SINCLAIR KNIGHT MERZ

SKM

Independent Engineer's Report on the Asset Adjustment Process of: **Electra Limited**

9 July 2013

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Contents

Document history and status

Revision	Date issued	Reviewed by	Approved by	Date approved	Revision type
0	8-07-13	R. Fairbairn	S. Wightman	8-07-13	Draft
1	10-07-13	R. Fairbairn	S. Wightman	10-07-13	Final

Distribution of copies

Revision	Copy no	Quantity	Issued to
0	1 (pdf)	1	Mike Hearn
1	1 (pdf)	1	Mike Hearn

Printed:	10 July 2013
Last saved:	10 July 2013 09:34 AM
File name:	I:\ZPINW\Projects\ZP01436\Deliverables\Reports\ZP01436- Electra Independent Engineers Report 090713.docx
Author:	S. Wightman
Project manager:	S. Wightman
Name of organisation:	Electra Limited
Name of project:	Adjusted 2004 RAB
Name of document:	Independent Engineer's Report on the Asset Adjustment Process of Electra Limited
Document version:	Version 1
Project number:	ZP01436

GLOSSARY

EDB	Electricity Distribution Business
DRC	Depreciated Replacement Cost
EDB ID	Electricity Distribution Services Information Disclosure
EDB IM	Electricity Distribution Input Methodologies
GIS	Geographic Information System
ODRC	Optimised Depreciated Replacement Cost
ODV	Optimised Deprival Valuation
ORC	Optimised Replacement Cost
RAB	Regulatory Asset Base
RC	Replacement Cost
SKM	Sinclair Knight Merz

Executive Summary

On 1 October 2012 the Commerce Commission (Commission) released an information disclosure decision (Decision No. NZCC 22) "*Electricity Distribution Services Information Disclosure Determination 2012*" (EDB ID).

Clause 2.12.3 of 2.12 of the EDB ID states Electricity Distribution Businesses (EDBs) can elect to make adjustments to their disclosed 2004 ODV, in accordance with the "*Commerce Act (Electricity Distribution Input Methodologies) Determination 2010*" (EDM IM). Also, that EDBs must secure an independent Engineer's Report. The requirements of the Engineer's Report are outlined in Attachment C of the EDB ID.

Sinclair Knight Merz (SKM) was requested by Electra Limited (Electra) to review the changes to its 2004 ODV and to prepare an Engineer's Report in accordance with Attachment C of the EDB ID.

The following table outlines the differences between Electra's original 2004 ODV (31 March 2004) with its adjusted 2004 RAB after the asset adjustment process ("adjusted 2004 RAB").

	2004 ODV 31 March 2004 ($'000)	adjusted 2004 RAB 31 March 2004 ($'000)	Movement ($'000)
Replacement Cost (RC)	$ 177,475	$ 183,872	$ 6,397
Depreciated Replacement Cost (DRC)	$ 101,266	$ 105,734	$ 4,468
Optimised Replacement Cost (ORC)	$ 177,363	$ 183,760	$ 6,397
Optimised Depreciation Replacement Cost (ODRC)	$ 101,173	$ 105,641	$ 4,468
Optimised Deprival Value (ODV)	$ 101,173	$ 105,641	$ 4,468

The following table summarises Electra's proposed adjustments over the period 2004 through 2009 (year ending 31 March).

Year	2004 ($'000)	2005 ($'000)	2006 ($'000)	2007 ($'000)	2008 ($'000)	2009 ($'000)
Value of Adjustments (ODV)	$4,468	$0	$0	$0	$0	$0

1. Introduction

1.1. Background

Sinclair Knight Merz (SKM) was requested by Electra Limited (Electra) to undertake an independent review of the Electra asset adjustment process. SKM's review was undertaken to determine the appropriateness of the proposed adjustments in respect of the asset adjustment process as set out in clause 2.2.1 of the "Commerce Act (Electricity Distribution Input Methodologies) Determination 2010", 22 December 2010 (EDB IM).

This report details the findings of the independent review and has been prepared to comply with the requirements for the Engineer's Report in Attachment C of the Commerce Commission's Decision no. NZCC 22 on information disclosure titled *"Electricity Distribution Information Disclosure Determination 2012"* (EDB ID), dated 1 October 2012.

A copy of Electra's letter of instruction provided to SKM is included in Appendix B of this report, and the Engineer's signed statement, as outlined in Clause 3 of Attachment C of the EDB ID, is provided in Appendix C of this report.

SKM's review principally considered the following proposed adjustments:

- corrections for asset errors;
- the re-application of asset multipliers; and
- applying a modified asset multiplier.

1.2. Processes

The preparation of this report has been the responsibility of SKM. We have relied upon information and data prepared by Electra. Wherever possible we have sought to verify this data to check its validity through review and sample checks of its databases and GIS. However we have relied upon the accuracy of Electra's base set of data that they have presented to us and the accuracy of Electra's asset management systems.

In the interests of accuracy and completeness, there has been significant interaction between SKM and Electra during the review. This has been undertaken via telephone discussions, email correspondence and direct meetings.

2. Information Provided by Electra

Electra's 2004 asset register is contained in a Microsoft Access database "*Electra Asset Adjustment Data Jul-12.accdb*". This file was developed specifically for the 2004 ODV valuation and contains the lines and cables system fixed assets making up Electra's 2004 ODV (the other system fixed assets were retained in other databases).

Electra has supplied SKM with a number of documents and electronic files to support the proposed adjustments to its 2004 RAB:

- Electra. (December 9, 2004). Optimised deprival value of Electra's electricity assets as at 31 March 2004.
- Energia. (June 4, 2013). Electra Limited: Asset adjustment report electricity network.
- MS - excel files:
  - *2004 RAB Asset Adjustment Files 04-Jun-13*
  - *33kV circuit*
  - *Finalised Valuation (with TM) 041125*
  - *Foxton*
  - *Levin Easts*
  - *Levin West*
  - *Miscellaneous*
  - *Otaki*
  - *Paekakariki*
  - *Paraparaumu West*
  - *Paraparaumu*
  - *Raumati*
  - *Shannon*
  - *Waikanae*

Electra and Energia undertook a process to validate the 2004 ODV asset register and the ODV database to be used in the adjustment process. The validation process is discussed in section 2 of Energia's report (Energia, 2013). SKM's review of the 2004 ODV database confirmed that the ODV database used in the adjustment process matches the 2004 ODV, RC and ODRC in Electra's 2004 ODV Report.

SKM notes that Electra currently uses the network information management system ("NIMS"), which is different to the GIS used when the 2004 ODV was prepared. The GIS used in the 2004 ODV did not contain installation date data for lines and cables that were installed prior to 2002. When Electra prepared the 2004 ODV; an average installation date was derived from a range of data sources including:

- construction materials used for the period (e.g. Electra commenced using aluminium conductor in 1970;

- checking of construction drawings;
- local knowledge; and
- the age of associated equipment (e.g. distribution transformers).

For lines and cables installed subsequent to 2002, the GIS used in 2004 and now the NIMS includes records for each asset type by the date of installation.

In preparing the NIMS query output in the asset adjustment process, the installation dates for lines and cables were processed in the same manner as used in the preparation of the 2004 ODV. As a result the asset adjustment process has assumed the same age profile for the network as those used in the 2004 ODV; i.e. no age adjustment.

