Form of control for EDB – draft decision

Advice on submission to the Commerce Commission

NZIER report to Major Electricity Users' Group

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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. The wash-up mechanism has a complex set of rules on the balance that can be accumulated and caps on the rate at which prices can be changed.

The Commerce Commission's main argument for a revenue cap is that it reduces the negative effect of variability in EDB income on EDB investment by removing quantity forecasting errors from the setting of price quality paths for EDB.[1]

Consideration of both the driver of variability in EDB revenues and the preferred form of control for electricity distribution business price quality regulation needs to be informed by analysis of the tariff structures actually used by EDB and any recent changes in the tariff structure.

The root cause of EDB exposure to demand forecasting risk is the tariff structure chosen by EDB. The use of volume based charging varies by customer group and across EDB. Those EDB that do rely on volume based charging tend to predominantly to apply it to retail consumers.

The absence of a regulatory requirement to set volume based charges combined with the variation in the reliance on volume based charging among EDB suggest that the reliance of some EDB on volume based charging represents a business decision on their approach to the recovery of the cost of the services they provide rather than an exogenous risk imposed by the regulator.

Uniform rate volume based charging is a poor proxy for signalling the cost of access to the network during peak periods. From an economic perspective volume based pricing is not an efficient signal of the cost of access to the network during peak periods and is therefore:

- not closely linked to either the network assets and investment in new assets that EDB need to make to maintain quality of service
- overcompensates consumers for lowering demand on EDB networks during off-peak periods while still relying on the network during peak periods.

The Electricity Authority (EA) has raised concerns about the efficiency of EDB continuing to price on volume of electricity consumed and asked for comment on the effect of the adoption of revenue cap on the EDB incentives to adopt more efficient pricing mechanisms. We agree with the EA concern that a revenue cap will not encourage EDB to adopt more efficient pricing.

[1] This appears to be driven by the uncertainty faced by the Commission in forecasting the volume use of electricity for EDB revenue component that are based on volume charges. See 'Input methodologies review Invitation to contribute to problem definition, 16 June 2015, footnote 69 to paragraph 144.

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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 profitability[2] 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'[3]). 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 is concerned that if returns are below levels expected by EDB then EDB will reduce investment levels. The Commission argues a change in the form of control from EDB weighted average price cap (WAPC) to a pure revenue cap will not only lower the risk of under-investment by EDB (by removing quantity forecasting risk) but will also remove potential disincentives for suppliers to restructure tariffs and remove any potential disincentives on suppliers to pursue energy efficiency options.

The Commission's analysis also cited comments by the Australian Energy Regulator (AER)[4] 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

We welcome a review of the form of control for EDB to promote the purpose of Part 4 Section 52a of the Commerce Act but we note the previous comments by the commission in its invitation to contribute to the problem definition that:[5]

> *The choice of the form of control is often characterised as a choice between a 'price cap' and a 'revenue cap'. However, in reality there are a number of different ways a control can be specified (eg, specification of price for particular services, extent to which revenue can be 'washed up' in subsequent periods). Therefore the impact on a supplier will depend on the specific rules and any associated decision.*

We suggest that the choice of the form of control as an instrument to reduce forecasting risk for EDB profitability should also consider:

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

3 '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.

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

5 'Input methodologies review -Invitation to contribute to problem definition, Commerce Commission of New Zealand, 16 June 2015.

- variation in pricing behaviour across EDB under the current WAPC regime and the extent to which their exposure to quantity forecasting risk reflects variation in their chosen tariff structure
- co-ordination of the form of control chosen by the Commerce Commission with the issues raised by the Electricity Authority (EA) in respect of efficient pricing for services in its recent consultation paper[6] and also directly in its letter to the Commission[7]

We would also like to reiterate key aspects of the advice given in our previous report to MEUG on the form of control dated 21 March 2016 in respect of:

- the variation of pricing methods and (pricing efficiency) used by EDB (see Appendix A) and by implication that:
  - WAPC has not precluded some EDB form adopting more efficient pricing methods
  - a change in form of control does not seem to be necessary or sufficient for EDB to adopt efficient pricing
- the importance the AER attached to ensuring network companies received clear and compelling investment signals regardless of the form of control and the limited effect that AER believed that the choice between WAPC and revenue cap forms of control has on the

6 'Implications of evolving technologies for pricing of distribution services Consultation Paper' 3 November 2015, Electricity Authority.

7 'Possible implications for efficient distribution pricing of a decision to change the form of control for electricity distribution businesses' from Carl Hansen CE Electricity Authority to Sue Begg, Commissioner , Commerce Commission dated 30 May 2016.

2. Commerce Commission rationale

2.1. Introduction

This section contains our high-level comment on the rationale presented by the Commission for its proposed switch from a weighted average price to and pure revenue cap for EDB.

2.2. Problem definition

The Commission describes the problems with the EDB WAPC form of control as:

- leaving EDB with an unmanageable quantity forecasting risk that may discourage investment
- acting as a potential disincentive for suppliers to either:
  - restructure tariffs or
  - pursue energy efficiency and demand side management initiatives.

