

15 April 2009

David Healey
Chief Adviser
Network Performance Branch
Commerce Commission
PO Box 2351
Wellington

by email: NPB@comcom.govt.nz

**SUBMISSION ON RESET OF DEFAULT PRICE–QUALITY PATH FOR ELECTRICITY
DISTRIBUTION BUSINESSES - PROCESS AND ISSUES PAPER**

- 1 Orion New Zealand Limited (**Orion**) welcomes the opportunity to make this submission in response to the Process and Issues Paper (the paper).

Outline of the DPP reset process

- 2 Orion welcomes the timely release by the Commerce Commission (**the Commission**) of its paper detailing its preliminary views on the reset of the default price-quality path (**DPP**). The reset is a critical decision since it will decide the 'default' form of regulation to be initially applied to all non-exempt electricity distribution businesses (**EDBs**). It will also influence EDBs' appetites to submit applications for customised price-quality paths (**CPPs**) and, unlike other aspects of the new regime, the decision cannot be appealed. It is therefore pleasing to see the Commission presenting its thinking in a concise way and seeking early feedback.
- 3 We broadly support the three-stage reset process set out in the paper. We recognise that the time frame for consultation is particularly tight and we welcome the substantial consultative elements suggested by the Commission, including its offer to receive proposals and engage in additional interaction with stakeholders. We look forward to working closely with the Commission throughout these various facets so as to best ensure a robust outcome.

- 4 The Commission provides its preliminary thinking on the applicable starting prices, rates of change, quality standards and energy efficiency initiatives. However an area of particular concern to Orion is the lack of guidance from the Commission on the *input methodologies* that will be relevant to the DPP reset, which it is required to provide under section 52P(3)(c). We address this, and various other points of interest arising from the Commission's Process Paper below.

Comments on the Commission's Initial views

Rates of change

- 5 The Commission is required to set rates of change for EDBs under a DPP *based on long run average productivity improvement rate achieved by either or both suppliers in New Zealand, and suppliers in other comparable countries, of the relevant goods or services, using whatever measures of productivity the Commission considers appropriate.*
- 6 The Commission's initial view on the setting of the X-factor is that long-run average productivity as measured by total factor productivity (TFP) analysis is appropriate. Further the Commission states that this should be based on New Zealand data.
- 7 Orion considers that the application of the previous price thresholds is likely to have already delivered considerable productivity gains. Assuming that existing prices (which are based on the previous thresholds) are the starting point for the DPP, these productivity gains will effectively have been 'locked in' for the future. However, any assumption that the productivity of EDBs will *continue* to improve at such a rate, or be any different from an average business in the wider economy is questionable for a number of reasons.
- 8 First, historical gains have been achieved during a period of significant regulatory and structural change in the industry as the thresholds regime bedded in. During this time one might have expected productivity growth to increase temporarily. TFP estimates drawn from this period might therefore overestimate the long run growth potential of the industry as businesses 'picked the low hanging fruit'. The legislation does not contemplate an X-factor encompassing short-term fluctuations of this sort.
- 9 Second, the effects of the global financial crisis are wide-reaching and the electricity lines sector is not immune. Accordingly, before relying upon any historical TFP estimates careful consideration will need to be given to whether the resulting X-factor is reflective of the investment and growth potential facing the industry in years ahead. Orion questions whether an

EDB could reasonably be expected to achieve a productivity growth rate in excess of an average business in the wider economy throughout the term of the DPP in light of the pressures facing all businesses. We would urge the Commission to be mindful of the recessionary economic environment when setting the initial X-factor. We therefore recommend that it utilises the principle of 'first do no harm' when setting an industry-wide X-factor.

- 10 Third, the methodology by which potential productivity gains historically have been calculated has been the subject of considerable controversy. Specifically, both the previous B- and C₁-factors were the subject of much concern to the industry given the uncertainty of the datasets on which they were based. It is pleasing to see that the C₁ factor has been explicitly removed from the current regime by means of legislation. However, the Commission has not indicated what form any TFP analysis may take and Orion would remain apprehensive about any continued use of the B-factor previously employed under the thresholds regime.
- 11 We have previously expressed¹ our concern that the B-factor does not deliver a reliable estimate of the long-run average productivity improvement rate since the New Zealand dataset is insufficient, in both its quantity and its quality. The dataset is, by any reasonable measure, still in its infancy – particularly in comparison to the data that is available from some North American jurisdictions. In other words, it is highly questionable whether the data can be used to produce a robust 'long-run' estimate.²
- 12 Nonetheless, the Commission has indicated its initial view that it will not look to international data in arriving at an initial X-factor. Although we would encourage the Commission to reconsider this view, should it decide for whatever reason to use only the New Zealand data, we recommend that it adopt a conservative and prudent approach in setting the X-factor. Specifically, we would encourage the Commission to err on the low side in setting the rate of change in recognition of:
 - 12.1 the sobering economic outlook;
 - 12.2 the uncertainty of the underlying data; and