3. Consideration of RAB Adjustments

This section sets out the adjustments to the Electra's 2004 RAB made under the asset adjustment process.

3.1. Load Control Relays

Reference EDB IM cl 2.2.1(2)(a). An EDB may designate a load control relay asset owned by an EDB, except a 2009 disclosed asset, as of 'included' type. Clause 2.2.1(3) goes on to say that assets to which sub-clause (2)(a) applies may be valued as:

- its depreciated historic cost as at 31 March 2009; or
- if there are insufficient records, then its depreciated carrying value from the general purpose financial statements.

Electra has not included load control relays in its 2004 RAB.

3.2. Correct Asset Register Errors

Reference EDB IM cl 2.2.1(2)(b). EDBs may correct asset related errors in their RAB in light of new information. The allowable corrections being due to:

- assets being omitted in error;
- assets being included in error;
- assets being incorrectly categorised; and
- asset ages, quantity, category or locations being incorrectly recorded.

3.2.1. Asset Register Errors: Included assets: Surge arrestors

Electra has elected to add 11kV surge arrestors to its 2004 RAB.

Electra required the use of surge protection on its 11kV cables prior to 2004 (reference is made to Electra's design manual). The 11kV surge arrestors were identified in the GIS in 204 but not included in the 2004 ODV. The ODV handbook[1] does not include a standard replacement cost for 11kV surge arrestors; hence a non-standard replacement cost was determined for the purposes of including the RC. Electra has no recent job cost information for the installation of surge arrestors and based its costing on a quotation obtained from Electra' contracting division; the quotation provided a current cost of $3,693 +GST for dead-line installation and $3,873 + GST for live-line installation (plus an internal contracting margin of 17.2%). This cost was then adjusted for scale of construction and deflated to 2004$ using CPI.

[1] Commerce Commission. (August 2004). Handbook for optimised deprival valuation of system fixed assets of electricity lines businesses. (ODV handbook).

The resulting non-standard replacement cost proposed by Electra is $3,300 (2004$) per 11kV 3-phase arrestor set. The DRC is calculated on a 35 year life for the surge arrestor and an age profile determined during the 2004 ODV.

A query of the current NIMS (in respect of assets installed prior to 31 March 2004) identified 113 11kV distribution surge arrestors were installed on cables (terminations). The age profile of the surge arrestors is concentrated around 1995 when Electra undertook a programme of surge arrestor protection of its 11kV cables.

SKM has reviewed the methodology used by Electra to calculate the non-standard replacement costs of the surge arrestor and undertaken its own analysis on the costs for 11 kV surge arrestors determined by other network owners. SKM agrees that the non-standard replacement cost of $3,300 per 11 kV 3-phase arrestor set is reasonable.

- **Table 1 : Included assets : 11kV surge arrestors**

Opening 2004 ODV Values

Asset	Quantity No.	RC ($'000)	DRC ($'000)	ORC ($'000)	ODRC ($'000)
11kV Surge Arrestors	0.0	$ -	$ -	$ -	$ -
Total	**0.0**	**$ -**	**$ -**	**$ -**	**$ -**

Value modified adjustment

Asset	Quantity No.	RC ($'000)	DRC ($'000)	ORC ($'000)	ODRC ($'000)
11kV Surge Arrestors	113.0	$379	$283	$379	$283
Total	**113.0**	**$379**	**$283**	**$379**	**$283**

Adjusted 2004 RAB Values

Asset	Quantity No.	RC ($'000)	DRC ($'000)	ORC ($'000)	ODRC ($'000)
11kV Surge Arrestors	113.0	$379	$283	$379	$283
Total	**113.0**	**$379**	**$283**	**$379**	**$283**

The addition of 113 11kV surge arrestors increased ODRC by $0.283 million.

3.3. Re-application of Asset Multipliers

Reference EDB IM cl 2.2.1(2)(c). EDBs may re-apply multipliers where more accurate information has become available in accordance with Subclause 2 (c).

Electra has not proposed any adjustment to its 2004 RAB through the re-application of asset multipliers.

3.4. Re-application of Modified Asset Multipliers

Reference EDB IM cl 2.2.1(2)(c) and (d). EDBs may re-apply multipliers where more accurate information has become available and to make adjustments to multipliers in accordance with specific new multiplier ranges.

3.4.1. Re-apply/modify business district multipliers

The EDM IM (clause 2.2.1 (2) (d) (ii) revises the scope of the business district multiplier and allows for the re-application of the business district multiplier within a range of 1.15 – 2.5 times.

Electra's electricity network covers the regions contained within the business districts in Foxton, Levin, Otaki, Paekakariki, Paraparaumu, Raumati, Shannon and Waikanae.

Electra's 2004 ODV included the application of the business district (BD) multiplier for Levin, Otaki, Paraparaumu, Raumati and Waikanae, but not for Foxton, Paekakariki and Shannon. Electra has elected to re-apply the BD multiplier provided for in the EBD IM as new and more accurate information has been captured in respect of:

- the classification of the business districts in Foxton, Levin, Otaki, Paekakariki, Paraparaumu, Raumati, Shannon and Waikanae; and
- an assessment of the unique features, special reticulation and reinstatement requirements.

The features of the commercial areas and adjoining major roads for each town across Electra's electricity network were assessed in terms of meeting the definitions of business districts in the ODV handbook in respect of cables:

- commercial area zoning from the Horowhenua District Council and Kapiti Coast District Council district plans;
- State Highway 1 and State Highway 57 routes through the main towns, where the roading authority sets requirements similar to those in CBDs; and
- the major arterial roads defined by the Horowhenua District Council and Kapiti Coast District Council (which typically connect the town settlements to the beach settlements in Waikanae, Paraparaumu and Raumati).

SKM notes that the Horowhenua District Council and the Kapiti Coast District Council both require that electricity lines be underground in urban and commercial areas.[2] [3]

Quantity of cables in each district

The changes to the quantity of cable included within the defined business districts from the 2004 ODV in some towns are material. Because detailed information on the size of the business districts

[2] Horowhenua District Council, Horowhenua District Plan, Section 12, Policy 23.2
[3] Kapiti Coast District Council, District Plan, section D.3.1.1.

used in the 2004 ODV was not available to cross-check in the adjustment process, an assessment of the business district areas was made by Electra which was supported by Council zoning.

The relatively small number of system fixed assets in each business district area permitted direct measurement of each cable in the business district. The central business district (CBD) areas are highlighted using the orange polygon (primary cable lengths are shown as blue) in figures 1 to 9. In some towns the cable lengths are a mix of overhead lines and underground cables in the arterial commercial areas.

The length of distribution cable (11kV/LV) in the business districts was reduced from 103.6 km in the 2004 ODV to 75.15 km in this adjustment process (a reduction of 28.4 km). The changes in the length of cables included in the adjustment assessment are shown in tables 2 to 11 and tables 12 to 15.

Evaluation of multiplier

Trenching, cable installation and installation rates were costed by Tatana Contracting Ltd (Tatana), an independent contractor to Electra (Attachment 31 of Energia's report (Energia, 2012)). No adjustment is required for traffic management since the Tatana rates excluded costs for traffic management. The base rates assume normal digging conditions (i.e. no rock, gravel or sand). Other than in certain areas of SH1, night work is not required. As this was not material only day work rates were used throughout.