The Commission defines 'quantity forecasting' risk in the Topic 1 paper as the element of demand risk where the suppliers expectations do not match the Commission's forecast. The Commission analysis of the variation in EDB profitability does not use the phrase 'quantity forecasting risk' but does discuss the 'quantity billed' and describes the impact of the change in demand on the amount billed for example:

> *'62. This variance arises because the limit on revenue is specified in the form of a 'price cap', which means that distributors are exposed to revenue risk with respect to changes in demand. Specifically, an increase in quantities boosts revenue, and a fall in quantities reduces revenue.*
>
> *63. Distributors differ in terms of the quantities upon which their prices are based. The majority of distributors recover revenue through a combination of fixed charges for connections, and variable charges for throughput. Other distributors recover revenue through capacity based charges.[8]'*

Although it is not explicitly stated the Commission's 'quantity forecasting risk' seems to be driven primarily by the volume of electricity supplied through the network measured in energy units per hour (e.g. kWh). If a forecast error occurs early in the price path period it has a more severe effect as it can depress EDB profitability for the remainder of price path period.[9]

[8] "Profitability of Electricity Distributors Following First Adjustments to Revenue Limits' page 16 paragraphs 61 to 64.

[9] Topic 1 page 19 (or consolidated page139 of 790), paragraph 62

2.3. Observations

Our key observations on the rationale are that:

- distinct concepts of energy supplied, network capacity and network optimisation are blended in the rationale which fails to show how a switch to a revenue cap would assist EDB to meet network reliability standards more efficiently
- some EDB have chosen a tariff structure that relies heavily on energy supplied. This contributes to the revenue risk under the WAPC form of control but this reliance is not preferred by regulators and the technical constraints that made it necessary in the past are disappearing
- it does not fully address the differences in the scale and market conditions facing EDB
- it is not clear that a change in the form of control is needed to resolve the root cause of the problem which seems to be lack of flexibility in resetting of the price path.

2.3.1. Capacity or energy supplied

EDB provide reliable access to a network and therefore the main costs of the network investment requirements are related to ability to meet peak demand levels rather than the volume of electricity supplied over the year.

This suggests that the quantity forecasting risk and supplier incentives to promote consumer energy efficiency and demand side management should be assessed on the basis of their contribution to either lowering peak demand levels or allowing EDB opportunities to shed load. These measures potentially allow EDB to meet reliability standards with a lower level of investment in network capacity than would otherwise be required.

The volume of electricity is not regarded as a good proxy for the required level of investment in capacity to deliver network services either by the Electricity Authority or the Australian Energy Regulator (AER). Both of these regulators have indicated that they expect the volume of electricity to become a worse proxy for the need for network capacity as emerging technology is adopted by consumers. This would lead to less efficient pricing of network services if the tariffs continue to be dominated by volume of energy supplied charges. (The AER has acted on this concern by requiring the Victorian EDB to introduce capacity related charges for access to the network alongside its movement to a revenue cap for EDB.)

It would help to advance the discussion of the relative merits of a revenue cap in reducing the contingent level of capacity required by EDB if the links between annual energy demand and either peak load or capacity required to manage outages were made explicit. Also in our analysis of the EDB information disclosures we have found it difficult to identify a single or composite measure of the profile of use of EDB network capacity. (We have reviewed statistics on peak demand, transformer capacity and energy supplied.)

2.3.2. EDB tariff structure

EDB reliance on charges for energy supplied in their tariff structure varies widely by EDB and by customer group. (We provide more detailed analysis of the variation of EDB tariff structure in Appendix A Tariff structure.) This variation suggests that the choice of tariff structure is a business decision made by EDB rather than a structure that has emerged as the most efficient approach to recovering the cost of network services. We suggest that this variation raises two questions for the Commission:

- how can the efficiency of the different reliance of tariff structures on fixed network access charges be compared?
- should the Commission be encouraging the adoption of tariff structures with greater emphasis on demand or capacity charges to achieve the efficiency outcomes sought in Section 52A (1)(b) of the Commerce Act?

A market revenue cap seems to weaken the incentives for EDB to move toward fixed capacity charges.

2.3.3. One-size does not fit all

EDB vary widely in size, customer composition and in particular with respect to recent changes in transformer capacity, maximum coincident demand, ICP numbers and volume of energy supplied. The form of control applied to the EDB as a group needs to be able to send the correct price and quality signals to networks that are growing, static and shrinking. In view of the challenges posed by changing network size and emerging technology[10] it may be helpful for the Commission to consider the suitability of a form of control for networks that are changing size and shape as well as those where usage of the network is changing.

