ELECTRICITY PRICE REVIEW

SUBMISSION FORM
Submissions are due by
5pm on Tuesday, 23 October 2018

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

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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?*

Aside from the occasional short periods when retail consumers lose power, I suspect that unlike commercial and industrial electricity customers very few low voltage retail customers in NZ are particularly concerned about reliability indices (e.g. SAIDI/SAIFI) or even quality (e.g. voltage regulation and intermittency) of their power supplies. They take this aspect of power delivery for granted particularly with regard to the services from Lines Companies (LCs) as they demonstrability put up occasional disruption without too much complaint.

Consumers are however seriously concerned about the never ending electricity price increases that appear to be unassociated with new investment or even fuel price increases. They are aware the bulk of the existing hydro generation and distribution assets have been paid for long ago and are becoming increasingly more aware that both the Retailers and Line Companies profitability is rise inexorably.

Consumers are also aware of reports of excessive market rents (in 2009 by eminent economists including Professor Wolak, and more recently by Professor Poletti) that have been cynically dismissed out of hand by incumbent Gentailers and Treasury. Since most of the power market "rent" comprises GST, tax on state owned company profits and dividends paid to the Gov't to maintain a low tax base. This is akin to a Poll Tax on electrical heating impacting largely at houses with poor insulation. In contrast Govt taxes on other energy sources such as petrol are ring-fenced to pay for transport infrastructure.

Poorer electricity consumers with limited resources worry that they have no control over energy charges that are rising faster than their income; educated consumers who follow the intrigues of the power sector industry are concerned by the lack of transparency in regulatory consultations with the industry; and those consumers who are interested in mitigating environmental concerns using modern technologies are frustrated by the obstacles and foot dragging by incumbent Gentailers and LCs.

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

In contrast to the pre-1980s era of locally owned Electric Power Boards (that pandered to their voters with high industrial tariffs subsidizing low retail prices), retail consumers today have no effective voice in electricity sector regulation. This is partly because the EA deals with very technical issues that are used by power sector incumbents to justify their investments under BAU (Business as Usual) practices. In many cases the power sector incumbents obstruct privately funded consumer options for using new technologies to provide a more efficient outcome. Consumer organisations like the SEF (Sustainable Energy Forum) populated largely by industry

retirees, cannot afford the high cost of making submissions on behalf of other retail consumers that are generally ignored. Such groups have limited access to regulatory decision making and are generally are unable to get their voices heard by the EA or the power industry. This situation is quite common in many other countries: https://reneweconomy.com.au/anarchy-what-big-energy-really-thinks-of-consumer-power-32245/?utm_source=RE+Daily+Newsletter&utm_campaign=c7889718c2-EMAIL_CAMPAIGN_2018_10_09_04_49&utm_medium=email&utm_term=0_46a1943223-c7889718c2-40430725

One opportunity for dialogue in NZ between consumer organizations and the power industry is during the latter's annual conferences or through their industry funded publication "Energy News" https://www.freemanmedia.co.nz/publication/energy-news . These conferences are exclusively attended by utility employees whose attendance fees are indirectly paid by retail consumers - since the costs for doing so are eligible for incorporation in the power utilities' rate base. Energy News NZ subscriptions are also free to industry employees and Gov't officials who have access to these forums/news sources normally have their fees paid. However Govt officials as generalists are unlikely to have the depth of knowledge to argue on behalf of consumers they purportedly represent. In recent years the EA has belatedly included minor consumer participation in their advisory boards - but I am told their lone voices are drowned out by paid industry lobbyists.

Recently the power industry has begun to talk about "listening to their customers". This probably happening because of the rise in numbers of independent retailers and the increasing opportunities for homeowners to become self-reliant using their own investments to finance new technologies such as rooftop PV and home battery systems. To date industry reaction to this threat of private sector competition has been designed to obstruct such initiatives rather than encourage them in the interest of promoting greater efficiency in the sector.

Accordingly NZ is behind the rest of the OECD in enabling technologies such as PV, Batteries, EVs and DSM. As costs of the new technologies fall further, NZ may well pick up particularly when progressive LCs (e.g. Vector) and new retailers (e.g. Flick/Pulse) are further enabled by the EA to break into gentailer monopolies. Watch this space.

