

# **SUBMISSION TO COMMERCE COMMISSION**

## **Regulation of Electricity Lines Businesses Review of the Information Disclosure Regime Discussion Paper**

This submission is from The Lines Company.

The Lines Company supplies the central north island region. It has the distinction of supplying an area that is very rugged, has a low customer density, and has a low load factor due to the very seasonal nature of some of its major customers.

The local terrain also presents a number of opportunities for local generation, both hydro and wind. TLC currently has 7 medium sized distributed generators connected to its network, with another 5 either seeking resource consent or in feasibility stage. In addition there are a number of small generators with plans to connect. One of the grid exit points between TLC's network and Transpower's already spends a substantial period of its time injecting electricity into the grid, rather than receiving it. It is likely that a second grid exit point will reach this condition within five years.

PricewaterhouseCoopers has presented a submission on behalf of a group of lines companies including TLC. TLC supports that submission, and wishes to submit the following additional points:

1. As a prelude to deciding what should be disclosed the Commission needs to commission and publish a further discussion paper on how the productive efficiency of network performance is to be measured, and collect the data over time that will enable the measure to be made.

The last attempt at measuring productive efficiency failed (the report from Meyrick and Associates 2003). Subsequent work has showed that, with little exception, those companies with both a low connection density and a low load factor were judged inefficient and received an x factor of 1, those with an average connection density or an average load factor were allocated an x factor of 0, and those with a high connection density or a high load factor were judged high performers and allocated an x factor of -1. What was measured was simply the variations of industry cost to customer influence, not any measure of productive efficiency.

It is noted that the Commission has now decided that transformer utilisation is an effective measure of productive efficiency. However there are many basic reasons why this is not an accurate measure including:

- ❖ Urban/rural needs. In rural areas transformers have to be matched to individual customers demands using preferred size transformers. This means that the kVA adds much quicker. For example, experience has shown that a 15kVA is the preferred unit for a typical rural house, in as much as it runs little risk of not meeting customer requirements and

costs no more than smaller transformers, whereas, a 200kVA transformer will supply about 50 houses in an urban area. So, depending on whether the customers are rural or urban, or can share a transformer with another installation, the range becomes 750kVA to 200 kVA for 50 houses. The network company has no influence on this.

- ❖ Power factor: kVA and kW are different units separated by power factors. Customers' equipment influences power factor. Transformers are rated in kVA: Transpower demand charges are in kW. Long, heavily loaded lines supplying customers with poor power factor causes the ratio of kW to kVA to quickly become lower. Add distributed generation, cables and SWER systems to the mix and the whole issue quickly becomes complex.
- ❖ Distributed Generation: Medium sized generators require transformers, which add to the transformer total, but as they are injecting the system demand is unchanged. Small distribution generators input energy and are usually not half hourly metered, therefore they have the effect of reducing the system demand slightly. Given the increasing existence of these devices with outputs not being measured how can the network demand be measured? Add the varying complexity of power factor to the mix and things again get more interesting.
- ❖ Counting of Transformers: The rules for counting the kVA of transformers would have to be very clearly defined. There are many grey areas such as:
  - Transformers owned by customers. Would have to be counted as the customers' contribution to the system demand is counted, however the transformer size is not within the control of the network
  - Networks being used as pure transport systems
  - Direct high voltage supply customers
  - Autotransformers, SWER transformers, regulating transformers, metering transformers, zone sub transformers, distributed generation transformers.The rules for counting would not be straightforward.

An individual line company's cost can be effected by:

- Length of lines at each voltage (influenced by customer requirements)
- Geography of network, both as to cost to build and accessibility of lines
- Number of Zone Substations (influenced by where customers congregate together)

- Ratio of extensive treed country to open country. TLC's expenditure on tree control, for example, exceeds Orion's, due solely to the number of native trees and pine plantations in our region.
- Compliance with Codes of Practice for construction standards and safety, environment, emergency and other legislation. Costs can be cut by simply not complying with these. While this would cause long-term problems, it would show "efficiency improvements".
- Historic age of equipment and maintenance costs
- SWER systems as opposed to two wire
- Customer pressures i.e. expand network at minimum cost by using regulators and running network at high loss.
- Physical constraints
- District plans
- Road controlling authority demands
- Location of network in relation to population centres for obtaining resources.
- Number of size and complexity of distributed generation.

With regard to this last point, the Commission has assumed that distributed generation benefits a network. Historically components associated with networks have been set up to supply customers. This purpose has influenced the way such things as protection voltage control and earth reference priorities have been arranged.

