23 October 2018

Energy Markets Policy Team
Ministry of Business, Innovation and Employment

By email: energymarkets@mbie.govt.nz

Dear Energy Markets Policy Team,

ERANZ submission on electricity pricing review discussion paper

The Electricity Retailers' Association of New Zealand (ERANZ) welcomes the opportunity to submit on Hikohiko Te Uira – the 2018 electricity review discussion report. Several ERANZ members will also be responding separately.

Competition is delivering benefits for New Zealand electricity consumers

New Zealand is recognised as having one of the world's leading energy systems in terms of resilience, reliability and sustainability. While that is partly a function of the natural resources that New Zealand enjoys, it is also a function of a system that has the right blend of structure, regulation and competition to support its maintenance and development.

ERANZ believes that competition is delivering benefits for consumers. Competition has compelled retail companies to innovate to deliver better offerings to gain and retain customers. Thanks largely to intense competition for customers in the market over the last five-years the energy component of the price of electricity has decreased by 4%. New Zealand has also seen several new entrants to the market, bringing innovation and service offerings as well as new competition for customers.

However, there is a concern that not all New Zealanders are benefiting equally. Some are struggling to keep their homes warm and dry while others not participating as much as they could in the competitive market.

ERANZ believes there are four key actions that can be taken to benefit all New Zealanders:

1. Build on the definition for energy vulnerability for improved targeting or support
2. Improve New Zealanders' understanding of how and when to use their electricity
3. Multi-sector engagement to assist those most vulnerable
4. Work collaboratively across the system to ensure trust in the sector

While price is important, understanding and addressing usage is critical

How we use electricity matters. It is too easy to focus on price and ignore the more difficult aspect of usage. New Zealand electricity prices compare well internationally but our consumption does not. NZ is 11th lowest out of 32 OECD for residential electricity costs but has the 6th highest household consumption, meaning that despite our comparatively lower prices, our households typically use a greater volume of electricity and, therefore, our bills are higher.

Understanding (sometimes called energy literacy) of how and when to use electricity is critical. ERANZ believes taking further action to improve energy literacy will help consumers make better choices around their electricity use.

There are approximately 45,000 New Zealanders most at risk of being in severe energy hardship

To support the Panel's work, we commissioned PWC to reconsider the definition of energy hardship to ensure that it is relevant to today's conditions. Based on that work, we believe that classifying energy vulnerability requires considering several co-factors alongside the already existing percentage of spend of household income on energy.

PWC has reviewed co-factors impacting households including; age of house and age of occupants, both critical in determining whether energy vulnerability is present.

Under the refined definition, the research shows there are approximately 45,000 New Zealanders most at risk of being in severe energy vulnerability. This is not to say that other households are not experiencing hardship – indeed many will be. However, we believe having a tighter definition allows for a response that is targeted to support those most in need.

Addressing energy hardship requires a multi-sector response

Our analysis shows, energy hardship is a complex function of multiple factors, and that to address issues of income, quality of housing, and energy use will require a response that extends across multiple sectors (including social agencies) beyond that of just the electricity retail sector.

The electricity retail sector has knowledge and tools to be part of the solution. But we can't do it alone. As ERANZ and individual members, we have already been engaging with a variety of organisations to improve outcomes for customers, including Ministry of Health, Ministry of Social Development, Housing New Zealand, Oranga Tamariki, EECA and others.

Harmonisation of monopoly lines services will help increase competition

Increasing the consistency of approach by monopoly lines services will increase retail competition by reducing barriers to entry (particularly in lower populated regions) and transaction costs for entrant retailers, reduce regional price differences, and lower transaction costs. This includes reform of

distribution tariffs - including the phasing out the low fixed charge – and the use of common use of system agreements.

Learning from overseas experience of intervention reveals the pitfalls of unintended consequences

The concern that some households struggle to pay their electricity bills is legitimate. However, this is an outcome of multiple complex factors including general poverty levels and the efficiency of the housing stock. Overseas experience has shown that relying solely on regulatory intervention to resolve complex issues can make the situation worse.

To support the Panel's work, ERANZ commissioned a report on the outcomes of intervention in overseas electricity markets. The investigation shows the poorly considered intervention has resulted in lower competition and switching rates, niche tariffs that suited certain customer types disappearing, and average margins increasing. New Zealand can learn from these failures.

Work collaboratively to maintain trust in the sector

Above all else, we need to ensure that New Zealander's trust their energy sector and that all its parts are working in collaboration to address the challenges faced today and the future opportunities of tomorrow.

ERANZ is committed to taking action through partnership

ERANZ knows that for these actions to be successful and have maximum impact they cannot be done in isolation. We have discussions well underway within our industry and wider sector and other sectors to work on the priorities with one key project ready to pilot.

We look forward to discussing these further with the Panel following the submission.

Thank you for your consideration of this letter. We look forward to working with MBIE in the process and offer our assistance as required.

Yours sincerely,

Nick Robinson
Chief Executive
Electricity Retailers' Association of New Zealand

Enclosed:

1. ERANZ response to discussion paper questions

2. Appendices with supporting information:
    - Appendix A: Analysis of electricity prices
    - Appendix B: Consumer behaviour analysis
    - Appendix C: Table of solutions
    - Appendix D: Quantifying energy vulnerability
    - Appendix E: EDB efficiency and performance
    - Appendix F: International review of electricity retail markets

About ERANZ

ERANZ was established in August 2015 to promote and enhance an open and competitive electricity market that delivers value to New Zealand electricity customers.

ERANZ represents around 98% of the market by customer share: Genesis Energy, Contact Energy, Mercury, Meridian Energy, Trustpower, Nova Energy, Prime Energy, Powershop, Black Box Power, Bosco, Energy Online, Just Energy, King Country Energy, Globug, Grey Power Electricity, Electra Energy, Powershop, Wise Pre-Pay and Tiny Mighty Power.

SUBMISSION FORM

How to have your say

We are seeking submissions from the public and industry on our first report into the state of the electricity sector. The report contains a series of questions, which are listed in this form in the order in which they appear. You are free to answer some or all of them.

Where possible, please include evidence (such as facts, figures or relevant examples) to support your views. Please be sure to focus on the question asked and keep each answer short. There are also boxes for you to summarise your key points on Parts three, four and five of the report – we will use these when publishing a summary of responses. There are also boxes to briefly set out potential solutions to issues and concerns raised in the report, and one box at the end for you to include additional information not covered by the other questions.

We would prefer if you completed this form electronically. (The answer boxes will expand as you write.) You can print the form and write your responses. (In that case, expand the boxes before printing. If you still run out of room, continue your responses on an attached piece of paper, but be sure to label it so we know which question it relates to.)

We may contact you if we need to clarify any aspect of your submission.

Email your submission to energymarkets@mbie.govt.nz or post it to:

Electricity Price Review

Secretariat, Ministry of Business, Innovation and Employment

15 Stout Street

PO Box 1473

Wellington 6140

Contact details

Name	**Paul Fuge**
Organisation	**Electricity Retailers Association of New Zealand (ERANZ)**
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Use of information

We will use your feedback to help us prepare a report to the Government. This second report will recommend improvements to the structure and conduct of the sector, including to the regulatory framework.

We will publish all submissions in PDF form on the website of the Ministry of Business, Innovation and Employment (MBIE), except any material you identify as confidential or that we consider may be defamatory. By making a submission, we consider you have agreed to publication of your submission unless you clearly specify otherwise.

Release of information

Please indicate on the front of your submission whether it contains confidential information and mark the text accordingly. If your submission includes confidential information, please send us a separate public version of the submission.

Please be aware that all information in submissions is subject to the Official Information Act 1982. If we receive an official information request to release confidential parts of a submission, we will contact the submitter when responding to the request.

Private information

The Privacy Act 1993 establishes certain principles regarding the collection, use and disclosure of information about individuals by various agencies, including MBIE. Any personal information in your submission will be used solely to help develop policy advice for this review. Please clearly indicate in your submission whether you want your name to be excluded from any summary of submissions we may publish.

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Summary of questions

Part three: Consumers and prices

Consumer interests

1. *What are your views on the assessment of consumers' priorities?*

Consumer needs are becoming increasingly diverse and nuanced, primarily because of technology evolution.

Electricity retailers put the customer at the heart of all they do. Fundamental to an electricity retailer's role is understanding the needs of their customers and designing and implementing products and services that meet those needs. Electricity retailers continually innovate, improve and build their brands and reputation, to win and keep customers. All of this has served to benefit end-consumers.

No two customers are the same; however, they do have similar needs – choice, certainty and control

ERANZ believe that, besides having a reliable electricity supply at a fair and affordable price, as outlined in the issues paper, consumer priorities can be broadly summarised as Choice, *Certainty*, and *Control* ('the three Cs'):

- Choice (of different retailers offering different products and services – i.e. Competition)
- Certainly (understanding their consumption and knowing what they will pay)
- Control (understanding what actions they can take to reduce their bill)

Achieving the 'three Cs' requires competition and the innovation that results.

Competition has provided New Zealanders with more choice

New Zealand enjoys one of the most competitive electricity markets in the world, providing New Zealand consumers more choice. New Zealand is highly competitive both in terms of the brands now available to customers (depending on where they live, households have between 14 and 40 retail brands to choose from), and in terms of the increasing numbers of customers comparing and switching to take up offers from other retailers (New Zealand has one of the highest switching rates in the world with around 55% of consumers actively shopping around each year. It is easy to change power providers, taking only 3-4 days and it is relatively seamless and free).

Competition is driving innovation, providing customers with more certainty and control

Innovation is providing consumers with certainty and control. Retailers are delivering more value to customers through increasingly widespread use of a range of innovations including;

- mobile apps and website tools to allow customers to better monitor and manage their electricity usage,
- a variety of new pricing structures, including an increase in the availability of time-of-use pricing plans, rates targeted at electric vehicles,
- bundling price plans with broadband and telephone options,
- billing management systems to make it easier for customers to pay their bills,
- payment options which assist with paying down debt or smoothing out payments (such as Smoothpay),
- options to off-set carbon emissions by buying carbon credits and join-up incentives.

2. *What are your views on whether consumers have an effective voice in the electricity sector?*

Empowering consumers and increasing participation is critical to supporting transparent and competitive retail markets.

Although New Zealand does currently already have several consumer advocacy groups their current remit extends beyond electricity and can be focused on a specific role or limited to the interests of a narrow segment of consumers.

ERANZ would supports considering the formation of an independent consumer advocacy option(s) specific to electricity where it is shown to add value. Empowering consumers and increasing participation is critical to supporting transparent and competitive retail markets.

Customer protection can take many forms and we should learn from overseas examples

We do not yet have a view on the form this would take but we note overseas approaches, notably in the European Union, where they have expanded the consumer protection work of their regulatory authorities by creating separate consumer boards and consumer functions within their regulator.

Likewise, Australia has established a separate, independent consumer advocacy body – Energy Consumers Australia – to provide input and advice on national energy market matters of strategic importance for energy consumers, with the aim of promoting the long-term interests of energy-users with respect to the price, quality, safety, reliability and security of supply of energy services.

We also note the 'Citizens jury' methodology successfully used by some Australian utilities in consulting the public on major investment proposals.

We must avoid duplication to avoid unnecessary costs on consumers

Any new advocacy function (in whatever form that takes) will need an industry-agreed scope and terms of reference to avoid duplication of existing functions. We would also advocate for a cost benefit analysis be undertaken to ensure the benefit provided by such an advocate exceeds its cost. Further, to ensure independence, costs should be funded via the government rather than further industry levies on retailers which just serve to add further costs on to consumers.

3. *What are your views on whether consumers trust the electricity sector to look after their interests?*

Overall, New Zealanders have a favourable perception of the electricity industry

Consumer NZ's 2018 Energy Provider survey found that 83% of respondents were (very or somewhat) satisfied with their power company's service. Only 8% were dissatisfied. This is a very positive response for our sector.

New Zealand has higher satisfaction with their electricity providers than other countries

In terms of satisfaction with retailers, the Electricity Authority 2013 international report reported that householder satisfaction with retailers was higher in New Zealand than in the other jurisdictions surveyed. In New Zealand, 68% were satisfied with the service from their retailer, compared to 66% in Texas, 50% in Australia, and 51% Alberta.

The Electricity Authority's UMR 2016 report found that 72% of respondents were satisfied with their retailer (either somewhat, or very satisfied). 57% of those who said it wasn't worth reviewing the provider said it was because they were happy, and 18% said they already had a good deal. Of those who switched provider, just 4% said they did so because they were unhappy with service.

The number of disputes is decreasing

Of course, there are always examples where service or performance does not meet customer expectations, or unsatisfactory events happen. In these scenarios, power companies work hard to satisfy their customers, and this is where the services of Utilities Disputes (UDL) are valuable in events where retailers or lines companies can't resolve issues with customers directly.

Complaint numbers to UDL and the Commerce Commission have declined over the last five years. Figures for Winter 2017 show there were 1071 complaints recorded from customers of network companies and retail companies to UDL. Of those, just 74 were deadlocked complaints that could not be resolved by negotiation and were referred to UDL for resolution. That compares well with Winter 2012, during which there were 1209 complaints and 150 deadlocked. This represents a 50% drop over the past five years in deadlocked complaints. The decline in customer complaints concerning electricity retailers to UDL equates with figures from last year that show the sector as one of the least complained-about to the Commerce Commission, and is well behind the telecommunications sector, or domestic appliance retail[1].

[1] Commerce Commission, Consumer Issues Report 2016-2017, Sept 2017 : http://www.comcom.govt.nz/dmsdocument/15723

Customers are increasingly being rewarded for their loyalty

Motivation, attitudes and perception towards electricity and electricity providers are strongly influential too. These can be positive or negative. Positive attitudes may see customers stick with a brand they have used for a long time, they trust, and never had a problem with. Negative attitudes may persist longer, deepening a belief that is no longer accurate – such as not trusting the switching process, not understanding their power usage or bill, or believing that all retailers are all the same.

Electricity companies are changing the nature of their relationship with their customers. There has been criticism that there is too much emphasis on winning customers, and not rewarding those that are loyal. Marc England, Chief Executive of Genesis Energy, noted as much in comments to media in early 2017 stating that the sector 'rewarded promiscuity' and that this had to change.

For many customers, this may just mean having a bill they can understand, and which doesn't shock them. For others it means being with a company that has really good tools to communicate with them about their usage throughout the day and year. For some it means being with an established brand, and for others it means going with a disruptor. Some like it to be simple – set and forget, others like to have lots of information and control. For yet others, it is knowing their power company is supportive of electric vehicles and renewable generation. Or others may simply like the marketing and the rugby team they sponsor.

There are now different pricing models in the market. Powershop for example has flipped the traditional model and offers all customers in a region the same base rates along with tenure-based rewards for loyalty.

Electricity retailers must understand their customers in ways that other parts of the market do not. It is all part of the way that electricity retailers are continually improving and building their brands and reputation to win and keep customers. The one thing we know is that the electricity industry is seeing great change, and the customer proposition and perception is changing and improving alongside this change.

Prices

4. *What are your views on the assessment of the make-up of recent price changes?*

ERANZ has undertaken research on the changes to the price of electricity in New Zealand since 2000. Our report is contained in Appendix A.

The energy component of customer bills has decreased recently because of competition

Data indicates that competition for consumers is placing significant pressure on retailers to control costs and innovate. In June 2016, the Ministry of Business, Innovation and Employment reported that the average cost of electricity paid by residential customers had come down for the first time in 15 years, and competition in the retail market was largely credited for that result.

This trend has continued. MBIE figures show that in 2018 the energy component of the residential electricity unit price was 2% lower than it was in 2016.

Most of the recent price increases are a result of increases in lines charges (transmission and distribution). Over the last 5-years (in real terms) the energy component has *decreased* by 4% whereas the lines component has increased by 12%.

From a recent IEA report[2]

> *Looking at the drivers of more recent price increase since 2009, it can be observed that mainly network costs had an impact while the energy component has remained steady since 2010. The regulated lines component has increased because of the investment made in network expansion, largely reflecting transmission augmentation and upgrades to the high-voltage direct-current system, and less so distribution networks.*

Competition has provided New Zealanders with greater choice of supplier

New Zealanders now have greater choice of supplier than ever with retailers offering a wide range of deals and pricing models and an increasing number of retailers entering the open market.

Although electricity is considered a homogenous product by some, retailers differentiate themselves through their price and non-price services – their customer loyalty schemes, green credentials, level of service and customer satisfaction, new pricing structures (such as time-of-use, spot pricing, easier ways to pay bills and more), technology applications (such as transparency around usage), their bundled services (such as broadband and telephone, or energy management services), community engagement and more.

Price separation is indicative of a healthy retail market. It is misleading to take the difference in the lowest cost retail offering and the incumbent and extrapolate a number as the theoretical savings being forgone by electricity consumers. The retail offering with the lowest unit price will not be suitable for many consumers due to the terms and conditions that are conditional with that offer.

To take a real-world example. The Consumer Powerswitch website site would currently direct many consumers to a retailer who has the lowest cost electricity retailer in the Wellington region. However, the retailer's offering reveals they do not operate a call center (you must email them, even in emergencies), requires weekly payment by direct debit, does not provide paper bills, and offers no other value add services such as bundled services, Apps, or analytics of your consumption.

This is not to disparage this retailer. It is important to consumers that they have choice, and the retailer provides a valuable option for a particular consumer segment within the rich tapestry of retail choices. However, they would not be suitable for many consumers who either want or require a higher level of service.

An important facet of a retail market is providing consumers with choice. Retail competition has provided consumers with a wide spectrum of choice from 'no frills' options to more personalized wrap around care, and other services.

There are several ways for customers to compare retail offerings, including a dedicated comparison website run by an independent consumer-led organisation. It takes no more than a few minutes to compare prices. Given this, it is noteworthy that many households still choose not to switch. Our research shows consumer behavior is highly complex and that it is simplistic to consider price the sole motivator for switching is price.

Consumer behaviour is varied and there are many types of electricity customer

Consumer behaviors and motivations are highly complex. ERANZ has commissioned research exploring the motivation of electricity consumers - in particular, why consumers will or won't switch. Our research on electricity consumer behavior is contained in Appendix B.

Our research identifies seven different consumer type – each with its own motivations.

Price is not always the motivator for switching

What is clear from our research is that electricity price – in itself – is not a motivator for some consumer segments. Reasons for customers switching or staying are many - price is only part of the decision. People choosing to stay with their incumbent retailer should not be seen as a sign of failure.

Of those customers who changed their retailer in 2016, 60% did so because they wanted or were offered a better price, deal, or discount. Other reasons were mentioned were: moved to a new house (14%), offered a good incentive (7%), offered a good package deal (5%), unhappy with service (4%), were offered a preferred payment arrangement (3.5%), got a high bill (2.5%). For customers considering switching due to price, 92% said price per kW/h was important, with 43% of them saying it was extremely important. Estimated bill, discounts offered, and type of plan were reasons given by 88%. Flexible rates, terms and conditions, and whether the plans were available in their area were all between 84% and 86%.

Even then, just because the price might be better it is not a given that a customer will change. As Professor Stephen Littlechild from the UK has stated, "the benefits of switching have to be large enough to induce customers to make the effort to switch."

The 2016 Electricity Authority UMR report found that just 8% of respondents said the minimum amount they would need to save annually on their bill in order to seriously consider changing their company or plan was $100 or less. Some 51% said they would consider switching only if the savings were $250 or less, and a further 30% would change if savings were $250 or more. 19% were unsure. That is, the bar chosen by customers appears to be quite high to motivate people to change. Price differences are essential for a healthy, competitive retail market.

Based on 2017 EMI data, in New Zealand an average savings of $207 could be made, based on an assessment of switching to the lowest priced generally available plan each month.

That rate will vary around the country. This compares to recent 2017 figures from the Australian Energy Market Commission where the savings to be made from switching from the median standing offer to the cheapest market offer were: South Australia $832, Victoria $574-$652, South East Queensland $504, New South Wales $365-$411, and Australian Capital Territory $273.

Customer switching is not the only measure of a well-functioning competitive market

Customer switching is often cited as a measure of a well-functioning, competitive electricity retail market. However, research shows that customer behavior is complex. New Zealand's retail market should not be judged simplistically by the share of customers who have switched supplier, but rather the balance the sector achieves in providing energy security, energy equity (accessibility and affordability and environmental sustainability). Just as important is the number of people who are comparing retail offers but choosing not to switch.

[2] Energy Policies of IEA Countries, New Zealand 2017 Review

Regional variations are critical in understanding the price of electricity

Another factor ERANZ investigated was the reasons for the regional variations in electricity pricing. This is contained in our research on the price of electricity in New Zealand contained in Appendix A.

Our research using MBIE and Commerce Commission data showed that regional differences are primarily caused by differences in lines company charges. The high lines price variation between regions is a function of having a high number of lines company (29) serving a relatively low population. Higher lines charges are generally found in those regions that are:

- a greater distance from generation sources (incur higher national grid charges)
- less populous (less connections per km of line)
- lower utilisation of assets (less kwh delivered per km of line)
- do not contain a sufficiently large town or city (a high-density section within a network helps levelise the costs of lower density sections)

It is also notable that higher proportions of vulnerable customers are located inside of lines company areas with the highest charges (see our response to question 7).

5. *What are your views on the assessment of how electricity prices compare internationally?*

ERANZ has undertaken research how New Zealand prices compare internationally. This is contained in our research on the price of electricity in New Zealand contained in Appendix A.

New Zealand has some of the lowest residential electricity prices in the OECD

New Zealand has a world-class electricity system which provides consumers with safe, reliable, mostly renewable electricity at a price comparable with other OECD nations. According to the most recent IEA study, New Zealand has the 12th lowest residential electricity price out of the thirty-three countries compared.

New Zealand has one of the highest household consumptions, driven by the quality of housing and the type of energy used for heating

However, although New Zealand has unit costs lower than the international average, we consume higher volumes compared with most other countries. New Zealand has the 6th highest household consumption out of the 32 OECD countries compared. This is because:

- It typically takes a higher amount of energy to heat many New Zealand homes compared to nations due to the relatively poor quality of our housing stock.
- Many other countries use different fuels as their primary heating source.

What this means is that people living in poor housing are disproportionately vulnerable to large electricity bills in winter as they need greater amounts on energy to heat their homes, and further the heat is not being retained. Addressing high household electricity costs by focusing on unit price misses the fundamental underlying issue: poor housing. Resolving the issue will require solutions which provide for heating homes to the WTO recommended range for less energy (ERANZ proposed solutions are contained in Appendix C).

New Zealand's rate of change of price was comparatively high. This is because NZ started from a low base. From the IEA report[3]:

> *By international comparison, household electricity prices in New Zealand have grown from low levels much faster than in other IEA countries.*

However, over the last 5-years the rate of change has levelled off as shown by the data in Appendix A.

[3] Ibid at 2., 76

6. *What are your views on the outlook for electricity prices?*

We believe the retail component of the price of electricity will remain flat to falling due to competitive pressure.

From the IEA report[4]:

> *Looking at the drivers of more recent price increase since 2009, it can be observed that mainly network costs had an impact while the energy component has remained steady since 2010. The regulated lines component has increased because of the investment made in network expansion, largely reflecting transmission augmentation and upgrades to the high-voltage direct-current system, and less so distribution networks.*

Upward price pressure is likely to continue from the lines component of the electricity bill due to the refurbishment and replacement investments which will be required within distribution networks. The large National Grid (Transpower) upgrade projects are now largely complete. However, upgrade drivers are now being felt on the distribution side. This reflects the age of network assets and the cyclical nature of long-life infrastructure investment.

We believe there are structural changes which could be made on the lines side which would help lessen the impact and reduce the scale of regional lines price variances (see our response to question 20).

[4] Ibid at 2.

Affordability

7. *What are your views on the assessment of the size of the affordability problem?*

Evolving the definition of energy vulnerability will help with targeting support at those most at risk

There is a difference between affordability (lowest possible energy prices for one's circumstances) and energy poverty (hardship as a result of the inability to meet energy needs).

ERANZ has commissioned analysis to quantify the scale of energy vulnerability in New Zealand. We believe that a more sophisticated problem definition will assist in designing the most effective mitigation measures and target those most in need. The report is contained in Appendix D.

The analysis indicates that there are approximately 44,500 households at a high priority level of energy vulnerability. This analysis defines the high priority group as households meeting an older definition of energy vulnerability as well as demonstrating four or five additional risk factors.

Other risk factors are fundamental to measuring energy vulnerability.

The older definition of energy hardship is households that spend more than 10% of their income, after accounting for housing costs, on energy.

Our analysis identifies several additional risk factors. The risk factors are areas in which households:

- Spend more than twice the median proportion of after housing costs (AHC) income on energy (median is 5.7%)
- Spend more than 15% of AHC income on energy
- Have older houses – more than the national average proportion of houses older than 1970
- Have more younger children – at least 10% above the national median proportion of population under 10 years old
- Have more older residents – at least 10% above the national median proportion of population over 65 years old.

The aggregate number of households who have three or more of these factors give us the figure of 44,500 households who are what we have termed 'critically vulnerable'. To help those most in need, it is these households that first need to be targeted as a priority.

This does not mean that there is a larger set of New Zealanders that are also facing some degree of energy vulnerability. However, as a starting point on where to target support we believe the evolved definition provides a useful starting place.

8. *What are your views of the assessment of the causes of the affordability problem?*

Issues around affordability encompass much more than the unit price of electricity. It is a complex interplay of several factors, some of which overlap with many general indicators of poverty and inequality, such as income level, standard of housing, efficiency of appliances; about behaviour as well as price.

The most vulnerable households will be experiencing several contemporaneous factors:

1. Income factors:
   Among households spending at least 10% of AHC on electricity, nearly 40% of them spend more than 15% of AHC income on electricity. For this smaller group of households, energy expenses are a very significant proportion of household costs; these households are likely struggling to keep up with their bills. Because proportion of AHC income accounts for both energy costs and income, this risk factor likely indicates that low incomes are a co-existing factor for these households.

2. Household factors:
   Household factors are the age of the house and the makeup of the household:
   - older houses are more likely to be cold, damp and expensive to heat – leading to increased electricity costs to heat the house to suitable temperatures.
   - children and the elderly are more likely to be at home during the day, increasing energy use, and are more vulnerable to illness, so the consequences of poor heating are more serious.

3. Market factors:
   The relationship between the network costs (lines changes) and energy vulnerability. Analysis showed those regions with higher lines costs had higher proportions of vulnerable customers within them.

9. *What are your views of the assessment of the outlook for the affordability problem?*

The wealth transfer effect of the Electricity (Low Fixed Charge Tariff Option for Domestic Consumers) Regulations 2004 (LFC Regulations) will continue to exacerbate with technology uptake (EVs, solar) as probably will regional lines charge differences.

New Zealand has a poverty problem – not an energy poverty problem.

As a general rule it is difficult to manage what is not being measured. To understand the outlook for affordability we need to first have a regimen established which regularly monitors the extent of the issues. Only then can we determine the relative scale of the problem and the efficacy of mitigation measures being put in place to alleviate.

Our report in Appendix D seeks to better define the energy affordability problem. We have determined that that the issues around energy hardship are highly complex. Within the wider group defined as being in energy hardship there are several sub-segments defined by varying degrees of deprivation and circumstance. Accordingly, solutions will be complex. What is clear is that better understanding is required to be effective, and that difference segments will require different solutions.

Summary of feedback on Part three

10. *Please summarise your key points on Part three.*

- ERANZ believes that New Zealand's competitive electricity market is delivering value for consumers.
- ERANZ believes there are opportunities to strengthen the voice of consumers through an independent electricity-only customer advocate, learning from international examples.
- Consumer needs are continuously evolving but fundamentally consist of: choice of retailers and products; certainty of consumption and costs; and, control of their consumption and bill.
- ERANZ believes that the retail component of the price of electricity will remain flat due New Zealand's robust competitive market.
- New Zealand has some of the lower electricity prices in the OECD; however, this is offset by New Zealand having some of the highest consumption rates due to quality of housing stock and the type of fuel used for heating.
- ERANZ believes that it is essential to build on the work to date on improving New Zealander's understanding of energy consumption and energy efficiency to make households more efficient users of electricity.
- ERANZ supports the Panel's findings that there are households experiencing energy vulnerability and believes that there are 44,500 households facing extreme energy vulnerability.
- This is a result of several associated factors beyond just income but also includes the age of the house and the number of young or older occupants.
- ERANZ has a range of possible solutions to trial to better understand what an effective response to energy vulnerability would be and has a wide stakeholder set on board to further explore and assist with the options.

Solutions to issues and concerns raised in Part three

11. *Please* briefly describe any potential solutions to the issues and concerns raised in Part three.

ERANZ suggested solutions are listed in more detail in Appendix C.

1. **Directly target those most in need: The extent of energy hardship can vary significantly between two households on the same low-income. Therefore, general welfare support is unlikely to adequately address the problem. Targeting is required to be effective.**

   Measures to address energy hardship should seek to deliver support proportional to need, with those suffering the combination of low-income plus high energy requirement receiving the greatest support.

   The most promising approaches for delivering financial support are energy-related income supplements, and rebates based on a percentage of consumer bills.

   Funding measures via obligations on retailers or distributors (who then pass-on costs to their consumers) is likely to deliver adverse outcomes. Funding from general taxation is least likely to cause unintended consequences.

   Deprivation-based metrics or indicators such as those contained in our report in Appendix D should form the basis of targeting rather than relying on overly simple proxies (e.g. 10% or more of income on energy).

2. **Remove the LFC regulations. The LFC Regulations should be removed as a matter of priority as they are causing outcomes which are directly contrary to the policy intent:**

   - The level of financial support given to households is inversely-proportional with the level of need. i.e. those whose energy needs are least get the most support, whereas those with high energy needs get an increase in costs.
   - The higher variable charges under LFC create an increased incentive for income-constrained households to under-heat their homes to save money, and also increase the size of winter bills relative to summer – making it harder for those households who struggle with budgeting.
   - They act as an impediment to the uptake of electric vehicles – arguably the technology with the greatest potential to cost-effectively decarbonise our economy.

3. **Improve consumption Policies and measures aimed at improving the energy efficiency of homes and appliances should continue to be pursued.**

ERANZ has seconded a project manager from Sustainability Trust to building business cases for our proposed Access to Electricity (A2E) projects. The proposed projects are the result of 12 months of work in partnership with the Ministry of Health, Ministry of Social Development, EECA, Housing New Zealand, National Building Financial Capabilities Charitable Trust, University of Otago, lines companies, and power companies and other stakeholders, involving customers in a design-thinking process.

The A2E focus will be on practical solutions for people to have warm, dry homes. Details of the proposed projects are contained in Appendix C.

Part four: Industry

Generation

12. *What are your views on the assessment of generation sector performance?*

Electricity generation fall outside ERANZ's remit.

13. *What are your views of the assessment of barriers to competition in the generation sector?*

See our response to question 12.

14. *What are your views on whether current arrangements will ensure enough new generation to meet demand?*

See our response to question 12.

Retail

15. *What are your views on the assessment of barriers to competition in retailing?*

Complexity is one barrier to competition in the New Zealand market

ERANZ is concerned with retail barriers that relate to the complexity and costs associated with engaging twenty-nine separate electricity distribution companies.

Distributors use different distribution agreements as well as different distribution pricing methodologies. This adds complexity and costs which can make it difficult to enter and expand in the retail market.

The Electricity Authority is seeking to introduce a default use of system agreement for distributors. ERANZ has and will to continue to support a standard distribution agreement.

ERANZ supports the work underway by the ENA on reform of distribution pricing

The Electricity Authority has also encouraged the reform of distribution pricing and our colleagues at the Electricity Networks Association (ENA) subsequently have several working groups underway.

Ideally, ERANZ would like shorter timeframes for implementation and greater involvement, particularly around customer communication. However, we are encouraged by the efforts of ENA and acknowledge that progress is being made.

16. *What are your views on the assessment of vertical integration and the contract market?*

ERANZ members cover both vertically integrated and independent structures. We have not looked in detail at the issues around of vertical integration noting that this has been the subject of several detailed studies and reviews notably the 2009 ministerial review of the electricity market.

Primarily, the 2009 review rejected the option separating generation and retailing because it found vertical integration can:

- reduce supply risk,
- reduce cost due to reduced risk for integrated retail and generation,
- integrated gentailers better able to provide long-term security, and lower cost of capital, required for investment in generation.

Since 2010 the Electricity Authority has undertaken ongoing industry and market monitoring as required by the Electricity Industry Act (2010). The Electricity Authority would be best placed to advise on the continued veracity of the 2009 reviews conclusions.

17. *What are your views on the assessment of generators' and retailers' profits?*

The Commerce Act 1986 restrict ERANZ from discussing specific details around commercially sensitive areas of competitive activity such as discounts, rebates, capacity, costs, future strategy, or competitive intentions.

Transmission

18. *What are your views on the process, timing and fairness aspects of the transmission pricing methodology?*

Electricity transmission and the transmission pricing methodology fall outside ERANZ's remit.

Distribution

19. *What are your views on the assessment of distributors' profits?*

ERANZ has previously commissioned an independent report into the efficiency and performance of electricity distribution businesses. This report is contained in Appendix E.

It is critical that EDBs focus on core business

The report found that EDBs have been investing heavily in non-core businesses in in recent years and that this investment is reducing the focus by EDBs on their core business, permitting cross-subsidisation of activities in competitive markets and an increase in related party activities.

The International Energy Agency (IEA) has also noted the issue of EDB investment in competitive markets in their recent report[5]:

> *There are emerging concerns with regulated distribution businesses being able to compete in unregulated parts of the sector. The most obvious are battery technologies, which enable a distributor to defer/avoid line investment but can also be used to sell electricity into the wholesale and ancillary services market. There is potential here to create an "unlevel" playing field and undermine competition, which in the case of New Zealand could have serious ramifications. Rapid technology change and uptake problems in this regard could be exploited rapidly and it may be hard to "turn back the clock".*

ERANZ advocates an open and competitive market

ERANZ believes if EDBs wish to develop unregulated revenue from their businesses, particularly in the evolving technology space then they must do so on a level playing field. Regulated businesses increasingly moving into the competitive, unregulated markets is raising concerns, creating investment uncertainty, industry disquiet, and market anxiety. The markets for emerging technology are marginal and highly dependent on the economics to make a business case possible in the competitive landscape.

There is also the factor of information asymmetry and potential misuse of the monopoly position given the EDBs hold the information about network constraints and future investment needs which the competitive market needs to access to innovate and develop alternative solutions.

Some of the EDB practices are already having the effect of lessening competition in the market for these services and assets in New Zealand. Others have the potential to as these nascent markets develop.

[5] Ibid at 2., page 142

20. *What are your views on the assessment of barriers to greater efficiency for distributors?*

Our report in Appendix E shows that while lines charges have been increasing, it appears that the efficiencies of some EDBs is reducing.

Retailers believe distribution pricing reform and greater harmonisation of approach are the highest priority issues to be addressed

The report shows that there are number of contributing factors causing inefficiency: increased investment in non-core businesses, weakness in the regulatory regimen, slow progress in harmonization, and issues with distribution pricing. Our report covers each of these factors in detail.

While all issues are important, of primary concern for retailers is the need for distribution pricing reform and greater harmonization of approach. Independent analysis commissioned by the Electricity Authority indicates that if pricing reform does not occur, consumers who rely solely on the distribution networks for their electricity could see an increase in their distribution charges of 10% in the next five years and up to 30% in the next 10 years. This would translate to a 10% increase in residential bills in the next ten-years[6].

As discussed in question 15, the lack of a common approach (harmonization) by distributors is creating complexity and inefficiencies which serve to decrease competition and increase costs. This is also covered in detail in the report in Appendix E.

Smart meter data issues are being misrepresented by parties seeking data

The EPR paper also raises the issues around access to smart-meter data. The roll-out of smart-meters has provided for greater innovation and choice offerings in electricity retailing. To date, this has been to the benefit of end consumers. However, it has also raised privacy, security, commercial and access issues around data which, if not properly considered and addressed, could result in negative outcomes for consumers. In early 2017 ERANZ set-up a Data Working Group which focuses on issues involving the use, security and sharing of data with a view to improving sector-wide understanding and processes.

We are concerned that there continues to be a lack of understanding and misconceptions around data. Of particular concern is the misconception that retailers are refusing to provide information. This is not true. Smart meter data is held by Metering Equipment Providers (MEPs), not retailers, and is fully accessible to EDBs.

Several EDBs are already making use of such data for the benefit of consumers on their networks. Smart meters can collect a wide range of data. Retailers typically contract with MEPs only for a small subset of such data, primarily consumption data. This is used to bill customers and provide them information on their usage. As this data is personal in nature retailers are required by law to seek appropriate checks and balances to ensure privacy is protected before sharing this information.

Retailers do share information they have with EDBs, including in emergency situations. Some network companies are already using technical smart-meter data to assist their network operations. It is counterproductive for retailers to oppose data requests from EDBs as we want to see supply restored as quickly as possible for our customers.

ERANZ fully support network companies entering into contracts for outage management services directly with MEPs as this ultimately is to the benefit of electricity consumers.

[6] EA discussion document Signposting the future – June 2016

21. *What are your views on the assessment of the allocation of distribution costs?*

At a high level the MBIE data indicates a shifting of costs from the commercial to the residential subgroupings. ERANZ does not have enough visibility of distribution cost allocation or the way the EDBs formulate their different tariff structures for the different customer segments within their regions to be able to comment in detail.

We are aware that there was a cross subsidisation in the past which resulted in residential prices being lower than commercial prices, and that post reform some rebalancing occurred. Given the length of time that has occurred; however, we cannot comment on whether historic rebalancing between consumer groupings was excessive.

22. *What are your views on the assessment of challenges facing electricity distribution?*

Changing technology is challenging the electricity distribution model

Falling costs and increasing efficiency of nascent technologies, especially those behind the meter, such as rooftop solar, home battery storage, smart appliances, home energy management tools, and electric vehicles, will see increasing numbers of customers taking up those services. This will result in changing customer needs from EDBs, retailers, generators, and other parties.

Distribution networks are an integral part of the transition to a fit-for-purpose future electricity system.

EDBs will need to transition becoming a platform provider for the different services that will rely on their networks to build competitive services and products for customers. These concerns are consistent with those raised by the International Energy Agency (IEA) in its report on the New Zealand energy sector released in 2017:

> *New Zealand's electricity distribution sector is facing a period of rapid change, following the widespread deployment of advanced interval metering and the emergence of new technologies (electric vehicles, battery storage, and rooftop solar PV). These developments provide an opportunity to consider more efficient, innovative, cost-effective and responsive electricity markets throughout New Zealand, which can deliver a range of benefits for all electricity consumers. However, these developments also have the potential to radically transform the distribution system use and power flows, making the systems far more dynamic and complex to manage in an efficient and secure manner. Distribution businesses will be at the forefront of managing these challenges…*
>
> *…Concerns have been raised about the financial, technical and managerial capability of the distribution sector to respond effectively to this challenge. Concerns have also been raised about the governance and decision-making capability of the distributors and their capacity to manage this potentially complex transition in an efficient and timely manner that will help to realise the potential benefits for consumers.*[7]

[7] Ibid at 2., page 16

Summary of feedback on Part four

23. *Please summarise your key points on Part four.*

- Complexity of the New Zealand distribution model is a significant barrier to competition and adds costs to the retail component of electricity retailing.
- ERANZ supports the review and potential reform the distribution pricing model by ENA and believes it should be supported to go faster for the benefit of New Zealand consumers.
- It is important for New Zealand's energy system and for consumers, that EDBs focus on their core business to ensure New Zealand has a resilient and reliable electricity network.
- Harmonisation of distribution tariffs and approaches would benefit the whole of the New Zealand energy system and consumers.
- The lack of a common approach introduces unnecessary complexity, costs, risk, and a lack of transparency, all of which form barriers to the expansion of retailers – particularly new entrants and niche providers.