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

Various surveys indicate that very few consumers admire or trust their electricity providers. Consumers are particularly frustrated by the extraordinary high salaries and bonuses to CEOs and senior management of Gov't controlled Gentailers and Transpower who operate in a risk free business environment where decision making is under strict "no surprises" policies.

The apparent "discount" (10-25%) enjoyed by wealthier electricity customers for prompt payment, bears no relationship to the cost of capital. Notably Meridien has recently halted the practice admitting the so-called discount is in reality a penalty cost to poorer consumers juggling with their bills[1]. By allowing Gentailers to get away with this sort of unethical behavior for so long, it is also very clear that Regulators (MBIE, EA &CC) are more easily influenced by the incumbent power sector lobby rather than in protecting consumers.

Prices

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

The significant tariff increase in the component of direct and indirect taxes (in the form of GST, dividends, tax on company profits) demonstrate the presiding Gov't has shown little interest in changing an electricity market regime that provides Treasury with over a $1b revenue each year.

The Review data also illustrates that the increasing cost of "retailing" electricity is highly questionable given that Retailers have alreday invested for smart metering systems that were intended to make bill collection/ payment more efficient. It is more likely the increasing marketing costs reported by Gentailers are used to protect their customer allocation based businesses structures that have been artificially designed to deceive consumers into believing there is real competition in the sector. See https://totalutilities.co.nz/electricity-price-rises/

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

It is a distraction to compare average NZ power prices internationally without any explanation of the significant differences that exist in other OECD countries. The comparison might be useful if it was made on a PPP (Purchasing Power parity) basis between with countries that have similar geographic and climatic characteristics, population densities and generation resources[2].

Electricity is the most valuable form of energy that exists because it can easily converted to lower grade forms of energy as required for transport, industry, heating and coolants that can't be easily converted back to electricity. Electricity that has been generated from thermal plants and then directly converted to the lowest form

[1] SEE: https://www.nzherald.co.nz/business/news/article.cfm?c_id=3&objectid=12138519&ref=CE-TA-DND-BUS
[2] See: https://www.energycouncil.com.au/analysis/worldwide-electricity-prices-how-does-australia-compare/

of low temperature energy such as home heating heat is a dreadful waste of such a valuable resource. In most northern hemisphere jurisdictions electricity and heat are usually produced by combined heat and power plants using fossil or nuclear fuel and are priced accordingly.

Of the OECD countries listed only Norway or Sweden would be comparable with the situation in NZ where the bulk of their power is produced from renewables. The higher costs in most the other similar sized countries (Latvia, Demark, Finland, Israel) can be explained because of their climate, their lack of local fuel or renewable energy, and of course their political conditions.

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

Transpower (T/P) and by implication NZ LCs use what have proven to be over-optimistic forecasts in order to justify some unnecessary investment in upgrading their networks on the basis of outdated paradigms.

As a former Board member of T/P, I am skeptical that their current forecast that anticipates doubling NZ electricity demand by 2050. In my view it may not reflect the extent to which consumers will be using new technologies in order to become less dependent on the grid. Indeed NZ electricity demand has been static for the last ten years - pretty much as predicted by the former EC (Electricity Commission). In retrospect if indeed the EC forecast had been accepted by the T/P Board in 2003, T/P would have able to postpone of the 400kV line to Auckland (which is still operating at 230kV!).

Affordability

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

It is a sad commentary on a largely publicly owned industries so preoccupied with their perception of "competition" for market share that they have to resort to the use of harsh penalties for slow paying/poor consumers.

According to the following report "In New Zealand, researchers estimate that 1,600 more people over 65 die each year during winter (Davie et al, 2007) than would have been expected (excess winter mortality). This has a cost to the economy as well as to the individual or household experiencing poor quality housing and cold indoor temperatures."[3]

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

[3] See http://archive.stats.govt.nz/browse_for_stats/people_and_communities/Households/energy-hardship-report/background.aspx

The assessment of the causes of unaffordability as described in the review is probably quite accurate. The rapid increase in retail electricity prices has caused undue stress on poorer households largely because of the high cost of home and hot water heating.

