Optimised Deprival Valuation of the System Fixed Assets of Scanpower Limited as at 31 March 2004 Based on ODV Handbook (August 2004 Edition)

Dated 2 December 2004

Table of Contents

1.0 Introduction

This network asset ODV report has been prepared using the Commerce Commission "Handbook for Optimised Deprival Valuation of System Fixed Assets of Electricity Lines Businesses" issued 30 August 2004.

The valuation has been prepared using the network asset position as at 31 March 2004.

The objective of this report is to meet the reporting and information disclosure requirements of the Handbook.

2.0 Asset Quantities and Valuation Summary *(Requirement 2.65(a) and 2.65(b))*

2.1 Summary Valuation Statement

Total Replacement Cost (RC)	**$40,581,674**
Depreciated Replacement Cost (DRC)	**$19,557,081**
Optimised Depreciated Replacement Cost (ODRC)	**$19,540,725**
Economic Value Adjustments	**$0**
Optimised Deprival Value (ODV)	**$19,540,725**

The tables below present the break down of this total by asset class for the valuation asset base as a whole.

DISTRIBUTION LINE ASSETS	Quantity	Standard RC	Life	RC	ORC	DRC	ODRC	ODV
Distribution Lines 11 kV O/H DCct Medium	12.0	$42,000	60/45	$504,000	$504,000	$115,733	$115,733	$115,733
Distribution Lines 11 KV O/H Light (≤ 50mm2 Al)	593.3	$25,000	60/45	$15,027,350	$15,027,350	$9,168,537	$9,168,537	$9,168,537
Distribution Lines 11 kV O/H Medium (>50mm2, <150mm2 Al)	135.4	$28,000	60/45	$4,055,860	$4,055,860	$1,686,286	$1,686,286	$1,686,286
Distribution Lines 11 kV Single Phase or SWER Lines	2.8	$21,000	60/45	$58,800	$58,800	$32,667	$32,667	$32,667
Distribution Lines 11 KV U/G Light (≤ 50mm2 Al)	3.2	$81,000	45	$256,770	$256,770	$102,258	$102,258	$102,258
LV Lines - Underground Medium - LV Only (≤240mm2)	43.0	$63,000	45	$2,766,306	$2,766,306	$1,901,260	$1,901,260	$1,901,260
LV Lines Overhead Light Underbuilt 2 Wire (≤50mm2)	5.7	$14,000	60/45	$108,647	$108,647	$61,534	$61,534	$61,534
LV Lines Overhead Medium 4 Wire - LV Only (≤150mm2)	5.5	$42,000	60/45	$231,420	$231,420	$42,903	$42,903	$42,903
LV Lines Overhead Medium Underbuilt 4 Wire (≤150mm2)	3.2	$21,000	60/45	$67,620	$67,620	$14,398	$14,398	$14,398
LV Lines Overhead Light Underbuilt 4 Wire (≤50mm2)	54.9	$19,000	60/45	$1,042,237	$1,042,237	$575,905	$575,905	$575,905
LV Lines Overhead Light 4 Wire - LV Only (≤50mm2)	2.1	$38,000	60/45	$80,560	$80,560	$12,686	$12,686	$12,686
DISTRIBUTION LINES TOTAL				**$24,199,571**	**$24,199,571**	**$13,714,166**	**$13,714,166**	**$13,714,166**
DISTRIBUTION TRANSFORMER ASSETS	**Quantity**	**Standard RC**	**Life**	**RC**	**ORC**	**DRC**	**ODRC**	**ODV**
11 / 0.4kV Single Phase Unit Up To And Including 15 kVA	63	$2,600	45	$163,800	$163,800	$41,947	$41,947	$41,947
11 / 0.4kV Single Phase Unit 30 kVA	17	$3,300	45	$56,100	$56,100	$15,840	$15,840	$15,840
11 / 0.4kV Three Phase Unit Up To And Including 30 kVA (Pole Mounted - Bushing Terminations)	1016	$5,000	45	$5,080,000	$5,080,000	$1,702,667	$1,702,667	$1,702,667
11 / 0.4kV Three Phase Unit 50 kVA (Pole Mounted - Bushing Terminations)	62	$7,000	45	$434,000	$434,000	$205,333	$205,333	$205,333
11 / 0.4kV Three Phase Unit 100 kVA (Pole Mounted - Bushing Terminations)	28	$9,000	45	$252,000	$252,000	$90,200	$90,200	$90,200
11 / 0.4kV Three Phase Unit 200 kVA (Cable Entry)	56	$14,000	45	$784,000	$784,000	$300,533	$300,533	$300,533
11 / 0.4kV Three Phase Unit 200 kVA (Pole Mounted - Bushing Terminations)	4	$13,000	45	$52,000	$52,000	$18,489	$18,489	$18,489
11 / 0.4kV Three Phase Unit 300 kVA (Cable Entry)	18	$16,000	45	$288,000	$288,000	$78,933	$78,933	$78,933
11 / 0.4kV Three Phase Unit 300 kVA (Pole Mounted - Bushing Terminations)	6	$16,000	45	$96,000	$96,000	$21,333	$21,333	$21,333
11 / 0.4kV Three Phase Unit 500 kVA (Cable Entry)	4	$22,000	45	$88,000	$88,000	$26,889	$26,889	$26,889
11 / 0.4kV Three Phase Unit 750 kVA (Cable Entry)	4	$26,000	45	$104,000	$104,000	$77,422	$77,422	$77,422
11 / 0.4kV Three Phase Unit 1000 kVA (Customer Premises)	6	$29,000	45	$174,000	$174,000	$121,800	$121,800	$121,800
DISTRIBUTION TRANSFORMERS TOTAL				**$7,571,900**	**$7,571,900**	**$2,701,387**	**$2,701,387**	**$2,701,387**
DISTRIBUTION SUBSTATION ASSETS	**Quantity**	**Standard RC**	**Life**	**RC**	**ORC**	**DRC**	**ODRC**	**ODV**
Pole Mounted (50 kVA or less)	1158	$1,000	45	$1,158,000	$1,158,000	$390,800	$390,800	$390,800
Pole Mounted (100 kVA or more)	38	$2,000	45	$76,000	$76,000	$25,556	$25,556	$25,556
Ground Mounted (Covered)	82	$4,000	45	$328,000	$328,000	$122,400	$122,400	$122,400
On Customer Premises With Feed Out	6	$2,000	45	12000	12000	8400	8400	8400
DISTRIBUTION SUBSTATIONS TOTAL				**$1,574,000**	**$1,574,000**	**$547,156**	**$547,156**	**$547,156**

DISTRIBUTION SWITCHGEAR ASSETS	Quantity	Standard RC	Life	RC	ORC	DRC	ODRC	ODV
22 / 11 kV Dropout Fuse 2 Ph (Excl Pole)	80	$2,000	35	$160,000	$160,000	$32,971	$32,971	$32,971
22 / 11 kV Dropout Fuse 3 Ph (Excl Pole)	1204	$2,500	35	$3,010,000	$3,010,000	$767,429	$767,429	$767,429
Distribution Switchgear 22/11 kV 3PH Disconnector (Excl Pole)	109	$3,500	35	$381,500	$381,500	$131,100	$131,100	$131,100
22/11kV Indoor Switchgear Cubicle	7	$30,000	45	$210,000	$210,000	$78,000	$78,000	$78,000
Distribution Switchgear 22/11kV Recloser (excl Pole)	13	$27,000	40	$351,000	$351,000	$313,875	$313,875	$313,875
Distribution Switchgear 22/11 kV Sectionaliser (Excl Pole)	1	$18,000	40	$18,000	$18,000	$17,550	$17,550	$17,550
Distribution Switchgear Ring Main Unit - 3 Way	2	$16,000	40	$32,000	$32,000	$21,200	$21,200	$21,200
Distribution Switchgear - Voltage Regulator	2	$60,000	55	$120,000	$120,000	$91,636	$91,636	$91,636
DISTRIBUTION SWITCHGEAR TOTAL				**$4,282,500**	**$4,282,500**	**$1,453,761**	**$1,453,761**	**$1,453,761**
CUSTOMER CONNECTION ASSETS	**Quantity**	**Standard RC**	**Life**	**RC**	**ORC**	**DRC**	**ODRC**	**ODV**
Customer Service Connection LV Overhead - 1 PH	1138	$70	45	$79,660	$79,660	$7,683	$7,683	$7,683
Customer Service Connection LV Overhead - 3 PH	2353	$180	45	$423,540	$423,540	$40,848	$40,848	$40,848
Customer Service Connection LV Underground - 1 PH Shared Fuse Pillar	2240	$250	45	$560,000	$560,000	$371,591	$371,591	$371,591
Customer Service Connection LV Underground - 3 PH Shared Fuse Pillar	1068	$400	45	$427,200	$427,200	$283,471	$283,471	$283,471
CUSTOMER CONNECTIONS TOTALS				**$1,490,400**	**$1,490,400**	**$703,593**	**$703,593**	**$703,593**
EQUIPMENT IN STORES & SPARES	**Quantity**	**Standard RC**	**Life**	**RC**	**ORC**	**DRC**	**ODRC**	**ODV**
Network Strategic Spares	LOT			$480,900	$300,700	$235,158	$218,802	$218,802
STORES & SPARES TOTAL				**$480,900**	**$300,700**	**$235,158**	**$218,802**	**$218,802**
MISCELLANEOUS & NON STANDARD ASSETS	**Quantity**	**Standard RC**	**Life**	**RC**	**ORC**	**DRC**	**ODRC**	**ODV**
Ripple Control Plant	LOT	NON STANDARD	20	$666,000	$666,000	$99,900	$99,900	$99,900
UHF Communications for Load Control	LOT	NON STANDARD	15	$161,580	$161,580	$32,316	$32,316	$32,316
Chevron Feeder Tie Structure	LOT	NON STANDARD	60	$63,738	$63,738	$19,121	$19,121	$19,121
VHF Radio Equipment	LOT	NON STANDARD	10	$37,550	$37,550	$11,265	$11,265	$11,265
SCADA Control Gear	LOT	NON STANDARD	15	$53,535	$53,535	$39,259	$39,259	$39,259
MISCELLANEOUS & NON STANDARD ASSETS TOTAL				**$982,403**	**$982,403**	**$201,861**	**$201,861**	**$201,861**
TOTAL DISTRIBUTION ASSET VALUES				**RC**	**ORC**	**DRC**	**ODRC**	**ODV**
Total Distribution Asset Values as at 31 March 2004				**$40,581,674**	**$40,401,474**	**$19,557,081**	**$19,540,725**	**$19,540,725**