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Solutions to issues and concerns raised in Part four

24. *Please briefly describe any potential solutions to the issues and concerns raised in Part four.*

There are multiple issues requiring several solutions. These are listed in Appendix C. Some initiatives are already underway.

The solution that will provide the most value, increase competition, and reduce complexity and costs, is to increase the commonality of approach by the 29 different EDBs, primarily through adoption of a default use of system agreements, the timely completion of cost reflective distribution pricing reform, and removal of the LFC Regulations (see our response to question 29).

Part five: Technology and regulation

Technology

25. *What are your views on the assessment of the impact of technology on consumers and the electricity industry?*

The electricity sector faces a time of great change and opportunity as new technology becomes available at an affordable price for a greater number of customers.

We are reaching a critical juncture as rapid advances in technology ranging from automated outage notifications, to domestic solar and batteries, to electric vehicles, and bespoke pricing options, create both risks and opportunities for everyday energy consumers. Many of these consumers are struggling to keep up with developments or determine where or how to make the best choice for their future energy needs.

It will be critical that networks transition to become a 'platform', integrating the emerging and future services

At the same time consumers are more dependent on a reliable supply of electricity than ever before. Falling costs of technologies, such as home electric vehicle charging, rooftop solar, home energy storage, and smart appliances will see increasing numbers of consumers taking up those services. This will result in changing consumer needs from electricity networks, retailers and generators. This is an important time for networks to transition to become a platform provider for the different services.

26. *What are you views on the assessment of the impact of technology on pricing mechanisms and the fairness of prices?*

Reform of distribution pricing will be important in supporting a fair integration of new technology

The Electricity Authority has been encouraging the reform of distribution pricing to accommodate emerging technologies. Currently the price consumers pay does not fully cover the cost of providing them with network capacity. A move to more cost reflective distribution pricing and phased removal of the LFC Regulations will be required for consumers to fully realise the benefits of technology and reduce the unintended consequence of those without means to invest in technology effectively subsidizing the lines costs of wealthier households that can. Issues around distribution pricing are covered in chapter 6 of the report contained in Appendix E.

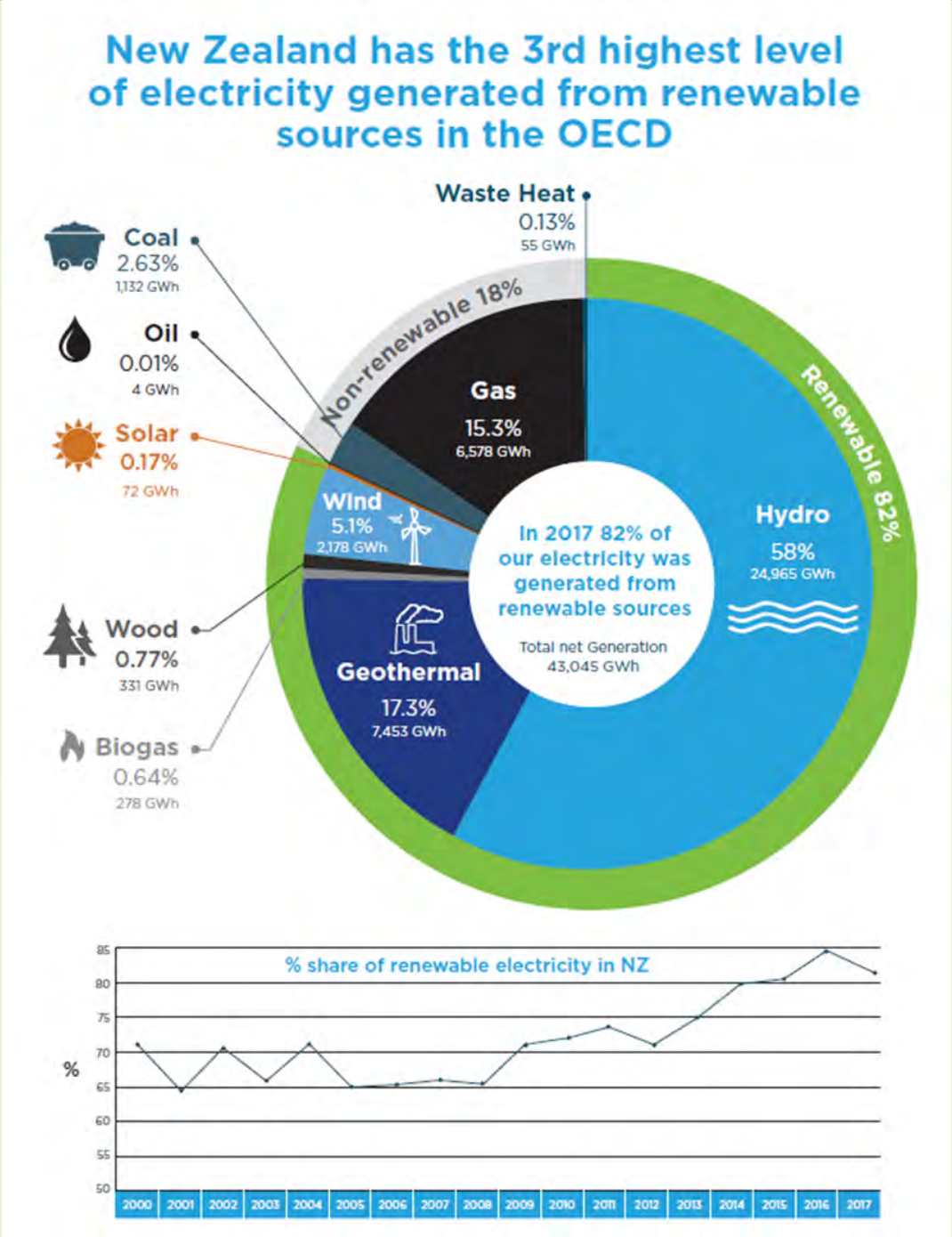
27. *What are your views on how emerging technology will affect security of supply, resilience and prices?*

Judicious use of battery storage technologies and demand response services could reduce pressures on network - reducing capacity constraints or counterbalances future increases in demand, for example from take-up of electric vehicles or heat pumps. As per our response in question 26, reform of distribution pricing and removal of the LFC will be required to ensure fairness.

Regulation

28. *What are your views on the assessment of the place of environmental sustainability and fairness in the regulatory system?*

Strong policies and innovation can make the difference for energy security, climate change, air quality, and universal access to modern energy services in parallel - in short, building a secure, affordable, sustainable energy system that is available to all.



Energy decarbonisation is vital to New Zealand meeting its commitments under the Paris Agreement.

Unless we address the renewable content of our wider energy consumption we will struggle to meet our international climate commitments. New Zealand has an opportunity to leverage our current and potential renewable electricity generation in transitioning our predominant fossil fuel dependent sectors: transport and industrial heat. Directing our focus to transitioning these areas will ensure New Zealand remains internationally competitive whilst adapting to a low emissions economy.

ERANZ support the work of the Productivity Commission as it seeks to frame how we might collectively think about the long-term transition to a low emissions economy, especially with respect to the energy sector.

Targets provide direction and investment confidence.

The question to be addressed is how effort can best be harnessed across the whole energy sector to achieve the necessary transformation. This needs to be done in an open and transparent way with a baseline set of key outcomes-based indicators to monitor progress. This would allow for an informed discussion on the policy trade-offs required to achieve them.

Clear targets will help industry participants determine the appropriate actions they can take. However, for targets to be credible and to support a stable energy policy environment, participants need to be able to understand how they can contribute to reaching those targets .

Mandatory targets can become inflexible millstones that stifle innovation and misdirect resources. Balance is required. Targets without policies supporting the outcomes sought will make the transition slower and more difficult.

29. *What are your views on the assessment of low fixed charge tariff regulations?*

Low Fixed Charge no longer suits market conditions

The LFC Regulations are well past their use-by date and are likely to limit and distort the pricing options that can be made available to consumers. We see the following issues:

a) A 'low user' as defined by the Regulations is not a low user in a real sense– the 8,000 kWh per year threshold (9,000 in the South Island) is higher than the average consumer's consumption. We estimate that at least 60 percent of consumers are eligible for the low-fixed charge, with this percentage steadily rising.

b) The low fixed charge is not cost reflective – it therefore sends the wrong price signal to consumers about the actual fixed cost of a network connection.

c) The low fixed charge of 15c/day for EDBs raises $55 per consumer per year, significantly less than the true cost of an individual connection to a network.

d) The LFC Regulations inhibit the development of cost-reflective tariffs.

e) The LFC Regulations result in higher consumption-based prices which, by definition, encourage consumers to make inefficient investment decisions to avoid consumption of electricity - while still making the same use of the network.

f) As distributors move towards more cost-reflective pricing the proportion of the variable price component will becoming increasingly larger. This will increase the variability in bills and uncertainty/risk for consumers trying to manage household budgets.

g) The LFC Regulations may benefit many smaller households, including those on low incomes, but they do not benefit larger low-income households. As such the LFC Regulations are a poorly targeted method of assistance for low-income households and are indeed to the detriment of larger low-income households which rely on electricity as their primary energy option.

h) As the average volume of electricity consumed declines, the scale of the cross-subsidies from consumers not on low fixed charge tariffs, to those who are, increases.

One of the key objectives of the LFC Regulations when they were made back in 2003, was to encourage energy conservation. This was in a period when total electricity demand had been steadily rising – and was forecast to continue to do so.

New Zealand households have become more energy efficient, increasing the number of 'low users'

Due to effective insulation programmes, new technology, and more efficient appliances, total electricity consumption is largely unchanged since 2007, despite a 10 percent population growth in that time. It appears that sustained energy conservation is being driven by home building standards and the inherent appliance efficiency that New Zealand benefits from, because of increased efficiency standards in larger markets. In that regard, high variable charges are not required to induce conservation efforts, and to the contrary, may be unnecessarily encouraging people to conserve at the expense of poor health outcomes.

A further objective was to assist low-use consumers. Artificially low fixed charges allow low users to pay a smaller electricity bill overall (combining generation, transmission, distribution and retail charges). Over the years, this objective has been extended to one which helps low-income households. We agree that some low-income households would have been advantaged, but this benefit is not evenly spread. In other words, it is a very blunt instrument.

New technologies such as home generation solar and batteries are changing the profile of energy users in New Zealand

Anyone with means to invest in alternative energy sources such as a wood burner, gas, or solar would benefit from the low fixed charge, which penalises those who do not have access to such alternatives.

People with alternative energy sources are not necessarily – and, indeed, are probably not - on low incomes. Perversely, the more well-off households are more likely to benefit from the Regulations, because they live in more modern homes, have fewer occupants (apartment dwellers for example), use alternative energy sources, and have the ability to invest in new technologies.

Retailers and EDBs know that the while dual income no-kids households with good quality housing benefit from the Regulations, larger single-income households with low quality housing do not. We do not consider that it should be acceptable that larger households with no alternative energy source living in older homes, are cross-subsidising wealthier small households that are more likely to afford alternative energy sources.

Low fixed charges do not reach some low-income households and new phased in solution is required.

We think it would be timely to examine, in conjunction with the move to cost-reflective pricing approaches, whether there are better approaches to delivering assistance to low-income electricity users. We believe this will require both government and industry analysis to consider the outcomes and impacts.

We believe a phased approach to removing the LFC Regulations will be required. With concurrent distribution tariff reform we must protect those most vulnerable from sharp variations due to changes to the regulatory regime around tariffs.

30. *What are your views on the assessment of gaps or overlaps between the regulators?*

The development of evolving technology and its application to the broader electricity market is something that all the regulatory agencies are reviewing. ERANZ has been working closely with the three regulators and encouraging all the regulatory agencies to work together on the overlapping issues raised. The cost-reflective service-based distribution pricing reform being encouraged by the Electricity Authority, and the work of the Electricity Authority's Innovation and Productivity Advisory Group (IPAG) on Open Access to Networks is very relevant in the context of evolving technology.

31. *What are your views on the assessment of whether the regulatory framework and regulators' workplans enable new technologies and business models to emerge?*

The blurring of the lines between what is competitive, or monopoly activity is also causing the regulators, particularly the Electricity Authority and the Commerce Commission, to have to work more closely together in their programs of work. The regulators are being challenged to keep up with the fast pace of change in the sector. ERANZ has been encouraging MBIE to do a review of the regulatory framework prior to the EPR, because of these issues that were emerging.

32. *What are your views on the assessment of other matters for the regulatory framework?*

The concern that some households struggle to pay their electricity bills is legitimate. However, this is an outcome of multiple complex factors including general poverty levels, and the efficiency of the housing stock. Overseas experience has shown that relying solely on regulatory intervention to resolve complex issues can make the situation worse.

To support the Panel's work, ERANZ commissioned a report on the outcomes of intervention in overseas electricity markets. This is contained in Appendix F. The investigation shows the poorly considered intervention has resulted in lower competition and switching rates, niche tariffs that suited certain customer types disappearing and average margins increasing. New Zealand can learn from these failures.

New Zealand can learn from the lessons of the UK and Australia. The issues in New Zealand are not as acute: the cost drivers are not as significant, price dispersion (which is a normal outcome in a competitive market, but which attracts concerns around 'fairness') is not as great, customers are generally aware of the option to switch, prepayment is a cost-effective option, the take-up of new technologies by customers is modest, while smart meters have been successfully rolled out.

Regulatory reforms in UK and Australia have failed to achieve their goals: in Britain, tariff simplification failed to drive greater engagement and resulted in higher retail margins, while in Australia hardship policy has failed to stem a rise in disconnections. Meanwhile, New Zealand's electricity system has been well-served by the competition-oriented reforms and limited government intervention to date.

The perennial concern that some households struggle to pay their electricity bills is of course legitimate. But is an outcome of multiple factors including general poverty levels, the welfare system, and the efficiency of the housing stock. It is not solved by heavy-handed retail regulation, which may even make the situation worse.

Summary of feedback on Part five

33. *Please summarise your key points on Part five*.

- Technology will increasingly challenge the way our distribution network operates and future investment.
- The New Zealand distribution network must evolve into a 'platform' that allows new and emerging technology to plug and play alongside existing technology to benefit consumers.
- Care must be taken in the transition to new technologies to ensure a fair and equitable sharing of costs across consumers.
- The LFC Regulations need to be repealed and replaced with a more targeted solution to improve affordability for low income customers.
- More than ever there is a need for transparency and a level playing field so that new businesses and innovations can enter and compete, and the market works efficiently to deliver what customers need.

Solutions to issues and concerns raised in Part five

34. *Please briefly describe any potential solutions to the issues and concerns raised in Part five.*

Remove the low fixed charge

- The LFC Regulations should be repealed. However, the charges should be phased out to ensure that those must vulnerable are protected.

Make changes to ensure a future fit-for-purpose regulatory framework

- Better align the decision making of the Commerce Commission and Electricity Authority by amending:
    - the definition of 'consumer' in the Commerce Act to align with the definition of consumer in the Electricity Industry Act; and
    - the carve-out provisions in the Electricity Industry Act to remove the risk of gaps arising in the regulatory activities of the two regulators
- Amend the Commerce Act to ensure regulation provides greater encouragement to EDBs to:
    - competitively procure equipment and contestable services; and
    - collaborate with other EDBs, particularly around joint learning on the network management complexities arising from mass market adoption of electric vehicles, battery storage, solar and demand response technologies.
- Amend the Electricity Industry Act to ensure EDBs provide equal access to their network, and equal access for the provision of contestable services by:
    - Broadening the range of contestable activities that are subject to separation and disclosure requirements in part 3 of the Electricity Industry Act;
    - Establishing better thresholds for separation of the contestable businesses owned by EDBs;
    - Ensuring a level playing field by making it easier for the providers of contestable service in competition with the related parties of EDBs to hold them accountable for providing equal access; and
    - Changing the criteria to include consideration of the likely effect on emerging contestable markets in the Electricity Authority's deliberation on EDB requests for exemption from Part 3 of the Electricity Industry Act.

Electricity Prices in New Zealand

The purpose of this document is to provide a compendium of data around the price of electricity in New Zealand.

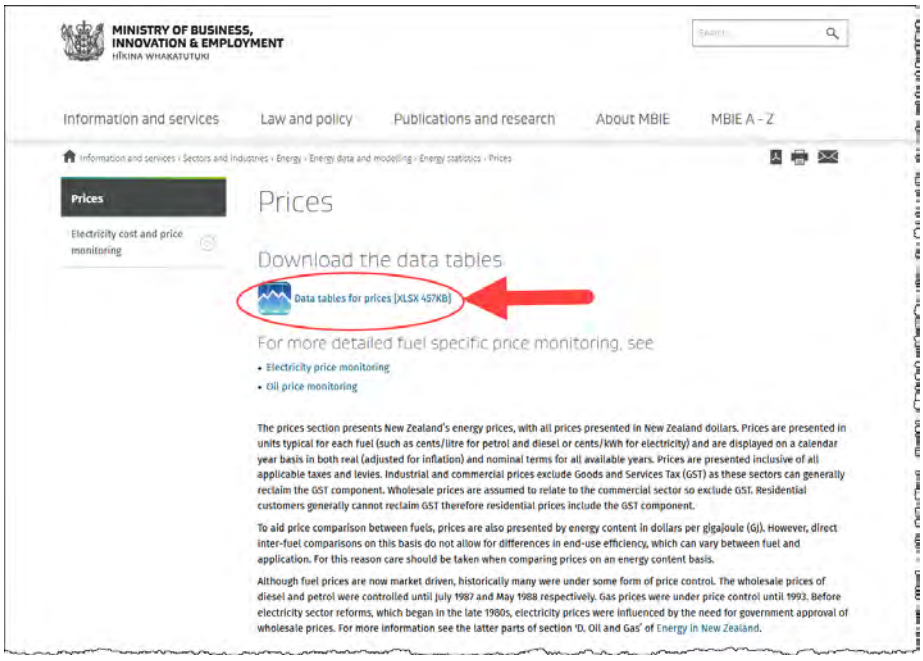
Prices have increased in real terms by around 50% since 2000. This document attempts to provide further information and historical context to the ends of being able to have better informed discussions.

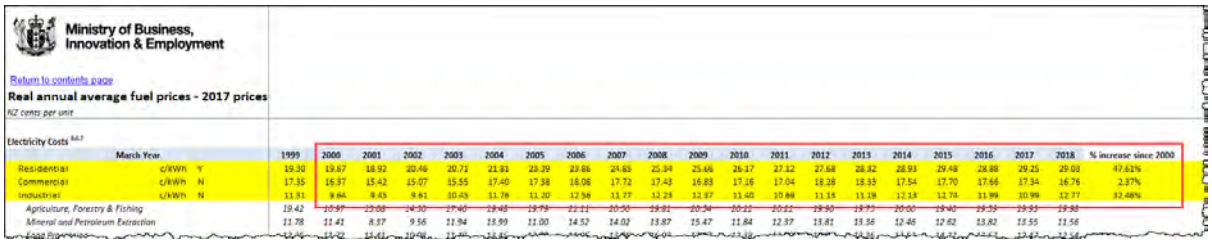
The price of electricity since 2000.

- In real terms (adjusted for inflation), the residential price of electricity in 2000 was 19.36c. In 2018 it was 29.03c. This constitutes a **47.6%** increase for residential consumers.

- Commercial consumers saw a **2.4%** increase over the same period. Industrial consumers, **32.5%**.

Source: Sources of information from the Ministry of Business, Innovation, and Employment (MBIE): MBIE collect and collate historical electricity price data. Latest spreadsheet available: http://www.mbie.govt.nz/info-services/sectors-industries/energy/energy-data-modelling/statistics/prices/





Ministry of Business, Innovation & Employment

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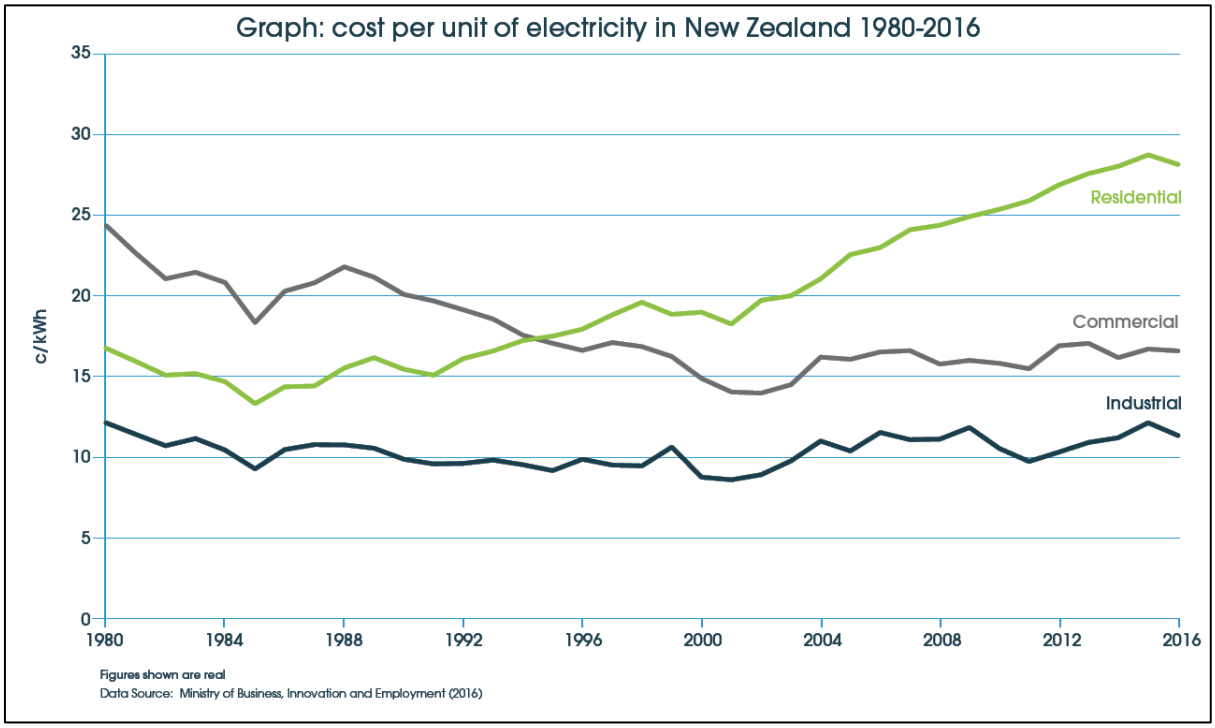
Real annual average fuel prices - 2017 prices

NZ cents per unit

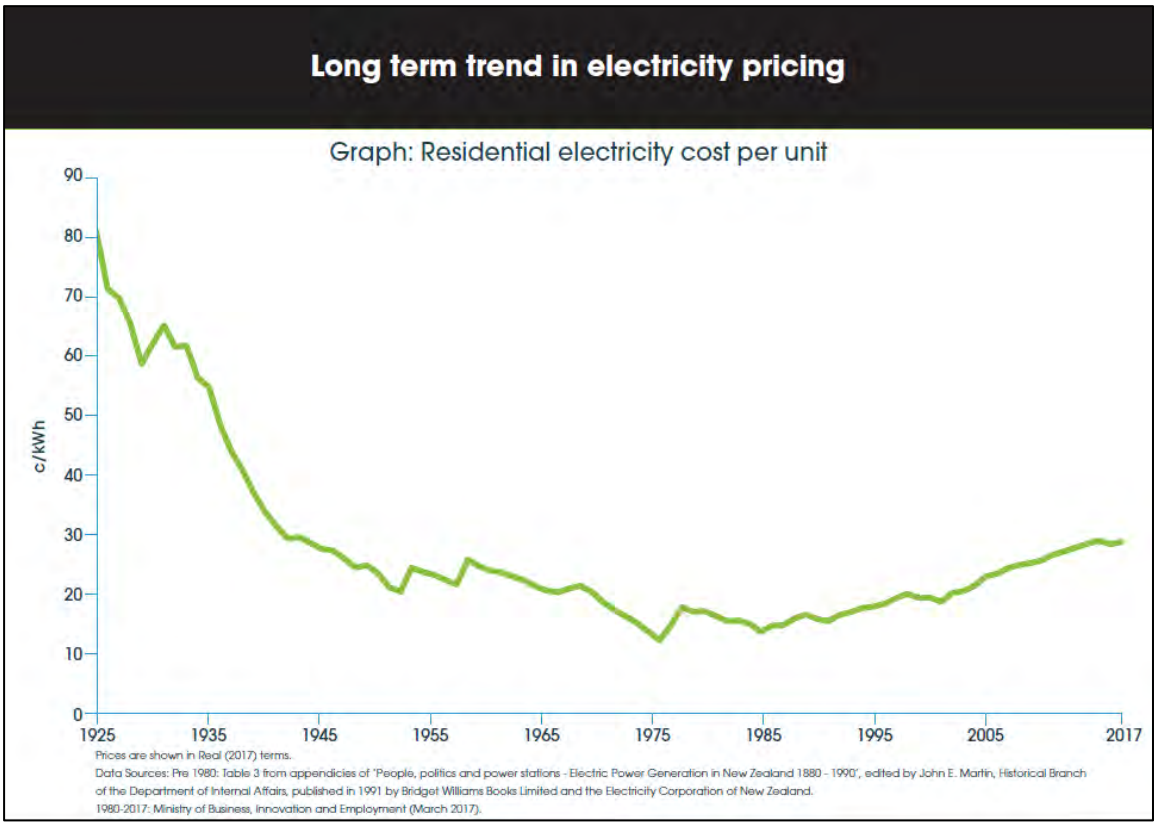
Electricity Costs [6&7]

March Year			1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	% increase since 2000
Residential	c/kWh	Y	19.30	19.67	18.92	20.46	20.71	21.81	23.29	23.86	24.65	25.34	25.66	26.17	27.12	27.68	28.32	28.93	29.48	28.88	29.25	29.02	47.61%
Commercial	c/kWh	N	17.35	16.37	15.42	15.07	15.55	17.40	17.38	16.08	17.72	17.43	16.83	17.16	17.04	16.28	16.35	17.54	17.70	17.66	17.34	16.76	2.37%
Industrial	c/kWh	N	11.31	9.64	9.45	9.61	10.43	11.76	11.20	12.56	11.77	12.24	12.97	11.40	10.88	11.15	11.18	12.18	12.74	11.99	10.96	12.77	32.48%
Agriculture, Forestry & Fishing			*19.42*	*19.97*	*19.08*	*19.50*	*19.40*	*19.48*	*19.79*	*21.11*	*20.50*	*19.91*	*20.24*	*20.22*	*20.21*	*19.90*	*19.75*	*20.00*	*19.40*	*19.31*	*19.93*	*19.38*	
Mineral and Petroleum Extraction			*11.78*	*11.41*	*8.87*	*9.56*	*11.94*	*13.99*	*11.00*	*14.52*	*14.02*	*13.87*	*15.47*	*11.84*	*12.37*	*13.81*	*13.56*	*12.46*	*12.62*	*13.82*	*13.55*	*11.56*	

Illustrative graphs of historic electricity prices (note we have not yet updated graphs with latest MBIE data, but trends shown remain the same):



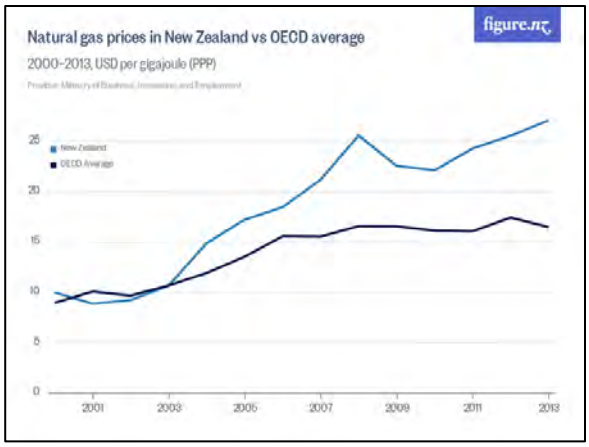
This graph shows the longer-term historic price of electricity:



Reasons why electricity prices increased:

There is no single reason why electricity prices increased. There were several contributing factors. Of most significance:

- **The era of cheap gas ended.** The depletion of low-cost natural gas supply was significant. Gas prices are a critical input into the determination of the electricity market price. In 2003 it was recognised that New Zealand could no longer rely almost entirely on the output of the Maui Gas field. That meant a massive investment was required to develop the Pohokura gas field, which had to be supported by a higher gas price. From 2000 to 2008 the gas price more than doubled, which resulted in higher costs for the thermal electricity generators. While the higher wholesale electricity prices benefited the owners of existing hydro schemes, it also made it economic to add new wind farms and geothermal power stations.



- **Economic growth necessitated more spending on infrastructure**. New Zealand GDP has increased since 2000. This resulted in increased electricity demand, and greater demand for security of supply, which has required significant new investment in electricity infrastructure:
  - The upgrade of New Zealand's electricity lines infrastructure. After years of deferring

any meaningful expenditure on the major electricity transmission networks, Transpower (the National Grid) and local lines distribution business have spent several billion dollars since 2000 on much needed upgrades. This has significantly increased capacity and security of supply, but it has also had to be paid for through increased prices.

- New power stations. Around 15% of New Zealand's total current generation capacity has been added since 2000. (We also retired some large thermal power stations that had reached the end of its economic life). It's perhaps worth remembering here one of the reasons why the government of the day originally contemplated electricity reforms: they didn't want to increase government debt in order to build more power stations. When electricity reform was first proposed in 1992, New Zealand was experiencing a high degree of prosperity that triggered the need for infrastructure expansion. The question of where the capital would come from was a key concern. After years of paying down government debt, borrowing more for new generating plants was an unattractive proposition.

- **The unwinding of the commercial / residential cross-subsidy.** During the first ten years of deregulation (circa. 1990-2000), residential consumers experienced price increases as cross-subsidies were removed. The unwinding continued with the advent of the competitive retail market post 2000.

  From the Electricity Authority Report 'Analysis of historical electricity industry costs – January 2014':

  > *The allocation of costs prior to the establishment of the electricity market is fraught with difficulty, as in practice there was no clear linkage between the prices charged to individual consumers and the underlying cost of supplying them with electricity. There is evidence of significant cross-subsidisation between consumer groups in the past. Commercial consumers are the only group that paid close to the modelled average cost of electricity supply between the 1970s and 1990s, while other consumers paid well under the cost of supply.*

- Also, the advent of the emissions trading scheme in 2008 (which increased the cost of thermal generation) and the increase of GST in 2010.

Price increases over the last ten years:

MBIE compile annual data of residential electricity prices. Link here: http://www.mbie.govt.nz/info-services/sectors-industries/energy/energy-data-modelling/statistics/prices/electricity-prices

Screen shot below:

MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HIKINA WHAKATUTUKI

Residential sales-based electricity cost data March year 2005 to March year 2018

Sales-based costs are after discount costs which reflect actual uptake of prompt payment discounts, dual fuel discounts, and incentive discounts for attracting or retaining a customer

Real[1] residential cost per unit (including GST)

March year	Cost per unit	Cost per unit *Annual change*[2]	Lines component	Lines component *Annual change*[2]	Energy and other component	Energy and other component *Annual change*[2]
	c/kWh	%	c/kWh	%	c/kWh	%
2005	23.39		9.26		14.13	
2006	23.86	2.0%	9.29	0.4%	14.57	3.1%
2007	24.85	4.1%	9.54	2.6%	15.31	5.1%
2008	25.34	2.0%	9.86	3.4%	15.48	1.1%
2009	25.66	1.3%	9.95	0.8%	15.72	1.5%
2010	26.17	2.0%	10.35	4.1%	15.82	0.7%
2011	27.12	3.6%	10.48	1.3%	16.64	5.2%
2012	27.68	2.1%	10.71	2.2%	16.97	2.0%
2013	28.32	2.3%	11.36	6.0%	16.96	0.0%
2014	28.93	2.1%	11.70	3.0%	17.23	1.6%
2015	29.48	1.9%	12.36	5.7%	17.11	-0.7%
2016	28.88	-2.0%	12.26	-0.8%	16.62	-2.9%
2017	29.25	1.3%	12.58	2.5%	16.67	0.3%
2018	29.03	-0.7%	12.74	1.3%	16.29	-2.3%

Annual average expenditure and consumption of electricity per household

March year	Average residential expenditure (including GST) $ per household per annum Nominal		Average residential expenditure (including GST) $ per household per annum Real		Consumption per household kWh per household per annum	
2013	$2,019		$2,126		7507	
2014	$2,054		$2,135		7380	
2015	$2,083		$2,146		7280	
2016	$2,044	R	$2,098		7265	
2017	$2,029	R	$2,061		7046	R
2018	$2,031		$2,031		6997	

Looking at just last ten-years the total electricity price (real) has increased by **13.8**%.

Broadly, the price of electricity comprises of two parts:

a) 'Electricity' - the cost of electricity itself (generation, retail margin, metering, and taxes and levies), which typically accounts for around 60% of the final electricity bill, and;

b) 'Lines' - the cost of delivering of that electricity (the transmission and distribution infrastructure), which accounts for around 40% of the final bill.

Over the last 10-years (in real terms):

a. the electricity component has increased by **5.6**%.

b. The lines component has increased by **26.1**%.

The investment needed for lines infrastructure has been increasing due to:

- Upgrading the national grid and lines infrastructure
- Replacement or refurbishment of large amounts of existing infrastructure reaching the end of its life
- Improving security of electricity of supply and resilience
- Damage from natural disasters

The rate of increase is reducing. Over the last 5-years (in real terms) the overall price has increased by **2.5%**, with:

a. the electricity component has decreased by **4.0%**.
b. The lines component has increased by **11.7%**.

From a recent IEA report[1]:

> *Looking at the drivers of more recent price increase since 2009, it can be observed that mainly network costs had an impact while the energy component has remained steady since 2010. The regulated lines component has increased because of the investment made in network expansion, largely reflecting transmission augmentation and upgrades to the high-voltage direct-current system, and less so distribution networks.*

Also of note:

- The latest MBIE data shows the average household expenditure on electricity is $2,031 pa (around $5.60 per day).
- The annual average household residential expenditure has been reducing in line with lower average residential consumption. In 2013 MBIE has the average annual residential cost (real) at $2,126 pa. In 2018 the average was $2031 pa.
- The 2016 Statistics NZ household survey had electricity typically accounting for around 3-4% of overall household expenditure. The same survey undertaken in 2000 showed electricity expenditure accounting for around 3%, indicating electricity as a proportion of household expenditure has remained constant over the last twenty years.

How does New Zealand compare internationally?

International price comparisons can be misleading. Care is needed in interpreting the data as purchasing power, statistical methodologies, and information available differs considerably among countries. The taxation component of electricity costs also varies significantly between countries. Also, New Zealand has unique challenges which differentiate us from other countries, making direct comparisons difficult. We are an island nation with a small population. Our electricity system is not interconnected with other nations meaning we need to be completely self-reliant. Our system comprises of a long stringy electricity transmission and distribution network, with most major generation sources remote from main population centres. Despite these challenges, New Zealand has a world-class electricity system which provides consumers with safe, reliable, mostly renewable electricity at a price comparable with other OECD nations.

- The International Energy Agency (IEA) undertakes electricity price comparisons using purchasing power parity[2] (PPP) exchange rates to minimize misleading international

[1] Energy Policies of IEA Countries, New Zealand 2017 Review

[2] PPP is measured by finding the values (in USD) of a basket of consumer goods that are present in each country (such as orange juice, pencils, etc.). If that basket costs $100 in the US and $200 in England, then the purchasing power parity exchange rate is 1:2.

comparisons. New Zealand has the 12th lowest residential electricity price out of the 33 IEA member countries compared.

- In its report the IEA does not say New Zealand has comparatively high household electricity prices. It says our rate of change is comparatively higher because NZ started from a low base. The IEA report wording:

  By international comparison, household electricity prices in New Zealand have grown from low levels much faster than in other IEA countries. Household prices were well above the IEA average in 2014, while industrial prices are below the IEA average.[3]

- The data does not support the contention that NZ household prices being *well above* the IEA average. They are around 9% higher than the IEAs *weighted* average.
  - The IEA has the NZ household electricity cost at 197.1 USD/MWh using PPP[4]. This puts NZ below the mathematical average of 242.3 USD/MWh, but above the IEAs weighted average (using country level consumption) of 179.50 USD/MWh.

- The IEA report described New Zealand as being: *"a world leading example of a well-functioning electricity market, which continues to work effectively".*

- NZ has unit costs close to the international average, but consumption rates well above average. Simply put, households pay more for electricity in New Zealand overall, because we consume higher volumes compared to most other countries. NZ has the 6th highest household consumption out of 32 OECD countries. Our household electricity consumption is higher than other nations due to several structural reasons, such as:
  - It takes a higher amount of energy to heat many New Zealand homes compared to other OECD nations due to the relatively poor quality of our housing stock.
  - Many other countries use different fuels as their primary heating source.

- New Zealand compares very well internationally on the World Energy Council Energy Trilemma index, which measures how well a country manages the trade-offs between three competing dimensions: energy security, energy equity, and environmental sustainability. In 2017 New Zealand was ranked 9th out of 125 countries, and 1st in the Asia region. NZ was the only non-European country in the top ten.

  Trilemma here: https://trilemma.worldenergy.org/

Why do retailers increase their prices?

Bringing electricity to New Zealanders consists of many inputs to make the whole system work - generation, transmission, distribution, retailing, metering, GST and government levies. All of those involved have different pricing models and costs, which are determined by each

[3] Energy Policies of IEA Countries, New Zealand 2017 Review, Page 75
[4] 2016 figure – latest available.

business responsible for their part of the process. Retailers then package up all the costs for making, delivering and service support, which collectively make up the unit price of electricity, and present the total costs to the customer, in one bill.

Price increases can be caused by any part of the overall electricity system making a change to their charges. The retailer then passes on those costs to customers. For example, investment in transmission, generation, distribution and infrastructure, including upgrading and building capacity to meet increasing demand, as well as ensuring that New Zealander's have a secure supply, which needs to be recovered will bring about a price increase.

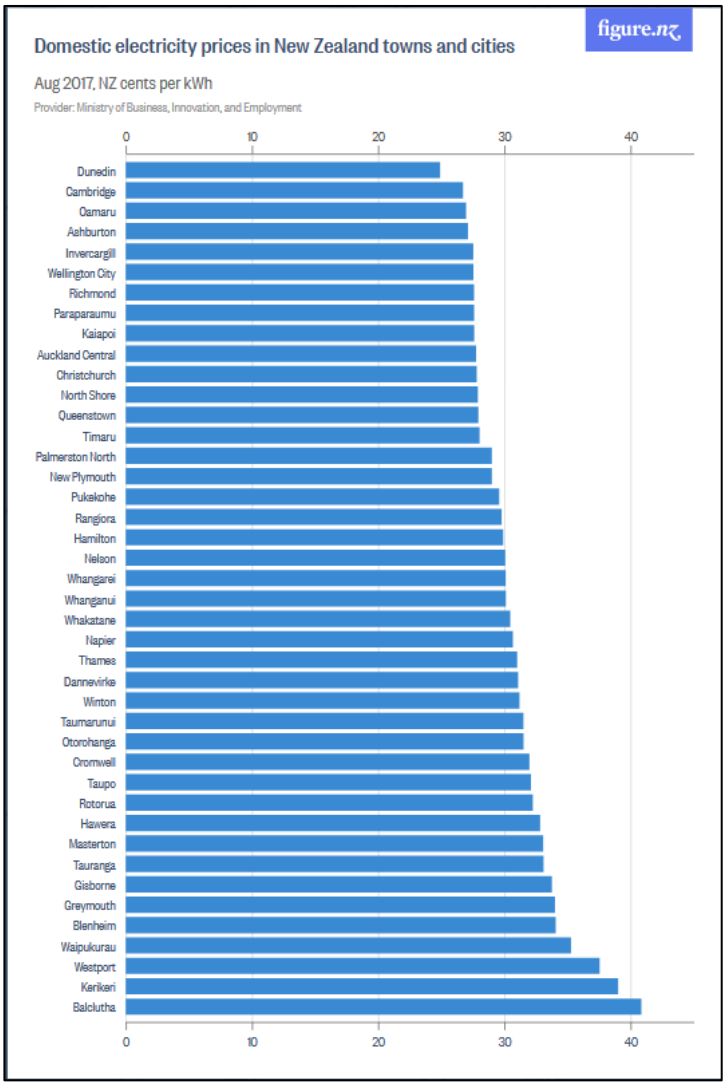
There is a regional variation to electricity prices.

