

Form of control for EDB – cross submission advice

Advice on cross-submission to the Commerce
Commission

NZIER report to Major Electricity Users' Group

18 August 2016

About NZIER

NZIER is a specialist consulting firm that uses applied economic research and analysis to provide a wide range of strategic advice to clients in the public and private sectors, throughout New Zealand and Australia, and further afield.

NZIER is also known for its long-established Quarterly Survey of Business Opinion and Quarterly Predictions.

Our aim is to be the premier centre of applied economic research in New Zealand. We pride ourselves on our reputation for independence and delivering quality analysis in the right form, and at the right time, for our clients. We ensure quality through teamwork on individual projects, critical review at internal seminars, and by peer review at various stages through a project by a senior staff member otherwise not involved in the project.

Each year NZIER devotes resources to undertake and make freely available economic research and thinking aimed at promoting a better understanding of New Zealand's important economic challenges.

NZIER was established in 1958.

Authorship

This paper was prepared at NZIER by Mike Hensen

It was quality approved by Laurence Kubiak.



L13 Grant Thornton House, 215 Lambton Quay | PO Box 3479, Wellington 6140
Tel +64 4 472 1880 | econ@nzier.org.nz

© NZ Institute of Economic Research (Inc) 2012. Cover image © Dreamstime.com
NZIER's standard terms of engagement for contract research can be found at www.nzier.org.nz.

While NZIER will use all reasonable endeavours in undertaking contract research and producing reports to ensure the information is as accurate as practicable, the Institute, its contributors, employees, and Board shall not be liable (whether in contract, tort (including negligence), equity or on any other basis) for any loss or damage sustained by any person relying on such work whatever the cause of such loss or damage.

Key points

The Commerce Commission proposes to change the form of control for electricity distribution businesses (EDB) from the existing weighted average price cap to a revenue cap supplemented by an annual wash-up mechanism. We have already provided advice on this topic.

The purpose of this report is to extend the analysis presented in our previous report 'Form of control for EDB – draft decision' dated 3 August 2016 by additional:

- analysis of the drivers of variation in EDB revenue
- comment on the rationale for the AER selection of a revenue cap and related measures
- comment on submissions by EDB with respect to the effect of the revenue cap and the design of the wash-up mechanism.

This report should be read in conjunction with our previous report.

Analysis of the drivers of the variability in EDB revenue over the past three years shows the extent to which variation in revenue is driven by EDB reliance on charging for energy supplied rather than the option to access the network. Also the data indicates that many EDB have altered their mix of fixed and variable tariffs in some cases substantially over the period 2013 to 2015.

The AER decisions on adoption of a revenue cap for the distribution network service providers (DNSP) in the state of Victoria are widely quoted by submitters in support of the adoption of a revenue cap for EDB. However the AER decisions do not argue that the revenue cap is more likely to encourage cost reflective pricing than a weighted average price cap (WAPC). The AER addresses the issue of how to achieve efficient cost reflective pricing through its tariff structure review process that is run in parallel with the setting of the maximum allowable revenue for DNSP. Citing the AER view on the merits of revenue cap over WAPC without acknowledging the AER tariff structure review process overstates the potential contribution of revenue caps to incentives for efficient pricing.

Submissions by the EDB and Electricity Networks Association (ENA) generally support the introduction of a revenue cap. However many of the submitters raise concerns about the proposed caps and collars on the wash-up mechanism as they argue that it will prevent them from fully recovering the difference between the forecast and actual revenue. The comments about the proposed wash-up mechanism illustrate the difficulty of separating the quantity forecasting risk that the Commission says it is attempting to avoid by implementing a revenue cap from giving EDB an implicit guarantee that they will be able to earn the revenue cap.

As explained in our previous report our concern with the revenue cap is that it validates EDB reliance on charging for the volume of energy used without providing a strong incentive for EDB to move to more efficient cost reflective pricing for network services or any closer scrutiny on the investment decisions made by EDB. We also find it puzzling that the effect of the increased certainty of EDB revenue under a revenue cap is not expected to have any effect on the Commission's assessment of the standard error of the Commission's estimate of the EDB asset beta.

Contents

| | | |
|------|--------------------------------------|----|
| 1. | Introduction..... | 1 |
| 1.1. | Context | 1 |
| 1.2. | Our approach..... | 1 |
| 2. | EDB revenue drivers | 2 |
| 2.1. | Introduction..... | 2 |
| 2.2. | Drivers of revenue variation | 2 |
| 2.3. | Conclusion | 8 |
| 3. | Revenue cap wash-up | 9 |
| 3.1. | EDB view | 9 |
| 3.2. | Comment on caps and collars..... | 9 |
| 3.3. | Comment on variation in revenue..... | 10 |
| 3.4. | Conclusion | 11 |
| 4. | AER decision | 12 |
| 4.1. | Introduction..... | 12 |
| 4.2. | Tariff structure review | 12 |
| 4.3. | Conclusion | 14 |

Appendices

| | |
|---------------------------------|----|
| Appendix A Revenue drivers..... | 15 |
|---------------------------------|----|

Tables

| | |
|---|----|
| Table 1 Non-exempt EDB connections and energy supplied..... | 3 |
| Table 2 Non-exempt EDB 'energy supplied' and 'total' revenue..... | 4 |
| Table 3 Non-exempt EDB average fixed revenue per connection and average revenue per unit of energy supplied 'energy supplied' | 5 |
| Table 4 Exempt EDB connections and energy supplied..... | 6 |
| Table 5 Exempt EDB 'energy supplied' and 'total' revenue..... | 7 |
| Table 6 Exempt EDB average fixed revenue per connection and average revenue per unit of energy supplied 'energy supplied' | 8 |
| Table 7 Non-exempt residential EDB connections and energy supplied..... | 16 |
| Table 8 Non-exempt residential EDB 'energy supplied' and 'total' revenue..... | 17 |
| Table 9 Non-exempt residential EDB average fixed revenue per connection and average revenue per unit of energy supplied 'energy supplied' | 18 |
| Table 10 Exempt residential EDB connections and energy supplied..... | 19 |
| Table 11 Exempt residential EDB 'energy supplied' and 'total' revenue..... | 20 |
| Table 12 Exempt residential EDB average fixed revenue per connection and average revenue per unit of energy supplied 'energy supplied' | 21 |

