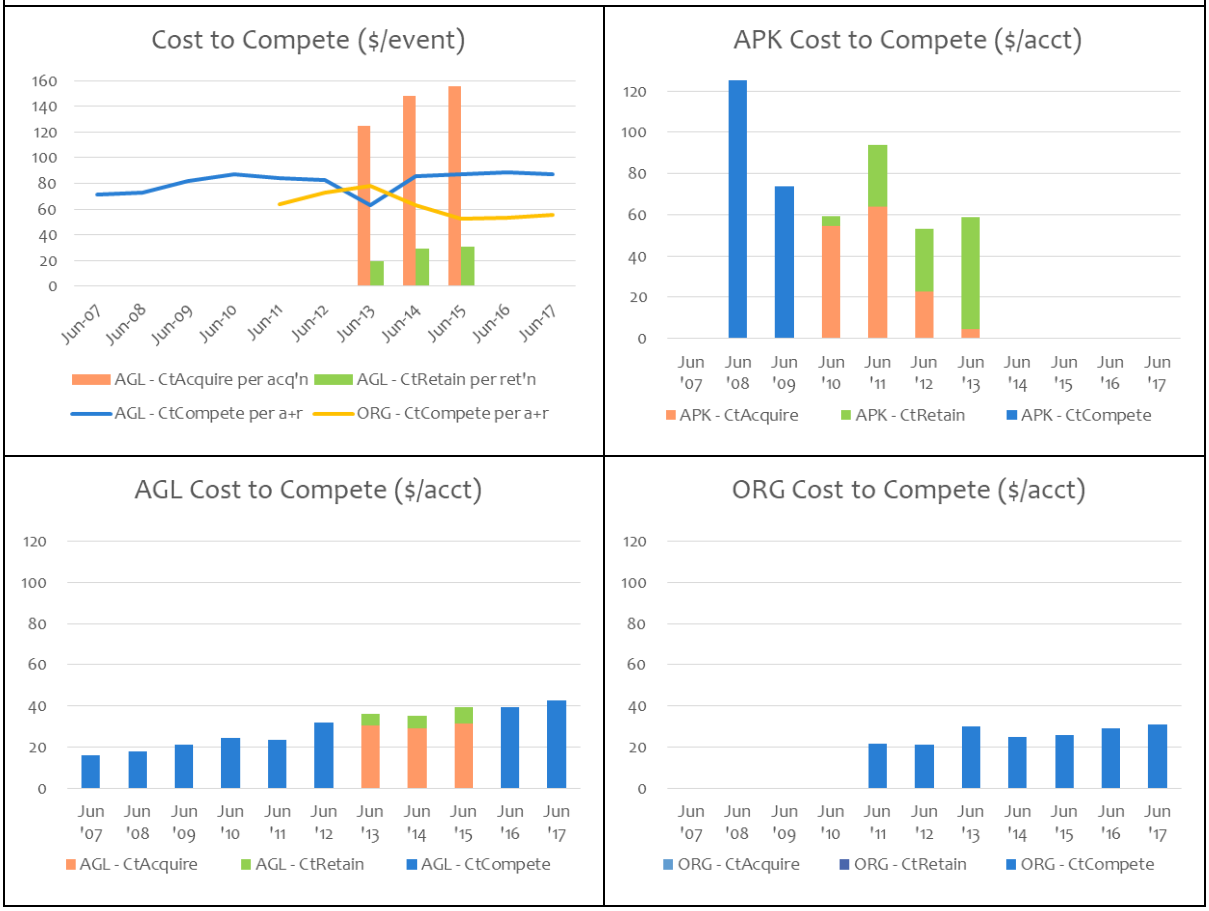
Cost to Compete

Every one of these competitive events across the market represents a cost to retailers. All these costs must ultimately be recovered from retailer gross margins, and thus consumer prices.

Cost to Compete ("CtC") is a combination of internal costs (such as marketing and customer interactions to action enquiries, wins, losses and retains) as well as payments to external channels for acquisition such as contracted door-knockers, telemarketing, or commercial comparator sites.

[48] Here, we distinguish between "purchases" – an inorganic acquisition of a retailer customer base en masse, and "wins" – the acquisition of customers from organic competitive activity.

Figure 31 – Cost to Compete, per competitive event, and per account



The key messages here are the following.

- **Unit cost of competitive events is material.** The three years of additional disclosure from AGL is the only detail available, but suggests an acquisition was costing nearly $160 in FY15, and had been rising, while retentions were about 1/5th of this in unit cost. Overall AGL and ORG are spending $55 to $87 per competitive event spread over acquisitions and retentions in FY17 (remembering the annual quantity of such events is about half their customer base).
- **Cost to Compete is material and growing** for AGL and ORG, driven by the quantity of competitive events discussed earlier. As the per-account charts indicate, this means (in the case of AGL where we have the best data) of their gross margins of $217 per account (and rising), more than $40 (and rising) is required to fund the "hamster wheel" of roughly maintaining customer numbers. The costs in ORG appear to be somewhat less, but the growth trend is evident there too.
- **Tier 3 CtC is likely to be materially higher than Tier 1:** Very clearly evident for APK. Tier 3s lack economies of scale to spread any fixed costs to compete (such as systems, advertising), and will also have higher-churn customer bases, and so proportionally more competitive events to fund.

On the face of it, this model of small new-entrants with high numbers of competitive events to fund does not seem support an outcome of Tier 3 pricing lower than Tier 1 pricing to the advantage of consumers.

The per-account charts are at the same scale to highlight the very high relative CtC reported by APK – another example of how the reported numbers do not correlate with APK's characterisation of itself as a low-cost operator. Note also that as APK grew and high churn levels began to bite, their competitive resources shifted from predominantly growth in FY10 (with almost all the spend on acquisitions) to a highly defensive stance in FY13 (with almost all the spend on retentions).

In our view, APK's example is the likely fate of any start-up retailer who attracts a customer base with high churn propensity, and does not have the low-cost position necessary to hold them via low prices.

Cost to Maintain, including the significance of Bad & Doubtful Debts ("B&DD")