MBIE data shows locational differences in the retail price of electricity. The variation is mainly due to the differences in the cost of delivering electricity – the 'lines' component. Areas that:

- are more distant from power stations and the national transmission grid backbone;
- have lower populations to spread local lines infrastructure costs over;
- have low energy consumption density;

generally, have higher electricity prices.

https://figure.nz/chart/Kx2boXoRyZYpLWBb



Why electricity prices vary throughout New Zealand

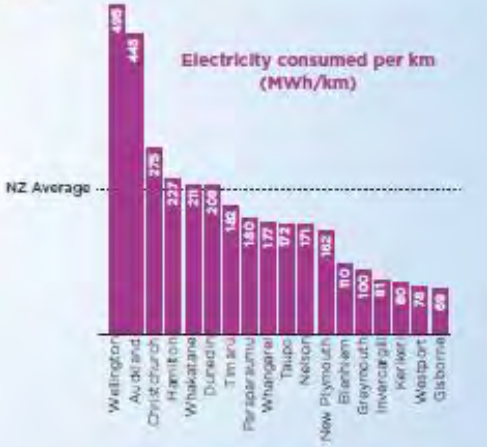
It's mostly due to the variances in the cost of delivering electricity.

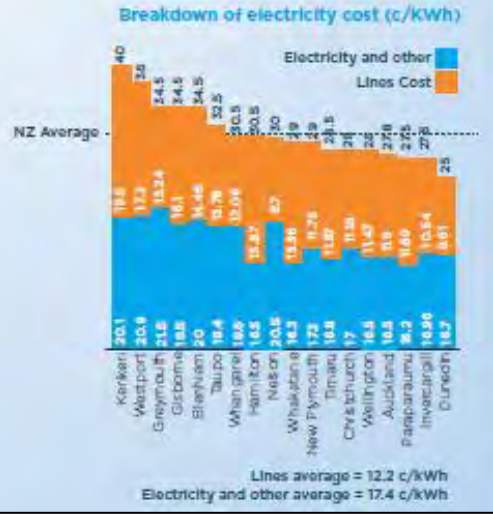
Regions that are further away from power stations and have lower populations to spread delivery costs over, generally have higher prices.

The price of electricity comprises of two parts:

1. **Electricity and other:** this is cost of making the electricity - plus the cost of metering, a retail margin, and taxes and levies.
2. **Lines:** this is the cost of delivering the electricity - that is, the national transmission and local distribution 'poles and wires' infrastructure which takes electricity from power stations and delivers it to consumers.

The regional 'prices' shown in the diagram are determined by MBIE. They are not necessarily reflective of the wide range retail offerings available to consumers in those areas. For example, they do not consider discounts offered by many electricity retailers for prompt payment, loyalty programmes, or bundled services. The purpose of this graphic is to demonstrate why regional variances can occur - however, the figures shown should not be regarded as indicative of what consumers are typically paying in those areas.





Lines average = 12.2 c/kWh
Electricity and other average = 17.4 c/kWh

Sources: MBIE
Commerce Commission

pinstripedleopard

Understanding the Electricity Consumer

AS AT MONDAY 6 AUGUST 2018

A COLLATED UNDERSTANDING OF ELECTRICITY USERS IN NEW ZEALAND

PREPARED BY PSL FOR ERANZ | APRIL 2018

ERANZ

5

things you need to know

While there is very little we expect will surprise you in this work (after all it originated from the members themselves) we've worked to have a point of view related to the information.

We've focussed on the 5 things that have appeared to be important in the information supplied and have matched it with trends and observations.

The consumer's relationship with electricity is invisible

1

With telephony you get data, voicemail, land or mobile options, internet… there are packages and coverage stories…

The consumer interacts with the handset / monitors use and charges / sees suppliers in malls etc.

With banking you get different rates, access to different cards, advice, online tools + local branches or machines…

The consumer and the bank are generally tied together through mortgage and accounts + they interact with the bank regularly in one way or another

With insurance you get peace of mind… but also different levels of cover, different benefits and different excess options + bundling benefits….

While invisible most of the time insurance leaves a 'blanket' of emotional security around consumers they forget it until they need it – but you do get a choice in products

With rates you get access to libraries, care of infrastructure, investment in recreational areas, the arts…

People vote for Councils and have the capacity to give feedback on initiatives + they regularly use / interact with works

With supermarkets you get different prices, quality levels, service levels, add ons….

Like energy food is a basic need however there are choices possible within and between providers, or through self sufficiency + there is regular interaction with them

But with electricity you get the same product from different providers, with slightly different pricing. And consumers see the provision of electricity as a basic 'right', unlike insurance that has a discretionary element to it. People 'need' electricity to live their lives, this is what makes it so unique.

The relationship people have with electricity is largely invisible – the connection is typically with the appliances that use electricitymore than the provider themselves.

There are key moments of truth in the relationship – bill time, when something goes wrong and when there is a failure of supply – but apart from that there is limited 'connection' – people don't 'see' their providers in the same way that they see others in their lives.

Some are also slightly cynical about the category – resulting in a 'why bother' attitude.

There is a level of resentment in terms of paying the bill for some – they do not understand why charges increase or why there are differences in charges when there is no difference in the product itself.

Consumer's want electricity to be reliable (this is fundamental) and to a large degree it usually is. Issues are not commonly with generation, only with supply (which is out of the hands of the retailers). Reliability appears to be related to the notion of invisibility however as it supports consumers having an unnuanced understanding of the category.

We wonder if reliability needs to be supported by the notions of authenticity, transparency and consistency that are increasingly seen as important at a global trend level. We ask you to consider ways to make the category more appealing so that messaging 'sticks'

ERANZ

Electricity as a category is confusing

2

The ‘how it all works’ is an unknown to some – the science of electricity is not always thought of / known

Bills may be seen as confusing and complicated – there is an understanding of the total amount but not always the units of measurement / charges

Some struggle with the language and descriptions

Some don’t attend to information given to them because their engagement with electricityis so low – so they don’t know what they could/should and remain confused or unknowing

The bill is a should and not a want

There is nothing they ‘see’ for their $ - everything is in retrospect

Some struggle to make sense of why they pay what they do (vs others that they know and discuss their bills with) – without taking into account household differences or other factors that impact use

For something that is invisible there are a lot of complications that act as mental handbrakes

Perspective

There appears to be a strong need to ‘decomplicate’ this category – something that is more than bill simplification. There may be a need to challenge some of the basic assumptions around complexity, language use and measurement to help consumers GENUINELY be informed about their use and choices – a more transparent approach overall.

Given the nature of the category this is more than a campaign from a/the retailer(s) – there needs to be a consistent approach applied to allow consumers to engage and discover – however creating the ‘hook’ to generate interest will be the challenge – the lack of connection with the category is a fundamental barrier requiring consideration.

3

There seems to be an overarching belief that control of electricity is a good thing, though the motives that drive this are somewhat different

For some there is an abiding belief that we should be putting all of our efforts into creating planet friendly, sustainable, innovative supply – almost regardless of cost

For others ‘green’ is a ‘nice’ to have (no-one really wants to do ‘bad’ things to the planet) but the over-riding desire is to not ‘waste’ electricity because it costs them too much to do so. They see ‘green’ initiatives as admirable yet unaffordable

Some struggle to know what to do to achieve the control they would like, in the way they would like to achieve it, and addressing the issue of control with a solution that answers one or other of these motives (not both) appears to add to the complexity of the market

There appears to be more concern about the basics (from a consumer perspective) than there is about green – this does not mean being ‘green’ isn’t right – but the emphasis might be misaligned for some consumers, and there is a sense that the basics are not being done well enough

This causes us to question if the emphasis in the category is meeting the needs of all consumers – it would appear that the end goal is the current conversation, well met for specific groups but not meeting the mark for others, rather than dialogue around the steps needed to achieve this

There's a difference between green and wastage

3

perspective

value

time

HORIZON 1
Maintain and defend core business

NOW

- Work and actions designed to enhance consumer's understanding of and engagement with the category
- Simplification, clarification and value driving
- Emphasis on waste reduction + creation of desire to engage with electricity saving measures
- Emphasis on basics done well

HORIZON 2
Nurture emerging business

NEXT

- Work and actions designed to deepen consumer's capacity to reduce waste + creation of platforms for affordable sustainable measures within consumer's lives
- Continuation of basics done well balanced by innovations that add value to consumer's lives

HORIZON 3
Create genuinely new business

LATER

- Creation of a thriving sustainable 'green' supply of energy
- Creation of a new relationship between suppliers and consumers
- Creation of new basics to do well with

From the 'average' consumer's perspective there appears to be a lot of emphasis on 'green'. While this is seen as admirable it does not generally help consumers come to grips with the issues they have within the category now – a lack of understanding, the inability to know how to chose between and among suppliers (beyond a basic price), how they can pay less, things they can do to control use, the reasons why these future technologies are important and so on. The excitement of working toward a better future appears to have eclipsed doing the basics brilliantly – from the outside it appears as if the steeple on the building is being positioned before the foundation stones have been set in place. We wonder if a staged approach – all efforts working toward the goal of sustainability, but current issues being addressed as the necessary precursor to this – would benefit the category.

There is no such thing as ‘the’ customer

4

There are distinctly different groupings of consumers who have different attitudes and usage patterns within the market

ERANZ

Understanding customers

Customers share differences and similarities in broadly predictable ways

Needs, wants and expectations vary – both in terms of the attitudes toward power and electricity providers

Some dimensions of interest

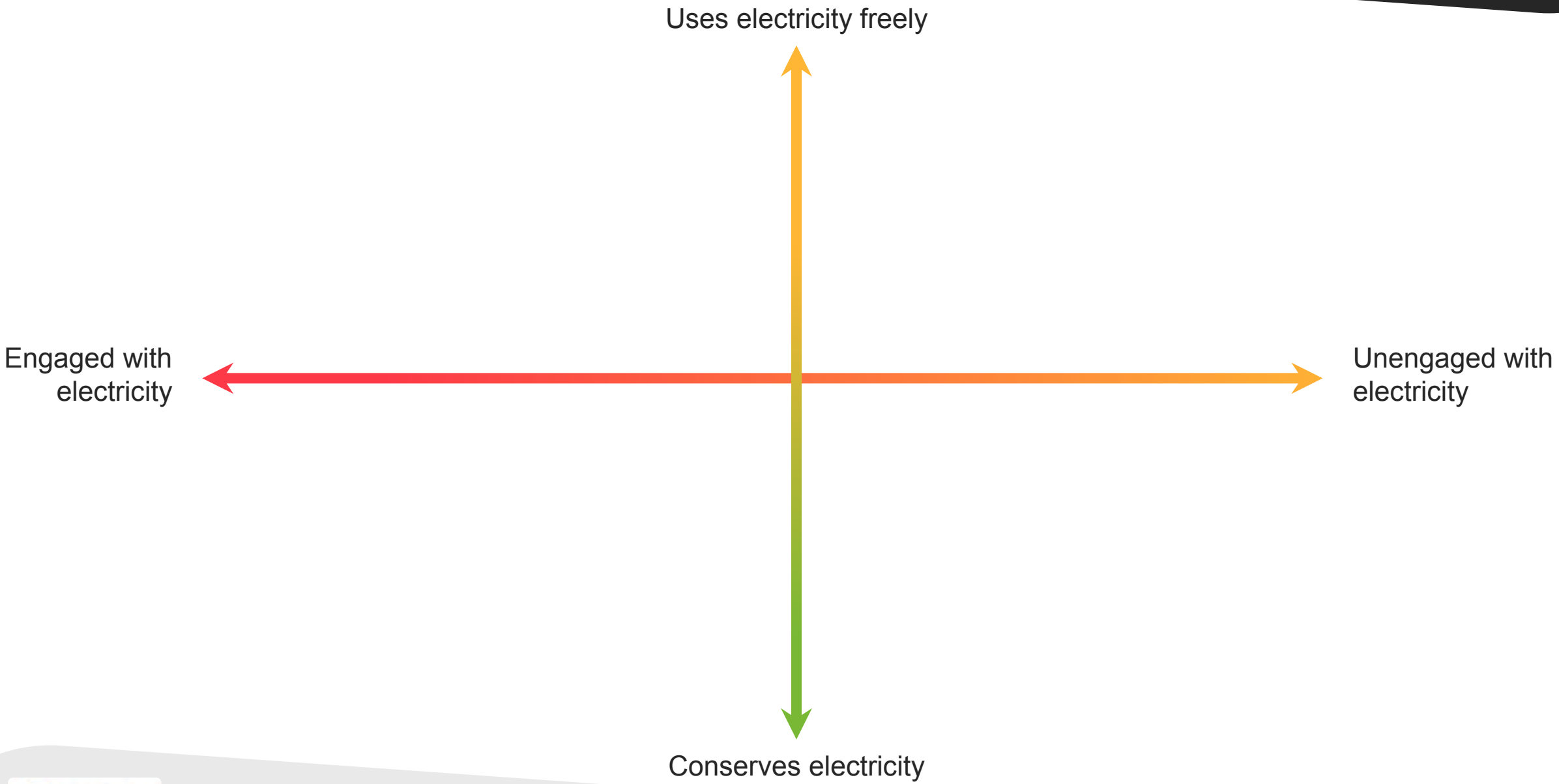
Across studies there appears to be several key dimensions that act as important indicators of different segments:

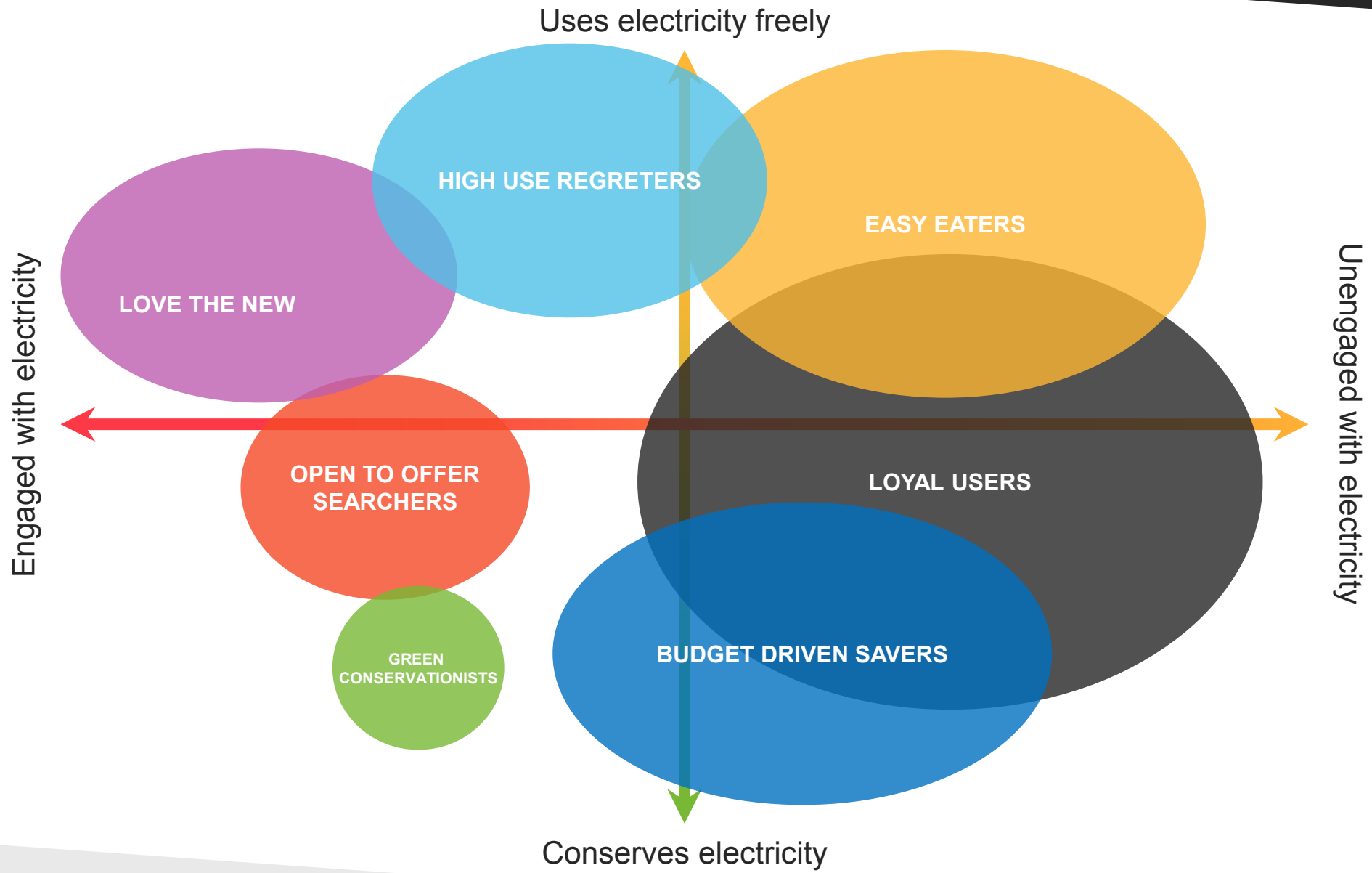
- the degree of engagement with electricity/electricity providers

- the way electricity is used

- the degree of loyalty demonstrated, and

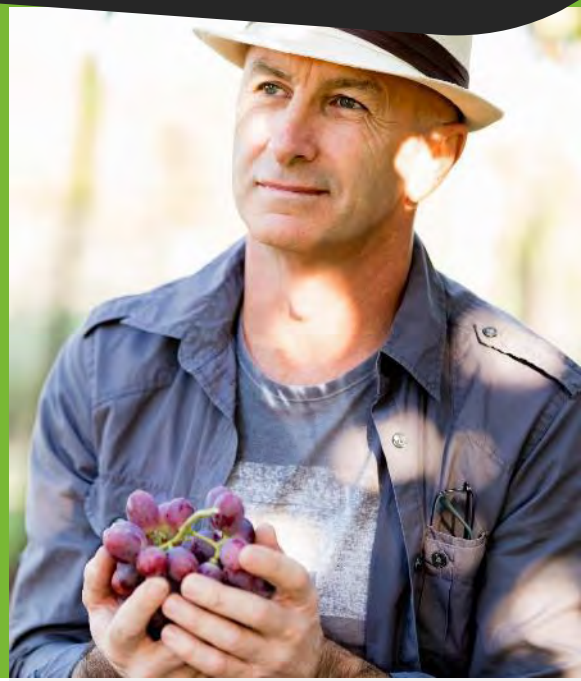
… using these basic dimensions forms the basis of understanding the residential market.


Uses electricity freely
Engaged with electricity
Unengaged with electricity
Conserves electricity


Uses electricity freely
Engaged with electricity
Unengaged with electricity
Conserves electricity
HIGH USE REGRETERS
EASY EATERS
LOVE THE NEW
OPEN TO OFFER SEARCHERS
LOYAL USERS
GREEN CONSERVATIONISTS
BUDGET DRIVEN SAVERS

Green Conservationists

electricity spend	interest in green credentials	interest in waste minimisation	interest in technology	electricity understanding	customer loyalty
					(if high standards are met)
income	home owner	education level	gender	age	segment size
				Split – young/mature	3-7%



Key drivers

Source of electricity

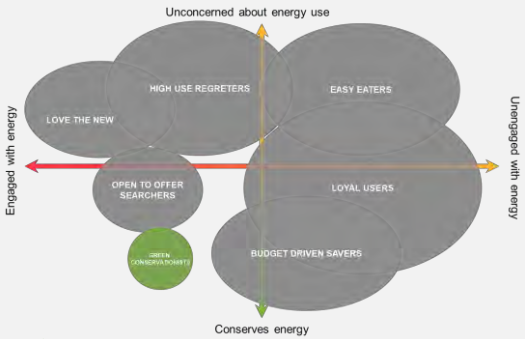
Reputation of supplier

Cost for benefit

Overall cost

Access to new conservation technologies

- **Green Conservationists** are identifiable by their strong ideals toward conservation / energy use – this is not specific to 'power' – it is a commitment to 'doing right' by the planet
- GCs try to create environments whereby they can minimise their electricity use (e.g. insulated homes) and are extremely interested in electricity sources directly from nature
- Some of this group may try to generate their own electricity by harnessing sun/wind technologies
- May be considered 'alternative' by the mainstream
- Will do whatever they can to minimise their impact on the planet
- Will spend more to 'do the right thing' even though they may not have 'more' to do so
- Very keen to explore new technologies that minimise electricity use – even if unaffordable
- Very vocal



I try to live off the grid as much as possible, but prefer to use a sustainable energy supplier in those times when I need to.

Open to Offer Searchers

electricity spend	interest in green credentials	interest in waste minimisation	interest in technology	electricity understanding	customer loyalty
income	home owner	education level	gender	age	segment size

9-11%

Key drivers

Cheapest price

Discounts

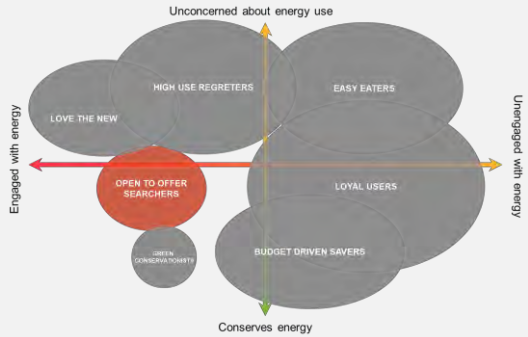
Overall cost

Able to leave

Online services

- Open to Offer Searchers (OOS) are fundamentally disloyal and don't see any difference in electricity suppliers beyond pricing
- They are strongly driven by 'what's in it for me'
- They are prepared to do a little work to get a lower price (e.g. they will buy ahead to get lower prices and will study offers from electricity suppliers to get the best 'deal')
- They believe that 'smaller' companies are likely to be cheaper

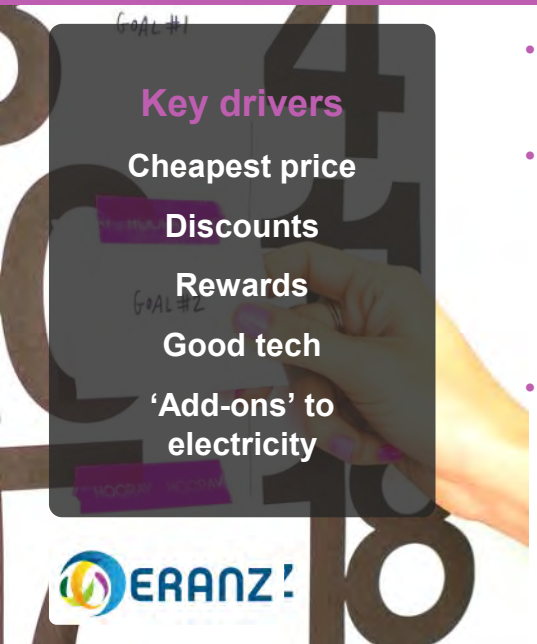
- They are relatively unconcerned about the source of electricity – they are more concerned with the cost
- They are repulsed by fixed price offers – this makes them feel trapped
- They are quite dictatorial in their homes – they 'nag' family members to turn off switches, etc.
- They examine their bill and check numbers



I monitor our use on the app – it was the main reason I chose (provider) – and the fact that they were cheapest of course.

Love the New

electricity spend: Mixed	interest in green credentials	interest in waste minimisation	interest in technology	electricity understanding	customer loyalty
income	home owner	education level	gender	age	segment size: 10-15%



Key drivers

Cheapest price

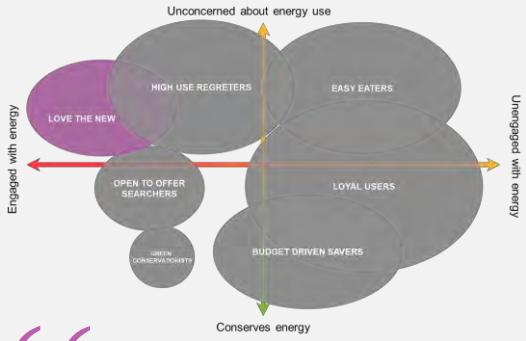
Discounts

Rewards

Good tech

‘Add-ons’ to electricity

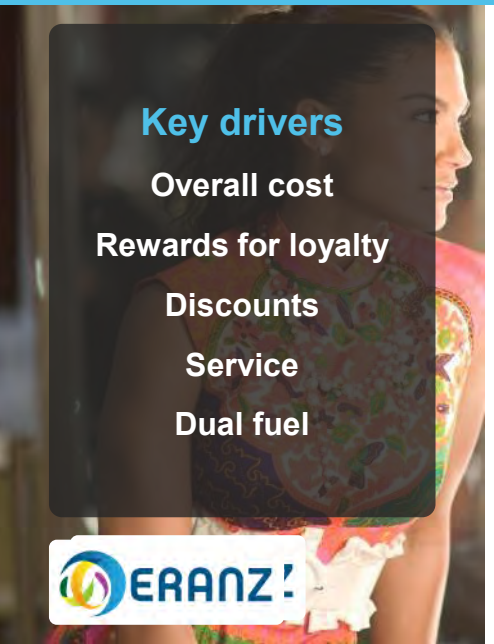
- Love the News (LTN) are fascinated by newness and innovation
- They are strongly tech focussed in all areas of their life and are keen on technologies that are emerging in electricity – they love things such as e-bikes, electricity measurement tools, solar and power storage
- Having said this they are not keen on paying ‘top dollar’ for electricity – they believe that cheapest is ‘good’ and prefer to invest in the areas ‘around’ electricity rather than the electricity itself (e.g. they will pay for solar but seek a ‘cheap’ electricity supplier)
- They are relatively high demand customers – they do not tolerate poor service or high pricing without value being demonstrated
- They are detail oriented and number savvy
- They are not loyal – they tend to go where the mood takes them – often driven by price/discount
- They like ‘newer’ electricity brands because they see their business models as being ‘more today’



I got rid of the hybrid as soon as e-cars became a reality. And I was first in the street to get solar.

High Use Regreters

electricity spend	interest in green credentials	interest in waste minimisation	interest in technology	electricity understanding	customer loyalty
		High but struggles to do so			
income	home owner	education level	gender	age	segment size
					15-20%



Key drivers

Overall cost

Rewards for loyalty

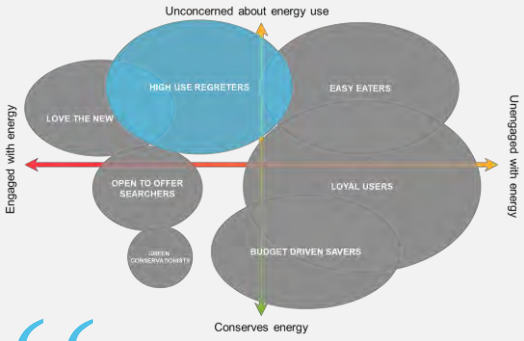
Discounts

Service

Dual fuel

- High Use Regreters (HURs) feel that they cannot control the use of electricity in their home – even though they may prefer to – the presence of teenagers / adult children means that they feel they are ‘fighting a losing battle’ when it comes to electricity conservation and their financial situation means that they can afford to ‘not sweat’ the cost – they use lots of electricity and feel a bit bad about it – but not bad enough to change!
- They try to be ‘sensible’ with electricity by purchasing high star rated appliances, having a well insulated home and using heat pumps – however the sheer number of appliances they have combined with the number of people in their household creates a pattern of high spend / high

- They are not loyal to providers but do not seek out change (they are too busy)– they can be quite negative about some brands for ‘excessive marketing’ - they are open to (but not always seeking out) providers with innovative business models
- They believe that their spend should give them benefits
- They believe that their provider should be an advocate for them and acknowledge their loyalty – they like to feel special
- They believe in sustainability while sometimes struggling to behave in sustainable ways



I’d love to save money on power but I can’t control what the kids do.

Easy Eaters

electricity spend	interest in green credentials	interest in waste minimisation	interest in technology	electricity understanding	customer loyalty
		Very low – want cheaper but without having to do anything	High in life, but not energy		

income	home owner	education level	gender	age	segment size
	Less likely	Mixed			12-18%

Key drivers

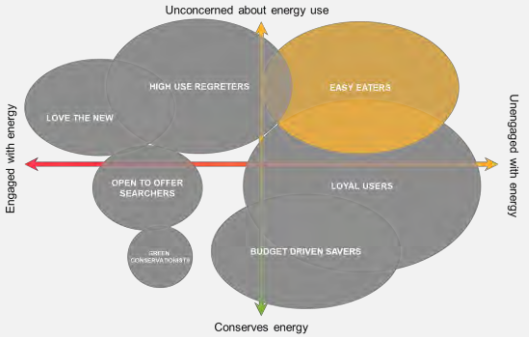
Overall cost

Fixed price offers

Discounts

Easy to understand billing

- Easy Eaters chew through the power due to their relatively large household size – they are distinguished by their desire to not be 'hassled' by bills and have everything done smoothly and easily
- They may be a little wasteful when it comes to electricity
- While not 'loyal' in the traditional sense they will often stay with a provider because it is 'easier' to do so – they believe that change might come with hassle and therefore avoid it
- They are not actively looking to switch providers (though can be talked into it by a persistent sales person on their doorstep) – they have very little engagement with energy or energy suppliers hence 'not thinking about it' is a common sentiment
- They are aware of the high cost of their bills but feel powerless to do anything about them
- They may be poor bill payers and 'bounce around' electricity providers

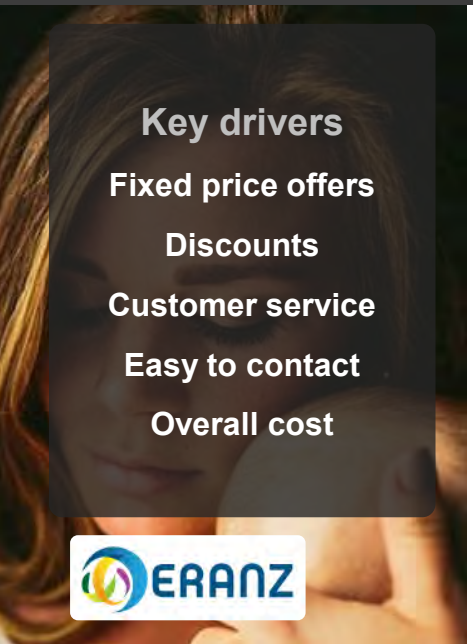


I don't care. Like, I really, really don't care.

Loyal Users

electricity spend	interest in green credentials	interest in waste minimisation	interest in technology	electricity understanding	customer loyalty
low/moderate					

income	home owner	education level	gender	age	segment size
Mixed		Mixed		Mature skew	17-23%



Key drivers

Fixed price offers

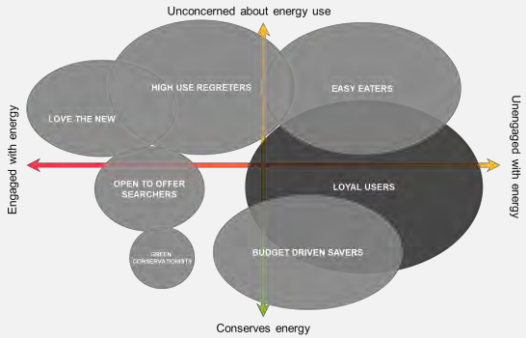
Discounts

Customer service

Easy to contact

Overall cost

- Loyal users are identifiable by their long, enduring ‘relationship’ with their electricity supplier
- Of all segments these folk are most likely to be highly satisfied with their supplier
- They are extremely grateful for any initiatives that target existing customers – and can be a little annoyed that market offers seem to be mostly targeted at acquisition
- They are resistant to offers from other suppliers – seeing no reason to change
- They are deeply suspicious of ‘new’ electricity suppliers – believing that it should be left to ‘the experts’



“I’ve been with (power company) for over 20 years.”

Budget Driven Savers

electricity spend	interest in green credentials	interest in waste minimisation	interest in technology	electricity understanding	customer loyalty
		Low/Moderate			Mixed
income	home owner	education level	gender	age	segment size
	Less likely	Low/Mixed		Mixed	8-15%

Key drivers

Fixed price offers

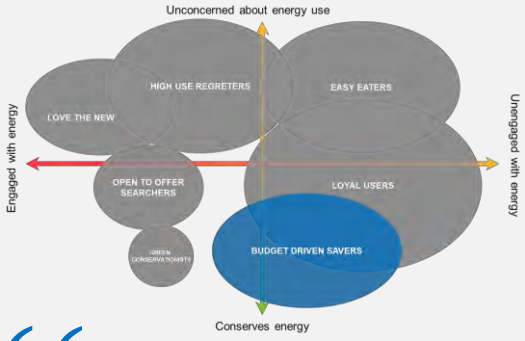
Discounts

Customer service

Easy to contact

Overall cost

- Budget driven savers do whatever they can to reduce their electricity use – not for any 'green' reason – it is simply to try and control their expenditure
- They are fundamentally financially constrained and find making ends meet difficult
- They are unlikely to have a plethora of household appliances – some not even having regular forms of heating in winter
- They may be poor bill payers
- They may lack budgeting skills
- They may be pre-pay to try and manage their expenditure
- They may be loyal – largely because they are not focussed on change – there are too many other issues they deal with on a day to day basis
- Others may advise them to switch providers to try and save money
- They may pay portions of bills or decide which bill is most urgent to pay because they may not be able to afford all expenses at one time
- They have a strong need for people connection – they use call centres a lot



It's just a case of managing really. I can't pay all my bills at once so I take the most urgent first.

5

As we've seen, for many consumers the category appears be both invisible and complicated, and because the emotional connection with everything is so low the dominant conversation has become price related

In fairness no-one ever wants to pay more than they need to for anything, however the focus on price is disproportionate – if it was genuinely the only driver every consumer would be with the 'cheapest' provider – whoever this is – but they simply aren't

This is likely to be because of 3 major factors: inertia, lack of understanding and/or price actually meaning something different

Work within the category encouraging comparison is well established and consistent

While arming consumers with the ability to compare suppliers is admirable, the level of confusion around pricing as well as the lack of information about add-ons provided by different brands when comparing fails to create a balanced conversation and may only be partially informing consumers

Similarly the emphasis is almost totally on 'switch' when the consumer may benefit more from reassurance (e.g. you're on the right plan with the right supplier) – it may be worth questioning the emphasis

As it stands most of the conversations generated by the market focus, almost exclusively, on price at the consumer level, with strong attention to future technologies at the category level.

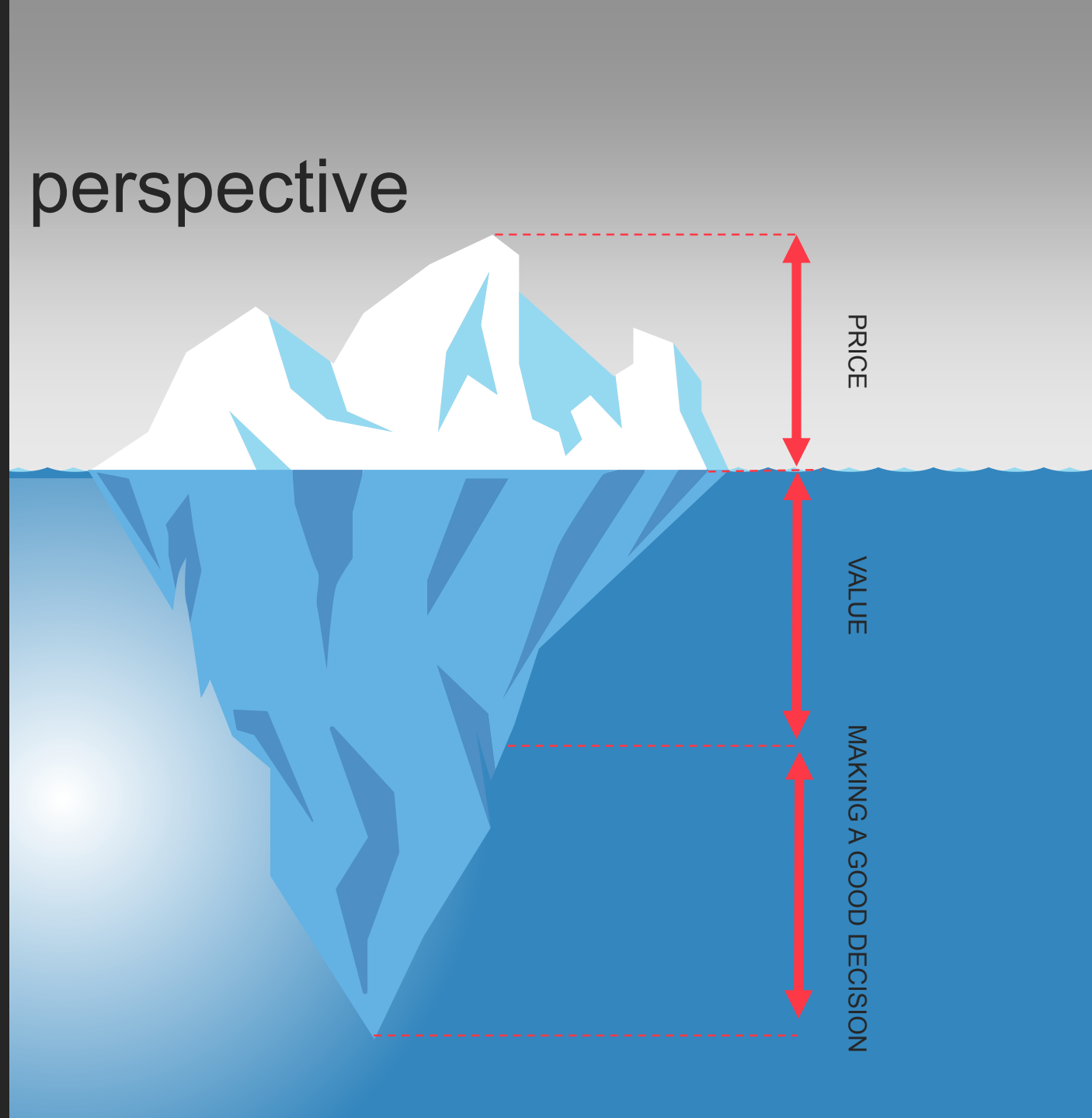
It is clear however that consumers in the market are polarising into two distinct camps – the 'price only' camp – cheapest supply at whatever cost (e.g. will trade time/effort for low cost, will sacrifice service for low cost) versus the camp that places more emphasis on 'value' – getting something beyond price – service, emotional security, technology, clarity, sustainability… and while various brands in the category support this, the market itself does not seem to overtly. We believe that this needs to change for the benefit of different groups of consumers.

People find value in different ways and there may be value in encouraging this rather than continuing the drive toward commoditised thinking (price only) OR electricity saving (conservation) options only. There is a lot of grey that needs to be considered by some market stakeholders and it appears to be an essential to enrich this conversation.

Information suggests that there is increasingly a movement away from the middle – polarities are happening in many markets meaning that having a foot in both camps (a bit of price + a bit of service) seems to be as threatened in this category as it is in others. This is clearly a 'watch out' for brands – standing for something will become increasingly important in this sector as it is in others.

A more fertile conversation / series of actions can be related to the notion of what consumers really want and giving them a sense of having made a good decision (whatever good means for them). While brands are encouraging this, individually wider discussion about the category doesn't support this, and this needs to be addressed.