SKM questioned whether directional drilling had been considered in the determination of the multiplier. Electra response was that it had considered whether directional drilling was an appropriate cable installation technique, but due to the extent of other services and the need to control backfill material, it was not considered to be an appropriate technique for cable installation in business districts.

Specific business district multipliers were calculated for each business district area. The key aspects of the multiplier calculation are as follows:

- The cost of trenching and reinstatement for each business district was calculated using the actual asset type and length of primary cables under grass, asphalt roadway, and concrete verge. The primary cables are the cables which cause the trench (that is, the primary cables exclude the second or subsequent cables installed in a trench).
- The cost of trenching and reinstatement in a typical urban street was deducted, producing the 'net' additional cost of trenching and reinstatement work. The cost of trenching and reinstatement in a typical urban street reflected a normal composition of trenching in the verge and road for a typical urban street.
- The additional costs of trenching and reinstatement was then deflated from 2013$ to 2004$ and added to the standard cost of the actual primary assets in the business district.
- A standard 17.2% margin was applied to the additional trenching costs, which is the margin applied by Electra to its internal contracting costs.

- The raw multiplier was then calculated as the standard replacement cost plus the additional cost of trenching and reinstatement divided by the standard replacement cost.
- The raw multiplier was then scaled in such a way that it could be applied to all the cables in the business district. The scaling factor was calculated as the primary cable length divided by the total length of cables in the business district. The application of the scaling factor reduced the value of the multiplier.

Photographs have been provided by Energia (2013) as evidence of the business district characteristics and special features. The calculation sheets for each specific business district multiplier are provided in Energia's report, Attachments 17 to 30 (Energia, 2013)).

3.4.1.1. Foxton

The business district for Foxton is shown in Figure 1.

- **Figure 1 : Foxton central business district**

The data in the table below was sourced from the 2004 ODV and the MS excel file: *Export_Foxton_Arterial_Cable_Length.xlsx and Export_Foxton_CBD_Cable_Length.xlsx.*

- **Table 2 : Foxton distribution cables in business districts**

11kV and LV	Original Qty km	New BD Qty km	Change in Qty km
CBD multiplier	0.00	0.99	0.99
Arterial multiplier	0.00	0.75	0.75
Total adjustment	0.00	1.74	1.74

Make-up of special features in Foxton' s Central Business District; concrete verge 16%, paving tile verge 77%, grass verge 0% and asphalt road 7%. Foxton arterial; concrete verge 90%, paving tile verge 0%, grass verge 0% and asphalt road 10%.

Electra has proposed a BD multiplier for the Foxton Business District of 2.17 and 1.43 for Foxton arterial. Cables in Foxton are installed predominately under the paving tile verge.

The relatively high BD multiplier (2.17) in the Foxton Business District results from the high % of cables under concrete pavers and State Highway1 running through the centre of the business district.

3.4.1.2. Levin

The business district for Levin is shown in Figure 2.

- **Figure 2 : Levin central business district**

The data in the tables below was sourced from the 2004 ODV and the MS excel file: *Export_Levin_Arterial_Cable_Length.xlsx and Export_Levin_CBD_Cable_Length.xlsx.*

- **Table 3 : Levin East distribution cables in business districts**

11kV and LV	Original Qty km	New BD Qty km	Change in Qty km
CBD multiplier	6.95	1.18	(5.77)
Arterial multiplier	0.00	1.73	1.73
Total adjustment	6.95	2.91	(4.04)

- Table 4 : Levin West distribution cables in business districts

11kV and LV	Original Qty km	New BD Qty km	Change in Qty km
CBD multiplier	14.36	3.31	(11.05)
Arterial multiplier	0.00	0.94	0.94
Total adjustment	14.36	4.24	(10.11)

Make-up of special features in Levin East/West' s Central Business District; concrete verge 88%, tile verge 0%, grass verge 0% and asphalt road 12%; and Levin East/West arterial; concrete verge 90%, paving tile verge 0%, grass verge 0% and asphalt road 10%.

The proposed Levin East/ West BD multiplier is 1.54 and 1.63 for Levin East / West Arterial.

3.4.1.3. Otaki

The business district for Otaki is shown in Figure 3 and Figure 4.

- **Figure 3: Otaki central business district**

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- **Figure 4 : Otaki Beach central business district**

The data in the table below was sourced from the 2004 ODV and the MS excel file: *Export_Otaki_CBD_Cable_Length.xlsx.*

- **Table 5 : Otaki distribution cables in business districts**

11kV and LV	Original Qty km	New BD Qty km	Change in Qty km
CBD multiplier	9.89	3.62	(6.27)
Arterial multiplier	0.00	1.00	1.00
Total adjustment	9.89	4.62	(5.27)

Make-up of special features in Otaki' s Business District; concrete verge 91%, paving tile verge 5%, grass verge 0% and asphalt road 3%.

Electra has proposed a CBD multiplier for the Otaki Business District of 1.65. Cables in Otaki are installed predominately under the concrete paved verge.

3.4.1.4. Paekakariki

The data in the table below was sourced from the 2004 ODV and the MS excel file: *Export_SH1_Arterial_Trench_Length.xlsx (applicable to Otaki and Paekakariki arterial areas)*

- **Table 6 : Paekakariki distribution cables in business districts**

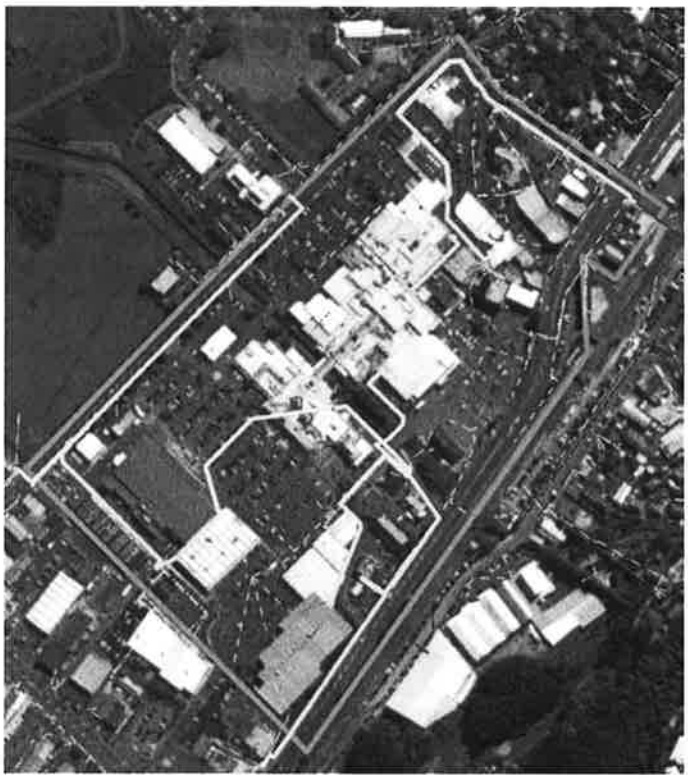
11kV and LV	Original Qty km	New BD Qty km	Change in Qty km
CBD multiplier	1.02	0.00	(1.02)
Arterial multiplier	0.00	1.56	1.56
Total adjustment	1.02	1.56	0.54

Make-up of special features in State Highway 1 Paekakariki and Otaki arterial; concrete verge 97%, paving tile verge 0%, grass verge 0% and asphalt road 3%.