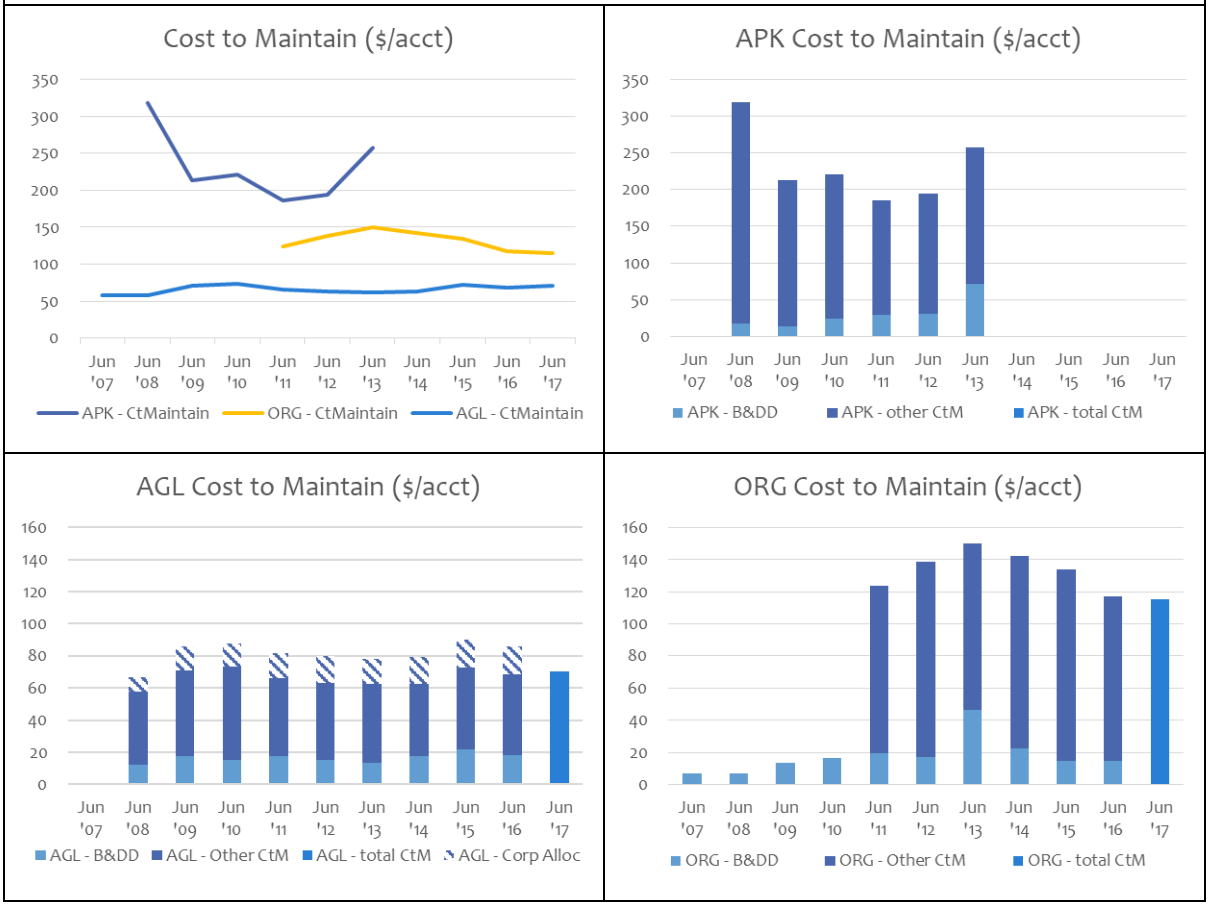
Cost to Maintain ("CtM") is the total operating costs a retailer would experience if there was no competitive market activity – i.e. in the absence of the competitive events and costs described above.

Therefore CtM is related to serving existing customers in the normal course of affairs – dealing with enquiries, billing, procuring and risk-managing wholesale supply, and associated management and overheads including maintaining IT systems.

Some of these costs are effectively fixed, such as the management team and general corporate overhead, and non-scalable elements of IT systems. Others are likely to be variable with the number of customer accounts – for example, customer service functions and paper billing.

There are also some costs which are related to the volume or value of energy sold: notably, B&DD expenses will scale with price and volume. This component of overall CtM has attracted attention at various times.

Figure 32 – Cost to Maintain[49], breakdown B&DD vs. Other, and comparative



As APK started to stumble prior to AGL's takeover, rising B&DD were cited as part of the issue, and AGL noted their own much lower levels. The other Tier 1s have both noted challenges in controlling B&DD in the context of billing systems projects, where implementation issues led to a blowout in B&DD.

Containing B&DD is one reason why retailers prefer to bill customers more often (allowing them to initiate action more quickly as a customer falls into default), and ideally to do so via Direct Debit arrangements (so

[49] ORG have only reported a breakdown of overall Cost to Serve into Cost to Compete and Cost to Maintain since FY11 – but we present the separately-disclosed B&DD component since FY07.

that customers have to take an active decision not to pay, rather than simply losing the bill under the couch).

In **Figure 32** above, we break out the B&DD component of CtM. Both AGL and ORG ceased reporting their B&DD expense in FY17.

There is quite a lot to note from this data.

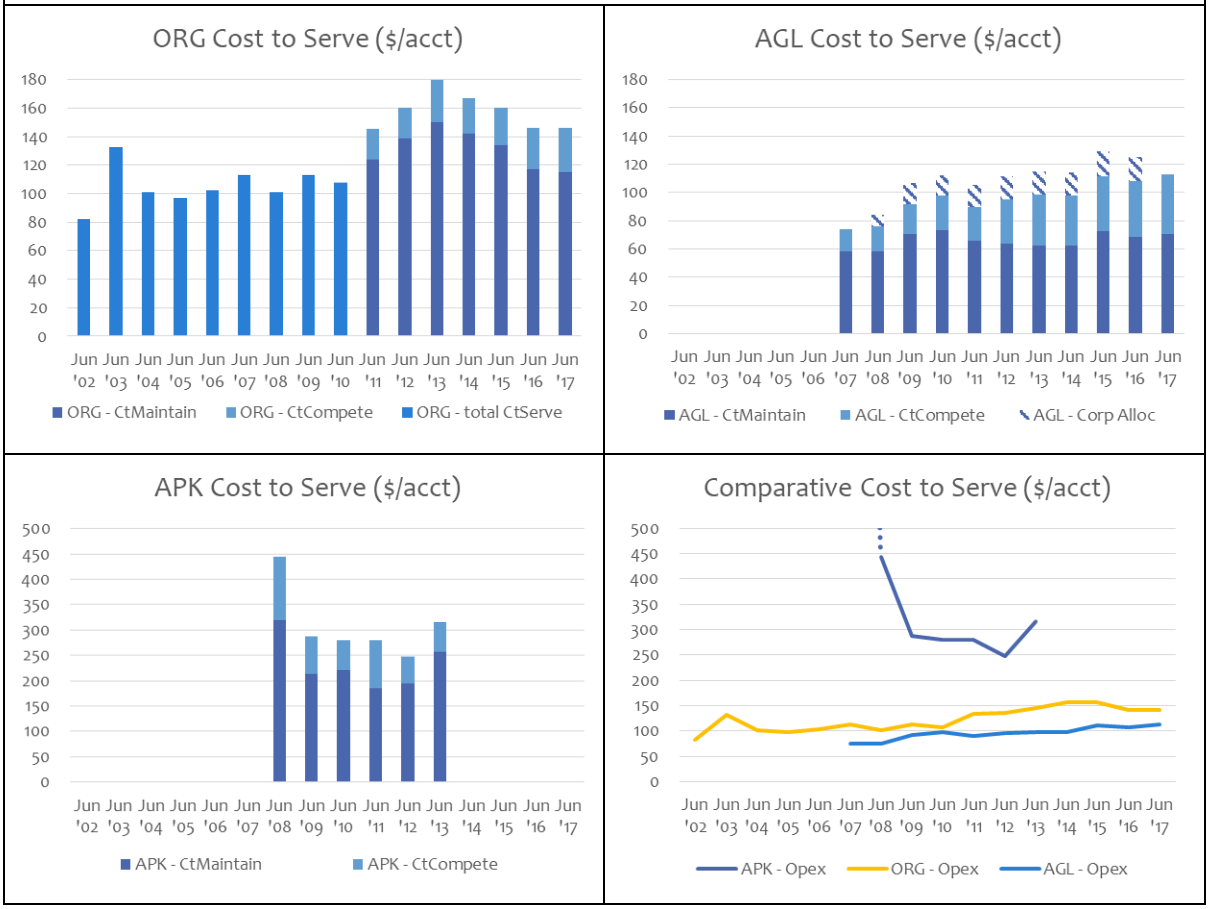
- **Gross Margin focus misses a major cost element:** Compared with gross margins per account of (say) AGL's $217 in FY17, this Cost to Maintain – the bare cost to service a customer prior to any competitive activity – is material.
- **Efficient Cost to Maintain is not falling under competition:** AGL appears to be the most efficient operator, but its CtM does not appear to have reduced under the heat of competition, rather it has risen by 20% over the decade. ORG's recent falls only partly reverse a longer-term trend upward.
- **Tier 1s appear not to have been successfully competing on cost in the recent past:** ORG seems to be somewhat inefficient given its larger size – this is partly due to implementing large systems investments (with mixed success) at the same time ORG absorbed and integrated the large and relatively high-cost NSW retail businesses with separate customer service arrangements. The trend in CtM for ORG is downwards since then, by 23% in the past 4 years. We do not have the data, but EA's storyline is very similar (large acquisition of government -owned retailer business, coinciding with systems problems) and so the cost outcomes are likely similar. With two out of three Tier 1s dealing with systems problems and integration challenges, the recent past may not have been the ideal environment for efficient cost-based price competition among the Tier 1s.
- **Tier 3s seem likely to be very inefficient on costs:** We saw earlier that APK's gross margins were high – at around $300 over FY10-13. We can now see this was necessary to fund APK's substantially higher CtM. We note that this evidence contrasts strongly with APK's marketing of itself as a lean low-cost competitor, even as it grew to a relatively large scale of 354,000 customers (albeit still an order of magnitude in scale smaller than the Tier 1s). Assuming this is in any way typical (and we think it is, based on the impact of any reasonable level of fixed overheads on per-account costs) it appears there are substantial economies of scale in mass-market energy retailing.
- **B&DD are material, but not dominant:** APK saw this expense blow out to $75 per account, but this was NOT the full reason APK were high-cost. AGL saw an uptick themselves in FY14 after buying APK, but have generally held this to about $20 per account, likely rising with prices but being contained by credit-friendly features like Direct Debit and monthly billing. ORG have a similar if somewhat lower B&DD cost to AGL, but experienced their own blowout in FY13 due to billing systems and NSW retail integration problems.
- **AGL's corporate overhead allocation may muddy the waters – ORG operating costs levels may be the better guide.** ORG's unallocated corporate costs total only $66m in FY17 and $84m in FY16, while AGL (a smaller and simpler organisation lacking an LNG and upstream division) reports $237m in FY17 and $246m in FY16. Until FY16, AGL's reporting noted how much of this unallocated overhead might notionally be allocated to their gentailing and other operating segments. The allocation to the retail segment was $65m in FY16 and had been relatively stable. If that were to be allocated into AGL's CtM, it would close the gap with ORG by about $20/acct (shown as patterned bar in the chart above). Note the allocation to segments still leaves AGL with $118m of unallocated overhead in FY16, substantially in excess of ORG.