2.3.4. Wash-up mechanism

As part of the proposed change to a pure revenue cap the Commerce Commission also proposes the following wash-up mechanism:

> *'annual wash-up of the difference between the revenue received and the allowable revenue adjusted for CPI, pass-through costs and recoverable costs, subject to a cap'*[11]

The objective of the mechanism is:

[10] In Topic1 page 46 (consolidated page 115 of 790) paragraph 157, the Commission discusses the possibility that emerging technologies or other circumstances may encourage enough customers to disconnect from the network so that the: *'…remaining consumers will not be willing or able to pay the prices that would be required for suppliers to achieve FCM, even if our price path remains consistent with FCM.'*

We argue that the key challenge for networks relying on volume charging from emerging technology is reduction in volume of electricity supplied rather than full disconnection from the network. Accordingly we argue that the cost recovery risk from emerging technology (concentrating the cost recovery burden on a shrinking group of customers unable to adopt emerging technology while under-charging users of emerging technology for the option to access the network at times of peak coincident demand) are more probable and likely to occur earlier than suggested by the Commission.

[11] Topic 1 page 27 (consolidated page 147 of 790), paragraph 108.

> *'to return to, or recover from, a supplier's consumers any under or over recoveries of revenue resulting from differences between actual and forecast values.*[12]*'*

The design of the revenue cap includes caps and collars on the amount that can be held in and recovered from the wash-up account but some of the key parameters have not been set. The wash-up mechanism will also span regulatory periods.

As the wash-up is designed to allow EDB to set prices to achieve a revenue cap set on the basis of the recovery of 'building block costs' plus pass through and recoverable cost it would seem that this approach provides EDB with greater certainty about revenue than the current regime. This increase in certainty of revenue does not seem to have been factored into consideration of the appropriate return on capital.

The increased certainty of revenue for EDB is achieved at the expense of greater price volatility for consumers (as these now become the factor that balances the difference between revenue from forecast and actual billed quantities).

2.4. Conclusion

The decision to move to a revenue cap seems to enable continuation of the current mixed practice for volume billing among EDB without clear evidence of a correlation between the variation in revenue and EDB capital expenditure. The potential for quantity forecasting risk to be lowered by EDB aligning their basis for charging with the cost of providing access to the electricity network does not appear to have been evaluated as an alternative to the introduction of a revenue cap.

[12] Topic 1 page 26 (consolidated page 146 of 790), paragraph 100.

3. EDB revenue drivers

3.1. Introduction

The Commerce Commission has analysed drivers of the profitability of EDB over the period 2013 to 2015 and has considered quantity billed as one of the revenue drivers. To complement this analysis, we have reviewed the high level drivers of EDB revenue for residential and non-residential customers over the same period.[13] Also our analysis only considers the variation in reported EDB data rather than difference between actual and forecast revenue considered by the Commission.

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) as well as the split between regulated and exempt EDB. Also the customer group data is only available for three years. 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.

3.2. Drivers of revenue variation

The key observations from the data on EDB as a group are:

- residential and small scale:
  - connections account for the bulk of EDB connections but the proportion of individual EDB revenue varies from 40 to 80 percent
  - the range of variation in customer energy use (generally within +/- 2 percent for most EDB) is about twice as wide as the typical range for fluctuation in number of connections
  - fixed and variable charges seem to vary over a wider range than is suggested by the variation in the number of connections or the energy supplied suggesting that factors aside from the number of connections and volume of energy used are contributing to fluctuations in revenue
- commercial and industrial:
  - numbers of connections and total energy used seem to fluctuate in roughly the same range as those for residential connections
  - total revenue earned from these customers varies more widely than is suggested by the range of variation in number of connections or the energy used.

[13] This is a recasting and extension of the analysis that is included in Appendix A Tariff structure.

3.3. Conclusion

This pattern of variation suggests that the drivers of quantity forecasting risk are more complicated than separation of CPI linked cost changes from the fluctuations in energy consumed.

4. EA questions

4.1. Introduction

The EA wrote two letters to the Commerce Commission dated 30 May 2016 about the implications of:

- revenue cap efficient pricing by EDB
- treatment of cash flows for emerging technology.

We appreciate the Commerce Commission including these letters in the documents that it released for consultation as this provides greater visibility of the how the Commission and EA view the boundary between their respective roles in regulating electricity network pricing.

In this section we make brief high level comments on the key points in the EA letter about revenue caps before answering some of the detailed (revenue cap and quantity forecasting risk) questions asked by the EA.

4.2. Efficient pricing, quantity risk and AER

We share the EA concerns about the move to a revenue cap reducing the incentive for EDB to set efficient cost reflective prices. The Commission does not appear to have discussed the wide variation in existing pricing structures used by EDB (as described in Appendix A Tariff structure).

Also we agree with the EA observation that quantity forecasting risk is an issue for all businesses and that EDB could reduce their exposure to this risk by better aligning their pricing structure with the drivers of the cost of the service they provide.

We note that the EA and the Commission have different interpretations of the applicability of the decisions by the AER to selection of a revenue cap over a WAPC. The EA letter comments on decisions by the AER for EDB in another Australian state, New South Wales and suggests that the conditions listed by the AER as necessary for efficient pricing to emerge under a WAPC do not all need to fully hold. The EA goes on to point out that major EDB in New Zealand are privately owned in New Zealand compared with state ownership in NSW and are therefore more likely to 'set prices commercially'.

