

Submission on Draft Decision Paper, 2010-15 Default Price-Quality Path for Electricity Distribution

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Submitted to the Commerce Commission

1. Proposal for setting prices

The Commerce Commission (the Commission) has recently released a Draft Decision Paper, 2010-15 Default Price-Quality Path for Electricity Distribution, July 2011. This Draft Decision Paper contains the proposed method for setting prices for electricity distribution businesses (EDBs) for FY2013 through FY2015. These prices will apply to non-exempt distribution businesses, i.e. to investor-owned companies.

The proposed method for setting prices is for the Commission to set a maximum allowable line revenue for each EDB for FY2013 and then allow the business to set its own prices subject to the constraint that line revenue not exceed the allowable level. Average prices for subsequent years, FY2014 and FY2015, will then be permitted to grow at no more than the rate of CPI inflation.

The Commission has called for feedback on the proposals. The present paper provides feedback.

2. Approach to price regulation

The Commission regulates electricity distribution businesses under Part 4 of the Commerce Act 1986. The purposes motivating this regulation (see s52A(1) of the Commerce Act 1986) are:

The purpose of this Part is to promote the long-term benefit of consumers in markets referred to in section 52 by promoting outcomes that are consistent with outcomes produced in competitive markets such that suppliers of regulated goods or services

(a) have incentives to innovate and to invest, including in replacement, upgraded, and new assets; and

(b) have incentives to improve efficiency and provide services at a quality that reflects consumer demands; and

(c) share with consumers the benefits of efficiency gains in the supply of the regulated goods or services, including through lower prices; and

(d) are limited in their ability to extract excessive profits.

The Commission's proposals pursue the fourth objective, limiting profits, by restricting net line revenues so as not to exceed a specified maximum level. This maximum net revenue includes a "normal profit" component that is calculated by the Commission. Essentially, prices (line charges) must be set in a way that limits profits to the "normal" rate.

The proposals pursue the first objective, incentivising investment, by setting this normal profit to correspond to a rate of return on capital that is intended to equal the opportunity cost of capital. The opportunity cost is the return that could reasonably be expected in other investment opportunities available to the EDB. If the owners of an EDB could expect a return on investment in the distribution business equal to the return they could earn elsewhere, they would have reasonable financial incentive to invest in the distribution business.

3. The opportunity cost of capital

The opportunity cost of capital plays a central role in this regulatory design. If the owners of EDBs can earn a return from investment in the distribution business that matches the returns available from other investments then it is reasonable to expect that they would invest in the distribution business.

For this regulatory mechanism to work, and for effective financial incentives to prevail, the return on capital in the regulated business must match a realistic opportunity cost of capital to the owners of EDBs. If the return that the Commission has designed into the regulatory system is less than the owners' opportunity cost of capital then the incentives work against distribution investment – the incentives would be to direct new investment to other, higher yielding opportunities. Accordingly, it is critical, if the regulatory system is to meet its objectives, that the Commission adopts a reasonable and realistic cost of capital.

The Commission has taken the opportunity cost of capital as the weighted average of the modelled cost of debt and the modelled cost of equity. The modelled cost of debt is built up from various generalised components rather than being the actual borrowing rate facing EDBs. The modelled cost of equity is estimated using the Capital Asset Pricing Model (CAPM). The CAPM is an academic construct that estimates the expected return on equity invested in sharemarket stocks of the same assessed risk as shares in companies

in the industry being considered. The assessed risk is based on the covariance between prices of shares in this industry and prices in the sharemarket as a whole.

The central question concerning the Commission's view of the cost of capital is whether the Commission's application of the CAPM meaningfully indicates the opportunity cost of equity to an EDB. We turn now to evaluate whether the CAPM is an appropriate means of estimating the opportunity cost of equity.

4. The range of investment opportunities

Owners of electricity distribution businesses have open to them many possible uses for their equity. Investing in the distribution business, whether from the EDB's cash flow or by injecting new equity, is just one of these opportunities. Other opportunities are:

- Investing in the sharemarket in equities of the same assessed risk as for investment in EDBs;
- Investing in the sharemarket in equities of different assessed risk;
- Investing, outside of the sharemarket, in businesses in New Zealand;
- Investing in businesses in Australia or other countries;
- Investing in bonds or other financial instruments in New Zealand or abroad.

