INTRODUCTION

The following information fulfills the requirements of Regulation 20 of the Electricity (Information Disclosure) Regulations 1999.

The extracts below have been taken from the ODV Valuation Report prepared by PricewaterhouseCoopers based on information as at 31 January 2000.

DERIVATION OF THE ODRC VALUE

1. CentralPower produced an asset register of the electricity distribution assets as at 31 January 2000. This information formed the basis of the valuation review. A summarised version of this register is included as Table 1 overleaf.

2. For the purposes of this asset valuation, the components of CentralPower's electricity system were separated into a number of distinct asset categories, as shown in the asset summary sheet in Table 1 overleaf.

3. The methodology used to derive the valuation asset register is outlined in the following paragraphs. The derivation of the modern equivalent asset replacement value and the manner in which depreciation for each asset category was treated is also discussed.

Table 1: Summary ODRC Asset Register 31 January 2000

EQUIPMENT	Unit	Total Units	Std Life years	RC $	ORC $	DRC $	ODRC $
Subtransmission							
33kV Lines - wooden	km	61	45	2,146,697	2,146,697	910,715	910,715
33kV Lines - concrete	km	217	60	8,317,028	8,321,028	5,448,005	5,450,672
33kV Cables - XLPE	km	10	45	1,794,418	1,794,418	1,321,370	1,321,370
33kV Cables - PILC	km	10	70	2,212,337	2,212,337	1,368,024	1,368,024
Subtransmission Switchgear	No.	32	35	256,000	256,000	64,991	64,991
Distribution							
Land				140,000	140,000	140,000	140,000
11kV Lines - wooden	km	545	45	11,899,882	11,899,882	7,167,521	7,167,521
11kV Lines - concrete	km	1,861	60	40,345,965	40,345,965	24,219,456	24,219,456
11kV Cables - XLPE	km	24	45	2,207,241	2,207,241	1,632,254	1,632,254
11kV Cables - PILC	km	201	70	19,204,910	19,204,910	14,185,138	14,185,138
400V Lines - wooden	km	128	45	3,501,756	3,501,756	1,700,459	1,700,459
400V Lines - concrete	km	690	60	12,951,966	12,951,966	7,223,426	7,223,426
400V Cables - XLPE	km	295	45	14,077,005	14,077,005	8,748,680	8,748,680
400V Cables - PILC	km	349	70	17,020,697	17,020,697	13,633,193	13,633,193
Distribution Switchgear	No.	4,963	35	7,417,300	7,417,300	3,599,472	3,599,472
Distribution Switchgear	No.	1,386	40	9,009,000	9,009,000	4,992,876	4,992,876
Distribution Transformers	No.	4,307	45	24,658,300	24,029,779	15,742,017	15,339,411
Distribution Substations	No.	4,336	40	6,784,300	6,784,300	3,993,709	3,993,709
Zone Substations							
Land				331,500	331,500	331,500	331,500
Buildings	No.	15	40	5,978,199	5,823,120	2,113,848	2,056,225
Zone Transformers	No.	24	60	4,091,993	3,504,530	2,118,350	1,760,666
Zone Transformers	No.	40	45	4,219,034	4,047,386	1,652,015	1,533,823
Transformer Protn and Control	No.	87	40	558,698	558,698	259,135	259,135
Scada and Comm. Equipment	No.	280	15	1,628,984	1,476,168	1,117,295	1,061,822
Switchgear	No.	139	35	1,604,134	1,505,878	443,191	416,664
Switchgear	No.	229	40	4,165,335	3,973,695	1,419,484	1,355,865
Switchgear	No.	495	45	4,026,713	3,885,452	1,344,762	1,311,158
Switchgear	No.	178	55	2,074,289	1,877,383	1,699,397	1,541,670
Ripple Injection Plant	No.	57	20	1,490,529	1,490,529	1,251,150	1,251,150
Outdoor Structures	No.	11	60	241,847	221,746	130,401	122,221
Outdoor Structures	No.	6	45	74,121	74,121	27,125	27,125
PILC Cable	No.	13	70	170,827	170,827	78,747	78,747
XLPE Cable	No.	17	45	212,581	212,581	148,020	148,020
Other Items	No.	112	40	749,287	718,169	466,389	452,501
Other System Fixed Assets							
Customer Connections	No.	51,193	45	7,581,680	7,581,680	4,717,540	4,717,540
Streetlight Lines - wooden	km	4	45	12,216	12,216	9,343	9,343
Streetlight Cables - XLPE	km	286	45	1,143,244	1,143,244	721,938	721,938
Scada and Comms	No.			83,000	83,000	66,156	66,156
Underground - Hotwater	km	239	65	957,488		742,667	
Total ODRC				225,340,502	222,012,205	136,949,758	134,914,635

Treatment of assets

4. The summary asset register has been derived from two databases containing details of all assets of the CentralPower network which comprises both the former Electro Power network and the former CentralPower network. These databases are known as the 'network database' and 'zone substation database'. The network database has been derived from a download of information held on the GIS system currently operating at CentralPower. However the former CentralPower network assets and the former ElectroPower assets are reported separately from the one GIS system, and are combined into the one network database.