TOTAL DISTRIBUTION ASSET VALUES EXCLUDING EQUIPMENT IN STORES & SPARES	RC	ORC	DRC	ODRC	ODV
Total Distribution Asset Values as at 31 March 2004	**$40,100,774**	**$40,100,774**	**$19,321,923**	**$19,321,923**	**$19,321,923**

3.0 Method for Valuation of Assets Not Prescribed in the Handbook *(Requirement 2.65(c))*

There are no assets in the valuation where there is no method for valuation prescribed.

4.0 Estimations of Asset Quantities and/or Ages *(Requirement 2.65(d))*

4.1 Distribution Line Assets – Rural LV Lines

The length of rural low voltage lines has been estimated on the basis of 80m per km of rural 11 kV line.

This assumption was tested by a sample of physical inspections and used in the 2001 ODV report. There has no been no material change in the design or number of customer connections in rural areas of the Scanpower network, and it has therefore been concluded that this method of estimation remains appropriate.

The age of each rural low voltage line section has been estimated on the basis of the 11 kV line section to which it is connected.

In regard to construction, it was assumed that all rural LV line is "light", as is Scanpower standard policy, and that 90% of the total estimated length is 4 wire and 10% 2 wire. This was tested in 2004 by way of a sample of physical surveys in rural sections of the network.

As anticipated, the majority of rural low voltage lines are of light, 4 wire construction. 2 wire construction is only used to provide supply to single phase installations including small pumps, electric fences and stand-alone residences such as shearers' quarters. Typically however, single phase installations are in the minority in the rural / farming areas of the network.

4.2 Distribution Switchgear – Air Break Switches

Whilst quantities are known, no historical data is available on the installation dates and ages of air break switches. As it is generally Scanpower policy to replace ABS assets during periods of line reconstruction, switches have now been individually aged based on the age of the line section on which they reside.

4.3 Customer Connection Assets

Whilst quantities are known, installation date data is not available at an individual customer connection level. Therefore, underground and overhead connections have been aged on the basis of the average ages of underground LT lines and overhead LT lines.

This produced average ages of 40.66 years for connections supplied by overhead LT and 15.14 years for those supplied by underground LT.

In the case of underground connections, exact ICP level data relating to shared vs own pillar box asset is not currently available. However, it is Scanpower standard design to supply two ICPs per pillar box. Therefore it has been assumed, across all underground connections, that a shared pillar box arrangement is in place.

5.0 Asset Multipliers and Adjustments *(Requirement 2.65(e))*

5.1 Overhead Urban 11kV Line Multiplier *(Clause A.9)*

Per Clause A.9 a multiplier of 1.5 has been applied to 11kV overhead line assets in the urban areas of Dannevirke and Woodville, being the lowest end of the allowable 1.5 to 1.8 range.

This reflects the easy terrain of the Dannevirke and Woodville urban areas, which are mostly flat and not highly congested streets, but provides for the span reduction to 50 metres required to service urban sections, rather than the 70-80 metres provided in the unadjusted standard cost. This multiplier was applied to 31.83km of distribution line categorised as "11kV Urban". The composition of this total, by Handbook category is as follows:

HT Urban	Length (km)
11kV O/H Light (≤50mm^2 Al)	14.14
11kV O/H Medium (>50mm^2, <150mm^2 Al)	17.69
Total	**31.83**

5.2 Underground Cables Multiplier *(Clause A.14)*

Per Clause A.14 a multiplier of 1.15 (the lowest) has been applied to underground cables in the business district areas of Dannevirke and Woodville. For the purposes of applying this multiplier, Dannevirke main street / SH2 ("High Street") and Woodville main street / SH2 (Vogel Street) have been classified as business district areas.

The purpose of this multiplier is to reflect the density of connections in the high street areas of Dannevirke and Woodville, which would be similar to any provincial main centre. These areas contain mainly retail outlets, business premises and public amenities, making access and timing more logistically complex than would ordinarily be the case.

The table below shows the line sections to which this multiplier has been applied. The total quantity is 3.86km.

Line Section	Handbook Category	Length (km)
Vogel St to Ross St to Burgoyne St	U/G Medium LV Only (<240mm^2)	0.25
Vogel St from Ferguson St to Ross St	U/G Medium LV Only (<240mm^2)	0.61
High St from Swinburn St to York St	U/G Medium LV Only (<240mm^2)	0.10
High St from Miller St to Barraud St	U/G Medium LV Only (<240mm^2)	0.23
High St from Gordon St to Mcphee St	U/G Medium LV Only (<240mm^2)	0.10
High St from Alexandra St to York St	U/G Medium LV Only (<240mm^2)	0.31
High St from Cole St to Alexandra St	U/G Medium LV Only (<240mm^2)	1.00
High St from Mangatera to Cole St	U/G Medium LV Only (<240mm^2)	1.26
Total		**3.86**

5.3 Traffic Management Multiplier *(Clause A.19)*

As per Transit NZ "Transit Code of Practice for Temporary Traffic Management in New Zealand" (see map Appendix One), State Highway Two running between Woodville in the South and Norsewood in the North is defined as requiring Level 1 traffic management.

From a Transit NZ perspective, this is the only road area requiring such traffic management. In terms of district council traffic management requirements, the Tararua District Plan is silent at the time of this valuation.

The overhead line sections to which the Level 1 traffic management adjustment of $800 per km has been applied are as follows:

Line Section	Handbook Category	Length (km)
SH2 Oringi	11kV O/H Light (≤50mm^2)	2.6
Masterton Road from Normanby St	11kV O/H Light (≤50mm^2)	4.9
SH2 from Woodlands Rd to Ferguson St	11kV O/H Medium (>50mm^2, <150mm^2)	1.3
SH2 from Gorge Rd to Woodlands Rd	11kV O/H Light (≤50mm^2)	1.1
SH2 Tahoraiti to Oringi	11kV O/H Medium (>50mm^2, <150mm^2)	3.8
SH2 from Norsewood to Jens Anderson Rd	11kV O/H Light (≤50mm^2)	2.9
High St from Cole St to Mangatera	11kV O/H Medium (>50mm^2, <150mm^2)	1.0
High St from White Bus to Ruahine St	11kV O/H Medium (>50mm^2, <150mm^2)	0.4
SH2 Garfield Rd to Norsewood	11kV O/H Light (≤50mm^2)	3.6
Sh2 Matamau to Garfield Rd	11kV O/H Medium (>50mm^2, <150mm^2)	7.1
SH2 Conduit Rd to Bradleys Rd	11kV O/H Light (≤50mm^2)	3.8
SH2 Hopelands Rd to Conduit Rd	11kV O/H Light (≤50mm^2)	1.6
SH2 LT366 to Hopelands Rd	11kV O/H Light (≤50mm^2)	2.0
SH2 CB919 to LT 366	11kV O/H Light (≤50mm^2)	1.5
Adelaide Rd to SH2 Matamau	11kV O/H Medium (>50mm^2, <150mm^2)	8.0
TOTAL		**45.6**

The underground line sections to which the Level 1 traffic management adjustment of $6,000 per km have been applied are as follows:

Line Section	Handbook Category	Length (km)
Vogel St from Ross St to Burgoyne St	U/G Medium LV Only (≤240mm^2)	0.25
Vogel St from Ferguson St to Ross St	U/G Medium LV Only (≤240mm^2)	0.61
High St from Swinburn St to York St	U/G Medium LV Only (≤240mm^2)	0.10
High St from Miller St to Barraud St	U/G Medium LV Only (≤240mm^2)	0.23
High St from Gordon St to McPhee St	U/G Medium LV Only (≤240mm^2)	0.10
High St from Alexandra St to York St	U/G Medium LV Only (≤240mm^2)	0.31
High St from Cole St to Alexandra St	U/G Medium LV Only (≤240mm^2)	1.00
High St from Mangatera to Cole St	U/G Medium LV Only (≤240mm^2)	1.26
TOTAL		**3.86**

There are no other line or cable sections which qualify for a traffic management multiplier.