Obviously, the owners of EDBs can invest their cash in the New Zealand sharemarket in companies of similar assessed risk (which is the presumption of the CAPM). Equally obviously, they can invest in other companies on the New Zealand sharemarket, or even on the Australian or other sharemarkets, they can invest in bonds, and they can invest in non-sharemarket businesses in New Zealand or Australia or even beyond.

The next question, given that owners of EDBs have the ability to invest in any of these directions, is whether they have the willingness to invest in these various directions.

The best way of assessing this is to look at what owners have done, to see from their actual behaviour whether they are willing to invest in businesses other than their own EDB. The following examples illustrate the types of investments outside of the distribution business that have actually been made by owners of EDBs. (This is not a complete list, it just gives some examples taken from media reports and Annual Reports.)

- Contracting businesses. Many lines companies own contracting businesses that supply electrical engineering services not only to the parent company but also on the open market to other lines companies, to industry, to local governments and to property developers.
- Vector Limited has a core business of providing electricity lines services. It also provides gas transmission and distribution services, electricity and gas metering installation and data management services, has 60.25% ownership of bulk LPG distributor Liquigas, has fibre optic networks in Auckland and Wellington, owns 50% of an arboricultural company (Treescape) and owns a 22.11% share in power generator NZ Windfarms Ltd.
- Northpower has a large electrical contracting business, a generation business and is involved with fibre optic communications infrastructure.
- Network Tasman has investments in a dark fibre network, in Nelson Electricity Ltd and is investigating investment in hydro-electricity generation.
- Unison Network Ltd has a contracting subsidiary, owns a transformer and electrical components manufacturer (ETEL), and has a fibre optic communications subsidiary (Unison Fibre).
- The Electra group owns the Electra lines business and also owns an electrical contracting and maintenance business (Linework and Stones Ltd), a finance company (Oxford Finance Corporation Ltd), a meter reading company (DataCol NZ Ltd), a telecommunications contracting business (Sky Communications Ltd) and a telecommunications contracting business in Australia (Sky Communications Pty Ltd).

- Orion New Zealand Limited owns a contracting business and also has interests in other businesses not in electricity distribution -- 26% of 4RF Communications Ltd, 4% of Whisper Tech Ltd and 2% of Philadelphia-based Enertech Capital Partners.
- The Wellington region electricity distribution assets previously owned by Vector were purchased in 2008 by Cheung Kong Infrastructure Holdings Ltd. CKI has infrastructure assets and operations in Australia, the United Kingdom, Canada, Hong Kong and China.
- Eastland Network, based in Gisborne, is owned by the Eastland Group. The Group also owns and operates an electricity contracting business, a port, an airport and aviation services, and has a geothermal electricity generation project.
- Powerco Ltd has lines in the Bay of Plenty, Taranaki, Wanganui, Rangitikei, Manawatu and Wairarapa areas. Powerco also is involved in gas distribution and contracting. Among Powerco's owners are QIC Infrastructure Management Pty Ltd (28%) and QPC Investment No 1 Pty Ltd (30%) which are Australian investment companies.
- Aurora Energy Ltd provides line services in eastern and central Otago. Aurora is owned by Dunedin City Holdings Limited, an investment company owned by the Dunedin City Council, which has ownership interests in bus services, forestry, electricity lines operations, financial management, an airport, a railway and civil/electrical/environmental services.
- Marlborough Lines Ltd has a 51% interest in the OtagoNet Joint Venture, a 50% interest in Nelson Electricity Ltd and has purchased on the NZX shares in Horizon Energy Distribution Ltd. Marlborough Lines also owns a contracting business and commercial property businesses.

It is clear that the owners of EDBs have invested inside their EDBs, in other EDBs, in the sharemarket and even outside of the sharemarket. This shows the range of investment opportunities. This range is wider than the distribution business and is wider than sharemarket investments of the same assessed risk. Owners of EDBs have revealed by their actions that they are willing to allocate their capital to opportunities across the whole

range of business activity inside and even outside of New Zealand. These actions demonstrate that EDB investment must compete for capital with other investment opportunities across the whole range of business activity.