According to the report referenced above: "New Zealand has a poor history of housing regulation, so existing houses are often poorly insulated and rental properties are not required to have insulation or heating. Average indoor temperatures are cold by international standards and occupants regularly report they are cold, because they cannot afford to heat their houses"

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

Even though they are Gov't controlled, Gentailers have shown little interest in supporting efficient consumer energy saving alternatives even if it can be demonstrated to avoid the cost of new capital investment. This could be by subsidizing insulation, promoting the use of alternative heating fuels (e.g. efficient wood fires) or water heating by solar power (PV or thermal). It appears that the Gov't simply requires Gentailers to generate and sell as much electricity as they can without regard for the Climate Change issues – presumably to increase the Treasury's revenue take from the sector!

LCs should also have a vested interest in promoting private sector investment in such technologies (e.g. DSM, PV solar/batteries) in order to avoid the cost of their having to reinforce their electricity networks. Accordingly under the current ODV regime Regulators could be used without a rule change to incentivize LCs by crediting and supporting private investments in "negawatt" capacity[4] against their rate base.

[4] https://en.wikipedia.org/wiki/Negawatt_power

Summary of feedback on Part three

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

A cynic might say the NZ power market has been designed to gradually increase high electricity prices so as to maximize the market rent that can be extracted from assets that have largely been paid for in the past. For too long the sector has been operated by sophisticated technical managers of incumbent Gentailers who are rewarded for simply maintaining market share with no serious competition from private sector investors.

For many years Lines Companies (LCs) have sat by enviously watching the rort of market power by the Gentailers. LCs owned by consumer Trusts have been particularly hamstrung by their limited regulatory responsibilities - requiring a redundant layer of institutional governance only to distribute an annual dividend. Moreover because industrial interests have a stronger lobby within the EA in power pricing decisions they have managed to maintain "internationally competitive" electricity prices for the last ten years at the expense of household consumers. Consequently over the last 20 years retail prices have become much higher in NZ than other OECD countries.

The NZ Gov't is conflicted in its having effective control over EA regulation (e.g. by appointing pliant often inexperienced Board members) while it is also the majority owner of most of the generation and transmission companies. It would be far more equitable if the former Electricity Commission was re-established as the sole regulator for the sector combining both the EA and Commerce Commission (CC) powers.

Because retail electricity prices have become unaffordable for the poor (by OECD standards), the Government must now use some of its tax base to support those most affected. Moreover as PV/battery system prices fall the wealthier electricity customers will increasingly invest in their own electricity production systems. This will leave those consumers who cannot afford to do so, faced with having to increase their financial contribution to an increasingly overpriced electricity sector with a falling demand.

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.

The partial privatization of the Gentailers by the previous Gov't demonstrated that there was no special reason for Gov't ownership of power sector assets to maintain ethical behavior by its SOEs. The present Govt should consider complete disinvestment of the Gentailers and appoint a truly independent regulator with popwer similar to those held by the former Electricity Commission. Preferably before full privatization Gentailers should be required separately sell off their generation and retail assets to NZ shareholders.

The role of LC Trustees is questionable since it is in effect a duplication of institutional governance. Unless this are disbanded the Gov't should also irequire Trustees of LCs to facilitate consumer investment in DSM activities that will reduce the cost of investment in networks and provide real competition to the generators.

Part four: Industry

Generation

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

NZ Generators are obsessed with making their existing assets work harder rather than taking advantage of new technologies to optimize the use of the resources they have. This observation mainly applies to the continuing use of inefficient aging Gas Turbines and Huntly coal fired plants that make little provision for CO_2 mitigation.

Because NZ has experienced a static demand over the last 10 years there has been little incentive for Gentailers to build new capacity. Generators have however restricted new entrants in the market through their control the retail market by restricting the development of DG/Batteries.