As a very rough takeaway, large Tier 1 retailers likely carry around $100 per customer account per year of Cost to Maintain, while Tier 3 retailers may carry 2-3x this amount. This is a baseline for gross margins – simply covering the service of the current customer base prior to funding any competitive activity (Cost to Compete) or servicing the Cost of Capital.

Total Operating Costs, or Cost to Serve

Finally, we assemble CtC and CtM to examine the retailer's total operating costs: their Cost to Serve ("CtS"). In **Figure 33**, these are shown broken down into CtC and CTM where available.

Figure 33 – Cost to Serve, broken down into Maintain vs. Compete, and comparative between retailers



These charts present the total operating costs for the retailers, which their gross margins must fund.

We can see firstly that these costs have risen over the long-term, for large-scale Tier 1s (the likely more efficient-cost operators) and that this has been driven by both greater competitive activity, and also flat (at best) or rising underlying Cost to Maintain.

Note the different scale for the APK chart axis. With only one case study for the Tier 3s, the sample set is very, very thin. However, based on the APK examples we can see an indication that Tier 3s are materially higher-cost due to lack of scale, and due to a structurally more active customer base driving proportionally more competitive events.

From this we surmise:

1. Tier 3s are unlikely to be competing on cost; and so
2. Tier 1s are unlikely to be under a lot of competitive cost pressure from anyone other than their couple of peers, and potentially the couple of Tier 2 competitors (where we have no data).

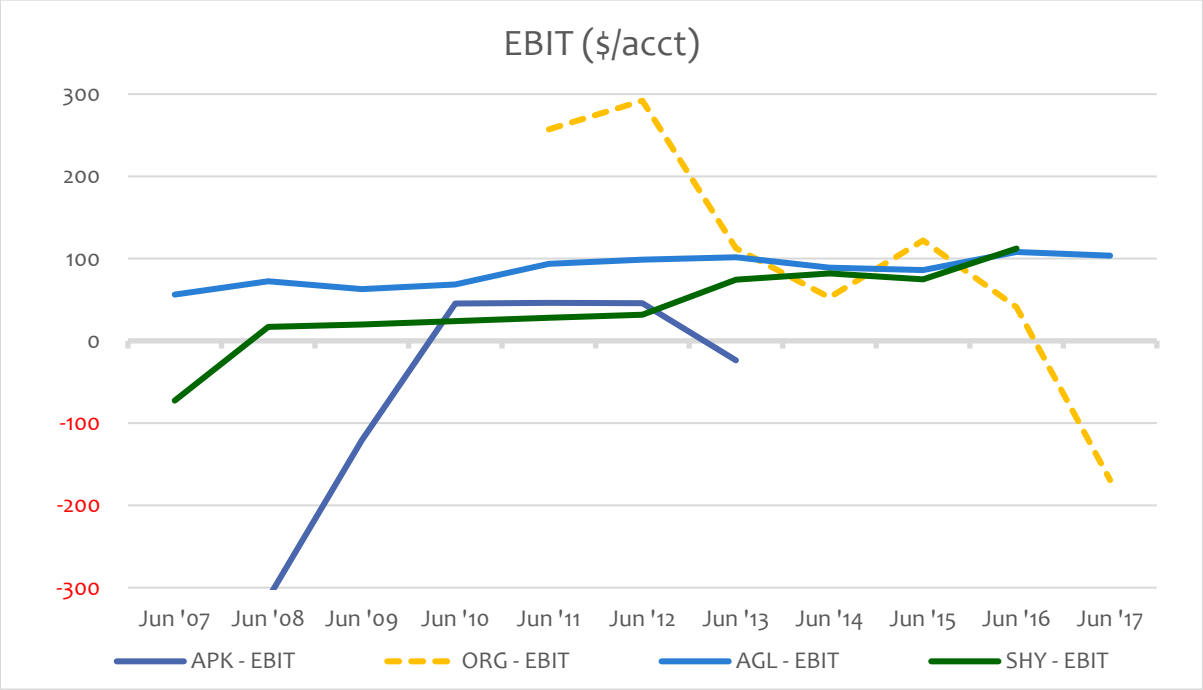
So far we have observed both Gross Margins and Cost to Serve rising over time on a per-account basis – but which is rising faster? The final element of our analysis looks at this – to determine whether the trend in earnings (as EBIT per mass-market customer account, prior to serving the Cost of Capital) is rising or falling under increasing competition across the NEM in the past decade.

EBIT per mass-market customer account

Figure 34 shows four very different trends in Earnings Before Interest & Tax per customer account:

1. **AGL** has steadily trended its EBIT upwards over the decade, roughly doubling to $108/acct in FY16 from FY07, and only retracing slightly to $104/acct in FY17. Note these numbers would be about $20/acct less if we applied the corporate overhead allocation discussed earlier.
2. **"Unhedged ORG"** (refer earlier discussion) makes it clear that hedging is essential for retailers to operate sustainably given the rapid movements in wholesale electricity costs compared with retail tariffs. We have not presented ORG's much more stable integrated EBIT per customer (inclusive of their generation earnings) in order to focus this analysis on retail-only outcomes.
3. **APK** eked out about $50/acct of EBIT in FY10-12, before succumbing to rising Cost to Compete. For all its apparent success in gaining customer numbers, APK was not a sustainable retailer.
4. In some very rare disclosure[50] from **Snowy Hydro**, we can see a growth in EBIT per account towards Tier 1 levels as they have gained scale to 450,000 Red Energy customers organically, and then to ~1 million customers with the FY15 acquisition of Lumo Energy.

