28 February 2017

Review Secretariat
Department of Environment, Land, Water and Planning
Level 18
1 Spring Street
Melbourne Victoria 3000

By email: energymarket.review@delwp.vic.gov.au

Re: review of electricity and gas retail markets in Victoria

AGL Energy (AGL) notes that the Victorian Government has appointed an independent panel (Panel) and directed them, with support from the Department of Environment, Land, Water and Planning (DELWP), to review retail energy markets in Victoria. Consequently, AGL welcomes this opportunity to comment on the Review of electricity and gas retail markets in Victoria: Discussion Paper (Discussion Paper).

AGL is a significant retailer of energy, providing energy solutions to around 3.7 million customers throughout eastern Australia. AGL is also one of Australia’s leading integrated energy companies. Our diverse power generation portfolio includes base, peaking and intermediate generation plants, spread across traditional generation fuel sources as well as renewable sources.

AGL strongly believes that since the deregulation of retail prices in 2009, Victorian energy markets have become highly competitive and provided Victorian consumers with the most efficient outcomes through:

- customer choice of energy retailer;
- more innovative product choices and range of price offers;
- allowing customers to access retail market offers at prices well below the average cost of energy supply; and
- providing extensive support through hardship programs for customers in financial difficulty and additional initiatives for other vulnerable customer groups.

In this submission we provide more detail on these positive outcomes.

In saying that, there are small segments of the populace that may not be accessing the full benefits of the competitive energy market and AGL hopes this review can help clarify market-wide solutions to these concerns.

However, AGL is not supportive of any sweeping regulatory intervention that may produce significant negative impacts for a far larger number of Victorian consumers.

AGL believes policymakers can address any identified issues through:

- improving consumers’ ability to respond to price signals;
- removing any remaining barrier to market participation;
- ensuring the market is operating with greater transparency to allow customers to make best possible choices; and
ensuring the benefits of cost reflective pricing are unlocked. Cost reflective pricing along with innovation will deliver opportunities for new products and tariffs for consumers.

Although the Victorian energy markets is highly competitive, it will continue to evolve due to technological change and the ability of customers to choose how and when they produce, use, store, and trade energy. These developments continue to exert competitive pressure on licenced energy retailers to respond in terms of price and innovation in product and service offerings.

AGL appreciates this opportunity to submit on these issues and is happy to meet with the Panel and the Victorian Government to discuss in more detail and provide additional confidential data as required.

Should you have any questions in relation to this submission, please contact me on (07) 3023 2426.

Yours sincerely

Patrick Whish-Wilson
A/Head of Energy Market Regulations
Discussion Paper Questions:

Competition and the long term interests of consumers

1(a). Has the introduction of competition to electricity and gas retail markets in Victoria delivered improved efficiency and benefits in the long term interests of consumers? Please explain the reasons for your response.

1(b). If not, what measures or alternative model(s) would you suggest for the efficient and effective delivery of electricity and gas in the long term interests of Victorian consumers? Please explain the reasons for your response.

2. How much have retail charges paid by consumers increased? What are the reasons for retail charge increases and does this demonstrate that the markets are not operating in the interests of Victorian consumers? Please provide detailed evidence to support your response.

As noted in the Discussion Paper, competition is introduced in any industry to introduce rivalry and incentivise businesses to "win" by:

• putting downward pressure on costs to improve efficiency and competitiveness;
• providing better service to meet customer needs; and
• develop products or innovation that out it ahead of its rivals.

This equally applies in the energy industry and competition in the Victorian gas and electricity retail markets developing quickly since deregulation of retail prices in 2009.

Criticisms levelled at the Victorian retail market point at high Standing Offers prices, the large retail cost component contained within these and that competition is not working if all customers do not benefit.

However, the nature and development of the competitive market in Victoria is both unremarkable and highly appropriate when you consider an industry framework where:

• almost half the costs of supplying energy are a direct pass-through of regulated network costs;
• the wholesale input costs of energy, especially regarding electricity, are determined by one of the most volatile markets in the world; and
• the retail cost component, where a retailer is able to differentiate its price offering and compete, remains a small part of the cost stack.

The AEMC has highlighted that Victorians can achieve high level discounts of around 30 per cent by simply moving from a standing offer to a market offer. This can represent household savings of up to $383 each year off the median standing offer. An analysis of such a market offer highlights that Victorian customers can access retail prices well below the average cost of energy supply that is likely to apply under a uniform price or without competition. AGL’s customer data suggests that around half the customers in Victoria are accessing a high level of discount.

The total efficiency and welfare benefits provided by competition in the Victorian energy markets is impossible to identify because there is no alternative model, with the same input cost changes, to point to over this period. However, basic economics informs us that the likelihood of a different model such as a single monopoly utility provider or regulated market would have resulted in similar productivity and efficiency gains, the level of product variation or improved service innovation over the long-term is almost nil.

Market structure and regulation

3. Are there any features of market structure or regulation that inhibit the market from delivering outcomes in the best interests of consumers?

Although competition is delivering benefits to most consumers, there are elements of the market structure and regulatory framework that either restrict certain customer groups from accessing benefits of competition or have a general negative impact on competitive outcomes.

Some examples of noted structural or framework issues include:
- the regulatory framework not being able to provide embedded network customers (ie. such as caravan parks) access to retail competition; and

- the structure of electricity network tariffs, and consequently retail prices, continue to be predominantly based on anytime throughput. This has created large cross-subsidy issues as the charges for customers with high peak demand for energy or those who can access solar and minimise their total consumption are not cost-reflective.

Government policy changes such as the introduction and amendment of solar feed-in-tariffs have also influenced retail electricity prices as the uptake of solar has increased significantly across the Victorian community. Decisions such as those announced on 28 February 2017 to increase the solar Feed-in-Tariff (FIT) to 11.3c/kWh are ultimately funded by the entire residential customer base. The growing uptake of new technologies and the funding of such subsidies through electricity bills, will only lead to higher retail costs over time. AGL recommends that the Panel consider the distributional impacts of these policies and their funding, to ensure market transformation is sustainable and is not increasing inequality across Victorian energy consumers.

Another significant impost on energy markets which can increase costs to consumers is excess or inconsistent regulation across the various jurisdictional energy markets. This either drives up retail costs in these jurisdictions or restricts retailers entering the market.

Economies of scale are important for lowering cost to serve in most retailers given the large fixed costs inherent in retail systems. Any significant regulatory variations between jurisdictions can and does prevent retailers’ accessing other competitive markets due to the additional cost and this can prevent them taking advantage of scale across the NEM.

AGL acknowledge that the Victorian Government harmonised the Victorian Retail Code with the National Energy Consumer Framework (NECF) back in 2014 to minimise its differences. However, while the two frameworks are now harmonised, the Victorian Government is increasingly changing its regulatory framework independently of the NECF which itself will undergo variations. For example, the ESC’s current Payment Difficulties framework that will require retailers to run different hardship processes in Victoria compared to NECF and the introduction of additional solar FIT structures.

The more regulatory variations in Victoria compared with NECF, the more likely it is to drive up retailers’ costs to comply.

AGL has also highlighted the importance of focussing on the removal of barriers to participation for some customer segments. While this review is not specifically focussed on the impact of solar uptake across the customer base – the reality is that customers living in rental properties and particularly those participating on hardship programs, to date have been largely unable to participate in a market of new energy products which require significant upfront cost or changes to the building fabric.

These barriers are several-fold – for low-income households or those in financial distress, the available capital to upgrade a property with solar, batteries or efficient hot water systems is not available. For customers living in rental properties, they are often unable to make changes to the building fabric due to the ongoing split incentive ‘landlord/tenant’ barrier. A Whole of Government approach to reform could consider the impacts of tenancy law on the operation of the retail and new energy market. Short-term leases and limited rights for tenants for example, only compound the issue of barriers to investment in these properties.

Similarly, the introduction of minimum standards or disclosure of energy ratings at the point of sale or lease could be phased in over time to ensure that inefficient housing stock in time, would be upgraded to reduce high energy consumption and bills for vulnerable customers.

In Victoria, in the 12 months to August 2016, AGL’s Staying Connected customers consumed around 27% more grid-connected electricity when compared to the average customer base. We are already seeing the well documented ‘death spiral’ effect emerging in several markets - where customers who are unable to make energy saving changes are subject to carrying an increasing proportion of system-wide costs.

AGL recommends that the review panel consider these implications in its deliberations as the current policy framework in Victoria does not target high consumption, vulnerable households participating on retailer hardship programs, despite significant evidence that they would benefit the most from policy intervention.
Pricing, costs and margins

4. What factors need to be considered by the review when conducting an analysis of retail charges and margins?

5. To the extent that analyses of retail pricing and/or margins indicate a trend of increasing retail charges and/or margins, what are the explanations for this? Please provide evidence to support your claims.

6. Please provide any other information or evidence you consider may help the review to accurately assess retail charges and margins or pricing outcomes for consumers.

The Discussion Paper correctly identifies the cost categories for supplying electricity and gas, namely:

- Network costs;
- Wholesale electricity and/or gas supply costs;
- Environmental scheme costs; and
- Retail business costs.

However, AGL believes that any analysis conducted in the review should carefully consider the complexities involved in these cost categories, the multiple businesses models used by retailers and the various ways retailers manage their wholesale risk if they are to avoid the simplistic conclusions that recent consultants’ reports have made.

Firstly, the many special reports on retail prices and margins in Victoria have generally focused on the Standing Offer tariffs, despite the ESC previously reporting that in Victoria, only 11 per cent of customers are on Standing Offer tariffs. All other customers have moved to market contracts with discounts ranging from 0-30% off the Standing Offer rates that have been publicly analysed. These analyses are not representative and should take account of the most competitive discounts available with market offers. In Victoria, the level of discounts varies from time to time but currently, AGL has offers of up to 32% off the usage rates for electricity and 18% for gas.

Second, estimating a reasonable energy wholesale cost is complex because of the various methods used by retailers to procure energy and to mitigate the significant risks created by volatile wholesale markets. Reports using long-term historic averages or perfect hindsight to estimate an average retailer’s optimal hedging cost are nonsensical.

Energy retailers are faced with procuring the lowest energy cost for an estimated quantity of consumption (that for electricity varies on a half-hourly basis) in future years based on forecasts of highly volatile spot markets, predictions on often constrained, forward contract markets whilst remaining within the risk parameters of their company. Wholesale market risks for both electricity and gas have been increasing and management of these risks is a fundamental driver of a retailers’ ability to compete in the long-term.

Thirdly, retailers’ operating models vary considerably, including in scale and scope. However, the obligations are broader than simply billing customers and include additional activities such as:

- implementing Federal and State Governments’ policy schemes,
- IT costs;
- Customer acquisition costs through various sales channels;
- Credit and bad debt risk for the total bill, including the network component;
- Assisting customers on hardship;
- setting disputes with customers and the Ombudsman;
- implementing Government concessions; and
- complying with Energy efficiency schemes (VEET).

AGL publishes its cost to serve and cost to acquire and to retain relating to its retail business in its Financial Results released to the Australian Stock Exchange. However, such costs do not include other indirect costs. AGL centrally manages many expenses, including information technology, to maximise operational efficiencies, minimise costs and optimise service levels across business divisions. While these costs would not be incurred but for the
existence of the business units, they have not been formally reallocated because the
management of these costs is the responsibility of various corporate functions.
These centrally managed expenses will need to be allocated to the retail business as
well.

In relation to retail margins, regulators like IPART and QCA have applied benchmark
margins. It is AGL’s view that assigning a benchmark margin for wholesale electricity is
misguided. The wholesale electricity market is the most volatile market in the world with a
possible price range from -$1,000 per MWh to $14,000 per MWh within hours. Similarly, in
the wholesale gas market, managing physical supply at reasonable prices is also very
challenging in a tight supply market.

Investor expectations are also a significant consideration if a retail business is to have
continued access to capital to invest. Benchmark margins set by regulators do not reflect
investor expectations accurately.

In AGL’s view, in a market where competition is effective, it is not relevant to assess retail
charges and margins. Retail charges and margins will vary for many reasons including
operating models, organisational structures, range of services, risk management approaches,
economies of scale, accounting treatment and investor expectations.

For instance, in 2013, when AGL announced the acquisition of the publicly listed Australian
Power & Gas Limited (APG), it was disclosed that APG’s cost to serve was higher than AGL’s
by almost $132 per account.

In AGL’s view, regardless of the operating models, organisation structures and hedging
approaches, what is important is that retail competition is working effectively and provides
customers which a range of service offers from many retailers. In a highly competitive
market, retailers who set prices too high will lose market share.

