

Presentation to Commerce Commission
Regulation of Electricity Lines Businesses
Draft ODV Handbook

15 April 2004



Introduction

- This Submission is being presented on behalf of the following 19 Electricity Line Businesses (“ELBs”):
 - Alpine Energy Limited
 - Counties Power Limited
 - Eastland Network Limited
 - Electra Limited
 - Electricity Ashburton Limited
 - Electricity Invercargill Limited
 - Horizon Energy Distribution Limited
 - MainPower New Zealand Limited
 - Marlborough Lines Limited
 - Nelson Electricity Limited
 - Network Tasman Limited
 - Network Waitaki Limited
 - Northpower Limited
 - OtagoNet Joint Venture
 - Scanpower Limited
 - The Lines Company Limited
 - The Power Company Limited
 - Top Energy Limited
 - Waipa Networks Limited

Purpose of Valuation

- The purpose of system fixed asset valuations under Part 4A of the Commerce Act is to provide inputs into:
 - post breach inquiries
 - information disclosures
 - imposition of control
 - setting X
- Submissions have been made in the context of draft decisions and draft papers.
- The objectives of the ODV valuations are missing from the draft Handbook.
- How often are valuations required?
- How often will the Handbook be updated?
- Details are also absent about the DHC alternative.

ODV or ODRC?

- 23 December 2002 Draft Decisions:
 - ODV for opening values; and
 - ODV or DHC for values going forward.
- No justification provided for ODV vs ODRC for opening values.
- The draft Handbook has moved away from the prescription previously applied to the EV component of ODV, with more emphasis on ODRC.
- The draft Handbook provisions for EV and Deprival Value make it very difficult for auditors to certify under Requirement 30 of the Electricity Information Disclosure Requirements.
- The PBA Report suggests that the EV test is limited to high value, non-standard assets (where EV tends to significantly exceed ODRC).
- Is ODRC more appropriate? – depends on the purpose of the valuation.

The Role of Economic Value Testing

- Under the previous light handed regulatory regime, the EV component tested the ODRC asset value (by segment) for economic impairment.
- Cash flow constraints which led to impairment write-downs reflected:
 - the availability of cheaper supply options (alternative fuels, by-pass);
 - but NOT regulatory (price or revenue) constraints.
- Cash flow constraints were theoretical, that is, they were not linked to actual or planned prices or revenues.
- Under the targeted control regime, are these assumptions valid?
- Is the asset valuation process the appropriate place in the regime to make these assumptions?
- Is there an inherent circularity in this process that did not exist under the disclosure regime?

Prescription vs Principle

- The draft Handbook is notably more prescriptive than previous versions (in respect of the ODRC component).
- Over prescription is highly risky, it introduces anomalies and errors.
- Additional prescription can go terribly wrong (eg: 4th edition MED ODV Handbook-additional EV segmentation specification).
- The approach to the draft Handbook should be reconsidered. It should:

Provide clear valuation principles and guidance.

Prescription vs Principle

- There are many examples in the draft Handbook where the clauses are incorrect due to excessive prescription. This can be readily solved by replacing such prescriptions with guiding principles, for example:
 - Clauses 2.1 – 2.10 should be simplified and rewritten under a single, clear principle:

The most accurate data at the time of valuation should be used in compiling the asset register. Where estimates must be made, due to incomplete data, the basis of estimate is reviewed at each valuation, and is documented in the valuation report.

Replacement Costs

- The maximum replacement costs included in our submission were derived from questionnaires completed by submission group members.
- Cost components consistent with Clause A.3 of the draft Handbook were supplied.
- It is not clear how costs were derived for the draft Handbook.
- A comparison between our submission and the draft Handbook shows a consistent trend – costs in the draft Handbook are lower for most asset categories.

Replacement Costs

Asset Description	Unit	Standard Replacement Cost (\$000)		
		Our Submission	Draft Handbook	Difference
Subtransmission				
33kV Lines – Heavy ($\geq 150\text{mm}^2 \leq 300\text{mm}^2$ A1)	km	64	56	(8)
33kV Lines – Light ($< 150\text{mm}^2$ A1)	km	48	40	(8)
33kV Lines – Double Cct Heavy	km	96	90	(6)
33kV Lines – Double Cct Light	km	72	70	(2)
33kV Cables - ($\leq 240\text{mm}^2$ A1)	km	176	175	(1)
33kV Cables - Double Cct ($\leq 240\text{mm}^2$ AL)	km	283	280	(3)
Pilot/Communications Ccts O/H	km	***	***	n/a
Pilot/Communications Ccts U/G	km	***	***	n/a
33kV Load Break Switch	No.	12	n/a	n/a
33kV Air Break Switch	No.	9	9	-
33kV Links/Isolator	No.	4.5	n/a	n/a
33kV Outdoor circuit breaker	No.	39	35	(4)
33kV Independent surge arrestors 3ph	Set	8	8	-