Figure 34 – Retailer EBIT per customer account (ORG is a notional unhedged mass-market case)



The evidence is a bit thin given the very small sample of reliable retailer earnings, but appears to indicate:

- **At least one of the Tier 1s has been able to grow earnings** even in the face of rising consumer prices, falling consumer usage and rising retailer operating costs, especially Cost to Compete. AGL may be the best-case given both EA and ORG systems / acquisition integration challenges.
- **Tier 2s may well be able to compete and/or buy their way to comparable scale and earnings** – if Snowy Hydro is a reliable example.
- **Tier 3s face enormous challenges to be cost-competitive and therefore sustainable**. Remember that APK was a large Tier 3 at 354,000– the average customer base is 48,000 today among Tier 3s. In fact, we wonder whether they are part of the solution, or part of the problem from the point of view of consumers seeking lower energy prices.

[50] Based on a chart of FY05-15 customer numbers and retail EBITDA in their 2015 Annual Review, plus later specific FY15 and FY16 disclosures. They did not disclose FY17 retail EBITDA. We averaged the period-end customer numbers and adjusted for timing of the Lumo acquisition in FY15. To present comparably as EBIT, we have deducted $20/acct for D&A (roughly the D&A reported by AGL).

6. "State of Play Victoria" Hypothesis on Competitive Market Structure

In this section we consider the possible implications of a market structure where a few large low-cost Tier 1 competitors coexist with a considerable number of small high-cost Tier 3s.

To this point our analysis has been fact-based, but the publicly-available facts have taken us as far as they can (and we believe those facts and trends are informative and useful in their own right).

But if we wish to proceed further we need to move into the realms of theory and speculation, seeking to interpret the historical trends and evidence.

We return to the generic electricity tariff stack from Section 1, although we can now roughly dimension some of those components, in particular how they differ between retailer tiers.

Once more using AGL as the case study (due to their better-quality disclosure) we can tentatively suggest that they (at least) may be enjoying a period of Economic Profits in retailing. Their EBIT appears to substantially exceed their Cost of Capital.

Prima facie this is surprising, because the four large NEM regions where AGL's retail energy business competes are – on certain measures – considerably more competitive than they were in the relatively recent past, prior to full deregulation of retail electricty pricing in SA in 2013, NSW in 2014 and SE Queensland in 2017.

To provide an explanation of this, we outline three possible states of competitive equilibrium based on differing market structure among the three tiers of retailers. To our eye, the one which best fits the evidence is termed "State of Play Victoria".

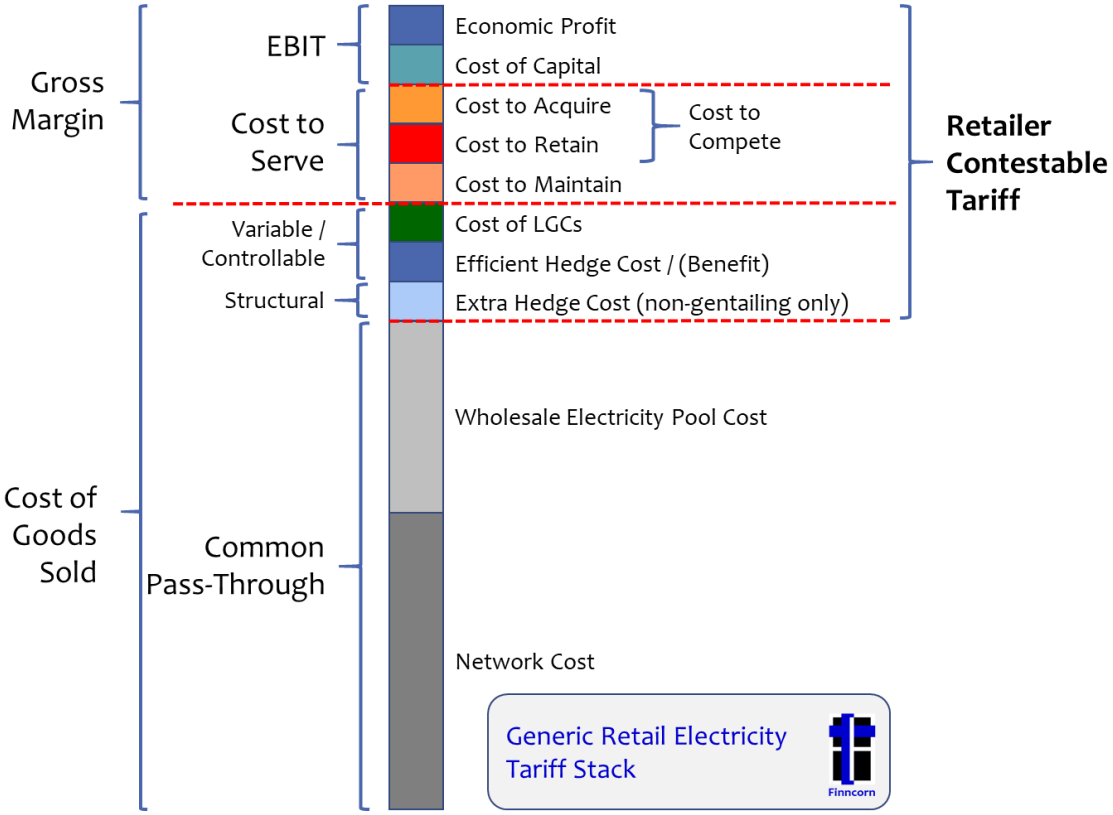
The hypothesis we develop relies on scant evidence and might be easily disproved. Alternatively, it may provide a useful framework to consider the real-world performance of competitive energy markets in the NEM to date, and an indication of how the future may unfold as other state markets continue to follow the Victorian lead on market structure and development of competition.

If the hypothesis is correct, it suggests that consumers would be better-served by a market which evolves away from a large quantity of high-cost Tier 3 retailers, in favour of a more select group of Tier 2s. In such an alternative equilibrium, those Tier 2s may take the fight to the Tier 1s based on relatively efficient costs, and turn price outcomes back in favour of consumers.

AGL's Tariff Stack as an example

We largely ignore the bulk of common pass-through costs, and concentrate only on the part of the tariff where retailers can truly compete – the Retailer Contestable Tariff as shown in **Figure 35** and introduced in Section 1.

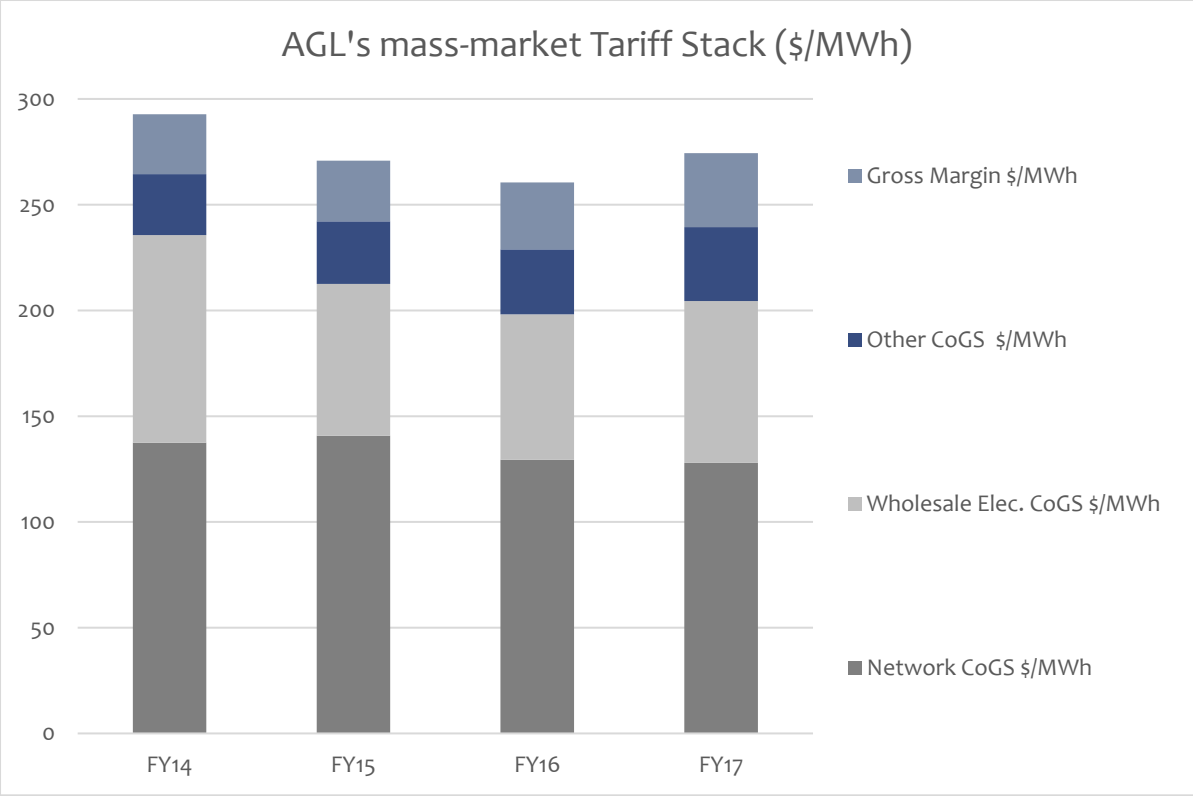
Figure 35 – Generic Retail Electricity Tariff Stack