Electra has proposed a BD multiplier for the Paekakariki and Otaki arterial of 1.60.

3.4.1.5. Paraparaumu

The business district for Paraparaumu is shown in Figure 5 and Figure 6.



- **Figure 5 : Paraparaumu central business district**

- **Figure 6 : Paraparaumu Beach central business district**

The data in the tables below was sourced from the 2004 ODV and the MS excel files, *Export_Pram_CBD_Cable_Length.xlsx; Export_PramWest_Raumati_Arterial_Cable_Length.xlsx and Export_PramWest_Raumati_CBD_Cable_Length.xlsx.*

- **Table 7 : Paraparaumu distribution cables in business districts**

11kV and LV	Original Qty km	New BD Qty km	Change in Qty km
CBD multiplier	29.06	3.90	(25.16)
Arterial multiplier	0.00	6.52	6.52
Total adjustment	29.06	10.42	(18.64)

- **Table 8 : Paraparaumu West distribution cables in business districts**

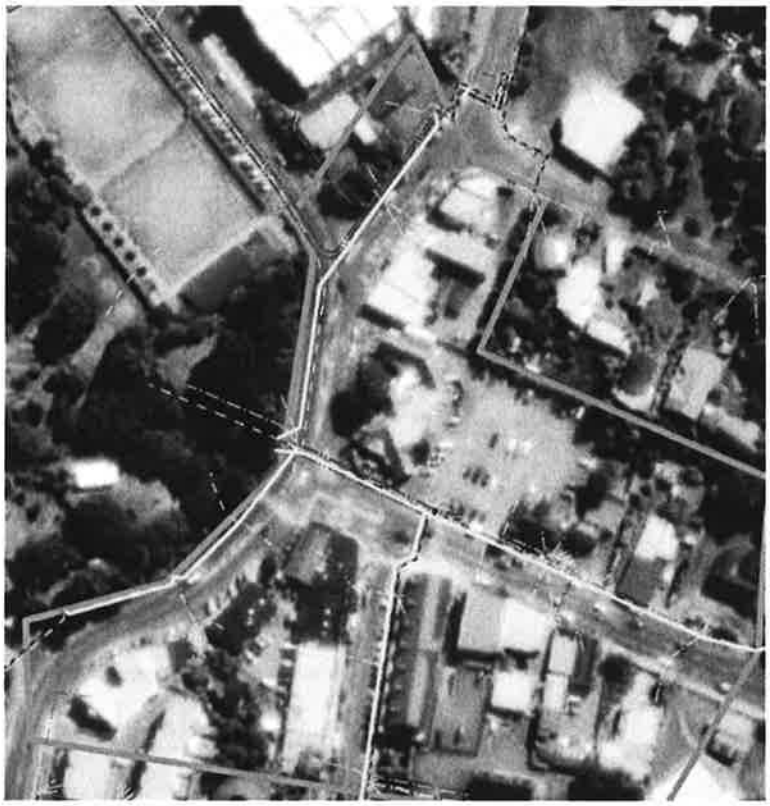
11kV and LV	Original Qty km	New BD Qty km	Change in Qty km
CBD multiplier	17.30	1.68	(15.62)
Arterial multiplier	0.00	12.53	12.53
Total adjustment	17.30	14.22	(3.08)

Make-up of special features in Paraparaumu' s Business District; concrete verge 75%, paving tile verge 0%, grass verge 15% and asphalt road 11%: Paraparaumu an Paraparaumu West arterial; concrete verge 92%, paving tile verge 0%, grass verge 0% and asphalt road 8%.

The proposed Paraparaumu District Multiplier is 1.30 and for Paraparaumu and Paraparaumu West arterial 1.39.

3.4.1.6. Raumati

The business district for Raumati is shown in Figure 7.



- **Figure 7 : Raumati arterial business district**

The data in the table below was sourced from the 2004 ODV and the MS excel file *Export_PramWest_Raumati_CBD_Cable_Length.xlsx.*

- **Table 9 : Raumati distribution cables in business districts**

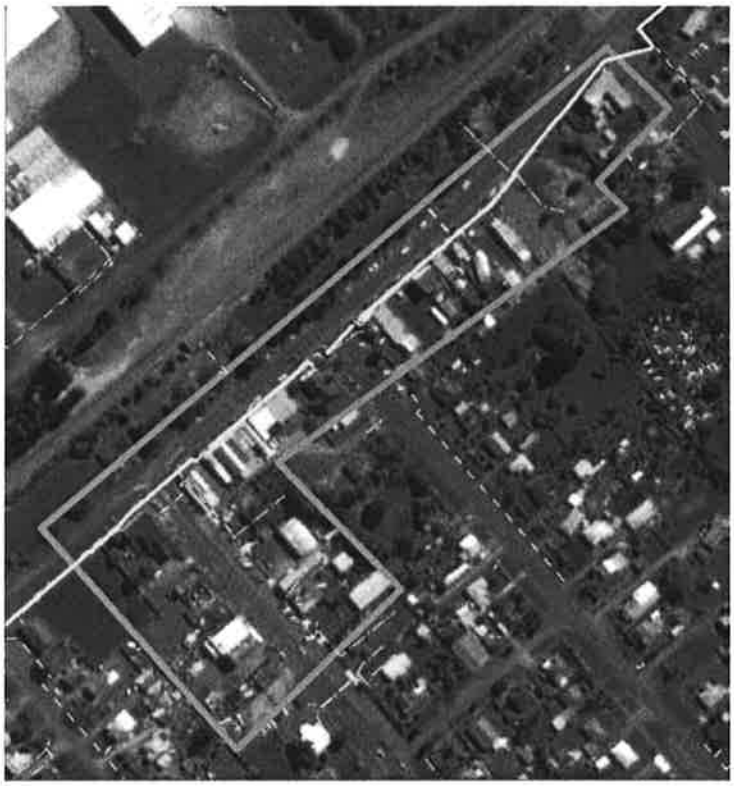
11kV and LV	Original Qty km	New BD Qty km	Change in Qty km
CBD multiplier	8.68	0.37	(8.32)
Arterial multiplier	0.00	4.74	4.74
Total adjustment	8.68	5.11	(3.57)

Make-up of special features in Paraparaumu West / Raumati CBD; concrete verge 89%, paving tile verge 0%, grass verge 0% and asphalt road 11%. Raumati's arterial; concrete verge 93%, paving tile verge 0%, grass verge 0% and asphalt road 7%.

The proposed Paraparaumu West/ Raumati CBD Business District Multiplier is 1.44 and for Raumati arterial is 1.61.

3.4.1.7. Shannon

The business district for Shannon is shown in Figure 8.



- **Figure 8 : Shannon business district**

The data in the table below was sourced from the 2004 ODV and the MS excel file *Export_Shannon_Cable_Length.xlsx.*

- **Table 10 : Shannon distribution cables in business districts**

11kV and LV	Original Qty km	New BD Qty km	Change in Qty km
CBD multiplier	4.78	0.85	(3.93)
Arterial multiplier	0.00	0.00	0.00
Total adjustment	4.78	0.85	(3.93)

Make-up of special features in Shannon's Business District; concrete verge 96%, paving tile verge 0%, grass verge 0% and asphalt road 4%.

The proposed Shannon Business District Multiplier is 1.55.

3.4.1.8. Waikanae

The business district for Waikanae is shown in Figure 9.