Replacement Costs

Asset Description	Unit	Standard Replacement Cost (\$000)		
		Our Submission	Draft Handbook	Difference
Distribution				
MV Lines				
22kV O/H Heavy ($\geq 150\text{mm}^2 \leq 240\text{mm}^2$ A1)	km	34	32	(2)
22kV O/H Medium ($> 50\text{mm}^2 < 150\text{mm}^2$ A1)	km	31	29	(2)
22kV O/H Light ($\leq 50\text{mm}^2$ A1)	km	29	27	(2)
22kV Single Phase (2 wire)	km	26	23	(3)
22kV SWER	km	22	23	1
11kV O/H Heavy ($\geq 150\text{mm}^2 \leq 240\text{mm}^2$ A1)	km	32	30	(2)
11kV O/H Medium ($> 50\text{mm}^2 < 150\text{mm}^2$ A1)	km	29	27	(2)
11kV O/H Light ($\leq 50\text{mm}^2$ A1)	km	27	25	(2)
11kV Single Phase (2 wire)	km	24	21	(3)
11kV SWER	km	21	21	-
MV Lines				
22kV O/H DCct Heavy	km	52	50	(2)
22kV O/H DCct Medium	km	48	46	(2)
22kV O/H DCct Light	km	44	42	(2)
11kV O/H DCct Heavy	km	48	46	(2)
11kV O/H DCct Medium	km	44	42	(2)
11kV O/H DCct Light	km	40	38	(2)

Replacement Costs

Asset Description	Unit	Standard Replacement Cost (\$000)		
		Our Submission	Draft Handbook	Difference
Distribution				
22kV O/H Underbuilt Heavy	km	18	17	(1)
22kV O/H Underbuilt Medium	km	17	15	(2)
22kV O/H Underbuilt Light	km	15	14	(1)
22kV O/H Underbuilt Single Phase (2 wire)	km	12	n/a	n/a
22kV O/H Underbuilt SWER	km	10	n/a	n/a
11kV O/H Underbuilt Heavy	km	16	15	(1)
11kV O/H Underbuilt Medium	km	15	14	(1)
11kV O/H Underbuilt Light	km	13	12	(1)
11kV O/H Underbuilt Single Phase (2 wire)	km	10	n/a	n/a
11kV O/H Underbuilt SWER	km	9	n/a	n/a

Replacement Costs

Asset Description	Unit	Standard Replacement Cost (\$000)		
		Our Submission	Draft Handbook	Difference
Distribution				
MV Cables				
22kV U/G Heavy (>240mm² ≤300mm² A1)	km	166	155	(11)
22kV U/G Medium (>50mm² ≤240mm² A1)	km	124	118	(6)
22kV U/G Light (≤50mm² A1)	km	99	94	(5)
11kV U/G Heavy (>240mm ² ≤300mm ² A1)	km	126	125	(1)
11kV U/G Medium (>50mm ² ≤240mm ² A1)	km	100	97	(3)
11kV U/G Light (≤50mm ² A1)	km	81	77	(4)
22kV U/G DCct Heavy	km	232	210	(22)
22kV U/G DCct Medium	km	179	140	(39)
22kV U/G DCct Light	km	144	n/a	n/a
11kV U/G DCct Heavy	km	170	170	-
11kV U/G DCct Medium	km	140	135	(5)
11kV U/G DCct Light	km	121	n/a	n/a

Replacement Costs

Asset Description	Unit	Standard Replacement Cost (\$000)		
		Our Submission	Draft Handbook	Difference
MV Switchgear				
22kV Disconnecter/links 3ph (Excl Pole)	No.	4.0	3.5	(0.5)
11kV Disconnecter/links 3ph (Excl Pole)	No.	4.0	3.5	(0.5)
22kV Disconnecter/links 2ph (Excl Pole)	No.	3	n/a	n/a
11kV Disconnecter/links 2ph (Excl Pole)	No.	2	n/a	n/a
22kV Load Break Switch (Excl Pole)	No.	8.0	6.5	(1.5)
11kV Load Break Switch (Excl Pole)	No.	6.0	6.5	0.5
22kV Dropout Fuse 3 Ph (Excl Pole)	No.	3.0	2.5	(0.5)
11kV Dropout Fuse 3 Ph (Excl Pole)	No.	2.0	2.5	0.5
22kV Dropout Fuse 2 Ph (Excl Pole)	No.	2	n/a	n/a
11kV Dropout Fuse 2 Ph (Excl Pole)	No.	1.5	n/a	n/a
22kV Dropout Fuse SWER (Excl Pole)	No.	1.5	n/a	n/a
11kV Dropout Fuse SWER (Excl Pole)	No.	1	n/a	n/a
22kV Sectionaliser (Excl Pole)	No.	19	18	(1)
11kV Sectionaliser (Excl Pole)	No.	19	18	(1)
22kV Recloser (Excl Pole)	No.	29	26	(3)
11kV Recloser (Excl Pole)	No.	27	26	(1)

