



**ADDENDUM TO**

**EASTLAND NETWORK LTD'S**

**OPTIMISED DEPRIVAL VALUATION REPORT**

**as at**

**31 March 2001**

**Version Date: 20 May 2002**

# 1.0 Introduction

Following an Audit of Eastland Network Ltd's ODV Report dated 31 March 2001 the Commerce Commission notified Eastland Network Ltd of changes required to obtain approval.

These changes are submitted for approval by way of this Addendum to the original report.

The Eastland Network Ltd recalibrated 2001 ODV therefore comprises:

- The original ODV Report dated 31 March 2001
- This Addendum dated 20 May 2002

## 2.0 Valuation Adjustments

This section records the items that have resulted in valuation changes.

### 2.1 Zone Substation Building Values

Eastland Network Ltd has derived a standard replacement cost for substations by applying the actual construction costs for its newest and lowest cost substation. This has been converted to a per square metre figure. All other buildings have then been optimised and standardised to a consistent value based on floor area.

<b>Result on Substation Values</b>				
	SRC (\$000)	DRC (\$000)	OSRC (\$000)	ODRC (\$000)
Original 2001 ODV	592	311	592	311
Addendum	1,718	810	1,718	810
Net change	+1,126	+499	+1,126	+499

### 2.2 Sizing of Cables

Eastland Network Ltd has some 185mm Cu cables installed on its network. The Handbook only quotes cable size for Al cables and therefore conversion of the Cu size to the equivalent Al size was required. 240 mm Al cable is the closest (but not exact) equivalent size to 185 mm Cu cable that is currently available. Therefore Eastland Network Ltd sized its 185 mm Cu as 240 mm Al cables for valuation purposes.

However 240 mm is the boundary for classification between heavy and medium cable. Cables 240 mm or less must be classified as medium. Eastland Network Ltd has therefore reclassified its 185 mm Cu cables from heavy to medium.

<b>Result on 11kV Cable Values</b>				
	SRC (\$000)	DRC (\$000)	OSRC (\$000)	ODRC (\$000)
Original 2001 ODV	8,541	5,842	8,514	5,827
Addendum	8,156	5,542	8,129	5,527
Net change	-385	-300	-385	-300

### 2.3 Optimisation of Transformer Capacity

ENL's transformer optimisation adheres to the Handbook Methodology at a transformer by transformer level of detail. This Methodology requires transformer size to be reduced to the next smallest size when utilisation is less than 30 %. Transformers only come in certain size increments and this prevents optimisation to an exact utilisation of 30 %. Consequently the Auditors have indicated that ENL's ODV is over-optimised by 3 % and advise correction can be made via a global approach.

<b>Result of Transformer Optimisation</b>				
	SRC (\$000)	DRC (\$000)	OSRC (\$000)	ODRC (\$000)
Original 2001 ODV	16,694	6,501	15,469	6,025
Addendum	16,694	6,501	16,063	6,271
Net change	0	0	+594	+246

### 2.4 Other

All other issues affecting value raised in the Commerce Commissions original Audit Report have been ruled "not material" by the Commission following further investigation. Therefore no other changes to values presented in Eastland Network Ltd's original 2001 ODV Report are required.

### 2.5 ODV Summary Schedule

An updated ODV Summary is appended. This includes the value adjustments documented above. It also includes asset quantities required to comply the Handbook Preface. The format of this schedule has been notified as acceptable by the Commission.

## 2.6 Net Result on ODRC

<b>Result of Total Value</b>				
	SRC (\$000)	DRC (\$000)	OSRC (\$000)	ODRC (\$000)
Original 2001 ODV	146,938	56,182	142,746	54,771
Net substation	+1,126	+499	+1,126	+499
Net cable	-385	-300	-385	-300
Net transformer	0	0	+594	+246
Addendum Total	147,679	56,381	144,081	55,216
Net total change	+741	+199	+1,335	+445

## 3.0 Other Required Information

The following information is required to comply with the ODV Handbook Preface.

### 3.1 Load Forecasts

Actual units of electricity sold per 2001 ODV network segment are as follows:

<b>Substation</b>	<b>2000</b>	<b>2001</b>	<b>Growth</b>	<b>2000-2002 Average</b>
Te Araroa	3,425,533	3,532,766	3.13%	1.07%
Ruatoria	6,302,922	6,386,499	1.33%	0.57%
Tokomaru Bay	3,347,262	3,545,514	5.92%	6.73%
Tolaga Bay	4,525,809	4,896,121	8.18%	4.98%
Kaiti (Rural feeders)	6,498,276	6,836,114	5.2%	3.63%
Parkinson (Rural) Matawhero	4,737,183	6,453,751	36.24%	24.94%
Patutahi	14,082,734	14,566,625	3.44%	2.39%
Pehiri	1,840,789	1,834,237	-0.36%	1.33%
Ngatapa	1,674,092	1,900,532	13.53%	7.54%
Puha	6,784,039	7,520,630	10.86%	6.83%
Massey Road	3,157,242	3,871,899	22.64%	9.63%
Gisborne	159,035,618	172,873,757	8.70%	4.28%
Tuai	3,000,000	3,026,532	0.88%	-3.19%
Kiwi	46,700,000	47,596,022	1.92%	0.42%
Mahia	4,560,000	4,722,692	3.57%	4.99%

It should be noted that since the 2001 ODV was completed Eastland Network Ltd has added another 2 zone substations, upgraded another 3 zone substations, bypassed 3 Transpower supplies and significantly shifted load between the segments given above. It also made significant changes during the ODV Report year.

Eastland Network Ltd's network has in fact been constrained both in capacity and security terms. The figures given above are therefore only meaningful as a snapshot of the network load during that year. Applying them to forecasting gives loadings that don't reconcile with the current reality.