5. Rates of return on equity

The Draft Decision Paper at page iv refers, for WACC, to Determination of the Cost of Capital for Services Regulated under Part 4 of the Commerce Act 1986, Decision 718, 3 March 2011. The ROE modelled using the Commission's application of the CAPM for EDBs is 7.40%.

The indicative ROE for sharemarket investment in general can be found from the Commission's CAPM. The equation is $r_e = r_f * (1 - \text{tax rate}) + 1 * \text{TAMRP}$. r_f is the risk free rate of return, taken by the Commission to be 4.35%. The tax rate is taken to be 28%. The coefficient 1 is the beta for the sharemarket as a whole. TAMRP is the tax adjusted market risk premium, taken by the Commission to be 7.0%. This gives a ROE (r_e) for the sharemarket as a whole of 10.1%.

It is more complicated to find the likely rates of return on equity in New Zealand business, i.e. business in general, not just in the sharemarket. The most comprehensive information on rates of return in New Zealand industries can be found from the Annual Enterprise Surveys of Statistics New Zealand. 13 years of surveys are available, covering 1997 through 2009. The before tax rates of return on equity are summarised in the following table. (After tax returns cannot be found directly from the Annual Enterprise Survey.)

ROEs before tax from the NZ Annual Enterprise Survey

Industry	Years covered	Average ROE
All Industries	1997 to 2009	10.4%
Agriculture, Forestry and Fishing	1999 to 2009	3.3%
Manufacturing	1997 to 2009	17.5%
Construction	2005 to 2009	15.5%
Wholesale trade	1999 to 2009	23.9%
Retail trade	1999 to 2006	51.4%
Retail trade and accommodation	2005 to 2009	21.9%
Accommodation, cafes and restaurants	1999 to 2006	14.0%
Property and Business Services	1999 to 2006	15.2%
Financial and Insurance Services	1999 to 2009	8.9%
Transport, Storage and Communication	1999 to 2006	20.3%
Transport, Postal and Warehousing	2005 to 2009	13.4%
Professional, technical and support services	2005 to 2009	30.4%
Cultural and recreational services	1999 to 2009	16.4%
Health and community services	1999 to 2009	25.7%

The overall rate of return is pulled down by the low returns achieved in the primary sector. Apart from the primary sector, before tax ROEs range from 8.9% to 51.4%. If a prima facie tax rate of 33% is applied (and this will be an overestimate of actual taxes paid) this range is from 6.0% to 34.5%.

Starting a business would generate the marginal return whereas the table shows the average return. However, the fact that returns have been relatively stable over the 13 years of the Annual Enterprise Survey suggests that even new investment could well earn the sorts of returns shown.

If an electricity distribution business were to carry out direct investment in an industry that was familiar to it, it would probably head towards manufacturing or construction or professional services. The estimated average after tax ROEs, at the current prima facie tax rate of 28%, in these industries are 12.6% for manufacturing, 11.2% for construction and 21.9% for professional services. The implication is that direct investment by an EDB in another business would be likely to generate an after tax ROE in excess of 10%.

The likely rates of return in various types of investment by owners of EDBs can be ranked:

- The lowest ROE is on sharemarket investments of similar assessed risk to investment in electricity distribution. This is the “normal” rate of return built into

the proposed regulation by the Commission. The numerical value of this ROE is around 7.4%.

- The next ROE is for investments in general in the sharemarket. The likely ROE on such investments is 10%.
- The highest likely returns are for business investment in general. In particular, equity in construction, manufacturing and professional/support services in New Zealand has generated average returns in the range 11 – 22%.

6. Evaluate the Capital Asset Pricing Model

Owners of EDBs have demonstrated by their actions that they are able and willing to invest their equity in a broad range of business activities in New Zealand and even other countries. It follows that the opportunity cost of equity is at least the highest return reasonably available in New Zealand. Competing investment opportunities are much wider than investment in the sharemarket in equities of similar assessed risk. Therefore, it is clear that the CAPM used by the Commission incorrectly represents the opportunity cost of equity to owners of EDBs.