The networks were never designed for the connection of distributed generation. When it is added to these legacy networks the dynamics quickly change and many adjustments and compromises have to be made to get to systems to work. Not only must these changes be made when initially connecting plant but also must be made on an ongoing basis as more load and generation is added. The ongoing network tuning quickly becomes more complex and expensive than that required for supplying downstream load.

Some of The Lines Company's hard experiences with these issues include:

- On line trippings with more than one distributed generator connected to the line, the generator voltage control regulators fight with one another causing over voltages that not only destroy generation equipment but load customer equipment connected to the lines.
- Self-exciting of induction generators on tripping of lightly loaded lines capacitor causing over voltages.
- High levels of negative sequence voltages being generated that have potential to interfere with load customers' induction machines.
- With larger machines and step up transformers the introduction of a star earth reference point. Experience shows that this introduction on rural feeders results in a zero sequence current bias on earth fault protection and quickly reduces the ability of historic residual current earth fault relays to operate, as settings have to be increased to stop nuisance tripping. In one

case the introduction of this star point also has cause a ferro-resonance effect under certain loads on feeder livening that effectively turned a 40 km long 11kV feeder into a giant oscillator. High voltages can be imposed load customers installations.

- The tendency for generators to island and during such an event become unstable, again destroying customer equipment.
- The inability of distributed generators to shutdown quickly and allow the implementation of auto reclosing schemes.
- Often distributed generation plant has to operate at low power factors either because it is of induction type or the need to limit network voltage rise. Injecting power but not drawing reactive power quickly reduces network and subsequently transmission efficiency. If the grid operating enforces power factor criteria in accordance with supply contracts at the grid exit point the connection of more correction is required to be funded as compared to a network with no distributed generation.
- When distributed generation is connected network voltage control equipment must be set and able to handle power flows in both directions. Protection also needs to be able to do this.
- The cost of having experienced engineering resource available to process new generation applications and on going management of distributed generation. Distributed generation investors try to minimize their investment in engineering expertise and rely heavily on network company engineers to sort difficulties.
- TLC has been threatened with legal action because its own engineers did not have time to go into detail to sort one generator's issues and the investors' engineers did not have the experience to provide the correct advice for connection.

The combined effect of the above is that the presence of distributed generation adds substantially to the cost of running a network. Currently it is government policy that the cost of the above be met by load customers. This requirement has, as yet, not been recognised by the Commission.

All of the above influence the productive efficiency of a lines company, and must be included in any metric that attempts to measure productive efficiency. To leave any element out is to guarantee bias. All of the above elements are capable of being measured, albeit at a cost.

2. The Commission then needs to decide whether individual productive efficiency incentives are going to be imposed through the asset optimisation process that is a critical component of asset valuation, or through x factor price adjustments. Currently there is a risk of being doubly penalised by having inefficient assets optimised out of the asset base so no return can be made on those assets, but then having them counted for assessment of productive efficiency.

The proposed use of transformer utilisation is a relevant example. The issue of whether a company has over invested in transformers is one that an auditor should be exploring as part of the optimisation process. If a formula is to be produced that gives a guide as to whether the level of transformer utilisation is inefficient, rather than applying this arbitrarily then it should instead be used as an auditors' guide. The auditor's report could then comment on whether the peculiarities of the customer base, and the environment, justified the level of investment.

There appears to be a total inconsistency in having a optimisation audit that says that an investment is at its optimum given all circumstances, only to have an arbitrary formula then applied that ignores the audit. It would be preferable if the odv handbook were more extensive, if efficiency formulae can be calculated, and auditors' reports fuller in justifying any investments that formulae may suggest are unjustified. Disclosure for such measures should therefore be a part of the audit report and not the annual disclosures.

3. In paragraph 196 the Commission states that actual tax payable should be disclosed for regulatory purposes. As noted this involves adjusting standardised tax (at 33%) by timing differences and differences between regulatory and tax depreciation.

The difficulty with this approach is that it enables an existing network owner to gain higher revenue than a new owner. It therefore creates a perverse incentive for network owners not to sell networks. To give an example, assuming a maximum permitted return of 6.7% before revaluation adjustments:

Coy A

Revenue	1000
Opex	(200)
Depreciation (regulatory)	(300)
Standardised Tax	(165)
Depreciation for tax	(100)
Revised tax	(231)
Net	269
Asset value	4000
Return	6.7%

If Coy B then purchases the network from Coy A at its regulatory value

Revenue	1000
Opex	(200)
Depreciation (regulatory)	(300)
Standardised Tax	(165)
Depreciation for tax	(300)
Revised tax	(165)
Net	(335)
Asset value	4000
Return	8.4%

Coy B would then have to reduce revenue to get back to the permitted return

This result was evident in the assignment of return based x factors for the Commissions initial thresholds. A number of “old” companies had assessed tax payable rates over 50% of gross surplus, with Waipa Networks topping at 72%. Companies active in purchasing networks, such as Powerco and United Networks instead had rates in line with the standard rate of 33%.