The old bogy of Gentailers having to hedge for unusual drought situations needs to be reviewed taking into account recent investment in Wind and Geothermal generation. For example the dire threat of system collapse if Huntly is closed appears to be a straw man put up by Genesis so it can retain the lucrative monopoly on dry year backup bestowed by the present system configuration.

Modelling needs to be done is to establish the expected future link between rainfall, wind and sun to determine an appropriate balance of renewable resources and associated short-term storage that is required to minimise the cost of avoiding droughts.

While pump storage in the South Island may have been appropriate a few years ago, these days there are a lot better/environmentally friendly ways of providing storage where it is needed. You may find the information in Lazard's latest comparison of storage worth reviewing: https://www.lazard.com/media/450338/lazard-levelized-cost-of-storage-version-30.pdf

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

The concept of a "virtual asset swap" was a bureaucratic way of ensuring that the existing Gentailers could continue their artificial competition with a similar bundling of assets to maintain their market share. The swap ensured the Gov't would get a good price for each of the assets when 49% of the shares in Gentailers were sold to the public. If indeed the Gentailers were separately sold off to the public as generators and retailers there would be subsequent "asset swaps" and consolidation that would better reflect the market needs and potential opportunities for using new technologies.

Because Gentailers have employed highly skilled engineers, lawyers, financial analysist and economists they have been able to bully regulators to apply rules that maintain their hegemony over the electricity market. This situation may changes as LCs rise to occasion by countering their arguments in favor of competition by DG/Battery systems.

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

NZ was once regarded as a pioneer of new technologies in being first to employ a long distant HVDC system, first to generate geothermal power on a commercial basis, and the developer of the ripple relay DSM system. Sadly, following the breakup of the monopolistic power company (NZED, Electrocorp), the current industry structure has few incentives to take a leadership role in pioneering new technologies to meet NZ climate change objectives.

It is very clear that a variety of electricity storage applications will need to be employed in the medium term particularly if more wind and solar power is brought on line as thermal plants are retired. Although NZ power industry engineers are familiar old technologies it is evident from the experience in Australia that distributed grid battery systems are real option[5]. Some excellent studies have been done with regard to managing electric system flexibility and storage: https://www.nrel.gov/analysis/electric-flexibility-storage.html

One method of enhancing existing hydro reservoir storage gaining traction in many countries is the use of floating PV: https://en.wikipedia.org/wiki/Floating_solar. These systems can be retrofitted on exiting hydro plants to reduce evaporation and operate in conjunction with the turbo-generators to optimise the use of reservoir storage capacity for frequency mitigation and load shifting. Another method of enhancing longer term storage capability could utilize the railway network in an ARES configuration as shown: https://www.aresnorthamerica.com/

Retailing

[5] https://reneweconomy.com.au/tesla-big-battery-defies-skeptics-sends-industry-bananas-over-performance-38273/?utm_source=RE+Daily+Newsletter&utm_campaign=6370e5654d-EMAIL_CAMPAIGN_2018_09_26_07_39&utm_medium=email&utm_term=0_46a1943223-6370e5654d-40430725

15 *What are your views on the assessment of retail sector performance?*

The cost of retailing electricity to households has risen significantly over the last decade. This is despite the significant investments that have been made by Retailers in smart metering, sophisticated SCADA equipment, and computerization for paperless billing and payment systems.

However there has been a noticeable increase in marketing costs by Gentailers designed to promulgate misinformation about the virtues of their customer service. Because this part of the business is unregulated, it is apparent that there must be some form of cartel arrangement between these Gov't controlled companies to gradually increase marketing costs by about the same amount each year.

Only one Gentailer (Mercury) has seen the opportunity to expand the market by promoting EVs. This could achieved by the coordinated use of V2G systems, the greater use of network grid batteries and the development of storage capability to mitigate drought conditions.

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

It is debatable that "retail competition has stimulated competition" as stated in the review. Gentailers still control most of the retail market by successfully obstructing competition by both independent retailers and consumer investors in DSM/DG facilities. In particular the Gentailer's appear to be applying the Gattung principle of promulgating price confusion to maintain their customer base.