The CAPM is conceptually incorrect for use in calculating the cost of capital. By considering only an overly restricted range of investment opportunities and systematically omitting a vast set of available and used investment opportunities, the CAPM is a biased method for estimated the ROE.

The previous section demonstrated that the ROE from the CAPM is less than the ROE for investment in general in the New Zealand sharemarket and that this in turn is less than the return that can reasonably be expected from investments in several sectors in the New Zealand economy. These general investments are available to EDBs. Therefore, the ROE used by the Commission is downward biased, or systematically too low, as an estimator of the opportunity cost of equity to EDBs.

7. Operating expenditure

The Commission has estimated, for each EDB, the operating expenditure (opex) it thinks is reasonable for FY2013 and then increased this amount for the remaining years by an inflation index and by an index of the volume of line activity. This procedure in effect fixes the maximum opex that can be recovered in each year.

This procedure no doubt is seen by the Commission as incentivising EDBs to reduce opex as they can keep as earnings any reduction in opex below the (implicitly) allowed amount. However, EDBs have been subject for several years to pressure to reduce opex. It is questionable whether there are substantial additional economies to be gained.

The Commission's proposed procedure means that EDBs carry the full risk of changes to opex. As it is likely that opportunities for more efficient management have now been fully taken up, the risks on opex appear to be adverse. These are risks such as:

- (1) Insurance costs (which are likely to increase after the Christchurch earthquakes);
- (2) Climate change and extreme weather events (which could increase planned and unplanned maintenance);
- (3) Labour costs (which are likely to increase more rapidly than inflation. The Commission's procedures have the labour cost index growing at less than CPI inflation, we suggest that this is an unrealistic assumption);
- (4) Exchange rates (which are likely to fall from the recent historic highs).

It appears that the risks surrounding opex are skewed against EDBs. Why should EDBs be forced to carry the risk of circumstances outside of their control when they are not compensated for carrying these risks? Furthermore, why should EDBs have to carry the risks associated with the Commission's forecasting methodology and forecasting assumptions?

We suggest that the nature of the regulatory allowance for opex as well as the numerical features of the opex forecasts inappropriately disadvantage EDBs and need revising allow for recovery of actual expenditures.

8. Revenue forecasts

The Commission's procedure for calculating allowable net revenues includes an allowance for growth in an EDB's real line revenues (essentially the quantity of service provided). Growth in real revenue drives growth in net line revenues, and net revenues in turn drive ROEs. Consequently, the growth assumptions are an important factor in determining the financial performance of EDBs.

The Commission's procedure is to forecast three revenue growth rates, associated with each of number of customers (individual connection points), energy (termed throughput by the Commission, in GWh) and capacity or demand (in MW), and then to combine these into an overall rate by applying the revenue composition proportions that characterise each EDB. The Commission's procedure uses regional growth rates not EDB-specific growth rates.

This treatment of growth introduces an important risk factor into the procedure. If the assumed real revenue growth rates turn out to be too low then the EDB will receive an upward boost to its ROE. Conversely, if the real revenue growth rate turns out to be too high then the EDB will receive less than the forecast amount of revenue and its ROE will be lower than intended. It is important to the integrity and fairness of the regulatory system that the assumed real revenue growth rates are the most reasonable that can be estimated.

We consider now the case of Nelson Electricity Limited (NEL) and evaluate the revenue forecasting procedure as it applies to NEL. Real revenue for NEL is taken as increasing by 2.17% in FY2013, 1.97% in FY2014 and 1.88% in FY2015, an average growth rate of slightly over 2.0%. This is a striking high rate. Nelson is embedded in the Tasman district. Growth that takes place takes place primarily in the broader district, not in Nelson. Furthermore, some of the large industrial customers in Nelson, such as fish processing and marine servicing, have been retrenching. It is difficult to see a realistic reason as to how customer numbers, energy supplied or even peak demand will increase at a weighted average of 2% a year. A more realistic forecast might be for only a 0 or 0.5% rate of increase in real revenues.