In our previous submission on the Commission's 'Emerging Views' we commented on decisions by the AER affecting EDB pricing in Victoria, Australia (see Appendix B AER – Victoria EDB) and argued that the AER was not confident that a revenue cap would not weaken EDB incentives to price efficiently.

The differences in interpretation of the AER decision by the EA and the Commission as well as our analysis of the AER decision in Victoria suggest that the AER rationale for revenue caps is part of a complex package to encourage efficient network investment rather than a simple choice between two forms of control and therefore does not provide strong support for the Commission's proposal.

4.3. EA questions

Table 1 Response to EA questions – Revenue cap pricing incentives

Question	Answer
Efficient pricing incentives under a revenue cap	
To what extent would a revenue cap affect the incentives on distributors to change to more efficient pricing structures, compared to a WAPC?	We agree with the EA reasoning that the adoption of a revenue cap will reduce the incentive for EDB to adopt efficient pricing for customer access to their networks. The revenue cap and annual wash-up mechanism send a strong signal to EDB that their revenue is 'certain' and removes a source of pressure on them to adopt efficient pricing.
What is the likelihood that distributors under a revenue cap would set inefficiently high prices for certain services or customers?	We agree with EA analysis that the incentive to set inefficient prices is theoretically strengthened and broadened under a revenue cap. In practice this type of pricing behaviour would be difficult for a regulator to detect under either a revenue cap or a WAPC. We also note that the adoption of the revenue cap implies increased volatility in EDB service prices.
Have any distributors operating under a revenue cap been observed engaging in this pricing behaviour?	No comment

Source: NZIER

Table 2 Response to EA questions – WAPC cap pricing incentives

Question	Answer
Efficient pricing incentives under a WAPC	
To what extent has the limited penetration of smart meters in the past acted as a barrier to the introduction of efficient distribution pricing?	It is too early for us to comment. For the opportunity enable by smart meters to be realised, potential customers for more flexible pricing have to be identified and markets developed.
To what extent have the LFC Regulations acted as a barrier to the introduction of efficient distribution pricing in the past (given the prevailing interpretation of the Regulations)?	Some energy retailers and lines companies have cited ambiguity in the interpretation of LFC regulations as a barrier to tariff reform. Others seem to have bypassed or ignored the barrier as indicated in Appendix A.
To what extent does the prospect of emerging technologies influence distributors' pricing decisions? How is this influence developing over time?	We cannot comment on how EDB respond to emerging technology. However emerging technology such as solar PV and battery storage allow consumers to reduce the volume of electricity drawn from the network but generally do not materially reduce the (coincident) peak capacity they require the network to deliver. Therefore, as these technologies are more widely adopted it is likely that EDB reliant on volume charging will be more exposed to under-recovery of fixed network costs than EDB that are reliant on access or capacity charging.
Could the WAPC be administered in such a way as to reduce barriers to changing price structures resulting from compliance requirements (eg, considering rules around use of lagged volumes / allowing distributors to take customer response into account)?	Yes. However, the key issue here is that the WAPC in itself is not a vehicle for encouraging efficient pricing and the Commerce Commission does not have a mandate to regulate EDB to price their services efficiently. The question for both regulators is how to clarify their roles and co-ordinate their actions to encourage EDB to set efficient prices for their services.
Are there any other impediments to the introduction of more efficient pricing under a WAPC? How could these impediments be addressed?	We have not identified any other major impediments.

Source: NZIER

Table 3 Response to EA questions – Quantity forecasting risk

Quantity forecasting risk	
To what extent could distributors reduce the quantity forecasting risk they are exposed to through their choice of pricing structure?	Our analysis of the change in number of connections, energy supplied and charges for network access and energy supplied indicates that a move to a capacity charge would lower revenue volatility for EDB.
What is the likelihood that bearing quantity forecasting risk could provide distributors with incentives to price more efficiently?	Exposing EDB to quantity forecasting risk provides them with a strong signal to align their service charges to the cost of the network access service they provide. Removing the exposure to quantity forecasting risk gives EDB space to perpetuate volume based charging which is not cost reflective.

Source: NZIER

4.4. Conclusion

We agree with the EA view that moving to a revenue cap reduces the incentive for EDB to set efficient cost reflective prices for access to the network. As emerging technology (solar PV and battery) are more widely adopted volume based charging will become a less efficient and less cost reflective way for EDB to recover network costs.

Appendix A Tariff structure

A.1 Introduction

The information in this section was included in our advice to MEUG on the form of control dated 21 March 2016. We have included this analysis again in this report as it demonstrates the wide variation in respect of both the reliance of EDB on fixed (a proxy for capacity) and consumption based charging as well as the wide diversity of EDB income levels.

EDB information disclosures to the Commerce Commission have included a classification of the amount of lines revenue by the type of charge and customer group since 2013. We have used this information to compare the reliance of EDB revenue on energy delivered tariffs both across EDB and for different customer groups within each EDB.