- **Figure 9 : Waikanae central business district**

The data in the table below was sourced from the 2004 ODV and the MS excel file *Export_Waikanae_CBD_Cable_Length.xlsx.*

- Table 11 : Waikanae distribution cables in business districts

11kV and LV	Original Qty km	New BD Qty km	Change in Qty km
CBD multiplier	11.55	2.75	(8.80)
Arterial multiplier	0.00	19.43	19.43
Total adjustment	11.55	22.18	10.63

Make-up of special features in Waikanae's Business District; concrete verge 95%, tile verge 0%, grass verge 0% and asphalt road 5%. Waikanae's Arterial; concrete verge 92%, paving tile verge 0%, grass verge 0% and asphalt road 8%. Cables in Waikanae CBD are installed predominately under the concrete paved verge.

The proposed Waikanae Business District Multiplier is 1.40 and 1.41 for Waikanae arterial.

- Table 12 : Summary of distribution cables in business districts

Asset Type	Original Qty (km)	New Qty (km)
11kV UG Heavy	1.40	0.00
11kV UG Medium	36.06	10.48
11kV UG Light	0.99	0.00
LV UG Medium	45.23	8.17
LV UG Medium - with HV	19.90	0.00
Total	**103.59**	**21.22**

- Table 13 : Summary of distribution cables in arterial commercial area

Asset Type	Original Qty (km)	New Qty (km)
11kV UG Heavy	0.00	0.00
11kV UG Medium	0.00	27.65
11kV UG Light	0.00	0.00
LV UG Medium	0.00	21.54
LV UG Medium - with HV	0.00	0.00
Total	**0.00**	**53.93**

3.4.1.9. 33kV cables

Application of a BD multiplier was not applied to the 33kV cables when the 2004 ODV was determined. The total length of the 33kV was determined using the same analysis (GIS/NIMS query) that was used in the determination of the 2004 ODV. The 33kV cable circuits were included in the following files:

- *Export_Foxton_Arterial_Cable_Length.xlsx*
- *Export_Levin_Arterial_Cable_Length.xlsx*
- *Export_Pram_PramWest_Arterial_Cable_Length.xlsx*
- *Export_Raumati_Arterial_Cable_Length.xlsx*
- *Export_SH1_Arterial_Cable_Length.xlsx (applicable to Otaki and Paekakariki arterial areas)*
- *Export_Waikanae_Arterial_Cable_Length.xlsx*

- Table 14 : 33kV cables (single circuit) in business districts

33kV Cables single circuit	Original Qty km	New BD Qty km	Change in Qty km
CBD multiplier	0.00	1.27	1.27
Arterial multiplier	0.00	1.89	1.89
Total adjustment	0.00	3.17	3.17

- Table 15 : 33kV cables (double circuit) in business districts

33kV Cables single circuit	Original Qty km	New BD Qty km	Change in Qty km
CBD multiplier	0.00	1.29	1.29
Arterial multiplier	0.00	2.85	2.85
Total adjustment	0.00	4.14	4.14

Make-up of special features in respect to the 33kV cables: concrete verge 82%, paving tile verge 0%, grass verge 15% and asphalt road 3%.

The proposed 33kV Business District Multiplier is 1.43.

3.4.2. Summary for BD Multipliers

SKM has reviewed the information supplied by Electra and Energia's report and SKM is satisfied that the application of the business district multiplier to the business districts identified in this section meets the requirements of the EBD IM and that the approach taken is appropriate.

The impact on the 2004 ODV of the re-application of the BD multipliers is shown in Table 16. In summary, the re-application of the business district multiplier has resulted in:

- The application of the business district multipliers to 33kV cables (which was not applied in the 2004 ODV);
- A reduction in the length of cable (33kV, 11kV and LV) within business districts by 28.4 km, and an allocation of the majority of cables to arterial areas as opposed to an all-encompassing business district area. The use of more accurate definitions of business district areas was the key reason for this change; and,
- An increase in the value of the multiplier used. The reason for this change is due to the use of more accurate information in the definition of business district features and reinstatement requirements.

The effects of Electra's proposal to change the BD multiplier to the areas shown are shown in Table 16 below. This table shows a modified BD multiplier has been applied to 75.15 km of underground cables (33kV, 11kV and LV), resulting in an increase to the 2004 RAB of $1.348 million in terms of ODRC.

Table 16 : Summary of impact of business district multiplier application

Opening 2004 ODV Values

Asset	Quantity km	RC ($'000)	DRC ($'000)	ORC ($'000)	ODRC ($'000)
33kV cables	13.0	$3,946	$3,315	$3,946	$3,315
33kV cables - double cct	8.0	$1,916	$1,795	$1,916	$1,795
11kV UG Heavy	7.6	$1,025	$785	$1,025	$785
11kV UG Medium	154.1	$17,242	$12,870	$17,242	$12,870
11kV UG Light	13.0	$1,129	$855	$1,129	$855
LV UG medium	279.0	$19,136	$10,431	$19,136	$10,431
LV UG Medium-with HV	136.0	$3,769	$2,059	$3,769	$2,059
Total	**610.6**	**$ 48,162**	**$ 32,111**	**$ 48,162**	**$ 32,111**

Value modified adjustment (Central Busines District)

Asset	Quantity km	RC ($'000)	DRC ($'000)	ORC ($'000)	ODRC ($'000)
33kV cables	1.27	$163	$105	$163	$105
33kV cables - double cct	1.29	$132	$112	$132	$112
11kV UG Heavy	-	($44)	($43)	($44)	($43)
11kV UG Medium	10.48	($338)	($292)	($338)	($292)
11kV UG Light	-	($20)	($16)	($20)	($16)
LV UG medium	8.17	($337)	($192)	($337)	($192)
LV UG Medium-with HV	-	($144)	($81)	($144)	($81)
Total	**21.22**	**($587)**	**($407)**	**($587)**	**($407)**

Value modified adjustment (Arterial Commercial Area)

Asset	Quantity km	RC ($'000)	DRC ($'000)	ORC ($'000)	ODRC ($'000)
33kV cables	1.89	$242	$210	$242	$210
33kV cables - double cct	2.85	$291	$257	$291	$257
11kV UG Heavy	-	$0	$0	$0	$0
11kV UG Medium	27.65	$1,255	$930	$1,255	$930
11kV UG Light	-	$0	$0	$0	$0
LV UG medium	21.54	$607	$358	$607	$358
LV UG Medium-with HV	-	$0	$0	$0	$0
Total	**53.93**	**$ 2,396**	**$ 1,755**	**$ 2,396**	**$ 1,755**

Adjusted 2004 RAB Values

Asset	Quantity km	RC ($'000)	DRC ($'000)	ORC ($'000)	ODRC ($'000)
33kV cables	13.0	$4,351	$3,630	$4,351	$3,630
33kV cables - double cct	8.0	$2,340	$2,164	$2,340	$2,164
11kV UG Heavy	7.6	$981	$743	$981	$743
11kV UG Medium	154.1	$18,159	$13,508	$18,159	$13,508
11kV UG Light	13.0	$1,109	$840	$1,109	$840
LV UG medium	279.0	$19,406	$10,598	$19,406	$10,598
LV UG Medium-with HV	136.0	$3,625	$1,978	$3,625	$1,978
Total	**610.6**	**$ 49,971**	**$ 33,459**	**$ 49,971**	**$ 33,459**

3.4.3. Re-apply a modified rocky ground multiplier

Electra's 2004 ODV did not include the application of a rocky ground multiplier.