In an environment with significant underlying cost pressures, it is particularly important to
ensure strong retail competition. Regulatory intervention will only create uncertainty and
further market risks.

| 7. | Which costs have been introduced or significantly increased as a result of the introduction of retail competition? How much cost has retail competition added to the electricity and gas supply chains? |
| 8. | What cost reductions and other benefits to consumers have resulted from the introduction of retail competition? Are there characteristics of the electricity and gas retail markets or supply chains that inhibit retail competition from delivering cost reductions or significant other benefits to consumers? |

There are several retailer costs that have increased because of retail competition, including
marketing costs and other customer acquisition and retention costs. With the introduction of
retail competition, energy retailers had to invest in marketing their presence and developing
channels on their own or through agency arrangements to reach out to customers.

As mentioned previously, AGL publishes in its Financial Results, cost to grow which includes
the costs related to acquiring and retaining customers. These costs include sales channel
and campaign costs, advertising, and investment in digital and customer experience
enhancement. The cost to acquire a customer is significantly higher than the cost to retain.
For 2014-15, AGL had reported an average cost to acquire of $156 and an average cost to
retain of $31 per account. However, these costs will vary depending on the sales channel
mix.

These costs should reduce with increased usage of digital channels to acquire customers
however, to date, this has not been AGL’s experience with the operating of unregulated,
commercial comparators.

The Discussion Paper also queries replication of system costs and erosions of economies of
scale but AGL would highlight that:

- where the replication of retail systems is a cost impediment then the competitive
  market provides alternatives as it has in retail energy markets with external system
  providers often servicing more than one retailer; and
- economies of scale are important but economic theory and indeed, practical
  experience in energy and other markets, tells us the scale benefits of a single service
provider are outweighed over time by the productivity losses and inefficiencies of a monopoly provider.

In contrast, the cost reductions and benefits to consumers are outlined throughout this submission. The introduction of retail competition has provided customers with a choice of retailers and alternative ways of paying for their energy service. Competing retailers provide a range of offers and customers who shop around can obtain significant savings compared to standard contract rates but also to the average cost of supply that would apply if a single average replaced competition.

Retailers are also providing an increasing range of services and innovation in energy products. Examples of AGL’s increased range of services are providing in more detail in response to Question 12.

9. Why do prices remain so dispersed in Victorian electricity and gas markets? Does price dispersion indicate that some consumers are not obtaining the price benefits of competition? Why or why not?

Pricing dispersion is unremarkable in economics and is considered both economically efficient and welfare enhancing in industries with large fixed and sunk costs (for example airlines, telecommunications, and energy).

However, when monopoly industries are first restructured and then deregulated, the prices commence a natural drift from a regulated ‘average cost’ uniform tariff to competitive differential prices and this can be controversial. The deep discounted offers are welcomed but the high Standing Offer tariffs are not. But as markets become more competitive, differential pricing increases as competition intensifies and will produce positive welfare effects.

AGL initiated research\(^1\) which examined the range of energy prices in Victoria with the semi-deregulated Southeast Queensland market (prior to deregulation on 1 July 2016). It contrasted the range of retail prices with modelled estimates of industry average total cost and the marginal cost of retail supply. By focusing on the range of products rather than just Standing Offers, the analysis revealed that:

- the Standing Offer rates in Victoria are unambiguously higher than Queensland. Based on the modelling, they were about 10 per cent above the average total cost of supply while in Queensland, the regulated Standing Offer tariffs were slightly below the average total cost of supply;
- however, the discounted offers in Victoria were supplied at marginal cost with no retail margin and were 20 per cent below the average total cost of supply. This contrasts sharply with Queensland where even the discounted products incorporated a 6.7 per cent profit margin; and
- almost 50 per cent of Victorian households accessed ‘high-level’ discounts (i.e. 15-30 per cent). In contrast only 22 per cent of Queensland customers accessed ‘medium-level’ (i.e. 6-14 per cent) discounts and there were no high-level discounts available.

Under economic theory, total welfare is maximised when the marginal good produced (the next good, not necessarily all of them) is sold at marginal cost. The characteristics of energy prices in the Victorian market therefore better meets the definition of efficient pricing than those in the Queensland electricity market.

The results did come with the caveat that customers are segmented cleanly and per their elasticity of demand, with household income being the relevant variable in this instance.

Critics of price dispersion often argue that it is unfair that some customers pay higher prices but the key findings of this analysis were that:

- policymakers should not be concerned with Standing Offer tariffs set at rates 10 per cent above industry average total cost if other households then get to access high-level (i.e. 15-30 per cent) discounts at marginal cost; and

Price discrimination of this kind is known to distribute a firm’s cost recovery from less-price sensitive customer segments to more-price sensitive customer segments, and is therefore efficient because the former are usually high-income households.

The analysis of the Victorian market did reveal an inefficiency arising because of price dispersion and the level of Standing Offer tariffs. The analysis of 530,000 household electricity accounts of a Tier 1 retailer in Victoria revealed a misallocation problem. Specifically, 26,000 households (4.9% of total customers) were concession customers but remained on a Standing Offer tariff – a tariff demonstrably designed for inelastic household customers. Although there is already an obligation to shift vulnerable households who are on payment difficulties to the best available tariff, AGL recognised that concession card holders on Standing Offers could benefit from a product intervention.

Since the underlying cause was primarily information asymmetry, expanding customer communication and visibility of comparator websites is necessary and can be further improved to provide clear, comparable information. However, AGL determined the most appropriate approach in the short term was to shift these misallocated households en-masse to an automatic 10 per cent discounted product.

AGL supports the need for all retailers to ensure vulnerable customers benefit from heavy market discounts and avoid high Standing Offer rates to ensure that these customers are no worse-off than under an average cost regime.

10. When do consumers end up on standing offers or higher priced (typically undiscounted) market offers? What happens to consumers at the end of their contract period?

Customers on standing offers have either never entered the market or have moved into new premises and not signed up for a market contract despite being contacted by their retailer.

In the early stages of energy markets competition when markets were semi-deregulated and discounts were low, retailers may have returned customers to the regulated price at the end of the contract period. AGL does not believe this practice is used to day.

AGL can confirm that at the end of the contract period, AGL’s customers are sent a letter which informs them that they will be automatically rolled over onto a new plan if they take no action. This plan will either be the continuation of their current benefit or the current AGL discounted market offer at that point in time. The ‘continuing offer’ letter is the main recontracting letter and it goes to most customers.

Customers are also told that they have the option of choosing a different plan but they are certainly not rolled over onto standing offers. Copies of these customer communications are in Attachment 2.

AGL implemented these new letters around 18 months ago after extensive customer research. Previously, AGL’s communications highlighted the customer’s old and new prices but the research highlighted strongly that customers didn’t want to know what they were on, just what AGL was offering going forward. That is why no mention of discount differences appears in the new communication.

The latest survey\(^2\) of customers by Energy Consumers Australia suggests that 40% of Victorian consumers did not switch or consider switching in the last three years (up 2%). This is the lowest amongst all states. As a corollary to this, the survey also highlighted that Victorian household consumers were now more likely to say they did not consider switching because they were satisfied with the deal they have now.

It would be encouraging to think that this is because of the improved contracting practices of energy retailers.

\(^2\) Energy Consumers Australia, "Energy Consumer Sentiment Survey" September 2016
11. What factors influence the level of fixed charges imposed by retailers? What are the implications of fixed charges for consumer outcomes?

Fixed charges generally reflect the pass through of fixed network charges, the recovery of the fixed components of retail operating costs, and, possibly, return on investment.

While a low energy user will find that fixed charges make up a large proportion of the bill, it does reflect the cost of providing the service to the customers. If this cost is not recovered fully, it must be recovered from other users, resulting in a cross-subsidy.

Fixed charges are part of a tariff structure and are designed to be cost reflective. Given that a very large proportion of the supply chain for electricity and gas are fixed assets, the current proportion of fixed charges across most retail energy markets, and even in Victoria, could be considered below an appropriate cost-reflective level.

12. What product or service innovation has been introduced by Victorian electricity retailers? Are there any barriers preventing the entry of new, innovative energy business models or products and services in Victoria?

Customers respond differently to various price and non-price offerings. Consequently, price competition in the form of discounts (as well as credits and vouchers) is the main feature of retail product offerings in Victoria but other product and service features are used to enhance the value of the energy offer. AGL’s suite of products incorporate features such as:

- loyalty schemes (Flybuys);
- access to AGL Energy Online which allow customers to organise their move, view and monitor energy usage and bill details, pay bills and update personal details;
- access to My AGL IQ® which is an advanced energy report tool which allows customers to track their energy usage (up to the previous day’s consumption for customers with digital meters), compare with similar homes and set energy saving goals;
- membership with AGL Rewards® which offers AGL products and services and benefits from over 1,600 merchants nationally, and
- monthly billing and bill smoothing.

AGL has continued to improve its customer service offering by introducing 24/7 anytime contact centres, webchat, payment via PayPal and a card for impromptu payments.

In relation to innovation, customer engagement with AGL through online, mobile applications and social media continues to grow. Customers can sign up online or through traditional channels. AGL introduced 24/7 customer service and webchat in 2014 and currently has more than 1 million digital billing accounts. In 2015, AGL released a mobile app which allows customers to view energy consumption and billing information, and to pay their bills. This is in addition to AGL’s online energy monitoring tool, My AGL IQ, which was launched in 2013. In 2016, AGL announced a $300 million Customer Experience Transformation Program which will enable simpler, faster and more flexible customer experience through digital devices.

AGL has historically launched many of its most innovative products in Victoria as for some time, Victoria was the only jurisdiction with no retail price regulation in the NEM. Another important reason is the rollout of digital (smart) meters in Victoria which enables the development of products such as “Free Power Saturdays” which utilises the half hourly usage data. Other new offers such as ‘one month’s worth of electricity free’ are not dependent on digital meters.

AGL’s standard suite of offers now include AGL Fixed where rates are fixed for two years.

Aside from a suite of general offers, AGL has also developed offers which are targeted at certain segments such as families (Free Power Saturdays), seniors and communities or based on lifestyles such as customers with pool pumps.

In 2015, AGL established a New Energy division, with a dedicated focus on distributed energy services and solutions. This enables AGL to offer customers ‘beyond the meter’ energy solutions, new and emerging technologies including energy storage, electric vehicles, solar PV systems, digital meters through our ring-fenced subsidiary business Active Stream.
New Energy are actively working with customers and in partnership with network businesses to develop a network services capability involving load management and demand response solutions.

With other retailers launching similar offerings, market competition has expanded beyond traditional energy plans. The distributed solar PV and energy storage resources is a growing market, and the development of interconnected bi-directional home energy management systems, with customers making choices about how and when they produce, use, store, and trade energy with each other based on dynamic market signals. Within local micro-grids, community solar and storage resources may be shared or traded using peer-to-peer platforms. As a result, there is increasing presence and activity of alternative energy sellers in the market and this is expected to continue to exert competitive pressure on licenced energy retailers to respond in terms of price and innovation in product and service offerings.

AGL has offered or is trialling products and services enabled by digital technologies including:

**Solar Smart Plan**: A solar power purchase agreement (PPA) product, which has been refined and improved during 2016. Under this plan, customers buy their power from a solar system which is installed on their roof and owned and maintained by AGL. The customer pays for the energy produced by the solar system at less than average grid energy prices for the term of the agreement, and at the end of the term (usually seven years), customers are given the option to take ownership of the system and the energy it generates.

**AGL 'Solar Command**: Provides customers with a personalised online dashboard with near real time information on the performance of their rooftop solar system and inverter unit to maximise the value of their solar system. It allows customers via the AGL mobile App to obtain:

- Expected daily solar production versus actual production;
- Information on whether the system is performing to its potential based on system size, arrangement, configuration, and shading profile; and
- Recommendations on when to use more solar-produced electricity e.g. pool pump or air conditioning while solar production curve is higher than consumption.

**Electric vehicles (EVs)**: In June 2016 AGL announced a new "all you can eat" capped energy plan that will enable EV drivers to charge their vehicle at home as much as they want for $1 per day (including carbon offsetting). Building on from the pilot program commenced in 2015, AGL is also continuing to develop EV products for corporate fleets. Our bundled offering is a complete and tailored solution for EVs including needs assessment, charging, procurement options, energy supply, reporting and certification. AGL will continue to scale our business customer offering through 2017 in line with new EV model launches.

**Digital metering**: AGL has prioritised providing energy efficiency solutions to many of our customers, and has focused significant efforts on providing customers with the enabling technology to be able to manage their energy usage efficiently, for example, through the entry of AGL's wholly-owned subsidiary, Active Stream, into the contestable digital metering market. Active Stream offers a range of innovative digital metering products and services to retailers, distributors and other businesses, including the installation and maintenance of digital metering devices (on the retailer's behalf) and provision of metering data to the customer's retailer, and the relevant network operator and AEMO for billing and settlement.

**AGL Mobile App**: The AGL Energy mobile app enables customers with a digital meter to gain greater control over their energy usage. Customers can see usage and usage charges on a daily, weekly, monthly and yearly basis enabling them to identify usage trends and see a projection of their next bill. There is also the ability to set an alert when overall spend for the billing period reaches a specified amount plus customers can pay bills from the app using their credit card.