This incentive would be removed, and consistency would be established with paragraphs 184 & 195, where the Commission notes that it is concern with overall funds employed not their source, if instead a standardised tax rate was used. The long-term effect of being unable to claim depreciation on revaluations for tax purposes would be countered in the permitted revenue formula by multiplying the revaluation adjustment by (1- standardised tax rate).

4. Treatment of Tax on Rebates. We support the argument advanced by PricewaterhouseCoopers that the methodology used to normalise rebates to a status of a dividend is incorrect.

We also suggest that the tax adjustment is inconsistent with the Commission’s statement in paragraphs 184 and 195 that it is concerned with overall funds employed, not the sources of those funds. The decision to decrease tax for the rebate payment means that the measured return will increase or decrease according to the size of the rebate made. This is the only return to fund providers that will have this effect. All other returns, interest, subvention payments, dividends, are adjusted so that returns are neutral both as to the size of the return and as to the type of return. There appears to be no justification for decreasing tax because rebates are tax deductible but not decreasing tax because interest payments are tax deductible, or adjusting dividends if they carry an imputation credit. Contrary to the Commission’s statement this would appear to disadvantage customer providers of funds over all other fund providers.

The Lines Companies 2004 letter to the Commission on this issue is attached. No reply to this letter was received. We believe the issues raised in that letter are still relevant.

We also note that to date there has been no support from outside of the Commission's staff for this proposed treatment of rebates, and that there is little justification for this approach in the discussion paper. We note that a significant percentage of the industry is owned by customer trusts, especially remote rural areas. There is a danger that the willingness of these companies to re-invest in their networks may be hampered if the advisers and bankers to those companies believe that the companies cannot receive an adequate return on capital due to the rebate methodology adopted by the commission.

We suggest that, at the minimum, a separate discussion paper needs to be commissioned on this issue, from advisers external to the Commission.

JA:DKP 8/8

20<sup>th</sup> February 2004

Mr. Gareth Wilson  
Acting Manager, Network Performance  
Commerce Commission  
P O Box 2351  
**WELLINGTON**

Dear Mr. Wilson

I refer to your letter of 12 February and in particular paragraphs three and four of that letter. As discussed at our meeting of 17 February, (Mr. Gunn and Mr. Thorn of the Commerce Commission and Mr. Browne of The Lines Company also in attendance) we believe that the Commission's decision not to recognize the discount tax shield:

- 1) Is designed to advantage companies who opt to provide returns to their owners by way of dividends or mechanisms other than a discount, and
- 2) That this outcome is outside the ambit of the Part 4A Purpose Statement and therefore the decision to seek this outcome is an improper decision for the Commission to make, and
- 3) That the consequence of the decision is to incentivise trust owned lines companies to:
  - a) Provide no distributions to owners, or
  - b) Set prices at below the opportunity cost of the resources consumed, and
- 4) That these perverse incentives are contrary to the Purpose Statement, and
- 5) That as the Commission has adopted a comparative approach in setting the x factors for its price threshold, the decision to elevate x factors for discount paying trust owned companies automatically means that x factors for a corresponding number of dividend paying or cash retaining companies are lowered, which provides an ability and an incentive for those companies to raise prices and possibly extract excess profits, and
- 6) That this outcome is contrary to the Purpose Statement.

In order to illustrate the above points I will use two fictitious companies "A" and "B". It is assumed that both companies are at this point of time pricing at the opportunity cost of the resources consumed. Both companies have identical costs and both companies have identical asset values.

The information disclosure accounts of both companies are as follows:

	Company A	Company B
Asset value	10000	10000
revenue	2500	2500
discount		(1000)
costs	(1300)	(1300)
Pre tax earnings	1200	200
Tax	396	66
After tax profit	804	134
Return	8.04%	1.34%

The Commission throughout its reports has determined that the discount is not a lessening of revenue but instead is a return to owners. The report preceding the last round of consultations recommended that the two companies be compared on the following basis:

	Company A	Company B
Asset value	10000	10000
Pre tax earnings	1200	200
Plus discount	0	1000
Adjusted pre tax earnings	1200	1200
Pre tax return	12%	12%

The rationale was to ensure that companies with identical revenue, cost, and asset structures received equal rankings irrespective of ownership structure. Companies who increased prices above the opportunity cost of resources were identified and ranked accordingly irrespective of ownership structure.