The EDM IM revises the scope of the rocky ground multiplier and allows for the re-application of the rocky ground multiplier within a range of 1.0 – 2.0 times.

(d) re-apply, in an ODV valuation which affects a 2009 disclosed asset, one of the following types of multiplier in the manner described, which asset is designated as of 'value modified' type:

...

(iii) the rocky ground multiplier in paragraph A.15 of the ODV handbook may be amended to a range of 1.0 - 2.0 times, and, in addition to the circumstances cited in the ODV handbook for its application, that multiplier may also be applied to cables laid in loose rock or sand; ...

3.4.3.1. Re-apply a modified rocky ground multiplier for sand conditions

Electra has elected to re-apply the rocky ground multiplier for cables installed in sand conditions and has provided new information in support of this.

Electra engaged GNS[4] to provide a geological assessment of the presence of rocky ground, gravel and sand conditions across Electra's network area. The GNS report confirmed the presence of sand condition across areas of Electra's network, predominately near the coast line. The presence of sand and gravel ground conditions across the Electra network is shown in Figure 18 (section 6) of Energia's report (Energia, 2013).

The information provided confirmed the presence of sand conditions adjacent to the coastline. The assessment on trenching in the sand confirmed what has been experienced by Electra staff that the dune sand was "prone" to collapse within an hour and required shoring or casing. It is also difficult to drill.

This impacted on cable installation costs because:

- the initial excavation trench width was wider than would be required in normal soil; and,
- the trench sidewall would collapse on a regular basis, which resulted in wider trenches.

Electra only uses shoring in trenches when installing 33kV cables due to the depth of the trench. Directional drilling is not being utilised because of the fact that drilled holes collapse.

The NIMS query indicated that a total of 255 km of cables were installed in the sandy areas defined by GNS and shown in Table 17.

[4] GNS. (2013, March). Geological ground conditions along the Electra Limited electricity network in the Kapiti Coast and Horowhenua districts. (Attachment 34 to Energia's report (Energia, 2013)).

- Table 17 : Quantity of cables installed in sand condition

Asset Type	11kV and LV cables in Foxton area (m)	33kv cables (m)	11kV and LV cables (excl. Foxton) (m)	Total (m)
33kV cables	-	2,560	-	2,560
33kV cables – double cct	-	3,461	-	3,461
11kV UG heavy	-	-	1,187	1,187
11kV UG medium	4,933	-	70,776	75,709
11kV UG light	-	-	5,166	5,166
11kV medium	6,521	-	160,249	166,770
11kV medium-with HV	-	-	-	-
Total	11,455	6,022	237,378	254,855

This equates to around 42% of the cables installed in Electra's network area being installed in sand. The extent to which the cables are installed in sand is consistent with the residential areas, which feature predominantly underground reticulation, adjacent to the coastline in Raumati, Paraparaumu, Waikanae, Otaki Beach, Te Horo Beach, Hokio Beach (Levin) and Foxton Beach.

Trenching and reinstatement prices were obtained from a local contractor, Tatana, as Electra does not operate a formal tendering arrangement for civil and trenching work due to the small scale of undergrounding work presently being undertaken. Tatana regularly undertakes contracting work for Electra.

The rocky ground multiplier (sand conditions) was determined by calculating the standard replacement cost for the cables in each of the sandy areas and then calculating the additional cost of constructing the wider trenches and reinstatement for installing the cables in sand. The multiplier was then calculated as the standard replacement cost plus the additional costs divided by the standard replacement cost.

The additional costs associated with installing the cables in sand was calculated by applying the additional trenching rate loading to the Tatana trenching and reinstatement base rates for cable installation in a typical urban situation. The typical urban installation comprised 79% installation in grass, 14% installation in concrete verge and 7% installation in asphalt roadway.

A standard 17.2% margin was applied to the additional trenching costs, which is the margin applied by Electra to its internal contracting costs.

The additional cost of trenching and reinstatement was then deflated from 2013$ to 2004$ and added to the standard cost of the actual primary assets in the business district.

Calculation of rocky ground multiplier in sand conditions:

Area	Replacement Cost of cables in Area (2004$)[5]	Additional costs associated with installation in sand (2004$)	Multiplier
11kV and LV Cables in Foxton	918,922	284,054	1.31
33kV cables	932,540	161,263	1.17
11kV and LV cables (excl. Foxton	17,952,436	2,825,693	1.16

SKM has checked Electra's methodology described above for determining the size of the rocky ground multiplier and the calculation for the additional trenching and backfill costs associated with installing cables in sand conditions. SKM found that the methodology was logical and well supported.

Table 18 summarises the impact on RC, DRC, ORC and ODRC for the cable assets following the application of the rocky ground multiplier for sand conditions.

[5] As per ODV handbook

- Table 18 : Movement in RAB due to rocky ground – Sand conditions

Opening 2004 ODV Values

Asset	Quantity km	RC ($'000)	DRC ($'000)	ORC ($'000)	ODRC ($'000)
33kV cables	13.0	$ 3,946	$ 3,315	$ 3,946	$ 3,315
33kV cables - double cct	8.0	$ 1,916	$ 1,795	$ 1,916	$ 1,795
11kV UG Heavy	7.6	$ 1,025	$ 785	$ 1,025	$ 785
11kV UG Medium	154.1	$ 17,242	$ 12,870	$ 17,242	$ 12,870
11kV UG Light	13.0	$ 1,129	$ 855	$ 1,129	$ 855
LV UG medium	279.0	$ 19,136	$ 10,431	$ 19,136	$ 10,431
LV UG Medium-with HV	136.0	$ 3,769	$ 2,059	$ 3,769	$ 2,059
Total	**610.6**	**$ 48,162**	**$ 32,111**	**$ 48,162**	**$ 32,111**

Value modified adjustment

Asset	Quantity km	RC ($'000)	DRC ($'000)	ORC ($'000)	ODRC ($'000)
33kV cables	2.56	$129	$98	$129	$98
33kV cables - double cct	3.46	$140	$137	$140	$137
11kV UG Heavy	1.19	$24	$23	$24	$23
11kV UG Medium	75.71	$1,324	$1,001	$1,324	$1,001
11kV UG Light	5.17	$67	$62	$67	$62
LV UG medium	166.77	$1,743	$1,022	$1,743	$1,022
LV UG Medium-with HV	-	$0	$0	$0	$0
Total	**254.86**	**$ 3,427**	**$ 2,343**	**$ 3,427**	**$ 2,343**

Adjusted 2004 RAB Values

Asset	Quantity km	RC ($'000)	DRC ($'000)	ORC ($'000)	ODRC ($'000)
33kV cables	13.0	$4,075	$3,413	$4,075	$3,413
33kV cables - double cct	8.0	$2,056	$1,932	$2,056	$1,932
11kV UG Heavy	7.6	$1,049	$809	$1,049	$809
11kV UG Medium	154.1	$18,566	$13,871	$18,566	$13,871
11kV UG Light	13.0	$1,196	$917	$1,196	$917
LV UG medium	279.0	$20,878	$11,454	$20,878	$11,454
LV UG Medium-with HV	136.0	$3,769	$2,059	$3,769	$2,059
Total	**610.6**	**$ 51,589**	**$ 34,454**	**$ 51,589**	**$ 34,454**

3.4.3.2. Re-apply a modified rocky ground multiplier for loose rock (gravel) conditions

Electra has elected to re-apply the rocky ground multiplier for cables installed in loose rock or, gravel conditions, and has provided new information in support of this.