A.1.1 Customer groups

The disclosure includes the average number of ICPs and the total energy supplied. This data is used to calculate the average energy delivered to each customer group. As the definition of customer groups and description of plans varies[14] widely across EDB we have used bands of average energy delivered per ICP to group the line charge revenue into customer bands. The range of the bands is illustrative based on our initial interpretation of the EDB tariff structure.

A.1.2 Tariff elements

The main types of tariff included in the information disclosure are:

- energy delivered usually expressed in $ per kWh[15]
- fixed charges based on time expressed as flat daily, monthly, annual fees[16]
- peak demand charges usually expressed as $ per kW
- capacity charges expressed as $ per kVA
- reactive power charges expressed as $ per kVAr
- other fixed charges for items such as invoices, equipment etc.

A.2 Reliance on volume based tariff

The following tables group EDB according to their reliance on volume based tariffs and for the full EDB and customer band within the EDB. (A summary of the data used to create these tables is included in section A.3 below.)

[14] The additional data disclosed in Section 8 since 2013 is much more informative than the highly aggregated data previously disclosed. However the variation in EDB reporting terminology and classification of charges still makes it time-consuming to collate and compare this data across EDB.

[15] Some EDB provide data on different rates for day and night use or the availability of ripple control but this information is not reported separately for most EDB and is therefore not analysed for this submission. Also EDB take different approaches to compliance with the Low Fixed Charge Regulations. These differences are not analysed in this submission.

[16] This grouping also includes per fitting charges for street-lighting.

The first table groups EDB into bands for the proportion of their revenue from all customers that is earned from volume of energy supplied ($per kWh) charges. The first row of the each column of the table shows of the share of all EDB revenue earned by the EDB listed in the column. In both tables cells with an EDB subject to a DPP or CPP are shaded.

Table 4 EDB reliance on energy volume fees – 'all customers'

Proportion of EDB lines revenue earned from $per kWh charges

Less than 50%	50% to 60%	60% to 70 %	70% to 90%	More than 90%
18% of all EDB	**29% of all EDB**	**36% of all EDB**	**12% of all EDB**	**5% of all EDB**
The Lines Co	EA Networks	Vector	Northpower	Top Energy Ltd
Horizon Energy	Powerco	Westpower	Buller Electricity	Electra Limited
Orion NZ Ltd	Aurora Energy	Wellington	Counties Power	MainPower NZ
Marlborough	The Power Co	Invercargill	Eastland	
Alpine Energy	Unison	Net. Tasman	WEL Networks	
OtagoNet JV	Centralines		Scanpower	
Nelson			Net. Waitaki	
			Waipa	

Source: NZIER analysis of Commerce Commission EDB information disclosure

EDB reliance on volume of energy supplied charges for 'all customers' varies widely and does not appear to be correlated with EDB size or location. Over 80 percent of EDB revenue is earned by EDB that earn less than 60 percent of their revenue through volume of energy supplied charging.

The next table shows the proportion of EDB lines revenue from volume of energy supplied charges for 'residential customers' (average consumption per ICP of 1,000 to 15,000 kWh per year). In 2015, 61 percent of EDB revenue was earned from residential customers.

Table 5 EDB reliance on energy volume line fees – 'residential'

Proportion of EDB lines revenue earned from $per kWh charges

Less than 50%	50% to 60%	60% to &0 %	70% to 90%	More than 90%
2% of all EDB	**14% of all EDB 9**	**30% of all EDB 9**	**39% of all EDB 9**	**15% of all EDB 9**
The Lines Co	Horizon **Energy**	Nelson	Invercargill	Northpower
	Orion NZ Ltd	Marlborough	Buller	Net. Tasman
		Centralines	Vector	EA Networks
		Powerco	Wellington	MainPower
		OtagoNet JV	Eastland	Electra

Less than 50%	50% to 60%	60% to &0 %	70% to 90%	More than 90%
		The Power Co	Counties Power	Waitaki
		Unison	Aurora Energy	Scanpower
		Alpine Energy	Westpower	Top Energy
			Waipa	WEL Network

Source: NZIER analysis of Commerce Commission EDB information disclosure for 2015

Reliance of EDB on volume of energy supplied charges is higher for residential consumers than for all consumers. Only 45 percent of EDB revenue from residential customers is earned by EDB that earn less than 60 percent of their revenue through volume of energy supplied charging.

A.3 Tariffs by EDB

The following tables show the composition of EDB lines revenue by type of lines charge and customer base for the year ended 2015. The purpose of the tables is to support comments made in the submission about the variation in size and tariff structure across both EDB and tariff plans within EDB.

For the year ended 31 March 2015:

- EDB received $2,446 m of lines revenue of which:
  - $1,477 m was from energy supplied charges
  - $487 m from fixed time charges
  - $485 m from demand, capacity and other charges
- residential plans (average annual usage per ICP above 1,000 and up to 15,000 kWh) account for 73 percent of the EDB energy supplied charges but only 45% of EDB fixed charges
- industrial plans (average annual usage per ICP above 100,000 kWh) account for 10 percent of the EDB energy supplied charges but 45 percent of the fixed charges
- the five EDB with the highest revenue from residential and industrial plans (Vector, Powerco, Orion, Wellington Electricity and Unison) earn between:
  - 54 and 78 percent of their residential plan revenue from energy supplied charges
  - 0 and 34 percent of their industrial plan revenue from energy supplied charges.

