Scanpower Limited

Asset Management Plan

April 2007 – March 2017

Period Covered: 1 April 2007 to 31 March 2017
Version: For Release
Issued: July 2007

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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 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 and the Revised Information Disclosure Requirements 2006 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 plan was completed by 31 July 2007 and approved by Scanpower's Board of Directors during August 2007, prior to public release on 31 August 2007.

This asset management plan relates to the period 1 April 2007 to 31 March 2017.

The plan is reviewed and restated on an annual rolling basis. The next plan will be available by 30 June 2008 and will cover the period 1 April 2008 to 31 March 2018.

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.

To manage asset and network related information, Scanpower uses a number of systems. These include:

- *Critchlow "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, 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 both 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

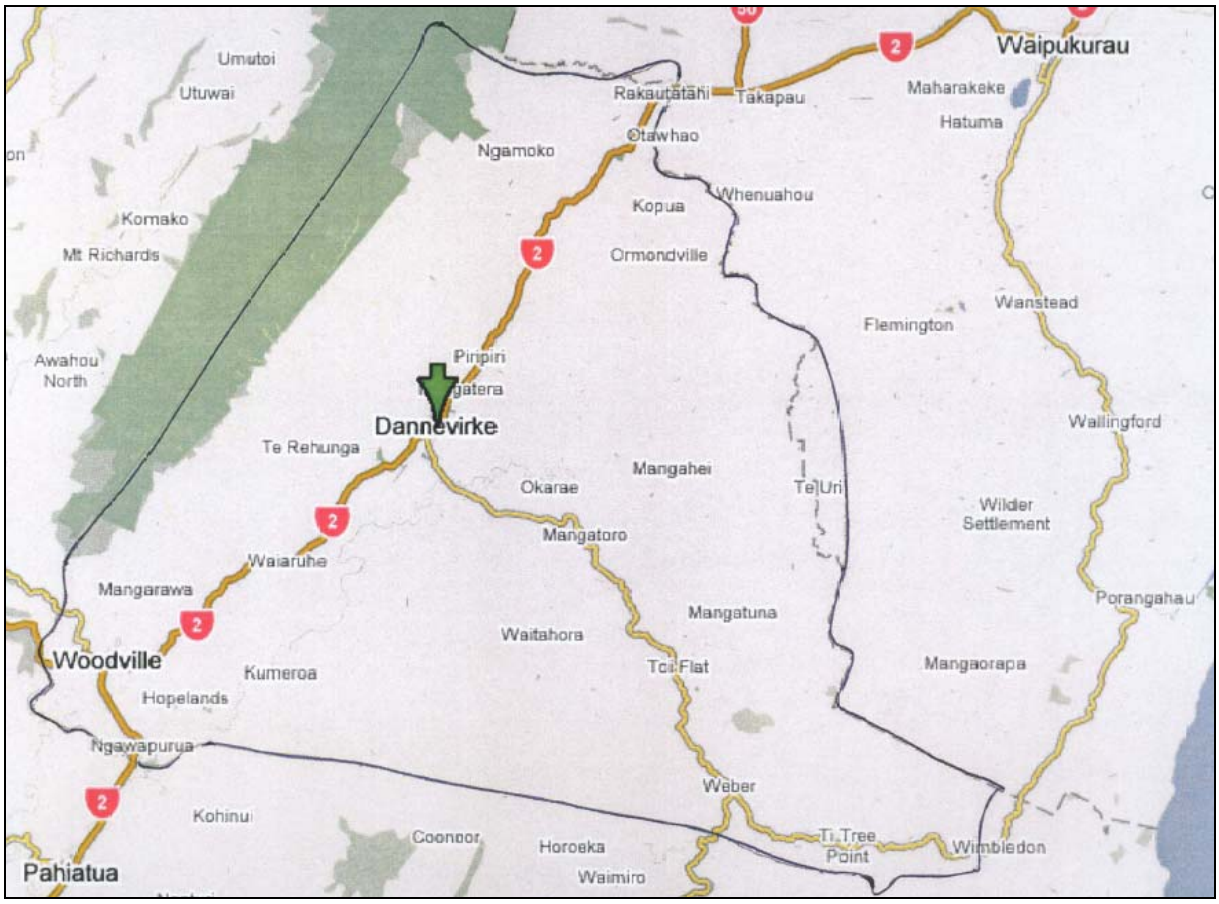
feeder loadings, operation of remote control equipment on the network and load control information.

