SCANPOWER
ELECTRICITY NETWORKS

Asset Management Plan

1st April 2011 – 31st March 2021

Period Covered:	1st April 2011 to 31st March 2021
Version:	Approved for Release
Issued:	31st March 2011

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1.0 Executive Summary

1.1 Purpose of the Plan

The purpose of this asset management plan is to document the processes, objectives, systems and performance measures employed by Scanpower Limited in the management of the company's electricity distribution network assets. It also aims to document processes that ensure that Scanpower's asset management strategy considers customers' needs in terms of price and quality as required by the Commerce Act (Electricity Lines Thresholds) Notice 2003.

Specifically, the asset management systems and processes documented herein, and undertaken in practice, are designed to ensure that:

- The network assets meet customers' electricity supply requirements, both in terms of quality and cost.
- Assets are maintained on a sustainable long term basis.
- Network performance targets are achieved.
- Operational and efficiency improvements are achieved over time.

Scanpower is required to produce and disclose this document annually in accordance with the Electricity Information Disclosure Requirements 2004, the Revised Information Disclosure Requirements 2006, and the Revised Electricity Distribution (Information Disclosure) Requirements 2008 published by the Commerce Commission.

1.2 Interaction of the Asset Management Plan with Corporate Strategy

The asset management plan is prepared as a supporting document to the Company's broader strategic plan. It is fundamentally an implementation plan, aimed at achieving three of Scanpower's six primary strategic objectives, these being:

- *"To deliver a reliable and safe supply of electricity to our customers"*
- *"To provide a cost effective supply of electricity to our customers"*
- *"To earn a commercially appropriate rate of return on our assets"*

Implementation planning for achievement of the organisation's other key strategic objectives is undertaken and documented elsewhere, for example in the annual business development plan (which is not publicly disclosed). By implementing the initiatives and processes detailed in the asset management plan, the Board and Management of Scanpower anticipate successfully realising these network related objectives.

1.3 Date Completed and Period Covered

This asset management plan relates to the period 1st April 2011 to 31st March 2021. The plan was completed in March 2011 and approved by Scanpower's Board of Directors on 31st March 2011, prior to public release on 1st April 2011.

The plan is reviewed and restated on an annual rolling basis. The next plan will be available by 1st April 2012 and will cover the period 1st April 2012 to 31st March 2022.

1.4 Asset Management Systems and Information

Scanpower undertakes asset management planning and implementation using an in-house network and line contracting division. Both engineering and line staff are employed directly by Scanpower. From time to time, Scanpower does contract out specific asset management related works to suitably qualified third party organisations, primarily in relation to the company's radio communication network. To manage asset and network related information, Scanpower uses a number of systems. These include:

- *"Enghouse" geographic information system*

  This is a geographic information system that provides an electronic, graphical representation of the Scanpower network. It includes assets such as transformers, substations, poles, lines, reclosers, air break switches, sectionalisers, cables and isolating fuses. The system is used to draw / plot network plans for capital replacement and maintenance works, including overhead line replacement and laying of underground cables.

- *NCS (Napier Computer Systems) customer/ICP information database*

  This system stores customer connection information, and is used to generate ICP numbers for new connections. It also records the current energisation status of ICPs on the network (e.g. energised, de-energised, or decommissioned).

- *Proprietary asset databases*

  This category of information systems refers to a suite of proprietary asset databases, created in Microsoft Excel. These serve as a full, component level network asset database and record data such as year of installation, age, historic cost, revaluations, etc. This information is used as the basis for financial accounting, tax accounting and ODV report preparation purposes.

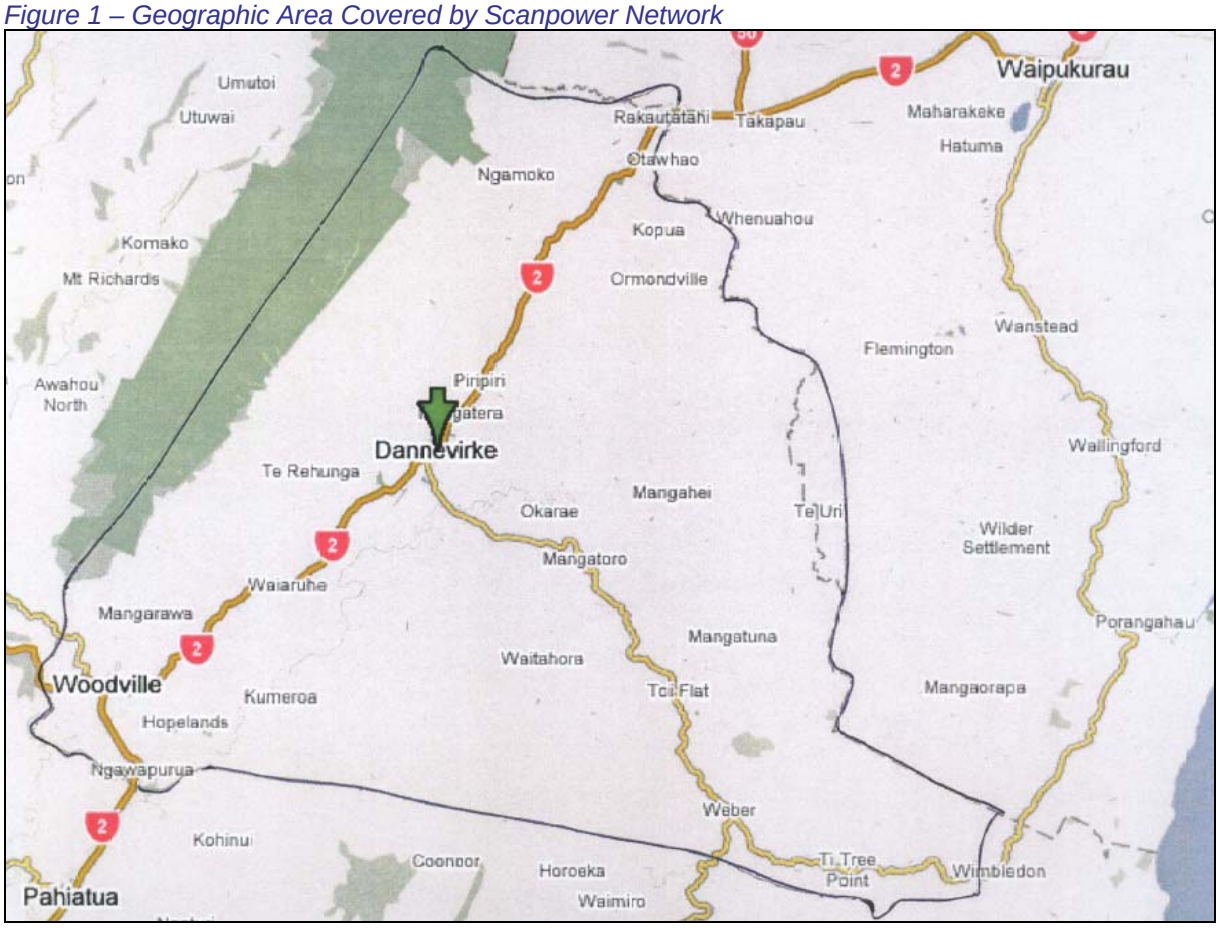
- *SCADA system records*

  The SCADA system is licensed from Abbey Systems and is operated / located in the Network Control Room. It is used for real time monitoring of the network, including feeder loadings, operation of remote control equipment on the network and load control information.

1.5 Network and Asset Descriptions

Scanpower owns and operates electricity distribution network assets supplying energy to the Southern Hawkes Bay / Northern Tararua region. The network area is predominantly rural in nature and covers an area of 2,000 km² (area within the black boundary line per the map below).

Figure 1 – Geographic Area Covered by Scanpower Network



The network comprises 1,037 km of line which consists of both overhead and underground assets. 6,825 ICPs are supplied across the network with maximum demands reaching 15.8 MW in the past year. 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 Scanpower network has no 33kV sub transmission system and distribution lines operate at 11 kV / 400V. For this reason the company has no zone substation assets.

The most recent network asset valuation exercise was undertaken as at the year end 31st March 2010 for financial reporting and compliance purposes. The basis for this valuation was an internally calculated set of standard current replacement costs structured according to Commerce Commission ODV Handbook network asset categories. The total replacement cost of Scanpower distribution assets at this date was $44,407,202 and the depreciated replacement cost (DRC) was $24,414,691. There were no assets deemed to be surplus to requirements at the time of the valuation and therefore there was no optimisation adjustment to this value.

Economic value testing of the assets by way of discounted cashflow analysis suggested there was no impairment or EV adjustment necessary, hence the optimised deprival value of the assets was calculated to be the same as the DRC at $24,414,691.

1.6 Service Level Objectives and Financial Performance

Security of Supply Objective

Scanpower has established a security of supply objective based on guidelines produced by the Electricity Engineers' Association NZ published in "Guidelines for the Security of Supply in New Zealand" dated June 2000. Given the relatively small size of Scanpower's network and geographic / demographic characteristics, in no part of the network does load reach the size where compliance with industry standards requires security provisions to prevent interruption of supply in the event of an outage incident (known as **n-1** security level).

On this basis the Company has adopted a security level of **n**, unless where a preference for increased security of supply, and a corresponding willingness to pay for it, has been identified through the customer consultation process. Consultation with customers during the year ending 31 March 2010 which involved discussion with ten major customers, the Scanpower Customer Trust and representative community groups, Greypower, Federated Farmers and the Tararua District Council, did not reveal any customer preference for provision of an increased level of security of supply. Therefore there are currently no non-standard agreements to provide a service level beyond that of **n** security, or in fact any non-standard agreements of any type.

Figure 2 – Scanpower Network Supply Security Standards

Description	Load Size (MW)	Customer Numbers	Single Contingency	Coincident Contingency
Main 11kV Feeder	1.0-4.0	500-1000	Restore within 60min	Restore within Repair Time
Urban 11kV Feeder	0.2-2.0	100-1000	Restore within 60min	Restore within Repair Time
Rural 11kV Feeder	0.0-1.0	50-500	Restore within 240min	Restore within Repair Time
Urban 11kV Spur	0.0-0.5	1-100	Restore within Repair Time	Restore within Repair Time
Rural 11kV Spur	0.0-0.2	1-50	Restore within Repair Time	Restore within Repair Time

On this basis, it is appropriate that Scanpower focus on improving the ability to restore supply in the event of an unplanned outage, rather than prevent interruption through increased security levels. The reliability measures SAIDI and SAIFI have therefore been adopted as the primary indicators of service level performance.

In order to improve the ability to restore supply in the event of an unplanned outage Scanpower completed a network automation programme in 2007 involving the replacement of manually operated air break switches with remote controlled circuit breakers, sectionalisers and air break switches.

In addition to this, Scanpower completed the splitting of all dual circuit feeder lines from the Dannevirke substation in 2009 as a means of reducing customer exposure to main feeder faults in that area.

Outage Duration (SAIDI) and Outage Frequency (SAIFI) Objectives

Scanpower uses the standard indices SAIFI and SAIDI (class B and C) as key indicators of network reliability performance. Performance targets for 2011 / 2012 have been established on the basis of the reliability performance methodology prescribed under the Commerce Commission thresholds regime. The appropriateness of this target basis, from a customer perspective, has been confirmed through consultation with customer representatives in regard to the price / quality trade-off, undertaken in early 2006 and again in 2008. Furthermore, the targets are approved by the Scanpower Customer Trust in the company's annual Statement of Corporate Intent. The following table shows SAIDI and SAIFI performance results for the previous five years in comparison to target.

Figure 3 – Summary Service Level Objectives and Previous Results (2007 – 2012)

MEASURE	**2012** *(Target)*	**2011** *(Projected)*	**2010**	**2009**	**2008**	**2007**
SAIFI (Class B&C)						
Target	0.92	0.92	0.92	0.92	0.92	0.92
Actual		1.60	0.70	0.90	1.29	0.84
Variance		●	●	●	●	●
SAIDI (Class B&C)						
Target	83	83	83	83	83	83
Actual		110	66	36	58	47
Variance		●	●	●	●	●

● = *Favourable variance* ● = *Adverse variance*

A more detailed analysis of reliability performance is provided in **Section 8.1** (Performance Evaluation).

Other Service Level Objectives

As an electricity network operator, Scanpower has historically focused on security of supply, and SAIDI / SAIFI as primary service level objectives. The annual network performance targets specified by the Scanpower Customer Trust are expressed in terms of SAIDI and SAIFI. However, Scanpower recognises numerous other service level indicators / objectives and manages the network assets with these in mind. They include:

- *Customer oriented service level objectives*

  In addition to security and reliability of supply, this category includes capacity and voltage outcomes which customers receive and pay for.

- *Regulatory oriented service level objectives*

  This category relates to desired outcomes for statutory/regulatory agencies such as the Commerce Commission, Electricity Commission, the Ministry of Economic Development, the Ministry of Consumer Affairs, Statistics New Zealand, and the

Electricity & Gas Complaints Commission. The service level objectives here are primarily associated with meeting disclosure requirements in a timely and complete manner, complying with industry-specific regulation, documenting engagement with customers etc.

- *Community orientated service level objectives*

  This category covers those service level objectives relevant to the general public, and includes outcomes relating to public safety, maintaining appropriate tree and ground clearances, ensuring hazards are appropriately signposted / notified, and so on.

- *Review of performance relative to peer companies*

  Scanpower also compares itself with three other similar lines companies over a range of disclosed measures. These companies are the most similar in size and demographics to Scanpower.

Figure 4 – Scanpower Comparison with Industry Peers (Year Ending 31st March 2010)

MEASURE	Buller	Centralines	Waitaki	Peer Average	Scanpower	Variance
Line Charges /kWh	9.5c	6.0c	3.6c	6.4c	5.3c	●
Line Charges/ICP	$1,035	$810	$716	$854	$653	●
Return on Investment	7.28%	6.23%	8.64%	7.38%	7.04%	●
OPEX Cost/km	$4,089	$1,427	$1,826	$2,447	$2,009	●
OPEX Cost/ICP	$570	$329	$255	$385	$268	●
SAIFI	2.2	2.3	1.5	2.0	0.7	●
SAIDI	302	133	64	166	66	●

● = *Favourable variance* ● = *Adverse variance*

Financial Performance 2009 / 2010 (Full Year)

Figure 5 below provides actual expenditure by category, for the year ending 31st March 2010 (this being data for the most recently completed full financial year), and indicates variances to budget where they have occurred.

The single largest area of variance relates to replacement and renewal work. This was primarily due to increased material costs which affected both capital and maintenance expenditure. A more in-depth commentary on the variances detailed above is provided in Section 8.3 of this plan.

Figure 5 – Expenditure Performance 2009/10

Category	2009/10 Actual	2009/10 Budget	Variance
Capital Expenditure			
Customer Connections	$40,000	$24,000	+$16,000
System Growth	$14,000	$88,000	-$74,000
Asset Replacement and Renewal	$928,000	$1,081,000	-$153,000
Reliability, Safety and Environment	$55,000	$60,000	-$5,000
Asset Relocations	$0	$0	$0
Undergrounding of Urban 400V Overhead Lines	$110,000	$0	+$110,000
Total Capital Expenditure	**$1,147,000**	**$1,233,500**	**-$86,500**
Operational Expenditure			
Routine and Preventative Maintenance	$156,000	$180,000	-$24,000
Refurbishment and Renewal Maintenance	$353,000	$351,000	+$2,000
Fault and Emergency Maintenance	$89,000	$160,000	-$71,000
Total Operational Expenditure	**$598,000**	**$691,000**	**-$93,000**

Financial Performance 2010 / 2011 (11 Months Year to Date)

Figure 6 below shows the consolidated 2010 / 2011 annual financial result in respect of Scanpower's main capital and maintenance expenditure categories. At the time of writing, actual figures are only available for the 11 months to 28th February 2011 due to publication of this plan prior to the close of the financial year end. Final figures will be published in report "AM1" which is required to be published within 5 months of the financial year end. Again more detailed performance analysis and explanation of variances is provided in Section 8.1.

Figure 6 – Expenditure Performance 2010 / 11 (11 months year to date)

Category	2010/11 Actual YTD	2010/11 Budget	Variance YTD
Capital Expenditure			
Customer Connections	$34,300	$41,000	-$6,700
System Growth	$42,787	$62,000	-$19,213
Asset Replacement and Renewal	$1,151,511	$1,058,000	+$93,511
Reliability, Safety and Environment	$59,750	$68,500	-$8,750
Asset Relocations	$0	$0	-
Undergrounding of Urban 400V Overhead Lines	$0	$0	-
Total Capital Expenditure	**$1,288,348**	**$1,229,500**	**+$58,848**
Operational Expenditure			
Routine and Preventative Maintenance	$133,058	$180,000	-$46,942
Refurbishment and Renewal Maintenance	$384,756	$417,091	-$32,335
Fault and Emergency Maintenance	$194,524	$180,000	+$14,524
Total Operational Expenditure	**$712,338**	**$777,091**	**-$64,753**

Planned Works and Expenditure

Planned expenditure for the coming year (1st April 2011 to 31st March 2012) is as follows:

Figure 7 – Planned Expenditure 2011 / 12

Category	2011/12 Budget
Capital Expenditure	
Customer Connections	$36,000
System Growth	$60,000
Asset Replacement and Renewal	$811,000
Reliability, Safety and Environment	$30,500
Asset Relocations	$0
Undergrounding of Urban 400V Overhead Lines	$0
Total Capital Expenditure	**$937,500**
Operational Expenditure	
Routine and Preventative Maintenance	$210,000
Refurbishment and Renewal Maintenance	$360,000
Fault and Emergency Maintenance	$210,000
Total Operational Expenditure	**$780,000**

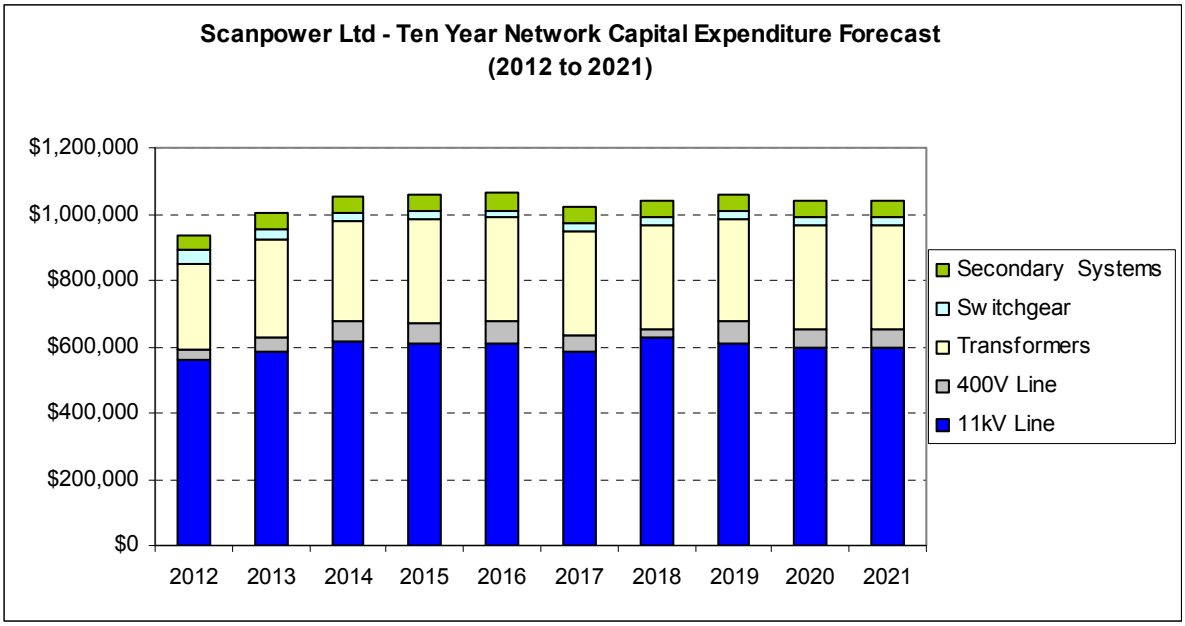
Planned capital expenditure for the ten year period covered by this plan is summarised in Figure 8 below.