Table 6 EDB lines revenue for 'residential customers'

Revenue ($m) from tariffs with average annual usage per ICP above 1,000 and up to 15,000 kWh

EDB	Energy	Fixed					Total
	kWh	Time	Demand kW	Capacity KVA	Capacity KVArh	Other	
Vector	243.4	88.4	0.0	0.0	0.0	0.0	331.8
Powerco	178.4	33.5	65.3	0.0	0.0	0.0	277.3
Orion	106.4	0.0	90.5	0.0	0.0	0.0	197.0
Wellington	86.5	24.9	0.0	0.0	0.0	0.0	111.4
Unison	56.0	27.8	0.0	0.0	0.0	0.0	83.8
Aurora	45.9	4.2	3.1	2.1	0.0	0.0	55.4
Northpower	45.8	4.8	0.0	0.0	0.0	0.0	50.6
WEL	47.8	12.0	0.0	0.0	0.0	-12.4	47.3
Counties	28.5	7.0	0.0	0.0	0.0	0.0	35.5
Top Energy	30.9	0.6	0.0	0.0	0.0	0.0	31.5
Electra	28.4	2.2	0.0	0.0	0.0	0.0	30.6
MainPower	24.8	2.2	0.0	0.0	0.0	0.0	27.0
Eastland	20.6	5.3	0.0	0.0	0.0	0.0	25.9
Lines Coy	0.0	2.6	17.5	4.8	0.0	0.2	25.2
Power Coy	15.3	8.4	0.0	0.0	0.0	0.0	23.7
Net Tasman	19.0	1.9	0.0	0.0	0.0	0.0	20.9
Horizon	10.3	8.2	0.0	0.0	0.0	0.0	18.5
Alpine	12.1	5.9	0.0	0.0	0.0	0.0	17.9
Marlborough	9.5	5.9	0.0	0.0	0.0	0.0	15.4
OtagoNet JV	8.8	4.9	0.0	0.0	0.0	0.0	13.7
Invercargill	8.4	3.5	0.0	0.0	0.0	0.0	11.8
Waipa	10.0	1.1	0.0	0.0	0.0	0.0	11.1
Westpower	8.3	1.1	0.0	0.0	0.0	0.0	9.4
EA	8.5	0.8	0.0	0.0	0.0	0.0	9.3
Nelson	4.5	0.0	0.0	2.9	0.0	0.0	7.4
Centralines	4.6	2.6	0.0	0.0	0.0	0.0	7.2
Scanpower	6.0	0.3	0.0	0.0	0.0	0.0	6.2
Waitaki	5.6	0.3	0.0	0.0	0.0	0.0	5.8
Buller	2.4	0.9	0.0	0.0	0.0	0.0	3.3

Source: Source: NZIER analysis of Commerce Commission EDB information disclosure for 2015

Table 7 EDB lines revenue for 'commercial customers'

Revenue ($m) from tariffs with average annual usage per ICP above 15,000 and up to 100,000 kWh

EDB	Energy	Fixed					Total
	kWh	Time	Demand kW	Capacity KVA	Capacity KVArh	Other	
Vector	86.3	22.9	0.0	0.0	0.0	0.0	109.2
Wellington	21.9	7.2	0.0	0.0	0.0	0.0	29.1
Unison	19.4	7.8	0.2	0.0	0.0	0.0	27.4
MainPower	20.0	1.3	0.0	0.0	0.0	0.0	21.3
Power Coy	12.3	8.4	0.0	0.0	0.0	0.0	20.7
WEL	21.5	3.7	0.0	0.0	0.0	-4.8	20.5
Aurora	0.0	0.1	10.0	6.3	0.0	0.0	16.5
OtagoNet JV	7.0	5.9	0.0	0.0	0.0	0.0	12.9
Marlborough	5.1	4.8	0.0	0.0	0.0	0.0	9.9
Net Tasman	7.5	0.0	0.0	2.3	0.0	0.1	9.9
EA	8.6	0.3	0.0	0.0	0.0	0.0	8.9
Waipa	8.0	0.6	0.0	0.0	0.0	0.0	8.6
Westpower	4.7	0.0	1.0	0.0	0.0	0.0	5.7
Invercargill	2.8	1.8	0.0	0.0	0.0	0.0	4.6
Lines Coy	0.0	0.6	2.9	0.9	0.0	0.0	4.5
Horizon	2.2	1.8	0.0	0.3	0.0	0.0	4.3
Alpine	1.7	1.3	0.0	0.0	0.0	0.0	3.0
Electra	2.8	0.2	0.0	0.0	0.0	0.0	3.0
Centralines	2.2	0.5	0.0	0.0	0.0	0.0	2.7
Eastland	1.8	0.9	0.0	0.0	0.0	0.0	2.7
Waitaki	2.6	0.1	0.0	0.0	0.0	0.0	2.6
Buller	1.5	0.4	0.0	0.0	0.0	0.0	2.0
Counties	0.6	0.1	0.0	0.0	0.0	0.0	0.7
Nelson	0.0	0.1	0.0	0.0	0.0	0.0	0.1
Northpower	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Orion	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Powerco	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Scanpower	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Top Energy	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Source: Source: NZIER analysis of Commerce Commission EDB information disclosure for 2015