We believe that the continuing challenge for brands will be to work to allow consumers to know enough to understand both the category and the brand itself in both rational and emotive ways. We believe that the challenge for the category is the creation of a "walk before you run" approach to innovation and consumer value creation, and to encourage deeper, richer understanding of customer behaviour and attitudes.

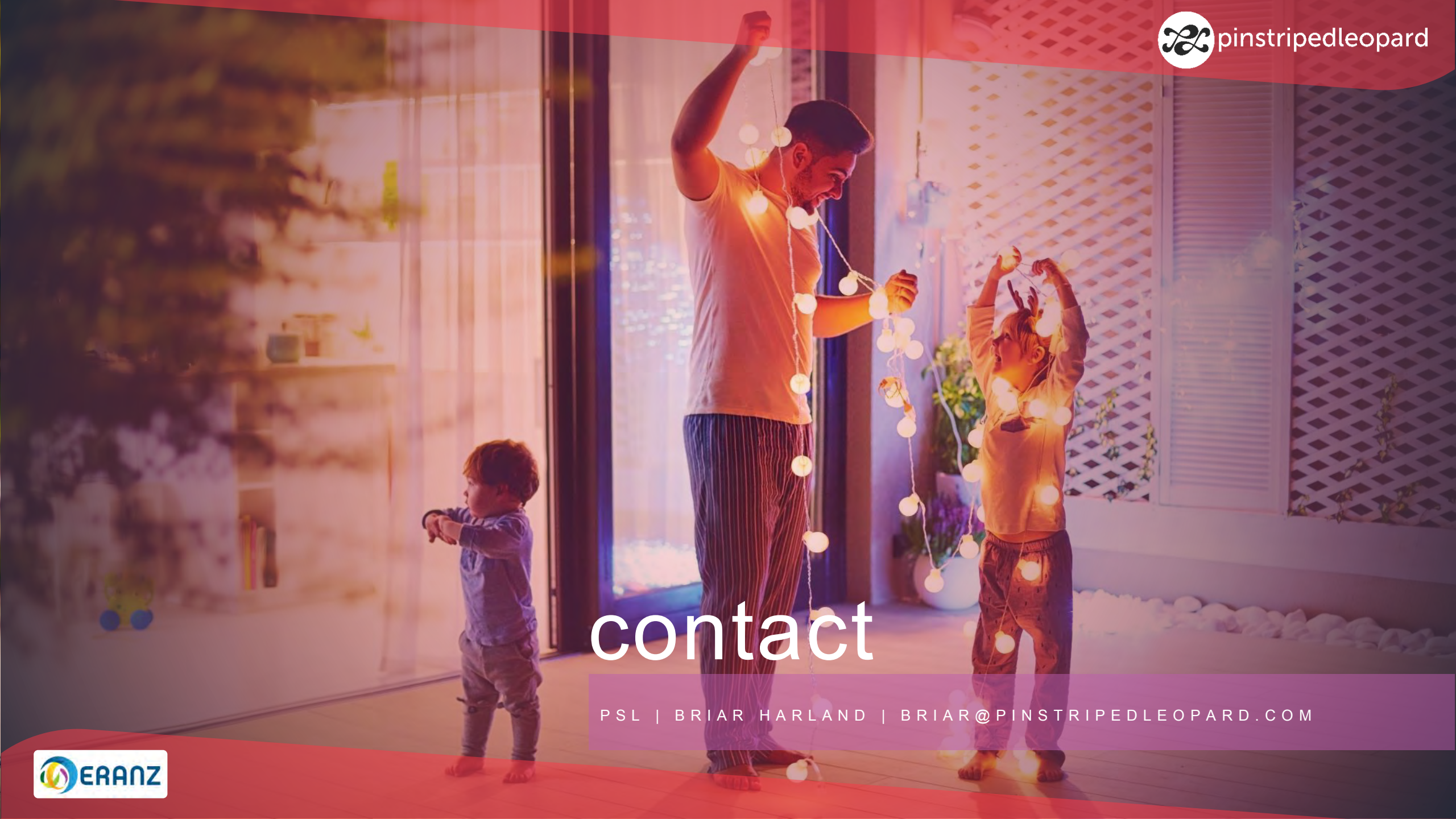


sample size

This information was compiled from a wide variety of studies conducted by independent research companies / researchers for electricity retailers in New Zealand.

It comprises data from both qualitative (focus groups and in-depth interviews) as quantitative methods (online surveys – nationally representative) with samples ranging from N=30 (qual) to N=1600 (quant), as well as summarised data from some organisations. Respondents were typically the bill payer for electricity.

ERANZ



pinstripedleopard

contact

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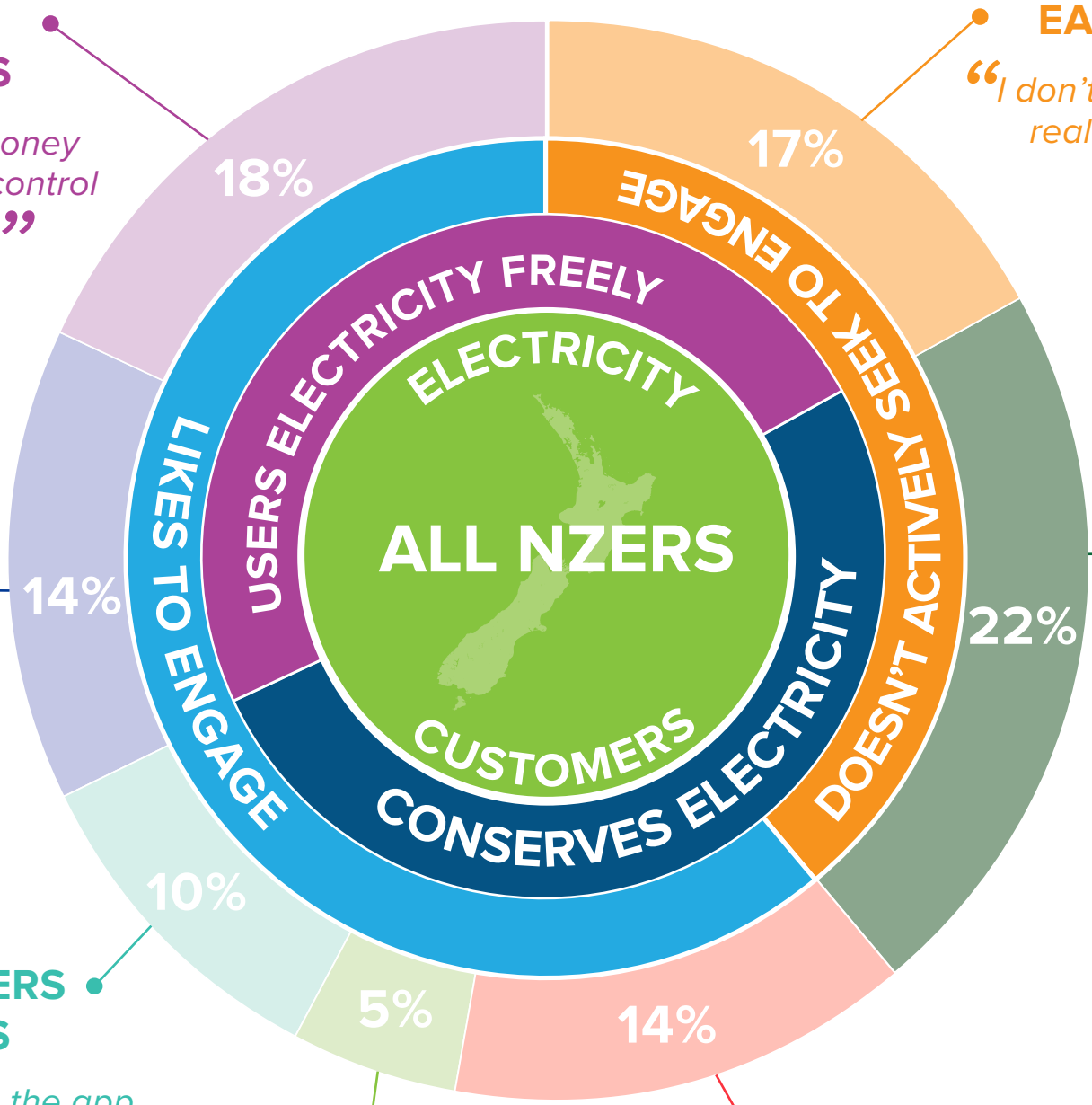
ERANZ

Personality is key

There is no such thing as “THE” electricity customer but we have identified 7 personality groupings.



HIGH RISK REGRETTERS

“I’d love to save money on power but I can’t control what the kids do.”

EASY EATERS

“I don’t care. Like, I really, really don’t care.”

LOVE THE NEW

“I got rid of the hybrid as soon as e-cars became a reality. And I was first in the street to get solar.”

LOYAL USERS

“I’ve been with my power company for over 20 years.”

OPEN TO OFFERS SEARCHERS

“I monitor our use on the app – it was the main reason I chose my power company – and the fact they were cheapest, of course.”

GREEN CONSERVATIONISTS

“I try to live off the grid as much as possible, but prefer to use a sustainable energy supplier in those times when I need to.”

BUDGET DRIVEN

“It’s just a case of managing really. I can’t pay all my bills at once so I take the most urgent ones first.”

For each group needs, wants, expectations and drivers differ – both towards electricity usage as well as towards their power company.

Dimensions of interest

- the degree to which they choose to engage with their power company
- whether they prefer to stay loyal or like to shop around
- how freely they use electricity or how careful and mindful they are of how much they use

ERANZ
Electricity Retailers' Association of New Zealand

Appendix C: Table of potential initiatives

The following table is a result of several ERANZ 'brainstorming' sessions with its members. It provides an outline of possible initiatives that ERANZ members broadly agree may have potential to alleviate issues identified. Note that retailers are not at this stage advocating these as solutions. We are putting these forwards as examples of high-level ideas that could be investigated further – including cost benefit studies - to determine whether they have enough merit to warrant further investigation. All retailers may not necessarily agree on the final solutions developed from the high level initiatives proposed.

Initiative	Notes
1. Promotion of Powerswitch / What's my number (or equivalent) on power bills.	UMR "tracker" surveys suggest in the order of 20 per cent of residential customers may be unaware they are able to switch. [1]. To target raising switching awareness retailers could have their bills display details of how to access 'What's my number' / Powerswitch.
2. Build the next generation of price comparison tool that are right for now and the future.	Indicative estimates are that switching websites are consulted by in the order of 40 per cent of consumers prior to switching. [3]. An enhanced version of Powerswitch – that brings in non-price attributes will assist consumers compare offers. Provider of the service to be determined using an RFP process. Retailers would then promote through (1) above.
3. Consumer advocacy support.	Support introducing a permanent appointed consumer advocate– to operate across a variety of sectors. Service provider to be assigned through competitive tender.
4. Government-funded energy literacy programme.	Government funding of service to improve 'energy literacy' - that is, advice / guidance that improves consumers' ability to engage with the market and access their best deal. Follows ACCC recommendation for a $43m p.a. programme in Australia. Service provider(s) to be assigned contingent on the outcome of RFP process.

Initiative	Notes
5. Formalise MDC/VC guidelines / benchmarks into regulations.	a.) Introduce formal regulated protection of vulnerable and medically dependent customers by codifying the current EA guidelines and industry voluntary benchmarks. b.) Suggest, as an additional element, new rules requiring retailers to use consistent, transparent, and specific statements in their hardship policies – as per the AEMC's recent draft determination [4]. Responsibility for monitoring the codified standards would sit with the EA.
6. Central MDC registry.	Endorse the introduction of a central EA or Ministry of Health registry to ensure MDCs are accurately recorded and tracked. Amongst other benefits, would assist with providing genuine MDCs with the best assistance possible. Could potentially be designed to facilitate verification of MDCs. Absent any privacy restrictions, DHBs, EDBs, and Civil defence could also be given access in an emergency.
7. Repeal of the LFC regulations	LFC regulations which are inequitable need to be repealed. To the extent there is a perceived need for a 'replacement' it is arguable that the Winter Energy Payment meets this need. ERANZ could say if greater 'targeting' is required the Winter Energy Payment could over time be reshaped into a more targeted mechanism to replace the LFC regulations.
8. Targeting of hardship and emergency grants.	Means-tested emergency grants of up to $200 can be made available by WINZ on application by a customer. Support a review of the arrangements for the provision of hardship and emergency grants for customers to ensure this process is efficient.

[1] Refer for further details August 2017 UMR "tracker" survey report, available: https://www.ea.govt.nz/dmsdocument/22803
[2] See for further details page xxII of the ACCC's Final Report, available:
https://www.accc.gov.au/system/files/Retail%20Electricity%20Pricing%20Inquiry%E2%80%94Final%20Report%20June%202018_0.pdf
[3] See for further details page 34 of UMR's 2014 'International comparison of switching activity behaviour and attitudes" 2014 report, available:
https://www.ea.govt.nz/dmsdocument/19155-survey-international-comparison-of-activity-behaviour-and-attitudes-towards-electricity-industry
[4] See for further details: https://www.aemc.gov.au/rule-changes/strengthening-protections-customers-hardship

Access to Energy (A2E) Projects

ERANZ A2E project focus is on practical solutions that result in people having warm, dry homes. ERANZ members are funding a project manager (seconded for 12 months from the Sustainability Trust) to build business cases for our proposed Access to Electricity (A2E) projects. The proposed projects were determined in partnership with the Ministry of Health, Ministry of Social Development, EECA, Housing New Zealand, National Building Financial Capabilities Charitable Trust, University of Otago, lines companies, and power companies, and other stakeholders- including end consumers.

ERANZ Access to Energy - Projects currently having business cases prepared for assessment of viability	
Energy Coach - Targeted help for those in most need	People struggle to navigate the energy landscape. There is lots of information, but some families need extra help to get them to a better place. Coaches that can come in and help ring up the agencies to access support , get better insulation, heaters, talk through their energy plan, and how to make their home warmer and more energy efficient. There are some parts of the country where this is happening already well (Auckland Well Homes Initiative, Sustainability Trust in Wellington) and learnings can be applied to target groups in other parts of the country (e.g. target through Healthy Homes Initiative programme to help those at risk of rheumatic fever).
Bulk purchasing housing agency deals.	Work with HNZ / other social housing agencies to work up arrangements for bulk power deals, enabling customers to be provided with housing + power deals incorporating a sharp energy price, determined through some form of competitive process. (See A2E projects for similar initiative below)

EDB Efficiency and Performance

A Qualitative Review

13 August 2018

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1. Summary

Lines costs have increased significantly over recent years, causing electricity prices to rise for consumers. While the efficiency of electricity distribution businesses (EDBs) would be expected to improve over time, it appears the opposite is occurring.

This report discusses a number of factors that are contributing to inefficiencies in the EDBs, including their increasing investments in non-core businesses, weaknesses in the regulatory regime, slow progress in harmonisation and issues with distribution pricing.

EDBs have been investing heavily in non-core businesses in recent years, both related and unrelated to electricity distribution. The investments range from making wine to making socks, with one EDB (Scanpower) getting 59 percent of its revenue from sources other than network activities. This growing investment in non-core activities is reducing the focus by EDBs on their core business, exposing the EDBs to increased commercial risks, permitting cross-subsidisation of EDB's activities in competitive markets and resulting in an increase in related-party transactions.

In recent years EDBs have seen negative productivity growth, with lines prices increasing in real terms and the reliability of electricity supply declining. The current regulatory regime is clearly not achieving its goal of incentivising EDBs to innovate, invest and improve their efficiency.

There has also been a lack of progress in harmonisation of use-of-service agreements, distributor tariffs and other structures. Though established retail firms tend to already have systems in place to deal with the various structures across the 29 EDBs, the lack of harmonisation is creating barriers for new entrants to the retail market.

In addition, current distribution pricing methodologies are often not cost-reflective and are creating misaligned incentives, especially around new technologies.

Though there are a number of areas of concern surrounding distribution companies, we acknowledge that not all the issues apply across all the EDBs. Some networks are operating efficiently, considering all costs, benefits and customer impacts while others are failing to do so. Some networks are well placed for future challenges and actively investing in infrastructure while others have steadily degrading assets or are focusing their investments elsewhere.

Overall though the current regulatory environment for the EDBs does not appear to be working well in terms of providing incentives for the EDBs to improve their productivity and reduce costs for consumers. The current trust ownership structures of many EDBs is also likely to be weakening the incentives for the EDBs to act efficiently and impeding rationalisation in the sector. Further there is a lack of good information in the industry on the "current state" of each network, including its efficiency levels, projected growth and infrastructure spend requirements.

We think multi-faceted solutions are required in order to address these multi-faceted issues and ensure these monopolies are performing as efficiently as possible and promoting the long-term interests of consumers. Our specific recommendations for change are in section 7.

2. Introduction

2.1 Background

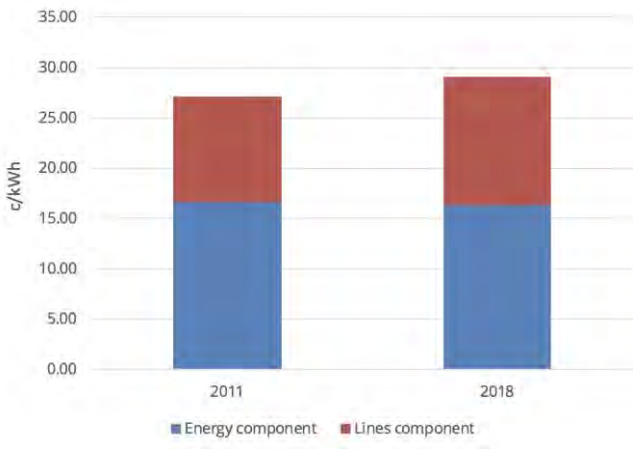
In 2017, 31,369 GWh of electricity was delivered to households and businesses across New Zealand. This electricity ran across 153,000 km of lines, facilitated by the 29 electricity distribution businesses (EDBs) that operate across the country. These 29 EDBs are responsible for $11 billion worth of network assets, and the way they operate these assets has implications for the entire economy.[1]

The cost of electricity is a combination of an energy component and a lines component. The energy component accounts for, on average, around 60 percent of the cost, and is made up of both generation and retail. The lines component accounts for, on average, around 40 percent of the cost, and is comprised of transmission and distribution. The proportion of an electricity bill made up by distribution costs can vary significantly from area to area. On average, distribution accounts for approximately 28 percent of total electricity bills, though this proportion varies across regions, ranging from 18 percent up to 45 percent.[2]

2.2 Rising electricity distribution costs

Looking at residential electricity prices over the last eight years, there has been 7 percent rise in average prices (in real terms), from 27 c/kWh in 2011 to 29 c/kWh in 2018.[3] The energy component of electricity prices has declined slightly over the period, falling by 2% between 2011 and 2018. The cause of the increase in residential prices has been the lines component, which has risen by 21% percent over the period. Figure 1 below illustrates the composition of 2011 electricity costs compared to 2018, in real $2018.

Figure 1: Residential electricity price 2011 and 2018 ($2018)



Source: Ministry of Business, Innovation and Employment.

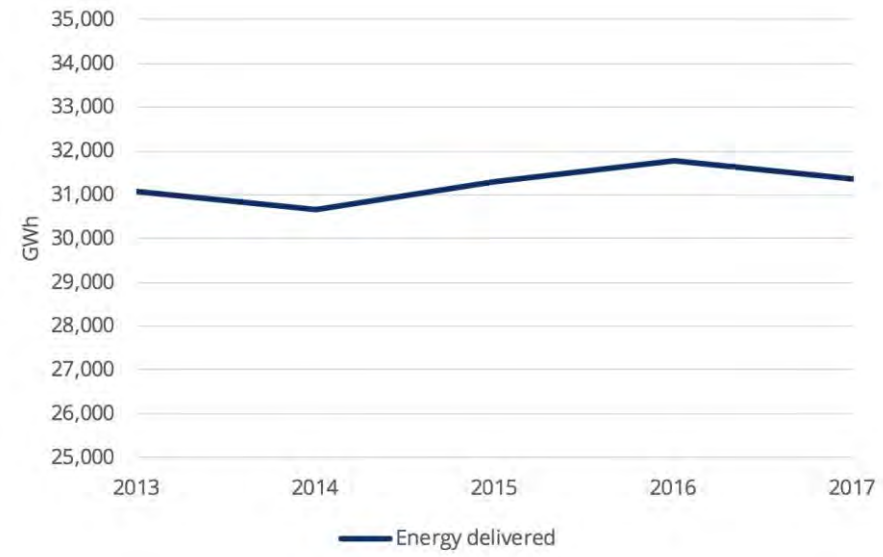
As Figure 1 above illustrates, the electricity price increase from 27 to 29 c/kWh over the last seven years is a result of substantial increase in the cost of the lines component, while the energy component remains level. This raises questions surrounding the efficiency of the distribution sector and what might be contributing to rising

[1] Commerce Commission, "One page summaries of electricity distributors", page 2.
[2] Commerce Commission, "Open letter requesting feedback on recent CPP path processes", page 17.
[3] All figures are in real (inflation-adjusted) 2018 dollars.

lines costs. Distribution accounts for more than two thirds of lines costs, and as discussed above, this cost can vary significantly across the country.

It is interesting to note that while electricity distribution costs are rising, the total energy delivered across distribution networks over the last five years has been relatively steady at around 31,000 GWh.[4] The trend in total energy delivered is shown by Figure 2 below.

Figure 2: Total energy delivered by distribution networks over the last five years (GWh)



Source: Commerce Commission.

2.3 Investigation into rising distribution costs

The recent increases in EDBs' costs in part reflect increasing need for asset upgrades and replacing end-of-life infrastructure. Table 1 below gives a breakdown of aggregate EDB capital expenditure over the past five years. Total capital expenditure has fluctuated over the last five years, though over the period as a whole, capex has increased by 6 percent (from 2013 to 2017). Over this time, asset replacement and renewal has increased by an average of 9 percent per year.

Table 1: Breakdown of EDBs' total capital expenditure over the last five years

($ millions)	2013	2014	2015	2016	2017
Asset replacement & renewal	232	262	287	289	335
Consumer connection	126	139	173	185	195
System growth	208	237	222	172	120
Reliability, safety & environment	65	77	85	69	55
Non-network assets	85	76	55	49	44
Asset relocations	35	39	35	38	46
Total Capital expenditure	751	829	857	802	794

[4] Note that this data is from the Commerce Commission's 2017 performance summaries of electricity distribution, which provides five year data summaries.

Increases in capital expenditure, largely in the form of asset replacement and renewal, are likely to be one of the causes of the increases in lines costs in recent years. These capex increases are unlikely to be the only contributing factor. This report investigates a number of other possible causes of rising distribution costs including:

- the lack of focus of EDBs;
- weakness in the regulatory regime for EDBs;
- the lack of progress in harmonisation in the sector; and
- distribution pricing.

We believe it is becoming increasingly important to identify and address problems that currently exist in the electricity sector. With new technology changes on the horizon, the electricity sector is currently moving towards a world of deep uncertainty. This stresses the importance of agile, dynamic and forward-thinking governance within the sector. Areas of inefficiency in the current regime are likely to be exacerbated as new challenges arise, which will ultimately be felt by the consumer through rising electricity prices. We therefore believe that it is pertinent to address areas of inefficiency now rather than see these issues grow.

3. Lack of focus of EDBs

The core business of an EDB is to distribute electricity to its given community. Many EDBs also operate in other markets, both related and unrelated to the EDB's core activities. The reasons for EDBs diversifying may include the desire to create new revenue sources, the ability to efficiently enter related markets or the desire to invest in the local community. Regardless of the reasons behind diversification, entering other non-related markets can result in EDBs losing focus on their core business. It can also lead to problems where EDBs cross-subsidise their non-core activities and enter into related party transactions on a non-arm's length basis. Each of these issues is considered in turn below.

3.1 Investment in non-core activities

There has been significant growth by EDBs into non-core businesses in recent years. While investment in core network assets is still occurring, there is also a high propensity for EDBs to invest in connected industries and to venture into activities with no direct links to their core business.

Appendix 1 illustrates the spread of investment by EDBs, presenting a table of their various subsidiaries and joint ventures. It shows that 18 of the EDBs operate over 50 subsidiaries, joint ventures or have other business segments not related to electricity distribution. Some of these investments include clothing manufacturing and wine production. This level of horizontal movement into non-core business segments by these natural monopoly firms is worth noting and could be indicative of governance problems within the firms, where management is not acting in the best interest of the owners or consumers.

In 2014/15 the Office of the Auditor-General produced a report auditing the energy sector. The report pointed out that around a quarter of EDBs own construction/contracting subsidiaries that carry out network maintenance, construction and development. [5] These companies also often subcontract to Transpower. Electricity generation, telecommunications and fibre networks are also common investments.

A handful of EDBs also undertake business offshore. Vector operates 'Vector Advanced Metering Services' as well as HRV (ventilation) in a number of Australian locations. Alpine Energy's subsidiary Infratec Renewables Ltd was subcontracted to install an off-grid solar array in Rarotonga, alongside a similar project in Afghanistan. Unison also operates in Australia, the Pacific Islands and recently Indonesia through its company ETEL, specialising in distribution transformers.

Vector is the EDB with the largest non-regulated asset base, with investments in at least 25 subsidiaries. These subsidiaries include metering, vegetation management and energy generation, alongside a range of businesses in industries such as natural gas trading, telecommunications and home heating.

As for EDB investments in unrelated activities, Marlborough Lines' entry into the wine industry is an example. In 2014 Marlborough Lines sold its shares in OtagoNet and Horizon Energy Distribution Limited and subsequently invested $89 million into an 80 percent share of Yealands Wine Group (YWG), a Marlborough based grape grower and winery. Marlborough Lines has since purchased the remainder of the shares in YWG, with Chairman David Dew stating that there were plans to expand the wine group for the benefit of electricity consumers. [6]

Scanpower is another example of an EDB heavily invested outside of its core distribution business. In 2017 Scanpower reported 59 percent of total revenue from sources other than network activities. Its range of

[5] Controller and Auditor General, "Energy sector: Results of the 2014/15 audits", pages 19-24.
[6] https://www.radionz.co.nz/news/business/361271/marlborough-lines-takes-on-full-ownership-of-yealands.

activities included property development, powerline contracting, vegetation management, plumbing and electrical contracting divisions, as well as a one third share in the Kiwi Sock Company.

The scale and growth of EDBs' non-core investments are cause for concern for a number of reasons including:

- the shifting of focus from the EDBs' main role as electricity distributors to other areas of business. As alternate revenue streams increase, there can be situations where senior management concentrate less on their primary purpose as a distributor;

- the increased commercial risks EDBs take on by moving into non-core activities. These non-core businesses have much different and much higher risk profiles than the regulated services. There are numerous examples of non-core investments going wrong and failing to achieve for shareholders the desired returns;

- issues surrounding corporate management and governance under diversified business structures. It is highly important for EDBs to ensure governing bodies have the experience and skills to manage their diverse business interests; and

- whether or not capital used for non-core businesses could have been used for the betterment of core network services. Particularly within the current context where asset replacement and gearing for new technologies is becoming increasingly important, it is critical that EDBs consider all capex options and do not lose focus on their core role as distributors.

3.2 Cross-subsidising commercial interests in competitive markets

One of the other key risks surrounding non-core EDB activity is the ability for these monopoly firms to use their market dominance in one market (electricity distribution) to enter other, competitive, markets on a privileged basis. The EDBs can use their privileged monopoly position in electricity distribution to cross-subsidise their operations in other competitive markets, crowding out other more efficient (but unsubsidized) competitors.

Box 1: Vector in the consumer battery market

Vector receives annual funding from Entrust (its major community trust shareholder), with the funding historically being used for local undergrounding projects. In 2015 the parameters for this fund were altered to include investment in new technology, and the programme was renamed "The Energy Solutions Programme". Under this programme, Vector began a project installing Tesla Powerwall batteries into homes and schools and advertising the opportunity to receive a free battery to existing electricity customers. In Vector's 2015/16 report to Entrust on the progress of the programme, the company states:

"Vector will use the project to kick start the company's entry into the residential energy storage/management market in September 2016."

This statement indicates signs of cross-subsidisation, which promotes inefficient outcomes in the consumer battery market. In allocating Trust funds to further the company's commercial interests rather than towards its role as a community-owned network distribution company, the EDB may not be operating in the long-term best interests of consumers.

Source: Vector, "Report to Entrust – The Energy Solutions Programme", August 2016, Page 9.

Box 2: EV charging investments included in RAB

The inclusion of EV chargers in an EDB's regulated asset base (RAB) is another possible cross-subsidisation issue. Orion, for example, first began installing EV chargers in 2016, and has since established 25 facilities in public locations and 18 at its head office, all available for public use. Orion is planning on installing another 10 to 15 facilities within the current financial year.

Orion states that it has included EV chargers in its RAB on the basis that:

"They are related to and support [Orion's] regulated service, and are an innovation that is for the long term benefit of consumers of line services."

Orion also stated this investment is aimed at seeding the EV market, with the objective of moving the market to a situation where the competitive market can take the reins. Orion continued by saying that the spending on EV chargers has only totalled just over $1 million, 0.1 percent of its RAB. Orion currently receives no revenue from EV chargers.

Recognising that EV charger installation are not part of an EDB's core distribution role, the Commission recently released an open letter on the issue. The letter mentioned the need to promote competitive markets and that regulated monopolies should not have an advantage over current or future competitors in this space.

We agree with the Commission on this issue. Though EV charging infrastructure is important for New Zealand, it is not a job for natural monopiles to take on, as market competition has and will continue to develop. Orion has effectively been passing on EV charger costs to all of their electricity consumers, rather than let the private market function naturally.

While innovation and investment in future-facing technology is important for EDBs, their focus should be on distribution network technology related to their core business.

Sources: Orion, "Response to Commerce Commission's open letter on emerging technologies", May 2018, page 2.
Commerce Commission, "Open Letter - Our intention to gather information relating to emerging technologies", May 2018.

The examples above illustrate the propensity for EDBs to use their privileged position in the regulated electricity market to enhance their position in other competitive markets. This results in:

- negatively impacting on competitiveness in market and crowding out more efficient competitors; and
- the misuse of funding which should be employed for the enhancement of their core distribution business.

3.3 Related-party transactions

Related-party transactions follow directly on from the issue of cross-subsidisation described above. Commerce Commission statistics show a steep rise in related-party transactions over the past three years, with a compound annual growth rate of 15 percent.[7] The Commission also noted that some EDBs have as much as 95 percent of total opex and 100 percent of total capex undertaken by a related party. Appendix 2 presents a map showing the level of related-party transactions by each EDB, illustrating the high proportion of related-party transactions.

Services commonly provided by related parties include contracting (such as first response, new build, routine maintenance and operating and vegetation management), corporate services and communication services (such as SCADA and fibre).

The central issues surrounding related-party transactions include:

- concern over the incentives for EDBs to use unregulated related parties to boost their combined profits;
- whether or not transactions with related parties are undertaken on arms-length terms;
- whether having related parties can create conflicts of interest for the EDBs (e.g., an EDB that owns a vegetation-management business may be less inclined to underground); and
- whether EDBs are incentivised to use related parties regardless of whether market competition can provide the good or service more efficiently.

Asplundh, a private vegetation management company, estimates that 50 to 80 percent of network vegetation opex by the EDBs is delivered in-house, or by contractors selected using limited competitive processes. Asplundh states that there have been examples in the past where the private market could provide the same service at rates that were up to 33 percent more cost-effective.[8] This indicates that there are cases where related-party transactions may be causing unnecessarily high, inefficient capex and opex costs to EDBs.

The Commerce Commission recognised that there were issues surrounding related-party transactions during its recent Input Methodologies review. The Commission subsequently completed a separate review into related-party transactions, making changes regarding valuation and information disclosures, adding a principles-based

[7] Commerce Commission, "One page summaries of electricity distributors", page 2.
[8] Asplundh letter to the Commerce Commission, "Input Methodologies Review - draft decisions, topic 7: Related Party Transactions", August 2016.

approach to assessing arms-length transactions and requiring an independent auditor to review major capex or opex transactions[9].

The important point moving forward will be monitoring and enforcing the Commission's new related-party regulations, in order to ensure they achieve the goal of levelling-out the playing field and enhancing competition in these markets.

[9] Commerce Commission, "Input methodologies review – related party transactions, final decision and determination guidance", December 2017, pages 7-9.

4. Weaknesses in the regulatory regime for EDBs

There is cause for concern over whether the regulatory regime for EDBs is achieving its goals and is functioning as effectively as it could. This includes price-quality regulation alongside other concerns about regulatory processes.

4.1 Price-quality regulation

As discussed on the Commission's website, there is a need for price-quality regulation of EDBs because each EDB operates in a market with little or no competition. The Commission states that:

> *"Price-quality regulation is designed to ensure that EDBs have similar incentives and pressures to suppliers operating in competitive markets to innovate, invest and improve their efficiency. It also aims to limit the ability of suppliers to earn excessive profits, while also ensuring that consumer demands on service quality are met."* [10]

At present, 14 EDBs are price-quality regulated on a default price-quality path (DPP), while three (Orion New Zealand, Powerco and Wellington Electricity) are on a customised price-quality path (CPP). [11] The remaining 12 EDBs are exempt from price-quality regulation, as a result of being consumer-owned. These 12 EDBs are subject to information disclosure requirements under Part 4 of the Commerce Act, 1986. Information disclosure requirements oblige each EDB to publicly disclose, before the start of each disclosure year, a pricing methodology that describes any changes in prices and target revenues.

4.1.1 The basis of the DPP

At the start of the regulatory period, the DPP is established, setting the maximum average price that each EDB can charge.[12] The DPP also sets the rate at which EDBs are allowed to increase their average price each year. The maximum average price for an EDB in a given year is set by 'CPI – X'. CPI relates to the general rate of inflation, while X is a "productivity-based" rate of change in price that is designed under economic regulation to provide an incentive for EDBs to reduce their costs and improve their productivity.

Section 53P(6) of the Commerce Act sets out that:

"the rate of change (X) must be based on the long–run average productivity improvement rate achieved by either or both of EDBs in New Zealand, and suppliers in other comparable countries, using appropriate productivity measures"

4.1.2 Price increases under the DPP

Table 2 below illustrates the prescribed rate of change (X) decided on by the Commission for each EDB firstly for the 2010-2015 period, secondly following the 2012 reset and lastly for the current 2015-2020 period.

[10] http://www.comcom.govt.nz/regulated-industries/electricity/electricity-default-price-quality-path/.
[11] Orion is scheduled to transition to the DPP on 1st of April 2019. Powerco and Wellington Electricity recently transitioned to a CPP, both with a start date of 1st of April 2018.
[12] As from 2020, the regulatory regime will move from capping EDBs' average prices to capping total revenue.

Table 2: The rate of change (X) over recent periods

	Rate of change (X)		
	2010 - 2015 period	2010 - 2015 (post 2012 reset)	2015 - 2020 period
Alpine Energy	0%	-10%	-11%
Aurora Energy	0%	0%	0%
Centralines	0%	-10%	-7%
Eastland	0%	0%	-3%
Electricity Ashburton	0%	0%	0%
Electricity Invercargill	0%	0%	0%
Horizon Energy	0%	0%	0%
Nelson Electricity	0%	0%	0%
Network Tasman	0%	0%	0%
OtagoNet	0%	0%	0%
Powerco	0%	0%	0%
The Lines Company	0%	-10%	0%
Top Energy	0%	-10%	-7%
Unison	0%	-8%	0%
Vector	0%	0%	0%
Wellington Electricity	0%	0%	0%

Source: Commerce Commission

When the DPP was originally set at the start of the 2010 period, an X-factor of 0 percent was applied to all EDBs subject to the DPP. This implies that each EDB was allowed to annually increase its average prices at a rate equal to the CPI, with no requirement for each EDB to materially improve productivity.

In 2012 the Commission finalised new input methodologies and decided to reset the 2010-2015 DPP under this new framework. The reset brought about a number of changes to the DPP including:

- the inclusion of alternative rates of change (X-factor) for particular suppliers in the case where the set rate of X would cause price shocks to consumers or financial hardships to suppliers.[13] As Table 2 illustrates, Alpine Energy, Centralines, Top Energy, The Lines Company and Unison were each assigned alternative rates of change which allowed them to increase their prices by 8 to 10 percent more than inflation;

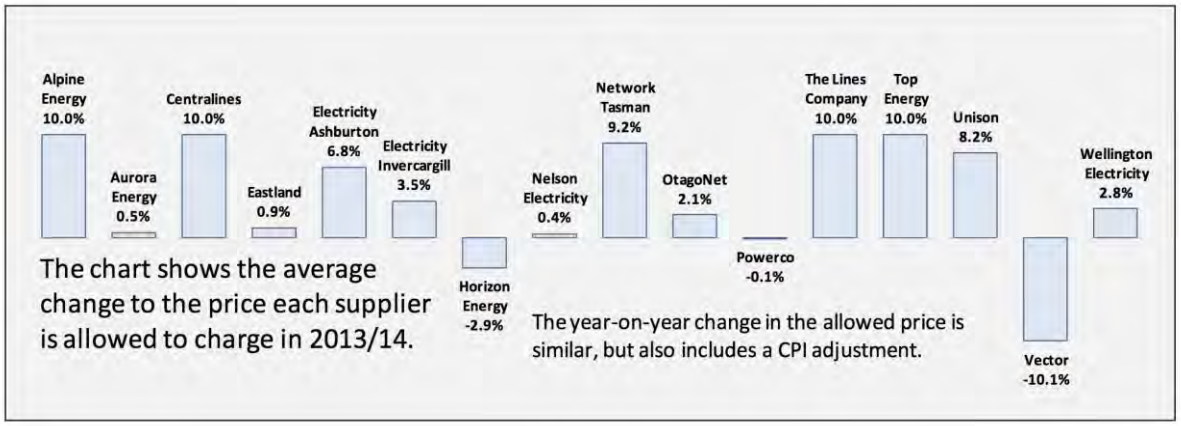
- adjustments to the allowed starting prices of each EDB, based on the current and projected profitability of the business. The idea behind this clause was to facilitate a reset back to normal profits for all EDBs; and

- allowances of clawbacks on revenue shortfalls from previous periods. The clawback allowance was utilised by 13 of the 16 EDBs to compensate for shortfalls in revenues that occurred under the previous prices. The other three EDBs (Horizon Energy, Powerco and Vector) were charged clawbacks, as compensation to customers for previous over-recovery of costs.

[13] A cap of 10% was set on real price increases, as the Commission viewed any higher rate as leading to undesirable price rises.

Figure 3 below illustrates the changes in price of each EDB after the 2012 reset.[14] Alongside 10% average price increases for Alpine Energy, Centralines, The Lines Company and Top Energy, nine other EDBs saw an increase in average prices after the 2012 reset. As a result of clawback charges, Powerco, Horizon Energy and Vector saw a decrease in average price for the 2013/14 year.

Figure 3: Change in average prices of each EDB after the 2012 DPP reset



Source: Commerce Commission

4.1.3 Quality incentives

One notable change for the 2015-2020 period was the introduction of a new quality-incentives scheme whereby EDBs are rewarded for outperforming the reliability target set by the Commerce Commission. The scheme is systematic and allows an outperforming EDB to recover additional revenue, while penalizing EDBs for achieving below the target (with a defined collar on gains and a cap on losses).

SAIDI and SAIFI targets are set based on average historical performance of each EDB. Targets are calculated as the average of annual normalised SAIDI and SAIFI between 1 April 2004 and 31 March 2014 and are fixed for each regulatory period.[15] The reliability targets set for the 2015-2020 period are shown in Table 3 below.

[14] Commerce Commission, "Resetting the 2010-15 Default Price-Quality Paths for 16 Electricity Distributors", page 9
[15] Commerce Commission, "Default price-quality paths for electricity distributors from 1 April 2015 to 31 March 2020, Quality standards, targets, and incentives", page 32.