All information systems are owned and operated by Scanpower network staff.

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 with the black boundary line per the map below).

Figure 1 – Geographic Area Covered by Scanpower Network



The network comprises 870.9 km of lines which consists of both aerial and underground services. 6,686 ICPs are supplied across the network with maximum demands now in the 17 – 18 MW range.

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

The Scanpower network has no 33kV sub transmission system and distribution lines operate at 11 kV / LV. For this reason the company has no zone substation assets.

A network asset revaluation exercise was undertaken as at the financial 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.

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 $19,823,274.

As at 31 March 2007 the net book value of the network assets is $22,718,270.

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 2006 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. One customer did however indicate a potential interest in paying more for increased reliability, however this customer is near the end of a rural feeder making increased security cost prohibitive. Therefore there are currently no non-standard agreements to provide a service level beyond that of **n** security.

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 has initiated a network automation programme involving the replacement of manually operated air break switches with remote controlled circuit breakers, sectionalisers and air break switches.

In addition to this, Scanpower has continued to focus on improving supply reliability by splitting and reconfiguring two more main feeder circuits supplying power from the Dannevirke GXP during 2006/2007 and will complete this work during the period 2007/2008.

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 2007 / 2008 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. The following table shows SAIDI and SAIFI performance results for the previous five years in comparison to target.

Figure 2 – Summary Service Level Objectives and Previous Results (2003 – 2008)

MEASURE	2008	2007	2006	2005	2004	2003
SAIFI (Class B&C)						
Target	0.92	0.92	0.92	0.92	0.92	1
Actual		0.84	0.98	0.83	1.67	0.75
Variance		●	●	●	●	●
SAIDI (Class B&C)						
Target	82.93	82.93	82.93	82.93	82.93	150
Actual		46.67	68.59	71.31	185.20	82.03
Variance		●	●	●	●	●

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

A more detailed analysis of reliability performance is provided in **Section 7.1** (Evaluation of Performance.

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.

Financial Performance

In terms of financial performance, Scanpower reviews actual versus budgeted capital and maintenance expenditure on a monthly basis. The table provided below shows the consolidated 2007 annual financial result in respect of these expenditure categories. Again more detailed performance analysis and explanation of variances is provided in Section 7.1 (Evaluation of Performance). Also provided below is the detailed capital expenditure budget for the 2008 year, and a summary of Scanpower's ten year capital replacement programme.

Figure 3 – Financial Analysis 2006 / 07

2006 / 2007 FINANCIAL PERFORMANCE	2006/2007 ACTUAL	2006/2007 PLAN
CAPITAL EXPENDITURE		
11 kV Line Reconstruction	$398,762	$466,016
LT Replacement & Undergrounding	$263,860	$375,181
Transformer Replacements	$158,388	$147,800
Switchgear / Automation	$53,165	$151,950
Load Control	$100,239	$152,950
Unplanned Capital Expenditure	$45,784	$0
TOTAL CAPITAL EXPENDITURE	**$1,020,198**	**$1,293,647**
MAINTENANCE EXPENDITURE		
Distribution Maintenance	$205,627	$250,000
Faults Maintenance	$119,263	$145,000
Non Line Asset Maintenance (including tree clearance)	$278,027	$330,000
TOTAL MAINTENANCE EXPENDITURE	**$602,917**	**$725,000**
TOTAL NETWORK EXPENDITURE	**$1,623,115**	**$2,018,647**

Budgeted capital expenditure for the coming year is as follows:

Figure 4 – Planned Capital Works / Development Initiatives 2007 / 2008 and Budgets

