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4 November 2002

Submissions on the Review of Asset Valuation Methodologies
Commerce Commission
PO Box 2351
Wellington

Dear Sirs,

**Submission on Line Company Asset Valuation Methodologies
as they relate to Wind Farm Connection Agreements**

Background

Our company is working to establish wind power projects in New Zealand at a number of sites around the country. To this end, we are also establishing local manufacturing of wind turbines, using an advanced world-class design.

Our first project will be installed later this year and consists of a single 500 kW wind turbine on Banks Peninsula, where we are connecting to Orion's 11 kV network. A significant contributor to the viability of the project is the standard connection agreement provided by Orion. This provides:

1. A fixed annual charge per connection
2. Maximum demand charges which are applied to the maximum kVA we would draw when the wind is not blowing (typically 10 kVA per turbine, compared to the 500 kVA output)
3. Rewards for kW and kVAr output during periods of peak demand on the network, recognising the value of embedded generation in both:
 - Reducing TransPower charges
 - Deferring extensions to the network to meet increasing peak demand.

Orion has a system of "controlled demand periods" for which they can alert major connection customers by ripple control signal. In our case we can (if the incentive is there) run our synchronous generator to export kVAr's even when the wind isn't blowing. In any event, **we take the chance that we can provide useful output** (kW and/or kVAr's) at times specified by the lines company.

Attachment 1 sets out the terms of the Orion agreement. Note that this provides a net incentive for embedded generation of nearly \$28,000 per turbine per year or 1.58 c/kWh applied to the total annual output of each turbine. To make the project viable we need a total revenue in excess of \$100,000 per turbine per year (the wind farm costs \$800,000 per turbine, so this is not a fast payback even then). With wholesale prices at 4-5 c/kWh, the revenue from energy sales is around \$70-90,000. Net incentives from a lines company of \$28,000 can make a project viable.

By contrast net connection charges would reduce total revenue, ruling out a wind farm project and the benefits it could bring to the local network.

Comparison of Incentives

Earlier this year, we carried out a study for Orion on the incentives provided by other lines companies for distributed generation (DG). This has since been used in Orion's Annual Report as part of their "Triple Bottom Line" Report. Also it has been posted on Orion's website at:

Directors: Neil Cherry (Chairman), Vicki Buck, Geoff Henderson, Heugh Kelly, Barrie Leay, Keith McConnell

A full copy of the report is attached.

The summary comparison between the companies is shown in the following table.

Ranking	Company	Effect on DG Revenue			
		Charges \$/yr	Rewards \$/yr	Value \$/yr	Total c/kWh
1	Orion	-1,783.25	29,532.16	27,748.91	1.58
2	Northpower	-6,751.62	13,728.20	6,976.58	0.40
3	Dunedin Electricity	-4,400.00	8,600.00	4,200.00	0.24
4	United Networks	-20,400.00	10,032.00	-10,368.00	-0.59
5	Vector	-49,675.30	9,291.76	-40,383.54	-2.30
6	PowerCo	-64,860.00	11,660.40	-53,199.60	-3.04

Table 13: Charges and rewards comparison for DG by distribution company.

Submission

Our submission has two purposes:

1. We wish to draw our report for Orion, in particular the above comparison, to your attention. It seems to us self-evident from this that there is a problem with the pricing policies of some companies. Distributed generation should be being rewarded, not penalised. It will always assist lines companies to reduce their TransPower charges AND it will always assist lines companies to extend the life and/or demand on their own networks (since these have been installed to carry current to consumers, and DG will reduce overall ampere-kilometres). It appears to us that some lines companies are abusing their monopoly position by refusing to reward this properly. A big part of the problem is the charging policy which some companies apply. An obvious improvement would be a regulation that **DG be charged on the basis of maximum kVA it draws** (as Orion does), not the maximum kVA it injects (as some other lines companies do).
2. Furthermore we would submit that the ODV approach is being inappropriately applied in setting connection charges for DG. A large part of the ODV built into existing line company charges is due to the requirement for a high degree of security of supply. This reflects the high marginal value of an interruption of supply, especially to industrial consumers. For example many factories would set the opportunity cost of supply interruptions at several dollars per kWh, due to lost production and other costs of interruption of their core production, whether it is ice-cream or aluminium. By contrast the opportunity cost to a DG is simply the lost revenue from selling electricity, which is measured in cents per kWh, not dollars. Therefore there is a very robust argument that, if the Commerce Commission decides that ODV should continue to be used by the lines companies, **a much lower value of ODV should be calculated as the basis for charging DG connections.**

We respectfully submit the above for your deliberation and would be pleased to participate in the upcoming conference on this subject.

Yours sincerely,



G M Henderson
EXECUTIVE DIRECTOR

Attachment 1 – Orion Standard Terms summarised

Table 1 represents the charges to a 500 kW wind turbine imposed by Orion. These values are current for April 1 2002 to March 31 2003 and can be found at <http://www.oriongroup.co.nz/Energy/Electricity/pricing.htm>.

Orion Charge	Line Co	Trans Power	Unit	Capacity	Total \$/yr
Connection (fixed)	500.05		\$/Conn/yr	1	500.05
Control Demand Period (variable)	60.00	21.92	\$/kVA/yr	10	819.20
Assessed Capacity (variable)	24.40	22.00	\$/kVA/yr	10	464.00
Total					\$1,783.25

Table 1: Line charges for DG from Orion.

To offset these charges Orion offers to pay for power generated during a controlled demand period (CDP) as set out in Table 2. A reward of 95% of the CDP charge for real power and 31% of the CDP charge for reactive power during CDP events is offered. In this case the average kW's and kVAr's are determined by those generated during the CDP.

Orion CDP Buyback component	Rebate	Price	Unit	Capacity	Total \$/yr
Real Power	95%	81.92	\$/kW/yr	200	15,564.80
Reactive Power	31%	81.92	\$/kVAr/yr	550	13,967.36
Total					\$29,532.16

Table 2: Rewards for DG from Orion.

Thus the net income from Orion is expected to be:

	\$/year	c/kWh
Rewards	\$29,532.16	1.69
Charges	-\$1,783.25	-0.10
Value	\$27,748.91	1.58

Table 3: Net Income for DG from Orion.