Figure 8 – Summary of expected Ten Year Network Capital Expenditure Plan (2012 to 2021)

Year	11kV Line	400V Line	Transformers	Switchgear	Secondary Systems	Total
2012	$561,000	$32,000	$259,000	$40,500	$45,000	**$937,500**
2013	$586,000	$44,000	$291,000	$32,500	$50,000	**$1,003,500**
2014	$615,000	$61,000	$302,000	$24,000	$50,000	**$1,052,000**
2015	$610,000	$62,000	$313,000	$24,000	$50,000	**$1,059,000**
2016	$610,000	$65,000	$313,000	$24,000	$50,000	**$1,062,000**
2017	$584,000	$52,000	$313,000	$24,000	$50,000	**$1,023,000**
2018	$625,000	$30,000	$313,000	$24,000	$50,000	**$1,032,000**
2019	$609,000	$65,000	$313,000	$24,000	$50,000	**$1,063,000**
2020	$600,000	$50,000	$315,000	$24,000	$50,000	**$1,039,000**
2021	$600,000	$50,000	$315,000	$24,000	$50,000	**$1,039,000**

A graphical representation of this data by network asset type is provided below.

Figure 9 – Graphical Representation of Ten Year Capital Expenditure Plan 2012 to 2021)



A number of extra capital projects were completed last year (2010/11) to coincide with the upgrade of Transpower's Woodville Grid Exit Point. These projects included replacement and separation of the main feeder cables exiting Transpower's substation and a new ripple injection plant and relays utilising the same load management system installed at Dannevirke when Transpower carried out a similar upgrade in 2006.

There are no further significant developments planned for the remainder of the period covered by this Asset Management Plan (2012-2021). Scanpower will continue with its existing asset replacement/renewal program and consequently return to the previous expenditure levels experienced over the last few years.

1.7 Life-Cycle Asset Management and Development Plans

Life-cycle asset management focuses on the development and implementation of strategies that consider relevant economic and physical consequences, from initial planning through to disposal.

Scanpower operates a life-cycle management strategy on its network assets that aligns condition, age and service reliability with the needs of customers. To achieve this Scanpower has developed a maintenance strategy that imposes condition-based and break-down strategies on assets or classes of assets depending on the relative costs and benefits of preventing in-service failure. This strategy ensures that the assets perform their required function during their lives in a cost effective manner.

As a general principle, an asset should be refurbished or replaced when:

- It ceases to be suitable for the intended purpose, or
- It becomes unsafe, or

- The present value of the cost of its replacement plus the cost of removing or de-commissioning it, less the scrap value recovered, if any, becomes less than the present value of its future maintenance, or

- Its refurbishment or replacement forms part of the least cost development of the network.

Efficiency improvements achieved through refurbishment or replacement should be taken into account, as should the consequences of supply interruption if replacement is deferred. The unforeseen failure of an asset can have large consequences that constitute a business risk or potential loss to Scanpower.

A rolling ten year network development plan has been developed and includes the following system development initiatives:

- Accommodating forecast load growth requirements.

- Enhancing reliability, capacity and cost effectiveness of supply from the National Grid.

- Replacement of ageing assets which have reached the end of their useful life.

- Installation/Upgrading network assets to improve system reliability.

- Optimising our use of remote controlled 11kV sectionalisers and air break switches installed in recent years for faster outage response.

- Upgrades to the SCADA system and replacement of the existing ripple control injection plant and relays.

1.8 Risk Management

Risk management and assessment is recognized by Scanpower as an integral part of its asset management practice. This includes establishing and improving systems and contingency plans for managing equipment failure or disaster events.

Scanpower has performed a detailed network risk assessment based on AS/NZS 4360:1999 Risk Management which identified a number of risk exposures associated with network assets. Scanpower has commenced reducing some of these risks during the last twelve months and will continue to implement further risk minimization strategies over time.

In all Scanpower risk management methodologies, public and environmental safety is regarded as issues of primary priority.

Scanpower has specifically documented how it will respond to the following events:

- Natural disasters that are deemed publicly credible by the district and regional councils.

- Asset failure events.

- Events that could impact on head-office premises such as fire, flood, bombing and hacking.

This documentation forms part of a suite of disaster recovery / business continuity plans that Scanpower maintains.

1.9 Performance and Plans for Improvement

There are two aspects to Scanpower's consideration of planning to improve performance; initiatives and processes to improve the quality of the asset management plan document, and initiatives to improve the performance of the network.

Asset management plan improvement

Scanpower actively seeks feedback on the quality, clarity and completeness of its annual asset management planning document. Sources of feedback include:

- Assessments of the plan performed by the Commerce Commission (or their agents).

- Requests for comments from electricity retailers.

- Customers / general public given that the document is made available in the public domain.

- Periodic internal reviews by Scanpower staff and external consultants specifically engaged to improve the quality of the asset management planning document.

Scanpower's goal is to produce an annual asset management plan that continually improves and develops to meet the requirements of all relevant readers / stakeholders.

Network Improvement

Developing improvement initiatives and performance enhancement are established processes within Scanpower's asset management planning methodology. Improvement initiatives planned for the coming year are:

- Replacement of ageing 11kV and 400V overhead lines.

- Installing larger size conductor where appropriate for improved voltage regulation under fault conditions.

- Transformer and Air Break Switch replacements.

These improvements are considered important to improving reliability, quality of supply to Scanpower's customers, and the dynamic efficiency of the network assets.

2.0 Background and Objectives

2.1 Purpose of the Plan

The purpose of this asset management plan is to document the processes, objectives, systems and performance measures employed by Scanpower Limited in the management of the company's electricity distribution network assets. It also aims to document processes that ensure that Scanpower's asset management strategy consider customers' needs in terms of price and quality as required by the Commerce Act (Electricity Lines Thresholds) Notice 2003.

Specifically, the asset management systems and practices documented herein, and undertaken in practice, are designed to ensure:

- The network assets meet customers' electricity supply requirements, both in terms of quality and cost.
- Assets are maintained on a sustainable long term basis.
- Network performance targets are achieved.
- Operational and efficiency improvements are achieved over time.

Scanpower is required to produce and disclose this document annually in accordance with the Electricity Information Disclosure Requirements 2004, the Revised Information Disclosure Requirements 2006, and the Revised Electricity Distribution (Information Disclosure) Requirements 2008 published by the Commerce Commission.

The asset management plan documents the following:

- Asset management planning and implementation.
- Details of network assets.
- Service level objectives.
- Life cycle asset management and development.
- Risk management.
- Performance and plans for improvement.

Each of these areas is presented in detail below.

2.2 Interaction between Business Planning Processes and Corporate Goals

Strategic Overview

To aid understanding of the interaction between Scanpower's corporate goals and its business planning processes (including the annual Asset Management Plan) it is useful to understand the strategic framework in which the organisation operates.

Scanpower has adopted the following mission statement which represents an aspirational expression of the organisation's fundamental reason for being:

"Delivering more to our community by providing a high quality electricity distribution network and promoting economic growth"

The mission statement encapsulates three critical components of the company's strategy:

- The significance of community ownership of the company through the Scanpower Customer Trust and the desire to deliver results which exceed their expectations.
- The goal of providing a high quality electricity distribution network service to our stakeholders.
- The strategic desire to develop new areas of our business, primarily in unregulated areas, which will promote economic growth and increased employment in our region.

Whilst the mission statement is an expression of "who we are", the company's vision statement is an expression of "what we are here to do":

"To provide our region with a reliable, safe, cost-effective and sustainable electricity distribution network, whilst using our innovation and skills to develop new business and employment opportunities within our local communities"

The vision statement, in conjunction with the mission statement, has been translated into six specific strategic objectives. These are as follows:

"To deliver a reliable and safe supply of electricity to our customers"

"To provide a cost effective supply of electricity to our customers"

"To earn a commercially appropriate rate of return on our assets"

"To generate additional earnings from other commercial activities"

"To deliver financial benefits to our community via the network discount"

"To add value to our region through our operating practices and community initiatives"

This high level strategic framework is reviewed on an annual basis, and submitted in summary form for comment and approval to the Scanpower Customer Trust in the annual Statement of Corporate Intent.
This review process includes discussion with the Scanpower Customer Trust as to the long term direction of the company and its strategic goals. It also incorporates discussion of matters such as the scope of the company's activities, network pricing principles, and a range of key performance measures which include network reliability indicators (SAIDI and SAIFI), network pricing indicators (cents / kWH, annual network rebate), and safety indicators (lost time accidents per 100,000 man hours).

It is fair to say that given the nature of the electricity distribution business, and the fact that Scanpower has been in operation (in one form or another) for over 80 years, the fundamental strategic objectives relating to the network business have remained relatively consistent for many years, although key performance measures / targets do vary more frequently.

Once approved by the Trust, Scanpower uses this over-arching strategic framework to review and refresh its ten year strategic plan on a rolling annual basis. It is from this core document that other planning and implementation processes are derived. The two key subsets are:

- Asset Management Planning.
- Business Planning for Non-Network Activities.

The Asset Management Plan is intended to expand on the Strategic Plan, in particular focusing on how the Network Division intends to contribute to the achievement of the first three stated corporate strategic objectives. It serves as an implementation plan for the coming year, in addition to providing forecast activities and documenting the approach the company will take to asset management for a further nine year period.

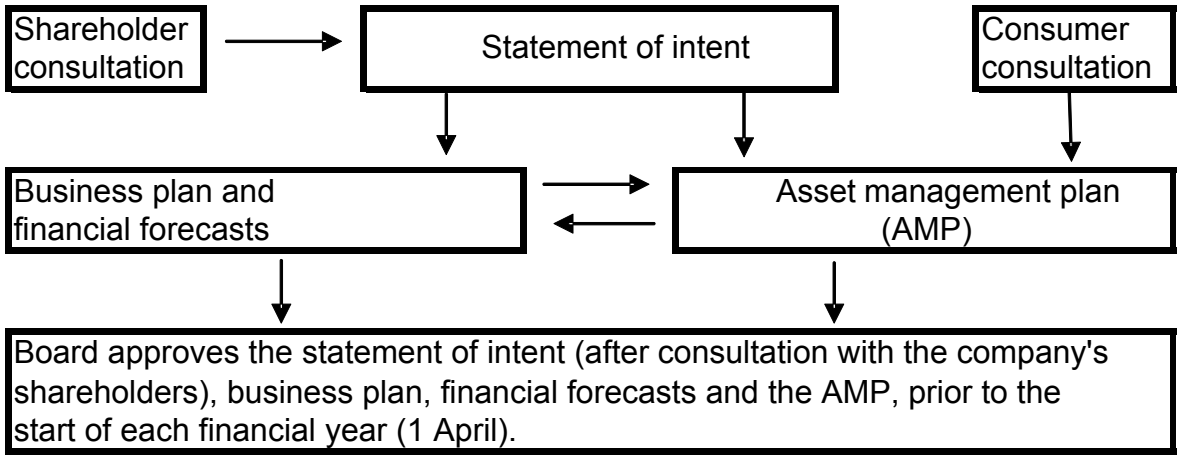
Business planning for non-network activities covers Scanpower's business interests in other industries, which at the time of writing include:

- Plumbing and electrical contracting
- Gas fitting
- Installation and supply of heat pumps
- Installation and supply of solar water heating systems
- Appliance retailing
- Power line contracting
- Meter reading
- Electrical field service coordination and contract management
- Tree and vegetation management (trading as Treesmart)
- Bulk frozen and chilled food storage and handling (trading as OCS)
- Investment in property and joint venture companies (Kiwi Sock Company, Oringi Business Park)
- Investigation into related energy products

Clearly these activities fall outside of the scope of the Asset Management Plan and therefore no further detail is provided here in this regard. In combination the Asset Management Plan and other business plans feed into annual capital and operating budgets for the year in question.

Figure 10 below provides a diagrammatic overview of Scanpower's planning process.

Figure 10 – Interaction of Plans and Processes



2.3 Planning Periods Adopted

The plan is reviewed and restated on an annual rolling basis. The next plan will be available by 1 April 2012 and will cover the period 1 April 2012 to 31 March 2022.

The following table summarises the planning periods adopted and review frequency for each of the business planning processes.

Figure 11 – Business Planning Periods and Review Frequency

Plan	Period Covered	Review Frequency
Strategic Plan	10	Reviewed Annually
Asset Management Plan	10	Reviewed Annually
Annual Business Plan	1	Produced Annually
Annual Budgets	1	Produced Annually

2.4 Stakeholder Interests

Stakeholders are those groups with a direct interest in the performance of Scanpower's network assets and therefore in the company's annual Asset Management Plan, policies and working practices.

As a Customer Owned Trust, Scanpower's connected customers are also its shareholders.

The following table highlights Scanpower's key stakeholder relationships and the nature of each respective interest.

Figure 12 – Key Stakeholder Relationships

Stakeholder Group	Nature of Interest
Electricity Consumers	Network reliability Service quality Line charges / Annual network discount New connection process Responsiveness to requests Safety
Customer Trust / Shareholders	Return on investment Annual network discount Sustainable operating practices Responsible corporate behaviours
Electricity Retailers	Line charges Minimisation of line losses Accuracy / timeliness of billing Nature of contractual relationship Response to service requests / inquiries Safety
Government / Regulatory	Disclosure requirements met Reporting vs thresholds Appropriate business practices adopted Electricity Complaints Commission
Scanpower Employees	Health and safety Appropriate training provided Personal growth opportunities

In regard to Stakeholder consultation, Scanpower follows the following processes / protocols:

Electricity Consumers

- The Scanpower Customer Trust is elected by the public on a triennial basis to represent consumer interests and to provide a forum for issues or grievances to be raised. Company representatives meet with the Trust on a monthly basis.

- Scanpower continues to operate a customer service centre and retail showroom in Dannevirke. This is open six days a week providing a direct interface between the company and its customers.

- Scanpower is a member of the Electricity & Gas Complaints Commission scheme. Informational material is available in the customer service centre providing consumers with an escalation process for unresolved problems.

- The company consults formally with consumers on a bi-annual basis as part of its threshold compliance programme. In 2005/2006 (and again in 2007/2008) this included structured dialogue with:

    - Greypower
    - Federated Farmers
    - Tararua District Council

- Scanpower Customer Trust
- Ten largest customers of the organisation

- This consultation was based around interviews relating to price / quality trade-off issues and these were undertaken by a third party for the purposes of objectivity.

Scanpower Customer Trust / Shareholders

- As previously noted, Scanpower meets with the Board of Trustees on a monthly basis. The purpose of this meeting is for information sharing and to ensure the interests of the Trust are heard.

- A formal annual consultation process between the Company and the Trust is the preparation of the Statement of Corporate Intent. This describes the scope, and limits, to the Company's operating activities and states specific performance objectives relating to pricing, reliability, and return on assets. The Statement of Corporate Intent requires Trust approval on an annual basis.

Electricity Retailers

- Scanpower contracts with Electricity Retailers on the basis of its standardised "Use of System Agreement". This is essentially a contract for the distribution of the retailer's energy. Clause 7 of the Agreement (available at Scanpower's website) permits either party to initiate a review the provisions of the contract.

- On an annual basis Scanpower discloses its network pricing, pricing methodology, asset management plan and threshold compliance statements to retailers and the general public. Comment and feedback is invited from retailers on these documents.

- Scanpower also consults with electricity retailers by engaging an external consultant to survey views and explore potential concerns. No issues relating to reliability have been raised to date.

Government / Regulatory Stakeholders

- The primary requirements of these stakeholders relate to regulatory and statutory compliance. Scanpower endeavours to meet all such obligations, and is open to comment and dialogue with stakeholders such as:

  - Electricity Commission
  - Commerce Commission
  - Ministry of Economic Development
  - Auditor General

Employees

- The majority of Scanpower staff (90%) are employed under individual employment agreements. This, in addition to sound management practice, ensures that employee interests are considered on an individual basis. The

remainder of staff are employed under a collective employment agreement associated with the EPMU.

Conflicting Stakeholder Interests

- To date, no material conflicts of interest have arisen between stakeholder groups. This may in part be because, under the terms of the Trust Deed, Scanpower's shareholders are also its customers.

- In the event that a significant conflict was to arise between any stakeholder groups, it is envisaged that the Board of Directors would resolve the issue in liaison with the Board of Trustees.

- Scanpower's priorities for managing conflicting interests are structured according to the following hierarchy:

  - *Safety*

    Scanpower will give top priority to the safety of its staff, contractors and the general public, even if doing so may result in exceeding budget or regulatory non-compliance.

  - *Viability*

    Scanpower will give second priority to its ongoing viability, in terms of both financial and operational requirements.

  - *Supply Quality*

    Maintaining supply quality, with the limitations imposed by the above stated interests, is given next priority.

  - *Compliance*

    Scanpower will give the next level of priority to compliance matters (unrelated to safety) which are largely an administrative function that the business must attend to.

2.5 Accountabilities and Responsibilities

Ultimate responsibility for the management of Scanpower's network assets lies with the Board of Directors, who are appointed by the Board of Trustees. The Trustees are elected on a tri-annual basis by consumers.

The Board of Directors appoints a Chief Executive who is responsible for day to day management of the company and its assets. However, the Chief Executive is required to:

- Obtain Board approval on an annual basis for the Asset Management Plan and related capital and operating budgets.

- Report to the Board on a monthly basis on actual company performance relative to the objectives documented within the Asset Management Plan including:

  - Monthly financial performance (capex / opex) relative to budget, including appropriate variance analysis and commentary where required.

  - Monthly network reliability performance (SAIDI and SAIFI) relative to target, with supporting commentary on the level and nature of network outages occurring during the month.

  - A general commentary on monthly progress on network capital and maintenance activities.

- Obtain Board approval for any material deviation from the initiatives planned per the AMP (for example deferral of a particular project, or implementing an unplanned project with a value greater than $50,000).