Table 3: Reliability targets for 2015-2020 for each EDB

EDB	SAIDI Target	SAIFI Target
Alpine Energy	132.8	1.30
Aurora Energy	74.5	1.29
Centralines	119.1	3.52
Eastland Network	242.1	3.09
Electricity Ashburton	132.8	1.39
Electricity Invercargill	24.1	0.59
Horizon Energy	150.1	1.92
Nelson Electricity	16.2	0.18
Network Tasman	112.5	1.23
Orion	73.4	0.87
OtagoNet	224.6	2.52
Powerco	188.9	2.11
The Lines Company	208.8	3.07
Top Energy	405.4	5.28
Unison Networks	99.1	1.94
Vector Lines	96.0	1.29
Wellington Electricity	35.4	0.55

Source: Commerce Commission

This systematic scheme appears to be a step towards improvements in EDB incentives. However upon analysis of the 2017 disclosure year, we found that only one (Horizon Networks) of the 29 EDBs achieved its reliability target and received a quality incentive revenue increase. Horizon was rewarded with an extra $206,000, with an impact of 0.19 percent on its allowed return on investment.[16] The remaining 28 EDBs did not reach their prescribed target SAIDI and SAIFI levels, though we note that no EDB was charged penalties for not achieving the quality standards.

4.1.4 The effectiveness of the current regime

Under the current regulatory regime, we have questions surrounding whether or not there is evidence of efficiency, productivity and reliability improvements.

Prior to the 2015 DPP reset, the Commission engaged Economic Insights to review the total factor productivity (TFP) growth of EDBs in New Zealand in order to set the new X-factor.[17] Economic Insights deemed TFP for the EDBs to be -1.08 percent p.a. over the period from 2004 to 2014.[18] This decline in TFP has been largely attributed to growth in EDB capital investment.

If TFP has decreased in recent years due to growth in capital investment, it seems reasonable to expect that the quality of the service provided by EDBs has improved following this capex. However, the average reliability of

[16] Horizon Networks, "Information Disclosure Reports 2017", page 5.
[17] Economic Insights, "Electricity distribution industry productivity analysis: 1996 – 2014", October 2014, page iii.
[18] These figures are for TFP involving two output specifications: customers numbers (46%) and circuit length (54%). Economic Insights' report also calculated three and four output based TFP estimates, however it recommends the use of two-output TFP for calculating the X-factor.

distribution networks has been steadily declining in recent years. Table 4 below shows rises in average SAIDI and SAIFI since 2013, indicating diminishing service quality, despite increases in capex.

Table 4: Average SAIDI and SAIFI for EDBs from 2013 to 2017

	2013	2014	2015	2016	2017
Outages - SAIDI (mins)	145	255	338	192	299
Outages - SAIFI	1.78	2.08	2.23	2.03	2.15

Source: Commerce Commission

As noted above, economic regulation (including the CPI – X regime) of the EDBs by the Commerce Commission was designed to give EDBs incentives to innovate, invest and improve their efficiency. In reality we have seen:

- negative productivity growth;
- increasing real prices for households (as section one discusses); and
- declining reliability.

Overall, while the CPI-X and quality-incentive schemes may be sound in principle, we have several concerns over the extent to which the current mechanisms are achieving the desired goals of enhancing productivity, efficiency and reliability.

We acknowledge that designing and managing a regulatory regime that effectively incentivises monopolies to improve efficiency as well as improving reliability and performance is a complex task. A 2012 report by Castalia on behalf of Vector on the topic of regulatory incentives and service quality discusses the experiences of other countries with this same issue. The report particularly looks at the situation in the United Kingdom, finding that the following three factors are essential to effective regulation:

1. incentives to reduce costs are **balanced** by effective service quality incentives. This is an area that the Commission appears to be already attempting to address, with the revenue linked quality incentives introduced in 2015. As discussed above however, the extent to which these have been effective thus far is questionable;

2. **stable** incentives are required in order to encourage efficient outcomes. Experiences in the UK found that extending the regulatory period from 5 to 8 years allowed EDBs to retain the benefits of efficiency gains for a longer period; and

3. in order to stimulate innovation and investment, incentives must be **targeted**.[19]

Ultimately, Castalia's report emphasises the need for regulatory regimes to create and maintain a comprehensive package of incentives to EDBs to improve efficiency, invest and innovate. The current regime does not appear to be creating improvements in these areas. We therefore see it is as timely to review the effectiveness of the current regulatory regime and how better outcomes for consumers can be achieved.

[19] Castalia, "Evidence on the impacts of regulatory incentives to improve efficiency and service quality – Report for Vector Limited", April 2012, pages 3 to 7.

4.2 Other concerns

We have a number of other concerns regarding the regulatory regime for EDBs. These concerns relate to the regime operated by the Commerce Commission and include:

- the use of the 67th percentile (rather than midpoint) in setting the weighted average cost of capital (WACC) for the EDBs' regulated services;
- the use of a comparator sample set that consists of firms with riskier profiles than the New Zealand regulated services;
- the decision to change from a weighted average price form of regulation to a revenue cap without any reduction in the beta to compensate for the resulting transfer of the risk of fluctuations in demand from investors to consumers; and
- the decision to allow EDBs to accelerate their depreciation charges (and thus increase prices) in the face of technological change.

These factors provide reason to question whether there has been a historic tendency for regulation to be weighted in the favour of the distribution companies, with outcomes that ultimately are not in the long-term interest of consumers.

Evidence that consumers are paying too high prices as a result of an overly generous regulatory regime can be seen in the historic sale prices for regulated electricity and gas networks in New Zealand. The Regulated Asset Base (RAB) Multiple is the asset sale price divided by the approved RAB. In theory, RAB multiples should be equal 1.0x. That is, when a regulated asset is sold, if the regulatory system was working perfectly and the assets were being run efficiently, asset exchange would occur at the same value as the RAB, with no gain or loss on sale.

The Commission itself has made the following references to historic RAB multiples: "We note that the observed RAB multiples . . . range on average from 1.2 to 1.4 depending on whether 'other financial obligations' are included in the estimate of enterprise value" and "Our RAB multiples analysis suggests the following: there is evidence of excess returns available to investors in regulated utilities". [20]

The Vector gas asset sale in November 2015 highlighted evidence of excess returns and a regulatory environment that is favourable to the regulated entities at the expense of consumers. Market analyst RAB multiple estimates for the sale of Vector's gas assets were between 1.33 and 1.5x. [21] That is a 33 to 50 percent higher sale price to the Vector shareholders than the regulated value of these assets. We are not aware of any evidence or reason to expect that these RAB multiples will have come down since then.

Embedded networks are another regulatory issue of increasing concern in the electricity sector. There are currently around 200 unregulated embedded networks operating in New Zealand. We have concern over the disproportionate amount of power over customers embedded networks give their operators. Embedded networks are not price-quality regulated or subject to information disclosure. Given these facts combined with increasing growth of embedded networks, we believe they are also an important regulatory issue to be addressed.

[20] Commerce Commission, "Amendment to the WACC percentile for price-quality regulation for electricity and lines services and gas pipeline services" Reasons paper, October 2014, page 150.
[21] Equity Research on Vector Limited by Deutsche Bank, Credit Suisse and Macquarie dated 9 November 2015.

While it is the role of the Commerce Commission to design the regulatory regime, it is the responsibility of MBIE to ensure the overall regime is fit for purpose and achieves the Government's goals of ensuring reliable supply at the lowest possible cost to the consumer. It is not clear that goal is currently being met.

A further concern we have about the regulatory regime relates to the ability of EDBs to retail electricity.[22] This ability is contrary to the general approach underlying the historic separation of the monopoly electricity lines businesses from the competitive generation and retailing arms of the industry, There may have been some justification for allowing EDBs to retail when retailing was not so competitive but nowadays, with over forty electricity retailers in New Zealand, the rationale is not valid.

[22] Distributors are permitted to retail up to 75Gwh in a financial year under Section 76 of the Electricity Industry Act, 2010

5. The lack of progress in harmonisation in the sector

Considering the range of participants in the electricity sector and the individual characteristics of each, it can be difficult to set 'one size fits all' style rules. However, working towards harmonisation of various structures and processes has the ability to improve efficiency for both EDBs and retailers.

This section considers the main areas where further work towards harmonisation is likely to result in improved efficiency. These include:

- use-of-system agreements;
- distributor tariff structures; and
- other areas were improvements in harmonisation could benefit the sector.

5.1 Use-of-system agreements

A Use-of-system agreement (UoSA) is a contract between an EDB and retailer relating to the services that each party provides the other. For each EDB/retailer partnership, a UoSA is required, meaning that national retailers such as Meridian, Contact, Trustpower, Genesis and Mercury must have 29 different use-of system agreements in place. A smaller retailer, who may want to just operate in Hawke's Bay for example, will just have one use-of system agreement with Unison Networks.

UoSAs currently in place between EDBs and retailers take a number of forms. These include:

- a legacy of the agreement formed in 1990's post electricity reforms;
- an agreement based on the Electricity Authority's Model UoSA;
- a variation of the Electricity Authority's Model UoSA; or
- a UoSA based on none of the above.

The lack of standardisation across UoSAs is an issue that the Electricity Authority (EA) has been in the process of addressing for a number of years. Lack of standardisation in UoSAs particularly impacts on new entrants into the retail market. This is because new entrants face the complication and high cost of negotiating and establishing a number of different agreements across various EDBs.

The EA published its Model UoSA (MUoSA) in 2012 in order to provide guidance of best-practice contract terms and conditions, with the aim of reducing costs, particularly for smaller parties with limited resources. By creating a model UoSA, the EA aimed to encourage distributors and retailers to adopt more standardised use-of-system agreement processes. The new MUoSA came with a number of amendments to the Electricity Industry Participation Code 2010 (the Code), which also aimed at standardisation.[23] At the time of finalising the MUoSA, the EA elected to make the MoUSA voluntary rather than regulated, with the intention of monitoring and reviewing the process and success of the initiative.

[23] Electricity Authority, "More standardisation – Overview", page 2.

Subsequent monitoring of MUoSA uptake and success found that:

- distributors were not engaging with retailers to negotiate new UoSAs that reflect the MUoSA;
- retailers are not engaging with distributors who seek to negotiate new UoSAs that reflect the MUoSA; and
- some EDBs were offering UoSAs that were materially different from the MUoSA.[24]

Following these discoveries, in 2014 the EA undertook consultation on MUoSAs, including submissions from retailers, distributors, consumers and other stakeholders. Ultimately, it appeared that while some EDBs and retailers were embracing the new MUoSAs or in the planning stage for doing so, others were put off by regulatory uncertainty, felt the costs outweighed the benefits or considered their current arrangements sufficient.

In its submission,[25] the ENA reported that of the 24 EDBs that responded to its informal survey:

- 6 EDBs were undertaking a full review of UoSAs based on the MUoSA;
- 3 EDBs were negotiating some UoSAs based on the MUoSA ;
- 1 EDB was negotiating some UoSAs based on the Vector model;
- 6 EDBs were undertaking 'other' negotiations; and
- 8 EDBs were not negotiating UoSAs at the time.

In January 2016 the EA published a new consultation paper, proposing to amend the Code and introduce a default distribution agreement (DDA). The DDA includes both core and operational terms, giving the retailer the right to insist on the use of the DDA if an alternate agreement is unable to be reached.

The main challenge for the new DDA is finding the appropriate balance between standardisation and flexibility. 33 stakeholders responded to the DDA consultation paper, both in support and against the DDA. Those against largely believed that problems with lack of standardisation were overstated, the proposed DDA was flawed in a number of ways, and that implementation costs would exceed benefits. Those in favour claimed that the DDA was the right tool to correct the current power imbalance, supporting that the DDA will avoid unnecessary transaction costs for new UoSAs and would ultimately improve market competitiveness, in the best interests of consumers.

Trustpower submitted that the DDA:

> *"will give all traders equal access to the distribution services and will treat all traders even-handedly."*[26]

Overall, although creating an effective system of standardisation for UoSA is a complicated process, there has been a lack of significant progress since the early 2000's in this area. UoSA standardisation:

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[24] Electricity Authority, "More standardisation of UoSAs – Consultation paper", page 3.
[25] ENA, "Submission on more standardisation of use-of-systems agreements", page 11.
[26] Electricity Authority, "Default agreement for distribution services – summary of submissions", December 2016, page 124.

- avoids unnecessary negotiation costs and time delays;
- levels out a previously uneven playing field between distributors and retailers;
- reduces barriers to market entry for new entrants; and
- ultimately improves market competitiveness, which is in the best interest of consumers.

5.2 Distributor tariff structures

As with UoSA, distributor tariffs are governed by the Code. Each distributor has its own set of tariff structures, which govern the range of pricing plans in place for each district. The Code states that when an EDB makes a change to its tariff structures that may materially affect retailers or consumers, it is required to consult with affected retailers on the change.

It is the distributor who establishes its set of tariff structures, though ultimately it is the retailer who communicates these with consumers and bills customers for the entire cost of electricity. This creates a need for clear and consistent communication between retailers and EDBs on tariff structures. Each EDB has its own set of cost drivers, geographical challenges, demographics and priorities. Accordingly, tariff structures vary from distributor to distributor, including the method they are communicated. Retailers who work with multiple EDBs must therefore incorporate a wide range of tariff structures into their own pricing and must ultimately deal with a multitude of different tariffs.

In a similar way to UoSA, distributor tariff structures lack a level of standardisation. This creates high transaction costs between retailers and EDBs and can particularly impact on smaller retailers and new entrants into the electricity market.

5.3 Other areas

There are a number of other areas where EDB efficiency could benefit from further harmonisation. Each EDB currently tends to use its own separate data systems, monitoring and metrics. Many EDBs are also developing their own apps. The decentralised nature of these systems raises the question of the potential for more collaboration and coordination between EDBs.

Collaboration and coordination between EDBs is likely to promote efficiency through:

- reducing 'double-ups' in resources;
- reducing transaction costs for retailers through unified systems; and
- capitalising on potential synergies between the EDBs involved.

In particular, for neighbouring EDBs with similar characteristics and customers, there is real potential to access benefits from working together. For example, Northpower and Top Energy are neighbouring EDBs in Northland that have worked together on projects in the past, including recent social advertising campaigns. [27] On the other hand, Westpower and Buller Electricity are both on the West Coast and could also access similar benefits of working together. However, these firms tend to operate entirely separately.

[27] https://northpower.com/articles/2018/safety-urged-around-electricity-assets.

6. Distribution pricing

Distribution pricing is an area of the industry that is currently under much discussion. Pricing mechanisms used by distributors dictate the level of distribution cost charged to the retailer and ultimately onwards to the final consumer. The extent to which the current pricing systems used by EDBs reflects the costs of supply has distinct efficiency implications.

6.1 Current distribution pricing mechanism

Distribution prices are usually composed of a combination of a consumption charge (measured in kWh) and a fixed (daily or monthly) charge. The majority of pricing systems used by the 29 EDBs are heavily weighted towards consumption, with average consumption charges making up 78 percent of EDB revenue. This pricing structure is commonly known as "consumption-based pricing", and has been in use in distribution pricing in New Zealand since at least the 1990's.

Consumption-based pricing often fails to reflect the costs the EDBs face. EDBs costs are largely fixed (capital) in nature rather than varying with the level of consumption. Further, a simple per kWh charge does not take into account different distribution services and usually does not vary according to time of use or network congestion. Consumption charges may be easy for consumers to understand, however they do not incentivise the efficient use or supply of electricity, and therefore can cause net economic costs to society.

6.2 Pressure on distribution pricing from new technology

The current distribution pricing system has become a major topic of industry discussion in recent years, largely due to the impact of evolving technologies like solar panels, batteries and EVs. In 2015 the Electricity Authority published a consultation paper called 'Implications of evolving technologies for pricing of distribution services', which emphasised the need to adopt more cost-reflective pricing so as to ensure efficient outcomes as new technology uptake increases. [28]

The current structure of distribution pricing can, for example encourage over-investment in solar panels. Solar panel installation means that a given household significantly reduces its electricity consumption charge, thus effectively paying only a small proportion of the cost it imposes of being connected to the grid. These households therefore pay a disproportionately small portion of network costs, while burdening households without solar panels with additional electricity charges. If distribution companies employed cost-reflective charging mechanisms, it would send more accurate cost signals to households and encourage different behaviour. In practice, if the daily fixed charge of being connected to the grid rose substantially as the variable charge fell, it may even encourage some households to disconnect from the grid entirely.

The current distribution pricing structures can create the perverse outcome of those on low incomes (and less likely to be able to afford to invest in emerging technologies such as solar panels and other capital-intensive new technologies), effectively cross subsidising the rich who can afford to invest, and by doing so, avoid network charges.

[28] Electricity Authority, "Implications of evolving technologies for pricing of distribution services – Consultation paper", November 2015.

Further, the distributors who have invested in non-core solar businesses are dis-incentivised to change pricing methodologies to prevent this outcome. Their solar business interests' conflict with them moving to cost-reflective pricing.

Concept published a series of reports concerning the impact of new technologies on the electricity industry. They reiterated the point that current tariff structures are creating misaligned signals, encouraging suboptimal decisions which are not cost-effective. Concept estimates that these misaligned signals could result in additional costs of approximately $1.8 billion over the next 20 years[29]. This indicates the potential scale of the issue, if we fail to address it.

The EA's initial 2015 paper revealed a wide level of industry agreement on the issues with current distribution pricing and the need to transition towards a more service-based and cost-reflective set of charges. The EA has been working with ENA on the issue, with ENA publishing a discussion paper called 'New Pricing Options for Electricity Distributors' in November 2016, which weighs up a number of factors and describes various options for new distribution pricing mechanisms. [30]

The EA subsequently requested that each EDB publish by April 2017 a pricing roadmap outlining how it will transition towards cost-reflective and service-based charging. 23 out of 29 EDBs responded on time, illustrating a high level of agreement over the need to update pricing structures. These roadmaps include outlines of the process each EDB will take in updating its pricing mechanisms, with anticipated roll out dates varying from 2017 to 2022. The full table of Distributor Plans for updated pricing mechanisms is provided in Appendix 4.

While this marks positive step in the direction of distribution pricing change, it is essential that momentum is maintained in moving towards cost-reflective pricing, and that these pricing plans eventuate. While some EDBs may be on more pro-active on this issue, we have concerns that others, particularly those who have failed to provide pricing plans will continue to create inefficiencies that ultimately hurt consumers.

At the same time, it should be noted that retailers are best placed to judge final consumer preferences and to determine the extent to which more cost-reflective prices by EDBs are passed on to final consumers.

[29] Concept, "Electric cars, solar panels, and batteries in New Zealand. Vol 2: The benefits and costs to consumers and society, June 2016, page iii.
[30] http://www.electricity.org.nz/dmsdocument/38

7. Conclusions and recommendations

This report has described the concerns retailers have about the causes of rising costs of the distribution sector at a time when demand is relatively flat. We acknowledge that asset replacement and renewal are contributing causes but are also concerned that there may be other possible causes as well including the impact of

- the fragmentation and lack of focus of EDBs;
- weakness in the regulatory regime for EDBs;
- the lack of progress in harmonisation in the sector and
- the delays in the adoption of more efficient distribution pricing

The issues are multi-faceted, and we think the solution needs to be multi-faceted as well. We think change is needed:

- to legislative frameworks to:
    - reduce the scope for diversification and investment in non-core activities
    - eliminate cross-subsidisation between regulated and non-regulated activities and ;
    - encourage joint activities between networks where that will lower costs faced by network customers and end users
- to regulatory frameworks to provide more rigour:
    - in the way price quality paths are set and administered
    - around the nature of the access terms which apply to network customers;
    - to increase standardisation in a manner which is more consistent with a national retail market;
    - to accelerate the adoption of pricing structures which will better meet the objectives of the Electricity Price Review
- to ensure that consumers voices are better heard so that networks are not upgraded where there is no consequential improvement in service quality and reliability.

Appendix 1: Subsidiaries, joint ventures and other operations of EDBs

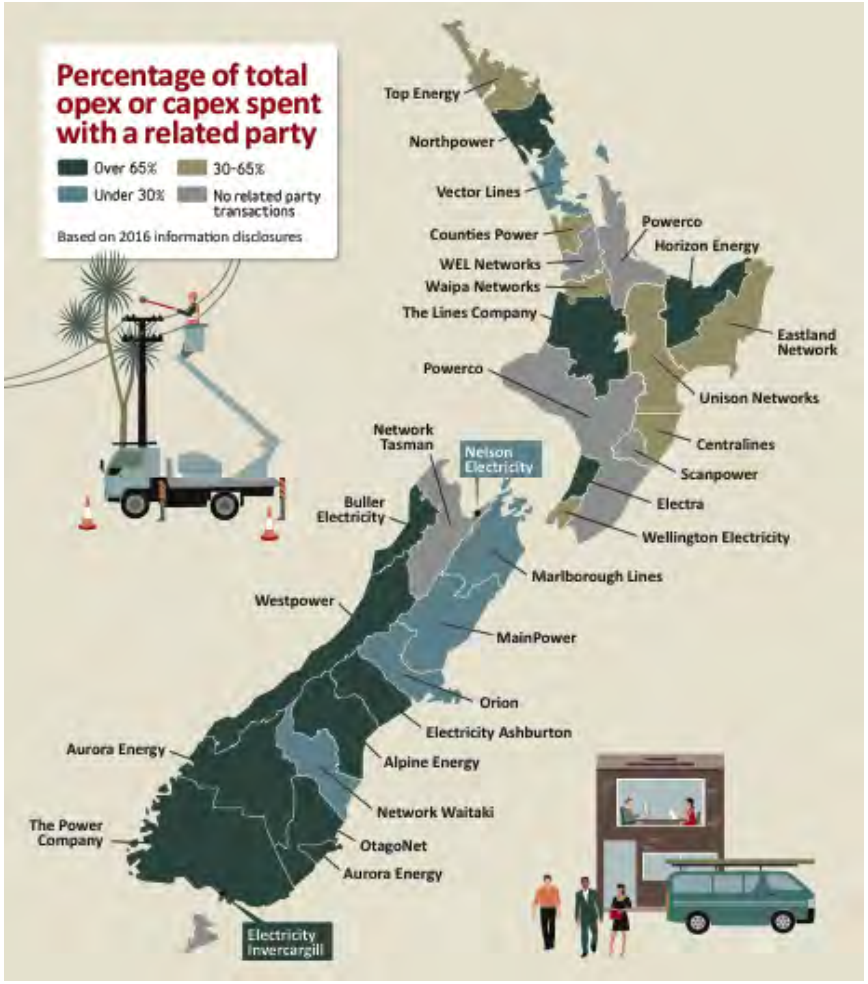
EDB	Subsidiaries, joint ventures or other operations	Principle activity
Alpine Energy	Timaru Electricity Limited NETcon Limited Infratec Limited Infratec Renewables (Rarotonga) Limited	Non-trading Lines construction and maintenance Renewable energy contracting Renewable energy contracting
Aurora Energy	-	-
Buller Electricity	Emerge Electrical Instrumentation Limited	Electrical contracting Electrical contracting
Centralines	-	-
Counties Power	-	-
Eastland Network	*No subsidiaries, but part of the holding company 'Eastland Group' who have subsidiaries across a range of (generally locally focused) activities*	
Electra	DataCol NZ Limited Sky Communications Limited Electra Monitoring Limited Electra Energy Electra Generation	Meter data services telecommunications contracting services Security monitoring business Electricity retail/call centre Electricity Generation
Electricity Ashburton	Barhill Chertsey Irrigation Limited (JV – 50%)	Irrigation
Electricity Invercargill	PowerNet Ltd Group (JV – 50%) OtagoNet Joint Venture (JV – 25%) Roaring Forties Energy Ltd Partnership (50%)	Electricity distribution network Electricity distribution business Partnership with The Power Company
Horizon Networks	*No subsidiaries, but part of the holding company 'Horizon Energy Group' who have subsidiaries in refrigeration, mechanical services, electrical services and data contracting.*	
Mainpower NZ	VirCom Energy Management Services Limited	Provision of metering services
Malborough Lines	Yealands Wine Group Limited (80%) Nelson Electricity Limited (50%) Seaview Capital Limited Southern Lines Limited	Vineyard and winery Electricity distribution business Holding company Holding company
Nelson Electricity	-	-
Network Tasman	Nelson Electricity (50%) On Metering (JV – 50%)	Metering services
Network Waitaki	-	-
Northpower	West Coast Energy Pty Limited Northpower Western Australia Pty Limited Northpower Solutions Limited Northpower LFC2 Limited	Electricity contracting Intermediate holding company Electricity contracting Fibre telecommunications

EDB	Subsidiaries, joint ventures or other operations	Principle activity
Orion NZ	Connetics Limited	Electricity distribution and utility contractor
Otagonet	-	-
Powerco	Powerco Transmission Services (PTS) Powerline Ltd (trading as Base Power) The Gas Hub Ltd	Electrical transmission asset design Power and energy storage solutions Gas use promotion
Scanpower	Kiwi Sock Company (JV – 33%) Powerline Contracting Services Devision Treesmart Plumbing and Electrical Division Property Development Division	Socks Powerline contracting services Tree and vegetation management contractors Plumbing and electrical services Property development
The Lines Company	Financial Corporation Limited Speedys Road Hydro Limited (75%)	Meter and relay assets Hydro generation scheme
The Power Company	PowerNet Ltd Group (50%) OtagoNet Joint Venture (75%) Roaring Forties Energy Ltd Partnership (50%)	Electricity distribution network Electricity distribution business Partnership with Electricity Invercargill
Top Energy	Grazing North Ltd Ngawa Generation Ltd Top Energy Ngawa Spa Limited	Farming Electricity Generation Landholding
Unison Networks	*No subsidiaries, but part of the holding company 'Unison' who have subsidiaries in contracting, fibre, power generation and distribution transformer manufacturing*	
Vector	NGC Holdings Limited Vector Gas Trading Limited Vector Kapuni Limited Liquigas Limited On Gas Limited Vector Metering Data Services Limited Advanced Metering Assets Limited Advanced Metering Services Limited Vector Advanced Metering Services (Australia) Pty Ltd Vector Advanced Metering Assets (Australia) Ltd Arc Innovations Limited Vector Communications Limited Vector Energy Solutions Limited PowerSmart NZ Limited Vector ESPS Trustee Limited Vector Energy Solutions (Australia) Pty Limited E-Co Products Group Limited Cristal Air International Limited HRV Home Solutions Limited Ventilation Australia Pty Limited HRV Australia Pty Limited Energy Efficient Solutions NZ (2016) Limited HVAC Hero 2016 Limited Treescape (50%) NZ Windfarms (22%)	Holding company Natural gas trading and processing Joint operator – cogeneration plant Bulk LPG storage, distribution, and management LPG sales and distribution Holding company Metering services Metering services Metering services Metering services Metering services Telecommunications Holding company Energy solutions services Trustee company Energy solutions services Holding company Ventilation systems brand franchisor Ventilation systems and water systems sales Holding company Ventilation system and parts sales Home heating solutions sales Wholesaler of systems and parts Vegetation management Renewable energy generation

EDB	Subsidiaries, joint ventures or other operations	Principle activity
Waipa Networks	-	-
WEL	Waikato Networks Limited (85%) WEL Services Limited Ultrafast Fibre Limited (85%)	Constructs fibre networks Geothermal, oil and gas services Fibre broadband
Wellington Electricity	-	-
Westpower	ElectroNet Services Limited (ENS) Amethyst Hydro Limited	Electrical contractor Hydropower generation

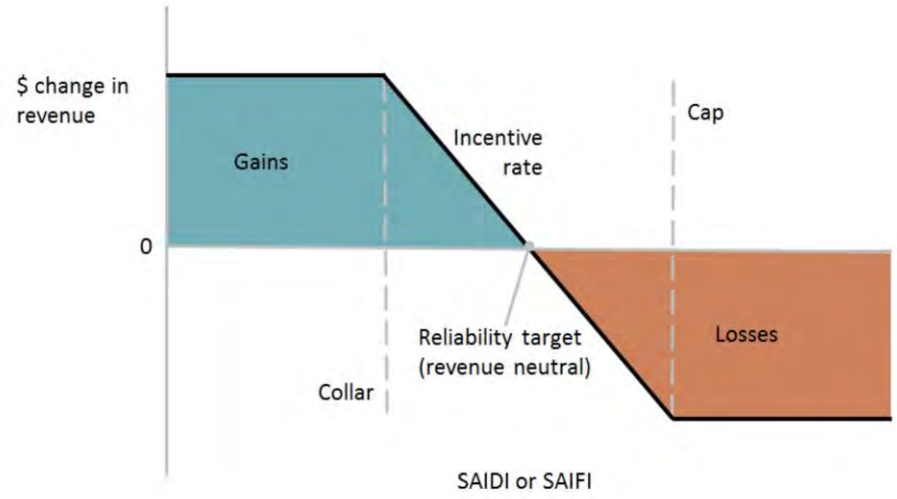
Note: Data sourced from 2017 annual reports for the respective EDBs. Affiliates are not included in this table.

Appendix 2: Percentage of total opex or capex spent with a related party



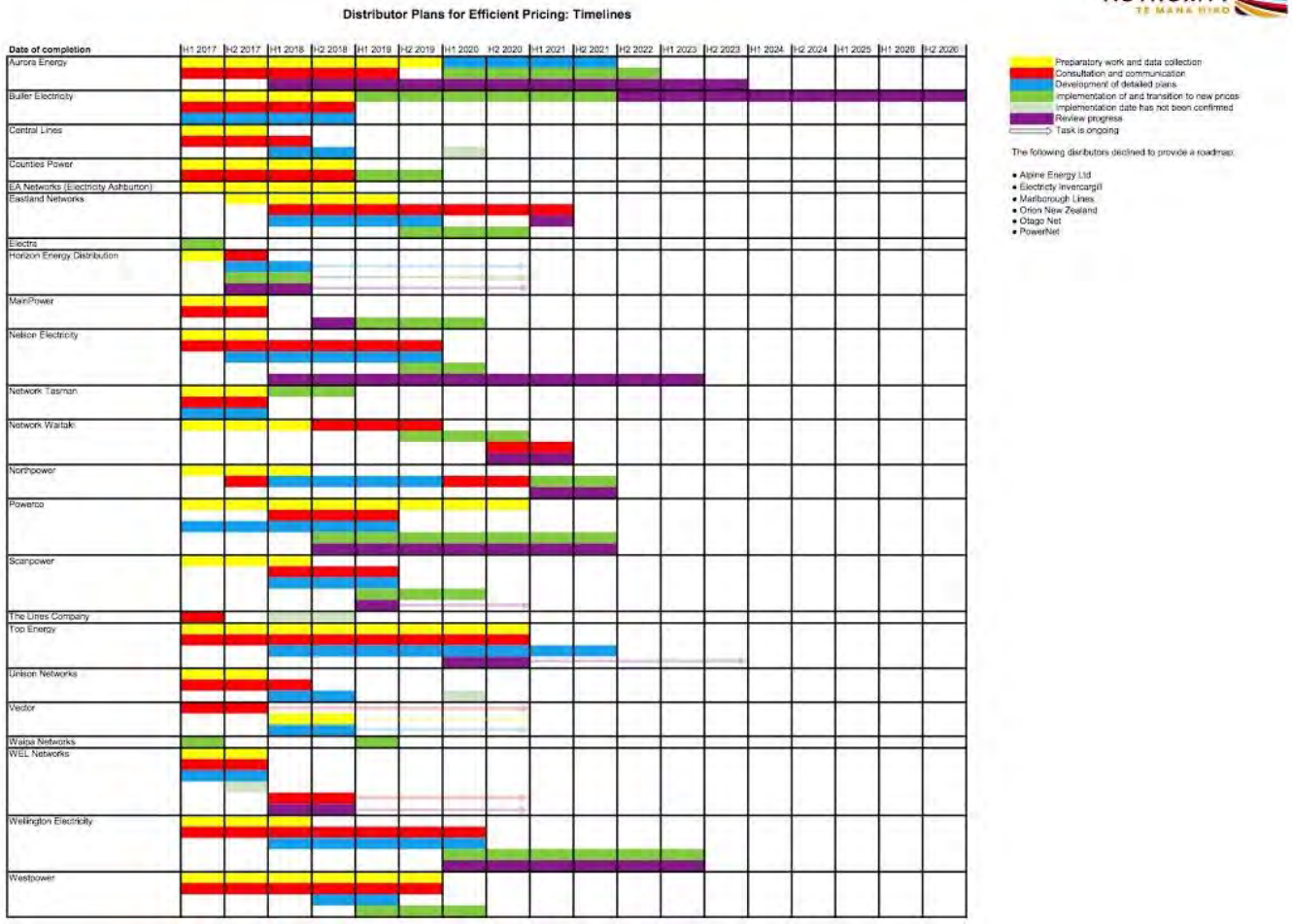
http://www.comcom.govt.nz/regulated-industries/input-methodologies-2/input-methodologies-review/related-party-transactions-provisions/

Appendix 3: Stylised chart of revenue-linked quality incentive scheme



Commerce Commission, "Default price-quality paths for electricity distributors from 1 April 2015 to 31 March 2020, Quality standards, targets, and incentives", page 12.

Appendix 4: Distributors' plans for efficient pricing: timelines



Source: Electricity Authority

**Update: Otago Net, Powernet and Electricity Ashburton have since published pricing roadmaps. Also note that some timeframes may have changed since this table was published.*

International Review of electricity retail markets

For ERANZ

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Contents

Executive Summary

Concerns about the retail market for electricity are typically driven by rising prices. As it is retailers who send out the bills, they are the first businesses that get scrutinised by the public and politicians in times of rising prices. The impact is compounded by the increasing difficulty some people have in paying their bills, which translates to rising disconnection rates . This can in turn increase costs through associated disconnection fees.

Of course, retailers are simply the last step in a complex supply chain that includes the costs of generating electricity, transportation to customers, metering and often a range of policy-induced costs as well. Changing demand patterns can also affect costs, and these are an outcome of customer choices and decisions rather than retailers' actions.

Unlike New Zealand, Australia and Great Britain have historically had a highly carbon intensive generation mix dominated by coal. Their attempts to move to lower or zero emission sources have driven up electricity bills, not least because of the multiplicity of emissions reduction policies each has implemented.

Over different timeframes, each country has seen its network charges to households increase, while Great Britain and Australia have experienced rising wholesale prices, but what has not been seen is a dramatic increase in retailer margins. In Australia the average margin is in the order of 8 per cent, or of a similar level to what would be allowed under a reasonable regulated price, while in Great Britain supplier margins may be as low as 3 per cent. Margin information is less clear in the case of New Zealand, but the Electricity Authority's monitoring tools suggest that they are unlikely to have increased materially over the last seven years as prices and costs have risen by similar levels. What has driven concerns that retail markets are working against customers' interests has been the growing dispersion in prices paid by different customers and the consequent conclusion that the retail market is difficult for consumers to navigate.

In Great Britain, multiple waves of regulatory reforms were implemented to attempt to address this concern. The reforms resulted in lower competition and switching rates, niche tariffs that suited certain customer types disappearing and average margins increasing, culminating in a law passed in July directing the regulator to implement a retail price cap. In Australia, the focus on the retail sector was initially on the implementation of hardship schemes, but in recent years this has shifted to

regulating retailer communication with customers, especially those on default standing offers in an attempt to induce "sticky customers" to engage. Following a major review by the Australian Competition and Consumer Commission (ACCC), a default regulated price appears likely to be implemented.

New Zealand can learn from the failures of Great Britain and Australia. The issues in New Zealand are not as acute: the cost drivers are not as significant, price dispersion (which is a normal outcome in a competitive market, but which attracts concerns around "fairness") is not as great, customers are generally aware of the option to switch, prepayment is a cost-effective option, the take-up of new technologies by customers is modest, while smart meters have been successfully rolled out. Regulatory reforms in Great Britain and Australia have failed to achieve their goals: in Britain, tariff simplification failed to drive greater engagement and resulted in higher retail margins, while in Australia hardship policy has failed to stem a rise in disconnections. Meanwhile, New Zealand's electricity system has been well-served by the competition-oriented reforms and limited government intervention to date.

The perennial concern that some households struggle to pay their electricity bills is of course legitimate. But is an outcome of multiple factors including general poverty levels, the welfare system, and the efficiency of the housing stock. It is not solved by heavy-handed retail regulation, which may even make the situation worse.

1 Introduction

The debate about electricity prices and other policy issues is often carried out in highly parochial terms. Often, though, similar debates are taking place elsewhere in the world and it can provide a useful perspective to compare the issues and outcomes in different jurisdictions. While each electricity industry has its own features and challenges, there is often a lot of commonality, particularly where the basic industry structure and regulatory framework is similar. In this light, this report compares three electricity markets that have all been through the process of competition reform and full or partial privatisation, resulting in: a competitive wholesale market, a set of regional monopoly networks subject to incentive-based price regulation, and a competitive retail market. The three markets are: the New Zealand market, Australia's National Electricity Market (which excludes Western Australia and the Northern Territory) and Great Britain. The focus is on the implications of the market and policy settings for household retail customers rather than business customers and on electricity rather than gas. Many of the issues referenced below do also apply to gas supply and to larger customers and where this is the case it is highlighted in the text.

2 Background to the three electricity markets

This section is a brief overview of the history and major characteristics of the electric industry in each country, including the timing and nature of the restructuring and competition reform that created the contestable retail market.

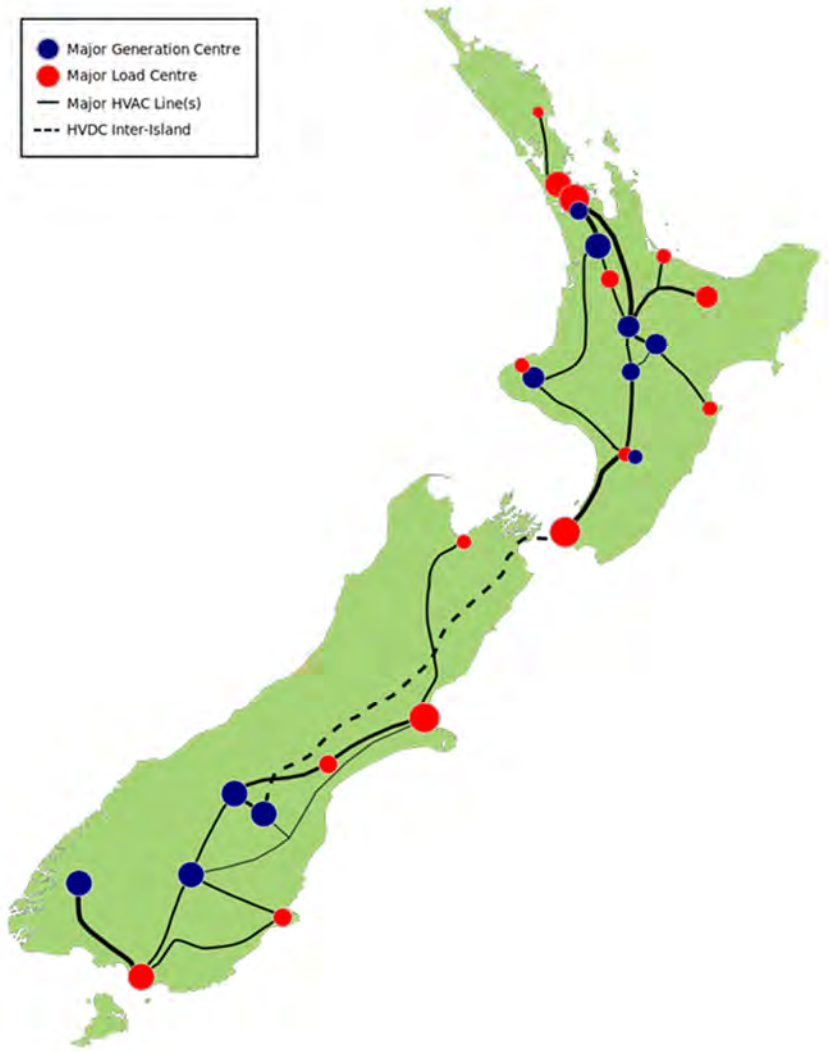
2.1 New Zealand

2.1.1 Physical characteristics of the industry

New Zealand's electricity generation sector is dominated by dispatchable renewable plant: mostly hydroelectric and geothermal. Compared to other International Energy Agency (IEA) countries' electricity systems, New Zealand has one of the highest proportions of such plant [1]. New Zealand has some indigenous fossil fuel production but given the small amount of fossil fuelled plant, international gas and coal prices are not a major driver of wholesale electricity prices. There are some wind farms and a modest amount of rooftop solar PV. New Zealand's two main islands are interconnected by a transmission line, but there is no connection to other countries. The interconnection mostly flows South to North reflecting the large amount of hydro in the South Island

while the North Island has more of the major load centres and thermal generation (although the South Island does host an aluminium smelter, the country's single largest user, and the interconnection does flow North to South for extended periods when South Island hydro inflows are limited). The sparsely populated nature of the country means that there are a large number of small distribution networks, with distribution lines totalling 153,000km. Annual consumption is around 39TWh[1], spread across 2 million customers. Residential demand is a third of the total. Demand is higher in winter due to residential space heating requirements, as there is limited penetration of reticulated gas.