Scanpower Category	Description	2007/08 Budget
11kV Line Reconstruction	*Dannevirke East Fdr (Sub to Makirikiri)*	$150,000
	Weber Fdr (Sub to Te Rehunga North)	$50,000
	Te Rehunga Fdr (Sub to ABS 185)	$55,000
	Te Rehunga Fdr (ABS 48 to Ross Rd & T668 to Maharahara)	$82,000
	Mangatera Fdr (2.4 km before Matamau)	$95,000
	Trafalgar St	$12,000
		$444,000
Undergrounding LT Supplies	*Trafalgar St (cont from 2006)*	$65,000
	Service Lanes (Ward & Station Sts)	$45,000
	Tennyson St	$130,000
	Manila St	$48,000
	Madrid St	$65,000
	Stanley St	$41,000
		$394,000
Transformer Replacement	*Aged based replacements, new supplies, unit failures*	$150,000
		$150,000
Switchgear / Automation	*Manual ABS's*	$11,000
	Radio Gear	$25,000
	SCADA Backup	$25,000
		$61,000
Other Capital Projects	*Woodville substation recabling project*	$140,000
	Woodville load control injection plant	$300,000
	Woodville area ripple relays	$190,000
		$630,000
Non Line Assets	*Plant & Tooling*	$30,000
	Vehicle Replacement (4WD 3L Diesel)	$45,000
	Network Laptop	$3,500
		$78,500
TOTAL CAPITAL BUDGET		**$1,757,500**

Budgeted maintenance and capital expenditures are as follows:

Figure 5 – Budgeted Maintenance Expenditure 2007 / 2008

MAINTENANCE EXPENDITURE	2007 / 08 Budget
Distribution Maintenance	$250,000
Faults Maintenance	$100,000
Non Line Asset Maintenance (including vegetation management)	$195,000
	$545,000

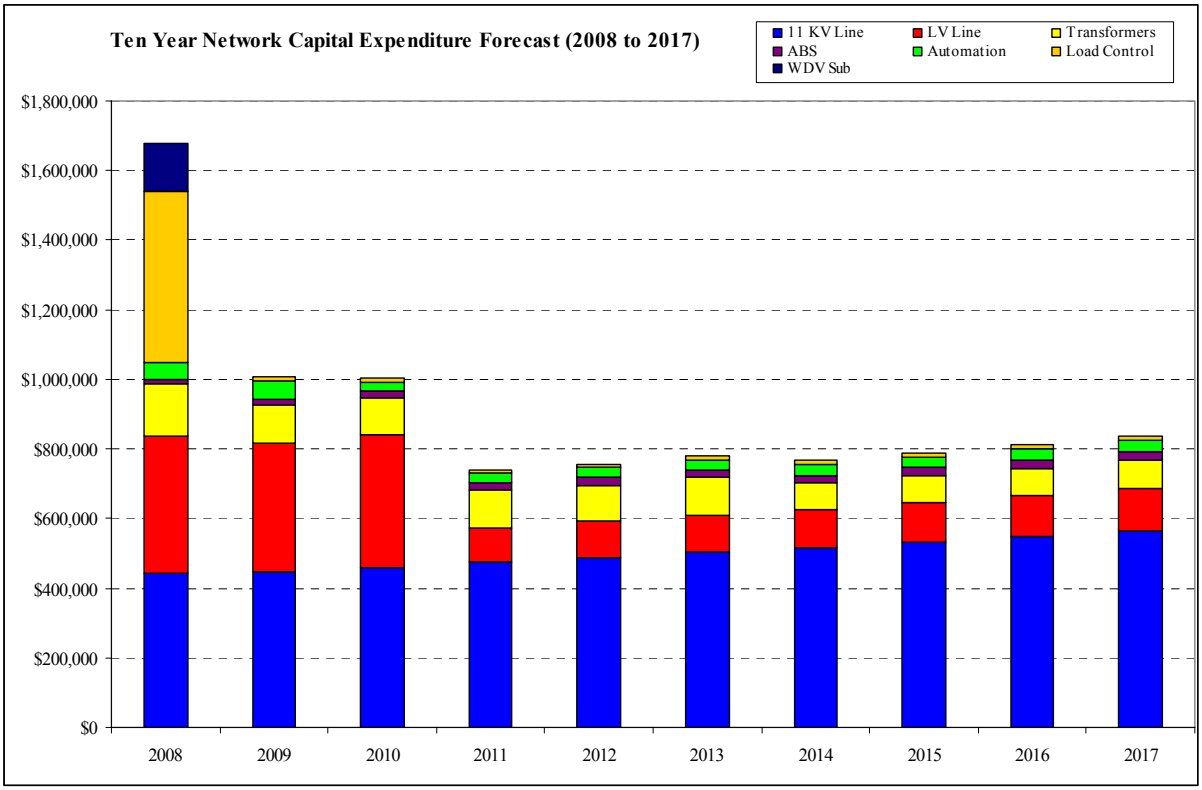
Planned capital expenditure for the coming ten year period is as follows:

Figure 6 – Summary Ten Year Capital Expenditure Plan (2008 to 2017)

Year	11 KV Line	LV Line	Transformers	ABS	Automation	Load Control	WDV Sub	Total
2008	$444,000	$394,000	$150,000	$11,000	$50,000	$490,000	$140,000	**$1,679,000**
2009	$446,870	$370,054	$108,150	$19,321	$51,500	$10,000	$0	**$1,005,895**
2010	$460,276	$381,155	$105,001	$19,708	$26,523	$10,300	$0	**$1,002,963**
2011	$474,084	$100,000	$108,151	$21,000	$27,319	$10,609	$0	**$741,163**
2012	$488,306	$103,000	$105,002	$21,420	$28,138	$10,927	$0	**$756,793**
2013	$502,956	$106,500	$108,152	$21,848	$28,982	$11,255	$0	**$779,693**
2014	$518,044	$109,695	$75,000	$22,503	$29,851	$11,593	$0	**$766,686**
2015	$533,586	$112,986	$77,250	$23,179	$30,747	$11,941	$0	**$789,689**
2016	$549,593	$116,375	$79,568	$23,874	$31,669	$12,299	$0	**$813,378**
2017	$566,081	$119,866	$81,955	$24,590	$32,619	$12,668	$0	**$837,779**

A graphical representation of this data is provided below.

Figure 7 – Graphical Representation of Ten Year Capital Expenditure Plan 2008 to 2017



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 aging assets which have reached the end of their useful life.
- Installation of remote controlled 11kV sectionalisers and air break switches 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 are 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 aging 11kV and 400v overhead lines.
- Split and reconfigure two 11kV main feeders from Dannevirke substation.
- Transformer replacement.
- Air break switch replacement.
- Recabling at Woodville substation.

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 Introduction

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 is aimed to document processes that ensure that Scanpower's asset management strategy considers customer's need 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 designated to ensure:

- The network assets meet customer's 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 and the Revised Information Disclosure Requirements 2006 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

Scanpower undertakes several levels of business planning and these are as follows:

- *Strategic Plan*

  The Strategic Plan covers the medium to long term planning horizon (ten years) and specifies the company vision and mission, in addition to specifying long term objectives. At a corporate level, Scanpower's strategic goals are:

  - *"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"*

- *Asset Management Plan*

  The Asset Management Plan (AMP) is derived from the Strategic Plan and represents the ten year operating plan for the network division, setting out operational and financial targets. The focus of the AMP is to deliver on the first three strategic objectives identified above and the associated performance objectives.

- *Annual Business Plan*

  The Annual Business plan is derived from the Asset Management Plan, and contains implementation details, project plans and full financial budgets relating to initiatives planned to occur during the financial year.

- *Annual Budgets*

  Annual budgets are a subset of the annual business planning process. They form the basis for management accounting and reporting processes.

2.3 Planning Periods Adopted

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

Figure 8 – Business Planning Periods and Review Frequency

Plan	Period Covered	Review Frequency
Strategic Plan	10	Annually Rolling Basis
Asset Management Plan	10	Annually Rolling Basis
Annual Business Plan	1	Annual
Annual Budgets	1	Annual

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 9 – 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 and 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
  - Inland Revenue

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. This agreement is renegotiated on an annual basis.

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 were 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 financial and operational viability.

- *Supply Quality*

  Maintaining supply quality, with the limitations imposed by the previous to priorities, 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.

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 below. There are two main groups within the team; four staff involved in planning, design and control room operation, and a larger contracting group responsible for completion of physical works.