Replacement Costs

Asset Description	Unit	Standard Replacement Cost (\$000)		
		Our Submission	Draft Handbook	Difference
MV Switchgear				
Independent surge arrestors 22kV 3ph	Set	3	n/a	n/a
Independent surge arrestors 11kV 3ph	Set	2	n/a	n/a
22kV Indoor Circuit Breaker	No.	30	30	-
11kV Indoor Circuit Breaker	No.	30	30	-
Voltage Regulator	No.	***	***	n/a
Ring Main Unit metalclad oil-filled – 3 Way	No.	19	16	(3)
Extra Oil Switch metalclad oil-filled	No.	8	6	(2)
Extra Fuse Switch metalclad oil-filled	No.	8	8	-
Ring Main Unit moulded epoxy resin base – 3 Way	No.	15	n/a	n/a
Extra isolator moulded epoxy resin base	No.	5	n/a	n/a
Extra fuse unit moulded epoxy resin base	No.	8	n/a	n/a

Replacement Costs

Asset Description	Unit	Standard Replacement Cost (\$000)		
		Our Submission	Draft Handbook	Difference
Distribution Transformers (kVA)				
Single/Two Phase Units 22kV/LV & 11kV/LV Up to and including 50kVA				
75	No.	4.0	2.6 – 4.0	(1.4)
100	No.	5	5	-
	No.	7	7	-
Three Phase Units (Pole Mounted – Bushing Terminations) 22kV/LV				
15	No.	6	6	-
30	No.	6	6	-
50	No.	8	8	-
100	No.	12	11	(1)
200	No.	17	14	(3)
300	No.	18	17	(1)
500	No.	21	20	(1)

Replacement Costs

Asset Description	Unit	Standard Replacement Cost (\$000)		
		Our Submission	Draft Handbook	Difference
11kV/LV	No.	4	4	-
15	No.	4	4	-
30	No.	6	6	-
50	No.	8	8	-
100	No.	13	12	(1)
200	No.	16	15	(1)
300	No.	19	18	(1)
500	No.			
Three Phase Units (Cable entry, one or both voltages) 22kV/LV				
100	No.	12	11	(1)
200	No.	18	15	(3)
300	No.	22	18	(4)
500	No.	24	22	(2)
750	No.	29	26	(3)
1000	No.	38	31	(7)
1250	No.	48	40	(8)
1500	No.	57	49	(8)

Replacement Costs

Asset Description	Unit	Standard Replacement Cost (\$000)		
		Our Submission	Draft Handbook	Difference
11kV/LV	No.	10	9	(1)
100	No.	16	13	(3)
200	No.	17	16	(1)
300	No.	22	20	(2)
500	No.	26	23	(3)
750	No.	30	26	(4)
1000	No.	42	34	(8)
1250	No.	50	42	(8)
1500				
SWER Isolating Transformers				
22kV	No.	7	n/a	n/a
50	No.	9	n/a	n/a
100	No.	13	n/a	n/a
200				
11kV				
50	No.	6	n/a	n/a
100	No.	7	n/a	n/a
200	No.	12	n/a	n/a

Replacement Costs

Asset Description	Unit	Standard Replacement Cost (\$000)		
		Our Submission	Draft Handbook	Difference
Distribution Substations				
22kV/LV & 11kV/LV				
Pole Mounted (up to 50kVA)	No.	1	1	-
Pole Mounted (above 50kVA)	No.	2	2	-
Ground Mounted (Covered)	No.	4	4	-
Kiosk (Masonry or block enclosure)	No.	9	9	-
On Customer's Premises with Feedout	No.	2	2	-
Land	No.	***	-	n/a
LV Reticulation				
Overhead – LV 4 wire only large	km	48	45	(3)
Overhead – LV 4 wire only medium	km	42	42	-
Overhead – LV only 2 wire medium	km	38	n/a	n/a
LV underbuilt 4 wire large	km	26	24	(2)
LV underbuilt 4 wire medium	km	22	21	(1)
LV underbuilt 2 wire medium	km	18	n/a	n/a
Streetlighting O/H 2 wire	km	30	n/a	n/a
Streetlighting O/H underbuilt	km	7	n/a	n/a