1. Introduction

1.1. Context

The discussion on the appropriate ‘form of control’ for electricity distribution businesses (EDB) seems to have been informed by Commerce Commission (the Commission) analysis of the variability of the EDB profitability¹ over the period 2012 to 2015 and the contribution of demand forecasting risk to this variability. (Demand forecasting risk is separated into the general uncertainty of demand and quantity forecasting risk – ‘the extent to which the Commission’s forecast diverges from the supplier’s own expectations’²). This analysis identified drivers of the difference between expected and actual profitability but it is not clear how the comparison was adjusted for the different charging bases used by individual EDB.

The Commission’s analysis also cited comments by the Australian Energy Regulator (AER)³ about the practical failure of the WPAC to encourage efficient pricing incentives because key assumptions of the theoretical incentives are not met in practice.

1.2. Our approach

In our previous report, ‘Form of control for EDB – draft decision’ dated 3 August 2016, we commented in general on the Commission’s rationale for adopting a revenue cap, the differences between EDB tariff structures for retail and commercial customers and the relevance of AER decisions to the Commission’s rationale for adopting a revenue cap. In this report we provide additional support for our previous comments through:

- decomposing variation in EDB revenue into fixed and energy supplied revenue and then into volume and average revenue changes
- discussing the effect of the wash-up mechanism (a key element of the revenue cap)
- providing a more detailed explanation of the AER tariff structure review which is completed in parallel with the application of the revenue cap.

¹ ‘Profitability of Electricity Distributors Following First Adjustments to Revenue Limits Summary and analysis, 8 June 2016’, Commerce Commission.

² ‘Input methodologies review draft decisions Topic paper 1: Form of control and RAB indexation for EDBs, GPBs and Transpower, 16 June 2016, page 18 (also numbered as page 138 of 790 in the consolidated papers), and paragraph 56.

³ ‘Input methodologies review – Emerging views on form of control’ Commerce Commission of New Zealand, 29 February 2016, paragraph 29, p 7.

2. EDB revenue drivers

2.1. Introduction

In our previous report we included high level comment on the drivers of the variation in EDB revenue for the financial years 2013 to 2015. In this report we include tables of the data that supported these observations along with new tables of the average fixed and variable revenue per connection - a proxy for the average price charged to those customer groups.

It is difficult to draw conclusions from the data across EDB as a group because of the wide variation in the size of EDB and to a lesser extent the different levels of EDB customer mix (residential vs commercial and industrial customers) Also the customer group data is only available for three years. To make the data easier to read we have reported non-exempt and exempt⁴ EDB in separate tables and reported the EDB in order of descending revenue.

Despite these caveats the data does support some high level observations and areas for consideration about EDB revenue drivers and the potential effect of a change in the form of control.

2.2. Drivers of revenue variation

In our previous report we argued that the decision of EDB to collect more or less revenue from energy supplied was a business choice that materially affected the variation in their revenue. The data in the following tables provides an indication of how the cause of this variation could be decomposed into volume changes (quantity forecasting risk) and revenue per unit of volume - a proxy for pricing changes.

The key observations from the data revenue drivers for the non-exempt EDB are:

- variation in the number of connections is less than half the variation in the energy supplied (Table 1)
- revenue for energy supplied is generally more variable than revenue based on fixed connection charges (Table 2)
- average fixed and variable charges have varied over a reasonably wide range for EDB over the past three years (Table 3).

Data on fixed and variable charges is missing or unreliable for some EDB in 2013. For these EDB the averages and ranges were calculated for 2 rather than 3 years. The data for EDB affected by missing data are shown in italics in the following table.

⁴ 'Non-exempt EDB' are the 17 EDB that are subject to price quality path regulation by the Commerce Commission (16 EDB on default price paths and Orion on a customised price path). Exempt EDB are the remaining 12 community owned EDB that only have to meet Commerce Commission information disclosure requirements.

Table 1 Non-exempt EDB connections and energy supplied

Average of connections over 2013 to 2015 with the range between the maximum or the minimum and the average expressed as a percentage of the average

| EDB | Number of connections | | | Energy supplied (GWh) | | |
|----------------|-----------------------|---------|---------|-----------------------|---------|---------|
| | Average | Minimum | Maximum | Average | Minimum | Maximum |
| Vector | 538,917 | -0.5% | 0.3% | 8,335 | -0.9% | 0.6% |
| Powerco | 324,713 | -0.8% | 0.8% | 4,448 | -1.8% | 1.3% |
| Orion NZ Ltd | 189,710 | -0.3% | 0.2% | 3,062 | -1.2% | 2.3% |
| Wellington | 165,097 | -0.2% | 0.4% | 2,372 | -1.4% | 1.5% |
| Unison | 109,973 | -0.6% | 0.5% | 1,564 | -0.9% | 1.4% |
| Aurora Energy | 84,086 | -0.9% | 1.1% | 1,249 | -0.1% | 0.1% |
| Net. Tasman | 37,620 | -0.9% | 1.0% | 594 | -0.7% | 0.8% |
| Alpine Energy | 31,434 | -0.7% | 0.8% | 733 | -3.8% | 6.0% |
| Top Energy | 30,682 | -0.2% | 0.3% | 325 | -1.2% | 1.4% |
| Eastland | 25,466 | -0.3% | 0.4% | 282 | -0.7% | 1.2% |
| Horizon Energy | 24,742 | 0.0% | 0.1% | 517 | -0.8% | 1.5% |
| The Lines Co | 23,562 | -0.2% | 0.1% | 315 | -3.8% | 4.0% |
| EA Networks | 18,078 | -1.9% | 1.9% | 563 | -7.2% | 10.6% |
| Invercargill | 17,255 | -0.3% | 0.4% | 260 | -0.7% | 1.5% |
| OtagoNet JV | 14,782 | 0.0% | 0.0% | 404 | -1.0% | 1.0% |
| Nelson | 9,163 | -0.7% | 0.6% | 142 | -1.2% | 0.8% |
| Centralines | 8,388 | -0.7% | 0.6% | 105 | -2.2% | 2.0% |
| | | | | | | |