**AGL's Virtual Power Plant (VPP)**: AGL is currently in the process of selling and installing 1,000 batteries in residential homes and businesses across metropolitan Adelaide. These batteries will be remotely connected and managed, to provide 5 MW of peaking capacity and offer customers the opportunity to save on their energy bills. Customers signing up to the trial receive a digital meter. This is to allow the monitoring and verification of data on the network. However, the Network support services and the orchestration of the VPP will be delivered through sophisticated cloud based solutions and VPP infrastructure platform.
Consumer awareness, understanding and engagement

13. What are the key drivers of active consumer participation in retail energy markets? What barriers prevent consumers, or certain groups of consumers (including vulnerable consumers), from engaging in the market and/or selecting a product that best meets their needs?

AGL’s analysis of a sample of Victorian customers shows that the proportion of customers on standing offers who have concession cards is the same as the proportion of customers overall who have concession cards. What this infers is that customers with concession cards are not more likely to be on standing offers than the general population.

For customers who are not concession card holders and are unengaged, it is likely that the cost of energy is not a prevalent issue.

The AEMC competition review clearly highlights that there are no barriers to entry for consumers in Victoria. However, competition requires retailers to actively compete but it also requires consumers to be engaged.

AGL has been an active participant in trying to improve engagement for specific consumer groups through its outreach programme.

Throughout 2015 and 2016, AGL has increased the level of community engagement and outreach to disadvantaged communities. This engagement has occurred at two levels by:

- upskilling and supporting community workers and volunteers who may be assisting customers with energy issues through ‘Train the trainer’ sessions. These sessions have been held across Victoria with St Vincent de Paul Society in Box Hill, Gippsland and Ballarat;
- participation in ‘Bring Your Bill’ days hosted by community organisations and Ombudsmen.

AGL representatives have attended these sessions providing basic information to support improved engagement with the market and connections with available support such as concessions, retailer hardship programs and energy saving tips and hints.

AGL has also collaboratively developed an unbranded Energy Information Guide with St Vincent de Paul Society, which has been distributed across the organisation to assist volunteers provide information to customers during home visits and info sessions.

AGL also highlights its commitment to customer engagement was shown by its $500,000 contribution last year to the Queensland Government ‘Switched on Communities’ program run through QCOSS to empower and equip Queensland community organisations to undertake outreach, information and awareness sessions for vulnerable communities. These sessions aimed to raise awareness about deregulation, competition, energy offers in the market and where to go for additional assistance.

AGL contends that this sort of collective community engagement across government, industry bodies, retailers and community groups is an important way to disseminate information to customers and empower them to engage with the market and receive the support available if they are unable to pay. This raises the question, if vulnerable and disadvantaged groups are already sufficiently being actively engaged through this sort of outreach then if other customers choose to not engage in the energy market, is this a market failure? Or is there a need for more focussed collaborative engagement strategies across all sectors?

14. Does the requirement on retailers to offer standing offer contracts lead to poor outcomes for consumers, or groups of consumers such as vulnerable consumers? If so, why?

AGL notes that an AEMC report indicated that some customers on (higher priced) standing offer contracts are often older or living in regional areas. AGL’s data on standing offers does not show any bias towards concession customers but as highlighted above, AGL recognises that some vulnerable customers may not have engaged with the market and remain on standing offers, despite the heavily discounted market offers available.

As highlighted above, in July 2015 AGL announced an automatic 10 per cent discount off usage charges for concession card customers in Victoria who remained on standing offers. This automatic discount ensures customers enjoy the savings of the discount, while still retaining the same terms and conditions of the standing offer.
AGL would also highlight its own research\(^3\) which showed that most financial counsellors (those assisting customers) have previously not been recommending customers switch to a market offer or were unaware of the difference between market offers and standing offers. This may explain why vulnerable customers may still be on standing offers and while AGL stresses that this research was undertaken several few years ago, may suggest that there could be benefit in greater focus on outreach and awareness activities amongst community organisations about the benefits of discounted market contracts.

Extensive support is already being provided to vulnerable customers with payment difficulties. Customers experiencing financial difficulties and who cannot meet the costs of their energy needs are provided a range of short and longer-term support. This may include deferrals and flexible payment arrangements.

For customers who need extra support, protection from disconnection is available for customers who remain engaged on AGL’s hardship program *Staying Connected*.

Additional support available through *Staying Connected* may include:

- Flexible payment plans having regard to a customer’s capacity to pay;
- Where consent is provided switching to the best available rate;
- Home energy visits where appropriate;
- Referral to financial counsellors; and
- Debt relief and incentive/matching payments on a case by case basis.

In addition to this programme, AGL has undertaken extensive consultation with community organisations around the country, meeting with 35 community organisations seeking feedback on ways to improve support for vulnerable customers.

In 2014, AGL announced an Affordability Initiative which included $6.5 million of support program improvements including: $3.3 million debt relief, matching payments, $1.2 million increased funding for financial counselling services, and $1.5 million in energy savings partnerships, including a $1 million partnership with the NSW Government to install solar in the homes of AGL hardship customers living in community housing properties.

AGL also notes the change in its approach to the marketing of retail energy offers in 2015, where all marketed discounts from this point onwards would apply as a discount of the published standing offer price. In the same series of enhancements, AGL also supported the proposal from St Vincent de Paul Society for retailers to publish standing offers on the same day to provide greater comparability across the market.

15. What implications does discounting raise for consumer outcomes, including consumers’ ability to compare offers and for retail competition more generally?

Discounting is a simple way of communicating the price proposition to customers. It is difficult and likely to be more confusing to customers, to refer to specific tariffs as there are a large number of residential tariffs such as, in electricity:

- Domestic General – with a fixed daily supply charge and either a single usage rate or multiple block rates;
- Controlled loads;
- Time of use rates – weekend saver;
- Flexible pricing with peak, shoulder and off-peak rates, and potentially seasonal rates; and
- Demand based or cost-reflective tariffs.

In addition, for gas customers there are seasonal prices.

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These tariffs are usually structured to reflect the network tariffs which are designed to be cost reflective and to provide price signals to consumers to modify their consumption pattern so that network infrastructure can be better utilized and to minimise current and future costs.

In Victoria, a customer’s retail price also differs according to their location as there are five electricity distribution network regions and 12 gas distribution network sub-regions, each with different network price levels and/or structures. This further complicates the use of any mass marketing using actual retail price charges rather than discounting. Examining a Gazettal of retailers’ Standing Offer prices will highlight this complexity.

Discounting has been highly successful in promoting customer engagement. AGL’s own market research from 2014/15 indicated that out of a list of attributes considered the most important in any energy product, the availability of a discount was considered to be the most attractive attribute to consumers.

In general, discounting allows customers to assess market offers from their existing retailer and competing retailers. The market products offer real discounts compared with the standard contract price.

It should be noted that not all retailers market in this way.

AGL has furthermore made a series of enhancements to its offers to improve clarity and transparency after community advocates had recommended that AGL’s products and services could be more clearly marketed. AGL made also made a series of other enhancements including:

- the introduction of AGL Fixed, a truly fixed product where rates are locked in for the contract term. All other references to the word ‘fixed’ were removed from materials (except where required by regulation) to be more transparent with customers;
- Removal of early termination fees on all new retail plans from March 2015; and
- As mentioned above, public support for the policy recommendation of gazetting standing offers on the same day, with all advertised discounts for AGL offers transparently applied only to the standing offer published prices, to provide greater clarity for customers.

**Restrains on competition**

| 16. | Are there any features of Victoria’s retail electricity and gas markets that restrain competition from delivering benefits to consumers? |
| 17. | Are there any issues that have not been considered in this discussion paper that you consider should be considered during the review? |

There is no question that the Victorian retail electricity and gas markets are highly competitive with the:

- highest level of customer churn;
- greatest number energy retailers; and
- most products and energy offers;

in the NEM.

Even though customer churn may reduce as retailers focus on retaining customers through better service and pricing offerings, underlying competition is increasing because of:

- new business models/ participants (eg, exempt sellers) bypassing regulatory framework to offer energy management products; and
- alternative channels, such as on line brokers, who are using digital technology to make it easier/ simpler for customers to understand market offers and make more informed decisions.

AGL does believes that there is a role for increased regulation to monitor the performance of on-line brokers to ensure there is clear disclosure of remuneration and consistency in information provision to maintain trust in the sector and facilitate consumer engagement.

AGL also notes the Discussion Paper raises the question on whether vertical integration in energy markets has any impact on competition.
Vertical integration in the energy industry has previously been queried by regulators to consider if it adversely impacted the ‘balance of competition’ by reducing forward market liquidity and constraining generation entry. This was found to be erroneous.

An AGL research paper4 examined the theoretical evidence on vertical integration as well as empirical evidence in the NEM and found that:

- vertical arrangements only occur in response to market problems and are usually welfare enhancing; and
- forward market liquidity in the NEM does not reveal any evidence of market thinning, despite the occurrence of many vertical arrangements.

The paper examined vertical integration in an energy-only market by the performance of an energy retailer under alternative business combinations with unambiguous results demonstrating that:

- vertical integration produces greater earnings stability and predictability so a Vertical Retailer is a more efficient business with lower overall costs;
- separate merchant retail or generation businesses, while profitable overall, cannot sustain investment-grade credit metrics throughout the period and cannot facilitate the entry of new power plant capacity – thermal or renewable and
- only the vertical firm could satisfy investment-grade credit metrics over the long run and therefore be able to invest in power generation in an energy-only market such as the NEM.

Regarding issues that have not been specifically considered in the Discussion Paper, AGL believes the Review should consider the wholesale electricity and gas markets with recent events putting significant upward pressure on retail prices.

Any comprehensive assessment of the competitive retail market and price changes must include a review of wholesale market conditions.

18. **Are there examples of other retail electricity and gas markets that deliver strong outcomes to all consumers? What are the key characteristics of these markets, their regulatory frameworks, and/or examples of policy initiatives implemented that have helped improve consumer outcomes?**

The Australian gas and electricity markets have closely followed the blueprint established by the establishment and deregulation of the UK energy market.

In a similar situation to this Review, Ofgem, Britain’s energy regulator, was concerned that price dispersion could not be explained by variations in cost and decided to implement regulations to eliminate differential prices and to simplify energy products by limiting the number of energy retailer tariffs as well as limiting permissible tariff structures.

Independent British economists such as Professors Yarrow, Vickers, Green, Littlechild, and Waddams-Price all counselled that Ofgem’s regulation would result in:

- low-income customers being considerably worse-off as discounted products evaporated;
- a decline in competition;
- more firm strategic behaviour; and
- energy retailers would make higher profits with no clear benefit to consumers in aggregate.

As they predicted, energy retailers were incentivised to remove competitive tariffs, competition was muted, available discounts contracted, customer poaching slowed, switching rates fell as gains from switching diminished (switching costs remained constant), overall tariff mark-ups

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increased and ultimately, energy retailer profits increased materially with Littlechild\textsuperscript{5} reporting that consumer bills increased by over £1 billion as a result.

For Australian energy markets, the AEMC regularly analyse the competition and have found it to be effective and delivering value to consumers in South East Queensland, New South Wales and South Australia as well as Victoria.\textsuperscript{6} The AMEC highlight that customers who engage in the deregulated markets can and do make substantial savings on their energy bills.

**Price increases from Hazelwood closure**

| 19. | What factors should the review consider in assessing price increases as a result of the expected closure of Hazelwood? What methods should the review consider to determine the likely impact of the Hazelwood closure on wholesale prices and the associated impact on retail prices? |
| 20. | What is a reasonable level of expected retail price increase resulting from the closure of Hazelwood? Please provide detailed evidence to support your response. |

Wholesale costs have increased significantly and wholesale electricity costs will increase further after the closure of Hazelwood.

Figure 1 shows how the price of flat forward electricity contracts for the 2018 financial year has changed over the last 12 months in all regions. The rise in contract electricity price is primarily due to the market response to the expected decrease in supply of dispatchable power and consequently, forward contracts. There has been a marked increase in Victoria since the November 2016, when Engie finally announced that "its Hazelwood power generation business in the Latrobe Valley will close at the end of March next year".

**Figure 1: Changes to Victorian CY 2018 base futures, ASX**

<table>
<thead>
<tr>
<th>Flat Forward Contracts ($/MWh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY 2018</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>120</td>
</tr>
<tr>
<td>110</td>
</tr>
<tr>
<td>100</td>
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<tr>
<td>30</td>
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<tr>
<td>20</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>April 15 - July 17</td>
</tr>
<tr>
<td>NSW - QLD - SA - VIC</td>
</tr>
</tbody>
</table>

However, the closure of Hazelwood’s Engie Power Station is not the only issue that must be taken into consideration when assessing the extent to which its closure will impact Victorian residential electricity customer bills.

Given the fact that Victoria participates in the NEM, the extent of any price increases will be dependent on the supply demand balance – not only in Victoria – but also in other NEM.