6.0 Non-Standard Assets
(Requirement 2.65(f))

The replacement costs for non-standard assets have been derived using the same principles underlying the standard replacement costs in the Handbook. That is, they reflect installed costs for Modern Equivalent Assets ("MEA") including materials, labour for installation and commissioning, transport and plant costs and on costs, consistent with Clause A.3 of the Handbook. In addition, the replacement costs reflect large scale construction, where relevant and efficient, and competitive tendering and construction practices.

Current or recent projects have been used as a basis for deriving the MEA replacement costs, with modifications for the factors outlined where appropriate. Installation costs include the particular requirements for Scanpower relative to the specifications and contracting procedures. Local conditions have been incorporated in the assigned values. Quotes were obtained from equipment suppliers where recent project data was not available and independently reviewed by Eddie Graham.

Voltage Regulators

A modern RC of $60,000 has been adopted for each voltage regulator unit. This is based on supplier quotes for equivalent assets.

Ripple Control / Communications / SCADA / Chevron Feeder Structure

The following tables detail assets in the "non-standard" category. These include communications equipment, ripple control and SCADA gear, and a "chevron" feeder tie structure at the Dannevirke GXP substation which is owned by Scanpower.

Asset lives have been based on Handbook guidelines per Table A.1; i.e. 15 years for SCADA and comms equipment, 20 years for ripple injection plant and 60 years for the feeder tie structure which is constructed largely of concrete poles. Modern equivalent asset costs have been based on supplier quotations provided on, or about, 31 March 2004.

MISCELLANEOUS & NON STANDARD ASSETS	Quantity	Standard RC	Life	RC
Ripple Control Plant	LOT	NON STANDARD	20	$666,000
UHF Communications for Load Control	LOT	NON STANDARD	15	$161,580
Chevron Feeder Tie Structure	LOT	NON STANDARD	60	$63,738
VHF Radio Equipment	LOT	NON STANDARD	10	$37,550
SCADA Control Gear	LOT	NON STANDARD	15	$53,535

Ripple Control Gear

The elements which constitute the Ripple Control Gear RC of $666,000 are as follows:

Cost Component	Cost per Unit	Quantity	Total
Materials			
10MVA Transmitter (WDV)	$120,000	1	$120,000
TX Control Panel (WDV)	$30,000	1	$30,000
20MVA Transmitter (DVK)	$180,000	2	$360,000
TX Control Panel (DVK)	$30,000	1	$30,000
Central Control Panel (Base)	$30,000	1	$30,000
Transmitter / Control Panel Spares	$50,000	1	$50,000
Labour			
Enermet Installation Quotation	$60,000	1	$60,000
Transport			
None Quoted	$0	0	$0
On Costs			
Scanpower Project Management	$50	120	$6,000
TOTAL REPLACEMENT COST			**$666,000**

UHF Communications

The elements which constitute the UHF Communications RC of $161,580 are as follows:

Cost Component	Cost per Unit	Quantity	Total
Materials			
VHF / UHF Transmitters	$2,200	28	$61,600
VHF / UHF Receivers	$2,200	28	$61,600
Base Stations	$1,465	5	$7,325
Aerials	$873.75	16	$13,980
Aerial Tower Structure	$3,092	3	$9,275
Cabling and Terminations	NA	LOT	$1,200
Labour			
Technician (hours)	$50	120	$6,000
Transport			
None Quoted	$0	0	$0
On Costs			
Scanpower Project Management	$50	12	$600
TOTAL REPLACEMENT COST			**$161,580**

Chevron Feeder Structure

The elements which constitute the Chevron Feeder Structure RC of $63,738 are as follows:

Cost Component	Cost per Unit	Quantity	Total
Materials			
10m Concrete Poles	$320	24	$7,680
150 x 75 Steel Arms (metres)	$46	140	$6,440
3 Core 120mm 11kV Cable (metres)	$55	518	$28,490
11kV Cable Terminations	$452	14	$6,328
Conductor, Joints, Lugs, Insulators	NA	LOT	$6,000
Labour			
Line Mechanic Man Hours	$21.56	320	$6,900
Transport			
Depot to Sub Daily (kilometres)	$1.10	300	$300
On Costs			
Scanpower Project Management	$50	32	$1,600
TOTAL REPLACEMENT COST			**$63,738**

VHF Radio Sets

The elements which constitute the VHF Radio Sets RC of $37,450 are as follows:

Cost Component	Cost per Unit	Quantity	Total
Materials			
Mobile Radio Units	$1,700	16	$27,200
Base Station Radio Units	$1,700	3	$5,100
Handheld / Mobile Radio Units	$1,200	2	$2,400
Labour			
Technician (hours)	$50	57	$2,850
Transport			
None Quoted	$0	0	$0
On Costs			
Scanpower Project Management	$50	0	$0
TOTAL REPLACEMENT COST			**$37,550**

An operating life of ten years has been applied to the VHF Radio equipment which is considered appropriate given historical performance.

SCADA Control Gear

As per the requirements of Handbook clause A3, the elements which constitute the RC of **$53,535** are provided below.

Cost Component	Cost per Unit	Quantity	Total
Materials			
Desktop PC	$3,000	1	$3,000
Software	$21,000	1	$21,000
SS Screens	$1,000	2	$2,000
RCL Screens	$300	16	$4,800
Comms Power Supply	$500	1	$500
Comms Rack & Gear	$4,230	1	$4,230
Radio	$2,305	1	$2,305
Antenna	$1,000	1	$1,000
Labour			
Software Configuration (hours)	$100	80	$8,000
Comms Installation (hours)	$100	60	$6,000
On Costs			
Scanpower Project Management	$50	14	$700
TOTAL REPLACEMENT COST			**$53,535**

LV Lines Overhead Light Underbuilt 4 Wire (≤50mm^2)

When valuing the Scanpower network fixed assets it was noted that the Handbook did not contain a specifically prescribed value for "LV Lines Overhead Light Underbuilt 4 Wire (≤50mm^2)" in Table A.1.

A value for this was therefore derived as follows:

Asset Category	Standard Value
Overhead Medium 4 Wire LV Only (≤150mm^2)	$42,000
Underbuilt Medium 4 Wire LV Underbuilt (≤150mm^2)	$21,000
Overhead vs Underbuilt Ratio 4 Wire	0.5
Overhead Light 4 Wire LV Only (≤50mm^2)	$38,000
Overhead Light 4 Wire Underbuilt (applying same ratio)	$19,000

Therefore a standard value of $19,000 per km of "Overhead Light 4 Wire LV Underbuilt (≤50mm2)" was adopted. Scanpower has 54.85km of such line in this valuation.

Intermediate Transformer Sizes

For transformers of an "intermediate" size, including 150kVA, 250kVA and 325kVA, installed on the Scanpower network, as per Note (d) to Table A.1 in the Handbook, the RC has been valued at the next size up.

7.0 Asset Life Extensions
(Requirement 2.65(g))

No extensions or reductions have been made to standard Handbook asset lives.

8.0 Changes to Asset Commissioning Date from that Used for Previous ODV
(Requirement 2.65(h))

The following table summarises changes made in asset commissioning date from that used in the previous ODV valuation (per 31 March 2001).

As is evident, it is believed that the changes represent an improvement in quality of commissioning data.

Asset Category	ODV 31 March 2001	ODV 31 March 2004
Air Break Switches (ABS)	An average age of 20 years was assumed for ABS assets, and a commissioning date of 1981 was applied to all assets. This occurred because actual data is not available for ABS ages.	ABS commissioning date now aligned with the commissioning date of the line section on which it resides, therefore producing component specific commissioning dates. This in line with standard Scanpower reconstruction practices.

Asset Category	ODV 31 March 2001	ODV 31 March 2004
Circuit Breakers (CB)	An average age of 2 years was assumed for CB assets, and a commissioning date of 1999 was applied to all assets.	CB commissioning dates now traced back to source data (hand written installation records and invoices) and accurate at an individual component level.