If there has been a competitive affect on pricing, it has only by the threat of rising numbers of off-grid consumers investing in PV/battery systems over the last 5 years To this day Retailers still refuse to introduce TOU (Time-of-Use) metering. To consolidate their position they are now seeking support from the EA in their fight with LCs for control of grid batteries.

Vertical integration

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

Within the OECD, NZ is an outlier in allowing Generators to own unregulated Retail businesses. This fact is behind the conclusion (of the Wolek report[6] and recently reconfirmed by the Poletti Report) that Gentailer and LC market power has enabled the incumbent industry to exact huge rents from consumers. The NZ power industry structure has distorted the natural development of the market with the government conflicted as owner and regulator of the market to maximize tax and dividend uptake.

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

Consumers would be a lot better off if Gentailers were forced to sell off their retail businesses and become fully privatized. The Gov't would get a good price from the market for the sale of the remainder of the shares, but would continue to benefit from GST and tax on company profits.

This would will also enable a truly independent Regulator (like the former EC - Electricity Commission) to oversee a more logical consolidation of both the generation and retail market that would facilitate competition by DG owners in the wholesale market.

Transmission

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

Since NZED was disestablished T/P has been at the intellectual heart of the oligarchy that controls the NZ electricity sector. There has been some effort by first the EC and then the EA in reining in T/P's investment plans - which after having spent about $5billion on new transmission investments should anyway have achieved its ends.

It is however surprising that T/P appears to be gearing up for another major investment effort on the basis of yet another optimistic forecast designed to consolidate the existing market arrangements. Given that future development should be targeting achieving efficiencies and emission reduction in the generation and distribution market, perhaps it is time for T/P to take a lead in supporting this effort before it decides on how this might impact on transmission.

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[6] See Wikipedia: "In 2009, the Commerce Commission released a report by Frank Wolak, Department of Economics, Stanford University, on the ability of the four largest electricity suppliers to exercise unilateral market power in the wholesale electricity market and the economic rents (any payment in excess of the cost of production) that may have resulted.[11][12] Using empirical industrial organization techniques, Wolak estimates these rents to be $4.3 billion over the 7 years he studied. The methodology he used and the results are also described in a working paper.[13] His report was criticised for aspects of its methodology, with the Electricity Technical Advisory Group (ETAG), Ministry of Economic Development, claiming that there is no evidence of the sustained exercise of market power.[14] The Commerce Commission decided not to act. Rex Ahdar, University of Otago later opined that competition law in New Zealand is inherently ill-suited to tackling a network industry such as electricity.[15]

Distribution

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

There is scant information provided in the Pricing Review to question whether the efficacy of Distribution LC operations is limited by WACC profit guidelines; or for that matter the rationale for using monopoly profits to be invested in non-regulated businesses. Notably three of the unregulated rural companies operate with less than 4% profit and yet in the Marlborough LC case the company is able to invest in a local vineyard operation[7].

On the other hand the highly urbanized LC Vector operates at about 6.5% profit – enabling its ineffective Trust owner (Entrust) to simply give back about $120m in dividends to its 320,000 former AEPB shareholder customers. I have no idea how the other 6 companies about the 7.14% limit are able to justify higher profits given they also have no price risks associated with their operations. My view is that that since LCs have inherited an extensive networks of long life publicly paid assets, the CC should decrease WACC more aggressively unless LCs can demonstrate that their "windfall" profits are actually used to help consumers reduce their energy costs.

The assessment of three typical NZ LC operations by the Auditor General[8] is also revealing. It indicates that the income of electricity distribution businesses as a whole increased by 31% to just under $4.2 billion from 2011/12 to 2015/16 . Moreover Electricity distribution businesses as a whole account for $2.5 billion in profits after tax and distributed $2.0 billion during the five years (see Figure 2). The AG report concludes that "NZ distribution businesses own assets with long useful lives, and we expect them to understand the financial effects of maintaining and replacing these assets for a substantial portion of the assets' life. Instead, the three companies' focus was largely on the short term. With a longer-term focus, the three companies can make better-informed decisions about how to manage their networks."