\textsuperscript{6} Australian Energy Market Commission (AEMC), 2016, "2016 Retail Competition Review – Final Report"
jurisdictions, notably South Australia. Specifically, the more that electricity is exported to meet other NEM region requirements, in the short term, will contribute to the uplift in the Victorian wholesale price and subsequently, the Victorian retail customer price.

The NEM is framed on the operation of a competitive market to provide clear signals to investors to add capacity to the market – in response to higher wholesale prices – or remove it from the market (mothball) in response to prices below operating costs. It is therefore likely that any sustained wholesale price increases will deliver clear incentives to market participants to respond in appropriate way.

Ultimately, AGL considers that, in the medium to longer term, the expected price increases may be offset through either increased generation investment in the state, increased interconnection from other regions (noting that interconnection does not provide additional opportunity to contract as it is non-firm), distributed energy resources or increased energy efficiency.

More broadly, the NEM is now experiencing increased volatility, as well as supply disruptions – particularly in South Australia. AGL consider that gas fired generation has a key role to play as the sector transitions away from a supply mix dominated by baseload coal fired capacity. Although it is important to note that, issues such as gas moratoria, or gas reservation, act as an impediment to private sector investment in gas generation assets as new domestic gas supplies are not able to mitigate rising domestic gas prices - making such projects uneconomic.

Additionally, AGL notes that there are now real constraints on the contracting of gas because of the increased national demand – regardless of the price.

Australian governments, policy makers, regulators, and AEMO are now asking whether the current NEM market design is sustainable, or whether amendments to market settings are required to take account of the increased integration of renewable energy. The energy sector now has three clear competing policy objectives to deliver simultaneously, reliable/secure electricity supply – with increased integration of renewable energy capacity, supplied at an affordable price and at low/zero emissions intensity. No energy system in the world is successfully meeting all three objectives. However, gas fired generation capacity could effectively contribute to meeting these. Accordingly, gas market settings, including access to gas pipeline capacity and options to increase gas market transparency, are also being actively investigated.

The Australian Competition and Consumer Commission (ACCC) recently found that domestic gas extraction (CSG) moratoria needed to be lifted (to increase the flow of gas), gas transmission pipeline access arrangements needed to change, and further investigation of domestic gas joint marketing arrangements was also warranted.

Based on market outcomes in the NEM, and in SA specifically, and in response to the need to meet the identified three policy objectives, there is a real opportunity for gas, and gas fired generation capacity specifically, to play a greater role in supporting intermittent renewable energy generation capacity and mitigating risks to reliability and system security. Subject to the availability of gas at an economic price.

Retailers play a key role in the NEM of managing wholesale risk. There are currently significant wholesale issues in energy market which should be looked at and looking at competition alone will not be the answer. Price increases which will likely be a direct result of major changes in the generation of electricity and its impact on the wholesale electricity market, rather than the level of retail competition.
Attachment 1: Samples of AGL Recontracting Letters
Hi [Name],

Your current AGL electricity plan benefit period ends soon. But don't worry, we can automatically roll you onto a new plan. On the following pages we've outlined the benefits you'll enjoy with your new plan. We look forward to continuing to provide you with a great deal on your energy.

Your AGL electricity account number is [Redacted].
Your energy plan is AGL Savers™ electricity.
The supply address for this account is [Redacted].
You can now enjoy being rewarded with great value on the AGL Savers™ plan.

**What do you need to do now?**
Nothing. We'll renew your plan when your current plan benefit period ends on 8 April 2017. If you'd like to find out about other plans we offer, just call us any time on 1300 131 245.

Regards

Sandra
Sandra de Castro
General Manager Sales & Marketing

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You are here

AGL Anytime® 24/7
131 245
agl.com.au

Current benefit period ends

Plan renewal

Continue with AGL benefits
Your energy plan
AGL Savers™ electricity

Account number
Your AGL electricity account number is

Supply address

Your meter identifier

Discount and Rewards
28% Pay On Time Discount

Energy plan period
24 months
Start date: See general terms clause 2.2.
End date: Second anniversary of start date

Rate type
Variable

Billing frequency
Quarterly

Your electricity rates.
Your Market Contract has no fixed term and includes variable rates, which can change at any time with notice to you.

<table>
<thead>
<tr>
<th>Electricity usage per quarter</th>
<th>Unit</th>
<th>GST excl.</th>
<th>GST incl.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak</td>
<td>c/kWh</td>
<td>25.05</td>
<td>27.555</td>
</tr>
<tr>
<td>Supply charge</td>
<td>c/day</td>
<td>110.47</td>
<td>121.517</td>
</tr>
</tbody>
</table>

Your bills will show the GST exclusive rates and GST will be added to the totals. See the Market Contract General Terms for how your rates, fees and charges may vary.

Important things you should know about your Energy Plan.
- Your Energy Plan is subject to the terms of your ongoing Market Contract with us.
- Your Energy Plan includes variable rates, which can change at any time with notice to you.
- A 28% Pay On Time Discount of the amount payable on each bill for your applicable usage applies as part of this Energy Plan when you pay your bill in full on or before the due date. The discount does not apply to fixed daily Energy supply Charges, demand Charges or AGL Green Choice™ Charges.
- Your Market Contract has no fixed term. However, at the end of your Energy Plan Period you will be placed on a new 24 months Energy Plan which may include a different set of variable rates. We will write to you before this occurs.

Cooling-off Period.

Important Notice to the Consumer. You have a right to cancel this agreement within 10 Business Days from and including the day after you signed or received this agreement. Details about your additional rights to cancel this agreement are set out in the information enclosed with this agreement.
- Your Market Contract is subject to a 10 Business Day Cooling-off Period from the date on which you receive your welcome pack containing the Disclosure Statement and Market Contract General Terms. During this time you may give us written notice or call us on 131245 to cancel your Market Contract and Energy Plan for any reason.
- The following applies if you did not contact us to request an Energy Plan. Unless you accept this Energy Plan in relation to a new connection at your Supply Address, or where your Supply Address is currently disconnected and we are arranging reconnection for you, we are prohibited from supplying you with gas or electricity under this Energy Plan for the duration of the 10 Business Day Cooling-off Period.

Other Fees and Charges.
- Fees such as an account establishment fee, dishonoured payment fee or payment processing fee, and other charges relating to your Meter or Supply Address may apply under this Energy Plan. See the Fee Schedule and General Terms.
- A payment processing fee may apply where you pay a bill using a payment method that results in us incurring a merchant services fee (including payment by credit or debit card).
- We may vary your fees and charges at any time by giving you written notice. See your Market Contract General Terms for further details.
Other Important Information,

- This Energy Plan may be terminated by you or us by giving 20 Business Days written notice.
- The above charges do not include any concessions which may apply to you.
- To discuss concessions that may be applicable in relation to your account, please contact AGL on 131245.
- If you or a member of your household rely on a life support machine please contact AGL on 131245.
- Your Payment Methods include: cash, direct debit, BPAY, credit card and POSTBillpay.
- AGL has a Dispute Resolution Policy which includes contact details for your State Ombudsman and is available on request or at agl.com.au
- Please call AGL on 131245 if any of your details above are incorrect.
- For more information about the terms and conditions of this Offer, including our bill smoothing or direct debit arrangements, please visit agl.com.au or call us on 131245.
- If you would prefer not to receive marketing material from AGL, please contact AGL on 131245.

Useful energy service contact details.

**Electricity Retailer:** AGL Sales Pty Limited ABN 88 090 538 337
Tel: 131245, Fax 1300 660 245, Email: customer.service@agl.com.au

AGL energy plan small customer market contract fee schedule.

**Victoria. Electricity.**

<table>
<thead>
<tr>
<th>Fee Type</th>
<th>GST excl.</th>
<th>GST incl.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dishonoured payment fee (cheque)</td>
<td>$10.00*</td>
<td>n/a</td>
</tr>
<tr>
<td>(direct debit)</td>
<td>$3.50*</td>
<td>n/a</td>
</tr>
<tr>
<td>Paper bill fee - for each bill sent by post*</td>
<td>$1.59</td>
<td>$1.75</td>
</tr>
<tr>
<td>Over the counter payment fee for payments in-person with Post Billpay® at a Post Office®</td>
<td>$1.82</td>
<td>$2.00</td>
</tr>
<tr>
<td>Late payment fee</td>
<td>$0.00*</td>
<td>n/a</td>
</tr>
<tr>
<td>Payment processing fee ( % of payment made)</td>
<td>0.55%</td>
<td></td>
</tr>
<tr>
<td>Refundable advance (each fuel) (Residential Customer)</td>
<td>$136.36</td>
<td>$150.00</td>
</tr>
<tr>
<td>(Small Business Customer)</td>
<td>$454.55</td>
<td>$500.00</td>
</tr>
<tr>
<td>Account establishment fee*</td>
<td>Pass Through of Reconnection fee</td>
<td></td>
</tr>
<tr>
<td>Disconnection fee*</td>
<td>Pass Through</td>
<td></td>
</tr>
<tr>
<td>Reconnection fee*</td>
<td>Pass Through</td>
<td></td>
</tr>
<tr>
<td>Special meter reading fee*</td>
<td>Pass Through</td>
<td></td>
</tr>
</tbody>
</table>

See the General Terms for when these and other fees apply. We will advise you of the amount of any 'Pass Through' or unlisted fees at the time you make a relevant request. For example, when we arrange on your behalf for a service to be performed by the Distributor (who is responsible for the electricity poles, wires, pipes and Meters in your area).

Effective 1 January 2017. Fees are subject to change.

*The GST inclusive price assumes a GST rate of 10%. If this rate of GST changes, the GST inclusive price outlined above will be adjusted to reflect that change.

*Amount is not subject to GST.

*We may change this fee for each paper bill we issue to you on or after 1 October 2016. To receive your bills by email instead of post, you can sign up for eBilling via AGL Energy Online or by calling 131 245 for residential customers and 133 835 for business customers.

*We may change this fee if you pay your bill in person at an Australia Post outlet on or after 1 October 2016.

*These fees are charged by your Distributor and passed through to you by AGL.
Hi [Name],

Your current AGL gas plan benefit period ends soon. But don’t worry, we can automatically roll you onto a new plan. On the following pages we’ve outlined the benefits you’ll enjoy with your new plan. We look forward to continuing to provide you with a great deal on your energy.

- Your AGL gas account number is [Redacted].
- Your energy plan is AGL Savers™ gas.
- The supply address for this account is [Redacted].
- You can now enjoy being rewarded with great value on the AGL Savers™ plan.

**What do you need to do now?**

Nothing. We’ll renew your plan when your current plan benefit period ends on 4 April 2017. If you’d like to find out about other plans we offer, just call us any time on 1300 131 245.

Regards

Sandra de Castro
General Manager Sales & Marketing

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**You are here**

- AGL Anytime™ 24/7
  131 245
  agl.com.au
  - Current benefit period ends

- Plan renewal

- Continue with AGL benefits

AGL Sales Pty Limited ABN 86 090 538 337
Your energy plan
AGL Savers™ gas

Account number
Your AGL gas account number is

Supply address

Your meter identifier
MI RN

Discount and Rewards
18% Guaranteed Discount
2% Double Up Discount

Energy plan period
12 months
Start date: See general terms clause 2.2.
End date: First anniversary of start date

Rate type
Variable

Billing frequency
Monthly

Your gas rates.
Your Market Contract has no fixed term and includes variable rates, which can change at any time with notice to you.

<table>
<thead>
<tr>
<th>Gas usage per 2 months</th>
<th>Unit</th>
<th>GST excl.</th>
<th>GST incl.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First 1644 MU</td>
<td>c/MU</td>
<td>2.43800</td>
<td>2.681800</td>
</tr>
<tr>
<td>Next 1314 MU</td>
<td>c/MU</td>
<td>2.08700</td>
<td>2.295700</td>
</tr>
<tr>
<td>Thereafter</td>
<td>c/MU</td>
<td>1.66100</td>
<td>1.827100</td>
</tr>
<tr>
<td>Supply charge</td>
<td>c/day</td>
<td>73.57000</td>
<td>80.927000</td>
</tr>
</tbody>
</table>

The MJ values in the usage column are bi-monthly consumption thresholds up to which the stated price may apply. Billing period consumption thresholds for the stated price are calculated by dividing the bi-monthly threshold by 60 and multiplying by the number of days in the billing period. Unused amounts for each billing period consumption threshold are not carried forward.

Your bills will show the GST exclusive rates and GST will be added to the totals.

See the Market Contract General Terms for how your rates, fees and charges may vary.

Important things you should know about your Energy Plan:

- Your Energy Plan is subject to the terms of your ongoing Market Contract with us.
- Your Energy Plan includes variable rates, which can change at any time with notice to you.
- A discount equal to 18% of the amount payable for your applicable usage applies as part of this Energy Plan and will appear as a separate credit (GST exclusive) on your bills. The discount does not apply to fixed daily Energy supply Charges, demand Charges or AGL Green Choice™ Charges.
- Your Market Contract has no fixed term. However, at the end of your Energy Plan Period you will be placed on a new 12 months Energy Plan which may include a different set of variable rates. We will write to you before this occurs.