5. The zone substation database has been derived from original construction records and engineering site visits.

Former CentralPower Network

6. Data in the GIS system is collated by zone substation and feeder. Each feeder within the system is broken down into a number of segments, bound by either switchgear or terminal points on the asset maps. Each feeder is defined using cable and line type, size and age. In the Manawatu region this information was derived from "As Built" construction records and original drawings. In the Tararua region, information was derived from digitised computer measurements. Field checks were used for missing data and as sample checks. Ages for the lines were calculated based on a weighted age of the pole and line age.

7. The distribution transformer assets details were counted off maps and detailed on a feeder basis. Sizes and ages were obtained from construction information as detailed on transformer records cards similar to those found in most power companies.

8. Associated substations were calculated in parallel to this, with indoor substations on customer premises being removed for valuation purposes.

9. In some instances the local knowledge of CentralPower's own staff was used in estimating ages of assets where no records existed.

10. New SCADA equipment was commissioned in 1995 and included in the valuation on the basis of the actual purchase and installation costs.

11. Service connections were quantified using the power billing system, and the total weighted average age of transformers was applied to the customer connections for ageing purposes.

12. Zone substation data has been extracted from original construction records and equipment is itemised in a separate database through engineering site inspections. Associated land values have been extracted from separate valuations prepared by Blackmore & Associates Ltd. Opus Consulting provided independent valuations of zone substation buildings. Each zone substation was individually aged from commissioning dates.

13. Additions since the 1999 year were compiled by CentralPower engineers and included in the GIS using as-built construction records.

Former Electro Power Network

14. Zone substation data has been extracted from original construction records and equipment is itemised in a separate database. Associated land values have been provided by Blakemore & Associates. Each zone substation was individually aged from its commissioning date.

15. The 33 kV and 11 kV line and cable lengths were calculated using a global plotting system. The age for each length and the type of conductor/cable installed was obtained from plans, cable dockets and field work books.

16. The LV cable lengths were measured from maps and the project dates recorded on maps and project worksheets used to age the assets.

17. New SCADA equipment was commissioned in 1995 and included in the valuation on the basis of the actual purchase and installation costs.

18. Transformer records were extracted from a card system and the data included in the GIS. These have been aged using the appropriate construction date for associated substation and line/cable assets.

19. Service connections were quantified and aged using the same assumptions as applied to the former CentralPower customer connections.

20. Streetlighting cables have been included along with the other cable assets although it has been assumed that these assets only run down one side of the street and that they are the same length as the 400V cables. Columns and luminaries have not been included as these are owned by the Palmerston North City Council.

21. Additions since the 1999 year were compiled by CentralPower engineers, and included in the GIS using as-built construction records.

Standard replacement costs

22. The standard replacement costs assumed are the same as those contained in the Handbook (included as Schedule A). The Ministry of Commerce commissioned the preparation of this table to assist valuers in achieving comparability in valuations. It is appropriate that these values are adopted by CentralPower for their ODV valuation. After discussion with Worley it was decided that the MOC standard costs would be used for all assets where standard replacement costs are provided.

23. The Handbook allows for the application of multiplying factors to the standard replacement cost of 33kV and 11kV lines to reflect conditions other than the standard rural 70-80m spans used in deriving Handbook costs, (Appendix G16 of the Handbook). CentralPower and Worley examined the supply area and identified that the urban lines generally had shorter spans. An urban cost multiplier of 1.8 was applied to 3.5% of the 11kV lines, representing the urban portion of the network. In addition, a rugged terrain multiplier of 1.2 was applied to 22% of the 11kV lines,

representing the rugged terrain topography. A CBD multiplier of 1.2 times was also applied to the underground cables in the CBD area of Palmerston North to take account of the significant reinstatement required by the local authority.

24. The replacement cost for the Keith St feeder cable (630mm^2 aluminium) has a multiplier of 1.26 applied to the standard 33kV underground cable cost.