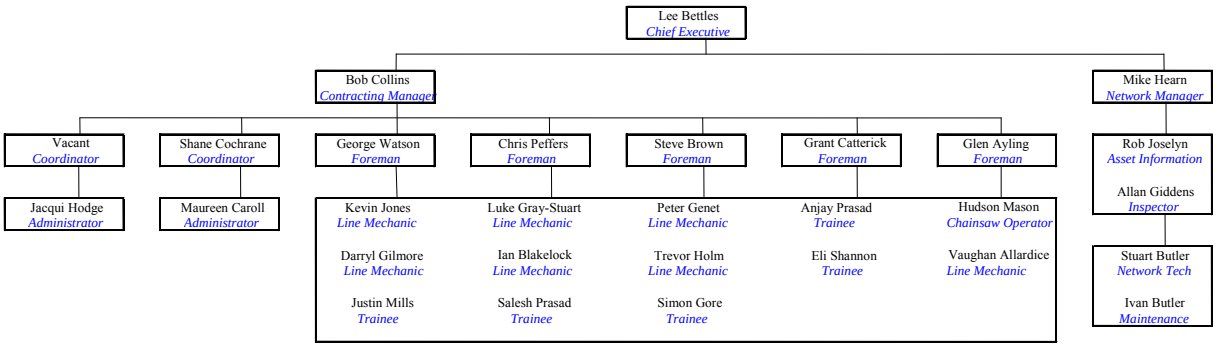
Scanpower operates an in-house network engineering and line contracting division which undertakes asset management activity. The Network Manager is responsible for day to day running of the Network Division.

The current organisational structure is shown in Figure 13 below. There are two main groups within the team; Network and Contracting. The Network team is responsible for maintaining accurate asset information, both in terms of installation and condition survey data, and using this as a basis for asset management planning and decision making. The Contracting team is responsible for completing the physical work issued by the Network team.

The Contracting team also undertakes work for external clients, including customers, property developers and other networks. Whilst the majority of line work is undertaken by the in-house team, Scanpower occasionally uses external contractors for certain specialised work.

The Chief Executive reports to a Board of five Directors (currently Michael Dodson, Allan Benbow, Christine Donald, Bob Henry and Peter Clayton). The Directors in turn are employed by, and ultimately report to, the Trustees of the Scanpower Customer Trust (currently Kerry Sutherland, Keith Cammock, Jim Crispin, Stuart Smith and Noel Galloway).

Figure 13 – Scanpower Network Organisational Structure



2.6 Asset Management Systems and Processes

Scanpower undertakes asset management planning and implementation using an in-house network and line contracting division. Both engineering and line staff are employed directly by Scanpower. From time to time, Scanpower does contract out specific asset management related works to suitably qualified third party organisations, primarily in relation to the company's radio communication network. To manage asset and network related information, Scanpower uses a number of systems. These include:

- *Cablecad geographic information system*

  This is a geographic information system that provides an electronic, graphical representation of the Scanpower network. It includes assets such as transformers, distribution boxes, poles, lines, switches, cables and isolating fuses.

  The system is used to draw/record network plans for capital replacement and maintenance works, including overhead line replacement and laying of underground cables. It is also used to store the age and condition of network assets using the results reported from the relevant assets inspection program

  A support agreement is in place with Enghouse in Canada and on site technical support is provided from Auckland

- *NCS (Napier Computer Systems) customer/ICP information database*

  This system is the main financial recording system for Scanpower. It also stores customer connection information, and is used to generate ICP numbers for new connections.

  Technical support is provided by Napier Computer Systems

- *ECR (Electricity Commission Registry)*

  This is the national system through which all electricity connections (ICP's) are recorded and reconciled. It also records the current energisation status of ICPs on the network (e.g. energised, de-energised, or decommissioned), the network connected to and the retailer supplying them.

- *SCADA system records*

  The SCADA system is licensed from Abbey Systems and is operated / located in the Network Control Room. It is used for real time monitoring of the network, including feeder loadings, operation of remote control equipment on the network and load control information.

  Technical support is provided by FMS Ltd from Palmerston North who also maintain the radio communications network.

- *Basix asset management and maintenance scheduling*

  This, in conjunction with the Cablecad GIS stores asset data including inspection results and condition to enable planned replacement/renewal work to be carried out. Scanpower completed in the process of commissioning this system in 2010.

- *Proprietary asset databases*

  This category of information systems refers to a suite of proprietary asset databases, created in Microsoft Excel.
  These often serve as intermediary stages in the data collection or reporting of financial accounting, tax accounting, ODV and other information disclosure requirements.

Completeness and Accuracy of Asset Data

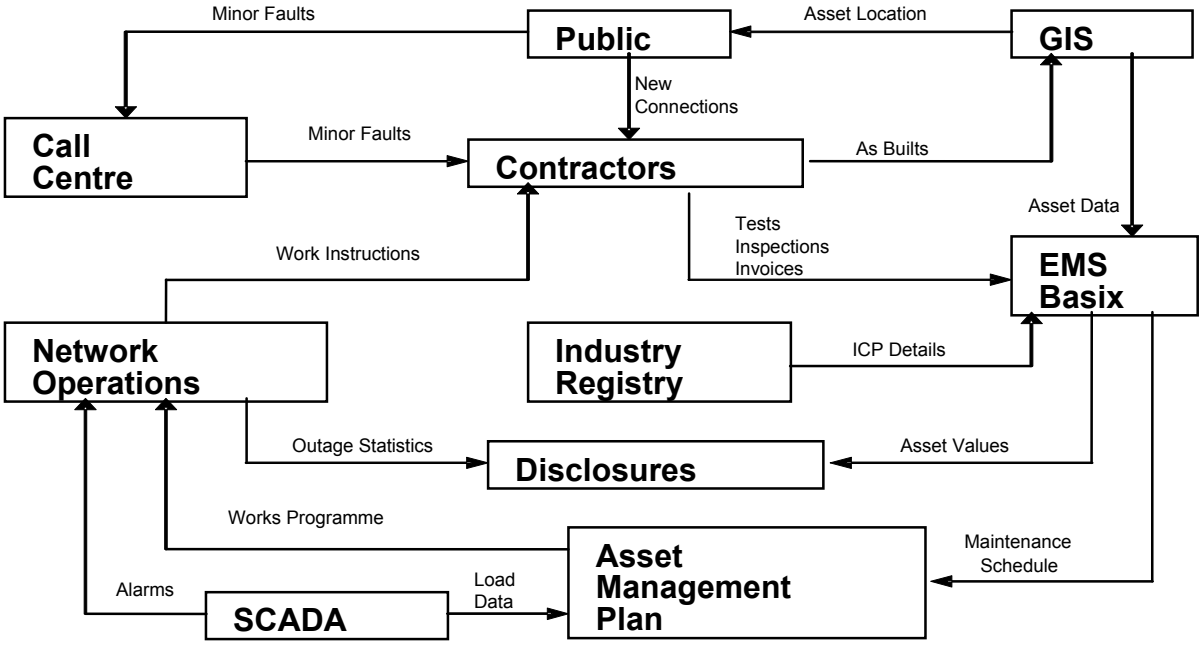
Scanpower has recently completed a data capture project to improve network information quality. Aside from some inevitable individual errors Scanpower considers it Asset database to be complete and accurate.

It is not possible to accurately rectify the lack of accurate ageing information for some Plant installed prior to 1998, however the "deemed" age approach (based on physical inspections) appears to work for operational purposes.

Linkage between Data Systems and Asset Management Processes

The asset information systems store and provide data that assists Scanpower in planning which capital and maintenance works to undertake so as to ensure network objectives are met. A diagram showing information flow and systems is below.

Figure 14 – Information Flow



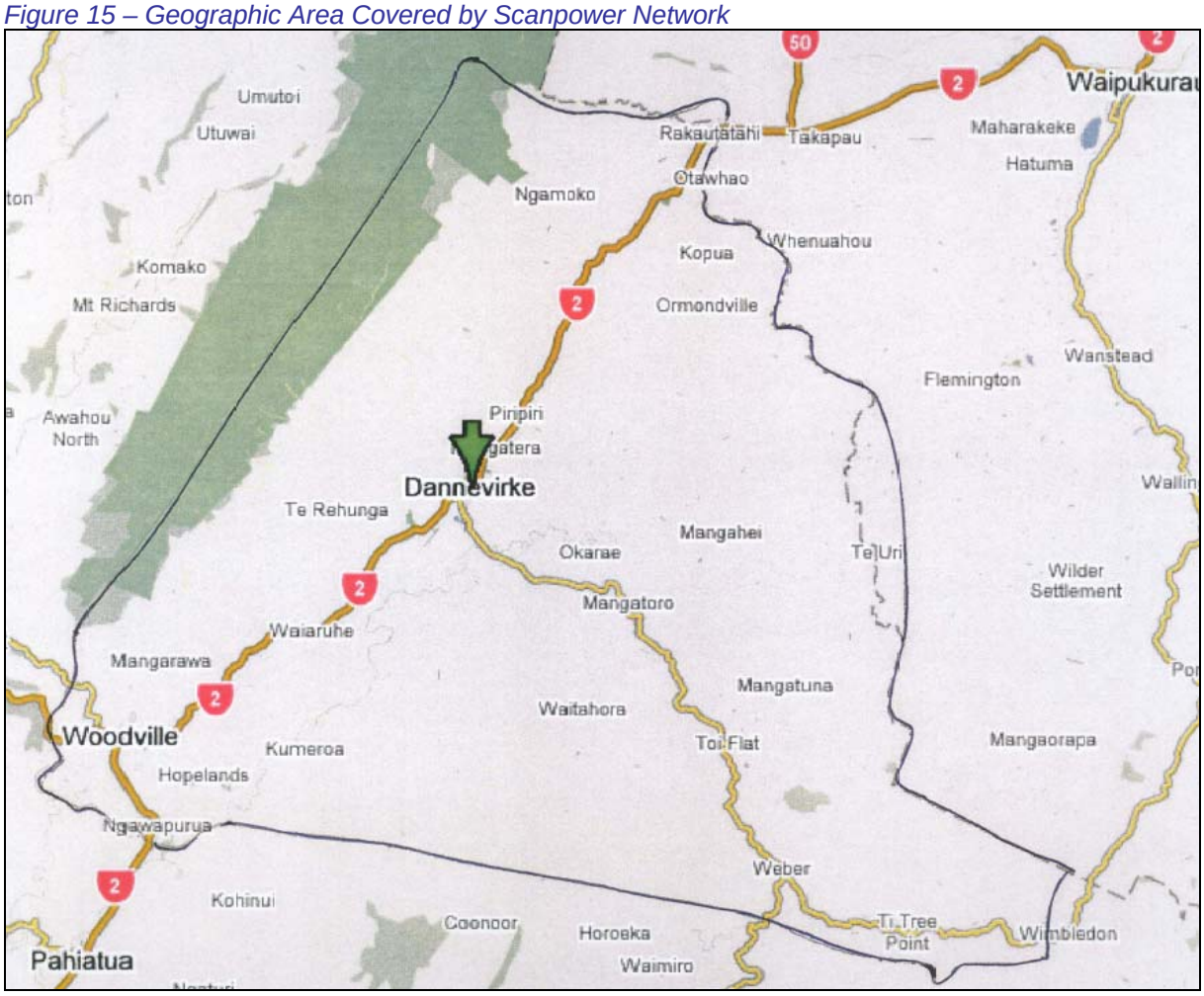
3.0 Assets Covered

3.1 General Description of Supply Area

Geographic Coverage

Scanpower's supply area of 2,000km^2 is the area broadly bounded by the Manawatu River to the North, and again to the South, whilst stretching to the Ruahine Ranges to the West and to Wimbledon in East. This area can be described as the Northern half of the Tararua District, and includes the towns of Dannevirke, Woodville, and the settlements of Norsewood, Ormondville and Kumeroa.

Figure 15 – Geographic Area Covered by Scanpower Network



Demographic Context

Population numbers in the Tararua District have shown a slowly declining trend in recent years.[1] Furthermore the projected population is forecast to follow a similar trend, reducing by 2% through to 2016.

[1] Source: Statistics NZ: *http://www.stats.govt.nz/products-and-services/hot-off-the-press/subnational-population-estimates/subnational-population-estimates-jun06-hotp.htm?page=para016Master*

Contrary to this trend however, ICP numbers have increased over the past year from 6,692 in 2007 to 6,825 as at March 2010, a rise of 2%. This increase has come from a continuing high level of dairy conversions in the region, in addition to several new residential subdivisions.

A significant recent event was the closure of the Silver Fern Farms' Oringi freezing works, which ceased production in May 2008. The site was the largest single consumer of electricity on the network, with annual consumption of 12GWh representing 12% of total. Typical peak demand at the site was 3.0MW. The site is now used as a cold storage facility with a peak load of 1.0MW.

Winter peak demand in 2010 was 15.8 MW in comparison to 16.8 MW in 2009 and 16.0MW in 2008. The changes being primarily weather dependent.

Key Economic Activities within the Network

The Scanpower network area is predominantly rural and hence the economy is largely based on agricultural activities, such as sheep and beef farming. Dairying and forestry are other viable local land uses.

On an annual basis, 21% of total electricity distributed is used by the six largest industrial / commercial customers. These are:

- One meat processing/freezing works (Alliance, Dannevirke)
- A large scale cold storage business (Oringi Cold Stores, Dannevirke)
- A timber mill (Kiwi Lumber, Dannevirke)
- A textiles yarn and dye plant (Godfrey Hirst, Dannevirke)
- One supermarket (New World, Dannevirke)
- Kordia (a regional broadcasting repeater site)

The electricity consumption and maximum demands associated with these sites (for the twelve months to March 2010) were as follows:

Figure 16 – Consumption and Load Characteristics of Largest Customers

Customer	Consumption kWh	kWh % of Total	Peak Demand kVA	Peak Demand % of Annual Peak
Alliance Freezing Works	5,669,665	6.9%	1,290	7.7%
Godfrey Hirst Carpets	2,795,402	3.4%	739	4.4%
Kiwi Lumber Mill	2,749,010	3.3%	1,001	6.0%
Kordia	2,649,289	3.2%	348	2.1%
Oringi Cold Stores	2,296,927	2.8%	640	3.8%
New World Supermarket	1,027,427	1.3%	175	1.0%
TOTAL	**17,187,720**	**21.0%**	**4,193**	**25.0%**

The next tranche of customers (in terms of size) below these are relatively small (including KFC, McDonalds, local swimming pool etc).

The closure of Alliance Freezing Works, Godfrey Hirst, Kiwi Lumber, Oringi Cold Stores or the New World would have little or no impact on asset management priorities for the planning period covered by this plan.

This is because the sites are either on the Dannevirke town mesh (Alliance, Godfrey Hirst, New World) or on feeder sections that are currently in good condition (Kiwi Lumber, Oringi Cold Stores, Kordia).

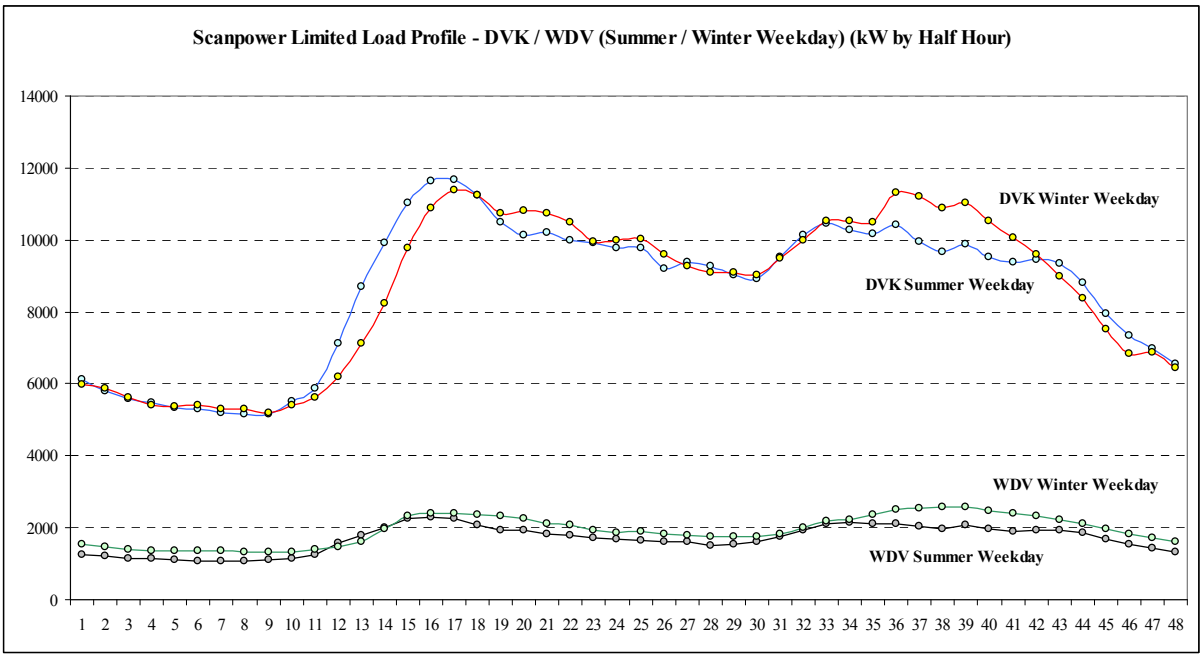
In general, at Scanpower's scale of operation, the impact of the closure of one or more of the six largest sites would be financial (due to lost revenue). At this point, the company would face the decision of either accepting lower profits / returns, or increasing prices across the remaining customers to ensure that status quo financial objectives are met.

Load Profile Characteristics

The graph below illustrates the consolidated load profile characteristics for the Dannevirke and Woodville points of supply (summer and winter weekdays), these being the two key parts of the network.

As can be seen from the load profile curves, day time load is reasonably constant in both the Dannevirke and Woodville areas, and significant load displacement would be necessary to reduce the peaks. The curves already reflect Scanpower's existing load control protocols (primarily to water heating load) and therefore without impacting adversely on the quality of service provided to customers, there is limited potential to achieve further load displacement benefits.

Figure 17 – Load Profile Curves for Dannevirke and Woodville Points of Supply



3.2 Network Configuration Details

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 110/11kV substations at Dannevirke and Woodville.

The Scanpower network has no 33kV sub transmission system and distribution lines operate at 11kV and 230/400V. The company has no zone substation assets.

Scanpower has electricity distribution network assets with historic maximum demand in the range of 16 - 17MW and a total system length of 1,037 kilometres. Total connections number 6,825 and for the year ended March 2010 87 GWh was injected into the network with an overall average loss factor of 6.8%. There is currently no significant generation on the system, just one small microgeneration scheme (capacity not exceeding 10kW).