¹ Regulation of electricity lines businesses target control regime draft decisions - resetting the price path threshold - Submission by Orion New Zealand Limited, 20 October 2002

² A total factor productivity (TFP) study must be based on a long term data set to ensure that estimates do not merely reflect short term fluctuations.

12.3 the desirability of minimising the number of businesses that submit a proposal for a CPP.³

13 We also note that under the previous regime for the regulatory period beginning in 2004, the Commission signalled its intention to apply a degree of prudence in its final decision on the B-factor due to the uncertainty of underlying data. We would support the application of similar logic to the specification of the initial X-factor for the DPP.

14 In summary, Orion supports in principle the use of industry-wide TFP analysis to determine the X-factor. However, we encourage the Commission to reconsider its preliminary view that international measures are inappropriate. Indeed, given the serious short-comings in the New Zealand data it is difficult to imagine how it could avoid having regard to international sources, even if only by way of a 'sanity check' on the results that emerge from the New Zealand data. The fundamentals of lines businesses in developed countries are sufficiently similar that we reiterate our previous advice that the Commission consider the available North American data. Regardless of the approach adopted, we urge the Commission to be mindful of the recessionary economic environment when setting the initial X-factor and to err on the side of prudence when faced with uncertainty.

CPI forecast

15 An additional but related issue to the rate of change that the Commission will need to address as part of the new DPP process is the significant risk associated with the requirement on EDB's to forecast CPI movements in setting prices to meet the CPI-X requirements. Because compliance is measured against actual CPI movements, a technical breach is possible simply due to forecasting errors. Under the DPP such a breach will constitute an actual offence rather than simply trigger an investigation. Orion urges the Commission to give early consideration to how the assessment formulae can be revised so as to remove this risk.

Starting prices

16 We support basing initial starting prices on those applying at the end of the preceding regulatory period because:

³ We do not consider that it would be appropriate for the Commission to argue that a CPP remains as an option for any parties dissatisfied with the results generated through the DPP process. If the section 53K purpose is to be achieved, the DPP must be sufficiently robust to cater adequately for most EDBs' circumstances. That will not happen if the data relied upon is inappropriate, or contains unrealistic productivity projections.

- 16.1 multi-staged adjustments to the same P_0 prices would be disruptive and impractical in an environment where customer contracts have limited flexibility;
 - 16.2 uncertainty surrounding the ultimate form and effect of any input methodologies remain regardless of whether any P_0 adjustment is made in the context of this reset.
- 17 Although the proposed deferment of P_0 adjustments is sensible, the Commission must still *specify the input methodologies* that will be used in any such adjustments *prior* to the 1 April 2010 reset. Indeed, presumably one of the reasons that the Commission is obliged by section 52P(3)(c) to identify those input methodologies relevant to the reset of the DPP (including any P_0 adjustments) is to assist it in any process of *subsequently reopening* that decision, which it is proposing to do.
- 18 Consequently, although we are supportive of delaying the *application* of any P_0 adjustment until such time as input methodologies are available, that does not preclude consultation occurring on the *principles* that will guide any such adjustment, including the way in which input methodologies will be applied. Specifically, Orion considers that in its next Discussion Paper the Commission should:
 - 18.1 set out its proposed methodology to undertaking any P_0 adjustments; and
 - 18.2 identify those methodologies that it intends to incorporate in that methodology, including its proposed approach to doing so.
- 19 In Orion's view, this would provide ELBs with a welcome degree of certainty as to the prospects and consequences of a subsequent DPP reopening in the event that current prices are used as the starting point for the next reset. This is likely to be particularly important in light of the prospect of retrospective 'claw-back' being applied.
- 20 Turning to the issue of claw-back, Orion is uncomfortable with the prospect of the lag between the initial DPP reset and the finalisation of input methodologies giving rise to retrospective adjustments if the application of those input methodologies would have resulted in a 'materially different price path'. The possibility of retrospective adjustments is highly undesirable from an investment incentive/certainty perspective. Moreover, the deferment of any P_0 adjustments would seem likely to enhance the potential for claw-back to be applied.