Being constrained or unable to deliver on security standards negates any need for optimisation in most cases giving rise to the low level of optimisation necessary in Eastland Network Ltd's case.

### **3.2 Quality of Supply**

Eastland Network Ltd's Security Standards are appended. In 2000/01 at no point in the sub-transmission or zone substation network where load exceeded 1MW was Eastland Network Ltd able to claim 100% compliance with standard. Forecasting 10 years growth is therefore not relevant i.e. upgrade triggers have been reached and upgrade has been progressed since completion of the 2001 ODV.

### **3.3 Optimisation**

The methodology given in Appendix C of the Handbook was applied to each asset group on an asset by asset basis. This work was undertaken manually and is only documented in detail in the electronic schedules in Eastland Network Ltd's ODV database because of the volume involved. The detail has been audited by Kerslake and Partners as a compliant and faithful application of the handbook methodology. Kerslake's report only provides detail of the Optimisation results. Optimisation has resulted in a 2.1% reduction in value based on ODRC/DRC or 4.2% based on ODV/DRC i.e. including EV writedown. Further description is therefore provided in order to meet the Handbook Preface requirements.

#### **3.3.1 Points of Supply**

Eastland Network Ltd has only one Transpower Grid Exit Point per isolated island of distribution network. It is therefore not possible to interconnect, eliminating the potential for optimisation.

#### **3.3.2 Sub Transmission**

Eastland Network Ltd's network is characterised by long distances. The need for subtransmission is driven by voltage, not capacity. It is not possible to support load at distribution voltages over these distances. This issue is what has led to Eastland Network Ltd having an unusual 50kV voltage standard on its sub-transmission.

### **3.3.3 Zone Substations**

Actual transformer optimisations are listed in the original ODV report. This Addendum has subsequently optimised buildings, provided load growth details and security standards.

Optimisations have been found necessary in Eastland Network Ltd's 4 oldest design rural dual transformer bank configured substations. This is an issue of being superceded by modern design. Eastland Network Ltd's zone substations have a mixture of indoor and outdoor equipment selected on the basis of least cost.

Supplementary detail of the items of equipment within zone substations that have been rationalised out on a configuration basis in the original ODV report is appended.

### **3.3.4 HV Distribution**

The overhead 11kV network has been optimised down to single phase or SWER line where lines are spur connected and the transformers connected are 30kVA or less and therefore suitable for single phase/SWER connection. This ignores the fact that some customers may demand 3 phase power. Over a thousand line records have been optimised in this manner and therefore a summary by feeder segment is appended. Line optimisation tends to occur in rural areas where assets are older and therefore optimisation has limited materiality in value terms.

It is Eastland Network Ltd's practice not to build underground reticulation except as follows:

- Consents require it e.g. new urban reticulation;
- Technical necessity e.g. entry into buildings or connection to ground mounted assets;
- Underground is the least cost option.

Eastland Network Ltd applies no internal standards on visual amenity i.e. its investment decisions are least cost driven. All shared trenches are recorded as such and have the lower standard cost applied.

Cables have been assessed for optimum sizing per the Handbook Methodology. A summary by feeder segmentation is appended.

### **3.3.5 Voltage Control Devices**

There is no on-load tap changing capability at Transpowers points of supply therefore Eastland Network Ltd has had to progressively install tap changing capability at its zone substations to maintain voltage standards.

All line regulators exist because the line length is too long to deliver acceptable voltage and re-conductoring is more costly than a regulator. Loading is such on the network that these regulators can only marginally deliver acceptable voltage during peak loadings without provisioning for growth.

### **3.3.6 Transformers**

This Addendum has adjusted optimisation to less severe levels at the Commissions advice.

### **3.3.7 LV Distribution**

The decision to underground is made on the same least cost basis as for HV cables. However for larger capacity LV reticulation it is often lower cost to underground than install stronger pole lines. Similarly where Telecom circuits are no longer available for road crossings it is more cost-effective to underground one side of the street.

LV lines/cables are installed with the minimum capacity needed to meet standards on voltage, losses and security. If load grows then their performance can only decline. This is evident in the high losses on Eastland Network Ltd's network (8.2% overall) compared to other networks.

### **3.3.8 System Control**

The SCADA system was under development during 2001 primarily because of its inadequacy. In particular we are unable to give load profiles at feeder level for load forecasting because logging capability did not exist at this level.

Eastland Network Ltd has selected a system at the "lower end of the cost spectrum" because this is considered adequate and "fit for purpose". Investment in SCADA technology although newer and more comprehensive is actually lower than previous ODV's.

Eastland Network Ltd has a large investment in load control capability as it is capacity constrained. No load control relays are included in the ODV per the Handbook rules.

### **3.3.9 Profit Maximising Tariff**

Analysis to support the profit-maximising tariff used for the economic valuation is provided in the appended letter from KPMG.

It is further noted that Eastland Network Ltd has a network characterised by low consumption per ICP. Consequently when revenue is expressed on a per kWh basis the assumed profit-maximising tariff is realised for any connection using less than 2000 units p.a. Eastland Network Ltd has approximately 3,500 such connections and therefore a high proportion of our connections are paying in effect a tariff several multiples higher than the assumed maximum without opting to use the lower cost alternative. The assumed maximum tariff is clearly attainable.

Ken Mitchell  
**Chief Executive**

## **Appendices**

- ODV Summary Schedule
- Schedule of Building Values
- Security Standard Appendix C from Eastland Network Ltd's Security Review
- Schedule of Equipment Optimised in Zone Substations
- Summary of 11kV Line Optimisation
- Summary of 11kV Cable Optimisation
- Profit Maximising Analysis and covering letter from KPMG