Table 8 EDB lines revenue for 'industrial customers'

Revenue ($m) from tariffs with average annual usage per ICP above 100,000 kWh

EDB	Energy	Fixed					Total
	kWh	Time	Demand kW	Capacity KVA	Capacity KVArh	Other	
Vector	63.9	31.3	0.0	83.6	-5.8	0.0	184.7
Powerco	7.8	47.6	0.0	33.4	-1.1	0.0	89.9
Wellington	10.7	10.5	5.5	14.4	-0.3	0.0	41.4
Orion	0.0	2.0	-0.1	35.3	0.0	0.0	37.1
Unison	5.7	13.8	10.0	0.0	-1.1	0.0	30.6
Alpine	11.1	5.3	13.8	0.0	0.0	0.0	30.2
WEL	10.0	2.0	17.2	0.0	-0.9	-1.1	29.1
EA	3.2	0.7	15.3	2.6	0.0	0.0	21.9
Aurora	0.1	1.0	9.8	6.4	0.0	0.0	17.3
Northpower	0.0	1.6	7.3	3.9	0.0	0.0	12.8
Power Coy	3.4	8.8	0.0	0.0	0.0	0.0	12.2
Net Tasman	2.5	0.0	2.3	3.2	0.0	2.6	10.7
Counties	5.7	0.6	0.0	3.4	-0.4	0.0	10.1
Marlborough	2.0	0.2	0.0	7.0	0.0	0.0	9.2
Horizon	1.4	5.3	1.7	0.5	0.0	0.0	9.0
Waitaki	6.1	2.4	0.0	0.0	0.0	0.0	8.5
OtagoNet JV	1.3	5.9	0.3	0.6	0.0	0.0	8.1
Lines Coy	0.0	3.0	0.0	4.2	0.0	0.0	7.2
Top Energy	4.1	2.5	0.0	0.0	0.0	0.0	6.6
Westpower	0.0	0.0	2.9	2.2	0.0	0.0	5.2
Eastland	3.7	1.0	0.0	0.0	0.0	0.0	4.7
Electra	4.0	0.2	0.0	0.0	0.0	0.0	4.2
Invercargill	2.0	1.5	0.0	0.0	0.0	0.0	3.5
Waipa	1.3	1.1	0.0	0.9	0.0	0.0	3.3
Nelson	0.6	0.5	0.0	1.7	-0.1	0.0	2.9
Buller	1.6	0.0	0.7	0.0	0.0	0.0	2.3
Centralines	0.3	0.7	1.2	0.0	-0.1	0.0	2.3
Scanpower	0.9	0.0	0.0	0.5	0.0	0.0	1.4
MainPower	0.3	0.0	0.0	0.0	0.0	0.0	0.3

Source: NZIER analysis of Commerce Commission EDB information disclosure for 2015

Table 9 EDB lines revenue for all customers

Revenue ($m) from customer groups in Tables 3 to 5 plus miscellaneous charges

EDB	Energy	Fixed					Total
	kWh	Time	Demand kW	Capacity KVA	Capacity KVArh	Other	
Vector	393.7	142.6	0.0	83.6	-5.8	0.0	625.7
Powerco	186.3	81.1	65.3	33.4	-1.1	0.0	367.2
Orion	106.4	4.1	97.2	35.3	0.9	0.0	242.1
Wellington	119.1	42.6	5.5	14.4	-0.3	0.0	181.9
Unison	81.1	49.3	10.2	0.0	-1.1	0.0	141.7
WEL	79.3	17.8	17.2	0.0	-0.9	-18.3	96.9
Aurora	46.1	5.4	22.9	14.9	0.0	0.0	89.3
Northpower	45.8	6.4	7.3	3.9	0.0	0.0	63.3
Power Coy	30.9	25.8	0.0	0.0	0.0	0.0	56.7
MainPower	49.3	3.6	0.0	0.0	0.0	0.0	52.9
Alpine	24.8	12.5	13.8	0.0	0.0	0.0	51.1
Counties	34.9	7.7	0.0	3.4	-0.4	0.0	46.4
Net Tasman	29.0	2.0	2.6	5.4	0.0	2.7	41.8
EA	20.3	2.3	15.3	2.6	0.0	0.0	40.5
Top Energy	35.5	3.2	0.0	0.0	0.0	0.0	38.6
Lines Coy	0.0	7.7	20.5	10.0	0.0	0.3	38.5
Electra	35.2	2.6	0.0	0.0	0.0	0.0	37.7
OtagoNet JV	17.2	17.0	0.3	0.6	0.0	0.0	35.1
Marlborough	16.6	11.0	0.0	7.0	0.0	0.0	34.5
Eastland	26.0	7.3	0.0	0.0	0.0	0.0	33.3
Horizon	13.8	15.5	1.7	0.8	0.0	0.0	31.8
Waipa	19.3	2.7	0.0	0.9	0.0	0.0	23.0
Westpower	13.0	1.1	4.0	2.2	0.0	0.0	20.4
Invercargill	13.2	6.8	0.0	0.0	0.0	0.0	20.0
Waitaki	14.2	2.7	0.0	0.0	0.0	0.0	17.0
Centralines	7.1	3.8	1.2	0.0	-0.1	0.0	12.2
Nelson	5.1	0.6	0.0	4.6	-0.1	0.0	10.5
Scanpower	6.9	1.0	0.0	0.5	0.0	0.0	8.4
Buller	5.5	1.4	0.7	0.0	0.0	0.0	7.6