9.0 Assets with a Reduction in Standard Lives
(Requirement 2.65(i))

No standard asset lives have been reduced based on expected routine replacement as part of the evolution of the network.

10.0 Network Optimisation Review
(Requirement 2.65(j))

10.1 Network Overview

Scanpower owns and operates electricity distribution network assets supplying energy to the Southern Hawkes Bay region. The network area is predominantly rural in nature and covers an area of 2,000 km²

The network comprises 861 km of lines which consists of both aerial and underground services. 6,719 ICPs are supplied across the network with maximum demands now in the 15 – 16 MW range.

The network serves two main urban areas; Dannevirke and Woodville, in addition to their surrounding rural areas. Bulk supply is taken from Transpower's 110kV Bunnythorpe / Fernhill lines via two 110 / 11kV substations at Dannevirke and Woodville. The Dannevirke and Woodville networks are not interconnected.

The Scanpower network has no subtransmission system and distribution lines operate at 11 kV / LV. For this reason the company has no zone substation assets.

The network is therefore relatively straightforward in design, and structured around ten main 11kV feeder lines; seven from the Dannevirke GXP and three from the Woodville GXP.

The table below summarises the feeder details.

Dannevirke 11 kV Feeder Configuration

11 kV Feeder	03/04 Metered kWh*	Description
Pacific	16,779,750	Rural feeder, predominantly servicing industrial load
Weber	15,005,502	Longest feeder servicing eastern extremity
Adelaide Road	12,384,189	Urban feeder into Dannevirke
Dannevirke East	11,057,495	Urban feeder into Dannevirke
Dannevirke Central	7,091,699	Urban feeder into Dannevirke
Mangatera	10,008,449	North Eastern rural area feeder
North	6,240,760	Northern rural area feeder
	78,567,844	

** Readings per feeder metering at GXP injection point*

Woodville 11 kV Feeder Configuration

11 kV Feeder	03/04 Metered kWh*	Description
Town 1	6,305,016	Urban feeder into Woodville / Eastern rural area
Town 2	4,881,719	Urban feeder into Woodville / Western rural area
Country	3,596,837	Rural feeder to north of Woodville
	14,783,572	

** Readings per feeder metering at GXP injection point*

10.2 Approach to Optimisation

The optimisation review has been undertaken on the basis of guidelines prescribed in Appendix B of the Handbook and in accordance with the requirements of Clauses 2.18 – 2.47. This includes the minimum optimisation tests contained in Appendix B.

The outcomes of the optimisation review and engineering assumptions have been reviewed by Eddie Graham B.E. (Elect.) F.I.P.E.N.Z. as part of the audit of this valuation report.

10.3 Description of Quality / Security of Supply Criteria *(clause 2.32 / 2.34)(requirement 2.65(n))*

With regard to security of supply Scanpower has established a Security Standard based on the "Guidelines for Security of Supply in New Zealand" published by the Electricity Engineers' Association of NZ.

The primary purpose of this standard is to provide asset managers with a set of targets which ensure compliance with good industry practice with regard to efficient supply and an appropriate level of customer service.

The appropriateness of adopting a security standard based on EEA Guidelines has been considered, bearing in mind Scanpower's relatively small size. In no part of the network does load reach the size where compliance with industry standards requires security provisions to prevent interruption of supply (known as "**n-1**" security level).

Given this, and a number of other network specific considerations, a security level of "**n**" has been generally adopted unless consultation with customers reveals a preference for a higher level of security, and a corresponding willingness to pay for it. At this level, it is appropriate that Scanpower focus on improving the ability to restore supply in the event of unplanned outages, rather than prevent interruption through increased security level measures.

This security of supply standard is consistent with that disclosed in the Scanpower annual asset management plan.

10.4 Optimisation Tests

Clauses 2.37 & 2.43
Network Equipment Spares and Stranded Assets

Network Spares

EQUIPMENT IN STORES & SPARES	Quantity	Handbook Cost	RC	Standard Life	DRC
TRANSFORMERS					
11 / 0.4kV Single Phase Unit Up To And Including 15 kVA	6	$2,600	$15,600	45	$5,027
11 / 0.4kV Single Phase Unit 30 kVA	1	$3,300	$3,300	45	$3,153
11 / 0.4kV Three Phase Unit Up To And Including 30 kVA (Pole Mounted - Bushing Terminations)	27	$5,000	$135,000	45	$42,889
11 / 0.4kV Three Phase Unit 50 kVA (Pole Mounted - Bushing Terminations)	1	$7,000	$7,000	45	$1,089
11 / 0.4kV Three Phase Unit 100 kVA (Pole Mounted - Bushing Terminations)	3	$9,000	$27,000	45	$10,200
11 / 0.4kV Three Phase Unit 200 kVA (Pole Mounted - Bushing Terminations)	5	$13,000	$65,000	45	$16,178
11 / 0.4kV Three Phase Unit 300 kVA (Pole Mounted - Bushing Terminations)	7	$16,000	$112,000	45	$57,956
11 / 0.4kV Three Phase Unit 750 kVA (Cable Entry)	1	$26,000	$26,000	45	$8,667
SECTIONALISERS					
Distribution Switchgear 22/11 kV Sectionaliser (Excl Pole)	5	$18,000	$90,000	40	$90,000
EQUIPMENT IN STORES & SPARES TOTAL			**$480,900**		**$235,158**

Network spares were valued at an RC of $480,900 and a DRC of $235,158. Upon analysis of the components of the spares it was noted that there are 22 transformers which ranged from over 35 to 53 years old. In practice it is unlikely that these spares would be considered suitable replacements for assets installed on the network.

An optimisation adjustment is therefore proposed in respect of these items. The impact of this is as follows:

Description	RC	Depreciation	DRC
Spare Transformers >35 years old	$180,200	$163,844	$16,356

This adjustment is reflected in the summary valuation table for network spares.

Stranded Assets

Only assets required to supply existing customers have been included in this network valuation, hence no stranded assets have been identified.

Test B.2
Connection / Supply Points

Issue:
Whether all existing points of supply are required, given the ELB's disclosed quality of supply criteria.

Assessment:

There are two points of supply, one at Dannevirke, the other at Woodville. There has been no change in the points of supply since the 2001 report.

Total energy injections have increased from 87.7 GWh in 2001 to 93.4 GWh in 2004. The main increases in consumption are reported to be as a result of growth in dairy units and the commissioning of a new freezing works in Dannevirke in 2003/04.

Maximum demands have also increased, from 14.7 MW in 2001 to 15.2 MW in 2004. The Dannevirke and Woodville network areas are not interconnected. Scanpower has undertaken significant feasibility studies into the establishment of a 33kV subtransmission system to link the networks, and bypass the Woodville point of supply.

To date, the business case for this project has not been sufficiently strong to warrant a rationalisation of points of supply given the trade off between the capital cost of a 33kV subtransmission system and zone substation, in comparison to the resulting avoided transmission charges.

Therefore at this stage, given network loadings, and the lack of a viable business case, it is not considered possible to reduce the existing number of points of supply.

In regard to security of supply, as there is no interconnection between the Woodville and Dannevirke networks, the existence of two points of supply does not increase security of supply to either area.

Test B.3
Number of Primary Distribution Circuits

Issue:
Whether the number of distribution lines exceeds the number required given the ELB's disclosed quality of supply criteria and allowed future load growth.

Assessment:

Scanpower has no transmission, subtransmission or primary distribution circuits.

Test B.4
Zone Substations

Issue:
Whether the number and voltage of substations exceeds that which is required to meet the ELB's disclosed quality of supply criteria and allowed future load growth.

Assessment:

Scanpower takes supply from Transpower at 11kV at both the Dannevirke and Woodville grid exit points. This is the only distribution voltage used to convey electricity to customers' premises where it is stepped down to low voltage.

There are no zone substations on the Scanpower network and therefore no optimisation opportunities in this area.

Test B.5
High Voltage Distribution Network

Issue:
Use of very low capacity or less than three phase distribution lines.

Assessment:

Where distribution lines are of less than three phase construction they have been included in the valuation accordingly (Distribution Lines 11kV Single Phase per Table A.1).

In regard to rural three phase spur lines, no opportunities for optimisation are noted where only single phase customers are supplied by a given spur. Given the nature of rural connections, which typically include pumps, workshops, sheds etc, this is in line with expectations.

Issue:
Valuation of single wire earth return (SWER) circuits.

Assessment:

Scanpower does not utilise SWER lines.

Test B.7
Sizing of Primary Distribution Lines

Issue:
Conductor and Cable Size

Assessment:

Scanpower has no transmission, subtransmission or primary distribution circuits.

Issue:
Whether underground cables are justified.

Assessment:

No primary distribution lines are laid underground.

Issue:
Underground Cable Trenching

Assessment:

No primary distribution lines are laid underground.

Test B.8
Primary Distribution Substations

Issue:
Under-utilised equipment installed at substations

Assessment:

Scanpower has no substation assets.