The Dannevirke Transpower point of supply has parallel 110/11kV 20 MVA transformers, giving a firm supply of 20 MVA compared with a maximum demand of 13 MW. Circuit breakers are remotely switched from Transpower's Regional Control Centre. Eight 11 kV feeders radiate from the Dannevirke point of supply. The following table summarises the key details of each of these:

Figure 18 – Dannevirke 11 kV Feeder Details

Feeder Name	kWh/annum	Description	Rating	Max Load
Pacific	6,569,421	Rural feeder, predominantly servicing industrial load	5.0MW	1.8MW
Weber	10,209,552	Long Rural feeder servicing eastern extremity	5.0MW	2.2MW
Adelaide Rd	10,279,778	Urban feeder into Dannevirke	5.0MW	2.6MW
East	16,775,965	Urban feeder into Dannevirke	5.0MW	3.8MW
Central	7,444,624	Urban feeder into Dannevirke	5.0MW	1.8MW
Mangatera	10,005,209	Rural area feeder supplying Ormondville	5.0MW	2.0MW
Te Rehunga	5,749,357	Southern rural area feeder	5.0MW	1.1MW
North	7,648,866	Rural area feeder supplying Norsewood	5.0MW	1.7MW

Woodville has a single 110/11 kV 4.5 MVA transformer in a single phase bank format with a spare unit on site. The peak load at Woodville in 2010 was 2.9MW Three 11 kV feeders radiate from the Woodville point of supply. The following table summarises the key details of each of these:

Figure 19 – Woodville 11 kV Feeder Details

Feeder Name	kWh pa	Description	Rating	Max Load
Town 1	6,352,069	Urban feeder into Woodville / Eastern rural area	5.0MW	1.1MW
Town 2	5,145,702	Urban feeder into Woodville / Western rural area	5.0MW	1.2MW
Country	3,866,066	Rural feeder to north of Woodville	5.0MW	0.9MW

The 400V network system consists of 191.7 km of lines, 66.3 km of which have now been installed underground.

In regard to Scanpower's 400V network, the company no longer pursues a policy of undergrounding in the urban Dannevirke and Woodville areas. This policy was recently abandoned as rising costs and reduced cooperation from other utilities reduced the viability of the work.

3.3 Identification of Assets by Category

Scanpower's network assets are categorised as follows:

- 11kV Distribution Lines
- 400V Distribution Lines
- Switches including Circuit Breakers, Sectionalisers and Reclosers
- Distribution Transformers
- Secondary Systems including radio communications, ripple control and SCADA

3.31 11 kV Distribution Lines

As at 31st March 2010 Scanpower has 855 km of 11kV distribution lines, 844 km of which is overhead and the remaining 11 km underground.

Of the 10,730 supports for the overhead 11kV lines, 57% are of concrete pole construction, 25% of hardwood and 18% softwood pole. The Company has adopted a policy of only installing concrete poles, thereby extending typical life from 45 years to 60 years.

As the Scanpower network only has light electrical loads but is subjected to occasionally severe wind and snow loading ACSR conductors are used on all new lines. 11kV conductor sizes are either "Light" (standard conductor - Gopher) or "Medium" (standard conductor - Dog) per ODV Handbook definitions. There is no "Heavy" conductor used on the system.

Using ODV Handbook standard categories, 11kV line assets are as follows:

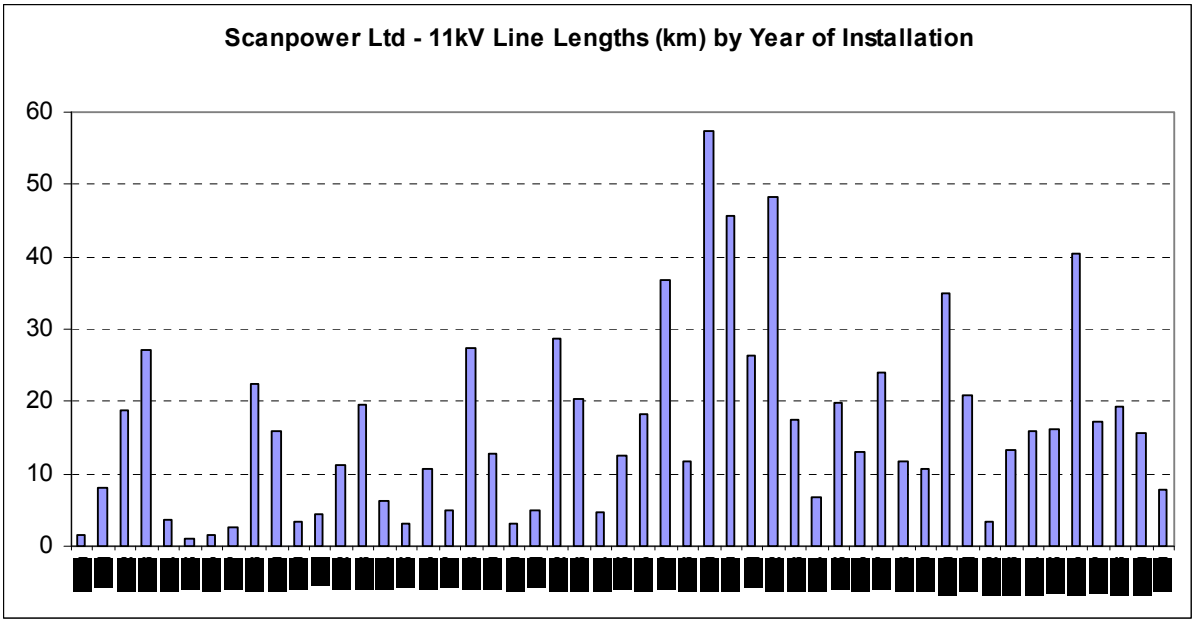
Figure 20 – Composition of 11kV Line Assets by ODV Handbook Category

11kV DISTRIBUTION LINE ASSETS	Quantity (KM)
Distribution Lines 11kV O/H Double Circuit Medium	2.1
Distribution Lines 11kV O/H Light (≤ 50mm2 Al)	649.9
Distribution Lines 11kV O/H Medium (>50mm2, <150mm2 Al)	166.4
Distribution Lines 11kV Single Phase Lines	25.5
Distribution Lines 11kV U/G Light (≤ 50mm2 Al)	1.8

Distribution Lines 11kV U/G Medium (>50mm2, ≤ 240mm2 Al)	9.1
	854.8

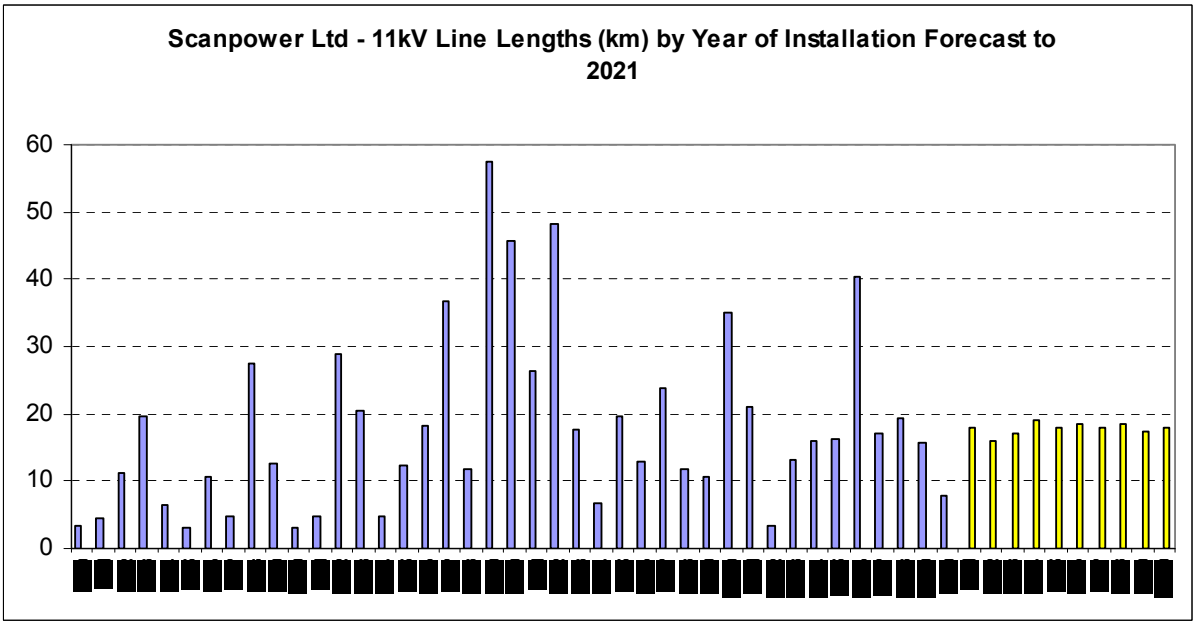
The average age of the lines as at 31st March 2010 is 22.6 years in comparison to a typical life expectancy of 45-60 years.

Figure 21 – Age Profile of 11 kV Distribution Lines



In establishing a ten year replacement plan, the need to smooth the investment peaks of the 1960's has been balanced against expected failure rates and known asset condition based on inspection. The forward plan is based only on replacement of existing line assets. As shown below, the amount of line replacement completed in recent years is relatively consistent with the required replacement trend going forward, averaging ~18 kilometres per annum.

Figure 22 – Age Profile of 11 kV Distribution Lines with Forecast Lengths to 31st March 2021



3.32 400V Distribution Lines & Cables

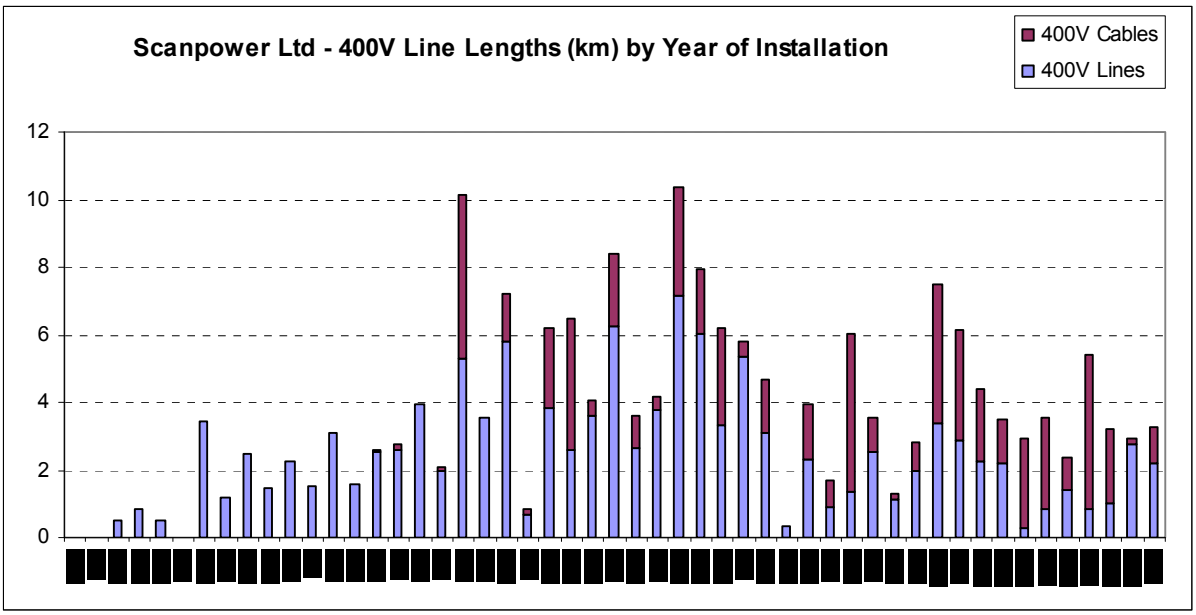
As at 31st March 2010 Scanpower has 192.3 km of 400V distribution lines and cables. All customers on the network take supply at 400V with the exception of two (Oringi Cool Stores and Kiwi Lumber) which take supply at 11kV. 400V line assets are categorised as at 31st March 2010 as follows:

Figure 23 – Composition of 400V Lines

400V DISTRIBUTION LINE ASSETS	Quantity (km)
400V Overhead Lines	125.9
400V Underground Cables	66.4
	192.3

The age profile of urban 400V distribution lines is shown below.

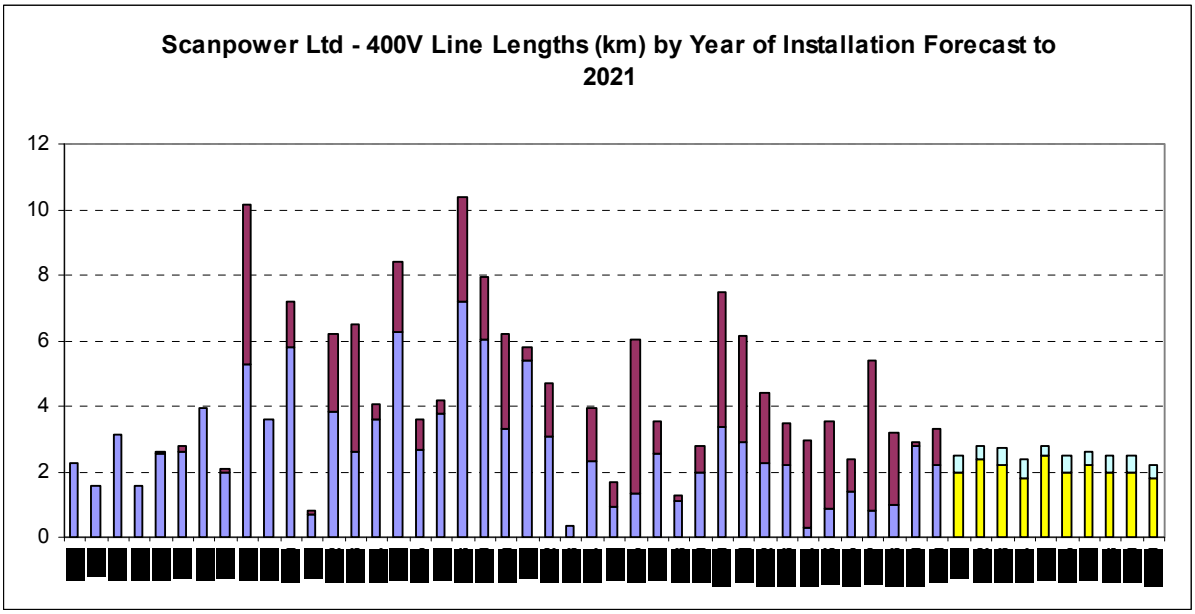
Figure 24 – Age Profile of 400V Distribution Lines



As the age profile suggests, urban 400V lines are in generally modern condition with an average age of 18.2 years old.

The work pattern is based on a steady, end of life cycle replacement regime. Thus the overall trend is for a reduction in 400V work over the period as illustrated in the forward trend graph provided below.

Figure 25 – Age Profile of 400V Distribution Lines Forecast as at 31st March 2021



3.33 Circuit Breakers / Reclosers / Air Break Switches / Ring Main Units

Circuit Breakers / Reclosers

Scanpower has 21 circuit breakers; twenty are presently installed on the network and one is held as a spare. The majority of these (13 units) were installed recently between 1999 and 2003. The remaining 6 are installed at a major customer site having been commissioned in 1978. It is not anticipated that any of these 21 units will need replacement in the period covered by this plan.

The following table provides a summary of the circuit breaker assets installed on the network.

Figure 26 – Circuit Breaker Asset Summary

OCB No.	Feeder Name	Site No.	Location	Type	Installed
CB1	Pacific	3060	OCS Oringi No 1 Incomer OCB	AEI	1978
CB2	Pacific	3060	OCS Oringi No 2 Incomer OCB	AEI	1978
CB3	Pacific	3060	OCS Oringi Killing Floor OCB	AEI	1978
CB4	Pacific	3060	OCS Oringi No 1 Plantroom OCB	AEI	1978
CB5	Pacific	3060	OCS Oringi No 2 Plantroom/Boning Room	AEI	1978
CB6	Pacific	3060	OCS Oringi Pumps OCB	AEI	1978
CB7	Country	C905	Hopelands Road - by bridge	Cooper	2003
CB8	Town 2	C908	Bushmill Road, Woodville	Cooper	1999
CB9	Te Rehunga	C910	Kiritaki Road, Dannevirke	Cooper	1999
CB10	North	C913	Gundries Road, Norsewood	Cooper	1999
CB11	Weber	C914	Weber Road, Weber	Cooper	1999
CB12	Pacific	C927	SH2, Kiritaki Rd, Oringi	Cooper	2009
CB13	Mangatera	C916	Matamau/Ormondville Rd, Matamau	Cooper	2007
CB14	Mangatera	C917	Ormondville Metal Pit	Cooper	2000
CB15	Weber	C921	Weber Rd, Kaitoke	Cooper	2000
CB16	Weber	C922	Mangahei Road, Awariki	Cooper	2000

CB17	Mangatera	N912	Alliance Freezing Works, Dannevirke	Nulec	2000
CB18	Country	N919	SH2, Woodville	Nulec	2000
CB19	Weber	N920	Miller Rd, Dannevirke	Nulec	2000
CB21	North	N915	SH2 Matamau	Nulec	2000
CB22	Stores	Stores	Stores	Nulec	2000

Sectionalisers

Scanpower has eight automatic sectionalisers installed on the system which are positioned down stream from the circuit breakers thus allowing for operational discrimination. Six units were installed in 2004 and two units were installed in 2006.

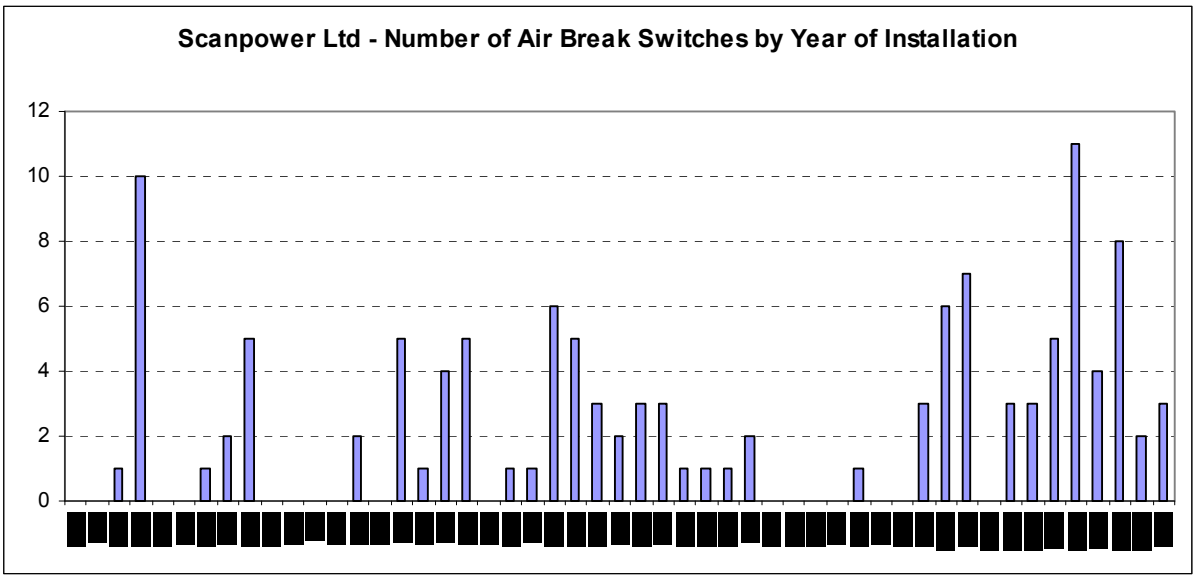
Figure 27 – Sectionaliser Asset Summary

Asset #	Type	Sub Number	Location Detail	Feeder	Year Installed
SC1	Cooper	P26	Oxford Road, WDV	Country	2006
SC2	Cooper	P45	Otope Road	Weber	2004
SC3	Cooper	P76	Lincoln Bend	Weber	2004
SC4	Cooper	P77	Ti Tree Point	Weber	2004
SC5	Cooper	P149	Normanby Street, WDV	Town 1	2006
SC6	Cooper	P157	Weber Rd, Waitahora	Weber	2004
SC7	Cooper	P177	Motea	Weber	2006
SC8	Cooper	P925	Te Uri Road, Mangahei	Mangatera	2004

Air Break Switches

Scanpower has a manual air break switch (ABS) population of 128 with an average age of 20.9 years. During the previous year (to 31st March 2010) four manual units were replaced. The following graph shows the age profile of air break switch assets.