Source: NZIER analysis of Commerce Commission EDB information disclosure for 2015

A.4 Conclusion

The wide variation in the proportion of EDB revenue collected from volume of energy supplied tariff and the apparent lack of correlation with EDB size or location suggests the reliance on volume of energy supplied and the related exposure to quantity forecasting risk under the WAPC seems to represent a business choice by EDB rather than a natural tariff structure for EDB.

Appendix B AER – Victoria EDB

B.1 Introduction

The information in this section was included in our advice to MEUG on the form of control dated 21 March 2016. We have included this section again in this submission to reinforce our comment in the report about the difficulties with using AER decisions as arguments for adoption of a revenue cap in New Zealand in view of both:

- the complexity of the decision made by the AER for Victoria – a package of measures to encourage efficient pricing to complement the choice of revenue cap
- the discussion by the EA of the limited applicability to New Zealand of the AER decisions made for New South Wales EDB.

B.2 Argument about form of control decision

The AER was quoted by the Commerce Commission and the Wellington Energy as supporting the replacement of a WAPC with a revenue cap in the emerging views paper. This comment applied to an AER decision in the state of Victoria.

B.3 Victoria tariff structure review proposal

In our submission on the emerging views paper we noted that other aspects of regulation of EDB in the same paper suggest that the AER does not regard the form of control (WAPC or revenue cap) on its own as sufficient to produce efficient EDB network investment. The decision also includes reference to continuation of several incentive schemes to encourage more efficient investment in capacity and to shift demand.[17]

The continuation of these incentive programmes in the AER decision to move from a WAPC to a revenue cap suggests that the AER did not expect this move to be sufficient to encourage the efficient network access pricing and investment that WAPC was expected to deliver in theory but did not deliver in practice.

In December 2015 the AER[18] proposed changes to the tariff structure:

> *to produce prices that vary to better reflect the costs of providing electricity and thereby allow consumers to make informed consumption choices and manage their expenditure.*

The AER and Victorian EDB propose changing the three part tariffs for residential and small business customers by introducing a maximum demand charge.[19] The proposed maximum demand tariff will be based on the highest 30 minutes of a customer's use in a given month. The demand charge will vary for different months and will only be charged at certain times to reflect when the network is under the most load. The

17 Ibid p18 to p19.

18 'Issues paper Tariff Structure Statement proposals Victorian electricity distribution network service providers' December 2015, AER, p1.

19 Ibid p13.

information paper did not provide detail on the proportion of the existing tariff that would be recast as a demand charge. However a chart[20] illustrating the proposed changes suggests the demand charge will comprise at least one third of the existing tariff.

The objective of these changes is to empower consumers by:[21]

- provide better signals-that reflect what it costs to use electricity at different times
- transitioning to greater cost reflectivity
- managing future expectations by providing guidance for retailers, customers and suppliers of services such as local generation, batteries and demand management by setting out the distributor's future tariff approaches.

The AER plans to publish a final determination on the Victorian EDB tariff proposal on 29 July 2016 with the new tariffs taking effect from 1 January 2017. The implementation of the new tariffs has been complicated by the:[22]

> *…notification from the Victorian Minister for Energy & Resources of her intention to require Victorian distributors to implement changes to distribution network pricing arrangements through an opt-in approach.*

However, the AER still seems to intend to make a final determination on the proposed tariff structure by July 2016.

B.4 Conclusion

The AER decision to replace a the WAPC with a revenue cap does not seem to be the main regulatory instrument used by the AER to secure what it regards as an efficient tariff structure for network services. Instead the AER has decided to intervene directly to increase to prominence and visibility of cost reflective demand charges in the tariff structure for residential and small business customers.

B.5 Update – after March 2016

The text in this Appendix was written in March 2016. Since then the AER released their final decision for each of the Victorian networks. We have not analysed these decisions in detail. Although the decisions do not seem to include a demand charge they do refer to a reduction in the peak demand forecasts and changes in capital investment plans from the levels proposed by the network businesses.

20 Ibid p4.

21 Ibid p7 (paraphrased).

22 'Draft Decision Powercor Tariff Structure Statement, February 2016', AER, p4.