Figure 1: Map of New Zealand electricity system



[1] Calculated using demand data at www.emi.ea.govt.nz

Source: New Zealand: Electricity Retail Services Market Reform, [2]

2.1.2 History of reform

Up to the 1970's, the New Zealand Electricity Department (NZED) owned and ran almost all the large-scale generation, the transmission network and carried out system operation. Local distribution systems and the retailing of electricity to users were managed by 69 local supply authorities. Between 1987 and 1999, the industry went through a major restructuring, including corporatisation and separation of the major generating units into four separate businesses, who now make up four out of the five large gentailers in the market. Transmission and system operation were separated out into Transpower. Meanwhile the local distributors were functionally separated into distribution and retail and a period of demergers and mergers resulted, with the distribution businesses becoming somewhat aggregated (there are now 29) and the retail businesses ultimately merging with generators.

The restructuring allowed the introduction of competition into the generation and retail sectors, and new entrants soon joined the incumbents. In October 1996 the wholesale electricity market started trading while retail contestability was formally allowed from 1993 but competition in the household sector emerged following reforms in 1999 aimed at supporting new entrants.

2.1.3 Regulatory and governance frameworks

In 2003 the Electricity Commission was established as the regulator for the New Zealand electricity industry. In 2010 the Commission was replaced by the Authority, and the Commission's transmission approval functions were shifted to the Commerce Commission and the Ministry of Economic Development (now MBIE). The Commission's energy efficiency functions were moved to the Energy Efficiency and Conservation Authority (EECA).

2.2 Australia's National Electricity Market

2.2.1 Physical characteristics of the industry

The National Electricity Market (NEM) is used to describe both the physical system that covers Eastern Australia as well as the market and regulatory framework that applies throughout the system. It is the one of if not the world's longest interconnected system, stretching 5,000km from Port Douglas in Queensland to Port Lincoln in South Australia. Similar to New Zealand, it is an islanded network and the network has low energy density. Having developed from five separate state-based systems, it has

relatively limited interconnection between the states. There are five transmission networks, matched to the state boundaries and thirteen distribution businesses. The NEM supplies about 200TWh of electricity to around 9 million customers each year. Generation capacity (including rooftop solar PV) is over 55GW.

Figure 2 Map of the NEM

Source: AEMO

It has major load centres around the main capital cities. There are also four aluminium smelters, as well as several other large industrial users. Australia has abundant reserves of coal and gas, so the generation mix is dominated by fossil fuels, augmented by two main hydro systems in the Snowy mountains between Victoria and NSW and in Tasmania. A national Renewable Energy Target (RET), in conjunction with other national and state support policies, has driven an influx of new intermittent renewable plant over the last decade. Around the same time there was a softening of demand as two aluminium smelters closed (amongst other factors). These conditions contributed to low wholesale prices until very recently. A series of closures of old coal plant has resulted in this capital cycle culminating in sharp price increases from 2016 onwards.

Demand peaks in the summer due to air conditioning load. The exception is Tasmania (also parts of regional NSW) where there is significant winter heating load. The rest of the NEM either has low heating requirements (e.g. Queensland) or high penetration of reticulated gas (e.g. Victoria).

2.2.2 History of reform

Up to the 1980s, the electricity system was characterised by vertically integrated state-owned monopolies (with some local distribution networks). Competition reform from the 1990s impacted many industry sectors, including electricity. Wholesale trading arrangements were introduced in the late 1990s, with the full NEM market beginning in 1998 (Tasmania joined in 2005 following physical interconnection with the mainland). Retail contestability was introduced gradually in each jurisdiction, with full contestability being achieved between 2002 (Victoria, NSW) and 2014 (Tasmania) [3].

Functional separation also took place, and while there was no requirement to separate ownership of retail from distribution this is largely what happened. Beginning with Victoria in 1995, state assets began to be privatised. As with full retail contestability, the federal nature of Australian politics, with states formally having responsibility for energy policy, means this process has proceeded piecemeal. Today, ownership is mixed, ranging from fully private (Victoria, SA) to fully state-owned (Tasmania), with Queensland and NSW in between.

2.2.3 Regulatory and governance frameworks

The transition to a national market required states to relinquish some direct control over energy regulation and policy. Three independent agencies were formed:

- A rule-maker - Australian Energy Market Commission (AEMC);
- A regulator – Australian Energy Regulator (AER);
- A market and system operator - Australian Energy Market Operator (AEMO).

In 2017 an Energy Security Board was formed to improve co-ordination between the agencies – it comprises the heads of each agency, plus an independent chair and deputy chair. The agencies are accountable to a committee of Energy Ministers – the Council of Australian Governments Energy Council (COAG EC). Most state-based regulation has been transferred to the national framework, but each jurisdiction has its own derogations – notably Victoria has refused to sign up to the national retail code but has instead retained its own regulations.

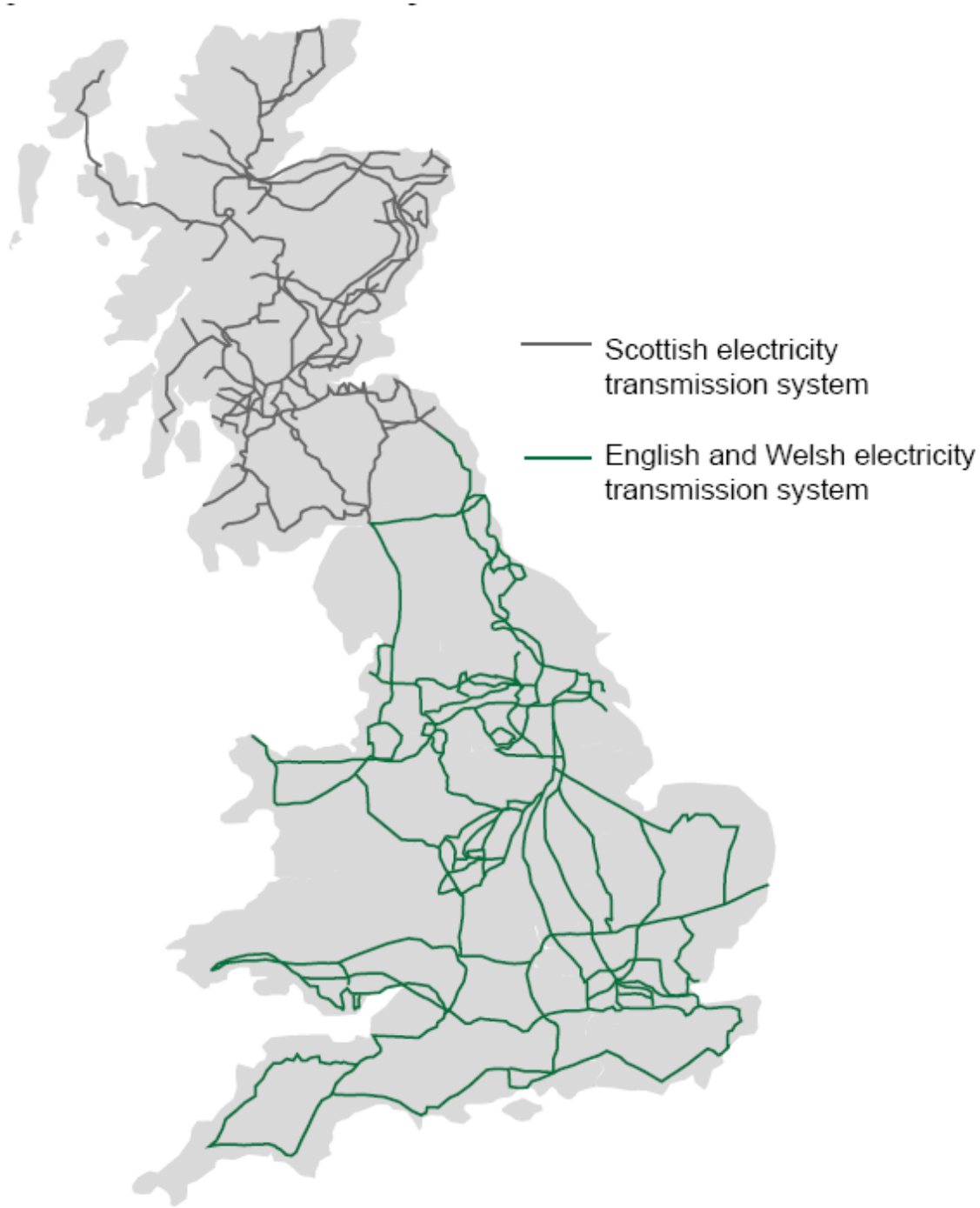
2.3 Great Britain

2.3.1 Physical characteristics of the industry

Great Britain is much smaller than Australia and has a greater population than both Australia and – even more so - New Zealand. Accordingly, its load density is much higher. There is extensive use of reticulated gas for space heating and there has been a decline in heavy industry for many decades, so consumption per person is lower. Most retailers offer dual fuel deals to households that package gas and electricity supply.

Figure 3 below shows the layout of the transmission network, illustrating the more “web-like” configuration of the system compared to Australia and New Zealand.

Figure 3 British electricity transmission network



Source: *The future of Britain's electricity networks - Energy and Climate Change,* UK Parliament [4]

Generation in 2017 was 319TWh (lower than in 1996), which was bolstered by 14TWh of imports. The Great Britain system is interconnected to France, the Netherlands and Ireland, with additional interconnectors planned. The generation mix has changed substantially over several decades. Initially a system completely dominated by coal, the government instituted a program of nuclear power from the 1950s, and nuclear's contribution peaked at around 27 per cent in 1998, but public opposition to new reactors mean it has been in decline ever since. Market reform (see 2.3.2 below) led to a "dash for gas" in the 1990s as retailers sought to secure their own generation supplies and later climate policies drove investment in wind solar and biomass. Coal generation is now around 5 per cent and due to be phased out completely by 2025. Installed capacity for the UK is 71GW (including around 2GW in Northern Ireland).

2.3.2 History of reform

Like the New Zealand and Australian electricity systems, the original expansion of the British electricity system was undertaken by the state. The National Electricity Generation Board built and operated the large-scale generation and the transmission network, while distribution and retailing were undertaken by 12 regional electricity companies (RECs). In 1990, Great Britain became one of the first countries to embark on restructure and privatisation of its electricity industry. The government retained the nuclear power stations (until 1996) but sold part or all of the remaining assets as two generating businesses, a transmission business and 12 retailer distributors. Competition reform imposed structural (but not ownership) separation of the retail and distribution arms of the RECs to ensure the retail arms could compete in each other's distribution area. Retail competition was given a shot in the arm by allowing the incumbent gas supplier, British Gas (now Centrica), to compete in electricity retail and vice versa.

At a wholesale level, the original market system (NETA) was replaced in 2005 by the British Electricity Trading and Transmission Arrangements (BETTA), which also integrated the English, Welsh and Scottish systems. Centrica and the other RECs did not want to be dependent on the two large generation businesses and so began building (mostly CCGTs, given their lower capital cost) and in some cases buying power plants.

2.3.3 Regulatory and governance frameworks

The Office of Electricity Regulation (OFFER) was established to oversee the industry and develop the market. It merged with its gas counterpart to become the Office of Gas and Electricity Markets (Ofgem) which has been the regulator ever since. Notably, its core duty was "to protect the interests of consumers, present and future, wherever appropriate by promoting effective competition". The bias towards competition drove progressive deregulation and competition, not just of wholesale and retail but also metering, connections and offshore transmission projects. Later governments added a plethora of other duties, including "the reduction of greenhouse gases, and security of supply, and [customers'] interests in the fulfilment of the objectives set out in the EU energy directives[2]" as well as referencing the needs of old age pensioners, rural customers, low income and the sick or disabled. The overall effect of these well-meaning clauses was obfuscation rather than clarification, as it was not obvious how trade-offs or conflicts between these goals and the overall primary duty should be resolved.

2.4 Recent policy and market developments

This section outlines the major policy and market issues that have affected the electricity industry in each country, including impacts of climate policy, network costs and wholesale price drivers and market power issues.

2.4.1 New Zealand

New Zealand has had relatively stable policy settings since it embarked on liberalisation. There have been two significant reform packages. In 1999, four independent generation companies were created from the Contact Energy assets. These businesses were permitted to vertically integrate, stimulating retail competition as they restructured as gentailers and competed against each other in both wholesale and retail markets. Together with Trustpower, these businesses make up the five large gentailers.

In 2009 the market was reviewed, and some steps were taken to improve competition in the retail market by mandating physical and asset swaps between the generators in order to improve the geographic balance of the main gentailers [2]. Distribution companies were also permitted to re-enter

[2] https://www.ofgem.gov.uk/sites/default/files/docs/2014/12/corporate_strategy_0.pdf

the retail market without restriction outside their own distribution service area and steps were taken to improve liquidity in the hedge market. Notably, all these reforms were market-oriented rather than trying to regulate the behaviour of market participants.

An Emission Training Scheme (ETS) was introduced in 2008 to help meet New Zealand's Kyoto Protocol obligations. The stationary energy sector, encompassing electricity generation, was initially required to surrender one emission 'unit' for every two tonnes of CO2 emitted (or other equivalent emissions) from July 2010. A fixed surrender price of $25/tonne provided a cap on the costs, but in the event the price declined from $20 to $2 in 2014 before recovering to trade close to the cap price in recent years. Given the dominance of carbon free generation sources, the ETS has only had a limited impact on electricity prices.

2.4.2 Australia's National Electricity Market

Australia has been plagued by policy instability in respect of climate change policy for over a decade. Both major parties went into the 2007 national election proposing to introduce an ETS. The victorious Labor government failed to get its legislation to implement the ETS through the senate due to lack of support from the Green Party and the opposition's change of mind (and leader). Their climate change ambitions were dealt a further below by the failure of the Copenhagen talks to deliver meaningful global agreement. Following the 2010 election, Labor found itself in minority government with the Greens who used this as leverage to increase the initial fixed price of the ETS from $10/tonne to $23/tonne. This meant that Australia had a higher carbon price than those from other schemes, such as the EU and New Zealand ETS schemes and the North American regional cap and trade schemes. The high fixed price combined with Australia's high emissions intensity of electricity generation meant that when the scheme was introduced it raised wholesale prices from $30-40/MWh to $50-60/MWh. Meanwhile, in the light of a national ETS, various individual state schemes were wound up. In 2013, the Liberal/National coalition campaigned on a platform to abolish the carbon price and won the election. They swiftly followed through on their promise, and for good measure commissioned an independent review of the Renewable Energy Target that was the last remaining policy measure to encourage new renewable investment. The review took over a year to resolve, freezing renewable investment in the meantime.

Although the Coalition government pledged significant new emission reduction targets for 2030 at the Paris climate summit, they could not agree on a policy to drive reductions in the electricity sector,

successively ruling out various mechanisms. So just as renewable investment picked up under the revised RET, investment in other forms of plant was stymied by the lack of certainty over future climate policy. Meanwhile state governments began to reintroduce their own schemes to fill the policy vacuum, fracturing policy further.

Although the abolition of the ETS led to a reversal of the wholesale price rise, it had been preceded by a large increase in network costs. This had multiple causes but was a combination of a new and poorly designed national regulatory framework combined with jurisdictional policies mandating expensive reliability investments or smart meters. It was then swiftly followed by a trebling in gas prices as a result of a new gas export industry exposing the country to international gas pricing. The price rises kicked off an unending round of reviews and inquiries as governments at both national and state level had to be seen to be doing something. Reviews overlapped and there was no time to evaluate the effect of previous reforms before embarking on the next wave. Some of the major reviews include:

- Productivity Commission Inquiry into Electricity Network Regulation (2013)
- Parliamentary inquiries into the Performance and Management of Electricity Network Companies (2015), Modernising Australia's Electricity Grid (2017) and a Select Committee on Electricity Prices (2012).
- Independent review into the Future Security of the National Energy market (2017)
- The ACCC Retail Electricity Pricing Inquiry (2018)

These are only the national ones - most jurisdictions have also carried out reviews and inquiries. The AEMC has also carried out over 20 market reviews, plus several standing annual reviews in the last five years.

2.4.3 Great Britain

Great Britain has seen significant reform of wholesale markets as well as climate change policies since the initial market start. As noted in 2.3.2 above the original market structure was overhauled in 2005 and replaced by the BETTA model. Fears of insufficient reserve margin as old coal and nuclear plant retired led to the addition of a capacity market. The first capacity auction was held in 2014.

In order to spur decarbonisation, a dizzying array of climate change policies were implemented from the late 1990s onwards. EU policies such as the ETS and the Large Combustion Plant directive (which severely constrained the operation of older fossil fuel plants) were supplemented by small scale feed-

in tariffs for rooftop solar PV and other smaller-scale renewables, a Renewables obligation on retailers, Contracts for difference between a government fund and renewables providers, a Carbon price floor to shore up the ETS, emissions performance standards and a formal commitment to phase out coal plant by 2025. Funding for most of these is through a Climate Change Levy. The estimated annual subsidy costs are 5.5bn rising to 8.8bn (based on committed projects only) by 2020 [5]. This does not include additional system cists that may occur due to the changing generation mix. Unlike Australia, there has been a good deal of bipartisanship regarding the need to decarbonise.

Networks policy has been more stable, but the last decade has seen a shift from conventional price cap regulation to Ofgem's Revenue, Innovation, Incentives and Outputs (RIIO) model, which uses a suite of regulatory mechanisms to balance cost control with the need to ensure service levels are maintained and networks are able to contribute to the R&D needed to deliver a decarbonised system.

The result of all these reforms and programmes is complexity. "The sheer number of interventions in the UK energy market is so great that few if any participants…regulators, ministers or civil servants can have grasped them all" [5]. This is likely to increase cost of energy, and complexity increases scope for capture by rent-seekers, making it harder to unwind.

2.4.4 Comparison and key themes

New Zealand has experienced a relatively stable regulatory and policy framework over the last two decades when compared to Australia and Great Britain. This applies to both electricity policy and to climate change policy, which has significantly impacted electricity systems and prices in the other two countries. New Zealand's reforms have been measured and focussed on ways to improve competition, rather than trying to regulate the behaviour of competitive businesses. It has avoided the pitfalls of excessive complexity arising from multiple, overlapping policy interventions, unlike Great Britain and Australia.

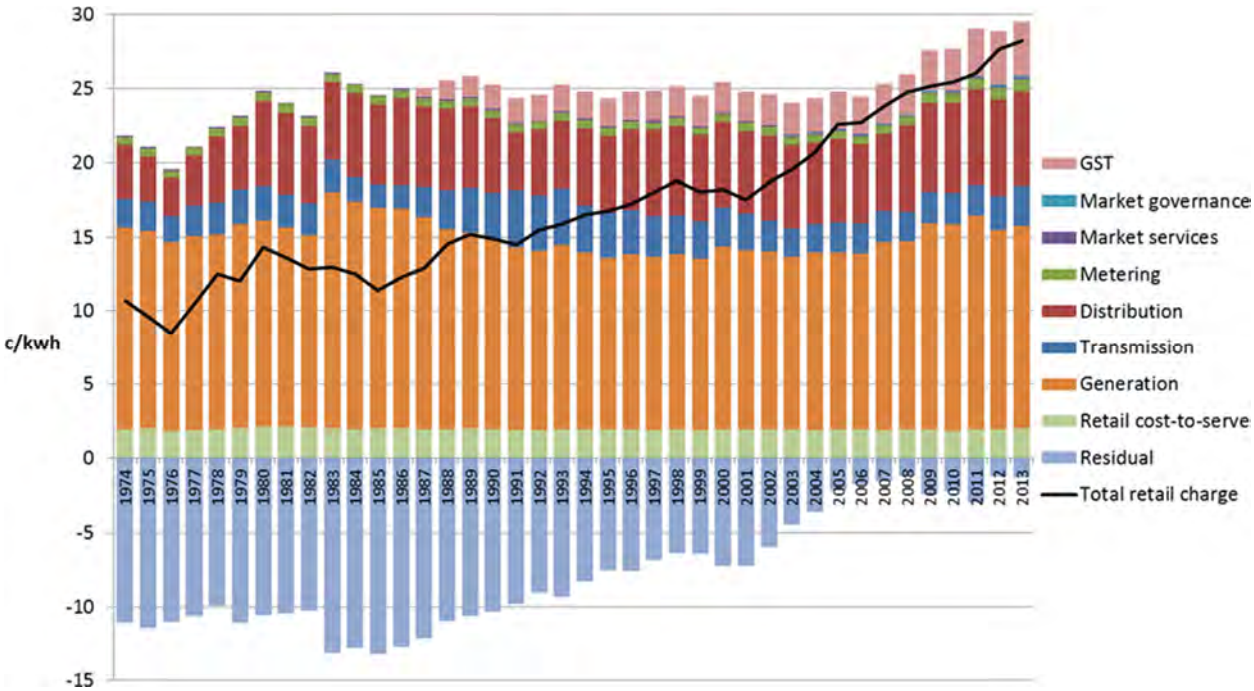
3 Retail price drivers

This section reviews the cost drivers that have impacted household bills in each of the three markets. For a range of reasons, regulatory authorities have taken different approaches to assessing the actual costs a retailer faces in supplying a typical household and so the analyses presented are not directly comparable across each market. Each is useful however, for understanding that market's cost drivers over time.

3.1.1 New Zealand

The most comprehensive assessment of long-run cost drivers in the New Zealand electricity system was undertaken by the Electricity Authority in 2014[3]. A fundamental challenge in carrying out such an assessment is how to allocate shared system costs in the period before restructuring and privatisation. For much of this period, there was a surplus of hydro capacity and so the marginal cost to supply different types of consumers with an additional kWh of electricity was essentially nil. Electricity tariffs did not reflect the economies of scale inherent in supplying larger users or that users (such as heavy industrial users) with flat load profiles are typically cheaper to serve on a per kWh basis than those with more volatile load profiles (such as households). The analysis therefore indicates that households were effectively cross-subsidised by larger users and that one of the outcomes of restructuring and competition is that tariffs have become more cost-reflective.

Figure 4: New Zealand residential cost components (Real $2013) [6]



Source: Electricity Authority

Aside from the introduction of and then rate increases in sales tax (GST), the underlying cost drivers were fairly neutral between 1983 and 2013. Consumers saw their bills increase largely because of the

[3] Analysis of historical electricity industry costs - Final report, Electricity Authority, 2017

removal of cross-subsidisation, according to this analysis. This is a logical outworking of the introduction of a competitive market, where if a supply tried to maintain cross-subsidies, another supplier could cherry pick the customer types who were paying for the cross-subsidy. Even in 2013, the price appeared to be slightly lower than this analysis suggested the actual costs of supply were. Additionally, the retail price data may not have fully accounted for discounting, so may overstate what households were actually paying.

Looking past 2013 (which after all, is five years ago), the Electricity Authority's ongoing monitoring measures cost drivers (calculated by NZIER for the Authority[4]) and compares them to prices on an indexed basis.

Figure 5: New Zealand Residential price trends 2010-2017

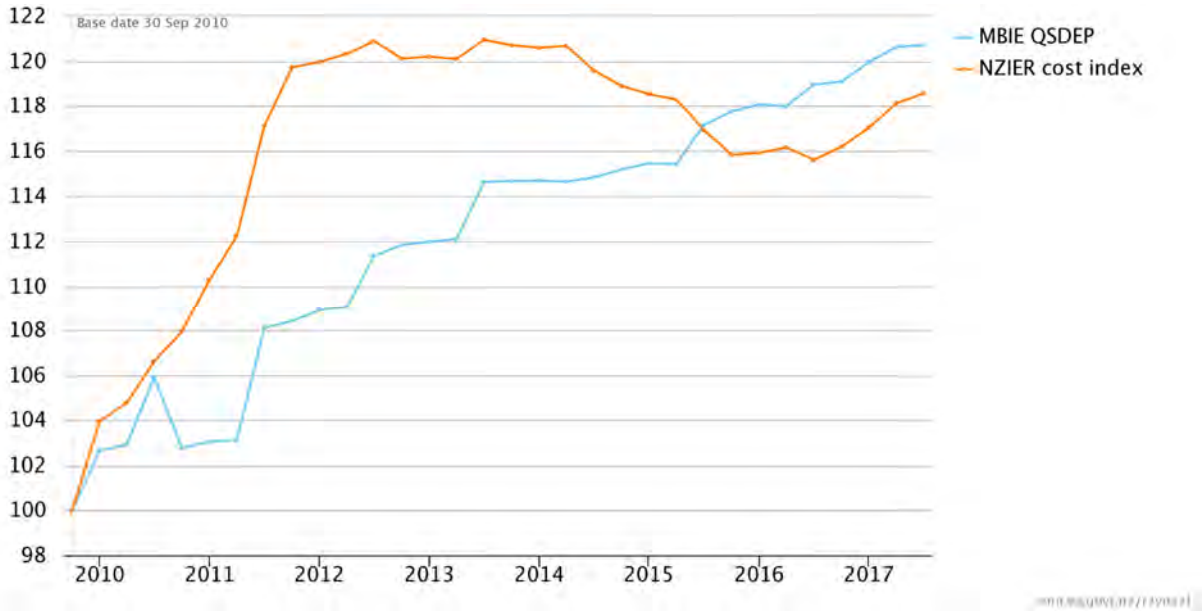


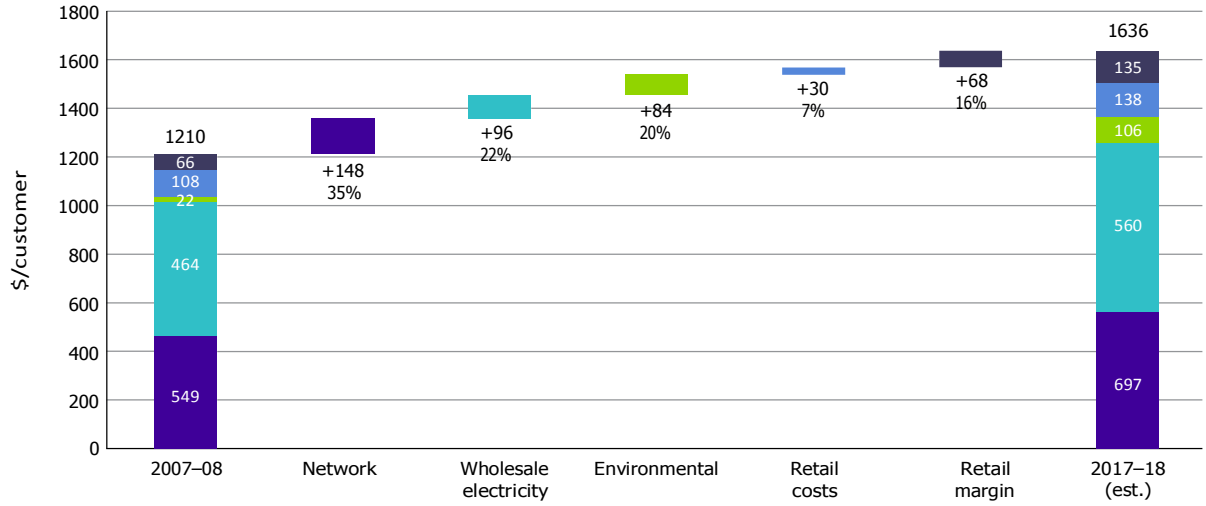
Figure 5 indicates that prices have, over the period as a whole risen at a similar rate to costs, albeit with a lag to costs from 2011-2015. From this it can be inferred that margins are unlikely to have risen materially over the period.

[4]https://www.emi.ea.govt.nz/Retail/Datasets/_AdditionalInformation/SupportingInformationAndAnalysis/2014/20140720_NZIER_SyntheticRetailPrice

3.1.2 Australia's National Electricity Market

The Australian Competition and Consumer Commission (ACCC) was recently empowered to review the retail market. The ACCC has extensive information-gathering powers and used them to gather and analyse retailer price and cost data over many years. As a result, it was able to produce the most comprehensive assessment of costs and drivers over recent years [7].

Figure 6: Changes in average Australian residential customer bill from 2007–08 to 2017-18

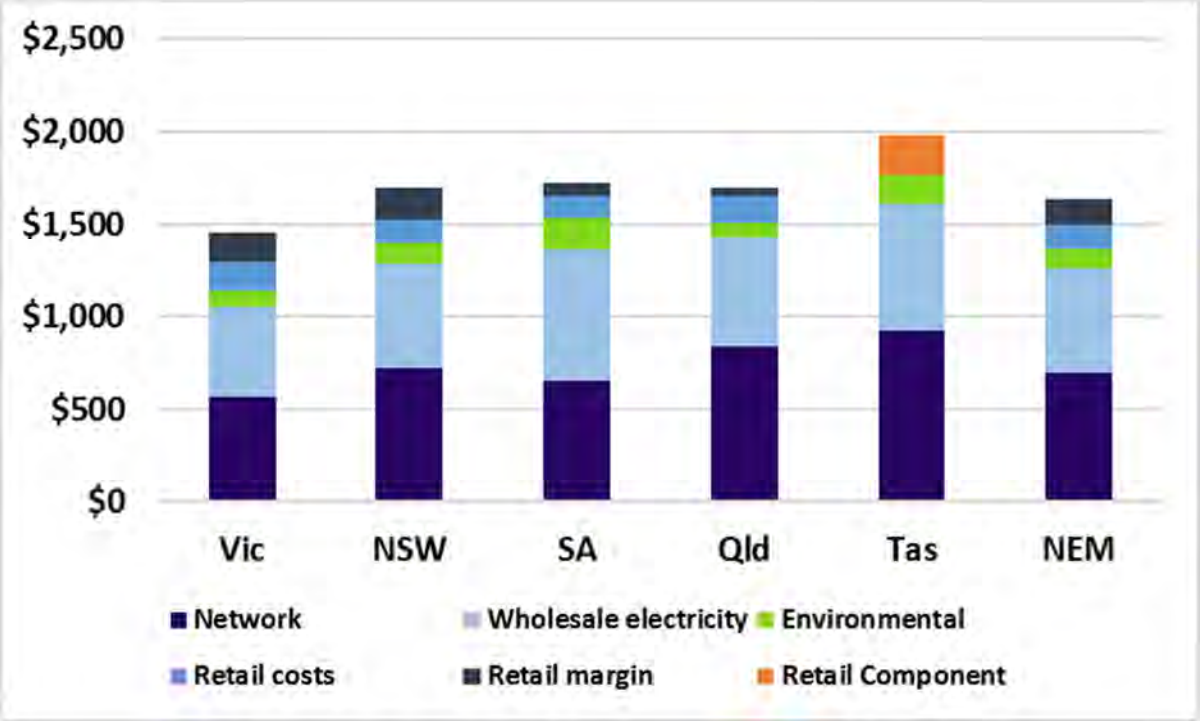


Notes: NEM-wide – real values in 2016–17 dollars, excluding GST

Source: ACCC

The analysis clearly showed that network costs were the largest single driver of price increases, followed by wholesale, and then environmental costs. The period of analysis includes 2016-17, when a large hike in wholesale prices following the closure of a large brown coal fired generator took public and political concern about energy prices to a new level. A state by state analysis is shown below.

Figure 7: Average Australian residential bills by state, 2017–18, $ per customer excluding GST



Source: ACCC

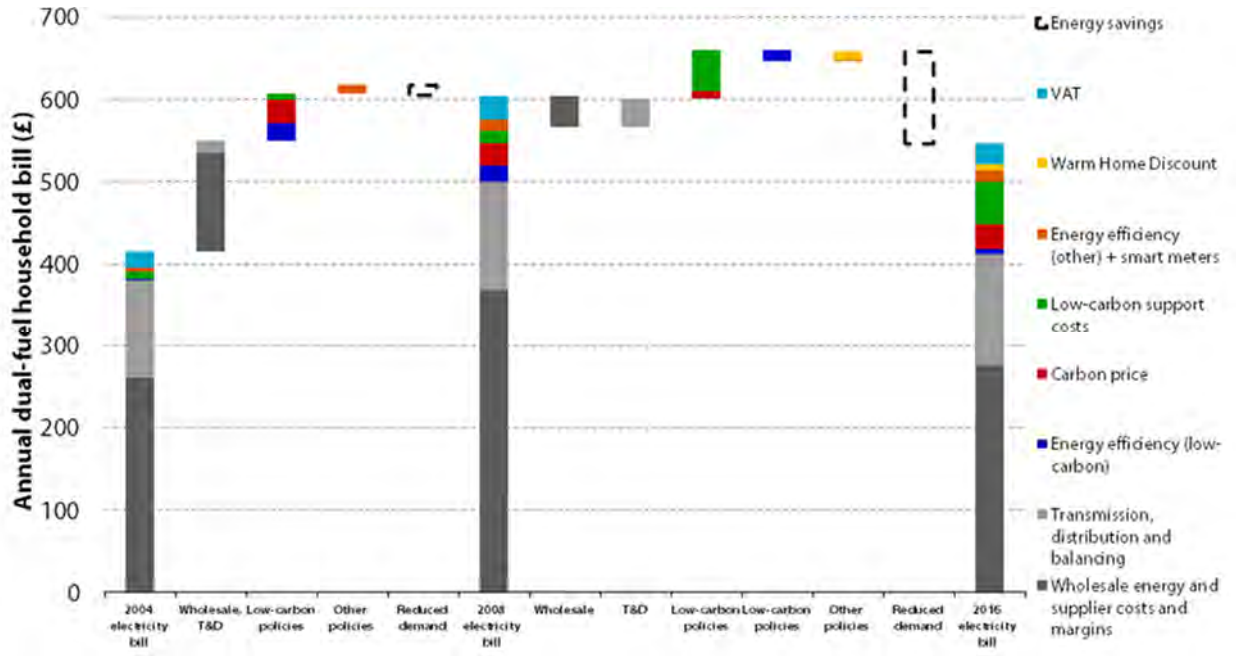
Of the jurisdictions shown, Victoria, NSW and South Australia are all fully deregulated, Queensland is partly deregulated while Tasmania is still fully regulated. The average percentage margin across the NEM is estimated to be 8 per cent. While the ACCC declined to publish retail costs and margins separately for Tasmania, the regulated retail margin is 5.7 per cent. This is higher than the average margins reported for both South Australia and Queensland. So, while deregulation has resulted in the emergence of significant price differentials (see 4.3.2 below), it has not led to significantly greater margins overall.

The ACCC noted the significant impact of bad debt in terms of increasing retailers cost to serve. Based on data from retailers the ACCC found that the cost of bad debt and debt collection is 22 per cent of retailers' costs to serve, which translates to an annual cost of about $20 on average for each customer in the NEM [7]. As discussed in section 5.1.2 below the ACCC made several recommendations to reduce this impact via targeted support measures for vulnerable consumers.

3.1.3 Great Britain

In the period since 2004 (which was the point at which bills were cheapest), the major drivers of bill increases have been wholesale costs and the impacts of carbon policies. Network costs have also risen. The increases have been offset by lower consumption, partly reflecting energy efficiency initiatives, but also price elasticity, i.e. customers forgoing amenity to save on energy bills.

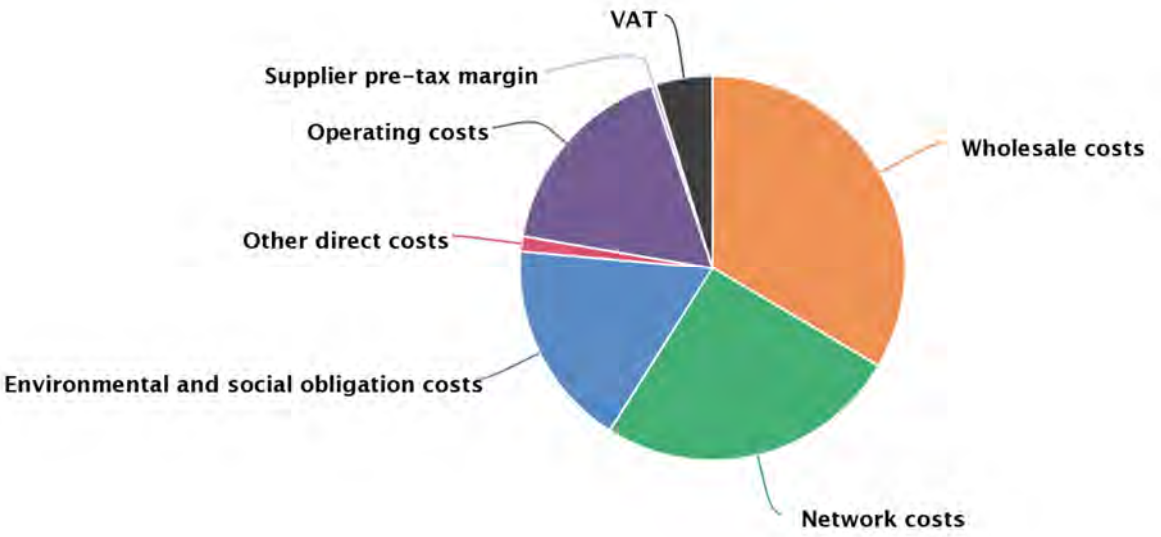
Figure 8: Changes in dual-fuel Great Britain household electricity bills (2004-2008-2016) [8]



Source: Energy Prices and Bills - impacts of meeting carbon budgets, Committee on Climate Change, 2017

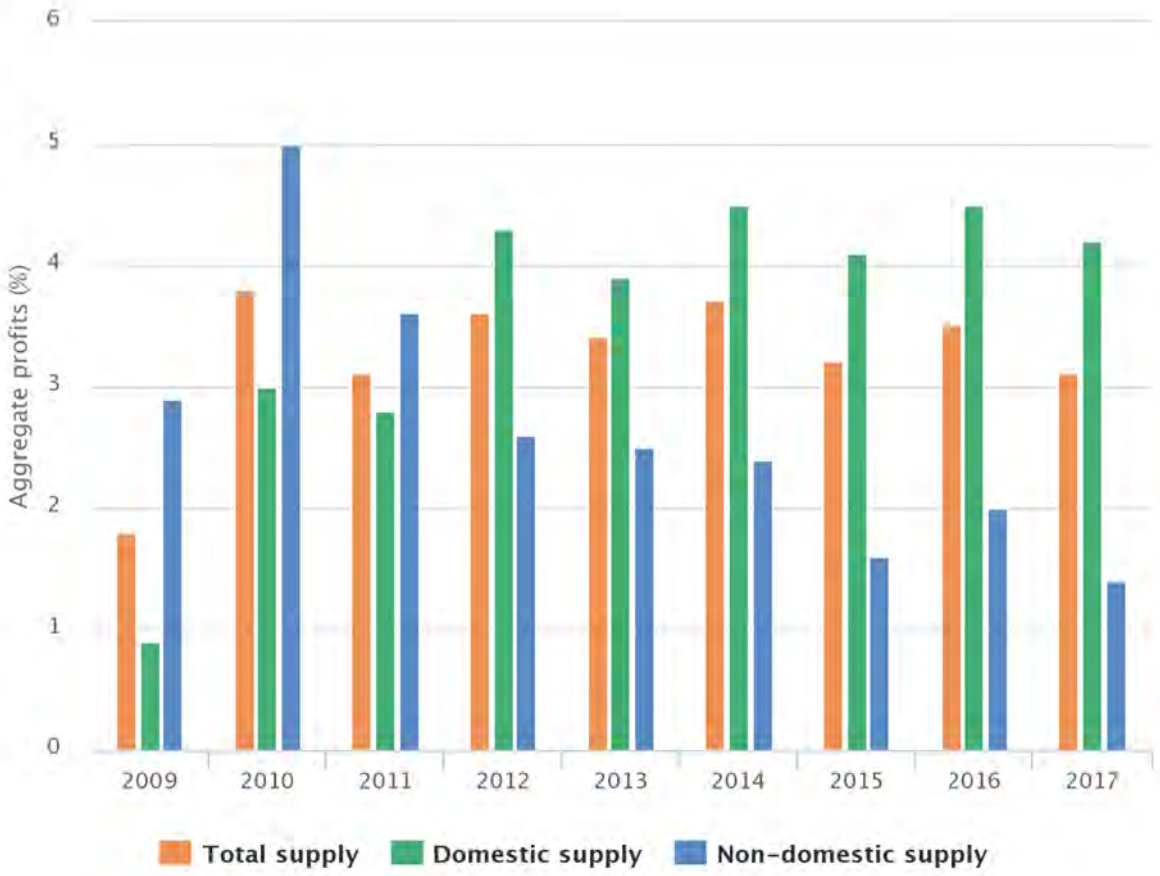
Electricity prices rose a further 5.7 per cent in 2017 [9]. In Figure 8 above, wholesale, retail and supplier margins are all lumped together. For the avoidance of doubt, supplier margins are not, on average a key driver. Figure 9 below shows Ofgem's most up to date view of the retail cost stack, while Figure 10 shows dual fuel margins over time.