Figure 28 – Air Break Switch Age Profile



In addition to manual ABS replacement, Scanpower has, in recent years, completed a programme of installing strategically placed remote controlled ABS's which can be operated from the Scanpower Control Room. As of 31st March 2010 18 of these units had been installed as part of Scanpower's network development process.

Figure 29 – Remote Air Break Switch Asset Summary at 31 March 2010

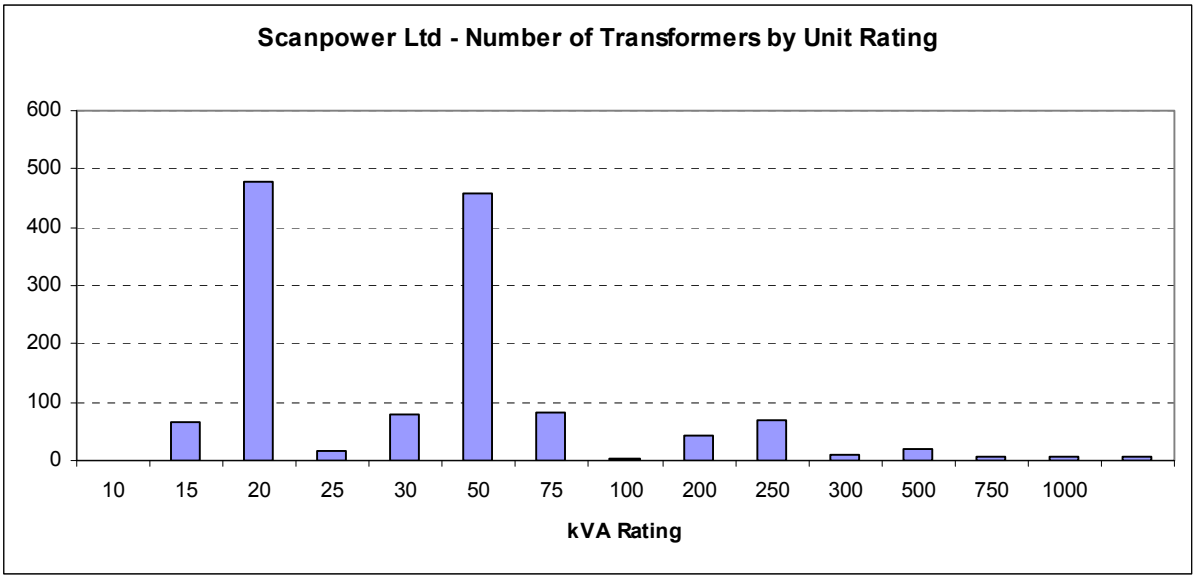
Asset #	Type	Sub Number	Location Detail
SR1	ELECTROPAR RAS	A104	Smith Road
SR2	ELECTROPAR RAS	A158	Weber / Motea
SR3	ELECTROPAR RAS	A19	Adelaide Road
SR4	ELECTROPAR RAS	A3	Te Uri Near Mangahei Turn Off
SR5	ELECTROPAR RAS	A46	Corner of SH2 and Woodlands Road
SR6	ELECTROPAR RAS	A81	Upper Norsewood
SR7	ELECTROPAR RAS	A82	Norsewood / Ormondville Road
SR8	ELECTROPAR RAS	A105	SH2 - Main Road Matamau
SR9	ELECTROPAR RAS	A106	Ferguson Street Woodville
SR10	ELECTROPAR RAS	A109	Pinfold Road Woodville
SR11	ELECTROPAR RAS	A111	Ormondville
SR12	ELECTROPAR RAS	A121	Mangatoro Road
SR13	ELECTROPAR RAS	A123	Te Uri Near Mangahei Turn Off
SR14	ELECTROPAR RAS	A138	Upper Mclean Street Woodville
SR15	ELECTROPAR RAS	A140	School Road, Matamau
SR16	ELECTROPAR RAS	A141	Pirimau Road, Matamau
SR17	ELECTROPAR RAS	A159	School Road, Matamau
SR18	ELECTROPAR RAS	A169	Mangatoro Road

All of the above assets were installed between 2004 and 2007, and it is not anticipated that they will require replacement during the current planning period. Furthermore, no new RAS installations are expected at this stage.

3.34 Distribution Transformers

As at 31st March 2010 Scanpower has a distribution transformer population of 1,352 units (excluding spares) ranging from 2kVA to 1,000kVA capacity. At that date the total installed capacity was 65,141 kVA with a capacity utilisation rating of 24.7%. The transformers are all standard oil immersed 11kV/400V units, with the majority rated at 30kVA or less.

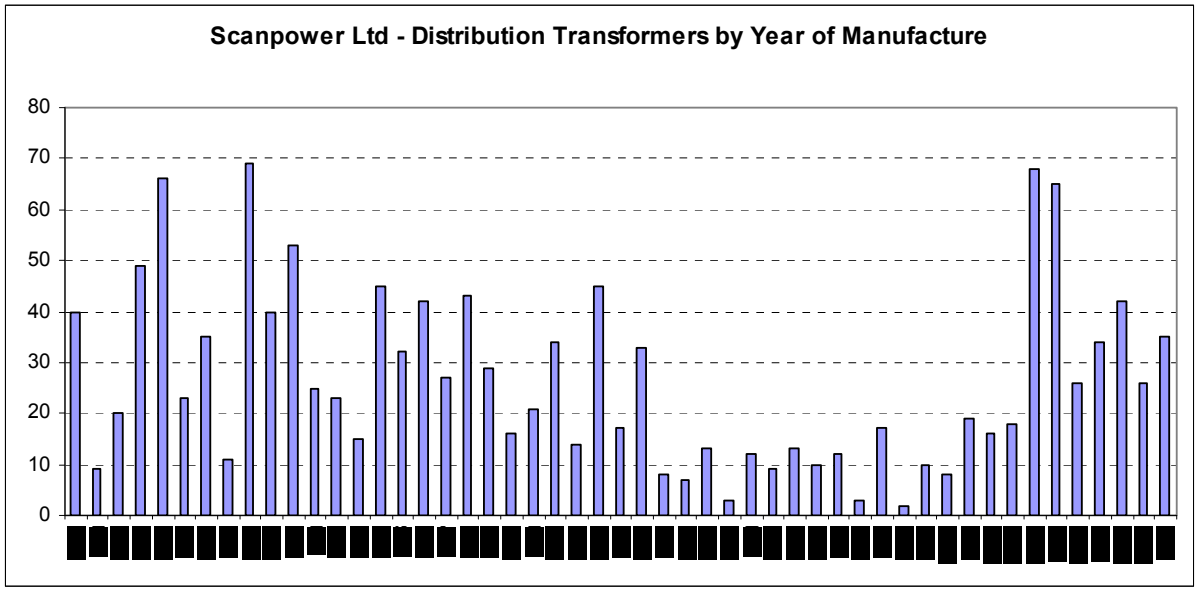
Figure 30 – Breakdown of Distribution Transformer Assets



The aged profile of installed transformer units, by year of manufacture is shown in Figure 28 below. As at 31st March 2010 the average age of installed transformers (based on year of manufacture) is 27.7 years. Based on an ODV handbook standard asset life of 45 years, this places the transformers on the older side of mid point.

However, in practice Scanpower has frequently had transformers in service over 50 years, with the oldest on the system currently 58 years old. Therefore, in reality the over all transformer population is aged at ~50% of its useful economic life.

Figure 31 – Distribution Transformer Age Profile by Year of Manufacture



3.35 Secondary Systems (Communications / Ripple Control / SCADA)

Scanpower installed and commissioned its own in house radio network during 2005/06. Vehicle radio communication operates via VHF mobiles and SCADA/Ripple communication is via UHF radio links.

In 2006 Scanpower installed and commissioned a new 283Hz Enermet ripple injection plant at the Dannevirke substation to replace the existing Zellweger static plant. Correspondingly, all ripple relay receivers at customer premises have now been upgraded to operate from this new system.

In 2010 the existing plant at Woodville was replaced with a new 283 Hz and all relays changed. This project was undertaken in conjunction with a major upgrade of the GXP substation by Transpower.

The SCADA system is used to operate and monitor equipment on the network including circuit breakers, sectionalisers and remote control switches. The system provides real time load data and fault status information. It is also used for receiving data from Transpower's feeder circuit breakers at the Dannevirke and Woodville substations. At present Scanpower is not able to operate the breakers remotely via the SCADA system, but this can be done by Transpower on request.

3.4 Justification for Assets

Scanpower meets the service levels required by its customers by carrying out a number of activities on its network assets (such as those detailed in Section 6), and including the initial step of actually creating / building these assets. Certain assets are required to deliver greater service levels than others, and the level of investment required will generally reflect the magnitude and nature of the demand being met.

Matching the level of investment made in assets to the current and forecast service levels required necessitates consideration of factors such as:

- An understanding of how asset ratings and configurations create service levels such as capacity, security, reliability and voltage stability.

- An understanding of the asymmetric nature of under-investment and over-investment; i.e. over-investment creates the capability to meet service levels before they are required, whilst under-investing can lead to service failures and interruptions.

- A recognition that the existing network has been built over an 80 year period via a series of incremental investment decisions that were probably optimal at the time, but when taken in aggregate in the present may have been sub-optimal.

- A need to accommodate future growth (noting that the ODV Handbook now prescribes the number of years ahead that such growth can be accommodated).

In theory an asset would be justified if the service level it creates is equal to the service level required. In a practical world of asymmetric risks, discrete component ratings, non-linear behaviour of materials and uncertain future growth rates, we consider an asset to be justified if its resulting service level is not significantly greater than that required subject to allowing for reasonable demand growth and discrete component ratings.

The most recent regulatory ODV revaluation exercise was undertaken as at the year end 31 March 2004 for financial reporting and regulatory compliance purposes. The basis for this valuation was the draft ODV Handbook issued by the Commerce Commission and current at this date. The total replacement cost of Scanpower distribution assets at this date was $40,443,825 and the depreciated replacement cost (DRC) was $19,823,274.

A key practical measure of justification is the ratio of Scanpower's ODRC to DRC which, per our most recent ODV Report, is 0.9992. There were no in service assets deemed to be surplus to requirements at the time of the valuation and therefore there was no optimisation adjustment to this value. The Scanpower assets that required an optimising adjustment at that time were some older network spares that have now been scrapped.

Economic value testing of the assets, performed at the time of that regulatory ODV report, by way of discounted cashflow analysis suggested there was no impairment or EV adjustment necessary, hence the optimised deprival value of the assets was calculated to be the same as the DRC at $19,823,274.

4.0 Service Levels

4.1 Reliability and Security of Supply Targets

Security of Supply Objective

Scanpower has established a security of supply objective based on guidelines produced by the Electricity Engineers' Association NZ published in "Guidelines for the Security of Supply in New Zealand" dated June 2000. Given the relatively small size of Scanpower's network and geographic / demographic characteristics, in no part of the network does load reach the size where compliance with industry standards requires security provisions to prevent interruption of supply in the event of an outage incident (known as **n-1** security level).

On this basis the Company has adopted a security level of **n**, unless where a preference for increased security of supply, and a corresponding willingness to pay for it, has been identified through the customer consultation process. Consultation with customers during the year ending 31 March 2008 which involved discussion with ten major customers, the Scanpower Customer Trust and representative community groups, Greypower, Federated Farmers and the Tararua District Council, did not reveal any customer preference for provision of an increased level of security of supply. There are currently no non-standard agreements to provide a service level beyond that of **n** security, or in fact any non-standard agreements of any type.

Scanpower focus's on improving the ability to restore supply in the event of an unplanned outage, rather than prevent interruption through increased security levels. The reliability measures SAIDI and SAIFI have therefore been adopted as the primary indicators of service level performance.

Figure 32 – Scanpower Network Supply Security Standards

Description	Load Size (MW)	Customer Numbers	Single Contingency	Coincident Contingency
Main 11kV Feeder	1.0-4.0	500-1000	Restore within 60min	Restore within Repair Time
Urban 11kV Feeder	0.2-2.0	100-1000	Restore within 60min	Restore within Repair Time
Rural 11kV Feeder	0.0-1.0	50-500	Restore within 240min	Restore within Repair Time
Urban 11kV Spur	0.0-0.5	1-100	Restore within Repair Time	Restore within Repair Time
Rural 11kV Spur	0.0-0.2	1-50	Restore within Repair Time	Restore within Repair Time

Outage Duration (SAIDI) and Outage Frequency (SAIFI) Objectives

Scanpower uses the standard indices SAIFI and SAIDI (class B and C) as key indicators of network reliability performance. Performance targets for 2011 / 2012 have been established on the basis of the reliability performance methodology prescribed under the Commerce Commission thresholds regime. The appropriateness of this target basis, from a customer perspective, has been confirmed through consultation with customer representatives in regard to the price / quality trade-off, undertaken in early 2006 and again in 2008. Furthermore, the targets are approved by the Scanpower Customer Trust in the company's annual

Statement of Corporate Intent. The following table shows SAIDI and SAIFI performance results for the previous five years in comparison to target.

Figure 33 – Summary Service Level Objectives and Previous Results (2007 – 2021)

MEASURE	2012-21 *(Target)*	2011 *(Projected)*	2010	2009	2008	2007
SAIFI (Class B&C)						
Target	0.92	0.92	0.92	0.92	0.92	0.92
Actual		1.60	0.70	0.90	1.29	0.84
Variance		●	●	●	●	●
SAIDI (Class B&C)						
Target	83	83	83	83	83	83
Actual		100	66	36	58	47
Variance		●	●	●	●	●

● = *Favourable variance* ● = *Adverse variance*

As is evident from the above table, the target levels for SAIDI and SAIFI over the period 2007 to 2012 have remained consistent at 0.92 (SAIFI) and 83 (SAIDI). Both Scanpower Limited and the Scanpower Customer Trust consider these to be satisfactory long term targets (in particular when compared to peer company performance) and, notwithstanding some future change to the status quo, anticipate that these targets will remain for the duration of the period covered by this asset management plan.

A more detailed analysis of reliability performance is provided in **Section 8.2** (Performance Evaluation).

4.2 Other Performance Targets

Safety

The safety of Scanpower's employees, contractors and the general public is regarded as of paramount importance. Scanpower operates a rigorous internal Health & Safety policy and commits providing training so that all lines staff are suitably qualified for the tasks they may undertake on the network.

Scanpower has a safety objective of zero accident frequency. All work related accidents are recorded and the number of lost time incidents is published in the Annual Report expressed as lost time incidents per 100,000 working hours.

Additional Network Related Measures

As an electricity network operator, Scanpower has historically focused on security of supply, and SAIDI / SAIFI as primary service level objectives.

The annual network performance targets specified by the Scanpower Customer Trust are expressed in terms of SAIDI and SAIFI.

However, Scanpower recognises numerous other service level indicators / objectives and manages the network assets with these in mind. They include:

- *Customer oriented service level objectives*

  In addition to security and reliability of supply, this category includes capacity and voltage outcomes which customers receive and pay for.

- *Regulatory oriented service level objectives*

  This category relates to desired outcomes for statutory/regulatory agencies such as the Commerce Commission, Electricity Commission, the Ministry of Economic Development, the Ministry of Consumer Affairs, Statistics New Zealand, and the Electricity & Gas Complaints Commission.

  The service level objectives here are primarily associated with meeting disclosure requirements in a timely and complete manner, complying with industry-specific regulation, documenting engagement with customers etc.

- *Community orientated service level objectives*

  This category covers those service level objectives relevant to the general public, and includes outcomes relating to public safety, maintaining appropriate tree and ground clearances, ensuring hazards are appropriately signposted / notified, and so on.

Asset Utilisation / Load Factor

Asset utilisation and load factor are disclosed annually to the Ministry of Economic Development. When combined they are an efficiency measure based on asset utilisation. Generally the higher the factor, the more efficient the lines business is at utilising their line investment. Review of annual Electricity Information Disclosure Statistics shows that Scanpower has generally been above the mean and median load factor for the past ten years (2000 – 2010[2]).

Figure 34 – Scanpower Load Factor Trend vs Disclosed Industry Average (2000 – 2010)

Measure	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Target
Load Factor	67.4	68.0	67.8	70.4	69.8	67.9	67.3	63.0	63.4	61.0	62.0	60.0
NZ Average	*62.3*	*63.6*	*61.0*	*64.4*	*64.1*	*64.4*	*64.6*	*60.8*	*60.0*	*58.7*	*59.4*	

Review of annual Electricity Information Disclosure Statistics shows that Scanpower has generally been above the mean and median load factor for the past five years (2006 – 2010[3]). At this stage maintaining the Load Factor above the national average is considered sufficient.

Figure 35 – Scanpower Capacity Utilisation Trend vs Disclosed Industry Average (2005 – 2010)

Measure	2005	2006	2007	2008	2009	2010	Target
Utilisation	28.0	27.0	27.0	26.6	24.7	24.7	25.0
NZ Average	*32.7*	*34.6*	*35.9*	*32.6*	*31.8*	*32.1*	

[2] Source: MOED Electricity Information Disclosure Statistics & PWC Electricity Line Business Information Disclosure Compendium 2010
[3] Source: MOED Electricity Information Disclosure Statistics & PWC Electricity Line Business Information Disclosure Compendium 2010

The significant drop in both factors in 2008/09 reflects the closure during 2008 of a significant customer who represented 20% of the system load. It is expected to take some time to redeploy the assets allocated to this customer elsewhere on the network. The target level has been set to obtain incremental improvement without causing additional expenditure.

Other Service Level Considerations

In addition to those service level factors described above, Scanpower provides a number of additional services / service levels to the wider community such as safety, amenity value, absence of electrical interference and performance data. Many of these service levels are imposed by statute. Whilst Scanpower delivers on these, there is little or no ability for the Company to recover the costs of this, given our regulatory constrained revenues.

Examples include:

- Public Safety

  Various legal requirements require our assets (and consumers' plant) to adhere to certain safety standards, such as those covering earthing, exposed metal and maintaining specified line clearances from trees and the ground:

  - Health & Safety in Employment Act 1992
  - Electricity (Hazards from Trees) Regulations 2003
  - Maintaining Safe Clearances from Live Conductors (NZECP34:2001)
  - Power System Earthing (NZECP35:1993)

- Amenity Value

  There are a number of Acts and other requirements that influence the positioning of lines / cables:

  - The Resource Management Act 1991
  - Tararua District Council district plans
  - Relevant sections of Horizons Regional Council plan
  - Land Transport Safety Authority requirements

  An example of this has been the requirement to place urban low voltage lines below ground, rather than overhead. This is done at significantly higher cost levels, although correspondingly delivers an improved reliability service level.

