

Memo

To Ralph Matthes
CC
From Mike Hensen
Date 4 May 2017
Subject Wilton re-conductoring project cost allocation

Introduction

The purpose of this note is to compare the method used by Transpower to calculate the cost impact for customers of capital projects with the approach used by major electricity distribution businesses (EDB) to allocate transmission costs across customer groups. This comparison is a precursor to considering what if any changes should be suggested to the Transpower methodology so that it provides the Commerce Commission and consumer stakeholders with a more accurate reflection of the allocation of project costs across consumer groups.

Example of Transpower impact assessment

Transpower recently submitted a proposal for 'Central Park – Wilton B Reconductoring – February 2017' to the Commerce Commission seeking approval for \$11.3m. The estimated impact on consumers – the increase in 'required revenue' - is translated into two aggregate metrics:

- cost per kW of demand based on the 'required' interconnection revenue for the re-conductoring project divided by the sum of the regional coincident peak demand (RCPD) in the four Transpower regions
- costs per kWh of energy supplied based on the total required revenue divided by the total energy supplied in the year to 31 August 2016.

As accessible and relevant indicators of customer impact, these metrics appear to have two limitations. They do not:

- appear to reflect how Transpower allocates connection and interconnection charges to EDB and direct connect customers
- recognise either the different types of charges used by EDB to recover transmission distribution costs or EDB use of different mixes of charges for different groups of customers.

Transpower could address the first limitation by allocating the increase in 'required revenue' for the project to EDB and direct connect customers on the same basis as existing charges –case-by-case for the connection component and contribution to RCPD for the interconnection component. The second limitation is harder to address because of the diversity of EDB pricing approaches. Transpower could either refer stakeholders to the pricing methodology of EDB as a guide to how the increased charges may be passed on to consumers or calculate the pass-through of transmission costs for representative classes of EDB based on the information disclosure by EDB.

Available information

EDB pricing methodology reports and pricing schedules are forward looking but it is difficult to translate the method for recovery of their estimated target revenue across customer groups or

the components of the pricing schedules into accessible and relevant measures of consumer impact.

Although the EDB information disclosure to the Commerce Commission are backward looking, and combine some EDB pricing plans into a single line they do provide a relatively accessible indication of the transmission cost element of EDB pricing plans.

Admittedly, not all EDB disclose the pass-through of transmission charges by customer group and there is wide variation in EDB pricing plans (different bands for load groups and different types of charges). The following tables provide examples of EDB allocation of transmission charges calculated from EDB information disclosures for the year ended 31 March 2016 for EDB subject to price path regulation. The tables cover three sub groups of consumers defined by average energy usage (total energy supplied divided by the number of ICP for each pricing plan reported by EDB in their information disclosure):

- residential - average energy usage per pricing plan between 1 and 15 MWh per year
- commercial - average energy usage per pricing plan between 15 and 100 MWh per year
- industrial - average energy usage per pricing plan above 100 MWh per year.

The last column of the tables 'Pricing method for pass-through' shows the type of charges used to pass-through transmission cost as stated in EDB pricing schedule. The abbreviations relate to the following types of charges:

- c/kWh – energy supplied
- c/day – fixed charge per ICP over a set period (usually a day or month)
- c/kW/day – fixed charge for demand over a set period (usually a day or month)
- c/kVA/day – fixed charge for capacity (connected or estimated) over a set period (usually a day or month but can be annual for large industrial consumers)
- AMD – fixed charge based on share of sum of anytime maximum demand
- OPD – fixed charge based on share of on peak demand usually measured over the same periods used by Transpower RCPD measurement
- c/kVAr/day – power factor charge

Table 1 EDB pass-through of Transpower charges – residential consumers

Regulated price path EDB consumers with average electricity use per plan between 1 and 15 MWh in 2016