What the Commission has adopted in its final decision is the following:

	Company A	Company B
Asset value	10000	10000
After tax earnings	804	134
Plus discount	0	1000
Adjusted after tax earnings	804	1134
After tax return	8.04%	11.34%

As a consequence rather than being ranked equally Company “B” is subject to a harsher price threshold and Company “A” is subject to a lighter price threshold. If these were the only two companies being ranked then under the pre tax comparison both companies would have an x of 0. Under the Commission’s post tax methodology Company A would have an x of –1 and Company B an x of 1.

The normal methodology would see the tax shield effect of the discount recognized when calculating the after tax profit, on the same basis that the Commission has recognized the interest tax shield. This would produce:

	Company A	Company B
Asset value	10000	10000
After tax earnings	804	134
Plus discount	0	1000
Less discount tax shield	0	(330)
Adjusted after tax earnings	804	804
After tax return	8.04%	8.04%

If the normal methodology had been adopted then companies with identical circumstances other than ownership structure would receive identical rankings.

Your letter of 12 February states that “Including a discount tax shield in the tax adjustment could provide incentives for lines businesses to provide returns to consumer owners through rebates rather than through other means”. In the absence of the price threshold regime then an incentive is provided by the taxation system to provide returns to consumer owners through rebates rather than through dividends. Including a discount tax shield would simply preserve that incentive. Therefore by itself the inclusion of the shield would provide no incentive, and accordingly the statement in your letter is wrong.

Instead Mr Gunn’s explanation at our 17 February meeting made it clear that what he was seeking to do was to remove the incentive provided by the tax system, by providing a counterbalance through the threshold regime. Indeed this can be the only explanation for the effect we see above where the return of the discount paying company is substantially inflated above that of the dividend paying company. This is a particularly bold step for the Commission to take and one we would have thought worthy of a separate report and consultation.

Further, we do not believe that the Purpose Statement contained in section 57E of the Commerce Act is wide enough to allow the Commission to rectify what it may perceive to be the inefficiencies of the taxation system. We believe that the outcome sought by Mr Gunn is an improper one and ultra vires the Commission.

Looking forward, trust owned companies have in reality only three ways of responding to the proposed threshold setting mechanism;

- Lower prices and lower discount. Tax remains unchanged. In order to achieve equal ranking with dividend paying companies then prices would have to be lowered by the discount tax shield. Following the above example:

	Company A	Company B
Asset value	10000	10000
Revenue	2500	2170
Discount	0	(670)
Costs	(1300)	(1300)
Pre tax	1200	200
Tax	396	66
After tax earnings	804	134
Plus discount	0	670
Adjusted after tax earnings	804	804
After tax return	8.04%	8.04%

This however would imply that the opportunity cost of resources consumed in their production by an efficient service provider is lower under trust ownership than it is under other forms of ownership. The reports issued by the Commission to date would suggest that this is not the case, and there is no mention of such an assertion in the last report open to consultation. If it is not the case then this incentive to lower prices below the opportunity cost of resources is contrary to the Purpose Statement, which as you note in your letter, requires prices to reflect the opportunity cost.

- Retain cash within the company. Another mechanism to lower the calculated return would be to simply give no discount. This would increase tax paid, but would enable the company to increase its investment in ancillary activities. This would make Company Bs figures identical to Company As. Obviously the company could not increase its investment in the network as such investment would decrease its productivity rating. This perverse incentive would appear to be in neither the owners' nor the consumers' interest.
- Finally the third option is to pay a dividend rather than a discount.

We suggest that all three outcomes are either contrary to the Purpose Statement or outside it.

Finally we note that the Commission has adopted a threshold setting approach based upon ranking companies. The effect of the elimination of the discount tax shield is to move discount-paying companies up a group and dividend-paying companies down a group. If we go back to

our example above Company A can increase its prices by 20% before it exceeds the return being assigned to Company B. We note our original assumption that both companies are pricing at opportunity cost. Any increase in price permitted to Company A generates an excess profit. The methodology adopted by the Commission would therefore appear to allow dividend-paying companies to earn excessive profits. This however is completely contrary to the Purpose Statement which requires the Commission to limit companies ability to extract excessive profits, rather than encourage it.

We suggest that the decision to ignore the discount tax shield effect is for a purpose outside the Purpose Statement and produces outcomes that are inconsistent with the Purpose Statement.

We again ask that you re-assess the x factor for The Lines Company, and our fellow three discount paying companies, at the industry base figure of 1.

Yours sincerely

John Anderson  
**CHIEF EXECUTIVE**