Finally in the Price Review report the reported complaints by some "stakeholders" that the profits are used for facilities such a EV chargers and batteries does not recognize that there is a very good case for LCs to using such devices for peak shifting in order to optimize their network investments. This objection is simply a ploy by Gentailers to seize and maintain control of profitable new technologies.

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

[7] See: https://www.msn.com/en-nz/money/company-news/marlborough-lines-takes-on-full-ownership-of-yealands/ar-AAzE6r0?li=BBqddE1&p=DevEx%2C5109.1

[8] See AG Report "Managing Assets that Distribute Energy" June 2017 Presented to the House of Representatives under section 20 of the Public Audit Act 2001.

Pricing Reviews assessment of barriers to greater efficiency for distributors:

This is a subjective grouping of barriers that generally indicate that LCs are dominated by conservative interests unwilling to accept the need for change. In a informal show of hands at the 2017 NZ EEA conference, reportedly 50% of those electrical engineers present admitted to skepticism about anthropological climate change. Many of the older generation of engineers are also skeptical of new technologies in that they cannot see past the days of traditional Power Board operations and Ripple Relays. Comments on each of the assessment headings are as follows:

Price structures: The EA should have insisted that Time-of-Use (ToU) AIM metering be offered by Retailers to consumers as soon as electronic meters were installed.

LCs appear to be concerned the ToU metering will result in reduced KVA feeder loads making it harder to justify new network investments. It is patently nonsense to suggest that $2.1b is needed for new network investment to cater for electric cars that can be charged at off peak hours.

Efficiency pressures: Performance benchmarks should be used by the CC to compare their performance against other OECD overhead and underground distribution systems. The information is readily available and there is nothing special about the character of the NZ market that could be argued otherwise.

Business size: Over the last 50 years there have been many attempts to minimise the numbers of distribution companies in NZ all of which have been fought by vested interests. It is doubtful if much more consolidation will occur without a big public fight supported by the Electricity Network Association (ENA) who generally represent the small LCs.

Metering data. To understand the metering market it is worth reflecting on the history of smart meter installation in NZ. In the past Gentailers have obfuscated advances in smart metering by first installing AMR (rather than AIM) meters[9] that did not enable consumer demand management. At the time despite a number of consumer complaints that the Retailers were only installing AMR meters, the EA considered that it was a market issue thereby preserving Gentailer hegemony over the control of consumer data.

Governance: The main defenders of the status quo are the Energy Trusts that were established to "represent" the interest of consumer shareholders. In reality they only serve to perpetuate a rort by their incumbent Directors who get paid to distribute the annual dividends with no particular policies to oversee. They cynically distribute the largest dividend every election year. There is no reason why the LC Board members can't represent electricity consumers in the same way.

Asset management and planning: It doesn't make much sense for distributors to plan for even ten years ahead. Their networks are already well established and it would be difficult to determine the impact of the widespread use of new technologies – if its ever allowed to occur. In fact by planning too far ahead LCs may have to take regressive actions to defend commitments that will quickly become redundant.

Ageing assets: The bulk of distribution assets (eg poles, wires) have lives in excess of 40 years and with adequate monitoring there should be no concerns about how long they are in operation. Switchgear and transformers have shorter lifetimes but can be

[9] See: https://www.elp.com/articles/powergrid_international/print/volume-13/issue-10/features/amr-vs-ami.html

quickly replaced as the need arises given that there is no need for long term planning in the absence of market uncertainty.

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

While it is true that there are costs to extend MV/LV lines from main substations to consumers, the costs are for assets (poles, lines) with the longest life usually requiring the least amount of maintenance. The main reason why commercial and industrial consumers have managed to persuade the regulators to shift the true cost to consumers is that they have a better financed effective lobby capability.

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

Traditionally LCs employed engineers with skills in construction and operations many of whom are now in key management roles – and in some cases still resisting the need for a change. Today LCs need to recruit well educated engineering staff with skills in IT and DG/battery operations along with associated skills in GIS/ power systems analysis and control.

Summary of feedback on Part four

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

LCs should be enabled increasingly to take a lead in supporting the application of new technologies that will provide real competition to the traditional model of centralized generation, transmission and generation.