Cooling-off Period.

Important Notice to the Consumer. You have a right to cancel this agreement within 10 Business Days from and including the day after you signed or received this agreement. Details about your additional rights to cancel this agreement are set out in the information enclosed with this agreement.

- Your Market Contract is subject to a 10 Business Day Cooling-off Period from the date on which you receive your welcome pack containing the Disclosure Statement and Market Contract General Terms. During this time you may give us written notice or call us on 131245 to cancel your Market Contract and Energy Plan for any reason.
- The following applies if you did not contact us to request an Energy Plan. Unless you accept this Energy Plan in relation to a new connection at your Supply Address, or where your Supply Address is currently disconnected and we are arranging reconnection for you, we are prohibited from supplying you with gas or electricity under this Energy Plan for the duration of the 10 Business Day Cooling-off Period.

Other Fees and Charges.

- Fees such as an account establishment fee, dishonoured payment fee or payment processing fee, and other charges relating to your Meter or Supply Address may apply under this Energy Plan. See the Fee Schedule and General Terms.
- A payment processing fee may apply where you pay a bill using a payment method that results in us incurring a merchant services fee (including payment by credit or debit card).
- We may vary your fees and charges at any time by giving you written notice. See your Market Contract General Terms for further details.
Other Important Information.

- This Energy Plan may be terminated by you or us by giving 20 Business Days written notice.
- The above charges do not include any concessions which may apply to you.
- To discuss concessions that may be applicable in relation to your account, please contact AGL on 131245.
- If you or a member of your household rely on a life support machine please contact AGL on 131245.
- Your Payment Methods include: cash, direct debit, BPAY, credit card and PostBillpay.
- AGL has a Dispute Resolution Policy which includes contact details for your State Ombudsman and is available on request or at agl.com.au
- Please call AGL on 131245 if any of your details above are incorrect.
- For more information about the terms and conditions of this Offer, including our bill smoothing or direct debit arrangements, please visit agl.com.au or call us on 131245.
- If you would prefer not to receive marketing material from AGL, please contact AGL on 131245.

Double Up Discount.

- Your Double Up Discount will apply as a separate credit (GST exclusive) on your gas account once you have both an active electricity account and active gas account with AGL at the same Supply Address, at the time of billing.
- This Double Up Discount only applies to your gas Energy Plan—you may be eligible for a separate Double Up Discount on your other Energy Plan depending on the terms of that plan.
- For as long as you remain on this Energy Plan you are eligible for a Double Up Discount, which is equal to a 2% discount off your gas usage. The discount does not apply to fixed daily energy supply charges, demand charges or AGL Green Choice charges.
- If you end this Energy Plan for any reason (including accepting a new Energy Plan with AGL or changing your Supply Address), then eligibility for this Double Up Discount ceases. If you enter a new AGL Energy Plan, then eligibility for an alternative Double Up Discount will depend on its availability with that Energy Plan.
- If your other energy account with AGL is not eligible for a Double Up Discount, you will only receive the Double Up Discount on this gas Energy Plan.

Useful energy service contact details.

Gas Retailer: AGL Sales Pty Limited ABN 88 090 538 337
Tel: 131245, Fax 1300 660 245, Email: customer.service@agl.com.au
See the General Terms for when these and other fees apply. We will advise you of the amount of any ‘Pass Through’ or unlisted fees at the time you make a relevant request. For example, when we arrange on your behalf for a service to be performed by the Distributor (who is responsible for the gas pipes and Meters in your area).

Effective 1 January 2017, fees are subject to change.

^The GST inclusive price assumes a GST rate of 10%. If this rate of GST changes, the GST inclusive price outlined above will be adjusted to reflect that change.

*Amount is not subject to GST.

*We may charge this fee for each paper bill we issue to you on or after 1 October 2016. To receive your bills by email instead of post, you can sign up for eBilling via AGL Energy Online or by calling 131 245 for residential customers and 133 835 for business customers.

*These fees are charged by your Distributor and passed through to you by AGL.

<table>
<thead>
<tr>
<th>Fee Type</th>
<th>GST excl.</th>
<th>GST incl.*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dishonourd payment fee (cheque)</td>
<td>$10.00*</td>
<td>n/a</td>
</tr>
<tr>
<td>(direct debit)</td>
<td>$3.50*</td>
<td>n/a</td>
</tr>
<tr>
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<td>$1.75</td>
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<tr>
<td>Over the counter payment fee for payments in-person with Post Billpay® at a Post Office*</td>
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<td>$2.00</td>
</tr>
<tr>
<td>Late payment fee</td>
<td>$0.00*</td>
<td>n/a</td>
</tr>
<tr>
<td>Payment processing fee (% of payment made)</td>
<td>0.55%</td>
<td></td>
</tr>
<tr>
<td>Refundable advance (each fuel) (Residential Customer)</td>
<td>$136.36</td>
<td>$150.00</td>
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<td>Pass Through of Special meter reading fee</td>
<td></td>
</tr>
<tr>
<td>Disconnection fee*</td>
<td>Pass Through</td>
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Price discrimination in Australia’s retail electricity markets: An analysis of Victoria & Southeast Queensland☆

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A R T I C L E   I N F O

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A B S T R A C T

When capital-intensive monopoly industries are restructured and deregulated, consumer prices commence a natural drift from regulated uniform ‘average cost’ tariffs to competitive differential prices, and this can raise problems for policymakers. Deep discounts are welcomed, high Standing Offers are not. But price discrimination is unremarkable in economics. Indeed, in industries where fixed & sunk costs represent a significant portion of total cost, discriminatory pricing is usually welfare enhancing. Conversely, theory predicts and empirical evidence confirms that regulatory efforts to cherry-pick differential prices in asymmetric markets will damage consumer welfare. In this article, we analyse differential retail electricity offer prices in the Australian States of Victoria and Queensland and contrast these with industry average total cost and the marginal cost of retail supply. We find deregulated Victoria displays high price dispersion with Standing Offer tariffs 10% above industry average total cost and marginal offers at break-even prices (i.e. 20% below average total cost). In the semi-regulated Southeast Queensland market where a regulated price-cap exists, there is lower dispersion but marginal offers include a 6.7% retail mark-up. Efficient pricing requires the marginal unit produced to be priced at marginal cost and Victoria meets this criteria – but we identify an episode of inter-consumer misallocation due to high Standing Offers. We conclude policy initiatives designed to help firms shift vulnerable households from Standing Offer tariffs is desirable.

1. Introduction

A seemingly problematic issue facing policymakers in competitive retail electricity markets is the dispersion of residential tariffs that naturally follows deregulation events. To be sure, price dispersion at the residential level represents a material change from a 120-year history of uniform tariffs. Under regulated monopoly conditions in Australia, State Electricity Commissions gazetted two-part tariffs and all households faced that uniform (non-linear) price.

During the 1990s, industry restructuring led to the creation of rival retailers and by the early-2000s, Full Retail Contestability was implemented (initially with regulated price-caps). Standing Offer tariffs – comprising generation, network charges, retail supply, environmental charges and taxes – were declared by the regulator. Incumbent retailers were obliged to offer this tariff and default levels of service to all customers in their former franchise. The regulated Standing Offer price-cap formed a price-to-beat. Rival new entrant and adjacent franchise retailers would poach the incumbent’s former franchise customers by offering discounts off the Standing Offer price-cap, often in mixed product bundles (i.e. electricity and gas). Price dispersion had thus become a central design feature of the competitive market.

Once retail electricity markets exhibit workable competition, the need for regulated price-caps disappears. At this point, incumbent retailers are able to set their Standing Offer tariff to meet an ongoing obligation to supply in former franchise areas. Changes to market structure typically follow. Once the risk of regulatory error in determining price-caps is removed, the number of rival retailers tends to increase with the array of products offered expanding exponentially to meet variations in consumer preferences. Given non-trivial fixed & sunk costs, price dispersion will increase, not decrease, as competition intensifies. This market progression of additional entry, greater product complexity and price dispersion is common in former regulated capital-intensive monopoly industries such as telecommunications, airlines and energy as Borenstein and Rose (1994), Dana (1998, 1999b), Levine (2002), Baumol and Swanson (2003), Littlechild (2014) and others explain.

With respect to residential tariffs, although electricity industry reforms commenced from 1994, the zonal retail electricity markets
that comprise Australia’s National Electricity Market in 2015 are replete with working examples of regulated monopoly, semi-regulated price-cap and deregulated markets. For example, households in Tasmania and Regional Queensland face regulated uniform tariffs and monopoly suppliers. The Southeast Queensland market (i.e. including the capital Brisbane and Gold & Sunshine Coasts) has full retail competition but with a regulated price-cap, two incumbent and eight rival retailers, and routine discounts producing price dispersion of about 8%. In the recently deregulated markets of South Australia and New South Wales, 12–15 rivals compete resulting in price dispersion of 12–15%. In Victoria, the most mature market (deregulated in 2009) there are three incumbents, 17 rivals and price dispersion of up to 30% in mixed product bundles.

In any retail market with common fixed costs, differential pricing represents the usual state of affairs, not a market oddity. But price discrimination is often controversial vis-à-vis its impact on consumers, rivals and total welfare. Price dispersion in Victoria is controversial. Just as Levine (2002) explained of airline deregulation in the US, adverse media and political coverage of high Standing Offers was common in the mid-1990s. To generalise, with price discrimination in capital-intensive industries is frequently welfare enhancing (Varian, 1996; Levine, 2002; Baumol and Swanson, 2003; Waddams Price, 2012; Littlechild, 2014).

Reams of special reports have focused on price-cost mark-ups in Victoria, but they focus on Standing Offer tariffs (for example, see Ben-David, 2013, 2015; ESC, 2013; CME, 2015). In their analysis of airline prices, Borenstein and Rose (1994) largely ignore Standing Airfares and benchmark empirical results using average tariffs noting that only 10% of customers actually pay Standing Airfare prices. In Victoria, only 11% of customers are on Standing Offer tariffs – the rest have moved to market contracts. In this article, we examine the range of products in deregulated Victoria and contrast these with modelled estimates of industry average total cost and the marginal cost of retail supply. To provide context around results, we apply the same analytical approach to the semi-regulated Southeast Queensland market. Unlike Borenstein & Rose, we include Standing Offers because electricity is non-discretionary and excluding their impact would be unhelpful. But focusing exclusively on Standing Offer rates is similarly unhelpful because it is an incomplete analysis and risks misguiding policymaking.

By focusing on the range of products, our analysis reveals surprising results. Standing Offer rates in Victoria were found to be unambiguously higher than Queensland. Based on our modelling, they are 10% above the average total cost of supply. However, at the other end of the supply curve marginal offers in Victoria are set to retail marginal cost with a 0% mark-up, and are 20% below the average total cost of supply.

In Queensland, the 2015 regulated price-cap was found to be slightly below industry average total cost of supply but marginal offers incorporate a 6.7% profit margin. Additionally, only 22% of customers access ‘medium-level’ (i.e. 8–14%) discounts and there are no high-level discounts available. In contrast, more than 50% of Victorian households access what we describe as high-level discounts (i.e. 15–30%).

These results are consistent with the literature on price discrimination in that Victoria, the most mature deregulated market, shows a greater dispersion than the NEMs least mature contestable market, Southeast Queensland. While we did not analyse the other NEM regions of New South Wales and South Australia with the same level of detail, the level of price dispersion was bounded by Victoria and Southeast Queensland and consistent with their relative levels of maturity. Total welfare is maximised when the marginal good produced is sold at marginal cost. To be clear, in the presence of non-trivial fixed & sunk costs there is no principle in economics that says all prices must be set uniformly to marginal cost (Varian, 1996; Levine, 2002; Baumol and Swanson, 2003). Prima facie the characteristics of the Victorian market suggests offer prices meet the definition of efficient pricing. However, when we analysed 530,000 household electricity accounts of a Tier 1 incumbent retailer in Victoria (i.e. about 1/4 of the total market), it revealed an ‘inter-consumer misallocation’ problem – which is a drag on market efficiency. Specifically, 26,000 households (4.9%) met our definition of vulnerable and were allocated to a Standing Offer tariff demonstrably designed for more inelastic households.