Source: NZIER analysis of Commerce Commission Information Disclosure

Table 2 Non-exempt EDB 'energy supplied' and 'total' revenue

Average revenue over 2013 to 2015 with the difference between the maximum or minimum and the average expressed as a percentage of the average

| EDB | Revenue for energy supplied (\$m) | | | Total Revenue (\$m) | | |
|----------------|-----------------------------------|---------|---------|---------------------|---------|---------|
| | Average | Minimum | Maximum | Average | Minimum | Maximum |
| Vector | 390 | -1.0% | 1.0% | 609 | -2.7% | 2.8% |
| Powerco | 179 | -3.0% | 4.3% | 348 | -4.9% | 5.4% |
| Orion NZ Ltd | 94 | -9.4% | 12.7% | 220 | -7.2% | 9.8% |
| Wellington | 119 | -0.6% | 0.8% | 169 | -5.0% | 8.0% |
| Unison | 75 | -6.4% | 8.8% | 129 | -7.8% | 9.5% |
| Aurora Energy | 44 | -4.6% | 4.5% | 86 | -2.9% | 4.4% |
| Net. Tasman | 28 | -4.3% | 4.1% | 39 | -9.4% | 6.9% |
| Alpine Energy | 21 | -13.9% | 17.4% | 44 | -11.9% | 15.9% |
| Top Energy | 34 | -3.0% | 4.4% | 37 | -2.9% | 4.2% |
| Eastland | 25 | -1.6% | 3.0% | 32 | -1.7% | 3.3% |
| Horizon Energy | 14 | -4.1% | 3.4% | 31 | -2.2% | 3.8% |
| The Lines Co | | | | 37 | -5.1% | 4.4% |
| EA Networks | 18 | -11.5% | 14.3% | 37 | -7.2% | 8.6% |
| Invercargill | 12 | -4.3% | 6.9% | 19 | -4.1% | 6.7% |
| OtagoNet JV | 17 | -3.5% | 3.5% | 34 | -3.5% | 3.5% |
| Nelson | 5 | -0.9% | 1.6% | 10 | -4.2% | 5.4% |
| Centralines | 7 | -4.5% | 5.9% | 11 | -6.0% | 7.6% |
| | | | | | | |

Source: NZIER analysis of Commerce Commission Information Disclosure

Table 3 Non-exempt EDB average fixed revenue per connection and average revenue per unit of energy supplied 'energy supplied'

Average revenue over 2013 to 2015 with the difference between the maximum or minimum and the average expressed as a percentage of the average

| EDB | Fixed revenue per connection (\$) | | | Variable revenue per kWh supplied (\$) | | |
|----------------|-----------------------------------|---------|---------|--|---------|---------|
| | Average | Minimum | Maximum | Average | Minimum | Maximum |
| Vector | 392 | -3.9% | 3.9% | 0.047 | -0.4% | 0.4% |
| Powerco | 520 | -5.7% | 5.0% | 0.040 | -4.2% | 3.7% |
| Orion NZ Ltd | 673 | -5.6% | 7.4% | 0.031 | -8.3% | 10.3% |
| Wellington | 294 | -15.6% | 27.5% | 0.050 | -2.1% | 1.2% |
| Unison | 486 | -6.8% | 8.8% | 0.048 | -7.7% | 9.3% |
| Aurora Energy | 493 | -2.4% | 3.2% | 0.035 | -4.7% | 4.6% |
| Net. Tasman | 329 | -1.8% | 1.8% | 0.047 | -5.1% | 4.3% |
| Alpine Energy | 730 | -9.4% | 13.7% | 0.029 | -10.2% | 11.1% |
| Top Energy | 101 | -2.5% | 1.6% | 0.105 | -4.4% | 5.6% |
| Eastland | 275 | -3.0% | 4.7% | 0.090 | -2.6% | 3.7% |
| Horizon Energy | 683 | -5.7% | 6.3% | 0.027 | -3.3% | 1.8% |
| The Lines Co | 1,563 | -4.9% | 4.3% | | | |
| EA Networks | 1,084 | -1.4% | 1.4% | 0.031 | -8.3% | 4.8% |
| Invercargill | 371 | -3.5% | 6.1% | 0.047 | -4.0% | 7.6% |
| OtagoNet JV | 1,172 | -3.6% | 3.6% | 0.041 | -2.5% | 2.5% |
| Nelson | 521 | -7.4% | 9.0% | 0.036 | -1.5% | 2.8% |
| Centralines | 530 | -7.1% | 8.2% | 0.064 | -6.4% | 5.6% |
| | | | | | | |

Source: NZIER analysis of Commerce Commission Information Disclosure

The key observations on the contribution of revenue drivers to the variation in revenue 'exempt' EDB are similar to those for 'non-exempt' EDB. If anything the variation in exempt EDB connection numbers, volume of energy supplied, total revenue and average revenue per customer or unit of energy supplied seems to be greater for exempt than non-exempt EDB.