25. The Handbook does not include standard replacement costs for Zone Substation assets. CentralPower provided estimates of the modern equivalent replacement cost for all zone substation equipment, which was reviewed by Worley. Separate valuations were prepared by Blackmore and Associates Ltd for land assets associated with zone substations and the land associated with the ground mounted distribution substations. Opus Consulting provided independent valuations of zone substation buildings.

Application of depreciation

26. Depreciation has been applied to each asset component in accordance with the terms of the Handbook. That is, the assets are depreciated on a straight line basis from an assessed total or standard life for each asset component. The standard lives assumed for this valuation are the same as those included in Table 1 of the Handbook (included in Schedule A).

27. In respect of assets where the Handbook allows for a range of lives, CentralPower has adopted 60 year lives for the following zone substation transformers:
    - Keith St T1 & T2
    - Pascal T2
    - Kairanga T1 & T2
    - Main St T1
    - Longburn
    - Kimbolton
    - Sanson T1 & T2
    - Pongaroa
    - Alfredton
    - Parkville

28. All other zone substation transformers and all distribution transformers have been depreciated against the lower standard life of 45 years. These assumptions have been approved by Worley on the basis of asset inspections and the maintenance programmes adopted by CentralPower in respect of these assets.

29. An extended life of 55 years has been applied to the following zone substation circuit breakers of modern sealed design.
    - Keith St 33kV circuit breakers: Z200, Z190, Z150, Z160, Z143, Z170, Z140, Z180
    - Keith St 11kV switchgear cubicles and breakers: 1, 2, B, C, D, E, F, G, H, J, K, L, M, N
    - Kelvin Grove 11kV switchgear cubicles and breakers: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
    - Pascal St 33kV: W80, W20, W113, W110, W120, W130.

30. A 45 year life has been applied to all other zone substation switchgear.

31. In determining the ratio of standard life required for the depreciation calculation, information concerning the installation dates of assets has been collected as outlined above. The remaining life has been taken as the total life, that is assumed standard life, less the number of years since installation, subject to the proviso that all asset categories were deemed to have a minimum remaining life equal to 5% of the Ministry of Commerce standard life, and that this minimum remaining life did not exceed 3 years.

Optimisation

32. Optimisation of the network system was determined following discussions between Worley and engineers from the company. The following paragraphs document the information on which optimisation decisions were made.

33. No optimisation is recommended to the 33kV circuits except where they are built to 33kV and operated at 11kV. These assets have been included in the valuation as 11kV assets.

34. Optimisation has been applied to the following zone substation transformers:

- Sanson substation, optimise 2 x 7.5MVA transformers to 2 x 6MVA transformers;
- Longburn substation, optimise out 1 x 12.5MVA transformer;
- Kairanga substation, optimise 2 x 12.5/17MVA transformers to 2 x 10/12MVA transformers;
- Kelvin Grove, optimise 2 x 12.5/17MVA transformers to 2 x 10MVA transformers;
- Pongaroa, optimise 1 x 3MVA transformer to 1 x 1.5MVA transformer.

35. CentralPower has transferred the Longburn substation loads to other substations and therefore the assets at this substation have been optimised out with the exception of one 33kV circuit breaker and the land and buildings which are still in use.

36. The following 11kV circuit breakers are considered surplus to requirements and are therefore optimised out:

- Keith St, 2 breakers;
- Kelvin Grove, 3 breakers;
- Longburn, all breakers;
- Manawatu Beef packers, 3 breakers;
- Turitea, 2 breakers; and
- Kairanga, 6 breakers.

37. A 33kV breaker at Pascal St is also considered surplus to requirements and is therefore optimised out.

38. CentralPower has removed certain SCADA assets from the Keith St zone substation and is holding these for future installation at another zone substation. These assets have been optimised out.

39. The utilisation of distribution transformers is low. Optimisation has been applied to distribution transformers on a feeder by feeder basis.

40. CentralPower's supply area falls within the planning regulations of the Manawatu District Council and the Palmerston North City Council. These plans refer to the requirement to provide underground power reticulation for new developments. It would therefore be impossible to replace any underground reticulation with overhead and therefore no optimisation has been applied to these assets.

41. The following ripple injection plants have been identified as surplus to requirements:

- Keith St, 1 x rotary plant;
- Main St, 2 x rotary plants; and
- Pascal St, 2 x rotary plants.