In economics, there is nothing inherently inefficient with the differential prices of infra-marginal units spanning above average total cost given non-trivial sunk costs. Differential pricing of output in competitive markets is very common throughout the economy. Indeed, theory predicts that in competitive markets with non-trivial fixed and sunk costs and negatively-sloped aggregate demand functions, differential pricing will emerge in equilibrium (Baumol and Swanson, 2003). The dispersion of prices will increase as competition intensifies, and as Marcoux (2006) and Elegido (2011) explain, from an ethics perspective there are strong reasons to expect differential pricing will generally produce positive distributional effects. But these statements come with the caveat that customers are segmented according to their elasticity of demand with, in this instance, household income being the relevant variable (Felder, 2010). And evidently the market (i.e. producers, or consumers themselves) are misallocating certain households that meet our definition of vulnerable. To be sure our analysis reveals that in absolute terms, welfare losses are not large but left untouched run counter to government concessions policy, unwinding 1/4 of the fiscal effort to reduce the incidence of (electricity) household hardship. For policymakers and the industry, the political economy of this outcome is therefore problematic. Evidently, similar issues have been identified in the British electricity market. But our review of literature reveals an intuitive response (i.e. ban price discrimination practices) will almost

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1 The National Electricity Market generally refers to the wholesale market (a gross pool, uniform first-price auction market) which covers the Australian east and south-eastern states of Queensland, New South Wales, Australian Capital Territory, Victoria, South Australia and Tasmania. The retail markets are generally defined by State boundaries.
2 We refer to ‘routine discounts’ throughout our research and define them as visible discounted products (public websites or advertised products). Firms discount more aggressively when reacting to customer poaching by rivals.
3 SA removed price controls in 2013 and NSW removed price controls in 2014. Price controls in Southeast Queensland were removed in 2016 (i.e. as this article was being published).
4 One reviewer queried whether these conditions would apply to all major electricity market segments. In our experience, the residential market and small-medium enterprise market have broadly equivalent levels of price dispersion and retail supply margins. However, the market for large Commercial & Industrial (C&I) customers tends to exhibit much tighter price dispersion (and considerably lower spread of retail supply margins) because their level of ‘buyer sophistication’ is higher and are therefore more inclined to run highly competitive tender processes. Conversely, service differentiation becomes more prominent.
5 Levine (2002, p.36) adds ‘notwithstanding more than 20 years of evidence and a near-unanimous chorus of scholarly approbation’ of that price dispersion.

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8 These results are also consistent with market outcomes in Britain (see Hvid and Waddams Price, 2012; Littlechild, 2014). We also spoke to the CEO of a second tier retailer in ERCOT who reported equivalent market outcomes in that market.
9 Inter-consumer misallocation is a drag on welfare and occurs when output is allocated using multiple prices and some customers are incorrectly segmented by the firm, or consumers misinterpret the menu of prices and incorrectly segment themselves. Either way, some highly elastic weak segment consumers inadvertently face discriminatory prices intended for strong segments. Such a misallocation is not possible with a uniform price.
10 For an excellent overview of the British situation, see Hvid and Waddams Price (2012), Pullin and Haney (2014) and Littlechild (2014).
certainly do more damage than good to consumer welfare – hence the purpose of this article.

This article is structured as follows. Section 2 provides a review of relevant literature on price discrimination. Section 3 outlines our modelling and results. In Section 4 we discuss policy implications. Concluding remarks follow.

2. Review of literature

The theory of price discrimination, which can be traced back to Pigou (1920) and Robinson (1933), describes the practice as selling a good at different prices to different consumer segments.11 A broader definition frequently used in contemporary literature comes from Stigler (1987) in which two or more similar goods are sold at different price ratios to their marginal cost, and we propose to follow this definition.12 Price discrimination is made possible by the ability to separate consumer segments, with those segments characterised by an appreciable variation in the willingness-to-pay. For price discrimination to persist, consumers must not be able to arbitrage or unprice value differentials, and firms must have the ability to separate customer segments cleanly (Pigou, 1920). Robinson (1933) would describe the variation in total market demand as comprising strong (i.e. low elasticity, higher price) and weak (i.e. high elasticity, lower price) segments and we use this nomenclature throughout.

Price discrimination comes in many forms. Pigou (1920) would define first-, second- and third-degree price discrimination as follows:

1. First-degree price discrimination involves consumer segmentation in its perfect form – a monopolist sells to each customer at uniquely different prices at their absolute willingness-to-pay (i.e. the discrete points along a market demand curve). This means there is no consumer surplus and all rents from exchange are extracted by the firm. In practice, monopoly models of first-degree price discrimination form a theoretical benchmark and can be thought of as the opposite extreme of perfect competition (Armstrong, 2006a; Stole, 2007).

2. Second-degree price discrimination, also known as non-linear pricing, occurs when prices vary with the quantity purchased. This form of pricing is frequently used by firms as an ‘automated sorting device’ to cleanly separate customers with a different willingness-to-pay. A simple and easily implementable form is the two-part tariff (Armstrong, 2008).13 Second-degree price discrimination is the least contentious form of differential pricing because ‘quantity discounts’ are widely accepted.

3. Third-degree price discrimination, the most common14 form of discriminatory practice found in markets, arises through intense market segmentation based on variations in consumer willingness-to-pay. A common example is ‘student and pensioner discounts’.

Perhaps unsurprisingly given its label, price discrimination is typically viewed with negative sentiment and a prejudiced lens by non-economists (Elegido, 2011). Reinforcing this view is the economist’s juxtaposed model of perfect competition where anonymous uniform economists (Elegido, 2011). Reinforcing this view is the economist’s contention form a theoretical benchmark and can be thought of as the opposite extreme of perfect competition (Armstrong, 2006a; Stole, 2007).

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Under perfectly competitive conditions, one can demonstrate consumer and producer welfare is maximised. But a long list of explicit and implicit assumptions underpins this classic prescription including constant returns to scale, no common fixed or sunk costs, no transaction costs, perfect information and perfectly elastic demand amongst others. When these assumptions are progressively relaxed, especially those relating to sunk costs and perfectly elastic demand, the basic principle of a uniform price at marginal cost breaks down. Under these conditions differential prices are frequently welfare enhancing and attempts to ban the practice can damage a wide class of consumers, and provide little if any benefit to consumers in aggregate.

The key to understanding the logic underpinning such outcomes is to recall three fundamental propositions in economics in the presence of non-trivial sunk costs. First, price discrimination is not synonymous with market power abuse. Market power involves withholding capacity and reducing output to raise prices. This appears to be the only necessary condition for market power (Klein, 1993). Price discrimination on the other hand is the primary means to overcome output constraints by exploiting the pitch of the demand curve. Second, to maximise welfare the marginal good produced must be priced and sold at marginal cost. But there is no principle that says all units must be sold at that price. And third, economics does not enshrine a principle of cost-reflective pricing per se. To produce Pareto efficient outcomes the core principle is that infra-marginal output prices relate to consumer willingness-to-pay. Notions of accounting costs have no relevance in terms of market efficiency.15

Energy is a non-discretionary item, and this necessitates a careful approach to our analysis. Noting its non-discretionary nature, Levine’s (2002) example of a consumable good (viz. beef) provides an elegant illustration of how price discrimination can enhance welfare compared to uniform pricing. The cost of processing cattle – from farm to end-consumer – involves substantial common fixed and sunk costs and transaction costs along the value-chain in order to produce final cuts of beef. These include farming, transporting livestock, abattoir processing, transportation to retail outlets, butcher’s labour, tools and equipment, and retail store overheads. Final cuts of beef include rib fillet, sirloin, rump, chuck and mince amongst others.

Despite having near-identical short run marginal costs, each cut of beef is priced differentially (based on quality) and most bear no direct resemblance to either marginal or average total cost.16 Specifically, there is no obvious cost-based reason why our local butcher charges $32/kg for rib fillet, $27/kg for sirloin, $22/kg for rump, $16/kg for chuck and $13/kg for mince. Further, butchers in metropolitan Brisbane have no evident source of market power. Yet differential prices for beef produce substantially more efficient outcomes than a counterfactual where discrimination is banned. If all cuts of meat were priced uniformly, one would expect rib fillet to be constantly sold out, and chuck steak undersold and thrown out once freezer capacity is exhausted (reducing quantities sold, raising average total cost and therefore prices). Above all, low income households would lose access to cheap cuts because prices with a uniform mark-up are likely to be $20+/kg.

2.1. Monopoly

The early literature on price discrimination focused on monopoly firms and use of ornate tariff structures to maximise profit. When monopoly firms deploy discriminatory prices, profit can only increase. This stands to reason. When a monopolist has access to discriminatory

11 Dupuit (1844) is generally attributed with having identified the concept as the means by which to fund substantial sunk costs.

12 See Stigler (1987) at page 210. As Stole (2007, p.2225) explains, the marginal cost calculation requires careful attention so as to ensure all relevant shadow costs are included, particularly where costly capacity and aggregate demand uncertainty play critical roles.

13 The two-part tariff carries a theoretical benefit of reducing deadweight losses since the variable rate can be set to marginal cost with the fixed charge used to extract quasi-rents.

14 Oddly enough, at the time Pigou (1920) envisaged it being the least common.

15 As Varian (1996, p.2) explains …forcing a firm to charge a [uniform] price equal to marginal cost can easily fail to be efficient [if such pricing fails to cover total cost…] But there is nothing inherent in these principles that says the price must be constant – nonlinear prices are very common in the real world. Efficient pricing only requires that the marginal unit of the good must be sold at marginal cost – not that every unit of the good be sold at marginal cost…

16 Recall that we follow Stigler’s (1987) definition of price discrimination in which similar goods are sold at different price ratios to their marginal cost.
prices it solves the profit maximisation problem with fewer constraints. By combining detailed customer information with ornate tariff structures, the firm would only choose this pricing strategy over uniform prices if it expected to do better (Corts, 1998). As Armstrong (2006a) and Stole (2007) observe, they will certainly do no worse.

One may be tempted to conclude monopolists should be prohibited from price discrimination. But welfare impacts of third-degree price discrimination are ambiguous. In some instances, price discrimination can damage welfare but in a surprisingly wide-array of conditions, total welfare is enhanced. Limits on discriminatory prices and ornate tariff structures can amplify market power problems and associated welfare losses, not reduce them.17

The key to distinguishing between ‘good’ and ‘bad’ examples of price discrimination is to focus on changes in aggregate market output. Schmalensee (1981), Varian (1985) and Schwartz (1990) demonstrate that, by comparison to uniform pricing, welfare implications of price discrimination hinge critically on resultant impacts on total industry output. Accordingly, expansion of total output is a necessary condition for price discrimination to be welfare enhancing.18

2.2. Oligopoly

Price discrimination literature spans the range of markets with associated modelling bounded by numerous derivations of assumptions relating to the number of rivals, information asymmetry, size of customer segments, ease of entry, customer loyalty, discounts and customer poaching, mixed product bundles and other market structure characteristics (see Katz, 1984; Borenstein, 1985; Holmes, 1989; Borenstein and Rose, 1994; Chen, 1997; Corts, 1998; Dana, 1999a; Shaffer and Zhang, 2000; Taylor, 2003; Dobson and Waterson, 2005; Armstrong, 2006a; Stole, 2007; Esteves, 2009).

With monopoly, profits can only increase with price discrimination and welfare impacts are ambiguous. However, in competitive markets the exact opposite can occur – differential prices can fall below the uniform price when ornate tariff structures are used by firms to attack rivals and steal market share. Consequently, with imperfectly competitive markets the impact of price discrimination on both welfare and profit is ambiguous. The number of relevant variables also expands considerably. Of central importance is the symmetry of market information amongst rival firms. Holmes (1989) demonstrates in a symmetric oligopoly model where firms agree on which market segments are strong and weak, the outcomes arising from price discrimination are similar to monopoly, that is, the uniform price lies between the strong segment’s high price and the weak segment’s low price. Some consumers are therefore worse-off while others are better-off. Whether total welfare is enhanced is more nuanced than monopoly. In oligopolistic markets, there are additional variables including inefficient levels of industry fixed costs arising from ‘excess entry’, too many firms operating at sub-optimal scale, losses arising from excessive customer switching, and losses arising from sub-optimal coordination of prices.19

In an empirical study of aviation markets, Borenstein and Rose (1994) examine the nuances between price discrimination in monopoly and monopolistic competition and show that reliance on monopoly theories may misguide policymaking. Importantly, Borenstein and Rose (1994) along with Dana (1998, 1999b) and Stole (2007) show that price dispersion increases as competition intensifies. This is a crucial principle. The presence of price discrimination is not, of itself, evidence of market power, and price dispersion rises with increasing competition (Klein, 1993; Borenstein and Rose, 1994; Dana, 1999b; Levine, 2002; Baumol and Swanson, 2003).

Corts (1998) would produce one of the more critical contributions to the literature on price discrimination in imperfectly competitive markets by demonstrating that in a differentiated-goods oligopoly, there are conditions by which consumer welfare is unambiguously enhanced by price discrimination, and that banning the practice can increase profits and harm consumers. Unlike Katz (1984) and Holmes (1989), Corts (1998) would relax the assumption of symmetric demand.