Since FY14, AGL's reporting is sufficiently detailed to allow some imperfect insights into the size of the elements in the generic retail electricity tariff stack, for mass-market customers. **Figure 36** below shows a breakdown.

Note that in FY17, AGL's average mass-market electricity price of $274/MWh is associated with average usage per mass-market customer of 6.2MWh – so an average AGL bill across the NEM is $1,700. We expect this is reported exclusive of GST.

Figure 36 – AGL's retail electricity tariff stack FY14-17 – breakdown of Cost of Goods Sold vs. Gross Margin



Cost of Goods Sold – largely a common pass-through element, but hedge-affected

AGL directly reports its mass-market Network CoGS and "Other" CoGS (refer below), as well as its mass-market gross margin. From that, the remaining element of the total CoGS – the wholesale electricity cost – can be calculated by subtraction. The gross margin was $35/MWh in FY17, up from $28/MWh in FY14.[51]

As expected, pass-through costs (outside a retailer's control) at the bottom of the stack are the clear majority. However, note that in AGL's reporting the Wholesale Electricity CoGS is quite stable over a period of rising prices (they reported between $69/MWh and $77/MWh over the past 3 years).

This is effectively a hedged wholesale cost, as it is based on the costs of AGL's generation, plus or minus the "portfolio management" impact which results from selling that generation into the pool at spot price, buying from the pool to cover load at spot price (including to cover losses – 8% of consumer sales in FY17), and the overlay of hedges.

The reported net hedge element has been very small in the past couple of years, and since AGL's generation and load volumes are similar, the overall effect is a fairly stable Wholesale Electricity CoGS.

This would not be the case for a spot-exposed retailer, and a non-integrated retailer with a 2- to 3-year hedge book would have seen hedged cost rising over this time with wholesale spot and forward prices.

AGL's generation acts as a very long-term stable hedge of its CoGS. That is part of the retailer-specific variable / controllable element in the generic tariff stack, and is currently an advantage for AGL given relatively high spot wholesale costs[52]. However, the reverse would have been true in FY14 and FY15, when

[51] This is consistent with the gross margin per customer account in Section 4: e.g. $216 in FY17 = $35/MWh x 6.2 MWh/account.

[52] Put another way, AGL's very long-term hedging is currently a benefit – so a negative cost in the generic stack compared with an industry-wide benchmark for a hedged wholesale cost.

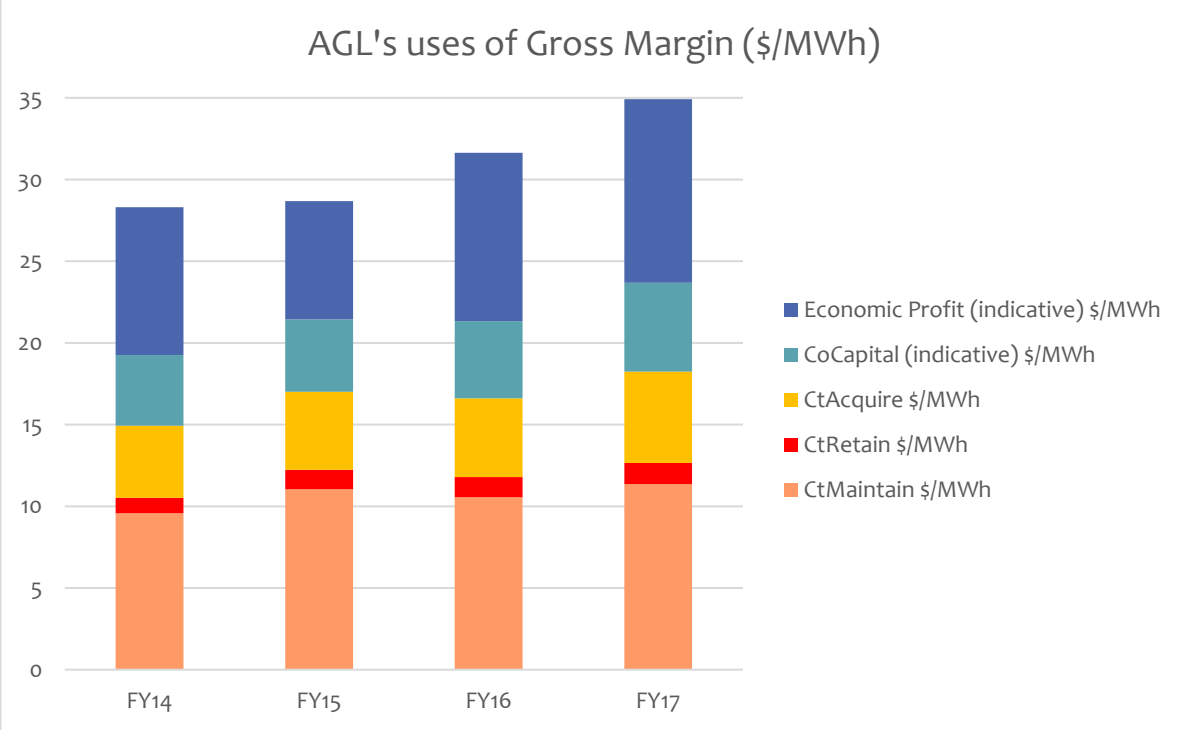
wholesale prices were well below these levels. Recall Victorian wholesale electricity prices were less than $40/MWh ex-carbon – often much less – in FY10-15.

There are substantial "Other CoGS" reported, of $35/MWh in FY17. In our generic tariff stack construction, these might or might not be considered pass-through costs common to all retailers – the detail is not provided in AGL's financial reporting to the investment community. We expect this includes the cost of green certificates such as LGCs under the LRET, STCs for small-scale rooftop PV, feed-in tariffs for PV, and energy-efficiency schemes as well as other direct costs of supply.[53] Perhaps some costs associated with portfolio management (i.e. dispatch and risk management of the retail CoGS) are included here as CoGS rather than operating costs.

Gross Margin – distributed across operating costs, Cost of Capital and maybe Economic Profit

In **Figure 37**, we break down the gross margin into its operating cost elements, and provide a rough view of how the EBIT might be shared between satisfying the Cost of Capital, and a residual Economic Profit to the benefit of AGL shareholders over and above their minimum required equity return, based on the estimation of AGL's Cost of Capital from Section 1.