- Industry Performance Statistics

  Various statutes and regulations require Scanpower to compile and disclose prescribed information according to certain standards / formats. These include:

  - Electricity Information Disclosure Requirements 2004 (and subsequent amendments)
  - Commerce Act (Electricity Distribution Thresholds) Notice 2004

- Ad hoc information requests under Section 98(a) and (b) of the Commerce Act 1986

- Power Quality

  Under certain operational conditions, Scanpower's assets can interfere with equipment owned by customers and other utilities such as telephone wires and railway signalling. The following codes impose service levels in this regard:

  - Harmonic Levels (NZECP36:1993)

  Scanpower investigates any complaints and carries out remedial action if required. Scanpower aims to have three or less proven power quality complaints originating from its network per annum.

  In 2009/10 four complaints were received. One was traced to loose connectors on the Scanpower network. The others were either within the limits prescribed by regulation or traced to problems within the customers own installation.

- Statutory Requirements

  There is a body of legislation relevant to the electricity lines industry that influences asset management decisions, including:

  - Electricity Act 1992 and amendments
  - Electricity Industry Reform Act 1998 and amendments
  - Electricity Regulations 1997 and amendments
  - Electricity Safety Regulations 2010
  - Electricity (Hazards from Trees) Regulations 2003
  - Health and Safety in Employment Act 1992 and amendments
  - Health and Safety in Employment Regulations 1997
  - Civil Defence Emergency Management Act 2002
  - Resource Management Act 1991 and amendments

  The most significant project resulting from these will be the documentation for approval of Scanpower's Safety Management System, as required under the 2010 Electricity Safety Regulations.

Performance Relative to Peers

Both the Scanpower Board of Directors and the Board of the Scanpower Customer Trust (as part of its five year ownership review) monitor the performance of the company relative to other industry participants (considered to be peers). The over arching objective / target performance level is to perform better than the average of that peer group. This benchmarking exercise covers a range of performance measures including financial (costs), financial (adjusted rate of return) and level of line charges.

Figure 36 – Scanpower Comparison with Industry Peers 2010

MEASURE	Buller	Centralines	Waitaki	Peer Average	Scanpower	Variance
Line Charges /kWh	9.5c	6.0c	3.6c	6.4c	5.3c	●
Line Charges/ICP	$1035	$810	$716	$854	$653	●
Return on Investment	7.28%	6.23%	8.64%	7.38%	7.04%	●
OPEX Cost/km	$4089	$1427	$1826	$2447	$2009	●
OPEX Cost/ICP	$570	$329	$255	$385	$268	●
SAIFI	2.2	2.3	1.5	2.0	0.7	●
SAIDI	302	133	64	166	66	●

● = *Favourable variance* ● = *Adverse variance*

As illustrated in the table above, Scanpower's performance has been generally favourable in terms of the performance measures monitored / benchmarked.

4.3 Justification for Target Levels

Scanpower justifies its service levels on the basis of the following:

- That they reflect the preferences expressed by the majority of customers relating to the level of quality of supply and price demanded. These preferences have been expressed through formal consultation exercises on the matter of price / quality issues, as previously required under the price / quality control regime), and via the Scanpower Customer Trust through the annual Statement of Corporate Intent. As a general comment, customers have expressed a strong view that the status quo performance of Scanpower Limited as it relates to network pricing and quality performance is satisfactory, and that no rebalancing of the price / quality trade off is desirable.

- That they reflect what is realistically achievable for a network of Scanpower's size and geographic location density.

- That they take into account the existing physical characteristics of the network that embody an implicit level of reliability, which it is significantly expensive to change (but which could be altered if consumers expressed a preference to meet the costs of this change).

- That they reflect the diminishing returns of each dollar spent on reliability improvements.

- That they reflect those service levels imposed by external agencies, and which Scanpower has not choice but to comply with.

5.0 Network Development Planning

5.1 Planning Criteria and Assumptions

Introductory Comments

Scanpower understands network development to be the investigation, analysis and implementation of projects which:

- Upgrade or expand the network to accommodate known or anticipated load growth;
- Improving network reliability performance;
- Improving operational efficiency and fault response times;
- Delivering operating or business efficiency.

Excluded from Scanpower's definition of network development are maintenance projects relating to existing assets and their current capabilities; network development is a subset of the total annual capital programme. These activities are covered in the next section, Lifecycle Asset Management Planning.

Description of Planning Criteria and Assumptions

Factors that Scanpower considers when investigating network development project opportunities include:

- Grid point of supply capacity. Based on current growth rates and after the completion of the Transpower Woodville project, this will not be a factor for the next 20 years or more.
- Load growth on the system as a whole, and on specific feeders. New 11kV lines are built to support at least twice the existing load on them for future load growth and switching contingencies. New distribution transformers and 400V lines are installed to match the maximum load specified by the customer.
- Voltage regulation. Network modelling is used to ensure that the minimum 11kV supply voltage to a distribution transformer is 10.5kV. All 400V lines are designed to a maximum of 5% voltage drop between the distribution transformer and installation point of supply.
- Network reliability performance relative to targets over the previous period using analysis of network faults captured in outage logs / database. The isolation of large customer concentrations from the impact of adjacent rural faults on longer feeder lines.

- Network performance under emergency conditions. Main feeder lines must have sufficient spare capacity to support one adjacent feeder.

- Identification of assets due for replacement (where the intended replacement asset will have increased functionality, capability or capacity).

Projects identified are then assessed for viability, using a business case process, prior to approval and implementation.

With the completion of the Woodville GXP upgrade and Ripple plant replacement there are no development projects planned for the next ten years. This is based on the following assumptions.

- The legislative framework governing electricity networks will remain substantially unchanged from that of the previous 17 years. This includes the obligation to supply existing customers.

- No significant embedded generation will be installed on the network. Aside from the Massey University project demonstrating available technologies started in 1998 there has been no generation installed on the network to date.

- No significant change in loading characteristics or land use. Dairy farming continues to provide the main land use in the western part of the network, Sheep, beef and forestry to the east. All commercial and industrial development occurs near the towns of Dannevirke and Woodville.

- There will be no significant technological developments or cost changes to the existing technology used for electricity distribution.

5.2 Prioritisation Methodology Adopted for Development Projects

When faced with a number of competing, possible network development projects, Scanpower will assess each individually according to the following factors:

- Is the development necessary to maintain existing service levels?

- Is the development necessary to meet new customer demand?

- How many customers / size of load will benefit from the proposed project?

- What is the probability and frequency of the anticipated benefits arising?

- What are the costs and benefits associated with the project in financial terms?

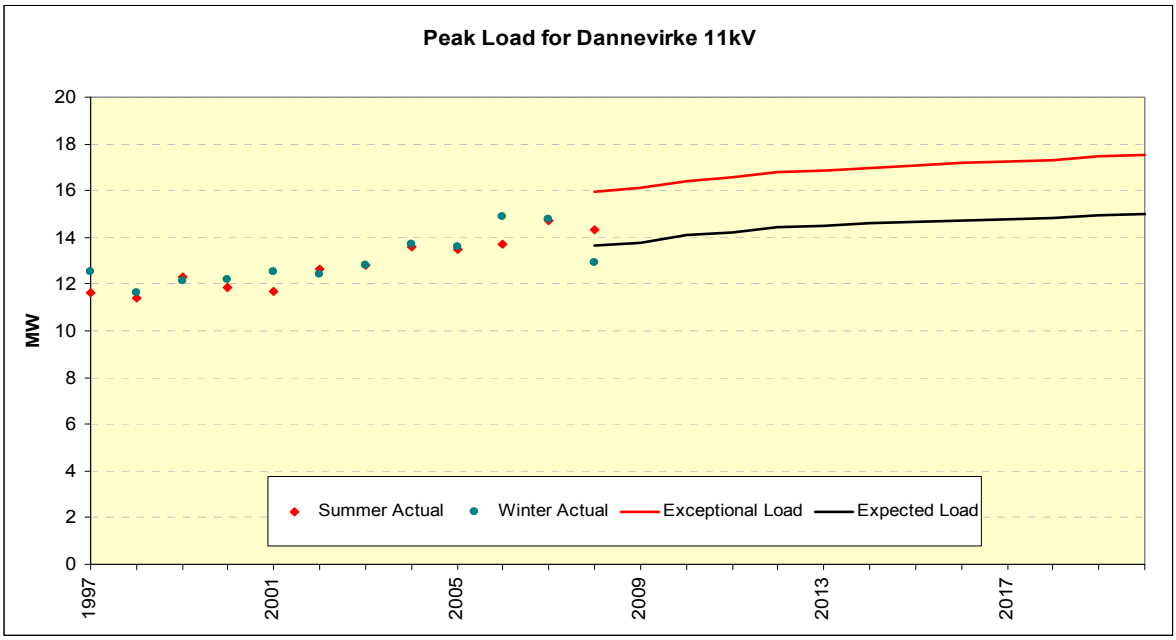
- Does the company have the internal staff / external resources available to implement the project?

- How will the project impact on network reliability performance? Is the anticipated new level of performance in line with customers' expectations?

It is not possible to specify a sequential prioritisation structure, given that there are many possible variables to be considered when assessing a range of projects. The Network Management team, in conjunction with the CEO, will consider prioritisation issues and make recommendations to the Scanpower Board of Directors.

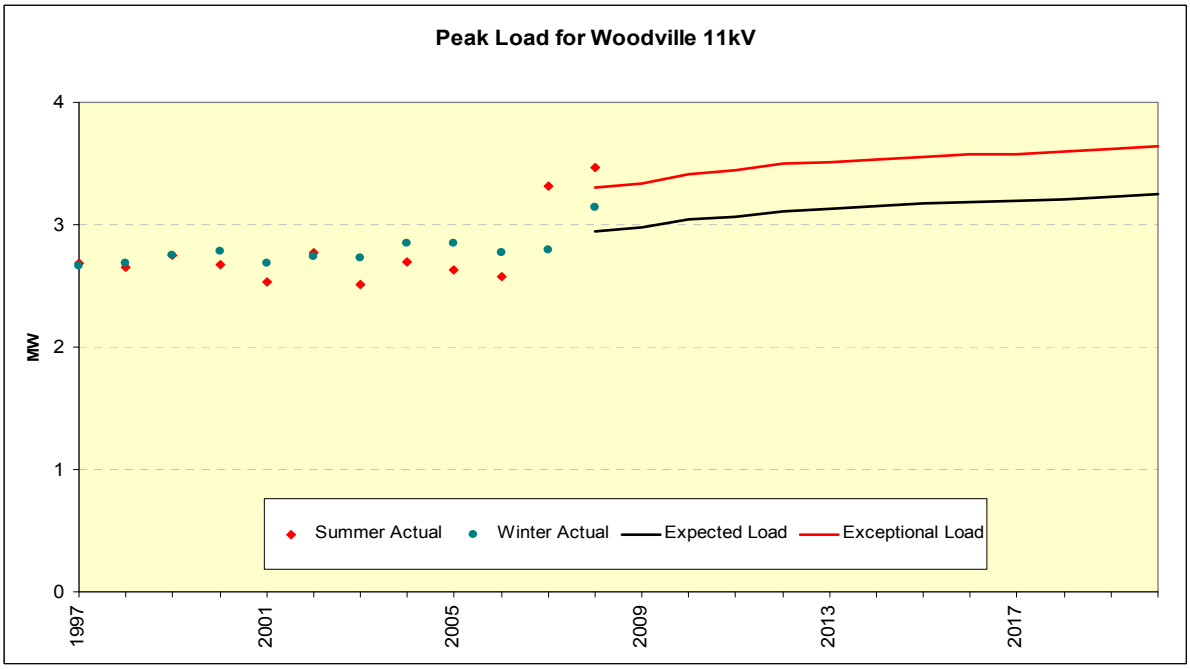
5.3 Demand Forecasting

Figure 37 – Dannevirke Maximum Demand Trend (source Transpower Grid Planning)



As is evident, there has been a general upward trend. The conversion of Oringi from a meat processing plant to a cold store has resulted in peak load occurring during summer for the first time.

Figure 38 – Woodville Maximum Demand Trend (source Transpower Grid Planning)



The expected load growth for Woodville is similar to that of Dannevirke albeit on a smaller scale. The higher summer peak loads over the last two years are a resulting of restoration of power after the annual Transpower shutdown which will no longer be necessary after a second transformer is installed at the GXP. The high winter load in 2008 was a result of load control equipment failure. This equipment is also to be replaced as part of the Woodville GXP upgrade.

At this stage Scanpower has no additional information to contradict the Grid Planner and expects peak loads in 2021 of 15.0MW for Dannevirke and 3.3MW for Woodville. For planning purposes Transpower have allowed that under for exceptional conditions e.g. extreme weather and as a result it is prudent to allow for peak loads in 2021 of 17.5MW for Dannevirke and 3.6MW for Woodville.

Given the rate of growth and magnitude of peak demands on the Scanpower network, it is not anticipated that any major network locations will be constrained within this ten year period. Some extremely localised work may be required as part of any individual connection load increases.

5.4 Distributed Generation

Scanpower recognises the potential value of distributed generation in offering the following:

- Reduction of peak demand at Transpower GXPs.
- Reducing the likelihood of network constraints (should they arise).
- Avoiding the need for additional investment in network capacity (in certain areas).
- Making a contribution to the security of supply (where customers are prepared to accept that local generation is rarely as secure as a network supply).
- Reducing the number, and hence environmental impacts, of large scale generation schemes.

Whilst Scanpower retains some reservations as to the implications of wide spread DG, the company currently wishes to encourage the development of distributed generation, in particular where both Scanpower and the Generator can benefit. Whilst at present there is no DG installed on the network system, Scanpower has established the following general operating principles:

- Connection Issues
    - Scanpower recognises the prescribed charges and terms set out in the Electricity Governance (Connection of Distributed Generation) Regulations 2007.
    - Distributed generation that requires a new connection to the network will be charged a standard connection fee and may also be charged a fee to reflect reinforcement of the network back to the next transformation point.

- An annual administration fee may be payable by the connecting party to Scanpower.

- Installation of suitable metering is generally a matter for the DG owner and their electricity retailer to resolve.

- Scanpower is willing to recognise and share the benefits associated with distributed generation that may arise, provided that the benefits are measurable and material.

- Those wishing to connect distributed generation must satisfy Scanpower that a contractual arrangement with a suitable party is in place to consume all injected energy.

- Safety Standards

  - A party connecting distributed generation must comply with any and all safety requirements promulgated by Scanpower.

  - Scanpower reserves the right to physically disconnect any distributed generation that does not comply with such requirements.

- Technical Standards

  - Metering capable of recording both imported and exported energy must be installed. If the owner of the distributed generation wishes to share in any benefits accruing to Scanpower, this metering would need to be half-hourly.

  - Scanpower may require a distributed generator of greater than 10kW to demonstrate that operation of the distributed generation will not interfere with operational aspects of the network, particularly such aspects as protection and control.

  - All connection assets must be designed and constructed to technical standards acceptable to Scanpower.

5.5 Non-network Solutions

Scanpower considers non-network solutions to be initiatives that result/contribute to increased service levels on the network that are not network asset based. The company recognises that non-network solutions can, in some cases, result in the deferral of capital expenditure due to the extension of existing asset lives / capacity.

Non-network solutions utilised by Scanpower on an ongoing basis include:

- Load Control

  Scanpower owns and operates a ripple control system, comprising both injection plant and receivers at customer premises. This is primarily used to minimise peak

demands through the control of water and under floor heating loads. It is estimated that up to 20% of total system load can be controlled in this way.

- SCADA

  Two key functions of the SCADA system are to provide real time system load data, and the operation of remote control switches on the network. The combination of these capabilities enables Scanpower, where necessary, to switch loadings between feeders as and when required.

- Pricing Signals

  Scanpower's schedule of network prices includes a number of price signals, which are intended to promote the shifting of load from peak to non-peak times. For example, differentials between day / night pricing, and winter peak load charges for industrial customers.

- Distributed Generation

  As previously noted, Scanpower is aware of the potential benefits of distributed generation and aims to facilitate the introduction and development of this in our region as and when opportunities arise.

- Vegetation Clearance

  Coincident with the commencement of the Electricity (Hazards from Trees) Regulations 2003, Scanpower established a detailed and network wide vegetation control programme. This has included the establishment of a related party tree felling business. Since the programme was initiated some 800 tree infringements have been cleared, with a flow on improvement in network reliability performance.

- Demand Side Management

  Scanpower recognises and supports demand side management initiatives such as the introduction of energy efficient technologies and products to customer premises on the network. In this regard, a related party electrical contracting and retailing business is an authorised vendor and installer of heat pumps, in addition to a stockist of generic energy efficiency products such as light bulbs.

- Adoption of Live Line Working Techniques

  In recent years, Scanpower has been able to improve customer reliability performance by minimising the impact of planned maintenance outages through the adoption of live line working techniques.

5.6 Network Development Options Identified

At a macro level, the following network development options have been identified:

- Load Control Deployment

  Scanpower has historically maintained a load control system and due to technical obsolescence, commenced replacement of these assets in 2006 / 2007. The first stage of this was replacement of both injection plant and receivers in the Dannevirke area of supply. The load control equipment in the Woodville area was replaced with the same system as Dannevirkes during 2010 / 2011 in conjunction with an upgrade of the GXP substation by Transpower.

- Woodville Substation / GXP Upgrade

  Transpower is in the process of upgrading its assets at the Woodville point of supply with completion due in May 2011. Scanpower has similarly replaced aged assets within and around the substation in 2010/11. This included the replacement and separation of aged 11kV underground feeder cables from the circuit breakers in the substation to Scanpower's network.

- Undergrounding of Low Voltage Urban Supplies

  Some years ago, the Scanpower Board of Directors made the decision that urban, low voltage, overhead lines would be replaced with underground cables when they fell due for renewal / replacement. Recently we have encountered difficulty in gaining cooperation from other utilities with this program and the projects completed in 2009/10 did not realise their full economic and aesthetic benefits. As a result we have suspended the undergrounding programme and will now simply renew urban 400V lines with the modern overhead equivalent.

Based on our current load growth projections and available network capacity there are no plans for any substantial network development within the next ten year period. Upgrades that may be included in future Asset Management Plans due to extraordinary circumstances are listed below.

- Alternative supply to Kumeroa.

  Replacement of the main supply to Kumeroa is expected to result in several long outages and one option identified to avoid this is to install a second supply. This option also has some additional long term reliability benefits. While there is embedded generation in Kumeroa it is small in scale and insufficient to supply the area required. Another option is to install generators for the duration of the work. This could be more expensive than the alternative line.

  A final decision will not be required until either the line needs replacing or if load significantly increases in the area. Factors influencing the option chosen will include generator costs, landowner negotiations, Transpower approval to connect the Grid Exit Points and the supply requirements of Kumeroa customers.

- Voltage Support, Weber.

  The Weber Feeder is a long (50km from Dannevirke GXP) spur. If significant load were to be added to the remote end of the line Scanpower would have to increase its capacity.
  The most likely cause for this increase would be Dairy development but at this stage there has only been on Dairy conversion in the area. The absence of reliable water supplies may limit further such developments.

  Network options identified to date for this issue include increasing conductor size or the installation of voltage regulators. Increasing the conductor size is the preferred option as it will also reduce losses and can be carried out as part of the life cycle maintenance of the line. A voltage regulator would be considered if the load variations were sufficient to affect the local 400V supply standards.