Replacement Costs

Asset Description	Unit	Standard Replacement Cost (\$000)		
		Our Submission	Draft Handbook	Difference
Underground – LV only large	km	75	72	(3)
Underground – LV only medium	km	65	63	(2)
Underground – with MV large	km	52	40	(12)
Underground – with MV medium	km	37	32	(5)
Streetlighting U/G 2 core	km	40	16	24
Streetlighting U/G 2 core joint trench	km	16	n/a	n/a
LV Network Link Pillar	No.	6.2	4.0	(2.2)
Customer Service Connections Excluding Meters and Relays				
HV overhead	No.	0.6	n/a	n/a
HV underground	No.	4	n/a	n/a
LV – 1 ph O/H	No.	0.08	0.07	(0.01)
LV – 1 ph U/G Shared Service Pillar	No.	0.3	n/a	n/a
LV – 1 ph U/G	No.	0.6	0.5	(0.1)
LV – 3 ph O/H	No.	0.18	0.18	-
LV – 3 ph U/G	No.	0.98	0.80	(0.18)
LV – 3 ph O/H (> 200 amp)	No.	0.92	n/a	n/a
Other System Fixed Assets				
SCADA and Comms (Central Facilities)	Lot	-	-	-
Easements	No.	***	-	-
Strategic Spares	Lot	***	-	-

Replacement Costs

- Important replacement cost discrepancies between our submission and the draft Handbook include:
 - 33kV overhead lines
 - 33kV subtransmission equipment
 - Indoor and outdoor circuit breakers in zone substations
 - MV switchgear in zone substations
 - 22kV MV cables
 - MV switchgear
 - Distribution transformers
 - Street lighting
 - Customer connections
 - Switchgear automation
- Non-standard costs are appropriate where non-standard circumstances (or those not covered by multipliers) apply. Actual costs may be used in these instances.

Replacement Cost Multipliers

- Traffic management (lines and cables):
 - allowances are inadequate
 - do not recognise different classes of roads
 - severe costs fall outside range
 - fails to consider underbuilt and shared trench assets.
- Business district (cables):
 - allowances are inadequate
 - reinstatement/backfill costs are significant
 - severe costs fall outside range
- Multiplier clauses
 - confused and “buried” in Appendix A
 - clarify and collate together

Multipliers

Asset Category	Condition	Multiplier		Draft Handbook
		Designation	Value Range	
Overhead line	Urban locality	Urban	1.5 – 1.8	1.5 – 1.8
	Site remote from depot – 2hrs travel ¹	Remote	1.10 – 1.25	1.00 – 1.25
	Terrain unsuitable for normal vehicular access	Rugged terrain	1.2 – 1.3	1.2 – 1.3
	Swamp or tidal ground	Swamp	1.1 – 1.3	n/a
	Road traffic safety and control	Traffic management	\$800 – \$1,500/km	\$800/km
Underground cable	Business districts, congestion, pedestrians etc	Business area	1.25 – 1.35	1.15 – 1.25
	Loose or solid rock excavation	Rocky ground	1.5 – 2.0	1.5 – 2.0
	Road traffic safety and control	Traffic management	\$4,000 – \$6,000/km	\$4,000/km
Distribution substations	High ground resistivity	Earthing	1.2 – 2.0	n/a

¹ Also applies to equipment.

Asset Lives and Depreciation

- Specific categories require a review of lives:
 - concrete poles;
 - concrete/masonry buildings; and
 - underbuilt lines.
- Life extensions on transformers:
 - zone substation transformers;
 - remove reference to accounting treatment; and
 - life extensions are granted to reflect remaining service potential.

Optimisation

- All optimisation should be undertaken with reference to the ELBs stated quality of supply – which includes many of the other concepts embodied in the draft Handbook.
- Specific optimisation of network engineering is not required. Optimisation of network configuration and capacity inherently include consideration of network engineering standards.
- Planning periods require review:
 - 33kV is missing from clause 2.28
 - subtransmission should be 25 years
 - zone substations should be the same as subtransmission
 - distribution transformers should be 5 years.
- SWER isolating transformers should not be optimised out – they are the least cost MEA.