- 21 The scope for claw-back reinforces the need for the Commission to articulate as soon as practicable its intended approach to P_0 adjustments. In addition, the May 2009 Discussion Paper should set out its views on:
- 21.1 what it considers would be a 'material difference' in the DPP for the purposes of determining whether to apply claw-back; and
 - 21.2 how it intends to apply claw-back should the need arise.
- 22 Additional guidance on the issue of materiality is particularly important, since section 53ZB(2) allows for the DPP to be reset again following an appeal. Specifically, if an appeal leads to subsequent changes to input methodologies, and this would have resulted in a materially different path, the Commission can reset the DPP and apply claw-back. The prospect of multiple DPP resets during the course of a regulatory period is particularly undesirable and gives rise to considerable uncertainty.⁴ Consequently, any additional guidance that the Commission can give in relation to these aspects of the regime would be warmly received.
- 23 It will also be important to be clear on what is meant by 'the prices that applied at the end of the preceding regulatory period'. The options include:
- 23.1 the prices allowable under the *applicable price thresholds* at the end of the preceding regulatory period; or
 - 23.2 the *prices actually being charged* by businesses at the end of the period, to the extent they exceed (or fall short of) the applicable threshold.
- 24 We would prefer that the Commission use the *actual prices* being charged by businesses, since this removes the risk of an immediate P_0 adjustment for those businesses that for whatever reason are outside the existing thresholds. The appropriate process through which to address past threshold breaches is not the DPP but the Commission's residual jurisdiction under Part 4A

Quality

- 25 We are pleased that the Commission has acknowledged EDBs' concerns in respect to technical breaches in relation to quality. We would be troubled by any arrangement in which penalties could be imposed upon

⁴ The prospect of retrospective adjustments applies equally to *customised* price-quality paths and may make businesses reticent to pursue this option in the near-term.

businesses for unavoidable or inconsequential breaches. We look forward to working with the Commission to ensure that this prospect is minimised.

- 26 We note that the Commission has indicated previously in relation to the threshold regime that:⁵

The purpose of the quality threshold is to provide incentives for lines businesses to:

- *not allow their reliability to fall as a means of reducing costs in response to the price path threshold; and*
- *supply electricity distribution and transmission services at a quality demanded by consumers.*

- 27 It would be useful for the Commission in its May 2009 Discussion Paper to articulate its initial views on the *overarching purpose* of the quality provisions of *the DPP* (as opposed to the thresholds regime). Indeed, depending upon the overall intention of the regime, different approaches may be more or less appropriate. However, we agree with the Commission that the tight timeframes for the initial DPP reset are likely to preclude the development of an S-factor mechanism.
- 28 Having said that, we would encourage the Commission to put in place a work programme to develop an S-factor regime. The objective should be to work in conjunction with the industry to implement the regime at the *next* DPP reset in 2015. A key aspect of the work-stream would be collecting the data necessary to give effect to the regime, including undertaking research into customers' willingness to pay for reliability improvements.
- 29 In the meantime we encourage the Commission to move the emphasis away from purporting to measure quality in a purely mechanistic way. The substance of and performance against an EDB's Asset Management Plan (AMPs) is potentially a better way to assess ongoing quality performance. Appropriate SAIDI and SAIFI results should flow automatically from a well developed and implemented AMP. In that case, SAIDI and SAIFI could be used purely as a backstop reference to monitor whether the AMP is delivering results in line with expectations. We are keen to engage with the Commission to develop a process for ensuring that EDBs' AMPs are appropriately robust to deliver against section 52A.

⁵ Threshold Decisions (Regulatory Period Beginning 2004)

- 30 We are aware that the ENA is currently exploring ways of improving the application of SAIDI and SAIFI estimates, and we look forward to working with the Commission on this issue. However until such time as robust methods of applying those metrics are developed we remain concerned with their use in a control regime.