Issue:
Land and Buildings

Assessment:

Scanpower has no substation assets.

Issue:
Whether substation engineering exceeds ELB requirements

Assessment:

Scanpower has no substation assets.

Issue:
Fire protection and oil retention facilities

Assessment:

Scanpower has no substation assets.

Test B.9
High Voltage Distribution

Issue:
Conductor and Cable Size

Assessment:

Scanpower has 747 km of 11kV line. In terms of conductor sizing, the composition is as follows:

Conductor Size Category per Handbook	Length
Distribution Lines 11 kV O/H DCct Medium	12
Distribution Lines 11 kV O/H Medium (>50mm2, <150mm2 Al)	135.39
Total Medium Conductor	**147.4**
Percentage Medium Conductor of Total 11kV	*19.7%*
Distribution Lines 11 KV O/H Light (≤ 50mm2 Al)	593.256
Distribution Lines 11 kV Single Phase or SWER Lines	2.8
Distribution Lines 11 KV U/G Light (≤ 50mm2 Al)	3.17
Total Light Conductor	**599.2**
Percentage Light Conductor of Total 11kV	*80.3%*

Scanpower has standardised on "Dog" as a medium conductor size. This is $105mm^2$ aluminium conductor. Medium conductor is typically used in line routes closest to the points of supply.

The use of medium conductor, normally closest to the start of the feeder, is required not only to carry the peak load and fault currents safely, but equally importantly to avoid peak load voltage drops and consequent energy losses. The engineering design requires these voltage drops to be kept within close limits for compliance with statutory consumer voltage.

In regard to light conductor. Scanpower utilises a mixture depending on the specific load requirements on the line section in question. In general terms the conductor size decreases as the distance from the point of supply increases. The composition is as follows:

Type	Size	Length
FERRET	40mm2 AL	174.6
COPPER 19/16	40mm2 CU	7.6
FERRET 1PH	40mm2 AL	2.8
GOPHER	25mm2 AL	110.0
STEEL 7/16	25mm2	20.6
COPPER 7/14	25mm2 CU	12.1
FLOUNDER	20mm2 AL	103.4
SWAN	20mm2 AL	34.1
THRUSH	18mm2 AL	13.2
COPPER 7/16	16mm2 CU	104.1
MAGPIE	10mm2 AL	13.6
		596.1

There is no "Heavy" conductor used on the Scanpower network.

Scanpower utilises medium conductor close in to the points of supply. The fault levels, as supplied by Transpower, on the Dannevirke and Woodville 11kV buses are 10.4kA and 2.013kA. This fault level necessitates the use of medium sized 11kV conductor on the lines close in to the GXP's as they are required to withstand the high fault current, for the time until the circuit breaker trips. The system is designed to ensure reliability of supply under fault conditions and cannot be optimized down.

Conductor sizing is also designed to ensure voltage regulation at the extremities of the system is within statutory limits. In cases where voltage drop has become a problem voltage regulators have been installed.

The configuration of these lines is consistent with a security standard of "**n**". Given this security standard, it would not be possible to optimise down the number of feeders without removal supply to segments of the network area.

In terms of the influence of future load growth (documented in Section 12), it is not foreseen that the current feeder configuration or security standard would change in the medium term.

Issue:
Whether underground cables are justified.

Assessment:

Only a small amount of 11kV distribution lines are laid underground, in the High Street area of Dannevirke. The total length is 3.17 km and is laid underground as a requirement of Tararua District Council.

Issue:
Underground cable trenching

Assessment:

There are no situations where dual underground 11kV cables run in close proximity in separate trenches, and therefore no optimisation opportunities exist in this regard.

Where 11kV and LV cables are both laid underground in the central business / High Street areas, separate trenching is used as they do not share a common route in the majority of places. 11kV underground cables take a direct route through the central

areas whereas LV underground cables are laid where customer premises exist, or come into existence. Therefore no optimisation adjustments have been made in this regard.

Test B.10
Voltage Control Devices

Issues:
(i) Degree of Control
(ii) Manual and on-load tap changers
(iii) Line regulators and line drop compensation
(iv) Reactive compensation

Assessment:

Scanpower uses two voltage regulators; one at the end of the Pacific Feeder and the other at the end of the North Feeder, where both of these lines have industrial customers sited (Pacific – Richmonds Oringi / North – Norsewear Factory).

Due to the 11kV distribution voltage and the length of these feeder lines, voltage regulation is required to ensure that voltages remain within statutory levels.

No other voltage control devices are used. No optimisation opportunities are noted.

Test B.11
Distribution Transformers

Issue:
Utilisation of transformer capacity

Assessment:

Based on actual data, Scanpower distribution transformer capacity utilisation is as follows:

Total distribution capacity as at 31 March 2004	**58,553 kVA**
Peak Load for year end 31 March 2004	**16,027 kVA**
Capacity Utilisation	**27.4%**

Based on the handbook requirement that capacity utilisation *"in any case not less than 30%"*, this suggests that an optimisation adjustment is required in respect of distribution transformers.

However, the Handbook provides the ability for ELBs to separate out segments of the network, on a per feeder basis, for analysis, and to consider the effect of peak loads that are not coincident with the network peak.

This analysis was undertaken and capacity utilisation calculated on a per feeder basis using transformer asset and SCADA feeder loading data.

In reviewing the feeder level maximum demands, those time periods known to contain anomalous results, caused by pairing of feeders during substation maintenance for example, have been ignored.

The results of this analysis are shown in the table below. As is evident, when reviewed on a feeder basis, transformer capacity utilisation exceeds the Handbook hurdle rate for optimisation of 30%.

On this basis, therefore, no optimisation has been undertaken in respect of distribution transformers.

Feeder	**Installed kVA**	**03/04 kVA**	**Capacity Utilisation**
Adelaide Feeder	6,595	2,333	35.38%
Central Feeder	3,085	1,217	39.45%
Country	3,832	1,160	30.27%
East Feeder	5,165	3,084	59.71%
Mangatera Feeder	8,140	2,458	30.20%
North Feeder	5,215	1,688	32.37%
Pacific Feeder	7,995	3,709	46.39%
Town 1	3,160	966	30.57%
Town 2	2,315	846	36.54%
Weber Feeder	13,051	4,223	32.36%
Total	**58,553**	**21,684**	

Test B.12
Low Voltage Distribution

Issue:
Whether underground cables are justified

Assessment:

The company has pursued a policy of undergrounding low voltage cables in the urban Dannevirke and Woodville areas for both new subdivisions and replacement of overhead low voltage lines which have reached the end of their operating lives. Overhead lines are not converted to underground cables prior to this time.

This practice has been developed on the basis of aesthetic and reliability grounds, and conforms to the NZ Standard Code of Practice for Urban Subdivisions NZS 4404. It is also a requirement of Tararua District Council planning criteria. (District Plan 2.8.2 – Network Utility Operations).

This policy statement (clause 2.8.2.2 (a)) states: *"To ensure that for all new activities and new subdivisions within urban and settlement areas, utility services (pipes, wires and associated equipment) are placed underground at the expense of the developer, unless the operations require above-ground facilities for technical reasons, or unless the Council resolves that it is not practical or desirable for other demonstrated technical, economic, physical or environmental reasons to make such underground services available"*

Furthermore, the Scanpower Customer Trust, which is an elected customer representative body, has expressed a preference for undergrounding of LV lines in urban areas for the purposes of enhancing the local environment and tourist appeal. Consultation with the Scanpower Customer Trust in relation to the price / quality trade-off issue in 2004 has confirmed this stance. In summary, Council directives aside, it would not be acceptable, from a stakeholder and community perspective, to recommence overhead construction of LV lines in the urban areas.

Issue:
Underground Distribution Trenching

Assessment:

There are no situations where multiple cables in a given area are contained in discrete trenching. There is therefore no opportunity to optimise assets in this area.

Issue:
Whether the configuration and engineering of the low voltage distribution network exceeds the standard required to meet the ELB's quality of supply criteria.

Assessment:

The engineering standards applied to undergrounding of low voltage distribution lines are consistent with the standard required to meet the company's quality of supply criteria.

Single LV circuits are used for reticulation purposes which is the most cost effective solution available. No opportunities were identified for optimisation of underground LV circuits from an "over engineering" perspective.

Test B.13
System Control

Issue:
Degree of sophistication of SCADA equipment

Assessment:

Scanpower operates a basic level SCADA system with a modern replacement cost of $52,835 and a DRC of $38,746 per the ODV valuation. The nature of this equipment is considered appropriate to the company's quality of supply criteria.