Table 4 Exempt EDB connections and energy supplied

Average of connections over 2013 to 2015 with the range between the maximum or the minimum and the average expressed as a percentage of the average

| EDB | Number of connections | | | Energy supplied (GWh) | | |
|----------------|-----------------------|---------|---------|-----------------------|---------|---------|
| | Average | Minimum | Maximum | Average | Minimum | Maximum |
| MainPower | 47,938 | -23.4% | 43.5% | 583 | -5.4% | 9.5% |
| WEL Networks | 85,753 | -1.2% | 1.1% | 1,203 | -0.3% | 0.4% |
| Northpower | 55,090 | -1.7% | 2.5% | 976 | -1.3% | 1.7% |
| Electra | 41,486 | -4.4% | 3.2% | 404 | -0.6% | 1.2% |
| Counties Power | 38,172 | -1.7% | 1.8% | 522 | -3.4% | 2.9% |
| The Power Co | 34,761 | -0.5% | 0.9% | 696 | -1.6% | 1.0% |
| Marlborough | 24,548 | -0.4% | 0.5% | 370 | -2.1% | 1.7% |
| Waipa | 24,211 | -1.6% | 1.6% | 352 | -1.4% | 1.0% |
| Westpower | 13,201 | -0.8% | 0.9% | 268 | -0.6% | 1.1% |
| Net. Waitaki | 12,337 | -1.7% | 1.8% | 247 | -6.3% | 10.2% |
| Scanpower | 8,966 | -25.4% | 50.7% | 78 | -2.4% | 3.3% |
| Buller | 4,594 | -0.3% | 0.3% | 58 | -6.1% | 4.8% |
| | | | | | | |

Source: NZIER analysis of Commerce Commission Information Disclosure

Table 5 Exempt EDB 'energy supplied' and 'total' revenue

Average revenue over 2013 to 2015 with the difference between the maximum or minimum and the average expressed as a percentage of the average

| EDB | Revenue for energy supplied (\$m) | | | Total Revenue (\$m) | | |
|----------------|-----------------------------------|---------|---------|---------------------|---------|---------|
| | Average | Minimum | Maximum | Average | Minimum | Maximum |
| MainPower | 45 | -6.1% | 9.9% | 48 | -5.8% | 9.3% |
| WEL Networks | 77 | -2.0% | 2.6% | 93 | -2.9% | 3.8% |
| Northpower | 44 | -3.2% | 4.0% | 61 | -3.6% | 4.6% |
| Electra | 33 | -5.2% | 5.9% | 36 | -5.0% | 5.7% |
| Counties Power | 31 | -10.8% | 12.5% | 43 | -7.6% | 7.3% |
| The Power Co | 30 | -3.6% | 4.8% | 54 | -4.8% | 4.9% |
| Marlborough | 15 | -7.5% | 9.0% | 32 | -6.8% | 6.7% |
| Waipa | 19 | -2.8% | 3.0% | 22 | -2.7% | 3.5% |
| Westpower | 13 | -3.9% | 3.2% | 20 | -1.8% | 2.9% |
| Net. Waitaki | 11 | -12.2% | 23.8% | 15 | -8.8% | 14.8% |
| Scanpower | 7 | -5.9% | 5.1% | 8 | -6.0% | 5.1% |
| Buller | 6 | -3.9% | 4.6% | 7 | -4.1% | 2.2% |
| | | | | | | |

Source: NZIER analysis of Commerce Commission Information Disclosure

Table 6 Exempt EDB average fixed revenue per connection and average revenue per unit of energy supplied 'energy supplied'

Average revenue over 2013 to 2015 with the difference between the maximum or minimum and the average expressed as a percentage of the average

| EDB | Fixed revenue per connection (\$) | | | Variable revenue per kWh supplied (\$) | | |
|----------------|-----------------------------------|---------|---------|--|---------|---------|
| | Average | Minimum | Maximum | Average | Minimum | Maximum |
| MainPower | 79 | -34.3% | 17.3% | 0.077 | -0.6% | 0.4% |
| WEL Networks | 167 | -6.9% | 8.5% | 0.064 | -1.8% | 2.2% |
| Northpower | 300 | -3.0% | 3.7% | 0.045 | -2.8% | 2.3% |
| Electra | 62 | -4.0% | 4.0% | 0.082 | -6.3% | 6.5% |
| Counties Power | 301 | -8.6% | 5.4% | 0.059 | -7.6% | 9.5% |
| The Power Co | 706 | -5.7% | 4.0% | 0.042 | -4.2% | 3.7% |
| Marlborough | 699 | -5.8% | 4.1% | 0.041 | -7.8% | 7.2% |
| Waipa | 143 | -4.1% | 4.8% | 0.053 | -3.2% | 2.0% |
| Westpower | 543 | -4.2% | 2.9% | 0.047 | -5.0% | 3.7% |
| Net. Waitaki | 267 | -18.2% | 17.1% | 0.046 | -7.5% | 13.1% |
| Scanpower | 179 | -44.7% | 24.9% | 0.084 | -9.1% | 7.5% |
| Buller | 374 | -15.2% | 21.9% | 0.099 | -5.4% | 3.1% |
| | | | | | | |

Source: NZIER analysis of Commerce Commission Information Disclosure

2.3. Conclusion

This range of variation in EDB charging practices shown in the above table suggests the following:

- variation in quantity (number of connections or volume of energy supplied) revenue drivers was not the main driver of revenue variation for EDB over the past three years
- variation in the quantity revenue drivers seems to be amplified by average revenue per unit changes (a proxy for price changes for some EDB.
- the number of connections is much less variable than the volume of energy supply suggesting that EDB could reduce variation in revenue if they increased the proportion of their revenue from fixed charges based on the number of connections (or factors that are unlikely to change with these customers such as maximum capacity/peak demand).

3. Revenue cap wash-up

3.1. EDB view

Our comments in this section refer to EDB submissions⁵ by the following entities:

- groups on behalf of EDB; Electricity Networks Association (ENA) and Pricewaterhouse Coopers (PwC) representing 17 EDB some of which have lodged their own submissions
- submissions (including supporting reports by the following EDB); Alpine Energy, Aurora Energy, Eastland Network, Network Tasman, Orion, Powerco (with a report from Houston Kemp), Unison Networks, Vector, Wellington Electricity.

Nearly all of the EDB submissions support the introduction of a revenue cap on the basis that it will reduce obstacles to changes in lines charges and permit pricing that is both more efficient/cost reflective as well as more responsive to change in the network use in response to emerging technology. However these submissions also express concern about the design of the wash-up mechanisms particularly in respect of the cap and collar mechanisms and the maximum price change allowed in each year.