42. The underground hot water pilot assets have been optimised out as they are no longer required.

OPTIMISED DEPRIVAL VALUE

Introduction

43. The optimised deprival value ("ODV") of an asset is the lesser of the asset's economic value ("EV") and its ODRC. The EV of an asset will be lower than the ODRC where it is not possible to implement and sustain in the long term tariffs for the services provided by the asset at a level which provides a commercial rate of return on the ODRC value of the asset.

44. Before undertaking a detailed calculation of the EV of the Lines Business assets, it is helpful to undertake a simplified financial analysis to assess the feasibility of achieving a commercial rate of return on the ODRC of the assets. If achievement of a commercial rate of return on ODRC is viable then clearly EV exceeds DRC and thus the ODV will equal the ODRC.

45. In undertaking this analysis it is necessary to include the various operating assets and liabilities employed in the Lines Business in addition to the fixed assets subject to the ODRC valuation. That is, a notional net asset value must be calculated for the Lines Business, with distribution fixed assets stated at ODRC.

Sustainability of the ODRC value

46. For the purpose of establishing the sustainability of the ODRC value of the Lines Business, as a whole, the returns achieved by CentralPower have been compared against the returns which should be achieved if CentralPower was earning its weighted average cost of capital ("WACC"). This calculation can only be approximate because:
    - customarily, and correctly, WACC should be applied to forecast cash flows over a number of years, not accounting profits for the current year only;

- the notional net asset value comprises a mixture of assets valued in both real (i.e. the network assets) and nominal (the remainder of the assets and liabilities) terms. Application of a nominal WACC to such a notional net asset value is likely to result in an overstatement of the quantum of required returns; and
- the Ministry of Commerce has not promulgated any formal guidelines as to what may be an appropriate return (or cost of capital) for an energy company to achieve on its Lines Business.

47. Sustainability calculations have therefore been undertaken using a real WACC. The nominal WACC has been assessed at 8.70% using a post-investor tax specification of the Capital Asset Pricing Model and then a real WACC has been derived, assuming inflation at 1.5% per annum for the foreseeable future. The real WACC is 7.09%.

48. The asset values associated with the remote areas of CentralPower's supply area have been evaluated against the costs of alternative sources of supply.

49. For each group of remote lines the costs of supply (including capital related costs, operations and maintenance costs, administration and corporate overheads and the purchase cost of energy and transmission) are compared with the costs of alternative supply. The assessed costs of supply represent the tariffs required to achieve a sustainable return on the ODRC. If these costs associated with each segment are less than alternative sources then the assets may be valued at their ODRC value; if not, EVs must be calculated to determine whether they are less than the ODRC value. The alternative costs of electricity need not be what CentralPower would actually charge its customers. Table 2 summarises the results of this analysis.

Table 2: Summary of Segment Sustainability Test

Remote Segment	Assessed Cost of Supply (c/kWh)	ODRC
Tiraumea	45.02	$1,293,897
Rangiwahia	36.19	$1,839,714
Ihuraua	40.57	$754,437
Castlehill	33.81	$346,684
Coast Road	35.05	$1,152,812
Brooklands	36.03	$355,473
Waione	31.25	$1,304,936

50. Based on the above it is concluded that the assessed cost of supply for all remote feeders tested is less than the cost of alternative sources of supply, assumed to be small local diesel generation plant. Economic Valuations are therefore not required for these feeders and their ODRC values can be accepted as their ODV values.

51. It is appropriate that this test is also considered under a possible proposed price control regime which may result from the current Electricity Industry Enquiry due to report back to the Minister

of Energy in June this year. Should a form of price control result in prices below the alternative costs of supply, then these prices will need to be considered when undertaking the sustainability test. However, it is not appropriate to apply a revised test at this time because:

(a) a decision to implement a price control regime has not yet been announced;

(b) the final format of a price control regime has not been determined and therefore it is not clear whether maximum prices could be set for all customers or segments, or simply on average charges for each line business;

(c) until price control is invoked, or alternatively, until the Commerce Commission provides information about how it intends to apply price control, it is not possible to estimate an appropriate maximum price to be used in the sustainability test.