Figure 37 – AGL's contestable part of the tariff stack



Recall that EBIT funds the Cost of Capital, with any excess representing Economic Profit.

Along with the variable / controllable element of CoGS associated with hedging (largely via vertical integration in AGL's case), these components make up the "Retailer Contestable Tariff" in the generic stack – the competitive battleground for retailers.

[53] LGC costs embedded into retail prices have been rising with the legislated Renewable Power Percentage and the generally rising market cost of the certificates. We expect market prices of LGCs are used as a transfer price to AGL's retail, given their wholesale segment reports "EcoMarkets" gross margin with LGC price as a driver. In FY17, LGCs could account for at most $13/MWh of AGL's "Other CoGS" of ~$25/MWh if the transfer price was the regulated LGC cap of $93.

Within AGL's breakdown[54], we are indicating that AGL's FY17 EBIT of $16.7/MWh (equivalent to AGL's reported EBIT of $104/account) may be higher than our estimate of $6.2/MWh necessary to meet its Cost of Capital, generating some Economic Profit, and that this has persisted since FY14 (at least).

This result is reliant on several steps of analysis as outlined throughout this report to this point.

In addition, it implicitly assumes **proportional operating cost allocation over electricity and gas accounts** for Cost to Maintain and Cost to Compete. The analysis in this Section looks at the electricity element of AGL's dual-fuel mass-market retailing segment. However, AGL report both EBIT and opex collectively across gas and electricity accounts, on a per-account basis.

We have converted this opex to a $/MWh basis using AGL's reported average usage per mass-market customer – but it might be that electricity accounts are costlier to serve for AGL than gas accounts.[55] However, this would only imply higher EBIT per account in gas and thus the Economic Profit would be allocated there instead.

Developing a theory on competitive market dynamics in the NEM

In this report, we have observed two interesting aspects of retail energy markets in the NEM:

1. **Even large Tier 3 retailers (represented by APK) appear to have substantially higher costs** – whether Cost of Capital, Cost to Maintain or Cost to Compete – compared with Tier 1 retailers.
2. **Tier 1 retailers (represented by AGL) appear to earn substantial economic profits** under a market structure where many Tier 3 competitors seem able to sustain themselves.

The data points are clearly very few – but we have no reason to believe either APK or AGL are atypical representatives of their respective Tiers. The less-detailed information available regarding Origin, EA and Snowy Hydro does not appear to contradict this. Therefore we offer an explanation which might fit the evidence:

1. **Some competitive market structures add more costs than they compete away.** There will be some circumstances where the quantity of aggregate industry costs added by increasing competitive activity (both the number of competitors and their individual addition of fixed overheads, and the amounts of churn and retention activity they create) is greater than the cost reductions driven by the resulting competitive pressures: via efficiency and innovation. If this is the equilibrium case, consumers cannot enjoy sustainably lower prices as a result of that competitive market structure.
2. **Even so, price-setting may not reflect efficient costs.** Even if costs are relatively efficient for several competitors, this is a necessary condition but not a sufficient condition for lower prices to flow through to consumers. The competitive driver towards lower prices is muted if an equilibrium position sees higher-cost competitors (Tier 3) setting the price to cover their higher costs, while lower cost competitors (Tier 1) follow on price, and enjoy relatively high margins. It is rational for Tier 1s to follow Tier 3s on price and suffer moderate market share losses (as we observe), if the outcome is higher unit margins and overall, higher absolute EBIT for a long period compared with a more aggressive competitive alternative.
3. **Judging the health of competition based on the number of competitors or churn rates rather than consumer outcomes is unwise.** The behaviour in (1) and (2) above is reinforced. These indicators would be negatively impacted if Tier 1s flexed their cost-efficient competitive muscles and reduced the quantity of Tier 3s, which might cause Tier 1s to question what the regulatory response might be if they tried.

[54] Note that Cost to Retain is extrapolated at $8/MWh in FY16 and FY17, from the level last reported $7.78/MWh in FY15. AGL only reported this breakdown of Cost to Retain and Cost to Acquire for FY13-15. This is a sub-allocation of overall reported Cost to Compete so does not impact the EBIT result.

[55] For example, due to higher B&DD expenses on generally larger electricity bills, and any unique costs to hedge electricity risk.

In our view, the most competitive deregulated markets, such as Victoria, may in fact be in this type of equilibrium.

It is a pessimistic viewpoint, but this implies Tier 3s are creating a mirage of competition, while Tier 1s judge it is in their best interests (both economically, and in terms of regulatory and political stakeholders) to allow the mirage to seem real.

Three possible states of competitive market equilibria

Markets evolve under regulatory design and competitive dynamics, and when disturbed they move from one equilibrium position towards another.

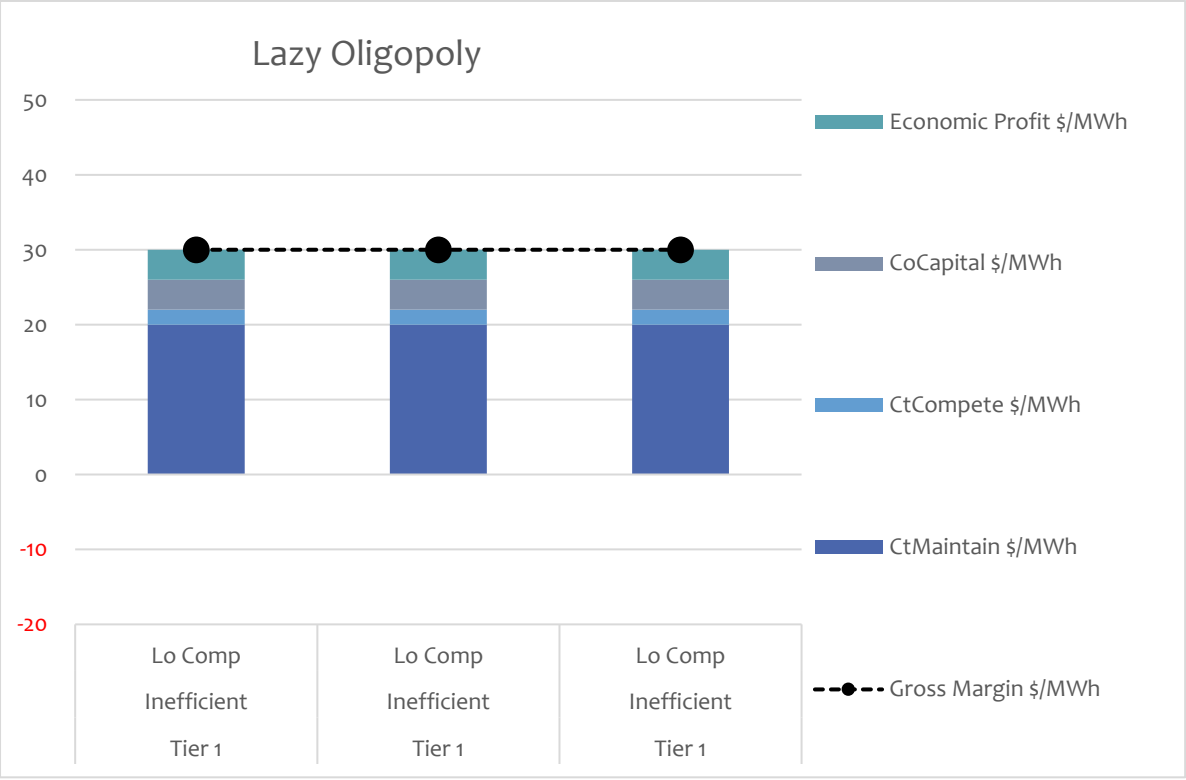
To illustrate, we consider three possible competitive market equilibria. The numbers are purely illustrative, but are informed by our observations of reported costs and margins for Tier 1 and Tier 3 retailers described throughout this report.