Electra engaged GNS[6] to provide a geological assessment of the presence of rocky ground, gravel and sand conditions across Electra's network area. The GNS report confirmed the presence of gravel areas around the Ohau River, Otaki River and Waikanae River. GNS's assessment indicated that gravel had an "ability to free-stand" rating of "medium", which is inconsistent with the field evidence from Electra field and engineering staff.

[6] GNS. (2013, March). Geological ground conditions along the Electra Limited electricity network in the Kapiti Coast and Horowhenua districts. (Attachment 34 to Energia's report (Energia, 2013)).

Further practical input on the impact of the gravel conditions was provided from Tatana Contracting, who have undertaken trenching work across Electra's network area. Tatana contracting confirmed that river run gravel in and around the Otaki and Waikanae rivers had very low sidewall strength and that sidewall collapse was a material issue in these regions.

Based on the general information provided in the GNS report, and the interviews and discussions with the GNS Scientists, Electra staff and Tatana; Electra concluded that the gravel conditions have impacted the cost of installing cables in those areas.

SKM reviewed the supporting information from Electra and Tatana on how the gravel conditions impacted cable installation costs with, the key factors were:

- the initial excavation trench width was wider than would be required in normal soil; and
- the trench sidewall was prone to collapsing on a regular basis, resulting in wider trenches.

In respect of the first point, in areas where soil free-stand ability was moderate or high, a 0.4m trench width was standard for the installation of LV and 11kV cables. However, across Electra's network, the standard trench width for the installation of LV and 11kV cables in gravel was 0.6m to cater for potential trench sidewall collapse.

The NIMS query using the GNS data for gravel conditions found that a total of 45 km of cables were installed in gravel areas. This equates to around 7% of the cables installed in Electra's area.

The key areas impacted by the gravel are in Otaki and Waikanae and only cables on feeders emanating from the Otaki and Waikanae substations were included in the asset adjustment process.

- **Table 19 : Quantity of cables installed in gravel conditions**

Asset Type	Cables in gravel (m)
33kV cables	-
33kV cables – double cct	1,585
11kV UG heavy	-
11kV UG medium	16,304
11kV UG light	803
11kV medium	26,340
11kV medium-with HV	-
Total	45,032

The rocky ground multiplier (gravel conditions) was calculated in a similar way as described in the previous section; by calculating the standard replacement cost for the cables in each of the gravel areas and then calculating the additional cost of trenching and reinstatement for installing the

cables in gravel. The multiplier was calculated as the standard replacement cost plus additional costs divided by the standard replacement cost.

The additional costs associated with installing the cables in gravel was determined by applying the additional trenching rate loading to the Tatana trenching and reinstatement base rates for cable installation in a typical urban situation. The typical urban installation comprised 79% installation in grass, 14% installation in concrete verge and 7% installation in asphalt roadway.

A standard 17.2% margin was applied to the additional trenching costs, which is the margin applied by Electra to its internal contracting costs. The additional cost of trenching and reinstatement was then deflated from 2013$ to 2004$ and added to the standard cost of the actual primary assets in the business district.

A summary of the calculation of rocky ground multiplier in gravel conditions multiplier calculation is shown below:

Area	Replacement Cost[7] of cables in Area (2004$)	Additional costs associated with installation in gravel (2004$)	Multiplier
11kV and LV Cables	3,403,775	743,477	1.22
33kV cables	221,900	20,741	1.09

Table 20 summarises the impact on RC, DRC, ORC and ODRC for the cable assets following the application of the rocky ground multiplier for gravel conditions.

[7] As per ODV handbook

- Table 20 : Movement in RAB due to rocky ground – Gravel conditions

Asset	Quantity km	RC ($'000)	DRC ($'000)	ORC ($'000)	ODRC ($'000)
33kV cables	13.0	$3,946	$3,315	$3,946	$3,315
33kV cables - double cct	8.0	$1,916	$1,795	$1,916	$1,795
11kV UG Heavy	7.6	$1,025	$785	$1,025	$785
11kV UG Medium	154.1	$17,242	$12,870	$17,242	$12,870
11kV UG Light	13.0	$1,129	$855	$1,129	$855
LV UG medium	279.0	$19,136	$10,431	$19,136	$10,431
LV UG Medium-with HV	136.0	$3,769	$2,059	$3,769	$2,059
Total	**610.6**	**$ 48,162**	**$ 32,111**	**$ 48,162**	**$ 32,111**

Value modified adjustment

Asset	Quantity km	RC ($'000)	DRC ($'000)	ORC ($'000)	ODRC ($'000)
33kV cables	-	$0	$0	$0	$0
33kV cables - double cct	1.59	$34	$29	$34	$29
11kV UG Heavy	-	$0	$0	$0	$0
11kV UG Medium	16.30	$369	$261	$369	$261
11kV UG Light	0.80	$14	$10	$14	$10
LV UG medium	26.34	$365	$194	$365	$194
LV UG Medium-with HV	-	$0	$0	$0	$0
Total	**45.03**	**$ 783**	**$ 493**	**$ 783**	**$ 493**

Adjusted 2004 RAB Values

Asset	Quantity km	RC ($'000)	DRC ($'000)	ORC ($'000)	ODRC ($'000)
33kV cables	13.0	$3,946	$3,315	$3,946	$3,315
33kV cables - double cct	8.0	$1,950	$1,823	$1,950	$1,823
11kV UG Heavy	7.6	$1,025	$785	$1,025	$785
11kV UG Medium	154.1	$17,612	$13,131	$17,612	$13,131
11kV UG Light	13.0	$1,143	$865	$1,143	$865
LV UG medium	279.0	$19,501	$10,625	$19,501	$10,625
LV UG Medium-with HV	136.0	$3,769	$2,059	$3,769	$2,059
Total	**610.6**	**$ 48,945**	**$ 32,604**	**$ 48,945**	**$ 32,604**

3.5. Re-apply Optimisation and/or Economic Value Test

3.5.1. Re-apply optimisation

Reference EDB IM cl 2.2.1(2)(e). EDBs may reconsider the application of optimisation based on the network conditions during 2009.

There was no optimisation of the 33kV, 11kV or LV circuits in the 2004 ODV. Electra has not proposed any optimisation to its adjusted 2004 RAB.

3.5.2. Re-apply economic value test

Reference EDB IM cl 2.2.1(2)(e). EDBs may reconsider the application of economic value tests based on network conditions during 2009.

There were no EV adjustments to Electra's 2004 ODV.

4. Summary

Electra's asset adjustment process has focused on three areas:

1. Inclusion of distribution (11 kV) surge arrestors.
2. Application of the business district multipliers due to the special features in the towns within the Electra network and the arterial routes.
3. Application of the rocky ground multipliers for sand and gravel conditions.

Table 21 below summarises the changes that have been made due to these three adjustments. These adjustments are all as at 31 March 2004.