EDB	Share of EDB transmission charges	Share of EDB line charges	Transmission charge for energy supplied (c/kWh)	Transmission charge per connection (\$/ICP)	Pricing method for pass-through charge
Vector	52.9%	33.2%	3.3	231	c/kWh
Powerco	68.1%	27.6%	3.0	239	c/kW/day or c/kWh
Orion NZ	79.3%	30.8%	2.7	327	c/kWh, c/kW/day, c/kVAr/day
Wellington Electricity	No plan disclosed				c/kWh
Unison Networks	No plan disclosed				Not stated
Aurora Energy	59.6%	32.8%	3.0	232	c/kWh
Alpine Energy	24.5%	17.5%	1.2	128	c/kWh
EA Networks	27.1%	22.2%	1.7	143	Not clear
Top Energy	79.8%	29.6%	4.9	325	Not stated
Network Tasman	43.9%	31.4%	2.7	181	c/day, c/kWh
The Lines Company	67.2%	19.5%	2.7	237	c/kW/day
OtagoNet JV	22.7%	12.8%	2.4	155	c/day, c/kWh
Horizon Energy	74.6%	26.6%	4.2	271	c/day, c/kWh
Eastland Network	42.5%	21.4%	2.5	170	c/day, c/kWh
Electricity Invercargill	53.1%	26.9%	2.4	209	c/day, c/kWh
Nelson Electricity	No plan disclosed				c/kWh
Centralines	62.1%	30.0%	2.6	238	Not stated

Source: NZIER

Table 2 EDB pass-through of Transpower charges – commercial consumers

Regulated price path EDB consumers with average electricity use per plan between 15 and 100 MWh in 2016

EDB	Share of EDB transmission charges	Share of EDB line charges	Transmission charge for energy supplied (c/kWh)	Transmission charge per connection (\$/ICP)	Pricing method for pass-through charge
Vector	16.5%	2.8	571	33.2%	c/kWh, c/kVA/day
Powerco	No plan disclosed in this energy supply band				c/kW/day or c/kWh
Orion NZ	No plan disclosed in this energy supply band				c/kWh, c/kW/day, c/kVAr/day
Wellington Electricity	No plan disclosed				c/kW/day or c/kWh
Unison Networks	No plan disclosed				Not stated
Aurora Energy	17.1%	2.0	869	31.6%	c/kVA/day, c/kW/day
Alpine Energy	44.3%	3.7	2,411	37.6%	c/kWh, c/day
EA Networks	27.2%	2.3	969	24.8%	Not clear
Top Energy	No plan disclosed in this energy supply band				Not stated
Network Tasman	18.1%	2.8	990	34.9%	c/kWh, c/kVA/day
The Lines Company	2.3%	0.4	70	3.8%	c/kW/day
OtagoNet JV	20.2%	2.5	456	13.2%	c/day, c/kW
Horizon Energy	9.3%	3.2	2,251	31.3%	c/day, c/kVA/day
Eastland Network	13.3%	2.6	800	27.3%	c/day, c/kVA/day
Electricity Invercargill	22.1%	2.5	673	27.8%	c/day, c/kWh
Nelson Electricity	No plan disclosed				c/kWh
Centralines	0.7%	2.2	511	22.3%	Not stated

Source: NZIER

Table 3 EDB pass-through of Transpower charges – industrial consumers

Regulated price path EDB consumers with average electricity use per plan above 100 MWh in 2016

EDB	Share of EDB transmission charges	Share of EDB line charges	Transmission charge for energy supplied (c/kWh)	Transmission charge per connection (\$/ICP)	Pricing method for pass-through charge
Vector	30.6%	1.7	10,365	35.2%	c/kWh, c/kVA/day
Powerco	31.9%	1.9	18,985	41.4%	c/kW/day, AMD, OPD
Orion NZ	20.3%	2.0	38,778	43.2%	c/kVA/day
Wellington Electricity	No plan disclosed				c/kWh, c/kVA/day, c/kVAr/day
Unison Networks	No plan disclosed				Not stated
Aurora Energy	23.2%	1.9	14,495	40.9%	c/kVA/day, c/kW/day
Alpine Energy	31.1%	1.4	28,521	36.1%	c/kWh, c/kW/day
EA Networks	45.8%	0.9	1,908	15.4%	c/kVA/day, ckW/day
Top Energy	19.2%	2.2	12,123	32.7%	Not stated
Network Tasman	35.7%	1.9	23,022	49.0%	c/kVA/day, ckW/day
The Lines Company	29.5%	1.5	52,363	26.7%	c/kVA/day
OtagoNet JV	57.0%	1.6	49,836	59.3%	c/day, c/kW/day
Horizon Energy	16.1%	1.6	11,143	31.0%	c/kVA/day, c/kW/day
Eastland Network	44.1%	1.2	22,446	51.7%	c/day, c/kWh
Electricity Invercargill	24.7%	1.9	8,162	42.5%	c/day, c/kWh
Nelson Electricity	No plan disclosed				c/kWh, c/kVA/day
Centralines	37.1%	2.3	13,804	45.9%	Not stated

Source: NZIER