Energy efficiency

- 31 Section 54Q is a clear direction to the Commission to promote incentives for suppliers of electricity lines services to invest in energy efficiency and demand side management and to reduce energy losses. This requirement arguably forms a relevant consideration for *all* decisions that the Commission makes under the new legislation, whether it be resetting the DPP, determining input methodologies or assessing customised price-quality path applications.
- 32 Consequently, although we agree with the Commission that the DPP is intended to be a relatively simple mechanism, clause 54Q is nonetheless a relevant and important consideration for the reset. In our view, the best way for the Commission to comply with 55Q may be for it to err on the side of caution. Specifically, in exercising its judgement when setting the X-factor it should ensure that it does not provide any *disincentive* to invest in energy efficiency measures, ie, 'first do no harm'.

Losses

- 33 The Commission proposes to consider the promotion of energy loss reduction separately. However, it considers that there is a lack of sufficient and accurate information on both the level of losses and the respective responsibilities of EDB's and retailers. It proposes to address this perceived deficiency by monitoring and analysing energy loss levels through the information disclosure requirements.
- 34 Losses can stem from factors beyond EDBs' control, including metering errors and theft. Metering data is subject to gaps and distortions due to incorrect multipliers being applied and omissions and errors when metering information is capture by retailers or their agents. Timing of meter readings is another source of error. Although the timing of metering readings at Transpower's grid exit points is precise (with meter readings available half hourly), customers' meters may be read only every one or two months, leading to imprecision. These factors mean that delineating between technical losses for which an EDB are responsible and losses due to reasons beyond their control can only be approximated. For this reason, the Commission is unlikely to be able to quantify and attribute losses with any confidence.

- 35 We consider that a better approach would be for the Commission to monitor the extent to which EDBs are looking to optimise technical losses during their network design processes. Again, it should be able to ascertain from AMPs whether an EDB has given sufficient consideration to loss reduction. By way of illustration, Appendix A provides an extract from Orion's 2009 AMP. It details the various ways in which we consider electrical losses during network design, and we believe demonstrates an appropriate consideration of such issues.
- 36 We consider that this approach will be far more effective to assist with an overall improvement of technical losses, than any attempt to measure and attribute losses.
- 37 We note that other industry organisations such as EECA and the Electricity Commission are currently working on this issue and we recommend that the Commission liaises with these organisations to ensure a consistent industry approach.

Concluding remarks

- 38 Thank you for the opportunity to make this submission. If you have any questions relating to this submission, please contact Dennis Jones (Industry Developments Manager) DDI 03 363 9526 email dennis.jones@oriongroup.co.nz.

Yours faithfully



Rob Jamieson
General Manager Commercial

Appendix A: Orion's Approach to Losses

Transformer purchases

Any new distribution transformers that we purchase must comply with the 'Minimum Energy Performance Standards' (MEPS) as prescribed in Australian Standard 2374.1. In addition to MEPS, our equipment specification NW74.23.05 - Distribution Transformers 200 to 1000kVA, includes a 'no-load loss' multiplier and a 'load loss multiplier' that are used for the capitalisation of loss costs when comparing offers of distribution transformers for purchase. As a result we purchase even lower loss transformers than MEPS requires.

Our equipment specifications for power transformers NW74.23.07 - Transformer 66/11kV, 7.5/10MVA, also have these loss multipliers that are used when we evaluate tenders.

Transformer size	Present value of 'No load loss' (\$/kW)	Present value of 'load loss' (\$/kW)
Up to 150kVA	\$8,691	\$273
200-1000kVA	\$8,744	\$820
20MVA	\$8,041	\$1,754

For more detailed assessments in specific circumstances, we also use the Guide 'Purchase & Operating Costs of Transformers', published by the Electricity Engineers Association of New Zealand.

Our approach ensures we consider the trade-offs between transformer costs and the future costs of energy losses. It costs more to manufacture a transformer with lower losses because higher quality materials are needed. Our loss capitalisation calculation for transformers has assumed a value of 8.5c/kWh for the future cost of energy. This leads to the capitalisation values per kW of losses shown in the table. The review these values when we purchase new power transformers and when we tender distribution transformer supply contracts for transformers up to 1000kVA.