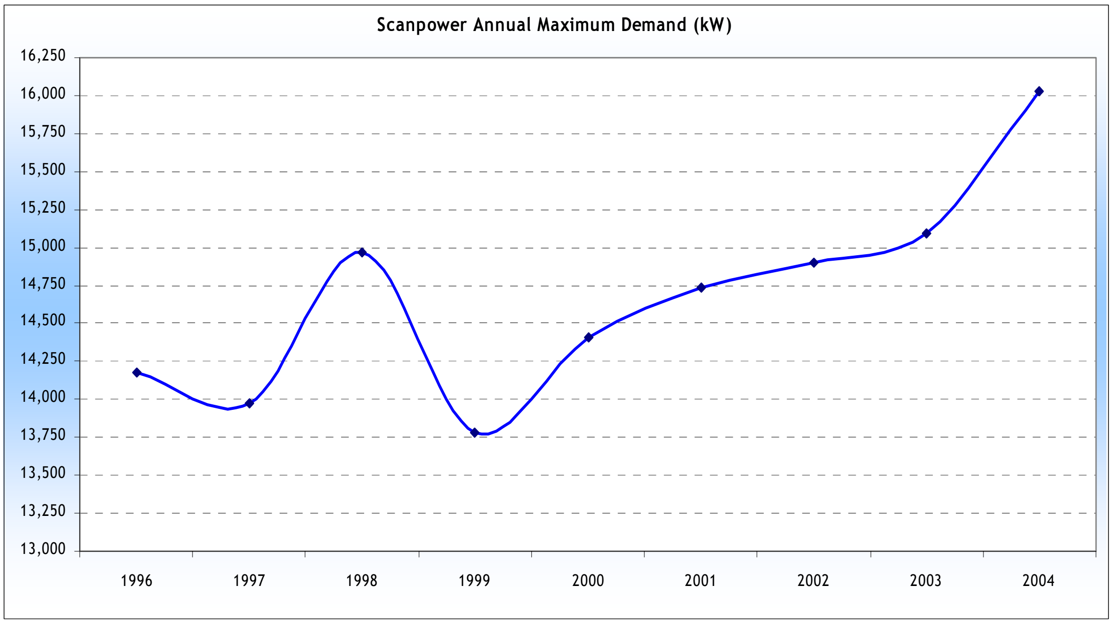
11.0 Life Cycle Cost Analysis
(Requirement 2.65(k))

The are no components of this valuation where life cycle cost analysis has been relied upon to avoid the use of an asset with a lower replacement cost in an optimised network.

12.0 Existing and Forecast Loads Used for Planning and Optimisation Purposes
(Requirement 2.65(l))

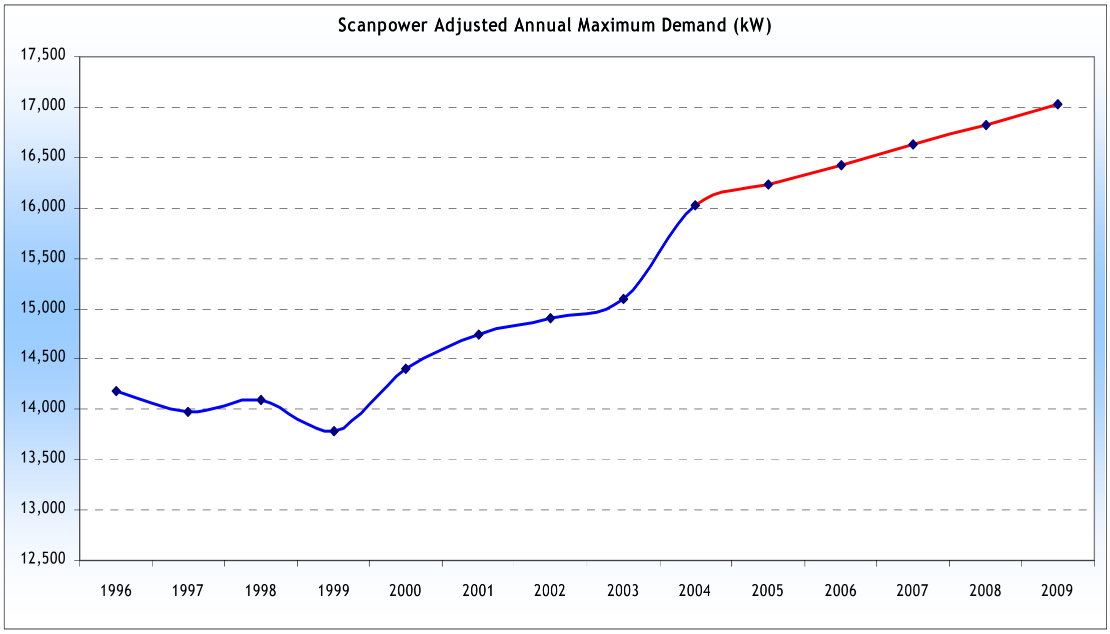
Consolidated Load Growth Forecasting

For the period 1996 to 2004 the consolidated Scanpower maximum demand trend is as follows:



As is evident, there has been a general upward trend, with an anomalous result in 1998. Whilst it is confirmed that the 1998 peak was genuine, it occurred due to a fault on Scanpower load control equipment and occurred for a brief period of time.

For the purposes of demand forecasting, it is therefore valid to exclude the 1998 peak as disclosed and use the nearest peak under normal operating conditions. The adjusted trend is shown below:



A forward trend line has been added to the historic figures (in red). This is based on the following assumptions:

- Scanpower's base load is relatively static, with annual organic growth occurring at a rate of approximately 200 kW per annum.

- Demand on the network is highly sensitive to step changes due to the relatively low levels of demand. For example, a step occurred in 1999 / 2000 with the expansion of a local freezing works.

- A new meat processing plant was commissioned on the network in the latter part of the year ending 31 March 2004. This is reflected in the step change seen in the 2004 year result.

In the coming five years, there is currently no known step changes (caused by the introduction of additional industrial load) expected. Therefore the forecast has been calculated on the basis of 200kW per annum.

This gives an anticipated demand in 2009 of 17,027 kW.

Load Growth Forecast by Point of Supply

Of the two points of supply (Dannevirke and Woodville), Woodville load has generally been static over recent years, with only relatively minor fluctuations attributed to changes in weather conditions. The area served by this segment of the network is dominated by residential installations and there is very little significant commercial load.

Dannevirke load has been the primary source of growth since 1996, with some growth in residential installation numbers and expansion in the dairy sector.

Therefore, of the forecast 200kW growth per annum, 180kW is anticipated to occur in the Dannevirke area and the remainder in the Woodville area.

Load Growth Forecast by Feeder - Woodville

Given expected annual growth of 20kW, or 21kVA in the Woodville area, the level is so low that it is not possible to accurately predict which feeder this may occur on. Therefore, using the 2004 peak kVA (non coincident) for each feeder, the growth has been spread evenly for forecasting purposes.

Feeder	2004	2005	2006	2007	2008	2009
Country	1,160	1,167	1,174	1,181	1,188	1,195
Town 1	966	972	978	984	990	996
Town 2	846	852	958	964	970	976

Load Growth Forecast by Feeder - Dannevirke

Forecast growth in the Dannevirke area is 180kW, or 189kVA. It is anticipated that this growth will occur in the urban centre of the town, this being supplied by the Adelaide, East and Central feeders. The forecast growth has been applied to these three feeders equally.

Feeder	2004	2005	2006	2007	2008	2009
Adelaide	2,333	2,396	2,459	2,522	2,585	2,648
Central	1,217	1,280	1,343	1,406	1,469	1,535
East	3,084	3,147	3,210	3,273	3,336	3,399
Mangatera	2,458	2,458	2,458	2,458	2,458	2,458
North	1,688	1,688	1,688	1,688	1,688	1,688
Pacific	3,709	3,709	3,709	3,709	3,709	3,709
Weber	4,223	4,223	4,223	4,223	4,223	4,223

13.0 Load Increases Required to be Disclosed Separately
(Requirement 2.65(m))

There is no new identifiable load exceeding 10MW.

An increase of ~1MW occurred in the 2004 period as described above due the commissioning of a new meat processing plant in Dannevirke. This equates to an increase of ~6.6% of system load.

14.0 Schedule of Network Optimisations
(Requirement 2.65(o))

A network optimisation adjustment has been made in respect of network transformer spares. This is summarised as follows:

Description	RC	Depreciation	DRC
Spare Transformers >35 years old	$180,200	$163,844	$16,356

15.0 Justification for Inclusion of Underground Circuits in Optimised System
(Requirement 2.65(p))

As described in optimisation Test B.12, Scanpower is required to underground low voltage cables in urban areas, and 11kV distribution lines in central business areas under the Tararua District Council plan (Section 2.8.2 – Network Utility Operations).

16.0 Separate Network Segments with Non-Coincident Peak Loads
(Requirement 2.65(q))

As noted in the section relating to Optimisation Test B.11, for the purposes of assessing optimisation of distribution transformers, analysis has been undertaken at a feeder level where non-coincident peak loads exist.

There are no non-standard customer contracts in place on the Scanpower network.