Network Tasman⁶ expressed a slightly different view in its submission stating that it had a strong interest in moving toward more cost reflective pricing and whether the form of control was a WAPC or revenue cap would have no bearing on its pricing strategy. However Network Tasman also stated that a pricing restructure would be administratively easier under a revenue than a WAPC. Also Alpine Energy⁷ in its submission on the Commission's emerging views paper stated that it did not support the implementation of a pure revenue cap but has reversed this position in its latest submission on the draft decision.

3.2. Comment on caps and collars

EDB submissions support the principle of the wash-up mechanism proposed by the Commission as this is the part of the change in control that removes the 'volume' driver of variation in EDB revenue (despite the analysis in section 2 EDB revenue drivers suggesting that volume risk could be reduced by a move to fixed charges).

However there is variation across EDB submissions in the acceptance of the Commission proposal for the limits (caps and collars and price change limits) on the amount of the wash-up that can be recovered in each year. Many of the submissions argue for a simple revenue cap with no regulatory constraints on the amount that could be recovered in subsequent years or the rate of price change that should be recovered. The common rationale for this approach seems to be:

⁵ We have also reviewed submission by electricity retailers and the Electricity Retailers' Association.

⁶ 'Submission on the Input Methodologies Review Consultation, 4 August 2016' Network Tasman, page 4.

⁷ See; Alpine Energy Submission to the Commerce Commission on Input methodologies review emerging views on form of control 24 March 2016, page 1.

- Introduction of caps and collars on the amount of the wash-up that can be recovered or the rate of price change that can be used to achieve the recovery erodes the stabilising benefit of the revenue cap for EDB
- EDB as a group already consider the effect of price changes on consumers and can be trusted to spread price adjustments over a reasonable period without regulation.

In our view the constraints on the amount that can be recovered and the rate of change at which prices could change would become the main short term incentive under DPP/ CPP for EDB to move toward cost reflective pricing. There seems to have been little comment by EDB submitters on the range of wash-up that would be required or tolerances required for price increases. We suggest that EDB and the Commission together already have enough data to suggest potential quantitative ranges for the cap and collar arrangements and the expected maximum rate of price change and that this should be described as discussed as part of the decision so that consumers can assess the risks of price volatility that they will be exposed to and form a view on how EDB might make investment decisions under a revenue cap.

The approach of the AER described in more detail in section '4 AER decision' is an example of how tariff structure regulation has been combined with what appears to be a revenue cap without caps and collars to ensure DNSP deliver cost reflective pricing. This is a much broader and more comprehensive change in the regulatory approach to achieving cost reflective pricing than simply changing the form or control. In very simple terms the recent changes to DNSP regulation in Australia seem to be driven by a combination of past over-investment by some DNSP and a sharp increase in peak demand combined with much slower growth or decline in energy use with DNSP heavily reliant on energy supplied tariffs.

3.3. Comment on variation in revenue

In the absence of a clear indication of the quantitative limits on the caps and collars and rate of price change proposed by the Commission for the revenue cap it is difficult to make a definitive comment on how these changes might affect the variability of EDB revenue relative to other businesses and therefore affect:

- the level of the asset beta used in the WACC or the standard error that would apply to the estimates of the asset beta
- the method for allocating the recovery of EDB revenues.

In an extreme case of a pure revenue cap without caps and collars or other forms of price regulation it seems to be accepted that the variability of EDB revenue would have been lowered at least theoretically (even if the Commission argument that this cannot be measured empirically is accepted⁸). It would also seem that under this type of revenue cap the characteristics of how to recover EDB revenue and consider EDB investment decisions would now be very close to the regulatory approach applying to Transpower.

⁸ We note that First Gas and Contact Energy as part of their submissions on the input methodology review, have both analysed the sample of company results used by the Commission, suggested different groupings of companies within the sample and arrived at different estimates of asset betas for EDB and gas pipeline businesses to those used by the Commission. It is not clear how the difference or similarity of the price/revenue regulation of the companies in the sample to the regulation of EDB and gas pipeline business in New Zealand was addressed in the choice of groupings.

3.4. Conclusion

If the Commission introduces a revenue cap then caps and collars and limits on rates of price change become the main incentive under Commission regulation for EDB to adopt efficient cost reflective pricing. The limited quantitative information in either the Commission's draft decision or submissions about the limits that the proposal is trying to place on EDB revenue variation make it difficult to make definitive comment on the effect of the proposed revenue cap.

If the Commission accepts the argument by some submitters for a simple pure revenue cap with effectively unconstrained recovery then the Commerce Commission approach to EDB regulation of EDB would need to be broadened to consider the effect on asset beta estimates, and methodology for allocating EDB costs and reviewing major EDB investment decisions.

4. AER decision

4.1. Introduction

The Commerce Commission and many of the submissions have referred to the AER comparison of the relative merits of WAPC and revenue caps as a form of control and quoted the decision by the AER to apply a revenue cap to EDB equivalents in the states of Victoria and New South Wales. Both the Commission's comments and the EA letter to the Commission have drawn a range of comments from submitters about the views expressed by the AER about revenue cap.

The main omission from these comments is acknowledgement of the role played by the AER tariff structure review process in addressing question about the 'incentives' for DNSP to set efficient cost reflective prices for use of DNSP services.

4.2. Tariff structure review

4.2.1. Revenue cap tied to tariff structure review

We understand that the AER now completes the tariff structure review in parallel with the setting of the revenue cap so that both sets the maximum allowable revenue for DNSP and also approves the tariff structure proposed by the DNSP.