Figure 9: Breakdown of a typical Great Britain electricity bill



Source: Ofgem

Figure 10: Time series of Great Britain Big 6 aggregate profits, electricity and gas



Source: Ofgem

The above chart covers profit margins on both gas and electricity. In general gas is more profitable than electricity. The Competition and Markets Authority (CMA) assessed margins (on an EBIT basis) to be around 2.5 per cent on sales to household electricity customers [10]. Given the extent of price dispersion, it seems likely that the most competitive offers are loss leaders; in other words, if consumers switched *en masse* to the cheapest tariffs, they would not be sustainable, and suppliers would have to raise the price of these tariffs to stay solvent.

4 Retail market characteristics

4.1 Market structure

A high-level comparison of the three markets is shown below.

Table 1 High level metrics of each market

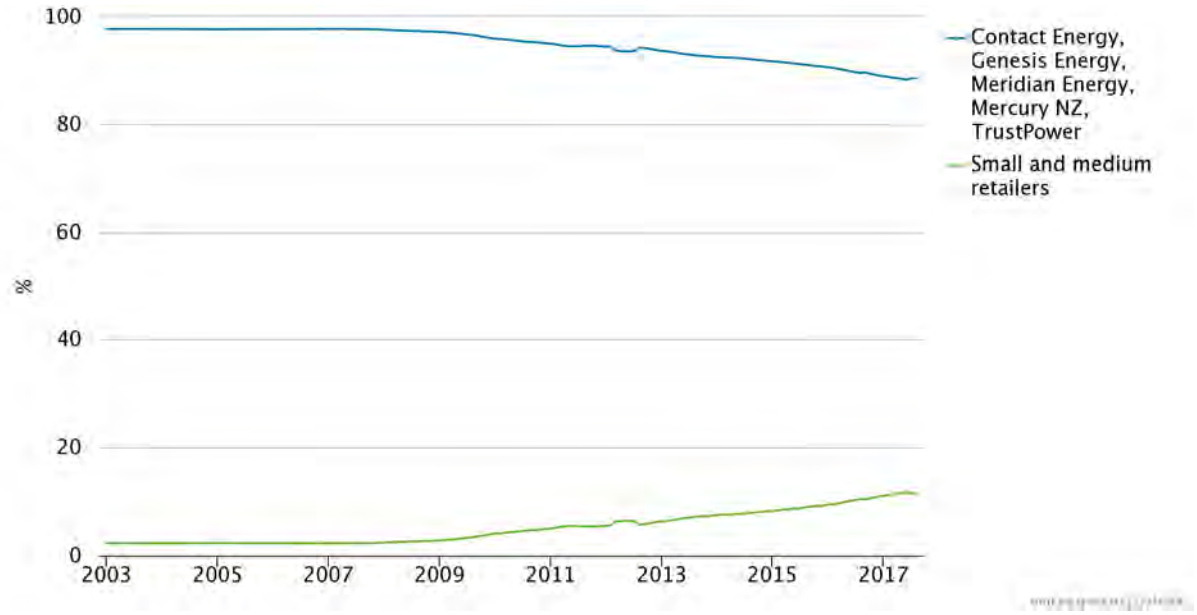
Item	New Zealand	NEM	Great Britain
Market size (million customers)	2	8.6	25
Number of retailers	36	33	64
Number of "major"/incumbent retailers	5	3	6
Market share of major retailers	89%	>75%	78%
Switching rate (annual)	25%	17-27%	11-18%
Average time to switch (days)	3-4	c. 15	16

Sources: Electricity Authority, Ofgem, AEMC, Advisory Panel

4.1.1 New Zealand

New Zealand's retail market has been maturing over time, with the number of retailers growing and new entrants eating into the market share of the five largest, as shown in Figure 11 below.

Figure 11: market shares of big 5 versus other retailers



Source: EMI

Retail choice varies with region – Auckland has the most to choose from with 35 active retailers in the residential sector, while West Coast has 10. Most regions have at least 20. A few companies own multiple brands, so by parent retailer the figures range from 10 to 22[5].

4.1.2 Australia's National Electricity Market

The NEM is still subject to a good deal of jurisdictional control, despite the adoption of national rules across much of it. The ACT, Tasmania and regional Queensland still operate under price caps and the household market is still dominated by the state-owned incumbent in all three cases. So, retail competition is confined to NSW, Victoria, South Australia and South East Queensland (SEQ). As these are the most populous regions, they cover around 7.5 million residential customers. As Figure 12 shows below, the development of competition and deregulation has occurred over different timeframes for different jurisdictions [11].

[5] Electricity Authority EMI, Consumer choice league table accessed 8/10/18

Figure 12: Progress of retail energy market reform across jurisdictions [11]

Source AEMC

Accordingly, switching levels and market concentration vary across jurisdictions as well. Victoria as the first to liberalise, has typically had the highest switching rate as well as the lowest level of incumbency (59 per cent) [11]. In the competitive regions, all the incumbent retail customers (i.e. those who have never switched) are customers of the Big 3 (Origin, AGL, Energy Australia). These companies between them were the purchasers of the state-owned retailers on privatisation, before which there were lower levels of competition. The Big 3's share has been falling across all competitive jurisdictions, with new entrant retailers capturing between 9 and 16 per cent market share over 2010-2017 [11]. In all there are 33 registered retailers under the National Energy Customer Framework (NECF). As Victoria has yet to sign up to this code, retailers have to register separately, but as the most mature market, it has over 20 retailers [11].

4.1.3 Great Britain

Great Britain is the largest of the three markets under review and the most mature. Unsurprisingly, it has the most suppliers as well as the most "major" suppliers. The six largest (collectively called the "Big six") comprise the five incumbent retailers (consolidated through M&A activity from the original 12 RECs) and the incumbent gas retailer, British Gas. These retailers tend to be dominant in their original "home" area, although it's notable that British Gas became the largest despite not having any

electricity customers to begin with. Small and medium retailers have made significant inroads in recent years, climbing from a 1 per cent share at the end of 2012 to 22 per cent in March 2018[6].

4.2 Price Structure of retail tariffs

This section outlines the structure of retail offers and regulatory barriers or requirements that influence those in each market, i.e. standard tariffs; tariff structures (fixed/variable charges, prevalence of time-of-use or demand charges); discounts (type and quantum).

4.2.1 New Zealand

New Zealand has relatively few regulatory requirements around tariff structure. The main one is the requirement to offer a low fixed price tariff (maximum 30c/day). This is intended to assist low consumption households, defined as those consuming less than 8,000kWh/year. As the First Report notes, low users are not necessarily the same group as low-income customers, so it is not clear that these tariffs are appropriately targeting those who most need assistance [12]. The distortionary effect of the requirement is such that it is estimated that the standard plan that would be offered without the regulations is cheaper for customers using about 6,500kWh or more [12]. The average consumption in New Zealand is 7,100kWh per annum [12].

The prevalence of smart meters allows for time-varying tariffs which are starting to emerge. In addition to long standing tariffs for controlled hot water load, many retailers offer off-peak tariffs for electric vehicle charging and some are starting to offer spot market based tariffs. As in most jurisdictions, such tariffs tend to be driven by network pricing, reform of which is being promoted by the Electricity Authority to promote more cost reflective outcomes.

4.2.2 Australia's National Electricity Market

The core regulatory requirement (both in the national and the Victorian rules) is that retailers must have a standing offer. This can have both a fixed (daily charge) component and a variable (kWh) component. The standing offer can only be changed biannually and contains standard terms and conditions. The standing offer evolved from the regulated tariff that applied previously in many jurisdictions (and still does in Tasmania, the ACT and regional Queensland). Other tariffs are known as market offers and require informed consent from the customer. This is an issue where market offers

[6] https://www.ofgem.gov.uk/data-portal/retail-market-indicators

are time-limited as if the customer does not actively agree to a new offer, they may revert to the standing offer, which as a default offer is often not a competitive price. Customers may also find themselves on standing offers if they move into a property where the electricity is already connected but do not contact a retailer to arrange a supply contract. In this case, supply defaults to the previous owners' retailer. Such customers contribute heavily to retailers' bad debt costs, as they are often slow to provide full contact details to the retailer [13].

Many retailers set their market offers with reference to their standing offer, which allows them to promote a headline discount rate. Where there is no price cap in place, the gap between the standing offer and the leading market offer has grown to allow headline discounts of up to 45 per cent[7]. Some retailers apply the discount to the whole bill and others to the variable element only. This has led to concerns that the headline discount rate is not a good guide to the cheapest tariff.

Retailers argue that their market research shows customers appreciate being offered discounted tariffs, so their tariff design is merely responding to the market. The angst over discounting is compounded by the increase of conditionality on the discount. As most jurisdictions banned late payment fees early in the deregulation process, retailers simply switched to offering a discount for paying on time. Initially this was only a few per cent and was presented as a further discount to the market offer. Over time, many retailers have switched to making the full discount conditional on payment-on-time. It's been pointed out that a, say, 40 per cent pay-on-time discount is equivalent to a 67 per cent late payment charge and that this is not remotely reflective of the costs a retailer incurs on a late payment. Many customers could avoid this risk by agreeing to pay by direct debit, which should guarantee the pay-on-time discount, but those that do not are considered by consumer groups to be most likely to be the sort of customer who can ill-afford a large penalty for missing the payment date by a few days (or failing to take the offer in the first place because of fears they may not be able to pay on time always). Retailer data provided to the ACCC indicates that customers achieve their conditional discounts 73 per cent of the time. The figure is slightly better for concession customers as long as they are not also in hardship. Conversely those on a payment plan only achieve the discount 56 per cent of the time [7].

[7] Per Canstar Blue: https://www.canstarblue.com.au/electricity/compare-electricity-prices-in-victoria/ , accessed 7/10/18

These discounting practices and their consequences have been the subject of much regulatory interest and public and political opprobrium. Despite the concern around discounting the ACCC hasn't proposed to ban the practice but suggested prompt payment discounts should be cost reflective. It's often overlooked that while these practices are common they are by no means universal. Some retailers set their market offer at their standing offer and so rely on the price being competitive, while others adopt more novel pricing approaches. These include Powershop, which allows users to pre-purchase tranches ("Powerpacks") of consumption at a pre-set price[8] and Mojo, which charges a monthly fee and then simply passes through the costs of the rest of the supply chain[9].

There is relatively little time-varying pricing. While networks are formally required to set prices on a cost-reflective basis, the lack of smart meters outside Victoria is a barrier to implementing these, while in Victoria the government ruled that such tariffs could only be made available on an opt-in basis and there has been virtually no take-up.

4.2.3 Great Britain

Ofgem identified customer confusion as an issue in its Supply Probe. It proposed to address this via a tariff simplification drive [14]. After a false start this resulted in retailers being restricted to four tariffs for each of gas and electricity per payment method (direct debit, standard credit and prepayment). All tariffs were to have a simple two-part structure that is a standing charge (which could be zero) and a single unit rate for consumption. As the unit rate could no longer vary with the level of consumption, declining block tariffs were prohibited, which removed a tariff type that suited larger users of electricity. Discounts were ultimately prohibited for reasons other than "dual fuel" (purchasing gas and electricity from the same retailer) and online only billing and had to be expressed in pounds not percentages.

The most basic tariff type is the standard variable tariff, and this is what customers will default to if they don't actively choose a different tariff type. They are typically more expensive than other tariffs. Customers on 'dead tariffs' – those no longer available to prospective new customers - are required to be moved to that supplier's cheapest 'live or open tariff'. This mitigates against the risk of

[8] https://www.powershop.com.au/why-powershop/powershop-experience/

[9]

disengaged customers being moved on to uncompetitive tariffs when their existing tariff expires, although most such customers will be on the standard variable tariff.

In the mid-1990s the majority of customers paid by standard credit but since then there has been a significant shift towards payment by direct debit, with 58 per cent of customers choosing to pay by this method in 2015 and only 27 per cent of customers paying by standard credit. The proportion of customers on prepayment meters doubled over the period, from 7 per cent in 1996 to 16 per cent in 2015. Prepayment customers were identified many years ago as paying a premium over other customers. Accordingly, this was the first customer group for whom a default tariff was introduced. The rollout of smart meters is expected to assist with eroding the disadvantages of prepayment meters.

4.3 Price dispersion

The existence of price differentials, or price dispersion is a contentious issue in electricity, in a way that is not observed in many other markets, where customers typically understand that prices differ and that if they are not prepared to carry out some price comparison they risk paying a higher price than they need to. Accordingly, it is worth considering the logic that drives such outcomes in competitive market for electricity.

The theoretical underpinnings of price discrimination (businesses using varying approaches to offer different prices across their customer base) and price dispersion (the range of prices that customers actually pay) that occur in a competitive market where search costs exist are explained in a paper by the Competition Economists' Group (CEG) submitted to the ACCC inquiry [15]. The paper uses worked examples of simplified competition to illustrate the (counterintuitive) point that "Giving firms the flexibility to discriminate against their existing 'sticky' customer base actually results in lower prices to the 'sticky' customers. However, this is a more intuitive result when it is recognised that that the flipside is that price discrimination gives firms the flexibility, and incentive, to discriminate in favour of competitors' customers by offering them prices close to marginal cost. With all firms doing this to their competitors' customers then all firms are limited in the mark-up on marginal cost they can successfully charge to their existing customers" [15].

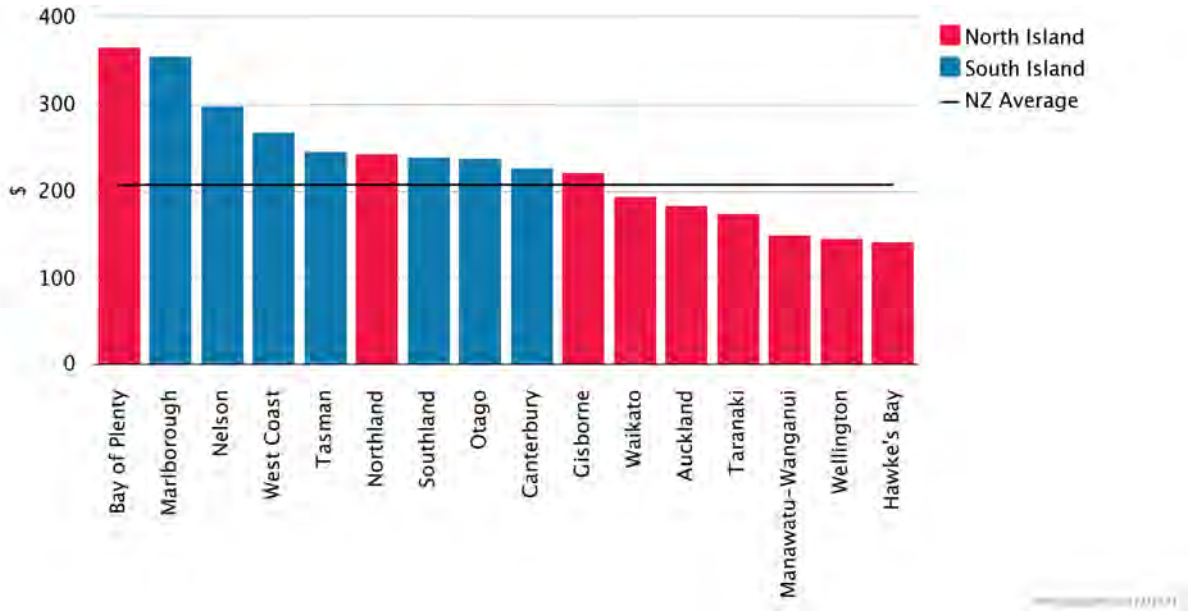
In other words, at any point there is an equilibrium where less sticky customers get highly competitive prices (noting that this also maintains pressure on retailers to cut costs at any part of the supply chain

that they can) and stickier customers pay more, but the amount is constrained by the fact that there is some price differential at which they will be motivated to move.

4.3.1 New Zealand

The Electricity Authority estimates that, based on 2017 EMI data, average savings of $207 could be made by switching to the lowest priced generally available plan each month[10]. This varies by region as shown below:

Figure 13: Average savings by region if all consumers switched to cheapest available plan



Source: EMI

Such "savings" data, in New Zealand and elsewhere, has been misinterpreted as representing excess profits earned by suppliers. The sum of all the savings shown above is $372m, which is close to the total margin (retail segment EBITDAF) earned by the five largest retailers of around $400m [16]. This includes margins on business customers and does not account for a share of corporate overheads. The implication is that the cheapest offer is set at around the marginal cost to supply of the lowest marginal cost supplier. Accordingly, while these savings may be available for individual customers, they would not be available in aggregate as if all customers actively sought the cheapest offer, price dispersion would erode as retailers would have to increase their cheapest offer to remain viable.

[10] Electricity Authority, EMI, Residential savings

Customer research indicates that many customers require a significant saving to switch. Just 8 per cent of respondents said the minimum amount they would need to save annually on their bill in order to seriously consider changing their company or plan was $100 or less [17]. Some 51 per cent said they would consider switching only if the savings were $250 or less, and a further 30 per cent would change if savings were $250 or more.

An interesting analysis of the different drivers that can cause differences in household electricity bills is shown in Figure 1 below.

Figure 14: Impact of factors affecting consumption and price [12]

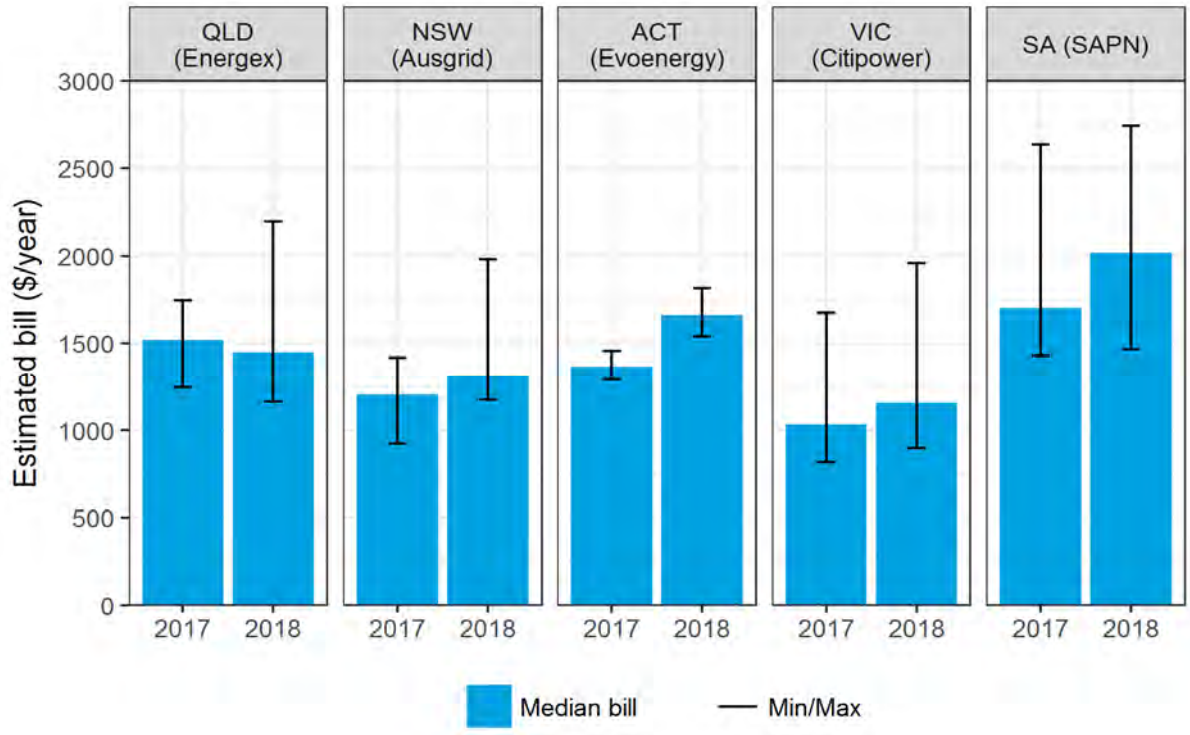
Source: First Report

It illustrates that country-wide, price/cost differentials exist for many reasons, most of which have nothing to do with retailers' pricing and marketing. The retail price differential (i.e. price spread for retail in a given distribution zone) is not even the largest differential. If equivalent charts were drawn up for Australia and Great Britain, a very similar set of dimensions would be present.

4.3.2 Australia's National Electricity Market

As discussed above, price dispersion has been increasing as some retailers structure their offers to maximise the headline discount. Figure 15 below illustrates the change year on year. In some jurisdictions the maximum is double the minimum. Even moving from the median market offer to the minimum can save up to $832 per year in South Australia and over $500 in Victoria and SEQ [11].

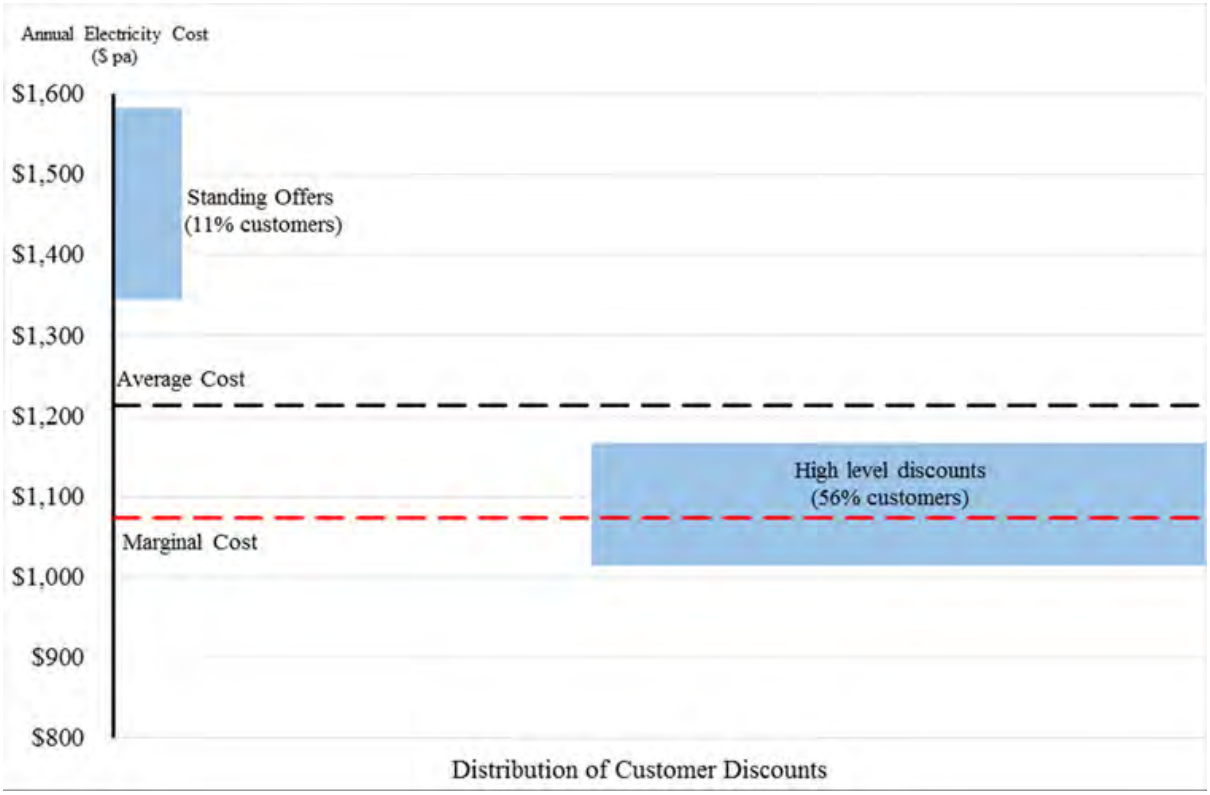
Figure 15 Price dispersion in the NEM by jurisdiction (market offers only) [11]



Source: AEMC, 2018 Retail energy competition review

Crucially, this does not tell us how many customers are on the maximum offer (or close to it) or the minimum offer. A paper by staff from one of Australia's big 3 retailers indicates that the spread is weighted towards the lower end of the price range for their customers at least [18].

Figure 16: Customer dispersion



Source AGL

4.3.3 Great Britain

Most data on price dispersion in the Great Britain market is between the average bill and the cheapest offer on the market, based on dual fuel (gas and electricity). Maximum-minimum differentials are not directly disclosed. Given that the standard variable tariff is considered the default tariff, this is likely to be one of the more expensive tariffs each supplier offers and may be a reasonable proxy. Table 2 below illustrates the differences between the standard variable tariff of ten suppliers (the Big 6 and 4 of the next largest) and the cheapest offers both of that supplier and of the market[11].

[11] Ofgem, Retail Market Indicators, https://www.ofgem.gov.uk/data-portal/retail-market-indicators accessed 7/10/18

Table 2: Difference between standard variable tariff and cheapest offers (£)

Supplier	Supplier's average annual standard variable tariff	Supplier's cheapest annual average tariff	Market cheapest annual average tariff	Price dispersion – supplier	price dispersion - market
British Gas	1120	1054	788	66	332
SSE	1121	1094	788	27	333
E. ON	1149	1004	788	145	361
EDF	1145	1023	788	122	357
Scottish Power	1162	1060	788	102	374
npower	1176	1059	788	117	388
First Utility	1132	958	788	174	344
OVO Energy	1049	1034	788	15	261
Utility Warehouse	1125	999	788	126	337
Co-operative Energy	1158	960	788	198	370

Source: Ofgem, Newgrange analysis

Price dispersion ranges up to £198 for an individual supplier and £388 to the market leader. Some of the largest gaps are for medium-sized suppliers. Note that these price gaps persist despite several years of regulatory intervention to attempt to reduce them. Also, around £75-80 of the gap represents

the dual fuel direct debit discount, which is required to be only what is cost-reflective for the savings suppliers make from this payment type (e.g. lower working capital, lower bad debt costs).

4.3.4 Comparison and key themes

Price dispersion appears to be a standard phenomenon of a competitive retail electricity market, given it can be observed in all three markets. The range of prices does not appear to be as high in New Zealand as in the other two markets, meaning that the so-called "penalty" for not actively engaging in the market is not as high. Attempts to reduce price dispersion by regulatory intervention in Great Britain have not been especially successful (see section 5.1.3 below) and Australia's recent moves in this direction are unlikely to work any better.

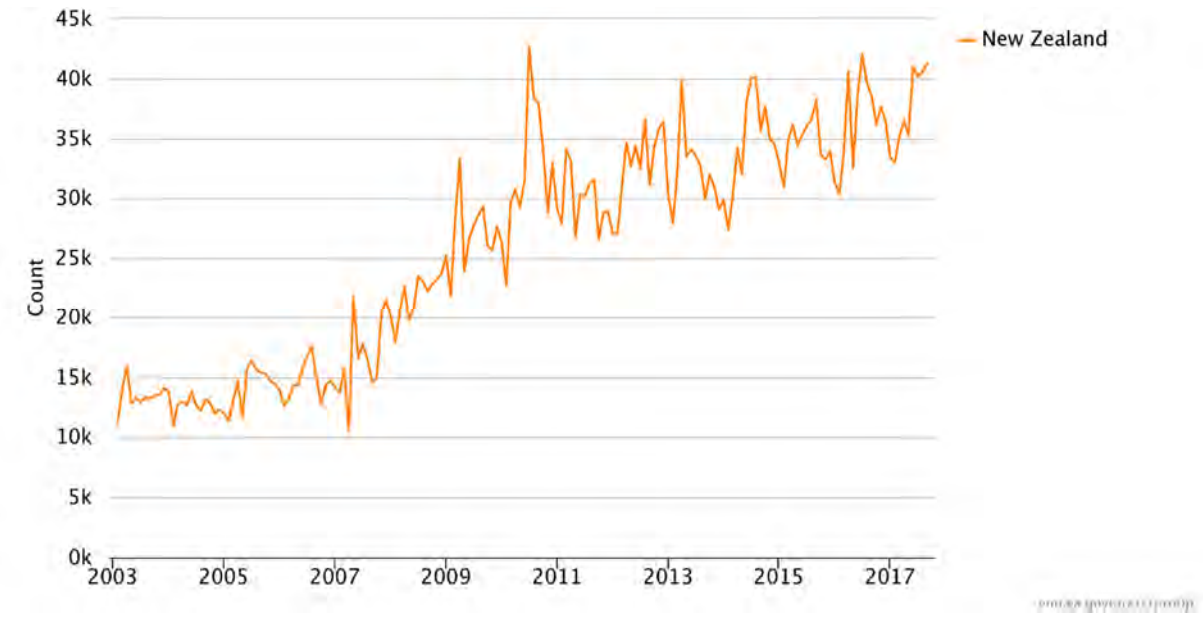
4.4 Ease of switching

This section covers time to switch in each market and any barriers to switching; opportunity for "saves" and "win-back" activity by incumbent retailer; switching levels; switching tools including commercial brokers and publicly owned comparison sites.

4.4.1 New Zealand

New Zealand has a high level of switching. This reflects a number of factors, including the ease of switching (only 3-4 days) and a well-publicised information campaign promoting customers' rights to switch (*What's my Number?)*.

Figure 17: Monthly switching rates[12]



Source: Electricity Authority

The recent annualised rates of over 400,000 switches per year translates to over 20 per cent. Survey data from the Electricity Authority suggests up to 30 per cent of customer consider switching each year and then decide to stay with their existing retailer [17]. Awareness of the ability to switch is high, thanks in part to What's My Number, with over 2/3 of customers surveyed aware of the potential value of switching [19]. Notably, this campaign not only raises awareness of switching and drives customers to the website where they can compare offers, but the success of the campaign is also monitored annually to ensure it is effective advertising. Latest data indicates the campaign may be responsible from around a quarter of all switches [19]. Consumer New Zealand also promotes switching through their website and a commercial broker, SwitchMe, is also available.

One concern that regulators have sought to address is save and win-back activity Saving is where a retailer uses a competitor's offer to retain the household by offering them a lower offer during the switching period. Win-back is where the switch is withdrawn after it has been completed. In 2015 the Electricity Authority implemented a save protection scheme. Retailers can opt into the scheme. For those who participate it means that they are able to win a customer and complete the switching process before the customer's previous retailer can attempt to win them back. Similarly, if a

[12] Electricity Authority EMI, Switching trends

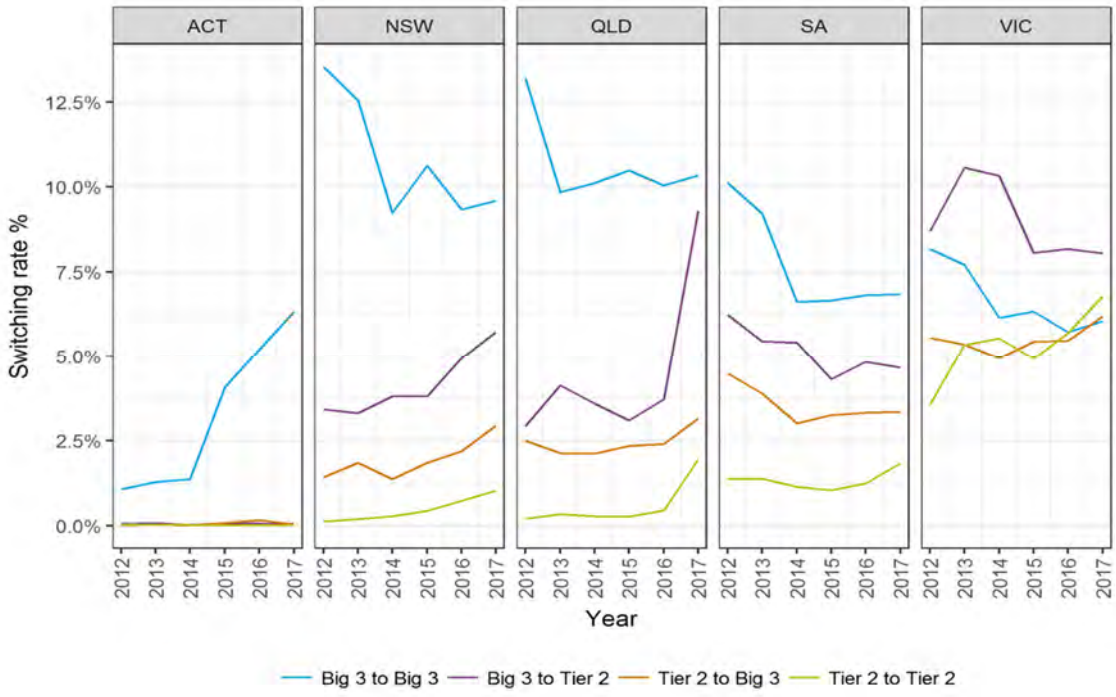
participating retailer loses a customer, it cannot attempt to win that customer back until the switch is completed.

A post-implementation review found that there was no evidence that the save protection scheme had either enhanced or harmed competition [20]. It had however resulted in shorter switching times so that the previous retailer could quickly get an opportunity to win-back, and that win-backs had increased.

4.4.2 Australia's National Electricity Market

The AEMC monitors retail competition for both gas and electricity annually. The 2018 report indicates that switching rates vary by jurisdiction but are in the order of 17-25 per cent for deregulated jurisdictions [11].

Figure 18: Switches within and between retailer tiers, 2012 to 2017 (electricity, by jurisdiction)



Household consumers have numerous comparison sites to assist them, including two government websites that list all offers in the relevant jurisdiction and 19 commercial sites, which advertise widely and will actively assist with switching. One of these, One Big Switch, runs a group discount programme. While the government sites are the most comprehensive, they have not been widely promoted and

so there has historically been low awareness of their existence. Recently, the Victorian government announced it would give $50 per household just for visiting the site.

Despite their greater effectiveness, concerns have been raised about the commercial websites, including that they do not cover enough of the market and so do not give customers visibility of a wide enough range of offers (nor explain this limitation well enough) and that their commissions are higher than those in Great Britain, for example, leading to their contributing to high retail customer acquisition and retention costs [7].

Concerns have also been raised about win-back strategies, although no regulatory action has been taken to date to address this [7]. On the contrary the ACCC review found:

“Any action to prohibit save or win-back activity would be a significant regulatory intervention and one that may have unexpected and unintended consequences. As noted in our Preliminary Report, the New Zealand Electricity Authority in January 2015 introduced a scheme which bans retailers who opted in to the scheme from engaging in save activity. The scheme led to an increase in win-back activity (in place of saves) and no overall improvement in competition in the market. On the basis of these results, together with concerns about making such significant intervention on a competitive dynamic to the market, the ACCC does not recommend that retailers be banned from engaging in save or win-back activity.” [7]

Switching times can vary – outside of Victoria, a switch only takes place at the date of the next meter read after the switch request has been processed – i.e. up to three months. It is not clear whether this potential delay has inhibited customer switching.

4.4.3 Great Britain

As one of the first competitive retail markets, Great Britain has had relatively high levels of switching by international standards for many years. Switching takes around 15 days and there is also a 14-day cooling off period.

Figure 19: Average switching time for household customers

Source: Ofgem

As with other electricity markets, policy concern is focussed on those who never switch, for whatever reason. The CMA commissioned a survey of households during its retail market investigation, from which it observed:

- 36 per cent of respondents either did not think it was possible or did not know if it was possible to change one or more of the following: tariff; payment method; and supplier;
- 34 per cent of respondents said they had never considered switching supplier;
- 56 per cent of respondents said they had never switched supplier, did not know it was possible or did not know if they had done so; and
- 72 per cent said they had never switched tariff with an existing supplier, did not know it was possible, or did not know if they had done so [10].

Ofgem is attempting to address this issue through its disengaged customer database, a policy recommendation from the CMA's Energy Market Investigation (discussed further in 5.1.3). The database contains all customers who have been on the same suppliers' Standard Variable Tariff for more than three years. Ofgem has been trialling ways to target this group of customers with personalised information on the savings they could make by switching, including a mailout, an online marketing campaign and a collective switch. The latter of these was the most successful trial to date [21]. More than one in five disengaged customers who took part changed their energy deal.

4.4.4 Comparison and key themes

All three markets covered in the report have high levels of switching when comparing internationally. Switching is not the only indicator of effective competition, but it illustrates that there is genuine competitive tension and that retailers have to actively attract and retain customers to be successful. New Zealand's What's My Number campaign has assisted in delivering very high levels of awareness of the ability to switch and the value of doing so. New Zealand has the lowest time to switch of the three countries.

A number of regulatory interventions have been made in the three countries to further enhance the switching process. These include New Zealand's save protection scheme and Great Britain's disengaged customer database trials. While such interventions are relatively light touch and aim to support effective competition, there is always a risk of unintended consequences, Accordingly, care should be taken in implementing such schemes, and they should only be undertaken where a market failure has been identified and the benefits of the intervention clearly outweigh the costs.

4.5 Metering, meter reading and billing

This section covers who is responsible for metering, what the stock of meters is like, how frequently are readings taken and bills issued.

4.5.1 New Zealand

Responsibility for metering was transferred to retailers early in the deregulation process and made contestable, though many distribution businesses set up affiliates to compete in this market and one, Vector remains the market leader. In the early days, there was a certain amount of asset stranding as retailers installed new meters on acquisition of new customers. There is still a complex range of

ownership of meters, with networks, retailers and independent metering providers all owning meters, though there is no evidence that this is inherently a problem for consumers.

Metering standards have been upgraded over time, but there has been no mandatory rollout of smart meters. Regardless, New Zealand has a high penetration of smart meters despite having limited regulatory drivers to meet a particular timetable. Most retailers have between 80-100 per cent of their customers on smart meters[13]. Moreover, this has been achieved without an obvious step up in incremental costs to consumers.

As a result, monthly billing with actual consumption data is the norm, which assists to minimise the chance of bill shock.