17.0 ELB Does Not Undertake Comprehensive EV Testing
(Requirement 2.65(r))

System fixed assets are valued at their EV when it is possible to supply users by alternative means at a lower cost that the existing network.

The strict application of the above approach would require EV testing for each part of the system. This would be time consuming and impractical in many instances. The Handbook states in paragraph 2.59 however, that a comprehensive EV test need only be applied if it is considered that the write-down in asset value as a result of the EV analysis on all potentially uneconomic assets would be greater than 1% of the ODRC of all system fixed assets. In accordance with clause 2.59 of the Handbook, the EV analysis undertaken in the 2001 ODV of Scanpower has been considered as a guide to determine whether a comprehensive EV test is required.

In 2001 all of the feeders and 7 spurs were selected for EV testing using the segmentation criteria prescribed in paragraph 3.70 of the Ministry of Economic Development's ODV Handbook (4th edition). Details of the 2001 ODV segmentation analysis are included in Appendix 2. The EV testing applied to these segments in 2001 resulted in no EV write-down. Details of the EV testing undertaken in 2001 are also included in Appendix 2.

Since 2001, there have been no significant changes to the configurations or supply requirements of these spurs and feeders. As a result, there is no reason to consider that the results of the EV testing undertaken in 2001 would be materially different in 2004. In addition, there are no other segments of the network, which are believed to be less economic than the feeders and spurs noted above. Therefore, as there was no EV write-down in 2001, it is not necessary to undertake a comprehensive EV analysis for the purposes of the 2004 ODV valuation.

Further support for this conclusion is provided by the cost of the alternative supply options for the relevant feeders and spurs. In 2001, the ODV Handbook prescribed that EV tests must be undertaken using a cost for the alternative supply option (excluding energy, but including transmission) of no more than 30 cents per kWh (or 35 - 40c/kWh including energy). Based on the analysis undertaken in 2001 and again in 2004, for those customers connected to the least economic segments, the least cost alternative use able to provide the same service, is local diesel generation. In 2001, the total costs of supply for remote segments were assessed as being greater than the maximum alternative cost allowed in the 2001 Handbook. In 2001 however, in accordance with the Handbook, the EV tests were calculated using the maximum allowable tariff of 30 c/kWh. The EV write-downs calculated in 2001 therefore were potentially overstated due to the Handbook's requirement to use 30 c/kWh as the cost of the alternative.

The 2004 Handbook does not prescribe a maximum value to be used for alternative supply options. The current cost of the fuel itself is in excess of 30c/kWh (for remote locations) and forecasts of diesel prices are not expected to result in prices any lower than 2001 prices. In addition, there is no evidence that the capital costs for diesel generation are lower in 2004 than in 2001, or will become less than 2001 costs in the medium term. These factors support the conclusion that the EV analysis undertaken in 2001 was potentially overstated. Therefore for the purposes of this valuation, and given the 2001 EV results, it is concluded that the potential EV write-down in 2004, if any, will be less than 1% of ODRC.

18.0 ELB Does Undertake Comprehensive EV Testing
(Requirement 2.65(s))

As detailed in Section 17 above, Scanpower did not undertake a comprehensive EV test as part of the valuation process.

19.0 Commerce Act (Electricity Information Disclosure Requirements) Notice 2004
(Requirements of Clause 19(6) and 19(7))

19.1 Valuation Date of this Report

This valuation report has a valuation date of 31 March 2004.

19.2 Valuation Disclosure Requirements of Clause 19(7)

(a) "*the asset replacement costs and lives used, the quantity of assets in each category of asset replacement costs and lives used, and the replacement cost of the line business system fixed assets;*"

This information is provided in the summary asset tables on pages 4 to 5.

(b) "*details of the amount of depreciation charged, and the depreciated replacement cost of the line business system fixed assets;*"

The following table summarises the DRC of the line business system fixed assets and details the amount of depreciation charged.

DISTRIBUTION LINE ASSETS	RC	Depreciation	DRC	ORC
Distribution Lines 11 kV O/H DCct Medium	$504,000	$388,267	$115,733	$504,000
Distribution Lines 11 KV O/H Light (≤ 50mm2 Al)	$15,027,350	$5,858,813	$9,168,537	$15,027,350
Distribution Lines 11 kV O/H Medium (>50mm2, <150mm2 Al)	$4,055,860	$2,369,574	$1,686,286	$4,055,860
Distribution Lines 11 kV Single Phase or SWER Lines	$58,800	$26,133	$32,667	$58,800
Distribution Lines 11 KV U/G Light (≤ 50mm2 Al)	$256,770	$154,512	$102,258	$256,770
LV Lines - Underground Medium - LV Only (≤240mm2)	$2,766,306	$865,046	$1,901,260	$2,766,306
LV Lines Overhead Light Underbuilt 2 Wire (≤50mm2)	$108,647	$47,114	$61,534	$108,647
LV Lines Overhead Medium 4 Wire - LV Only (≤150mm2)	$231,420	$188,517	$42,903	$231,420
LV Lines Overhead Medium Underbuilt 4 Wire (≤150mm2)	$67,620	$53,222	$14,398	$67,620
LV Lines Overhead Light Underbuilt 4 Wire (≤50mm2)	$1,042,237	$466,332	$575,905	$1,042,237
LV Lines Overhead Light 4 Wire - LV Only (≤50mm2)	$80,560	$67,874	$12,686	$80,560
DISTRIBUTION LINES TOTAL	**$24,199,571**	**$10,485,405**	**$13,714,166**	**$24,199,571**

DISTRIBUTION TRANSFORMER ASSETS	RC	Depreciation	DRC	ORC
11 / 0.4kV Single Phase Unit Up To And Including 15 kVA	$163,800	$121,853	$41,947	$163,800
11 / 0.4kV Single Phase Unit 30 kVA	$56,100	$40,260	$15,840	$56,100
11 / 0.4kV Three Phase Unit Up To And Including 30 kVA (Pole Mounted - Bushing Terminations)	$5,080,000	$3,377,333	$1,702,667	$5,080,000
11 / 0.4kV Three Phase Unit 50 kVA (Pole Mounted - Bushing Terminations)	$434,000	$228,667	$205,333	$434,000
11 / 0.4kV Three Phase Unit 100 kVA (Pole Mounted - Bushing Terminations)	$252,000	$161,800	$90,200	$252,000
11 / 0.4kV Three Phase Unit 200 kVA (Cable Entry)	$784,000	$483,467	$300,533	$784,000
11 / 0.4kV Three Phase Unit 200 kVA (Pole Mounted - Bushing Terminations)	$52,000	$33,511	$18,489	$52,000
11 / 0.4kV Three Phase Unit 300 kVA (Cable Entry)	$288,000	$209,067	$78,933	$288,000
11 / 0.4kV Three Phase Unit 300 kVA (Pole Mounted - Bushing Terminations)	$96,000	$74,667	$21,333	$96,000
11 / 0.4kV Three Phase Unit 500 kVA (Cable Entry)	$88,000	$61,111	$26,889	$88,000
11 / 0.4kV Three Phase Unit 750 kVA (Cable Entry)	$104,000	$26,578	$77,422	$104,000
11 / 0.4kV Three Phase Unit 1000 kVA (Customer Premises)	$174,000	$52,200	$121,800	$174,000
DISTRIBUTION TRANSFORMERS TOTAL	**$7,571,900**	**$4,870,513**	**$2,701,387**	**$7,571,900**

DISTRIBUTION SUBSTATION ASSETS	RC	Depreciation	DRC	ORC
Pole Mounted (50 kVA or less)	$1,158,000	$767,200	$390,800	$1,158,000
Pole Mounted (100 kVA or more)	$76,000	$50,444	$25,556	$76,000
Ground Mounted (Covered)	$328,000	$205,600	$122,400	$328,000
On Customer Premises With Feed Out	12000	$3,600	8400	12000
DISTRIBUTION SUBSTATIONS TOTAL	**$1,574,000**	**$1,026,844**	**$547,156**	**$1,574,000**

DISTRIBUTION SWITCHGEAR ASSETS	RC	Depreciation	DRC	ORC
22 / 11 kV Dropout Fuse 2 Ph (Excl Pole)	$160,000	$127,029	$32,971	$160,000
22 / 11 kV Dropout Fuse 3 Ph (Excl Pole)	$3,010,000	$2,242,571	$767,429	$3,010,000
Distribution Switchgear 22/11 kV 3PH Disconnector (Excl Pole)	$381,500	$250,400	$131,100	$381,500
22/11kV Indoor Switchgear Cubicle	$210,000	$132,000	$78,000	$210,000
Distribution Switchgear 22/11kV Recloser (excl Pole)	$351,000	$37,125	$313,875	$351,000
Distribution Switchgear 22/11 kV Sectionaliser (Excl Pole)	$18,000	$450	$17,550	$18,000
Distribution Switchgear Ring Main Unit - 3 Way	$32,000	$10,800	$21,200	$32,000
Distribution Switchgear - Voltage Regulator	$120,000	$28,364	$91,636	$120,000
DISTRIBUTION SWITCHGEAR TOTAL	**$4,282,500**	**$2,828,739**	**$1,453,761**	**$4,282,500**