LCs will need to change their institutional arrangements to facilitate greater consumer participation in the electricity market to attract private investment in new technologies that will help them optimize the use of existing networks.

Solutions to issues and concerns raised in Part four

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

There have been many solutions proposed to address the rort by existing incumbents operating in the NZ electricity sector. The problem of course is that the structure has been based on idealism driven by economic theory with little concern for the actual outcomes.

Sweeping changes are needed to avoid perpetuating the current distortions as generally proposed by Lance Wiggs in his 2013 NBR article:

https://www.nbr.co.nz/article/electrickery-10-alternative-suggestions-changing-nz%E2%80%99s-electricity-industry-ck-138956

Part five: Technology and regulation

Technology

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

I am an owner of a 2.5kV solar panel (that has already paid for itself over the last 4 years of operation), along with a PHEV SUV with a 12kWh battery. Moreover as an engineering consultant to the World Bank and ADB I have observed in many countries that NZ lags far behind others in developing DG/DSM systems. The slow growth of new technologies in NZ over the last 10 years has been due to the obstacles put in place by both the Gentailers and to a lesser extent the NZ LCs with the concurrence of the EA.

For example there are many opportunities to expand the use of grid storage systems in NZ. Unfortunately they are hampered by the "alternative facts" promulgated by Gentailers and LCs who are largely interested in running existing infrastructure assets as hard as possible without regard to overall power sector efficiency. According to a recent survey by the CC, Vector was the largest investor LCs in emerging technologies "devoting about 5 per cent of its overall regulated expenditure compared with the industry average of 1 per cent" See:http://www.ecogeneration.com.au/vector-unveils-grid-scale-tesla-powerpack-for-auckland/

Likewise PV systems should be viable in NZ wherever there are daytime cooling and lighting demands i.e. in facilities such as offices, schools, hospitals and supermarkets. As noted in para 14 above large scale floating PV systems could be used to enhance the capacity of NZ hydro reservoirs without competing with other land use priorities.

Finally the Govt needs to develop a serious program to displace fossil fuels for industry and transport by renewable electrical energy which is best suited for conversion to mechanical power applications. The Gov't Climate Change Commission needs to prepare a holistic plan

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

Gentailers have dragged their feet with time-of-day pricing. This is probably because electricity demand has been static for several years and they are afraid of losing their "entitlement" to a fixed market share. If the Gov't hadn't stepped in and supported house insulation to reduce energy use, Gentailers would certainly not have been interested in promoting such conservation measures that would have reduced their sales.

The argument that a high uptake of PV will mean that poorer consumers must to pay more fixed costs is a red herring promulgated by those LCs (such as Unison) that wish to invest more in network upgrades on the old BAU model. If fact they should be required to write-down some of their network assets that have been knowingly built without taking into account the future impact of technology. Transpower's 400kV line is a good example of an asset that was built well before it was needed – and notably it is still not operating at 400kV.

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

This is another red herring largely promulgated by the LCs. Many international studies have shown that the greater the distribution of DG/battery systems the more secure the electricity supply. As a professional power engineer involved in the design of a number of international electricity networks I do not believe two way power flow will require a significant increase in LC network investment.

The reverse situation is more likely since greater distributed battery power will reduce peak feeder demands that are used as the basis for network design. The current situation in Australia is quite instructive: https://reneweconomy.com.au/ausgrid-looks-to-community-batteries-getting-closer-to-consumers-61731/

Regulation

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

The fact that EA does not provide incentives to effect LC loss reduction and end use efficiency in electricity use, speaks volumes in terms of the industry lobbying that has bought about this situation. At a minimum the EA should be required incentivize LCs and Retailers to support programs that effect the reduction in the use of electrical energy for inefficient radiation heating particularly where there are more appropriate fuels available (e.g, gas or wood) and by encouraging investments in insulation. It could start by eliminating the link in ODV valuations to energy uilization in LC lines – or at least adapt them to recognize the contribution of "negawatt" investments.