Fundamental to understanding the implications arising from Corts (1998) is that profit and welfare outcomes are highly sensitive to whether firms agree on which consumers constitute strong and weak segments. When firms agree on strong and weak segments, they are said to follow a ‘best-response symmetry’ in pricing decisions. Consequently, prices in weak markets will fall below uniform prices and rise above in strong markets, with the resulting impact on welfare ambiguous. This result is consistent with Borenstein (1985), Thissen and Vives (1988), Holmes (1989), Winter (1997) and others. However, Corts (1998, p.321) demonstrated when firms disagree on strong and weak segments, they display ‘best-response asymmetry’ and under these conditions ‘price discrimination may intensify competition, giving firms more weapons with which to wage their war…’

The necessary condition identified for price discrimination to produce more intense competition is that firms do not agree on strong and weak segments, and some of the many firms have an incentive to lower prices in each market segment. When such conditions hold, consumer welfare was demonstrated to be unambiguously enhanced.21

Another crucial insight from Corts (1998) was if asymmetric markets are forced back to uniform pricing due to policy intervention, firms will naturally retreat to their strong markets to maximise profit. Bester and Petrakis (1996), Shaffer and Zhang (2000), Matutes and Regibeau (1992), Whinston (1990), Dobson and Waterson (2005), Chen (1997), Taylor (2003), Armstrong (2006a), Chen (2006) and Vickers (2005) analyse how a rich set of variables (including poaching, brand loyalty, dual product markets, national markets, switching costs, number of rivals, and the presence of a dominant firm) affect prices and welfare, and to summarise, that firms can be worse-off using price discrimination in imperfectly competitive markets is a fundamental difference with monopoly theory. Monopolists are always better-off when they price-discriminate. Competitor firms are better off holding the behaviour of rivals constant. But once this assumption is relaxed, rival firms find themselves in a classic Prisoners Dilemma and if segment information is asymmetric, they may well emerge worse-off.

2.3. Competitive markets

Price discrimination has been explained in the context of special industry conditions such as non-trivial fixed & sunk costs, declining cost monopoly, product heterogeneity, presence of location costs or regulated utilities must recover sunk costs by mark-ups). The presence of price discrimination is not, of itself, evidence of market power, and price dispersion rises with increasing competition (Klein, 1993; Borenstein and Rose, 1994; Dana, 1999b; Levine, 2002; Baumol and Swanson, 2003).

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Price discrimination has been explained in the context of special industry conditions such as non-trivial fixed & sunk costs, declining cost monopoly, product heterogeneity, presence of location costs or
transaction costs, demand uncertainty with capacity constraints and so on. Any of these conditions can explain why prices deviate from uniform prices (i.e. because market conditions deviate from perfect competition). However, Klein (1993) observes one needs to be careful labelling such characteristics ‘imperfections’ merely because they deviate from the model of perfect competition when in fact they are pervasive in real-world markets. As Levine (2002) and Baumol and Swanson (2003) explain, common fixed and sunk costs of production are predominant, not unique conditions.

Coase (1946) noted that apart from marginal cost frequently being indeterminate, the presence of fixed & sunk costs means marginal cost pricing breaks down. That is, when fixed & sunk costs represent a significant portion of total cost, firms cannot survive unless pricing decisions deviate from marginal cost. The reality is classical price theory offers no explanation of how non-trivial fixed & sunk costs are recovered in competitive markets given rigid intra-year debt financing constraints.22 Monopolistic competition attempts to explain short run recovery of sunk costs by introducing concepts such as customer loyalty, product and service differentiation while oligopoly and monopoly theory explain recovery of sunk costs through the exercise of market power and reduced output (Klein, 1993). Yet as Levine (2002) explains, price discrimination and price dispersion equilibrium are prevalent in highly competitive markets and occurs as the means to recover simultaneously incurred common fixed & sunk costs in markets where no apparent market power exists.

Levine (2002) and Baumol and Swanson (2003) observe price discrimination is frequently how competitive firms recover their costs in a way that mirrors Ramsey23 pricing, but instead of facing a regulated constraint on rival firms recover their costs in a way that is inversely related to the demand elasticity of segments served. That is, prevailing prices include all separable costs, and some component of common fixed & sunk costs in a way that is inversely related to the demand elasticity of segments served. And because the market (not a regulator) imposes the revenue constraint only efficient firms survive. In such markets, no producer has evident market power and discriminatory prices emerge under the context of repeated non-cooperative games. By implication, firms continuously adjust cost structures and pricing schedules, or exit the market.

2.4. Price discrimination and electricity markets

Considerable economic literature exists which analyses welfare implications of second-degree price discrimination in regulated electricity markets dating as far back as Clark (1911), Hausman and Neufeld (1989) provide a good summary of historical developments while more recent research such as Kopsakangas-Savolainen (2004) contrasts welfare implications of different pricing forms (viz. marginal cost, average cost, two-part tariff, Ramsey pricing).

Analysis of third-degree discriminatory pricing in competitive (i.e. restructured) electricity markets by academic economists primarily originates in Great Britain and notably from 2009 onwards (see Davies et al., 2009; Hvid and Waddams Price, 2012; Waddams Price and Zhu, 2013; Pollitt and Haney, 2014; Littlechild, 2014).

The reason for this is that Britain’s energy regulator, Ofgem, produced ‘working laboratory conditions’ by imposing discriminatory bans on rival energy retailer product suites from 2008. Ofgem evidently formed a view that Standing Offer tariffs in the British energy market were unfair and risked adversely affecting vulnerable households. This is identical to concerns raised in Australian reports.24 Ofgem was reacting to differential prices amongst household segments and noted differences could not be explained by its estimates of variations in cost. Ofgem also observed the so-called ‘Big 6’ incumbent retailers offered deep discounts in rival areas while maintaining higher Standing Offer tariffs in their own franchise area – the standard two-period customer poaching environment under best-response asymmetry modelled by Armstrong (2006a).

Rather than interpreting the relevant implications of Armstrong (2006a) and design a targeted response, Ofgem pursued a strategy of trying to eliminate differential prices and discounts between franchise and non-franchise areas by regulatory policy, enforcing retail licence conditions of common mark-ups across regions to halt discriminatory mixed bundling and behavioural-based customer poaching in an ostensibly asymmetric Corts (1998) market. As Hvid and Waddams Price (2012) explain, Ofgem attacked discriminatory practices because it perceived rising variation in products and pricing to reflect an inherently non-competitive environment. Rather than associating rising price dispersion with gradually intensifying competition (as in Borenstein and Rose, 1994; Dana, 1998, 1999a, 1999b; Armstrong, 2006b; Stole, 2007) Ofgem interpreted the price spread as evidence of market power – an interpretation Klein (1993), Baumol and Swanson (2003), Levine (2002, p.4) and others warn against:

…there is still a general assumption that the existence of price discrimination implies the existence of market power. In the hands of those who make economic policy, this formulation is dangerous… [P]olitical pressure generated by resentment of price discrimination is usually expressed as calls for measures that eliminate the market power assumed to underlie it. And given that perfect regulation is as rare as perfect markets, those measures can easily produce results inferior to those they were intended to remedy. This imperfect regulation is a particular problem when the market power does not exist...

We know from Corts (1998) that policy designed to stamp-out discriminatory practices in best-response asymmetry markets will constrain competitive outcomes, not enhance them. Discriminatory prices and or-rate tariffs are used by firms to attack rivals and when they are banned, it is difficult to imagine how competition might intensify. Drawing from Katz (1984), Thisse and Vives (1988) and Corts (1998), theory predicts firms will retreat to strong markets when discriminatory practices are banned.

British Professors Yarrow, Vickers, Green, Littlechild, and Waddams Price, all of whom have highly regarded international reputations as independent academic economists, warned Ofgem’s interference would result in low-income customers being considerably worse-offs (i.e. as discounted products evaporate), competition would decline, strategic behaviour encouraged, and energy retailers would make higher profits with no clear benefit to consumers in aggregate.25 Unfortunately for British consumers, empirical evidence confirms limiting discriminatory practices reversed the intensity of competition. Energy retailers removed competitive tariffs, competition was muted, available discounts continued to contract, customer poaching slowed, switching rates fell as gains from switching diminished, overall tariff mark-ups


began to increase, and ultimately energy retailer profits increased materially (Hviid and Waddams Price, 2012; Flores and Waddams Price, 2013; Pollitt and Haney, 2014; Littlechild, 2014).

The regulatory policy designed to limit high Standing Offer prices was, by any measure, an abject failure. Discriminatory bans had the exact opposite effect to that intended. Littlechild (2014) reports consumer bills increased by over £1 billion in aggregate, with less competition and energy retailers extracting the additional profit.

3. Model results

In order to make sense of retail offer prices in Victoria and Southeast Queensland, it is necessary to produce suitable benchmarks of industry average total cost and the marginal cost relevant to an energy retailer. The former can be thought of as the underlying cost structure of a vertical merchant energy retailer while the latter can be thought of as the break-even price of a new entrant retailer (i.e. zero retail profit given generation and network costs). Our Retail Energy Model has been documented extensively in Simshauser et al. (2015) and we do not reproduce the model logic here. Sufficient to say it compiles all relevant supply-chain costs and produces a two-part tariff. Relevant input assumptions are listed in Appendix I. To produce wholesale costs we have used our NEMESYS Model which is outlined in Appendix II.

Our first set of results are presented in Figs. 1 and 2 and comprise four specific bars for each of Southeast Queensland and Victoria. Recall from Section 1 we selected these regions because Victoria is the most mature deregulated market, and Southeast Queensland is semi-deregulated (i.e. least mature). We expect other NEM regions (South Australia, New South Wales) would lie between these extremes. The
first bar is the Default Tariff rate (in practice structured as a two-part tariff but presented as an average rate for comparison purposes). The second bar, titled average cost, is industry average total cost of supply derived from our Retail Energy and NEMESYS Models using input assumptions from Appendix I & II. By our estimate, the split between fixed and variable costs is 70/30, respectively. The third bar, titled marginal cost, is also derived from our models with two important changes. First, wholesale supply costs rely on forward market prices, not modelled (and highly optimised) generation system costs. Second, retail supply profit margins have been purposefully set to zero. The final bar presents the marginal tariff available in the market.

Fig. 3 presents the spread of offers for Southeast Queensland. Note the two ‘cost’ lines represent our modelled average cost and marginal costs from Fig. 1. The dot markers list each active retailer’s Standing Offer and their best routine discount offer in Q1 2015. Standing Offer annual bills are congested at the regulatory focal point of $1523 pa – i.e. exactly equal to the regulator’s price-cap. Furthermore, notice discounted offers span a tight range, viz. $1376–$1401. Based on our modelling, marginal offers incorporate a 6.7% retail mark-up (with generator
economic losses 7% below our modelled weighted average cost of capital).\(^{28}\)

In Fig. 4 we produce the same analysis for a Victorian household that consumes 4200 kWh pa on average. Average cost is again represented by the solid line ($1366 pa) and marginal cost by the dashed line ($1049 pa). Diamond markers represent Standing Offers and best routine discount offers of the active retailers. There is substantial dispersion in offer prices, and the marginal offer equals our estimate of the marginal cost of retail supply (with generator economic losses 9% below the cost of capital).

It is helpful to analyse customer activity in the two markets. Figs. 5 and 6 present a time-series of customers by product (i.e. standing offer, low, medium and high discount) using private data from incumbent retailer - AGL Energy.\(^{29}\) Note the sharp increase in customers securing medium-level discounts and the start of high-level discounts (just visible at the arrow) from July 2011 to July 2012. From July 2012 however, a change in regulatory methodology used to determine regulated price-caps produced an episode of dynamic inconsistency. The details of this change in methodology are explained in considerable detail in Simshauser (2014) but in summary, the policy was seen to be opportunistic and had the effect of limiting price dispersion. This damaged the competitive market (some retailers exited and potential entrants halted plans to enter) and

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\(^{28}\) Our WACC has been drawn from Simshauser et al. (2015). Note that the Regulated Standing Offer uses current hedge contract prices and a forecast of spot prices when assessing the value of generation, not the total average cost of generation. As a result, the 2015 Regulated Tariff was set below the cost of supply (and in 2016, will increase beyond the Average Cost of Supply following a sharp rise in contract prices).

\(^{29}\) The authors are grateful to AGL Energy for allowing us to use this data set. AGL Energy is one of the ‘Big 3’ vertically integrated energy retailers in Australia’s National Electricity Market and has 3.5 million electricity and gas customer accounts (about 30% market share) and 10,000 MW of generating capacity (about 20% market share comprising coal, gas, hydro, renewables). This includes 530,000 electricity accounts in the Victorian region (ca.25% market share) and 375,000 electricity accounts in the Southeast Queensland region (ca.30% market share).
a large number of customers lost medium-level discounts while emerging high-level discounts disappeared.

The Victorian market shows a continuous trend of rising discount intensity (see Fig. 6). It also shows a continuous decline in the number of customers on Standing Offer tariffs.30

Combining the information from the incumbent retailer with public information on Standing Offer customer numbers, we have produced Fig. 7 to provide a picture of market offers, albeit acknowledging our dataset is incomplete vis-à-vis total market data.31 The height of each block represents the range of available products ($/pa) while the length of blocks indicates the percentage of customers accessing each product.