Aside from the customer benefits of smart meters, New Zealand is also developing a market in data services for distributors, including outage and voltage data [22]. This demonstrates the ability for market participants to find commercial solutions to such matters.

4.5.2 Australia's National Electricity Market

The Council of Australian Governments (COAG) identified the benefits of smarter meters and more cost-reflective tariffs over a decade ago [23]. Only Victoria actually followed through on this, with a mandatory roll-out over the period 2011-2015. At this time, metering was a regulated monopoly service provided by the distribution networks. The Victorian smart meter program was scoped to deliver a high specification of metering and communications. Accordingly, it was very expensive, and because the rollout was over a compressed time frame, the costs were evident to consumers, with bills rising by around $200/year to cover the smart meter rollout [24]. The public backlash inhibited the government from following through to at least ensure the benefits of the meters were realised.

Unsurprisingly, other jurisdictions declined to follow the Victorian lead. The national rules were amended to transfer responsibility for metering to the retailer and also to upgrade metering standards so new and replacement meters would be smart. These new rules only came into force in late 2017, so the implications have yet to be fully assessed.

In Victoria at least, monthly billing with actual consumption data has become the norm. In other jurisdictions, billing may still be only quarterly with actual meter reads 1-2 times a year. Australia has

[13] Electricity Authority, EMI, Metering snapshot

been slow to mitigate this by allowing self reads, with the rule to enable this currently in draft form so unlikely to be in force before 2019.

4.5.3 Great Britain

Meter provision and meter reading was designated a competitive service by Ofgem in 1996. At this time responsibility to procure metering services transferred from the distribution networks to the retailers (given the extensive cross-ownership at the time, this was not necessarily a major upheaval). A programme to implement smart meters for all customers in both gas and electricity was initiated in 2011. The programme has been plagued with delays and issues and at the end of June 2018, there were just over 6 million electricity smart meters installed in households, a 24 per cent penetration rate.

With the continuing prevalence of analogue meters requiring manual metering, retailers may only carry out meter reads twice a year. As bills are typically quarterly, this means about half the bills issues will be based on estimated reads. However, self-reading is acceptable, and monthly direct debit is the most common way to pay bills, so in practice this low frequency of bills and meter reads need not have much impact. Of course, customers who pay by standard credit and how may be unaware of how to read their own meter may still be subject to bill shock.

4.5.4 Comparison and key themes

New Zealand is ahead of both Australia and Great Britain in its smart meter rollout, positioning it well for further innovation in retail services and the capacity to offer more cost-reflective tariff types, such as demand tariffs or time of use. The retailer-led rollout has been achieved without the sort of cost shock experienced in Victoria.

4.6 Service levels and customer satisfaction

This section covers data on complaints and customer satisfaction.

4.6.1 New Zealand

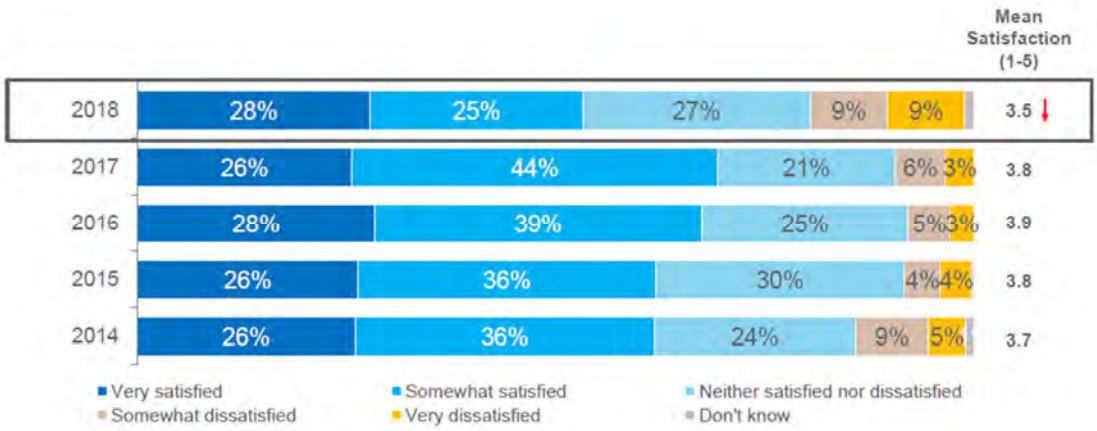
Consumer NZ surveys show households in New Zealand have a relatively high level of satisfaction with their retailer. Their 2018 survey found that 83 per cent of respondents were either somewhat or very satisfied with their retailer's service, while only 8 per cent were dissatisfied [25].

Utilities Dispute is the body responsible for managing complaints about electricity companies. Their latest 6 monthly statistics showed they had received 1,071 complaints decreasing by 7.8 per cent on the prior period. This is an annualized rate of less than 1 in 1,000 customers and the figures cover both distributors and retailers. Even fewer cases go to deadlock – 74 in the period [26]. The vast majority of complaints are referred back to retailers and quickly resolved.

4.6.2 Australia's National Electricity Market

Figure 20 below shows the changing levels of customer satisfaction in Australia. The latest figures show that only 53 per cent of customers are very or somewhat satisfied with their current electricity retailer [11].

Figure 20: Overall satisfaction with current electricity retailer

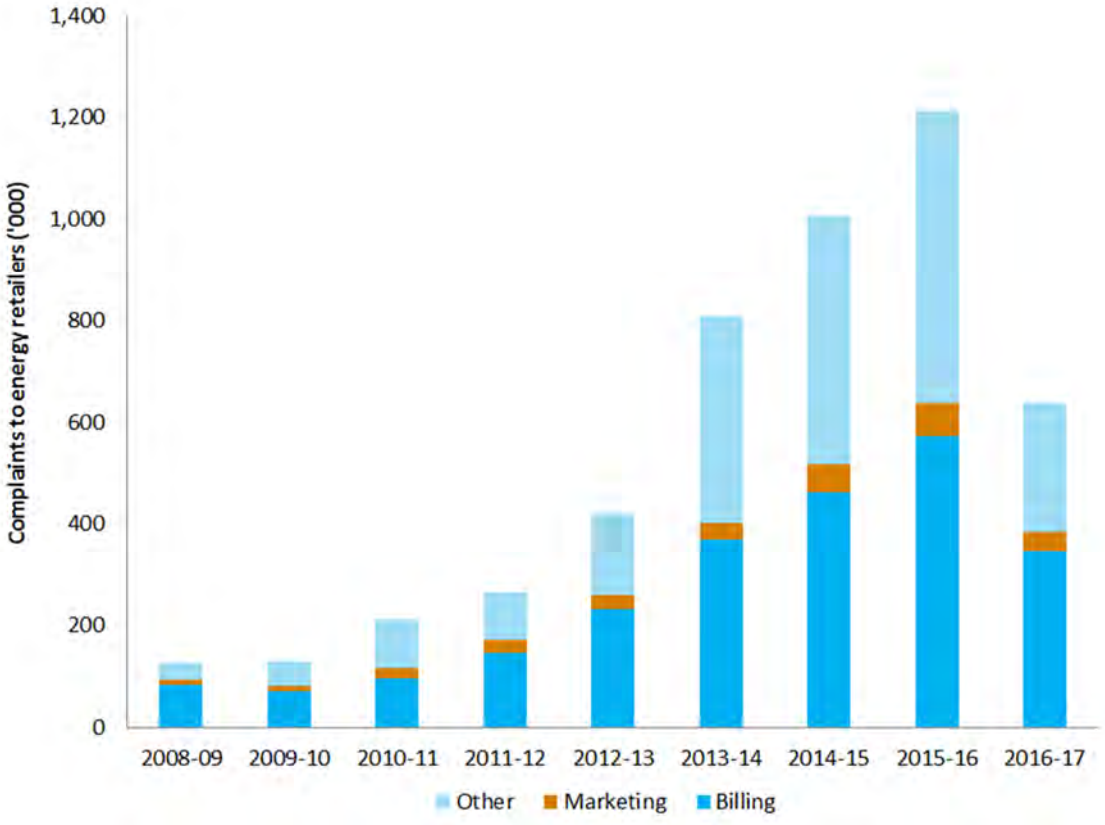


Source: AEMC

Ratings of the value for money of electricity have decreased in most states, unsurprisingly given the high level of media attention on rising electricity prices. The lowest level of satisfaction is Tasmania (35 per cent), followed by the ACT (37 per cent) [27]. Both of these jurisdictions have regulated prices. They were also the two lowest jurisdictions in terms of satisfaction with the level of competition.

Customer complaints are of a different order of magnitude to New Zealand, with totals reaching around 1.2m in 2015-16, albeit with a sharp drop-off in the following year [11].

Figure 21: Complaints to retailers (electricity, by complaint type)



Source: AEMC

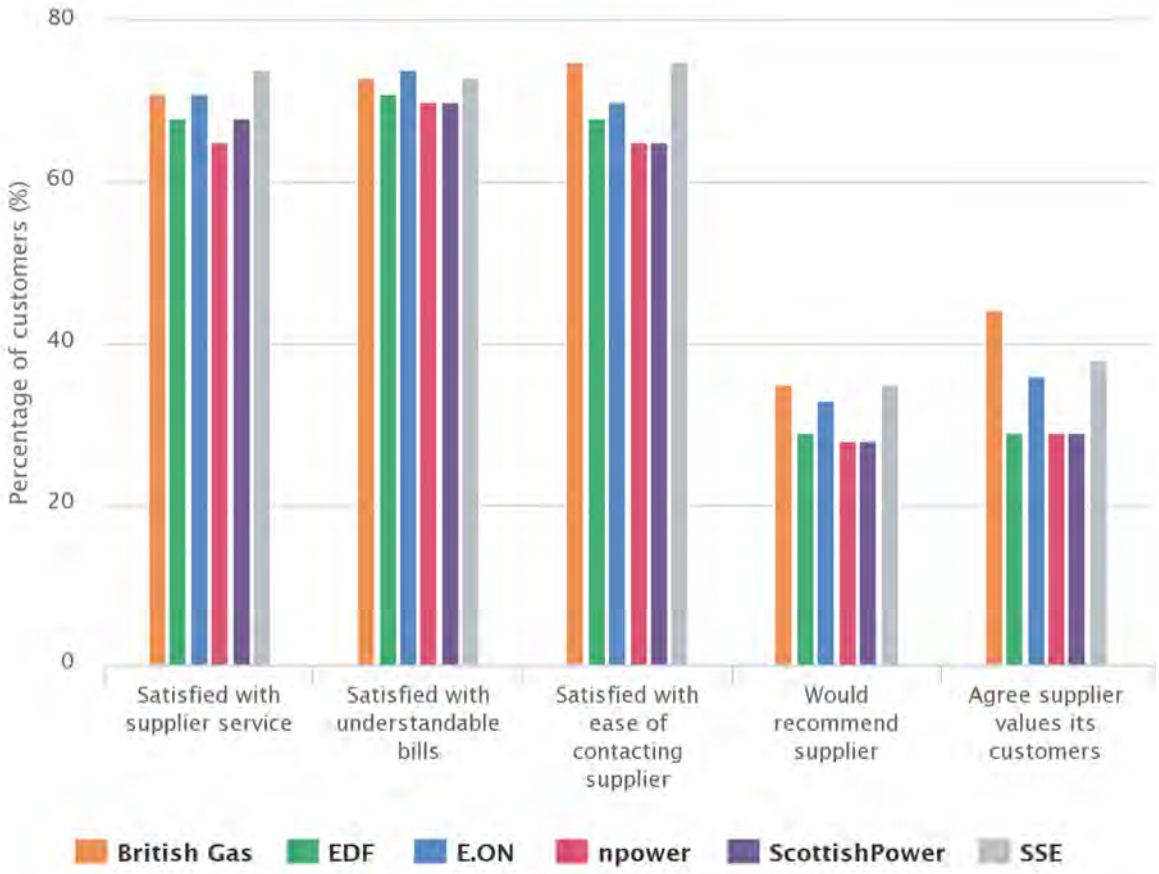
These figures are not directly comparable to the Utilities Dispute results as not all complaints to retailers are then escalated to an ombudsman. Each jurisdiction has its own ombudsman, and collectively they had almost 54,000 complaints in 2016/17 – again this is a decreasing trend, but as the AEMC notes: "the 2016/17 data does not capture the impact of the large price increases in the electricity sector" [11].

4.6.3 Great Britain

Ofgem's customer surveys measure satisfaction levels across different dimensions of the customer experience. On measures such as service, ability to contact retailer and understandable bills, the big six retailers have an average satisfaction level of around 65-70 per cent[14].

[14] Ofgem, Retail Market indicators – service quality

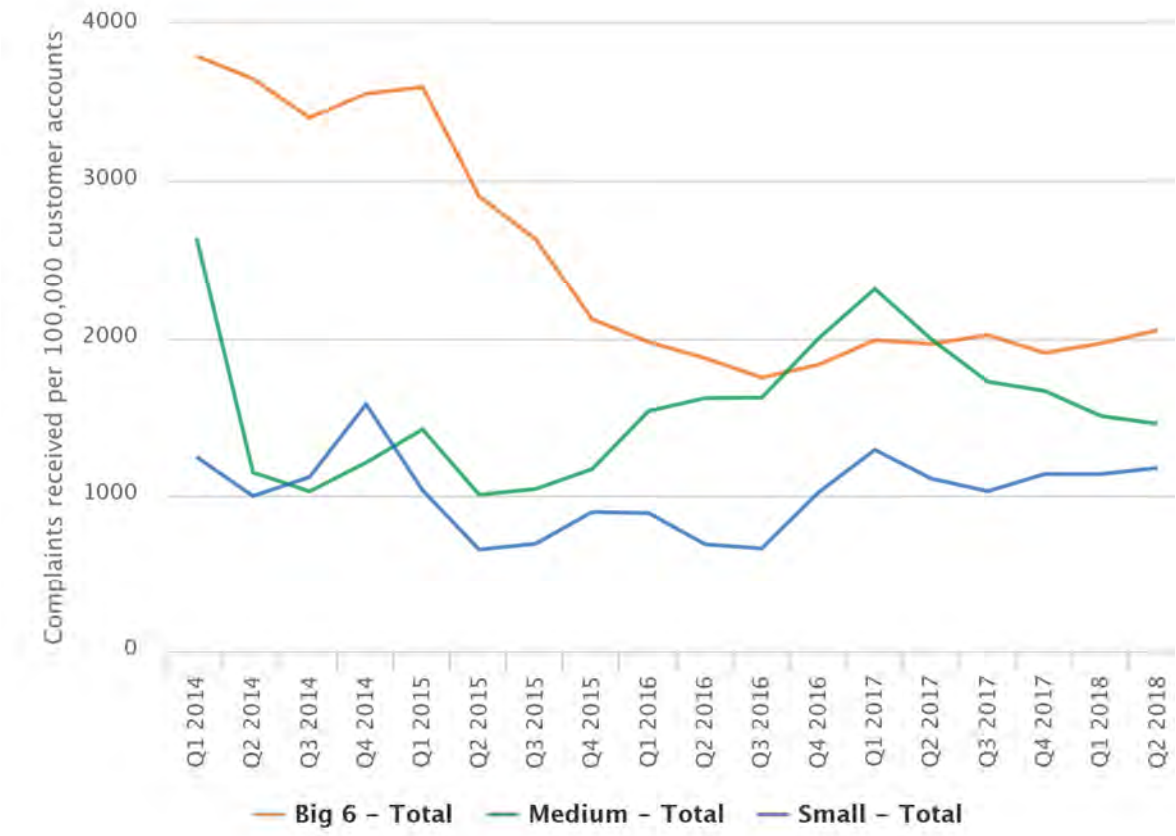
Figure 22: customer satisfaction with Big 6 electricity suppliers



Source: Ofgem

Compared to Australia and New Zealand, the British regime has high penalties for failure to deliver against service levels. Initially through fines and latterly through redress payments, suppliers have paid out over 10m each year [5]. Complaints have fallen to around 1-2 per cent, as the larger retailers' complaint level converge towards those of smaller retailers, and the ombudsman processed 88,423 complaints (about 1 in every 250 customers) across both gas and electricity [28].

Figure 23: customer complaints per 100,000 customers



Source: Ofgem

4.6.4 Comparison and key themes

On balance it appears that New Zealand has higher customer satisfaction and lower levels of complaints than either Australia or Great Britain.

4.7 Vulnerable and hardship customers

This section covers vulnerable and hardship customers, the support open to them, and the issues they face, including access to the competitive market, prepayment meters, concessions and energy efficiency.

4.7.1 New Zealand

Rule to assist vulnerable customers are defined by the Electricity Authority through voluntary guidelines and encompass alternative payment options, credit control, bonds and standards for disconnections following non-payment. Vulnerable customers are consumers for whom, for reasons of age health or disability, disconnection of electricity presents a clear threat to their or a member of their household's health or well-being". There is no universal supply obligation in place. Retailers have voluntarily jointly agreed protocols for managing credit issues, especially for vulnerable customers [29].

Alternative payment options can include prepayment meters. As in the other countries covered in this report, there are perennially concerns raised as to whether prepayment customers may more than other customers, given the additional costs associated with setting up a prepayment meter and obtaining credits. The largest prepayment provider, Globug, has tariffs equivalent to the post-pay tariffs of a large retailer such as Mercury, after adjusting for the prompt payment discount.

Households' ability to pay their electricity bills is a function of many factors, including retail tariffs, government support and usage, which can be highly dependent on the standard of housing and major appliances. The BRANZ survey of housing found that 53 per cent of NZ houses have no or suboptimal insulation in the roof space and/or subfloor.

The New Zealand Government has recently introduced a Winter Energy Payment. As the name suggests, this payment is intended to assist with the cost of heating homes over winter. Payment is made automatically to eligible recipients, essentially those already in receipt of other forms of government welfare such as pensioners and the unemployed. There is no further means-testing. Over 1 million New Zealanders will receive the payment.

4.7.2 Australia's National Electricity Market

The concessions framework in the NEM is operated on a jurisdictional basis and varies from state to state, creating additional process and implementation costs for retailers. Victoria's is considered to be best practice, as it is means-tested and contributes a percentage of the bill (currently 17.5 per cent).

Additionally, there are also hardship policies that govern how retailers deal with customers who run up bill arrears or ask for assistance in paying their bills. These have been in place in Victoria since 2006 and their application has been contentious ever since, resulting in periodic overhaul. A recent process

to review hardship policies took over two years to conclude. Given that its implicit goal was to address issues of poverty through a single tool – that of governing how energy retailers recover debt from consumers, it was always going to be hard to meet stakeholder expectations. Simultaneously, the AER has developed a scheme - initially voluntary, but now mandatory – for retailer hardship policies in the rest of the NEM. So, retailers who operate nationally need to set up their systems and processes to comply with two different polices. The latest figures show over 100,000 customers on payment schemes (across gas and electricity).

Despite the extensive policy framework to support customers in hardship, around 1 per cent of electricity customers are disconnected each year for non-payment. Outside of Tasmania, prepayment meters are not in use, so this option which has become the safety-net option for customers with poor credit history in Great Britain (see below) is not open to either customers or retailers in much of Australia. This is due in part to the restrictive and regulated approach to hardship issues that has reduced retailer flexibility and innovation in addressing hardship, including in the prepay market.

Hardship has been exacerbated by the reluctance in the past of social welfare organisations to recommend cheaper market contracts to their client base [30]. The slow pace of network tariff reform has also on average been detrimental to this group [31], although caution should be taken in assuming there is a read-across of this result to hardship customers in other countries.

Energy efficiency is also a concern in Australia although in most of the country the winter climate is mild, so heating is not a key driver of electricity use. Some jurisdictions run mandatory retailer energy efficiency schemes, although these mostly drive low-cost actions that energy efficiency providers can offer at no direct cost to households such as LED light bulbs and standby power controllers. They do not support significant uptake of major insulation improvement, for example. They also add modestly to customer bills.

The ACCC report (see 5.1.2 below) made a number of recommendations intended to assist vulnerable consumers and address the high costs to serve associated with bad debt collection by retailers. It recommended that:

"…state and territory governments restructure concession schemes to ensure that they offset both supply charges and usage charges, and are targeted at those most in need. This will place downward pressure on concession customers' bills and should flow through to reduce the cost of bad debt.

The ACCC also recommends government funding of a grant scheme for consumer and community organisations to provide targeted support to vulnerable consumers to improve energy literacy. Improved energy literacy will enable vulnerable consumers to choose competitive offers that suit their circumstances, and identify any relevant financial assistance schemes, such as concessions and medical rebates. Enabling consumers to identify and switch to better offers, as well as accessing the financial support that is available to them, will further assist in reducing the bad debt costs of retailers." [7]

4.7.3 Great Britain

Ofgem's duties include consideration of the needs of old age pensioners, rural customers, low income and the sick or disabled. Accordingly, a regulatory framework has emerged that seeks to address the specific concerns of such groups. These include a Priority Services Register that provides a range of free services, including advance notice of power cuts, alternative heating/cooking facilities during a power cut, free appliance checks and so on. Almost 6 million customers are on the register – over a quarter of all households.

Older customers are entitled to up to £300 annually as a Winter Fuel Payment (not means-tested) and in some cases a further £140 warm payment discount (only available to lower-income customers). . These are both government-funded.

Around 600,000 customers are in arrears with their bill. Most of these manage their debt through an agreed payment plan with their supplier. Some transfer to a prepayment meter to be able to manage their electricity expenditure – if a customer has repeatedly failed to engage with their retailer a prepayment meter can be installed under warranty. Additionally, there are some grant schemes available to customers under certain circumstances to help pay off debt, some of which are retailer-funded. The combination of all these measures has made disconnection extremely rare, with only 17 customers disconnected in 2017 [32].

On the energy efficiency front there are multiple policies, including an energy company obligation on large retailers to install energy-saving measures in domestic properties.

4.7.4 Comparison and key themes

Policies for hardship and vulnerable customers are a particularly complex area. Most of the challenges faced by such customers are due to factor beyond their electricity retailer's control or influence.

Accordingly, an undue focus on retailer behaviour as a way of addressing issues of general poverty is doomed to failure. The political intractability of such policy processes has been addressed from a sociological standpoint in a book by a veteran of the Victorian energy policy development process [33]. The book documents the hardship policy development process in Victoria and highlights the basic incompatibility of different stakeholders' goals and understanding of the problem. It notes that comparable processes in New Zealand have been more constructive, citing the Electricity Authority's use of advisory groups constituted from representatives of consumer groups, the industry and other stakeholders, operating on the basis that the groups "were expected to work towards the greater good for the consumers of New Zealand rather than represent their organisation's views" [33] . This approach appears to have proven successful and been supported by the regulator and stakeholders.

A key theme that has emerged from the recent ACCC review is that the costs of bad debt are a significant cost for retailers but the solutions lie outside of the electricity market through better targeting of concessions to those most in need and greater support for energy literacy programmes so vulnerable consumers can get the full benefits of competition [7].

4.8 Emerging technologies

This section covers the rise of emerging technologies such as rooftop solar PV, batteries and electric vehicles and the implications for household electricity supply.

4.8.1 New Zealand

Take-up of emerging technologies has been fairly modest to date in New Zealand. Unlike any other countries, generous subsidies have not been offered for rooftop solar PV or electric vehicles. Peak demand is in winter evenings, so rooftop PV is unlikely to contribute materially to managing network peak demand or reducing wholesale prices. This gives New Zealand more time to consider the issues such technologies may raise and allow market innovation to provide the initial response. As the First Report notes, a key question is about the fairness of traditional pricing structures when applied to new technologies, as the amount that owners of these technologies pay may increasingly be misaligned with the impact they are having on the grid. Since it is likely to be better-off customers that are the first to acquire these technologies, it may be less well-off customers that bear additional costs.

4.8.2 Australia's National Electricity Market

Australia has world leading penetration of rooftop solar PV, particularly in South Australia and Queensland where almost half of households have them. Take-up of solar was stimulated by highly generous subsidies, both for the upfront capital cost and the premium feed-in tariffs paid for solar output, which were as high as 60c/kWh. These have largely been closed to new entrants, although there are legacy costs in all jurisdictions except New South Wales, which only paid the premium feed-in tariffs for 6 years. Take-up is still high, as a combination of good solar resources in most of the country and high retail prices mean that solar PV pays off for many households in between 3 to 7 years depending on location and size of system [34]. Energy Consumers Australia's survey of consumer sentiment found that at least 20 to 37 per cent (depending on jurisdiction) are considering getting solar panels in the near future while 22 to 40 per cent are considering a battery storage system for their homes. The battery figures are quite remarkable, given only 2-3 per cent have one installed. Solar hot water is also popular.

The political debate around solar has centred around whether solar subsidies are regressive or not, following the logic that since there is an up-front cost to installing solar, lower-income households are less likely to be able to access the benefits of the subsidies (although there are solar loan/PPA type deals now on the market). Additionally, as renters often do not have the opportunity to install solar and lower-income households are more likely to be renters, this may also be a factor. Flat network charges mean that solar households are likely to be paying less than their share of network costs, creating another cross-subsidy on top of the feed-in tariffs and the renewable energy credits.

4.8.3 Great Britain

Rooftop solar PV has been supported by generous feed-in tariffs, much like in Australia. There is also policy support for EVs. The UK has set a date of 2040 for ending new petrol/diesel car sales. National Grid has produced various scenarios for peak demand impact of electric vehicle charging, some of which result in significant increases in peak demand. Ofgem's targeted charging review seeks to address these issues, by considering options for allocating residual network charges (i.e. charges that an electricity network needs to make to recover its allowed revenue in excess of those collected by marginal cost-based charges). The review is in progress, so no final decision has been made.

4.8.4 Comparison and key themes

Most countries - not just the three covered in the report - are grappling with the challenges of responding to the impact of emerging technologies. By avoiding the pitfalls of offering generous subsidies for such technologies, New Zealand has more time to consider these challenges and respond appropriately, whereas Australia is already facing the impact of very high levels of rooftop solar PV on the system and on electricity bills. The way regulated network charges are allocated has emerged as one of the key issues to solve. Beyond this, New Zealand is better able than Australia in particular to observe how the market responds to these challenges before considering any interventions.

5 Current retail policy issues

This section examines policy issues that specifically relate to household electricity retail. It considers each country's recent reform program and the status of reform.

5.1.1 New Zealand

There have been no major reviews in New Zealand since the 2010 reforms. However the government has launched a retail price enquiry that will conclude in 2019. An expert advisory panel has been convened to carry out the review. The objective of the review is to "ensure that the New Zealand electricity market delivers efficient, fair and equitable prices as technology evolves and we transition to a lower emissions future, taking into consideration the requirements of environmental sustainability and the need to maintain security and reliability of supply"[15]. A First Report [12] was published in September 2018 and a final report will be delivered to the Minister in April 2019.

5.1.2 Australia's National Electricity Market

With concern about electricity prices reaching fever pitch, reviews and reforms have come thick and fast in recent years. Aside from the general reviews covered in 2.4.2 above, some of which contained retail recommendations, there have been major reviews focussed on retail.

In 2016, the Victorian government commissioned a review led by a former deputy premier John Thwaites into gas and electricity pricing. The report was released in August 2017. As John Thwaites had previously expressed the view that the market should be re-regulated, the review panel's

[15] Terms of reference for the electricity price review, 2018

conclusions were not surprising. Detailed cost and margin data were not available to the panel and they commissioned some analysis that made certain assumptions about average retail tariffs to conclude margins were extremely high. The subsequent ACCC reports indicates that this analysis likely overstated margins, but it clearly would have informed the panel's considerations. The report was highly critical of retailer behaviour, in particular the practice of discounting of an annually rising standing offer. Despite this the report acknowledged that retailers' discounting practices have been developed in response to their customers' preferences and that the practice of discounting "has been successful in promoting consumer engagement" [35].

Many of the recommendations were moderate and quickly endorsed in principle by the industry, keen to signal that they would work constructively with the Victorian government. They included:

- Marketing information on prices to be easily comparable
- Contract periods, practices and variations to be clear and fair
- Promoting access to smart meter data to assist customers to manage bills and increase energy efficiency
- Protecting low income and vulnerable customers with increased assistance and market awareness
- Brokerage and collective bargaining on behalf of low income and vulnerable customers
- Additional market monitoring and review of the retail code by the state regulator

The first two recommendations were more radical. They proposed abolishing the standing offer and replacing it with a Basic Service Offer, a regulated price cap in all but name. Unlike the price caps that were implemented in the early days of competition, it would not include an allowance for customer acquisition costs. It is not clear how retailers would be able to viably compete for new customers under such a cap. The Victorian government took seven months to formally respond. When it did it announced that these 2 key recommendations were still under review but that it supported the other nine recommendations. A final response confirming this and setting out a process from implementation is yet to be seen over a year after the final report was issued.

Meanwhile, the federal government decided it needed to show customers it was listening to their concerns. It commissioned a report from the ACCC on retail pricing, with terms of reference that gave the ACCC licence to review and comment on other aspects of the market and policy settings. The ACCC had powers to require information on costs prices and other factors from the retailers and so for the

first time in several years a clear picture of costs and margins could be established (wide price dispersion and no public data on how many customers were on which tariffs meant that margins analysis was highly speculative to that point). The results of the analysis are set out in 3.1.2, and illustrate that contrary to popular belief average margins were not especially high and at most were about 2 per cent higher than the benchmark margins used by regulators in setting price caps (although there is some variation between jurisdictions). Margins were not the sole focus of the review and the ACCC apportioned responsibility for rising prices right across the supply chain as well as to government policies. The final report contained no fewer than 56 recommendations across wholesale, network and retail as well as reform of climate policies.

As with the Victorian review, a key recommendation was the introduction of a new regulated default tariff to replace the standing offer. Unlike the Basic Service Offer, this tariff would allow for the inclusion of the cost of competing in the market. All retailers would have to offer the default tariff and use it as a reference point for advertising discounted tariffs. While higher tariffs would not be prohibited, it is considered to be an effective price cap mechanism. The federal government has signalled its intention to proceed with this recommendation. Other retail recommendations included:

- requiring any advertising of discounts by retailers to be unconditional and referenced to the default offer rate
- restricting conditional discounts to be no more than the reasonable savings to the retailer from the condition being met
- pursuing access to data for electricity users through the Consumer Data Right
- a prescribed mandatory code of conduct for third party intermediaries which includes an obligation that any recommended offer is in the best interests of the consumer (rather than on the basis of the intermediary's commercial relationships)
- clarifying explicit informed consent provisions to make clear that consumers can provide their consent to third party intermediaries to give explicit informed consent (EIC) on their behalf
- improving concession schemes including by applying a means test to ensure they are targeted at those most in need
- funding for targeted support to assist vulnerable consumers to improve energy market literacy [7]

The federal government did not wait for the ACCC to report before getting involved in the retail market. In August 2017, representatives of the seven largest retailers were summoned for a dressing down by the then Prime Minister Malcolm Turnbull and a range of demands put to them. Retailers committed to contact customers whose fixed term benefits have ended, to encourage them to engage with the retail market and to contact more than one million customers on default offers by Christmas to advise them they can get a better deal. A range of other measures were agreed, including development of a comparator tariff and greater engagement with customers coming off fixed term discounts.

Implementation of up to 56 recommendations would be plenty for most governments to consider. This is especially the case when there are multiple rule changes already in train to address perceived deficiencies in the retail market. However, Australia's political situation is volatile, and the latest development is calls for a Royal Commission into the electricity industry, which would open the industry still further to scrutiny and criticism.

Accordingly, the electricity retail industry in Australia is faced with the prospect of perpetual review and reform, with separate processes taking place in Victoria and the rest of the NEM. More regulation appears to be the inevitable outcome whether or not this results in a price cap. Essentially confidence has been lost in the operation of the market, so regulation has become the solution to any perceived problems in the retail market with no weighing up of whether the costs and barriers to entry regulation creates will outweigh the benefits it may bring. As can be seen from the experience of Great Britain below, more regulation is in no way a guarantee of better outcomes for customers.

5.1.3 Great Britain

For many years following privatisation and deregulation, retailing attracted little scrutiny. Prices were declining for all customer types, including households. As prices began to rise and politicians began to take an interest in the market again, Ofgem found itself under pressure to address concerns that the market was not working in the interest of small customers. The review and re-regulation process began with the Ofgem Supply Probe in 2008. This resulted in Ofgem being concerned that large retailers charged on average higher prices (10 per cent or so) to customers in their "home" area (i.e. the region in which they had started with the whole customer base before competition was instituted) than those in other retailers' home areas. Customers in all areas still had five large retailers and numerous small retailers that they could get deals from instead of their "home" retailer, but Ofgem considered that this price discrimination was borne more heavily by vulnerable customers on the basis

that they were the least likely to have switched away from their original home retailer. So Ofgem implemented a non-discrimination rule – at the time at acknowledged that it did not expect this to reduce overall margins/revenues but considered it worthwhile anyway. Several prominent British economists criticised the decision and predicted that it would reduce the competitive dynamic and so probably lead to increasing margins overall. This is what happened over the next few years – in fact margins increased 38 per cent (based on Ofgem's own regulatory accounts).

Ofgem responded by doubling down on regulation, reasoning that part of the problem was the proliferation of offers. They restricted each retailer to "a maximum of four tariffs per fuel natural gas and electric power) per payment method (direct debit, standard credit and prepayment). All tariffs were to have a simple two-part structure that is a standing charge and a single unit rate … Discounts were allowed only if expressed in pounds, not as percentages, and were later prohibited other than for dual fuel and online accounts"[16].

This resulted in retailers withdrawing a number of niche tariffs that particular groups benefitted from – most notably "a 'StayWarm' tariff that gave customers over 60 years of age a fixed monthly bill regardless of how much energy the customer used (though the bill could be adjusted on a forward-looking basis depending on actual usage)"[17]. Furthermore, it stifled tariff innovation and made it harder for retailers to use aggressively priced new offers to poach new customers from their rivals.

Far from solving the supposed problems in the retail market, Ofgem continued to investigate and in 2014 referred the sector for a market investigation by the newly formed CMA. The terms of reference focussed on household and micro-business customers, reflecting Ofgem's view that the market was working sufficiently well for larger business customers. The CMA concluded its investigation in 2016 and determined that there were ten market features that gave rise to an Adverse Effect on Competition. Three of these related to weak customer response, one of the five issues that had been identified as potential areas of concern by Ofgem. The other four: incumbency, tacit co-ordination, vertical integration and barriers to entry were found not to be a problem. What was a problem, however, was poor policy and governance frameworks, such as: lack of locational transmission pricing; non-competitive allocation of renewable CfDs; inefficient allocation of costs in gas settlement; lack of

[16] Competition and Price Controls in the UK Retail Energy Market, Professor Stephen Littlechild, June 2017, in Issue 63 of Network
[17] Ibid

half-hour settlement in the domestic electricity market (partly a consequence of the delayed smart meter rollout), industry code governance issues, and “an overarching feature of lack of robustness and transparency in regulatory decision-making”. This last point had several elements but included the potential conflict inherent in Ofgem’s proliferating duties (see 2.3.3 above).

The CMA found that competition and customer response had been adversely affected by Ofgem’s reforms. The simpler tariffs reforms did not appear to have improved engagement, while tariff innovation was constrained, leading to reduced competition as: suppliers were less able to target particular customer segments; attractive discounts such as introductory offers could not be used; the incentives on retailers to compete vigorously were muted by making it more costly for them to do so, and the role of price comparison websites and third party intermediaries in supporting competition and engagement was undermined [10].

A headline figure emerging from the report was the CMA’s finding that there was a customer detriment averaging £1.4bn per year over the period 2012-2015. However, this did not reflect excess profit as assumed in much of the debate around the industry. Rather, the CMA assumed that a purely hypothetical supplier operating at “an efficient scale” and “in a steady state” and earning a “normal return” would charge prices that in aggregate would lower customers’ bills by £1.4bn. But this figure was in excess of the actual profits being made by retailers, at least according to Ofgem’s own analysis. In other words, this hypothetical supplier had costs lower than the actual level some of the retailers (including at least two of the Big 6) were incurring.

Ofgem has begun implementation of several of the CMA’s recommendations, including the disengaged customer database. However, the government appears to have lost patience and announced the temporary introduction of a price cap on standard variable tariffs. The legislation to enact this - the Domestic Gas and Electricity (Tariff Cap) Act - became law on July 19 and gives Ofgem a duty and the powers to put the price cap in place. Ofgem is working to have the cap in place by the end of the year and has indicated the cap will be set at a level that will save the 11 million customers on the standard variable tariff around £75 per year.

6 Conclusion

A clear distinction can be drawn between the New Zealand market on the one hand and the Australian and Great Britain markets on the other. The latter two markets have been subject to repeated review

and reform by multiple agencies/governments. The driver for these is succinctly summed up by the CMA in its final report: "The rapid increase in domestic energy prices in recent years and **the perception that** profits and overall prices are too high have been a major source of public concern and were key drivers for the market investigation reference" (emphasis added).

Three potential sources of this perception can be identified.

Firstly, prices have risen due to underlying cost drivers. Some of these may be the unavoidable requirements of meeting ever greater demands on an electricity system such as growing peak demand (particularly in Australia as air conditioning load increased strongly through the 1980s and 90s); increasing reliability requirements; technological upgrades such as smart meters and decarbonisation. There is also a general economic hypothesis that the non-traded sectors of the economy, such as electricity supply will tend to experience stronger cost increases than the internationally traded sectors, where global competition is a powerful force for efficiency. Others are due to poorly designed government policy, often to address the same factors, and especially climate policy. These have been well documented in key reviews. New Zealand has avoided many of the pitfalls of poorly designed climate policy that Great Britain and Australia have experienced, helped both by its high proportion of renewable resources and its fairly consistent and economically rational approach of implementing an ETS to efficiently drive additional abatement. This has resulted in lower underlying cost pressures on electricity prices in New Zealand than the other two, noting that households have still experienced material price rises in recent years due to the reallocation of shared network costs.

Secondly, there is the fact that retail competition has resulted in price differentials emerging, so that while active consumers have been able to mitigate price rises by shopping around, inactive consumers have seen higher price rises as differentials grow. While price differentiation is a normal feature of competitive markets, it is more politically sensitive in electricity. This reflects electricity's role as an "essential service" and also perhaps its still-recent history as a government-supplied service. This is compounded by concerns (regardless of whether the evidence supports it) that the wrong customers are the ones paying the higher prices, i.e. vulnerable and low-income customers. Various means have been proposed, and in Great Britain implemented to stimulate greater engagement from such customers, but even more attention has been focussed on finding ways to constrain suppliers' behaviour in the market, despite a lack of evidence that this will improve customer engagement.

Indeed, the evidence from Great Britain is that Ofgem's retail market reforms diminished competition, resulting in higher retail margins.

Thirdly, the lack of transparent data on profitability of electricity retailers meant it was easy for the public to assume that price rises were simply due to price gouging by retailers. Even constructing a cost stack for the industry was challenging, but with wide price differentiation, it was not possible from the publicly available information to accurately estimate the average price level and thus the average profit margin. Misconceptions about the level of retail profits have been a clear driver of public disenchantment and political intervention, and in the context of the review, New Zealand retailers may wish to consider their approach to data provision.

Given the rarity of price controls across contemporary, open economies such as New Zealand, Australia and Great Britain, these should be seen as a last resort. Both Australia and Great Britain seem to have arrived at this last resort. With more moderate underlying cost drivers, less price dispersion and abundant evidence of a functioning competitive market, there seems little justification for New Zealand following them.

Many of the factors that contribute to high electricity bills and impacts for the most vulnerable, such as the household insulation standard and the relative income level or size of household, are out of control of the electricity industry. Policy responses to address such issues need careful consideration to avoid simply increasing costs to serve for retailers (which has the perverse effect of increasing electricity bills) rather than through the social welfare system. Measures such as those proposed by the ACCC to better target concessions and grants and improve electricity literacy are most likely to address the underlying issues more effectively than regulation.

The Author

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