- **Table 21 : Summary of asset adjustment process impact on 2004 RAB**

Asset	RC ($'000)	DRC ($'000)	ORC ($'000)	ODRC ($'000)
2004 ODV	$177,475	$101,266	$177,363	$101,173
Correct Asset Registor Errors (surge arrestors)	$379	$283	$379	$283
Re-apply Modified Multiplier Rocky Ground (sand)	$3,427	$2,343	$3,427	$2,343
Re-apply Modified Multiplier Rocky Ground (gravel)	$783	$493	$783	$493
Re-apply Modified CBD Multiplier	$1,809	$1,349	$1,809	$1,349
Adjusted 2004 RAB	$183,872	$105,734	$183,760	$105,641
Total adjustment	**$ 6,397**	**$ 4,468**	**$ 6,397**	**$ 4,468**

Appendix A Table Summary of Asset value Adjustments: Schedule 5i

						Company Name	Electra Limited	
						For Year Ended	31-Mar-13	

SCHEDULE 5i: REPORT ON INTITAL RAB ADJUSTMENT

Under clause 2.2.1 of the IM determination an EDB may undertake an asset adjustment process in setting their initial RAB.

If the EDB has adjusted its RAB in accordance with clause 2.2.1 of the IM determination, it must complete this schedule when disclosing information relating to the year ending 31 March 2012

ref							
8	**Summary of Engineer's Valuation Adjustments (at time asset enters regulatory asset register)**						
9		**2004 ***	**2005**	**2006**	**2007**	**2008**	**2009**
10	**Asset adjustment process - adjustments**	**($000)**	**($000)**	**($000)**	**($000)**	**($000)**	**($000)**
11							
12	Include load control relays						
13	**Correct asset register errors for 2004 ODV assets**						
14	Surge arrestors	283					
15							
16							
17							
18							
19		283					
20	**Correct asset register errors for 2005 – 2009 assets**						
21							
22							
23							
24			-	-	-	-	-
25	**Re-apply an existing multiplier to 2004 ODV assets**						
26							
27							
28							
29		-					
30	**Re-apply a modified multiplier to 2004 ODV assets**						
31	Rocky ground	2,836					
32	Business district	1,348					
33							
34		4,184					
35	**Re-apply optimisation or EV tests to 2004 ODV assets**						
36							
37							
38							
39		-					
40							
41	**Total value of adjustments by disclosure year**	4,468	-	-	-	-	-
42	** Includes assets which first entered the regulatory asset register in a disclosure year prior to 2004.*						
43							

Appendix B Electra's Instructions to the Engineer

27 May 2013

Electra

Steve Wightman
Strategic Consulting Manager NZ & Asia
Sinclair Knight Merz
P O Box 10 283
WELLINGTON 6143

Dear Steve,

ENGINEER'S REPORT IN RESPECT OF TPCL'S INITIAL REGULATORY ASSET BASE

Thank you for your proposal to provide an Engineer's Report in relation to the establishment of Electra Limited's ("Electra") Initial Regulatory Asset Base ("RAB").

Electra is required to disclose information to the Commerce Commission under the Commerce Commission's Decision No. NZCC 22: Electricity Distribution Information Disclosure Determination 2012 (the "ID Determination"). The ID Determination requires Electricity Distribution Businesses ("EDBs") to provide the Commerce Commission with, among other things, an Engineer's report that complies with the requirements specified in Attachment C of the ID Determination if the EDB has elected to undertake the asset adjustment process as permitted by, and outlined in, clause 2.2.1 of the Electricity Distribution Services Input Methodologies Determination 2010 (the "IM Determination").

Electra has elected to undertake an asset adjustment and we require SKM to review the proposed adjustments that we have made to our 2004 ODV as allowed under the IM Determination and to provide a report which complies with Attachment C of the ID Determination. These adjustments include Included Assets (11kV surge arrestors) and Value Modified Assets (the reapplication of multiplier based on new information).

Electra expects that it will undertake the bulk of the database work, which will include the identification of relevant assets, the review of multiplies and provide SKM with data that supports our proposed changes. SKM would then review and audit this work through on-site visit, inspections and discussions with the relevant staff and produce the Engineer's Report.

Yours sincerely

Mike Hearn
Network Planning and Development Manager
ELECTRA

Appendix C Signed Statement by the Engineer

Sinclair Knight Merz
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Newmarket 1023
Auckland New Zealand

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Mike Hearn
Network Planning and Development Manager,
Electra Limited
Cnr Bristol & Exeter Streets
PO Box 244
Levin 5540

9 July 2013 *ZP01436*

Dear Sir,

Statement Regarding Independent Engineer's Report on the Asset Adjustment Process of Electra Limited

Introduction

Sinclair Knight Merz Ltd (SKM) was requested by Electra Limited (Electra) to undertake an independent review of proposed adjustments to Electra's regulatory asset base as at 31st March 2004. This review was undertaken to determine the appropriateness of the proposed adjustments in respect of the process set out in clause 2.2.1 of the "Commerce Act (Electricity Distribution Input Methodologies) Determination 2010", 22 December 2010 (EDB IM).

SKM's findings are set out in the enclosed report which has been prepared to comply with the requirements for the Engineer's Report in Attachment C of the Commerce Commission's information disclosure titled "Electricity Distribution Services Information Disclosure Determination 2012" (EDB ID), dated 1 October 2012. This letter incorporates the signed statement required by EDB ID.

Confirmation of Independence and Qualifications

I, as a chartered professional engineer (as defined in section 6 of the Chartered Professional Engineers Act 2002), can confirm that:

1) SKM has acted independently with respect to Electra and its subsidiaries and affiliates;

2) SKM has significant experience in New Zealand, Australia and the United Kingdom in relation to the valuation of electricity networks for both regulatory and financial reporting purposes. SKM's review and the preparation of the report has been undertaken by Mr Stephen Wightman and Dr Richard Fairbairn. Mr Wightman and Dr Fairbairn are professionally qualified and experienced in the type of work concerned and are familiar with the Electra network;

3) the report is in writing and accessible in electronic (PDF file-type) format and includes a copy of the written instructions provided to SKM by Electra (included as Appendix B to the enclosed report), including any subsequent variations or modifications;

4) the report includes a table summarising the various asset value adjustments corresponding to Schedule 5i of the Information Disclosure Notice Templates (please see Appendix A to the enclosed report);

5) the report provides the minimum information for each category of asset adjustment outlined in Table 1 of Attachment C of the EDB ID, together with such additional information sufficient to allow a reader:

   i. to understand the data, information, calculations and assumptions employed in respect of each category of asset adjustment;
   ii. to understand the extent to which professional judgement was exercised by SKM and the effect of that judgement in deriving the resultant asset values;
   iii. to verify the arithmetical accuracy of the asset adjustment calculations; and

6) the report may be publicly disclosed by Electra pursuant to an information disclosure determination in relation to Electra made by the Commission under section 52P of the Commerce Act (1986).

I can confirm that SKM is satisfied that:

   i. the rules in the ODV handbook have been properly applied for assets which had not had an ODV valuation calculated originally, as required by clause 2.2.1 of the EDB IM;
   ii. where values under Generally Accepted Accounting Practice (GAAP) have been relied on, those values have been supplied or reviewed by an appropriately qualified party (e.g. accounting practitioner); and
   iii. the report meets the requirements of Attachment C of the EDB ID.

SIGNED on behalf of Sinclair Knight Merz Ltd by:

Designated Engineer

R Fairbairn, MIPENZ, CPEng

Assessor

S. Wightman, MIPENZ