  Non network solutions include distributed generation and load management. Distributed generation is unlikely to be available at sufficient to overcome the issues. Load management will be possible to a certain extent as the likely new load profile will not coincide with the existing (mainly domestic) load. Ultimately either of these options will not avoid a network based solution if a major (50%) load increase occurs.

- Voltage Support, Norsewood and Ormondville.

  The townships of Norsewood are supplied by two interconnected feeders (North and Mangatera) each fully capable of supporting the other. The north feeder supplies Norsewood via voltage regulators at Matamau. These were installed to improve the voltage for the Kiwi Sock Company and can be switched onto either or both feeders. During a contingency which requires the voltage regulator to support both feeders it currently runs at 80% of capacity.

  Based on current load growth on these feeders the voltage regulators capacity under contingency will not be exceeded for another 20+ years. If the load in Norsewood and Ormondville were to grow at a faster rate then an upgrade of the voltage regulators would be prudent.

  Load management during the contingency is the primary non-network option but it is possible that the event could happen when load management systems are already deployed. At this stage the primary solution would involve larger capacity regulators but alternatives are still being pursued.

5.7 Network Development Initiatives Planned

A summary of Scanpower's planned network capital expenditure for the coming year is shown in table form below. Contained within this programmed expenditure are a number of development initiatives, derived from those projects described above.

Specific development actions identified for the coming year include:

- Replacement of aged urban transformers with modern kiosk types.
- Replacement of single phase switchgear with ganged 3 phase switchgear
- Additional switchgear to improve network sectionalisation and operational flexibility

Figure 39 – Planned Capital Works / Development Initiatives 2011 / 2012 and Budgets

Scanpower Category	Description	2011/12 Budget
Transformers	*Customer Led Additions (new connections)*	$36,000
	Customer Led Upgrades (system growth)	$60,000
		$96,000
Switchgear	*Burgoyne St, Woodville (additional switch to improve reliability)*	$4,500
	Kiritaki Rd, Dannevirke (replace single phase units with ganged switch)	$4,500
	Umutaoroa Rd, Dannevirke (replace single phase units with ganged switch)	$4,500
		$13,500

6.0 Lifecycle Asset Management Planning

6.1 Maintenance Planning Criteria and Assumptions

General Philosophy

The purpose of Scanpower's maintenance programme / activities is to ensure that the network is able to meet customers' supply requirements, having regard for:

- Quality standards such as statutory voltage levels and SAIDI / SAIFI reliability performance measures.
- An appropriate level of cost effectiveness given factors such as customers' willingness to pay.
- The need for assets to operate safely and at the minimum possible danger to the general public, staff and contractors.
- Extending the life of network assets, to the extent that it is possible and cost effective.

Maintenance Planning Criteria and Assumptions

Scanpower undertakes maintenance work on the basis of asset condition; i.e. where an asset has failed, is expected to fail, or has become unsafe. These are identified by the following methods:

- A rolling five year feeder survey programme.
- Regular bi-annual inspection of specific asset classes (e.g. ground mount transformers).
- Recurring faults / network anomalies.
- Reports received from customers.
- Known damage incidents such as vehicle accidents, storms etc.

In general, the rolling five year feeder surveys are the primary source of maintenance work identified.

6.2 Description of Routine Maintenance Activities

Programmed Main Feeder Surveys

Scanpower surveys all eleven of its main feeder lines on a rolling five year basis; i.e. two feeders per year are surveyed for four years, and three feeders in the fifth year.

These surveys involve the use of experienced staff who walk the line and note any visible defects, deterioration of the various components, such as condition of pole, loose or broken binders, cracked insulators, burn marks or damage to conductor and line guards, incorrect conductor sags, broken stays, danger notice defects, proximity of trees to lines, etc.

The feeder survey schedule for the coming five years is shown in the table below.

Figure 40 – Asset Condition Survey Timetable (2011/2012 – 2015/16)

Feeder	2011/12	2012/13	2013/14	2014/15	2015/16
North			Survey 2		
Mangatera					Survey 3
Pacific					Survey 3
Dannevirke Central	Survey 2				
Dannevirke East	Survey 2				
Weber			Survey 2		
Adelaide Rd		Survey 2			
Te Rehunga		Survey 2			
Woodville Town 2				Survey 2	
Woodville Country				Survey 2	
Woodville Town 1				Survey 2	

All the defects observed in each year are then consolidated by feeder, and prioritised according to factors such as:

- The seriousness of the defect (i.e. expected time to failure).
- Number of customers that would be affected if a failure occurred.
- Is an immediate or foreseeable safety issue.

This information is then consolidated into maintenance work packages for implementation by field staff. The timing of this maintenance work is scheduled according to factors such as:

- Peak loading times.
- Weather and ground conditions.
- Customers' convenience.
- System configuration constraints.

Scanpower aims to undertake maintenance work at times that are generally convenient to customers. Prior notice is always given in the case of planned shutdowns. Where an unplanned maintenance shutdown occurs (for example in case of safety or emergency issues) it is not always possible or appropriate to consult with customers.

Other Routine Inspection and Maintenance Activities

Scanpower carries out visual inspections of urban ground mount transformer cubicles and >100kVA pole mount transformers on a bi-annual basis to ensure the following:

- Doors and locks are secure and operate safely.
- No damage has occurred to the cubical.
- 11kV and 400V connections and fuses are in good condition.
- Poles and hardware are in good condition.
- Identify any other maintenance activities which need to be carried out, such as removal of graffiti and vegetation control.

All other asset classes are picked up through the feeder survey programme.

Tree / Vegetation Management and Control

Scanpower employed a dedicated Tree Control Project Manager in 2004. Having decided to take a proactive (rather than reactive approach) the network is surveyed on an annual basis for tree and vegetation infringements which contravene the Electricity (Hazards from Trees) Regulations 2003. Action is then taken in accordance with the Regulations to ensure that the infringement is cleared within the required timeframes.

Given possible growth rates, an annual tree survey is considered appropriate for all main feeder lines. Spur lines are included in the rolling five year line survey plan. All incidents are recorded in a proprietary vegetation database, and managed accordingly.

Scanpower operates an in-house team of qualified utility arborists who have, in the past two years, cleared >500 infringement incidents. This has had a favourable impact on network reliability performance, with a notable reduction in tree and possum related outages.

Budgeted Maintenance Expenditure 2011/2012

Budgeted maintenance expenditure for the coming year is as follows:

Figure 41 – Forecast Maintenance Expenditure 2011 /12

MAINTENANCE EXPENDITURE	2011/12 Budget
Distribution Maintenance	$360,000
Faults Maintenance	$160,000
Non Line Asset Maintenance (including vegetation management)	$170,000
	$690,000

Maintenance Activities by Asset Class

The following table summarises the main maintenance activities by asset class:

Figure 42 – Scheduled Maintenance Activities by Asset Class

Asset Class	Activity
11kV / 400V Overhead Lines	• Full survey once every five years and resultant maintenance work.
11kV / 400V Underground Cables	• Visual inspection of cable terminations in cubicles or up poles during five year full survey.
Distribution Transformers	• Surveyed on a five yearly basis as part of full lines surveys. • Urban transformers 100kVA+ inspected bi-annually
Isolations / Fuses	• Surveyed on a five yearly basis as part of full lines surveys.
Air Break Switches (manual)	• Surveyed on a five yearly basis as part of full lines surveys.
Air Break Switches (auto)	• Surveyed on a five yearly basis as part of full lines surveys.
Circuit Breakers / Sectionalisers	• Surveyed on a five yearly basis as part of full lines surveys.
Voltage Regulators	• Annual visual inspection and monitoring
Ring Main Units	• Annual visual inspection and monitoring

6.3 Description of Asset Renewal / Refurbishment Policies

Asset Refurbishment Policy

In general terms, Scanpower has no assets which it considers economic to refurbish at the present time, given that asset lives are maximised through the maintenance approach described previously.

Asset Renewal Policy

Scanpower considers “asset renewal” to be synonymous with “asset replacement”. On this basis, Scanpower has a policy of renewing / replacing assets when it is no longer economic to utilise maintenance techniques which will prolong the life of the asset.

Given that when assets are replaced, the opportunity is often taken to incorporate new technology or improved specifications, capital expenditure on “asset replacement” is inextricably linked with capital expenditure on “network development” (i.e. the replacement of aged overhead low voltage lines with underground cables).

Asset renewal / replacement and network development are therefore both subsets of total annual capital expenditure, and it can be difficult to separately categorise these two elements, under the one heading. On this basis therefore, the table below (which summarises total capital expenditure for the year) incorporates both.

6.4 Asset Renewal and Replacement Expenditure

The following table summarises total forecast capital expenditure associated with asset renewals and replacements for the coming year:

Figure 43 – Planned Capital Works / Renewals and Replacements 2011/2012 and Budgets

Scanpower Category	Description	2010/11 Budget
11kV Line Reconstruction	*Piripiri Rd, Dannevirke* *(life cycle replacement of aged structures)*	$50,000
	Okarae Rd, Dannevirke *(life cycle replacement of aged structures)*	$100,000
	SH2, Dannevirke, Smith St to Otanga Rd *(life cycle replacement of aged structures)*	$50,000
	Saddle Rd, Woodville *(life cycle replacement of aged structures)*	$36,000
	Tipapakuku Rd, Tiratu Rd *(life cycle replacement of aged structures)*	$39,000
	Maunga Rd, Dannevirke *(life cycle replacement of aged structures)*	$93,000
	Cowper Rd, Dannevirke, from Weber Rd to Knight Rd *(life cycle replacement of aged structures)*	$50,000
	Maunga Rd, Ormondville *(life cycle replacement of aged structures)*	$143,000
		$561,000
400V Line Replacements	*Swinburn St, Dannevirke* *(life cycle replacement of aged structures)*	$32,000
		$32,000
Transformers	*Replacements and Renewals* *(life cycle replacement of aged structures and faulted units)*	$79,000
	Swinburn St, Dannevirke *(life cycle replacement of aged unit with modern kiosk type)*	$28,000
	Gordon St, Dannevirke *(life cycle replacement of aged unit with modern kiosk type)*	$33,000
		$140,000
Switchgear / Automation	*Renewals* *(associated with 11kV Line Reconstruction)*	$33,000
		$33,000
Secondary Systems	*Communications,* *(replacement and renewal of existing units)*	$55,000
		$55,000
Switchgear	*MacLaurin St, Dannevirke* *(replace aged non-load break switch with Ring Main Unit)*	$17,000
	Dannevirke Sewage Plant, *(additional switch to separate feeder sections)*	$4500
	Gaisford R, Oringi *(replacement of single phase links with new air break switch)*	$4500
	Umutaoroa Rd, Dannevirke *(replacement of single phase links with new air break switch)*	$4500
		$30,500
TOTAL		**759,500**

A summary of Scanpower's planned network capital expenditure for the remainder of the planning period is shown in table form below. Specific development actions identified for the next ten years include:

Figure 44 – Planned Capital Works / Renewals and Replacements 2012 - 2020 and Expected Completion

Scanpower Category	Description	Expected Completion
11kV Line Reconstruction	*Saddle Rd, Woodville (life cycle replacement of aged structures)*	2012
	Maunga Rd, Dannevirke (life cycle replacement of aged structures)	2012
	Piri Piri Rd, Dannevirke (life cycle replacement of aged structures)	2012
	Cowper Rd, Dannevirke (life cycle replacement of aged structures)	2013
	SH2, Between Smith Rd and Otanga Rd, Dannevirke (life cycle replacement of aged structures)	2013
	Adelaide Rd, Dannevirke (life cycle replacement of aged structures)	2013
	Tipapakuku Rd, Otanga Rd, Maunga Rd, Dannevirke (life cycle replacement of aged structures)	2013
	Centre Rd, Dannevirke (life cycle replacement of aged structures)	2014
	Ngapaeruru Rd, Dannevirke (life cycle replacement of aged structures)	2014
	Toruroa Rd, Dannevirke (life cycle replacement of aged structures)	2014
	Matamau-Ormondville Rd (life cycle replacement of aged structures)	2015
	Cemetery Rd, Kumeroa (life cycle replacement of aged structures)	2015
	River Rd, Kumeroa (life cycle replacement of aged structures)	2015
	Route 52, Weber to Ti Tree Point (life cycle replacement of aged structures)	2016
	Hopelands Rd, Kumeroa (life cycle replacement of aged structures)	2016
	Speedy Rd, Dannevirke (life cycle replacement of aged structures)	2016
	Te Uri Rd, Ormondville (life cycle replacement of aged structures)	2016
	Valley Rd, Woodville (life cycle replacement of aged structures)	2016
	Cemetery Rd, Dannevirke (life cycle replacement of aged structures)	2017
	Makirikiri Rd, Dannevirke (life cycle replacement of aged structures)	2017
	Route 52, Ti Tree Point to Wimbledon (life cycle replacement of aged structures)	2018
	Eskdale Rd, Weber (life cycle replacement of aged structures)	2018
	Lys Rd, Dannevirke (life cycle replacement of aged structures)	2019
	Tourere Rd, Dannevirke (life cycle replacement of aged structures)	2019
	Troup Rd, Woodville (life cycle replacement of aged structures)	2020
	Heretaunga Rd, Dannevirke (life cycle replacement of aged structures)	2020
	Kotare Rd, Dannevirke (life cycle replacement of aged structures)	2020
	Edinburgh St, Dannevirke (life cycle replacement of aged structures)	2019
	Dannevirke Golf Course, Dannevirke (life cycle replacement of aged structures)	2020
	Condoit Rd, Woodville (life cycle replacement of aged structures)	2020
	Weber Rd, Motea (life cycle replacement of aged structures)	2020

Figure 44 continued – Planned Capital Works / Renewals and Replacements 2012 - 2020 and Expected Completion

Scanpower Category	Description	Expected Completion
400V Line Replacements	*Swinburn St, Dannevirke (life cycle replacement of aged structures)*	2012
	Neptune St, Otanga St, Dannevirke (life cycle replacement of aged structures)	2013
	Victoria Ave, Dannevirke (life cycle replacement of aged structures)	2014
	Ormond St, Woodville (life cycle replacement of aged structures)	2015
	Chamberlain St, Allardice St, Dannevirke (life cycle replacement of aged structures)	2016
	Carlson St, Dannevirke (life cycle replacement of aged structures)	2017
	Bowen St, Woodville (life cycle replacement of aged structures)	2018
	Thor St, Coronation St, Eric St, Norsewood (life cycle replacement of aged structures)	2019
Transformer Replacements	*LT303, Swinburn St, Dannevirke (life cycle replacement of aged component)*	2012
	LT746, Grey St, Woodville (life cycle replacement of aged component)	2012
	LT745, Atkinson Ave, Woodville (life cycle replacement of aged component)	2012
	LT1358, Easton St, Dannevirke (life cycle replacement of aged component)	2013
	LT871, Thyra St, Dannevirke (life cycle replacement of aged component)	2013
	LT136, Otanga St, Dannevirke (life cycle replacement of aged component)	2013
	LT919, Victoria Ave, Dannevirke (life cycle replacement of aged component)	2014
	LT983, Victoria Ave, Dannevirke (life cycle replacement of aged component)	2014
	LT445, Allardice St, Dannevirke (life cycle replacement of aged component)	2014
	LT918, Christian St, Dannevirke (life cycle replacement of aged component)	2015
	LT807, Ormond St, Woodville (life cycle replacement of aged component)	2015
	LT983, High St, Dannevirke (life cycle replacement of aged component)	2015
	LT1010, Guy St, Dannevirke (life cycle replacement of aged component)	2016
	LT258, Thyra St, Dannevirke (life cycle replacement of aged component)	2016
	LT1024, Allardice St, Dannevirke (life cycle replacement of aged component)	2016
	LT564, Gregg St, Dannevirke (life cycle replacement of aged component)	2017
	LT342, Miller St, Dannevirke (life cycle replacement of aged component)	2017
	LT1174, Weber Rd, Dannevirke (life cycle replacement of aged component)	2017

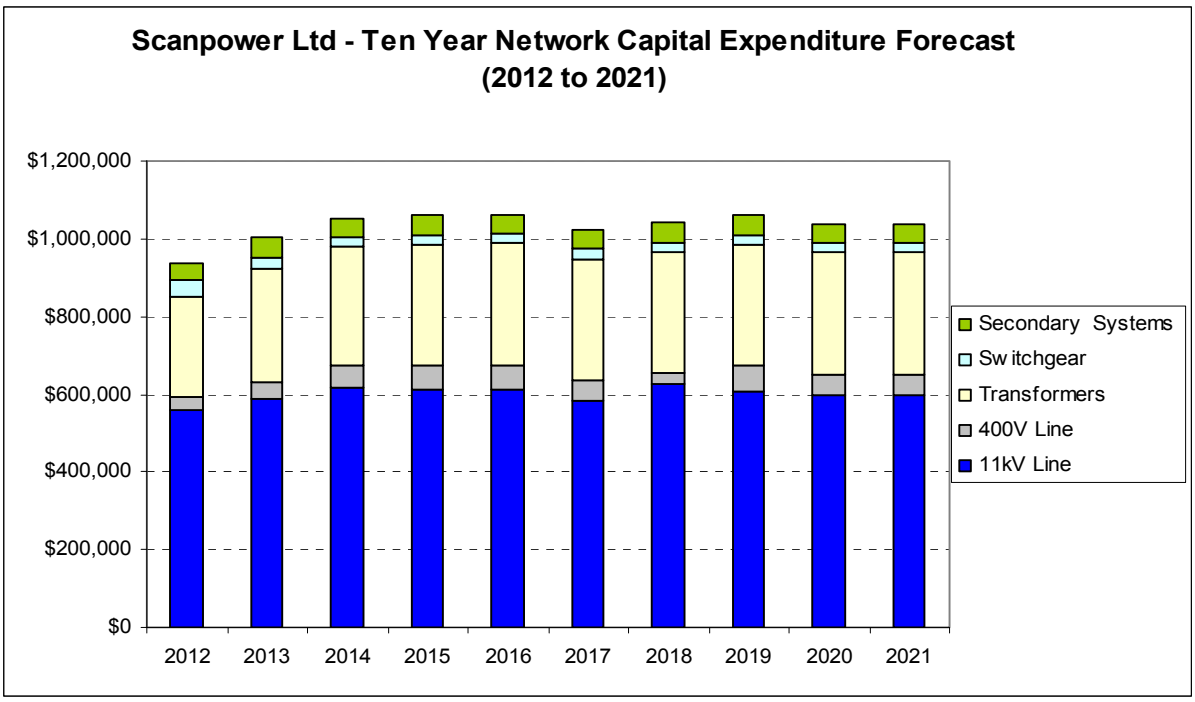
6.5 Expenditure Forecasts and Key Assumptions

Overview

Figure 44 below summarises, in graphical format, Scanpower's forecast capital expenditure (incorporating both network development and replacement / renewal initiatives).

The forecast annual expenditure is expected to be consistent, with year on year variations caused by cost fluctuations associated with particular projects in each given year and the desire to complete specific line sections within each planning year (i.e. due to variations in line lengths, it is not possible to completely smooth the forward spend).