The ROE achieved by NEL is sensitive to the actual growth in real revenue. As an example, the difference between the assumed growth rate of a little over 2% and an

achieved growth rate of 0.25% is sufficient to take 100 basis points (1.0 percentage points) off of NEL's ROE, reducing the ROE from around 7.0% to 6.0%.

The proposed revenue growth rates appear to be unjustifiably high. It is unreasonable that the owners of NEL should have to carry the risk of these dubious revenue growth forecasts. The reasonable course of action for the Commission is to revise its growth forecasts. We urge that the following changes be made:

- (a) Have the economic growth forecasts reviewed by an independent, expert body;
- (b) Do not use the energy demand forecasts of the Electricity Authority. We submit that the Electricity Authority is neither expert nor independent in formulating forecasts for EDBs. Instead, use energy forecasts from an independent, expert body.
- (c) Do not use regional forecasts. Instead, use EDB-specific forecasts. Regional forecasts applied to the situation of NEL, as an example, will never pick up the factors specific to Nelson city, and differing from the surrounding region, that are so important in determining revenue growth for NEL.

The most important of these three recommendations is the last – use EDB-specific forecasts. This is a necessary step in constructing revenue forecasts that have a chance of being reasonable and being seen to be reasonable.

9. Customised Price Paths

The Draft Decision Paper implies that EDBs deal with aspects of the regulations that they find problematic by applying to the Commission for a Customised Price Path (CPP). Superficially this might appear to be a pragmatic way of handling problems. However, on examination, this is not a reasonable procedure. Application for a CPP will be a costly and lengthy process with no guarantee of leading to a reasonable outcome. In fact, the likelihood is that the process would not lead to a reasonable outcome as it appears that the evaluation framework for a CPP includes the same elements, such as the WACC, that are at the heart of the problems with the present Default Price Path proposals.

It is disingenuous of the Commission to suggest that the way of dealing with DPP problems is to apply for a CPP. The right way of dealing with DPP problems is to tackle them directly and get the design of the DPP regulations sorted out.

10. Effect of the proposed regulations

The design of the proposed regulations appears to create a risk that opex by EDBs will exceed the opex allowed for in the permitted revenue path. At the same time there is a risk that revenue growth will be less than that forecast by the Commission. The effect is the risk that:

$$\text{Achieved ROE} < \text{“Normal” ROE}$$

where “Normal” ROE is the ROE in the WACC allowed for by the Commission in designing the allowed revenue paths of EDBs. In the case of NEL, the shortfall of actual below “Normal” ROE could well be around 1.0 percentage points.

At the same time, the CAPM used by the Commission in calculating the “Normal” ROE produces a downward biased estimate of the opportunity cost of equity to the investor owners of EDBs:

$$\text{“Normal” ROE} < \text{Opportunity cost of equity}$$

The numerical bias resulting from the use of the CAPM could well be in excess of 4 percentage points.

Combining these two relationships:

$$\text{Achieved ROE} << \text{Opportunity cost of equity}$$

The magnitude of the rate of return shortfall could well be 5 percentage points. This is a serious situation. The owners of EDBs will not be receiving from investment in their lines businesses a return that matches their opportunity cost of capital. This does not create any incentive to invest in the EDB.

An investor owned EDB faced with these incentives could either (a) carry out capex, receiving a sub-standard return, or (b) cut back on capex, minimising the new capital put into the business. The consequences either way would be serious.

- (a) Low return. An investor owner would be reluctant to invest in the expectation of getting sub-standard returns. This is for two reasons. First, it would mean sacrificing good economic opportunities which goes against the grain for a commercially motivated company. Second, it could threaten the investment rating of the company. Some companies have explicit investment grade criteria in making investment decisions but even if not, companies would know that sub-standard investments could jeopardise their investment rating.
- (b) Reduced capex. Cutting back on capital expenditure in the EDB would lead to a gradual deterioration in the quality of service. Here, it is the customers who would suffer whether from being unable to get new connections or being unable to achieve peak supply or being subject to supply interruptions.