A clearly sub-optimal case – the "Lazy Oligopoly"

One such equilibrium might be a handful of large retailer competitors, in a market structure where competitive activity (i.e. churn) is very low but prices are deregulated.

These "Lazy Tier 1s" have the potential to be efficient, but a lack of effective competitive pressure allows their Cost to Maintain to remain high, and also allows them to earn persistent Economic Profits. Despite the benefits of relatively low Cost of Capital and Cost to Compete, the net impact for consumers is relatively high gross margins (in this case, $30/MWh) as illustrated in **Figure 38**.

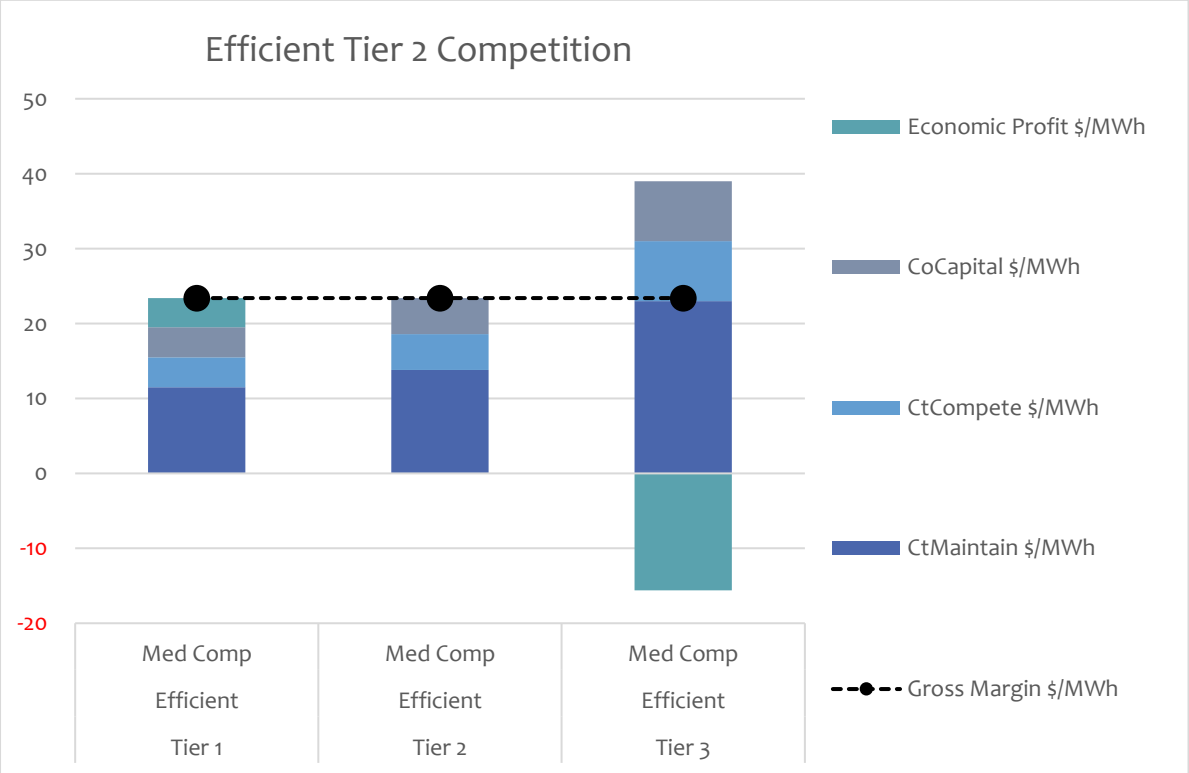
Figure 38 – Retail Gross Margins under a "Lazy Oligopoly" equilibrium model



A realistic outcome close to an optimum – "Efficient Tier 2 competition"

In this equilibrium we imagine the Lazy Oligopoly was disturbed by new-entrant completion, and Tier 2 competitors emerge. We assume efficient Tier 2s have Cost to Serve and Cost of Capital 20% higher than efficient Tier 1s. The Tier 2s compete aggressively on price to win reasonable share (so Cost to Compete rises for all). Tier 2s set the price, and gross margins fall to $23.4/MWh as shown in **Figure 39** below.

Figure 39 – Retail Gross Margins under "Efficient Tier 2 Competition" equilibrium model



In so doing, the Tier 2s accept gross margin which covers their Cost of Capital, but leave them no Economic Profit – nevertheless, a sustainable outcome for their capital providers.

Tier 1s respond by improving their efficiency, and as a result, total Tier 1 operating costs fall. There is a heightened Cost to Compete element, but the reduction in Tier 1 Cost to Maintain outweighs this. As a result, Tier 1s are still able to earn a similar Economic Profit.

We assume efficient Tier 3s have costs 100% higher than efficient Tier 1s. In this equilibrium they are unable to cover their operating costs, let alone their Cost of Capital – and so Tier 3s are not sustainable in the long run.

Some Tier 3s may nevertheless enter and invest to grow to Tier 2 status, and some may hold fortunate low-cost wholesale positions (e.g. through advantageous hedging contracts) for a period of time to offset their cost disadvantage. Overall however, we would expect relatively few very small competitors could be supported, and putative Tier 3 new-entrants would tread very cautiously to ensure they brought some form of genuine competitive advantage to the market before unleashing the door-knockers.

As a result, the quantity of competitive activity is moderate: enough to drive competitive outcomes, but not so high as to drive Cost to Compete up to levels where the overall industry cost level is higher than it was in the Lazy Oligopoly.

Another realistic outcome, but far from optimum – "State of Play Victoria"

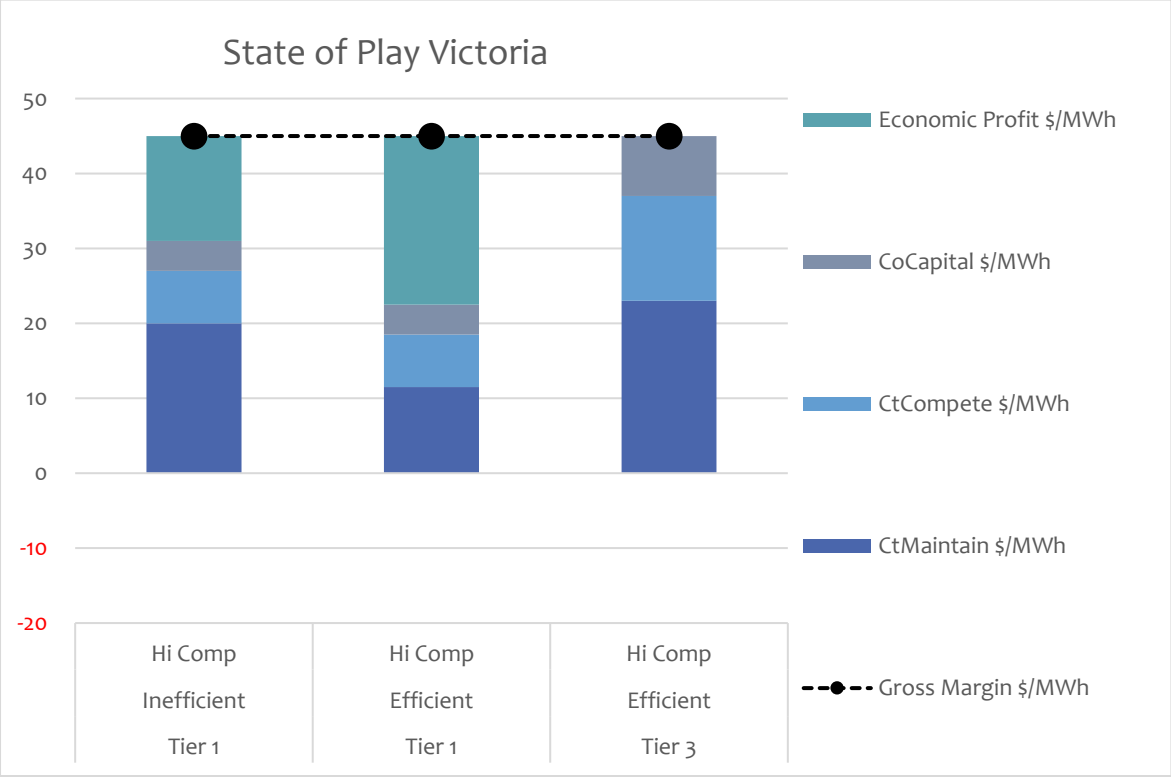
In this alternative equilibrium, the Lazy Oligopoly is once more disturbed by new entrant competition, however the equilibrium is dominated by Tier 3s, not Tier 2s.