CUSTOMER CONNECTION ASSETS	RC	Depreciation	DRC	ORC
Customer Service Connection LV Overhead - 1 PH	$79,660	$71,977	$7,683	$79,660
Customer Service Connection LV Overhead - 3 PH	$423,540	$382,692	$40,848	$423,540
Customer Service Connection LV Underground - 1 PH Shared Fuse Pillar	$560,000	$188,409	$371,591	$560,000
Customer Service Connection LV Underground - 3 PH Shared Fuse Pillar	$427,200	$143,729	$283,471	$427,200
CUSTOMER CONNECTIONS TOTALS	**$1,490,400**	**$786,807**	**$703,593**	**$1,490,400**

EQUIPMENT IN STORES & SPARES	RC	Depreciation	DRC	ORC
Network Strategic Spares	$480,900	$245,742	$235,158	$300,700
STORES & SPARES TOTAL	**$480,900**	**$245,742**	**$235,158**	**$300,700**

MISCELLANEOUS & NON STANDARD ASSETS	RC	Depreciation	DRC	ORC
Ripple Control Plant	$666,000	$566,100	$99,900	$666,000
UHF Communications for Load Control	$161,580	$129,264	$32,316	$161,580
Chevron Feeder Tie Structure	$63,738	$44,617	$19,121	$63,738
VHF Radio Equipment	$37,550	$26,285	$11,265	$37,550
SCADA Control Gear	$53,535	$14,276	$39,259	$53,535
MISCELLANEOUS & NON STANDARD ASSETS TOTAL	**$982,403**	**$780,542**	**$201,861**	**$982,403**

TOTAL DISTRIBUTION ASSET VALUES	RC	Depreciation	DRC	ORC
Total Distribution Asset Values as at 31 March 2004	**$40,581,674**	**$21,024,593**	**$19,557,081**	**$40,401,474**

TOTAL DISTRIBUTION ASSET VALUES EXCLUDING EQUIPMENT IN STORES & SPARES	RC	Depreciation	DRC	ORC
Total Distribution Asset Values as at 31 March 2004	**$40,100,774**	**$20,778,851**	**$19,321,923**	**$40,100,774**

(c) “*details of the components of the line business system fixed assets which were optimised, and the optimised depreciated replacement cost of the line business system fixed assets;”*

This information is provided in summary format in Section 14.0 and in detail in Section 10.0.

The ODRC of the lines business system fixed assets is provided in the summary asset tables on pages 4 to 5.

(d) **“***details of the comparison of the optimised depreciated replacement cost with the economic value for those parts of the line business system fixed assets that may not be able to sustain tariffs based on optimised depreciated replacement cost (including any specific assumptions used for the purpose of calculating the economic value for that part of the line business system fixed assets);”*

No parts of the lines business were identified as being unable to sustain tariffs based on ODRC.

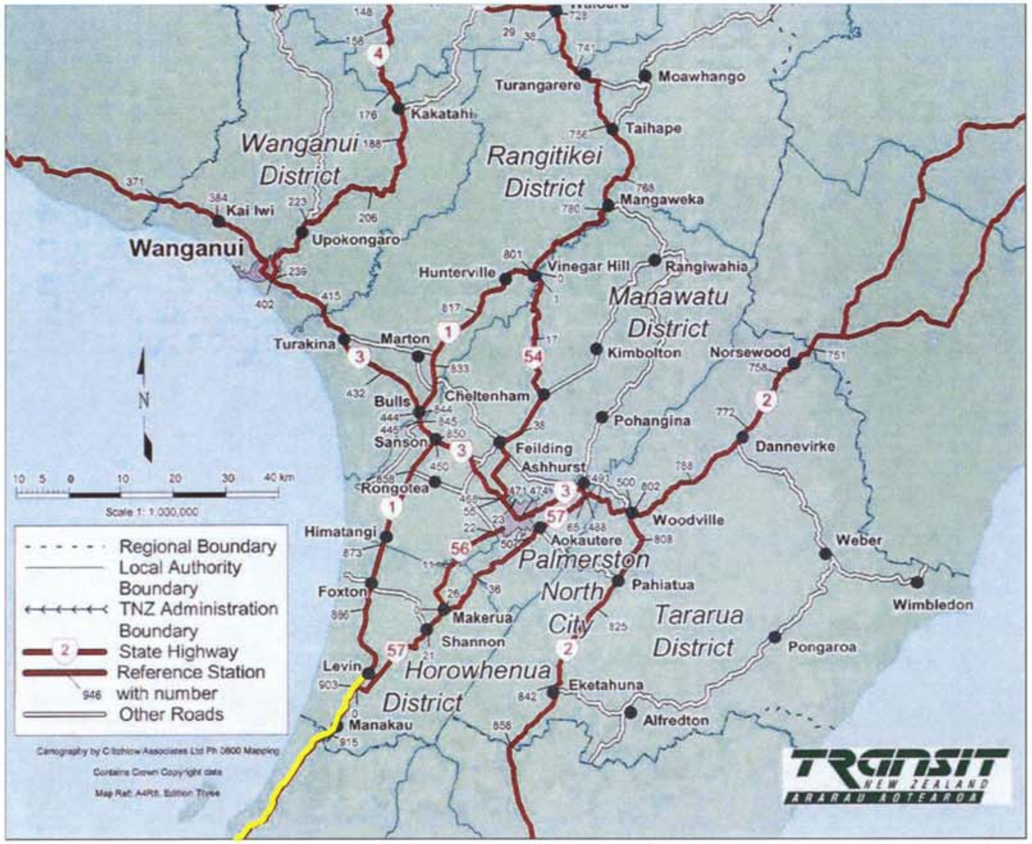
(e) **“***the optimised deprival value valuation of the line business system fixed assets.”*

The ODV of Scanpower’s system fixed assets is $19,540,725.

APPENDIX ONE

Transit NZ Manawatu Area

Map of Highway Traffic Management Level Categories



Key

Level LV

Level 1

Level 2

Level 3

Manawatu

APPENDIX TWO

Economic Value Testing and Analysis Undertaken in 2001 ODV Report

Summary Details of 2001 Feeder Segmentation Analysis

Table 8.1

Feeder	Name	Customers	Length km	kWh thous	RC $ thous	ODRC $ thous
1	North	547	105	5,352	3,440	2,092
2	Mangatera	939	134	8,293	4,783	2,368
3	Pacific	131	22	13,100	1,080	574
4	Weber/Terehunga	1,211	317	11,668	1,091	480
5	Adelaide Road	1,221	35	12,575	2,166	1,098
6	Dannevirke East	705	22	9,574	9,872	5,061
7	Dannevirke Central	381	14	5,224	1,195	650
A	Town 2	414	32	7,513	1,232	670
B	Country	414	92	3,506	2,870	1,780
C	Town 1	515	38	4,638	1,578	874

Table 8.3

Feeder	Name	Spur	Customers	Km of line	kVA	Customers / km	kVA / Customer
1	North	Ellison Road	89	22.9	655	3.9	7.4
2	Mangatera	Ahiweka	17	8.9	145	1.9	8.5
4	Weber/Terehunga	Otope	70	23.3	615	3.0	8.8
4	Weber/Terehunga	Teuri	47	15.3	315	3.1	6.7
4	Weber/Terehunga	Weber	96	85.1	810	1.1	8.4
B	Country	Kumeroa	157	48.0	1270	3.3	8.1
C	Town 1	Saddle Road	11	6.3	90	1.7	8.2

Summary Details of 2001 Segmental EV Testing

Table 9.2
Values are in thousands of dollars

Feeder	Name	Economic Value	ODRC	Lesser	Writedown
1	North	13,407	2,092	ODRC	0
2	Mangatera	21,056	2,368	ODRC	0
3	Pacific	35,192	574	ODRC	0
4	Weber/Terehunga	31,297	480	ODRC	0
5	Adelaide Road	33,423	1,098	ODRC	0
6	Dannevirke East	23,006	5,061	ODRC	0
7	Dannevirke Central	13,790	650	ODRC	0
A	Town 2	19,987	670	ODRC	0
B	Country	8,574	1,780	ODRC	0
C	Town 1	12,080	874	ODRC	0

Table 9.5
Values are in thousands of dollars

Spur	Economic Value	ODRC	Lesser	Writedown
Ellison Road	2,138	443	ODRC	0
Ahiweka	352	53	ODRC	0
Otope	1,619	400	ODRC	0
Teuri	1,083	276	ODRC	0
Weber	1,945	718	ODRC	0
Kumeroa	3,150	929	ODRC	0
Saddle Road	231	31	ODRC	0