Viewing the whole picture and recognising the financial pressures facing investor owners, there is a real likelihood that the proposed regulations would lead to a reduction in capital expenditure. This, in turn, would place at risk the quality of service to electricity customers. Rather than promoting the quality of service to customers, the proposed regulations would actually place this quality at risk. This perverse outcome is an unintended risk created by the regulations. But, being unintended makes this risk no less significant.

The Commission, in its role of regulator, has explicit objectives set out in legislation. These are set out in s52A(1) of the Commerce Act 1986 and include:

- Providing EDBs with “incentives to innovate and to invest, including in replacement, upgraded, and new assets”, and
- “promote the long term benefit of consumers”

The proposed regulations, by creating incentives that discourage investment by EDBs, place the Commission in a difficult position vis-a-vis its legislated objectives. In essence, the proposed regulations make it likely that the Commission will fail to achieve its own objectives.

How is the Commission to deal with this problem?

One possible approach is for the Commission to try to force EDBs to invest by imposing fines for breaches of quality targets or by requiring capital expenditure in line with Asset

Management Plans. The legal power of the Commission to use this force is uncertain. Even if there were the supporting legal power this would represent a draconian step in business regulation, moving from regulating prices to forcing companies against their will to carry out capital investment. This is reminiscent of central planning rather than the established New Zealand way of regulating business. And, the Commission would still be in breach of its legislated responsibility of incentivising investment.

The other approach is for the Commission to recognise that the investment and quality risks arise from the incentives built into the regulations. This being so, the remedy is to modify the regulations in order to get the incentives right – to get EDBs to invest because it is in their business interest to invest. This can be done simply by allowing EDBs to receive a commercially reasonable rate of return.

This approach, of regulating by creating the right incentives rather than using brute legal force, is the sensible one. Using positive incentives to induce people willingly to go the desired outcome is economically more efficient than using negative incentives (fines or compulsion) to force them towards the desired outcome. And, this approach, of using positive incentives, is the only one that is consistent with the Commission's legislated objectives.

We note that the Australian Energy Regulator appears to be more aware of this problem with incentives. In its recent decision on the Amadeus Gas Pipeline, the Australian Energy Regulator used a ROE of 10.33%. This is a far cry from the Commission's proposed 7.40%. While 10.33% might be a little below the opportunity cost of equity in business in general, at least it is in the right ball park. The precedent is there, across the Tasman, for a somewhat more realistic view of the opportunity cost of equity.

11. Evaluation of the proposals

The Commission has devoted considerable time and effort to refining the details of the models and procedures proposed for the Default Price Path regulations. This is worthwhile and some improvements have already been made. However, further improvements are needed.

- (1) Opex. There are problems with the forecasts of labour costs and there are more general and substantive problems in dealing with risk associated with future

operating expenditures and with the Commission's forecasting models. These problems can be avoided by allowing EDBs to recover actual operating expenditures. We submit that the regulations allow actual not modelled operating expenditures to be recovered by EDBs.

- (2) Growth. There are inherent problems with using regional forecasts for real revenue growth. These forecasting problems can be reduced by shifting to EDB-specific forecasts. We submit that real revenue growth be forecast on an EDB-specific basis.
- (3) ROE. The Commission's use of the CAPM results in a downward biased estimate of the opportunity cost of equity and so of the WACC. Prices based on an underestimated cost of capital will undermine owners' incentive to invest in EDBs. The Commission should take a commercially realistic approach to estimating the cost of capital.
- (4) CPP. These problems cannot be avoided by EDBs applying for Customised Price Paths as, quite apart from the time, cost and uncertainty involved, these applications will be evaluated using the same criteria that undermine the integrity of the DPP regulations. It is disingenuous of the Commission to suggest that CPPs are the remedy for DPP problems. Instead, the Commission should fix the problems with the DPP regulations.

The proposed regulations place at risk the investment and quality objectives that underlie the whole regulation of the industry, jeopardising the achievement of the objectives set out in legislation for the Commission. These problems can be mitigated, still within the overall framework established by the Commission, by adopting the changes set out in this submission.