52. Therefore the ODV of CentralPower's network is equal to the ODRC as shown in Table 1 above.

SCHEDULE A – STANDARD REPLACEMENT COSTS AND ASSET LIVES

Asset Description	Unit	Standard Replacement Cost ($000)	Standard Life (Years)	
Subtransmission			Pole Type	
			Concrete	Wood
33kV Lines – Heavy (≥150mm^2 ≤300mm^2 A1)	km	40	60	45
33kV Lines – Light (<150mm^2 A1)	km	35	60	45
33kV Lines – Double Cct Heavy	km	60	60	45
33kV Lines – Double Cct Light	km	50	60	45
			Cable Type	
			XLPE	PILC
33kV Cables - (≤240mm^2 A1)	km	165	45	70
33kV Cables - Double Cct (≤240mm^2 AL)	km	265	45	70
Pilot/Communications Ccts O/H	km	***	45	
Pilot/Communications Ccts U/G	km	***	45	
Air Break Switches	No.	8	35	
Zone Substations				
Land	No.	-	-	
Site Development and Buildings	No.	-	40	
Incoming Switchgear, Protection and Controls	No.	-	40	
Transformers	No.	-	45	
Transformer Protection and Controls	No.	-	40	
MV CB Protection and Controls (Incom/Bus)	No.	-	45	
MV CB Protection and Controls (Feeder)	No.	-	45	
			Pole Type	
			Concrete	Wood
Outdoor Structure if not included above	No.	***	60	45
SCADA and Communications Equipment	No.	***	15	
Ripple Injection Plant	No.	***	20	
Other Items	No.	***	40	
Distribution			Pole Type	
MV Lines			Concrete	Wood
11kV O/H Heavy (≥150mm^2 ≤240mm^2 A1)	km	24	60	45
11kV O/H Medium (>50mm^2 <150mm^2 A1)	km	22	60	45
11kV O/H Light (≤50mm^2 A1)	km	20	60	45
MV Lines				
11kV O/H DCct Heavy	km	34	60	45
11kV O/H DCct Medium	km	31	60	45
11kV O/H DCct Light	km	28	60	45
11kV O/H Underbuilt Heavy	km	10	60	45
11kV O/H Underbuilt Medium	km	9	60	45
11kV O/H Underbuilt Light	km	8	60	45
MV Cables			Cable Type	
			XLPE	PILC
11kV U/G Heavy (>240mm^2 ≤300mm^2 A1)	km	120	45	70
11kV U/G Medium (>50mm^2 ≤240mm^2 A1)	km	90	45	70
11kV U/G Light (≤50mm^2 A1)	km	65	45	70
11kV U/G DCct Heavy	km	170	45	70
11kV U/G DCct Medium	km	135	45	70

Asset Description	Unit	Standard Replacement Cost ($000)	Standard Life (Years)
MV Switchgear			
Disconnector (Excl Pole)	No.	2.3	35
Load Break Switch (Excl Pole)	No.	5.5	35
Dropout Fuse 3 Ph (Excl Pole)	No.	1.5	35
Oil Sw/Sectionaliser (Excl Pole)	No.	17	40
Recloser (Excl Pole)	No.	20	40
Circuit Breaker	No.	25	40
Voltage Regulator	No.	-	55
Ring Main Unit – 3 Way	No.	15	40
Extra Oil Switch	No.	5	40
Extra Fuse Switch	No.	8	40
Distribution Transformers (kVA)			
Single/Two Phase Units			
10	No.	2.4	45
15	No.	2.5	45
30	No.	3.1	45
50	No.	4.2	45
Three Phase Units (Pole Mounted – Bushing Terminations)			
15			
30	No.	3.3	45
50	No.	3.6	45
100	No.	4.7	45
200	No.	7	45
300	No.	11	45
500	No.	12.9	45
	No.	18	45
Three Phase Units (Cable entry, one or both voltages)			
100			
200	No.	7.5	45
300	No.	11.5	45
500	No.	13.3	45
	No.	18.5	45
750			
1000	No.	22	45
1250	No.	24.9	45
1500	No.	33	45
	No.	39	45
Distribution Substations			
Pole Mounted (50kVA or less)	No.	0.5	40
Pole Mounted (100kVA or more)	No.	1.8	40
Ground Mounted (Covered)	No.	4	40
Kiosk (Masonry or block enclosure)	No.	9	40
On Customer's Premises with Feedout	No.	2	40
LV Reticulation			Pole Type Concrete / Wood
Overhead – LV only	km	38	60 / 45
Overhead Underbuilt	km	12	60 / 45
			Cable Type XLPE/PVC / PILC
Underground – LV only	km	55	45 / 70
Underground – with MV	km	25	45 / 70

Asset Description	Unit	Standard Replacement Cost ($000)	Standard Life (Years)
Customer Service Connections Excluding Meters and Relays			
LV – 1 ph	No.	0.07	45
LV – 3 ph	No.	0.18	45
Other System Fixed Assets			
SCADA and Comms (Central Facilities)	Lot	-	15