Figure 45 – Graphical Representation of Ten Year Capital Expenditure Plan 2011 to 2021



Significant Assumptions Underlying Capital Expenditure Forecast

In establishing the forward expenditure forecast, it has been necessary to rely on certain assumptions. Those key assumptions which could have a material impact on forecast expenditure should they not work out to plan are shown in table below with a description of both the assumption and the possible impact.

Figure 46 – Assumptions with a Potentially Material Impact on Forecast Expenditure

No.	Assumption	Possible Impact
1	Transpower completes Woodville substation upgrades according to plan.	Delays or deferral would cause ~$150,000 of expenditure planned for 2010 / 2011 out a further year.
2	Scanpower is able to self-construct its assets by directly employing a contracting team, thereby avoiding contractor margins.	Capital expenditure would increase by in value by ~20% for the same amount of work if it became necessary to contract out.
3	Existing customer load remains within demand forecasts (either up or down).	A significant change in existing customer load patterns (for example caused by widespread deployment of distributed generation) would necessitate a review of all planned expenditure. The scale of the impact would vary according to the change in demand.

Figure 46 continued – Assumptions with a Potentially Material Impact on Forecast Expenditure

No.	Assumption	Possible Impact
4	No new major industrial load becomes established on the network.	The establishment of a new industrial site (e.g. new freezing works) would likely result in increased expenditure on assets such as new transformers and possibly new feeder lines.
5	Customers continue to maintain the same preferences in regard to the price / quality trade off.	A customer lead move to increased (or perhaps decreased) quality and security would influence capital expenditure.
6	Scanpower remains a going concern and has the financial capability to fund the proposed capital expenditure, either from cash reserves or borrowing.	Clearly the level of forecast capital expenditure would change if there was a sudden and significant event (e.g. significant legal claim) that adversely impacted on the company's ability to continue as a going concern.
7	No regulatory intervention or prescription will influence the manner in which the company plans and executes its capital expenditure.	Government intervention / regulation in the form of minimum or maximum capital expenditure levels (or other mechanisms) could affect actual vs forecast expenditure.
8	No catastrophic disaster event (e.g. earthquake, volcanic eruption) occurs within the planning period.	A major disaster or catastrophe has the potential to significantly increase the required level of actual annual capital expenditure.

With the exception of assumption 1, which perhaps has a medium probability but a low over all impact, the remainder of the assumptions are assessed to be of low / very low probability.

As with any plan, and in this case where Scanpower is attempting to make a 10 year capital expenditure forecast, there are a number of sources of uncertainty. Beyond the assumptions / uncertainties described in the table above, general assumptions have been made regarding such things as load growth (i.e. that it continues in line with long established trends and future expectations) and regulations relating to quality of electrical supply (e.g. standard voltages, harmonic standards etc). Scanpower believes these secondary assumptions are relatively minor in nature and has assumed that, all other things being equal, consumers, the network assets and the industry itself continue to operate in a similar manner to that of the past 85 years that the company has been involved in electricity distribution.

7.0 Risk Management

7.1 Risk Assessment Introduction

Scanpower recognizes risk management as an integral part of good management practice. It is an iterative process consisting of steps, which, when undertaken in sequence, enable continual improvement in decision-making.

Scanpower's approach to managing these risks in order of preference are:-

1. Contractual arrangements with business partners and selected specialist contractors.
2. Appropriate levels of Insurance cover
3. Continual review of Procedures and Training

In addition to facing conventional business risks, Scanpower also faces physical risks to its network assets, and a growing level of regulatory risk.

7.2 Risk Assessment Methodology

During the 2004/05 year Scanpower performed a detailed risk assessment of the electricity network based on AS/NZS 4360:1999. This standard has recently been superseded by AS/NZS ISO 31000:2009. In 2010 Scanpower will repeat the 2004/5 assessment to this new standard and expand it to cover other activities of the group.

7.3 Details of Emergency Response and Contingency Plans

Contingency Planning

Scanpower considers its design and construction methodologies are suitable to survive major natural disaster events within their statistical likelihood. The impact of these events if they occur is likely to extend beyond the electricity system and come into the realm of Civil Defence emergency situations. If these arise, Scanpower will assist Civil Defence within the limits of its resources and after Scanpower's network requirements have been taken care of.

Scanpower is a member of the Lifelines Project where utility and transportation network operators are brought together to facilitate and motivate a collective physical risk management process for regional scale events and impacts. The principal output from a lifelines project is the identification of possible physical mitigation measures that operators of utilities and transportation systems can undertake to reduce the risk from the major identified hazards. It is noted that priority has been given to major regional infrastructure such as SH2, Transpower lines, NGC's main gas pipeline and Telecom's network.

Emergency Response

Scanpower has prepared the following plans to assist in responding to emergencies:

- Disaster Recovery Plan
- Business Continuity Plan
- Customer Communications Strategy
- Participant Outage Plan

The Disaster Recovery Plan identifies five publicly credible civil emergency scenarios (flood, cloud burst, earthquake, volcanic eruption, and wind storm) that have been adopted by the Tararua District Council and Horizons Regional Council for their planning purposes. The plan then identifies the likely damage to the network and outlines the key processes and resources necessary to restore supply.

The Business Continuity Plan identifies Scanpower's critical business processes (invoicing retailers, receipting payment from retailers, and maintaining business records). A range of naturally occurring, built-environment and wilful human interference hazards that these critical processes might need to survive have been identified. This plan concludes that the "small" nature of these critical tasks, the advent of lap-tops and cellular modems, and the low likelihood of hazard occurrences provides Scanpower with a low risk profile.

The Customer Communications Strategy outlines the level of communication with major customers, customers requiring continuous supply for medical reasons, and the public at large during single-feeder events, multiple-feeder events and superimposed disasters. Under a disaster scenario, Scanpower will coordinate all public communications with the civil defence controllers.

The Participant Outage Plan outlines the way Scanpower will manage an Electricity shortage or Grid Emergency. It identifies means by which electricity consumption can be reduced and prioritises customer load groups for disconnection if required as a last resort. This plan is currently with the Electricity Commission awaiting their approval.

Transpower

As Scanpower has no Zone Substations the most significant single contingency events will occur at Transpower's points of supply at Dannevirke and Woodville. This has been discussed with Transpower and any extended time events would be of an exceptional nature. Scanpower also has an arrangement with Transpower for automatic load shedding of up to 32% of its total load under certain frequency conditions.

Spare Equipment

Scanpower is reticulated at 11kV and as such its distribution system is very simple and mainly consists of poles, wires, transformers and switches. The assets that make up the distribution system are common everyday distribution items, which are easily replaced. Scanpower carries a limited stock of poles and transformers based on an analysis of expected failure rates.

Design for Risk Management

Customer requirements are for a continuous supply of electricity and there is very low tolerance to outages whether caused by avoidable or unavoidable events.

Insurance

Although insurances are only part of any risk management programme, they are regularly reviewed to ensure that a reasonable approach is being taken.

Scanpower maintains material damage cover of ~$2.5m on specified, higher value assets and a further cover of $250,000 to cover general assets.

8.0 Performance Evaluation

8.1 Work Schedule

All work outstanding from the 2009/10 program is now complete. Progress on the 2010/11 Asset Management plan is summarised below. At the time of writing, actual figures are only available for the 9 months to 31 December 2010 due to earlier publication of this asset management plan.

Figure 47 – Capital Expenditure Analysis 2010/11 (9 months to 31 December 2010)

Scanpower Category	% Complete at 31/12/2010	2009/10 at 31/12/10	2010/11 Budget
11kV Line Reconstruction			
Saddle Road	100%	$100,453	$100,000
Cowper Road	70%	$103,319	$100,000
Maunga Road	100%	$56,646	$40,000
Woodlands Road	50%	$116,903	$154,000
Tipapakuku Road	100%	$129,628	$102,000
Wharite Road	70%	$57,951	$55,000
SH2 Blairgowrie Road	10%	$23,178	$49,000
		$588,078	**$600,000**
400V Line Reconstruction			
Maine Street	100%	$22,999	$14,000
Robertshawe Crescent	100%	$44,252	$41,000
		$67,251	**$55,000**
Transformer Replacements			
Hall Street	80%	$23,708	$28,000
Gordon Street	80%	$29,803	$33,000
12 Transformer Pole Replacements	90%	$131,788	$79,000
Transformer Upgrades	75%	$42,787	$62,000
Transformer Additions	75%	$30,000	$41,000
		$258,086	**$243,000**
Switchgear			
MacLaurin Street	80%	$14,036	$17,000
8 Planned Replacements	60%	$40,434	$38,000
Faulted Switches	75%	$6,436	$8,500
		$60,906	**$63,500**
Secondary Systems			
Ripple Relay Replacements	50%	$25,802	$55,000
New Ripple Plant / Comms (WDV)	90%	$143,091	$185,000
Communications Upgrades	75%	$8,000	$28,000
		$176,893	**$268,000**
TOTAL CAPITAL BUDGET		**$1,151,214**	**$1,229,500**

Final figures will be published in report “AM1” which is required to be published within 5 months of the financial year end.

8.2 Reliability Performance 2009 / 2010

Scanpowers focus on improving the ability to restore supply in the event of an unplanned outage, rather than prevent interruption through increased security levels. A comparison of stated security supply standards with actual results is shown on the table below.

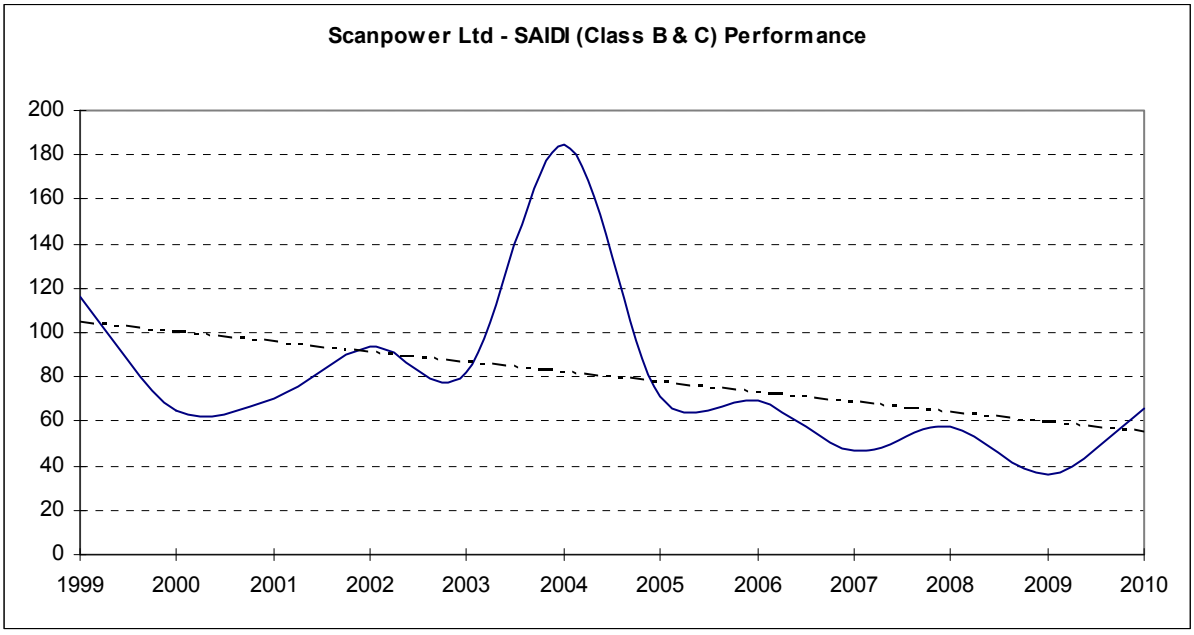
Figure 48 – Scanpower Network Supply Security Standards (Actual 2009/10)

Description	Load Size (MW)	Customer Numbers	Target	Incidents	Maximum Restore Time	Average Restore time
Main 11kV Feeder	1.0-4.0	500-1000	Restore within 60 min	5	68 min	39 min
Urban 11kV Feeder	0.2-2.0	100-1000	Restore within 60 min	0	-	-
Rural 11kV Feeder	0.0-1.0	50-500	Restore within 240 min	22	59 min	42 min
Urban 11kV Spur	0.0-0.5	1-100	Restore within Repair Time	0	-	-
Rural 11kV Spur	0.0-0.2	1-50	Restore within Repair Time	23	273 min	67 min

Scanpower failed to meet its stated restoration times by eight minutes during one incident in 2009/10. The failure occurred on a section of line of the Weber feeder that affected the whole feeder and was unable to be switched out of circuit. An additional switch has been added in that section to allow the either half of the Weber feeder to be transferred to an adjacent feeder.

Scanpower's Statement of Corporate Intent and regulatory planning target for SAIDI (Class B & C) for the year was 82.92 minutes and SAIFI was 0.92. The actual performances were 65.7 minutes for SAIDI and 0.74 for SAIFI. The actual SAIDI performance for the last ten years is shown below.

Figure 49 – Scanpower SAIDI Class B & C Performance 1999 – 2010



As is evident, SAIDI performance has shown a general downward trend (shown by the red line) since 2000. However, a series of exceptional events in the 2004 year lead to a very high annual SAIDI result which is anomalous to the trend seen in recent years.

8.3 Financial Performance 2009/10

The table below provides figures on capital expenditure performance for the year ending 31st March 2010.

Figure 50 – Expenditure Performance 2009 /10

Category	2009/10 Actual	2009/10 Budget	Variance
Capital Expenditure			
Customer Connections	$40,000	$24,000	+$16,000
System Growth	$14,000	$88,000	-$74,000
Asset Replacement and Renewal	$928,000	$1,081,000	-$153,000
Reliability, Safety and Environment	$55,000	$60,000	-$5,000
Asset Relocations	$0	$0	$0
Undergrounding of Urban 400V Overhead Lines	$110,000	$0	+$110,000
Total Capital Expenditure	**$1,147,000**	**$1,233,500**	**-$86,500**
Operational Expenditure			
Routine and Preventative Maintenance	$156,000	$180,000	-$24,000
Refurbishment and Renewal Maintenance	$353,000	$351,000	+$2,000
Fault and Emergency Maintenance	$89,000	$160,000	-$71,000
Total Operational Expenditure	**$598,000**	**$691,000**	**-93,000**

A discussion of the variances in each category is provided below.

Capital Expenditure Variances

Customer Connections (Actual $40,000 vs Budget $24,000)

This increased cost is primarily due to the new McDonalds restaurant built in Dannevirke. Being a customer led expense, this category will always be variable given the size of Scanpowers network and the normally low growth of the district.

System Growth (Actual $14,000 vs Budget $88,000)

Decreased milk solid prices also led to fewer cowshed and irrigation upgrades. It should be noted that in the previous year the actual expenditure was $93,000.00. As with Customer Connections, this category will always be variable and subject to external influence.

Asset Replacement and Renewal (Actual $928,000 vs Budget $1,081,500)

When added with the undergrounding costs, there was no material variation in Budget vs Actual. The ternmination of the undergrounding program as discussed elsewhere resulted in a lower overall cost for Asset Replacements in 2009/10.

Undergrounding (Actual $110,000 vs Budget $0)

This variation is primarily due to budget allocation changes. Previously Undergrounding was included in the Asset Replacement and Renewal category. When combined with the Asset Replacement and Renewal there was no material variation.

Maintenance Expenditure Variances

Routine and Preventative Maintenance (Actual $156,000 vs Budget $180,000)

The variation in cost is primarily due to the fact that less Vegetation Management was required in 2009/10.

Refurbishment and Renewal (Actual $353,000 vs Budget $351,000)

No material variation.

Fault and Emergency (Actual $89,000 vs Budget $160,000)

Restructuring of the Fault and Emergency Service Contract combined with fewer major material component failures resulted in a significantly lower cost for this category.

8.4 Gap Analysis and Identification of Improvement Initiatives

Improving Integrity of Asset Data

As with many other network companies, Scanpower faces the challenge that historical asset records are in certain cases incomplete of inaccurate. Year of installation / age data is an area of particular ambiguity.

In the coming year, the following initiatives will continue to improve the quality of asset data (at a component level):

- Basix Asset Maintenance Management System
- Ongoing audits / physical verification of the network fixed asset register.
- Use of annual line surveys to record all asset data on a hand-held device and reconcile to the GIS (and ultimately financial system).
- Investigation of alternative data warehouse solutions to provide a point of interface between the GIS and financial accounting / fixed asset register records.

Asset management plan improvement

Scanpower actively seeks feedback on the quality, clarity and completeness of its annual asset management planning document. Sources of feedback include:

- Assessments of the plan performed by the Commerce Commission (or their agents).
- Requests for comments from electricity retailers.
- Customers / general public given that the document is made available in the public domain.
- Periodic internal reviews by Scanpower staff and external consultants specifically engaged to improve the quality of the asset management planning document.

Scanpower's goal is to produce an annual asset management plan that continually improves and develops to meet the requirements of all relevant readers / stakeholders. Recent feedback from the Strata Energy Consulting Review of Scanpower's 2008/09 AMP and remedial action is shown below.

Figure 51 – Modifications to the Asset Management Plan following Feedback

Review Ref:	Feedback Comment	Improvement Action	Plan Ref.
3.6D	"A section that links the data systems to the processes would greatly enhance plan readability"	Information flow chart added	Page 24
6.6G	"The AMP….. does not include a 10 year forecast by categorisation in Appendix A of the handbook"	10 year forecast added	Appendix A
9.2A	"Other performance measures identified in the service level section are not reported"	Reporting against Security of Supply standards added	Page 64

Appendix A: 10 Year Expenditure Forecast

	Actual 2009/10	Expected 2010/11	Forecast 2011/12	Forecast 2012/13	Forecast 2013/14	Forecast 2014/15	Forecast 2015/16	Forecast 2016/17	Forecast 2017/18	Forecast 2018/19	Forecast 2019/20	Forecast 2020/21
Capital Expenditure												
Customer Connections	40,000	41,000	36,000	44,000	55,000	66,000	66,000	66,000	66,000	66,000	66,000	66,000
System Growth	14,000	62,000	60,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000
Asset Replacement and Renewal	928,000	1,058,000	811,000	852,000	816,000	894,000	897,000	858,000	867,000	898,000	874,000	874,000
Reliability, Safety and Environment	55,000	68,500	30,500	32,500	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000
Asset Relocations	-	-	-	-	-	-	-	-	-	-	-	-
Total Capital Expenditure	1,037,000	1,229,500	937,500	1,003,500	970,000	1,059,000	1,062,000	1,023,000	1,032,000	1,063,000	1,039,000	1,039,000
Operational Expenditure												
Routine and Preventative Maintenance	156,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000	170,000
Refurbishment and Renewal Maintenance	353,000	360,000	360,000	360,000	360,000	360,000	360,000	360,000	360,000	360,000	360,000	360,000
Fault and Emergency Maintenance	89,000	160,000	160,000	160,000	160,000	160,000	160,000	160,000	160,000	160,000	160,000	160,000
Total Operational Expenditure	598,000	690,000	690,000	690,000	690,000	690,000	690,000	690,000	690,000	690,000	690,000	690,000
Total Direct Expenditure on Network	1,635,000	1,919,500	1,627,500	1,693,500	1,660,000	1,749,000	1,752,000	1,713,000	1,722,000	1,753,000	1,729,000	1,729,000
Overhead to Underground Conversion	110,000	-	-	-	-	-	-	-	-	-	-	-