Tariff statements are a new element of the Rules. Generally, tariff statements will be submitted to us by distributors with their distribution or revenue proposals every five (usually) years. ... As part of our distribution determination process we will publish, assess and invite feedback on a tariff statement along with a revenue proposal. An approved tariff statement will then apply to the distributors' tariffs for the coming five year regulatory control period.⁹

The AER assesses the proposed tariff structure against the National Electricity Rules as described below:

Our role is to determine if a proposed tariff structure statement complies with the requirements of the National Electricity Rules (the Rules). The Rules require a tariff structure statement to include a number of specific elements, such as the structure of each tariff, charging parameters, and the policies a distributor will apply in assigning or re-assigning customers to particular tariffs. A tariff structure statement must also be consistent with the distribution pricing principles.¹⁰

⁹ 'DRAFT DECISION Tariff structure statement proposals Ausgrid Endeavour Energy Essential Energy, August 2016', AER, page 29 available at https://www.aer.gov.au/system/files/AER%20-%20Draft%20decision%20-%20NSW%20distribution%20network%20service%20providers%20-%20Tariff%20structure%20statement%20-%202017-19_0.pdf

¹⁰ 'DRAFT DECISION Tariff structure statement proposals Ausgrid Endeavour Energy Essential Energy, August 2016', AER, page 13

While the tariff structure statements include indicative tariff levels, actual tariff levels are determined through an annual pricing approval process. The AER review of tariff statement proposals is focussed on tariff structures and intended movements in tariff levels.

4.2.2. Distribution pricing principles

The distribution pricing principles are listed in section 6.18.5 of the National Electricity Rules (NER)¹¹ and include the following:

- the *'network pricing objective'* that tariffs charged to a DNSP retail customer reflect the DNSP's *'efficient costs'* of providing the services to the retail customer
- for each tariff class the expected revenue should be between the avoidable cost of not serving the customers in the tariff class and the standalone cost of serving customers in the tariff class
- each tariff must be based on the long run marginal cost of serving customers in that class having regard factors including:
 - costs of meeting peak demand from those customers
 - variation in network cost between locations covered by the tariff class
- requirements for the DNSP to consider the impact of tariff changes on customers.

Also the annual rate of increase in the *'expected weighted average revenue'* for *'standard control services'*¹² is capped at CPI plus a margin.

4.2.3. AER interpretation example

The draft decision¹³ by the AER to reject the tariff structures proposed by three DNSP in New South Wales – 'Ausgrid', 'Endeavour Energy' and 'Essential Energy' provides a practical example of how the AER is interpreting the application of the distribution pricing principles and the type of shift toward cost reflective tariff structure that it expects. In particular:

- Ausgrid's proposal was declined despite containing many elements that were compliant with the pricing principles because of failure to provide sufficient evidence or justification of the efficiency of the following tariff elements:
 - declining block tariffs
 - length of peak and shoulder periods

¹¹ See 'NATIONAL ELECTRICITY RULES, VERSION 82, CHAPTER 6 ECONOMIC REGULATION OF DISTRIBUTION SERVICES' available at <http://www.aemc.gov.au/getattachment/4b7d522a-622b-41f6-8392-0d4a9ad0514c/National-Electricity-Rules-Version-82.aspx>

¹² Standard control services are defined as *'services that are central to electricity supply and therefore relied on by most (if not all) customers'* in 'FINAL DECISION AusNet Services distribution determination, 2016 to 2020, Overview, May 2016', AER page 39

¹³ See 'DRAFT DECISION Tariff structure statement proposals Ausgrid Endeavour Energy Essential Energy, August 2016', AER page 7 for the 'Overall assessment' and pages 8 to 13 for the 'Draft decision'

- shifting from energy consumption to size of current transformer connection as the basis for allocating medium and large customers to tariff classes.
- proposals from Endeavour Energy and Essential Energy were declined despite containing many elements that were compliant with the pricing principles because of:
 - failure to provide sufficient evidence or justification of the efficiency of declining block tariffs and length of peak and shoulder periods
 - ‘wait and see’ approach to tariff reform particularly with respect to addressing the low uptake of time of use tariffs by residential and small business customers.

AER requires Endeavour Energy and Essential Energy to amend their tariff their tariff assignment approach for costs reflective tariffs for residential and small business customers from ‘opt-in’ to another approach that will address the low take-up rate.

4.3. Conclusion

The AER regulation of DNSP uses revenue caps rather than a WAPC. However this is a weak justification for recommending the adoption of revenue caps in New Zealand as the AER:

- states in its comparisons of WAPC and revenue caps that while a WAPC should theoretically encourage DNSP to adopt more efficient cost reflective pricing, in practice this difference does not seem to have been sufficient to encourage DNSP to adopt efficient cost reflective pricing to the degree expected by the AER for the DNSP is regulates
- operates a second stream of regulation – tariff structure review -in parallel with setting maximum allowable revenue based on a building block methodology and applied though as a revenue cap – to require DNSP to adopt cost reflective pricing
- directly links to the tariff structure review approval process to the approval of the revenue cap so that regulation of the revenue cap and the regulation of the structure of tariffs, indicative tariff levels and rates of change in the indicative tariff levels are all part of the same regulatory package.

Appendix A Revenue drivers

A.1 Introduction

This section replicates the tables for revenue drivers in section 2 EDB revenue drivers for residential consumers (defined as EDB plans with average annual energy usage per ICP above 1,000 and up to 15,000 kWh).

Data on fixed and variable charges is missing or unreliable for some EDB in 2013. For these EDB the averages and ranges were calculated for 2 rather than 3 years. The data for EDB affected by missing data are shown in italics in the following tables.

The variation between EDBs in the mix of residential and commercial/industrial consumers as well as the reliance on fixed as opposed to energy supplied charging limit the usefulness of the data in identify the drivers of differences between EDB. Overall the pattern of variation between EDB residential revenue seems to be similar to the pattern of variation for total EDB revenue and does not appear to be correlated with EDB size or proportion of residential versus commercial/industrial customers.

Some useful next steps in the analysis of the data would be:

- addition of data for the year ended 31 March 2016 which the Commission has released in August in previous years
- comparison of the data with EDB tariff schedules to identify:
 - changes in revenue composition due to changes in EDB tariff plans
 - effect of low fixed charges on residential pricing.