Selection of conductor size

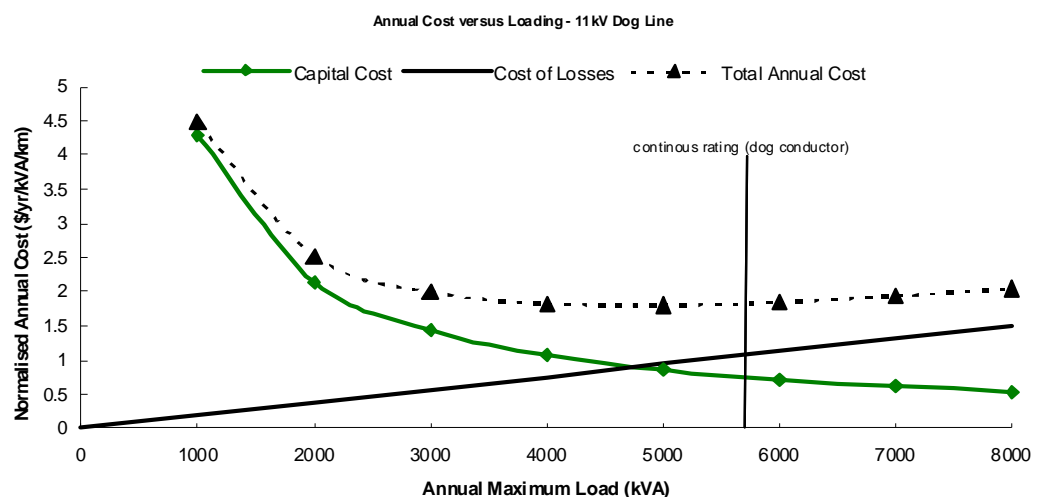
Most of the electrical losses in our network occur in lines and cables i.e. the conductors. We calculate losses from the expression I^2R where I is the current and R is the resistance of the conductor. The connected load

determines the current and the conductor size and material determines the conductor resistance. The larger the conductor size, the lower the resistance and hence the losses will be the lower. However, larger conductors cost more and hence, again, there is a trade-off between the costs of capital and losses.

Overhead lines

Economic optimum operating conditions for overhead lines exist when delivering electricity to the reasonably substantial loads that typically occur on urban fringes. "Kelvin's Law" of economics applies. It states that the minimum annual operating cost occurs when the annual cost of losses equals the annual capital cost. This optimum operation typically occurs when the maximum load is 75 to 85% of the conductor's rating. The characteristic is illustrated in the diagram for the 11kV 'Dog' conductor that we commonly use in the higher-density loading areas.

Annual cost versus loading - 11kV (dog) overhead line



We endeavour to design and operate our overhead lines within the optimum range in higher-density loading areas. However, we note that the annual operating cost does not vary much over the wider range of 50 to 100% of rating.

The conductor size needed for the longer overhead lines in rural areas is principally determined by the limits on voltage drop. Conductors with excess capacity are used as these have lower resistance resulting in reduced voltage drop along the line. The economic optimum is not achieved and lines typically operate with annual maximum loads of 50 to 50% of rating. Consequently, losses are lower than the economic optimum.

We need this extra capacity during fault contingencies and maintenance work to transfer load to alternative sources of supply.

Underground cables

For a given rating, cables cost more and have lower resistance per unit length. A comparative example is shown in the table below:

Underground cable versus overhead line comparison

Conductor	Rating (amps)	Installed cost (\$/km)	Resistance (ohms/km)
Dog overhead line	300	\$40,000	0.273
185mm ² Al cable	280	\$160,000	0.164

Consequently, with much higher capital costs and much lower resistance, we never achieve an economic cross-over because losses are already low - an increase in cable size cannot be justified by the small reduction in losses alone. However, the collective benefits (increased security of supply, reduced losses and reduced transmission charges) justify the increased cost of larger cables. We proved this justification when we reviewed our security standard in 2006. Analysis showed that it was economic to install an 11kV network capable of restoring power for N-2 faults at district/zone substations. Two thirds of the additional capital expenditure required for larger N-2 feeder cables was justified on the basis of reduced energy losses and reduced peak demand charges due to fewer losses at peak. Our security standard drives economic investment in our 11kV network - the policy to install N-2 capacity creates fewer losses on our network.

Selection of voltage

For the same power or energy volume delivered, losses are lower when conductors are operated at a higher voltage. Capital costs also increase for higher voltage equipment. A continuous range of voltage is not practical. We use discreet voltages of 66kV, 33kV, 11kV and 230/400V.

When extending our network, we model the development and consider all future costs, including the cost of losses. In a rural area, for example, our network may be extended at 11kV, 33kV or 66kV to supply future loading, such as large irrigation plants.

For developments at the connection level, we also consider alternatives for supply voltage and whether or not to extend the low or high voltage

reticulation. We may consider losses when we make decisions although other factors tend to dominate such as future access to plant, shared land use and customers preferences.