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

Low fixed charge regulation should be eliminated in favor of targeted rebates to consumers who also have Community Service Card status funded from Government revenue from the power sector. This situation for poor high power users (with large families/poor insulation) will get much worse as more rooftop PV is installed. The real problem is that LC ODV rate base data using an estimate of energy carried/per asset has never been an appropriate regulatory tool. Instead LCs should be incentivised to write-down values of asset that are not fully utilized.

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

Peer-to-peer trading should be encouraged by all LCs as a way of helping consumers justify their investments in DG plant that will otherwise displace competing investment by incumbent Gentailers. Likewise investments in DSM and battery facilities including insulation should be also be encouraged.

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

It is not obvious, and probably a fallacy that regulators advocate on behalf of consumers. Their advisory committees are primarily staffed by industry insiders who are paid to lobby on behalf of the industry.

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

Contrary to the conclusion in the review there is every reason to re-examine questions such as how best to determine transmission and distribution asset values which is important inputs in price-quality regulation.

Summary of feedback on Part five

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

Before the 1970s, NZ was a fast adapter of new technologies such as HVDC, Geothermal power production and Ripple Relay DSM. Unfortunately at that time monopoly control by NZED and the Power Boards led to over-investment in generation, "gold-plating" in distribution and distortions in power pricing. While restructuring of the sector was a necessary step to bring about greater financial transparency this has led to institutions more concerned with maximizing the financial benefits from old inefficient plant (i.e. Huntly coal, New Plymouth GTs, open wire LV distribution systems).

Most OECD countries have been for some time experimenting with ways to facilitate private sector investment competition with viable new technologies. This trend has been resisted in NZ largely because the Gov't controlled power sector incumbents are encouraged to maintain their market share regardless of the cost to the economy. Because demand has been static they have resisted growth in wind and solar generation even when these can be shown to enhance the operation of hydro assets.

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.*

Just as roading infrastructure is funded by fuel excise taxes, so should revenues from the electricity sector be designated for optimizing energy use by consumers. Accordingly tax and dividend revenue that is collected by Treasury should be deployed to ensure the most appropriate energy forms are used to minimize the costs of end-use energy applications and meet NZ obligations under the Paris Agreement on Climate Change

Regulation should be designed so that Consumers who wish to invest in their own self-sufficiency should not be obstructed by Gentailers from doing so, consumers who can reduce their electricity demands for heating (e.g. with better insulation or fuel switching) should be encouraged to do so. LCs wishing to make investments to help co-ordinate consumer energy production and end usage (e.g. with peer-to-peer transactions) should be encouraged to do so. Generators should be encouraged to invest to optimize their existing facilities (e.g. by installing floating PV plan on existing hydro reservoirs).

R&D grants should be made available to investors in the power market particularly for manufacturers of DSM equipment.

Additional information

35 *Please briefly provide any additional information or comment you would like to include in your submission.*

Who is the target audience for this Pricing Review? It requires an in-depth knowledge of the sector and considerable time and effort to respond it is doubtful that many retail consumers will be able participate in the debate. No doubt there will be the usual cleverly-articulated responses from the incumbent industry lobbyists that are unlikely to be argued in favor of the public interest. Ironically the cost of the their responses to defend the status quo will be indirectly paid for by long suffering electricity consumers.

The review provides a reasonable analysis of some of the problems faced by residential consumers in the NZ Electricity market. However it simplifies and glosses over serious issues with regard to the abuses of market power by incumbent Gentailers and the rationale for the excise taxes on the sector. It is a mystery why the 2010 Wolak report was dismissed out of hand by Treasury Officials – presumably concerned only with protecting Gov't revenues from the power sector. I would hope the recent Poletti updated report is given serious consideration by a less politized agency.

The ongoing Cullen Review of the Fairness of NZ Tax Systems, should acknowledge that the Gov't extracts extraordinarily high tax and dividend revenues from the power sector that is used to fund the national budget. Unless it is prepared to divests its ownership in Gentailer assets, the Gov't must at least allocate a portion of the power sector revenue to poorer consumers - preferably on a more targeted basis than the current winter heating stipend for pensioners.