In Southeast Queensland 46% of customers remain on Standing Offers. The most utilised retail product is a medium discount of 8% (with customer participation rates of 22%). In Victoria only 11% of customers remain on Standing Offers and the most commonly accessed product is high-level discounts of 15–30%. The figure also highlights discounted products span the range through to our estimate of the marginal cost of retail supply.

IPART (2013) and Flores and Waddams Price (2013) show customer activity is driven by expected gains available. Victoria’s differential prices have resulted in about half the consumer base participating in the market on deeply-discounted products, with the marginal offer equal to marginal cost. From a pricing perspective, these results indicate Victoria’s market produces more efficient price outcomes than Queensland because the marginal good produced is at the marginal cost of retail supply. However, this conclusion comes with an important caveat. Recall from our review of literature that differential pricing comes the inevitability of inter-consumer misallocation, which is a drag on efficiency.

To analyse this further, we examined AGL Energy’s customer base with an intention of identifying ‘vulnerable’32 households on Standing Offer rates that exceeded a counterfactual uniform average cost tariff. This revealed an issue in Victoria – of 530,000 household electricity accounts, about 26,000 or 4.9% were tagged as both vulnerable and on a Standing Offer tariff. Assuming this result is broadly reflective of other incumbent energy retailers, this does seem to present policymakers with an ‘inter-consumer misallocation’ problem.

4. Policy implications

Because electricity is non-discretionary, a long historical interplay between policymakers, regulatory authorities and electricity utilities exists and overwhelmingly focuses on how best to control prices, treading a line between protecting consumers and meeting reliability objectives at minimum cost (Hausman and Neufeld, 1989). Does differential pricing collide with the provision of a non-discretionary product classed as an essential service and a human right?

Tully (2006) explains electricity is generally accepted as a basic need akin to water or food and is virtually essential to contemporary human survival. Consequently, the individual entitlement to access electricity has long been recognised under international human rights law.33 However, this contains a crucial definitional element – it is formulated as a right to access, not a right to electricity per se. There is nothing in a human rights orientation which suggests electricity should be provided at below cost or at a loss. Interestingly, Tully (2006) points to differential pricing as the means by which to enhance fairness, through lower pricing to vulnerable customers (i.e. weak segments) with differentials funded by mark-ups to other customer segments (i.e. strong segments). Marcoux (2006) and Elegido (2011) similarly observe uniform prices produce outcomes that are unfair if the measure of fairness is consumer welfare rather than the price paid.34

Given this, neither semi-regulated Southeast Queensland nor deregulated Victoria produce outcomes inconsistent with the essential service character of electricity. Access is universal and non-discriminatory. Electricity tariffs are differentially priced in both markets but no consumer is discriminated against as ‘an expression of contempt’ (Elegido, 2011, p.639). Further, hardship policies exist to protect vulnerable consumers, and disconnection policies are uniformly applied and subject to strict regulation.

Differential pricing of electricity is not inherently unfair. The notion of fairness can be interpreted in many ways in the context of electricity tariffs. For our purposes, we follow Bunzl’s (2010, p.9)35 definition and procedural concept of fairness in the same manner as the late Harvard Professor John Rawls. Rawls’ idealised theory of fairness is grounded in his famous phrase from behind the veil of ignorance. As Bunzl (2010) explains, this means selecting public policy for residential electricity supply

30 AGL Energy acquired a financially distressed 2nd Tier (i.e. new entrant) retailer in April 2014 hence the step change in the time series bars in April 2014.
31 The issue here for Victoria is that 1st Tier incumbent retailers have higher numbers of customers on Standing Offers than the average of the market (i.e. because they are the default retailers) whereas 2nd Tier new entrant retailers typically have very few customers on Standing Offers. Incumbents may have as much as 25% of customers on Standing Offer tariffs whereas new entrants may have as few as 13. As noted earlier, the market average is 11.
32 Our definition of vulnerable households includes all customers flagged as pensioners and concession card holders (i.e. means-tested by the Commonwealth Government) who are low income households with a lower capacity-to-pay.
34 It is worth noting that neither author endorsed the major premise of this argument, but the substantive point is that uniform pricing will produce unequal degrees of consumer welfare, and if fairness is measured by welfare then discriminatory pricing becomes necessary to achieve fairness.
35 Martin Bunzl is a Professor of Philosophy at Rutgers University. Brown et al. (2015) note that Rawls was widely regarded as the most significant philosopher of the twentieth century.
not knowing whether you are rich or poor, renter or owner, with or without solar PV installed, and so on. As with various interpretations outlined by Brown et al. (2015) there is a focus on the time dimension of policy and its consequence for households. There are two other elements relevant to any discussion of fairness vis-à-vis residential electricity supply.

First, Felder (2010) emphasizes income is the distinguishing factor when assessing the fairness of electricity tariff policy as distinct from any other variable. Thus, when assessing tariff policy we should focus on how low income households are impacted. As Felder (2010), Simshauser and Nelson (2014) and Simshauser and Downer (2016) demonstrate, large segments of low income households also happen to be amongst the largest residential electricity consumers.38 Policy relying on a strong positive correlation between income and electricity consumption will therefore be deeply misguided.

Second, Olsen (2012) explains the primary purpose of regulating energy utilities is to prevent harm that, absent those policy settings, consumers would have otherwise experienced (i.e. counterfactual scenario).37 Thus while economic efficiency is an important objective, public policy can hardly ignore a fairness dimension.

As a general conclusion, our quantitative analysis in Section 3 indicates the Victorian market produces a more efficient pricing outcome and that a majority of customers were better-off vis-à-vis a uniform regulated price. However, we also identified that 4.9% of household accounts were both vulnerable and on Standing Offer tariffs, which is, by our definition, an episode of inter-consumer misallocation.

Doing nothing is hardly an acceptable solution. We noted earlier that welfare losses are not large (ca.$40 million per annum) but left untouched, outcomes run counter to government concessions policy – unwinding 1/4 of the State Government’s $150 million annual fiscal effort to reduce electricity hardship. Besides which, no government can afford to stand idle if energy market reform injures a non-trivial number of vulnerable households (ca.100,000).38 One policy option is to re-introduce regulated price-caps to limit Standing Offers to some lower level deemed ‘acceptable’. But as Section 2 explained, economic theory predicts, and empirical evidence demonstrates, such policy damages consumer welfare in weak segments, viz. the majority of vulnerable households currently on discounted products.39

A second option to remedy inter-consumer misallocation involves some element of ‘reform’ to the reforms. As Felder (2010, p.59) observes, dealing with the notion of fairness translates to ‘a problem of selecting the default rate that customers are assigned’. Incumbent energy retailers should therefore do all things necessary to identify vulnerable customers on Standing Offer rates, and move them en-masse to a more suitable product. This sounds straightforward but is not.

First, there is the problem of identification. As one Reviewer noted, how do we know the elasticities of strong and weak segments? We know that elasticity estimates for electricity typically range from −0.08 to −0.15 (Faruqui, 2008; Faruqui and Palmer, 2011; Borenstein, 2013; Simshauser and Downer, 2016). We also know that strong-segment residential customers have extremely low elasticities, and by deduction, weak segments are higher than the overall market average. In our analysis, we have imputed the weak segment in a manner consistent with Felder’s (2010) observation – that income is the distinguishing factor. There is always some element of debate as to the ability to target low-income families as Hogan (2010) and Borenstein (2013) explain. But in our retail customer data set, vulnerable households are identified by the presence of a (Commonwealth Government) concession flag – noting that Australia has one of the most targeted (means-tested) tax and transfer systems in the world.41 Using this definition we capture more than 35% of AGL Energy’s consumer base for tariff-testing purposes against a counterfactual scenario (resulting in 4.9% of consumer accounts being captured).

Second, there are legal constraints to moving large numbers of customers off one product and on to another. It is illegal to move customers to a new product without their ‘Explicit Informed Consent’.42 This is a significant issue and requires informed debate. The legal requirement to obtain a customer’s Explicit Informed Consent is axiomatic. But when policymakers drafted the relevant law it was presumably not intended to block actions by firms capable of assisting tens of thousands of vulnerable households who are representative of an inter-consumer misallocation problem. Given the resulting outcome is an unambiguous improvement in consumer welfare, energy retailers should therefore seek a ‘no action’ response from both Government and Regulatory Authorities (i.e. a pilot program).

With more accommodative policy, the competitive market and rival retailers are capable of resolving such issues. As Klein (1993) observed, in competitive markets with differential prices and customer poaching, reputational capital is a scarce and highly valuable resource that reputable firms aim to protect. Energy retailers with a stated objective of protecting vulnerable customers will presumably be acknowledged by customers, the broader community and relevant stakeholders with their reputational capital treated accordingly.

5. Concluding remarks

Standing Offer tariffs in Victoria have attracted rising attention over the past few years as they have in the British electricity market. Based on our modelling, Standing Offer tariffs in Victoria are 10% above the industry average total cost of supply. Should policymakers be concerned43 with strong segment Standing Offer tariffs set above industry average total cost? Amongst the various reports on Victorian tariffs, the efficiency of marginal offers receive no attention at all and read in isolation, one could be forgiven for questioning whether the NEM reform effort was worth pursuing in the first place. Hyman and Tilles (2016) certainly provide some pause for thought on the British experience. The evidence in Australia points to success of reforms in the competitive segments of the market44 (see Simshauser, 2014; Nelson and Orton, 2016). In Victoria,
large numbers of customers are accessing high-level discounts that span a range through to our estimate of the marginal cost of retail supply. Based on our modelling, the marginal offer has a zero retail profit margin and is 20% below industry average total cost of supply – offers which would not be present absent reform. Whether from an economics or public policy perspective, price discrimination of this kind is known to distribute a firm's cost recovery from weak (more-price sensitive) customer segments to strong (less-price sensitive) customer segments, and in this sense generally displays positive distributional efficiency effects because the latter are usually high-income households (Elegido, 2011).

However, when vulnerable consumers are misallocated to Standing Offer tariffs designed for strong segments, a problem exists. How then should policymakers proceed? Expanding customer information communication channels and visibility of comparator websites is necessary but in this instance unlikely to be sufficient (i.e. few Australian governments have done more in this area than the State of Victoria).

Our analysis of an incumbent retailer with 530,000 Victorian accounts found 26,000 (4.9%) households misallocated by the market. We argued no government can afford to stand idle if an energy market reform injures vulnerable households, even if in relative terms the welfare loss is small. Above all, the outcome runs counter to State Government fiscal efforts regarding (electricity) household hardship – prima facie unwinding 1/4 of concessions policy. Consequently, in our view energy retailers need to identify adversely affected vulnerable customers and move them towards discounted market tariffs which satisfy a 'counterfactual scenario'.

Our recommendation to AGL Energy was to shift en masse the 26,000 customers to a 10% discounted product. Our thinking was that, by combining the economic logic of Felder (2010) and Olsen (2012), this level of product discount would satisfy the general criteria outlined in our analysis of procedural fairness, viz. vulnerable households are no worse off from reform (cf. a uniform tariff regime 'counterfactual'). AGL Energy has formally adopted this policy with a trial occurring from 2016.

We noted earlier that current regulatory frameworks present significant barriers to shifting a large group of customers to another product because energy retailers must obtain Explicit Informed Consent from each customer. But given the outcome is an unambiguous improvement in the welfare of those consumers, we advised AGL Energy to seek a 'no action' response from Victoria’s Government and Regulatory Authority during the trial.

When discussing our findings with various stakeholders, we were occasionally asked why the Standing Offer tariff wasn’t just reduced. To maintain the levelled cost of such an initiative, options included (1) dropping Standing Offer rates by 1–2% for all households (i.e. including high income households), or (2) segment the consumer base, and provide a 10% discount to vulnerable households. The latter better meets our fairness and efficiency criteria. Moreover, the welfare groups we spoke to preferred retailers giving a 10% discount (i.e. to introduce them to the market) rather than doing all the work for customers and providing the maximum available discount (i.e. 30%) – their reasoning being households need to take responsibility for the basket of goods they purchase.

When capital-intensive monopoly industries are restructured and deregulated, consumer prices commence a natural drift from regulated uniform 'average cost' tariffs to competitive differential prices, and this can raise problems for policymakers. The non-discretionary nature of electricity means energy retailers operating in deregulated markets need to reorganise vulnerable customers away from high Standing Offer rates to ensure they are no worse off under a counterfactual assessment. Energy retailers all have finely-tuned modelling capabilities to produce optimised industry average total cost estimates and Australia has the most targeted tax and transfer system in the world, and this, in our view, is a good place to start.

Appendix A. Supplementary data

Supplementary data to this article can be found online at http://dx.doi.org/10.1016/j.jeneeco.2016.12.016.

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