Table 7 Non-exempt residential EDB connections and energy supplied

Average of connections over 2013 to 2015 with the range between the maximum or the minimum and the average expressed as a percentage of the average

| EDB | Number of connections | | | Energy supplied (GWh) | | |
|----------------|-----------------------|---------|---------|-----------------------|---------|---------|
| | Average | Minimum | Maximum | Average | Minimum | Maximum |
| Vector | 472,180 | -0.6% | 0.5% | 3,321 | -1.1% | 1.5% |
| Powerco | 322,998 | -0.8% | 0.8% | 2,574 | -1.6% | 1.5% |
| Orion NZ Ltd | 187,566 | -0.3% | 0.2% | 2,259 | -2.2% | 2.6% |
| Wellington | 147,836 | -0.2% | 0.4% | 1,064 | -1.8% | 2.9% |
| Unison | 98,973 | -0.2% | 0.3% | 659 | -2.1% | 3.5% |
| Aurora Energy | 77,450 | -0.6% | 0.9% | 627 | -2.7% | 4.4% |
| Net. Tasman | 34,659 | -1.0% | 1.3% | 237 | -1.0% | 1.0% |
| Alpine Energy | 28,641 | -0.3% | 0.6% | 235 | -1.6% | 1.5% |
| Top Energy | 30,487 | -0.2% | 0.3% | 205 | -1.8% | 2.3% |
| Eastland | 24,983 | -0.3% | 0.4% | 162 | -1.9% | 2.7% |
| Horizon Energy | 22,861 | -0.4% | 0.3% | 150 | -1.0% | 0.9% |
| The Lines Co | 21,090 | -0.2% | 0.2% | 174 | -2.1% | 2.5% |
| EA Networks | 14,221 | -1.6% | 1.6% | 121 | -1.0% | 1.1% |
| Invercargill | 15,217 | -0.6% | 0.4% | 133 | -1.1% | 1.8% |
| OtagoNet JV | 11,268 | -0.3% | 0.3% | 69 | -1.8% | 1.8% |
| Nelson | 9,023 | -0.7% | 0.5% | 80 | -2.8% | 2.3% |
| Centralines | 7,888 | -3.0% | 4.6% | 49 | -14.1% | 25.7% |
| | | | | | | |

Source: NZIER analysis of Commerce Commission Information Disclosure

Table 8 Non-exempt residential EDB 'energy supplied' and 'total' revenue

Average revenue over 2013 to 2015 with the difference between the maximum or minimum and the average expressed as a percentage of the average

| EDB | Revenue for energy supplied (\$m) | | | Total Revenue (\$m) | | |
|----------------|-----------------------------------|---------|---------|---------------------|---------|---------|
| | Average | Minimum | Maximum | Average | Minimum | Maximum |
| Vector | 240 | -1.2% | 1.2% | 330 | -3.5% | 3.1% |
| Powerco | 170 | -4.0% | 4.7% | 264 | -4.1% | 5.2% |
| Orion NZ Ltd | 94 | -9.4% | 12.7% | 180 | -6.6% | 9.2% |
| Wellington | 88 | -2.2% | 1.5% | 102 | -4.9% | 9.1% |
| Unison | 52 | -5.4% | 8.4% | 77 | -6.8% | 9.2% |
| Aurora Energy | 44 | -4.6% | 4.5% | 53 | -4.1% | 4.4% |
| Net. Tasman | 18 | -6.9% | 5.7% | 19 | -13.3% | 8.5% |
| Alpine Energy | 12 | -8.4% | 4.7% | 18 | -5.8% | 4.0% |
| Top Energy | 30 | -2.8% | 4.4% | 30 | -2.7% | 4.3% |
| Eastland | 20 | -2.0% | 2.8% | 25 | -2.0% | 3.0% |
| Horizon Energy | 11 | -7.7% | 10.3% | 18 | -4.4% | 5.9% |
| The Lines Co | | | | 24 | -4.9% | 4.8% |
| EA Networks | 8 | -4.9% | 5.9% | 9 | -4.7% | 5.5% |
| Invercargill | 8 | -4.1% | 8.1% | 11 | -4.0% | 7.2% |
| OtagoNet JV | 9 | -1.5% | 1.5% | 13 | -2.3% | 2.3% |
| Nelson | 4 | -2.7% | 4.8% | 7 | -4.9% | 6.2% |
| Centralines | 5 | -13.3% | 18.8% | 7 | -10.8% | 12.0% |
| | | | | | | |

Source: NZIER analysis of Commerce Commission Information Disclosure

Table 9 Non-exempt residential EDB average fixed revenue per connection and average revenue per unit of energy supplied 'energy supplied'

Average revenue over 2013 to 2015 with the difference between the maximum or minimum and the average expressed as a percentage of the average

| EDB | Fixed revenue per connection (\$) | | | Variable revenue per kWh supplied (\$) | | |
|----------------|-----------------------------------|---------|---------|--|---------|---------|
| | Average | Minimum | Maximum | Average | Minimum | Maximum |
| Vector | 179 | -4.1% | 4.1% | 0.073 | -0.9% | 0.9% |
| Powerco | 289 | -3.5% | 5.3% | 0.066 | -5.5% | 4.5% |
| Orion NZ Ltd | 458 | -3.6% | 5.2% | 0.042 | -9.0% | 10.0% |
| Wellington | 92 | -40.8% | 81.5% | 0.083 | -2.1% | 2.6% |
| Unison | 253 | -9.5% | 10.7% | 0.079 | -8.7% | 9.8% |
| Aurora Energy | 118 | -1.8% | 2.8% | 0.070 | -4.2% | 6.3% |
| Net. Tasman | 56 | -2.8% | 2.8% | 0.076 | -7.9% | 5.7% |
| Alpine Energy | 212 | -4.3% | 4.9% | 0.049 | -6.9% | 4.7% |
| Top Energy | 20 | -2.0% | 1.2% | 0.145 | -5.0% | 6.2% |
| Eastland | 204 | -2.2% | 4.2% | 0.123 | -3.5% | 3.6% |
| Horizon Energy | 302 | -26.6% | 18.7% | 0.070 | -6.7% | 9.4% |
| The Lines Co | 1,138 | -4.7% | 4.8% | | | |
| EA Networks | 56 | -0.7% | 1.1% | 0.066 | -4.0% | 6.0% |
| Invercargill | 216 | -4.1% | 5.6% | 0.058 | -5.8% | 8.8% |
| OtagoNet JV | 416 | -4.2% | 4.2% | 0.126 | -3.3% | 3.3% |
| Nelson | 297 | -7.8% | 7.9% | 0.053 | -5.1% | 7.7% |
| Centralines | 307 | -6.2% | 9.1% | 0.101 | -6.2% | 6.1% |
| | | | | | | |