Once again, we assume efficient Tier 3s have costs 100% higher than efficient Tier 1s, for the structural reasons we have examined throughout this report. There are two differences from the previous equilibrium:

- Competitive activity is now high, not moderate, driven by a large number of small competitors seeking market share with associated higher levels of churn; and
- The price-setting is now by Tier 3 competitors, at a level that allows for gross margins which cover their higher Cost to Serve, Cost to Compete and Cost of Capital compared with the Tier 1s.

Figure 40 illustrates that the resultant gross margin is $45/MWh, higher than the Lazy Oligopoly case of $30/MWh.

Figure 40 – Retail Gross Margins under a "State of Play Victoria" equilibrium model



Tier 1s may respond to competition by reducing costs and becoming efficient – if they do, their Economic Profits will grow unconstrainted by cost-effective competitors. Even if they do not become efficient, higher Economic Profits are available to them compared with the Lazy Oligopoly case.

The scant public data means State of Play Victoria remains only a hypothesis. Yet, the evidence and trends we have identified and analysed in this report seem to fit a view that NEM retail energy markets are increasingly at risk of the State of Play Victoria outcome, a poor one for consumers.

Competitive Retail Energy Markets are a Continuum

In conclusion, we are offering a challenge the view – which we have seen expressed on both sides of the debate about "what to do" – that retail competition in the NEM is a choice between two extremes.

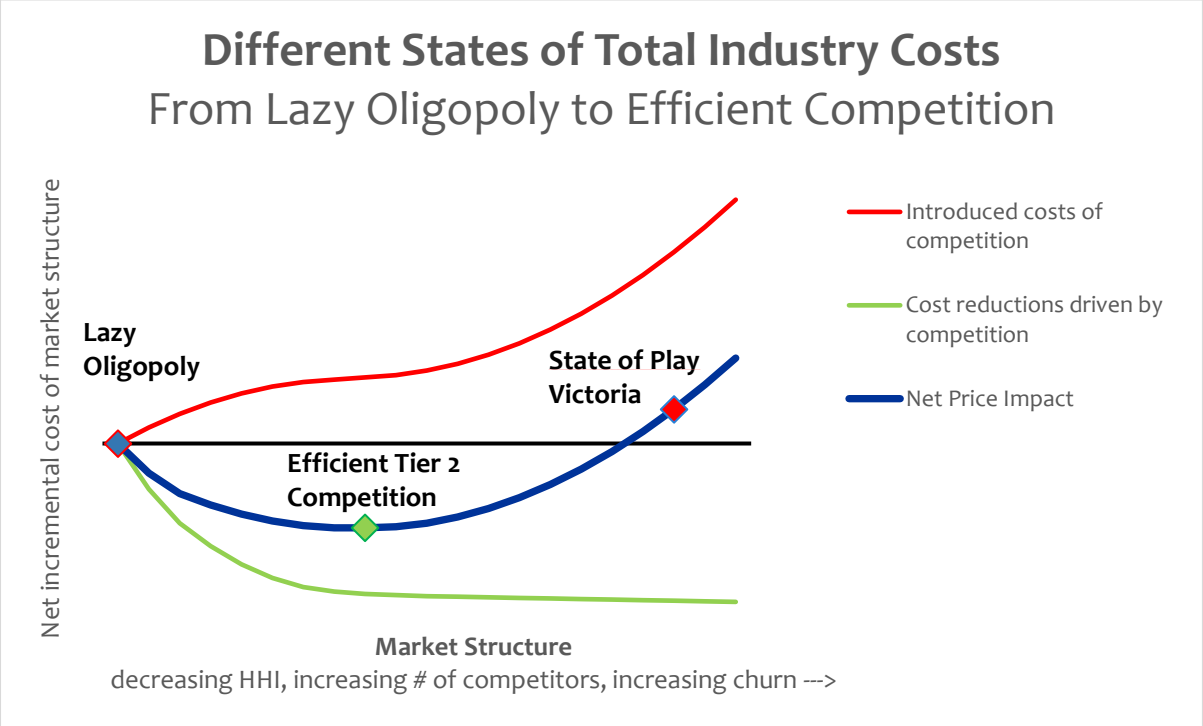
On one hand, a conventional view implies that competition is a partly-completed journey, and the destination is a market with low concentration, a large number of competitors, and a lot of consumer engagement measured by churn. The implicit assumption is that this destination will bring with it greater consumer benefits, including lower energy prices, than either the uncompetitive starting-point or the steps along the way. They ask: "Are we there yet?".

On the other hand, a common view from critics of competition is that it is a failed experiment for consumers, and they would be better served by a benevolent regulator setting prices at efficient levels. This is despite the strong arguments that (a) cost levels will not be made efficient by regulatory fiat, rather regulated prices will be shaped to industry costs as presented; and (b) consumers do value the benefits only competition can deliver, such as choice itself, but also innovation and incentives towards better service.

In our opinion, competition is the right mechanism to optimise consumer outcomes, but care must be taken to manage the development of competition towards measurable consumer benefits, not abstract concepts such as churn, concentration, or quantity of competitors.

A more consumer-aware view of competition and regulation would seek the optimum competitive outcome, not one of the extremes – as shown in **Figure 41** below.

Figure 41 – A continuum of competitive market structure and outcomes



In thinking about competitive retail energy markets, we suggest the questions for policy makers and regulators to ask are:

1. **Where are we now on this continuum?**
2. **Are we moving towards the optimum for consumers, or away from it?**

7. Closing Remarks

We hope this report provides a useful evidence base for further analysis of the performance of retail energy markets in the NEM, as well as some thought-provoking speculation about how competition is really working from the perspective of consumers' cost outcomes.

Finncorn Consulting contributed this report because as former investment analysts, we appreciate that company-level financial data is freely available, covers a high percentage of the NEM mass-market customer base, extends over a long period of time, and is sufficiently robust for companies to publish and investors to rely upon.

This data tells some interesting stories, yet has often been overlooked by electricity market analysts, regulators and policy makers.

This could be because the data (while extensive) can also be confusing – it presents some "barriers to entry". The reporting methodology sometimes changes from year to year, and each company presents its data somewhat differently.

We have endeavoured to tackle that complexity, deconstruct retail electricity market reporting, and highlight some important aspects of the competitive market structure and performance.

Finncorn believes the likelihood of competitive retail markets working in the interests of consumers through lower prices would be improved by:

1. **Higher quality competition, from efficient Tier 2 retailers** bringing to bear scope and scale benefits and some ownership of generation assets;
2. **Increased liquidity of hedge products for non-vertically integrated retailers;**
3. **Better financial disclosure by all retailers towards the standards set by AGL and Origin** – even a minimal disclosure of aggregate NEM mass-market electricity and gas revenue, customer numbers and volumes sold would greatly improve public industry analysis. Further confidential disclosure (for example, broken down at state level, and to Gross Margins and Cost to Serve) would allow regulators a far more accurate view on competitive market performance, and presumably a firm base to develop and adjust policy and regulation.