Source: NZIER analysis of Commerce Commission Information Disclosure

Table 10 Exempt residential EDB connections and energy supplied

Average of connections over 2013 to 2015 with the range between the maximum or the minimum and the average expressed as a percentage of the average

| EDB | Number of connections | | | Energy supplied (GWh) | | |
|----------------|-----------------------|---------|---------|-----------------------|---------|---------|
| | Average | Minimum | Maximum | Average | Minimum | Maximum |
| MainPower | 35,482 | -15.6% | 26.6% | 347 | -30.0% | 59.1% |
| WEL Networks | 79,048 | -6.4% | 6.3% | 573 | -13.6% | 24.3% |
| Northpower | 54,990 | -1.8% | 2.6% | 441 | -1.5% | 1.4% |
| Electra | 40,251 | -3.5% | 2.1% | 290 | -1.4% | 2.2% |
| Counties Power | 37,877 | -1.7% | 1.8% | 339 | -0.4% | 0.8% |
| The Power Co | 26,120 | -2.5% | 1.6% | 211 | -1.5% | 1.0% |
| Marlborough | 20,833 | -0.6% | 0.7% | 145 | -1.4% | 2.2% |
| Waipa | 18,848 | -1.9% | 1.9% | 146 | -1.5% | 1.1% |
| Westpower | 12,343 | -0.9% | 0.9% | 80 | -0.7% | 1.3% |
| Net. Waitaki | 10,466 | -1.3% | 1.5% | 79 | -4.8% | 6.5% |
| Scanpower | 7,875 | -40.2% | 71.3% | 51 | -27.9% | 15.0% |
| Buller | 3,941 | -0.5% | 0.4% | 21 | -3.3% | 4.1% |
| | | | | | | |

Source: NZIER analysis of Commerce Commission Information Disclosure

Table 11 Exempt residential EDB 'energy supplied' and 'total' revenue

Average revenue over 2013 to 2015 with the difference between the maximum or minimum and the average expressed as a percentage of the average

| EDB | Revenue for energy supplied (\$m) | | | Total Revenue (\$m) | | |
|----------------|-----------------------------------|---------|---------|---------------------|---------|---------|
| | Average | Minimum | Maximum | Average | Minimum | Maximum |
| MainPower | 22 | -6.2% | 10.7% | 24 | -6.7% | 10.8% |
| WEL Networks | 52 | -13.2% | 20.8% | 52 | -12.8% | 21.3% |
| Northpower | 43 | -6.1% | 5.4% | 48 | -6.3% | 5.7% |
| Electra | 27 | -5.2% | 6.1% | 28 | -10.0% | 8.4% |
| Counties Power | 27 | -8.1% | 6.7% | 34 | -6.0% | 5.3% |
| The Power Co | 15 | -3.5% | 4.8% | 23 | -3.2% | 4.1% |
| Marlborough | 9 | -6.8% | 6.7% | 15 | -6.3% | 5.5% |
| Waipa | 10 | -2.7% | 3.6% | 11 | -2.6% | 3.4% |
| Westpower | 8 | -3.8% | 3.7% | 9 | -3.5% | 3.4% |
| Net. Waitaki | 5 | -6.2% | 11.4% | 6 | -1.1% | 0.6% |
| Scanpower | 6 | -7.1% | 6.2% | 6 | -0.7% | 1.4% |
| Buller | 2 | -3.9% | 2.8% | 3 | -4.1% | 3.1% |
| | | | | | | |

Source: NZIER analysis of Commerce Commission Information Disclosure

Table 12 Exempt residential EDB average fixed revenue per connection and average revenue per unit of energy supplied 'energy supplied'

Average revenue over 2013 to 2015 with the difference between the maximum or minimum and the average expressed as a percentage of the average

| EDB | Revenue per connection (\$) | | | Variable revenue per kWh supplied (\$) | | |
|----------------|-----------------------------|---------|---------|--|---------|---------|
| | Average | Minimum | Maximum | Average | Minimum | Maximum |
| MainPower | 57 | -13.7% | 11.0% | 0.073 | -38.3% | 19.4% |
| WEL Networks | | | | 0.091 | -3.3% | 6.6% |
| Northpower | 81 | -7.0% | 5.2% | 0.098 | -4.6% | 4.0% |
| Electra | 53 | -4.0% | 4.0% | 0.092 | -7.3% | 6.8% |
| Counties Power | 184 | -2.3% | 3.9% | 0.079 | -7.6% | 5.8% |
| The Power Co | 312 | -3.7% | 5.5% | 0.069 | -4.0% | 3.8% |
| Marlborough | 275 | -5.0% | 3.1% | 0.061 | -8.8% | 7.4% |
| Waipa | 55 | 0.0% | 0.0% | 0.066 | -3.1% | 2.5% |
| Westpower | 90 | -0.6% | 0.9% | 0.101 | -5.0% | 4.3% |
| Net. Waitaki | 77 | -68.5% | 36.4% | 0.063 | -12.4% | 16.5% |
| Scanpower | 67 | -18.0% | 20.5% | 0.116 | -23.0% | 33.4% |
| Buller | 231 | -4.1% | 3.7% | 0.114 | -7.9% | 4.4% |
| | | | | | | |

Source: NZIER analysis of Commerce Commission Information Disclosure