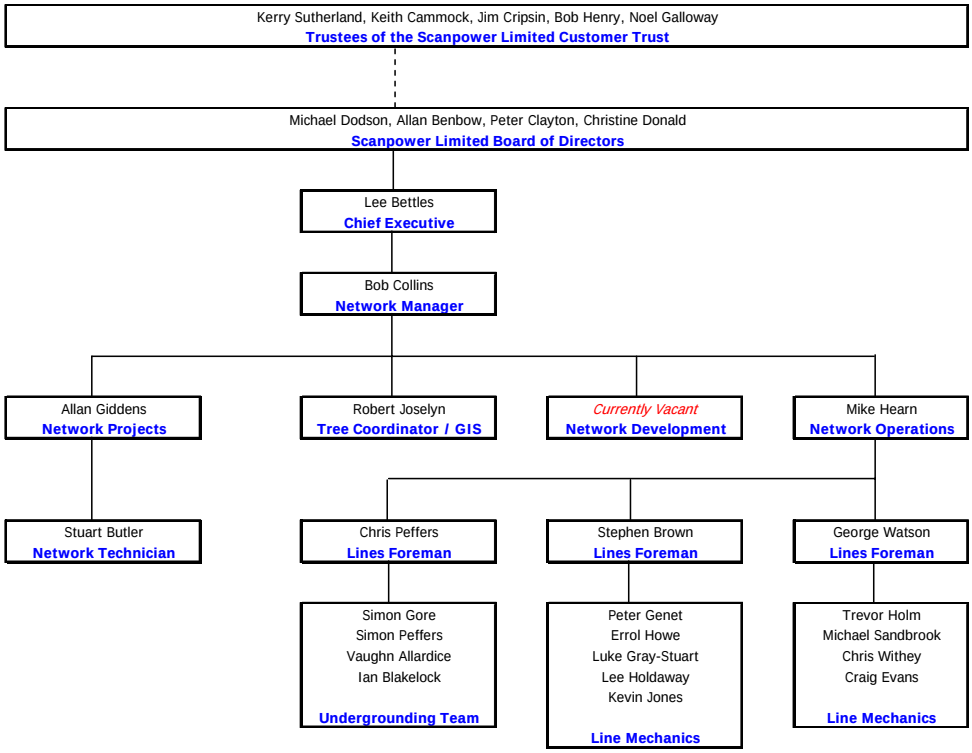
The contracting team also undertakes work for external clients, including customers, property developers, other networks and Telecom.

Whilst the majority of line work is undertaken by the in-house team, Scanpower periodically uses external contractors for certain specialised work.

In recent years, Electrix have been engaged to undertake live line installation of new remote control air break switches, and Facilities Management Systems were contracted to install and commission the new radio repeater site.

As Scanpower has now developed an internal glove-barrier live line team, it is not anticipated that external contractors will be used for live-line work in the coming year. Facilities Management Systems have an ongoing contract with the Company to provide maintenance

Figure 10 – Scanpower Network Organisational Structure



2.6 Asset Management Systems and Processes

Scanpower operates a number of asset management related information systems and processes. The summary details of these are as follows:

Figure 11 – Information Systems and Processes

System / Process Name	Details
Geographic Information System	Critchlow "cablecad" system Stores locational information on all network assets in graphical format
Customer Connection Database	N.C.S. customer database system Contains connection information by ICP Used to generate new connections / ICPs Source of network billing information N.C.S. financial systems
Asset Databases	Store attributes, age and condition information at component level Used as basis for programmed preventative maintenance Basis for financial / ODV exercises
Outage Database / Process	Process specified for accurate and detailed recording of network outages. Database operates as repository for outage data and calculation of SAIDI, SAIFI and CAIDI
SCADA System Electronic Records	Stores information on feeder loadings, trip events etc Load control records
Proprietary / Project Databases	Linked to particular project activities such as tree trimming etc
Annual Customer Consultation	Consultation on available price and quality trade off options with customers; directly with large customers and via the Scanpower Customer Trust for residential and small commercial customers.

Scanpower network policies and related processes are formally documented and cover areas such as Outage Reporting, Capital vs Maintenance, and Health & Safety. These are readily available to both staff and contractors.

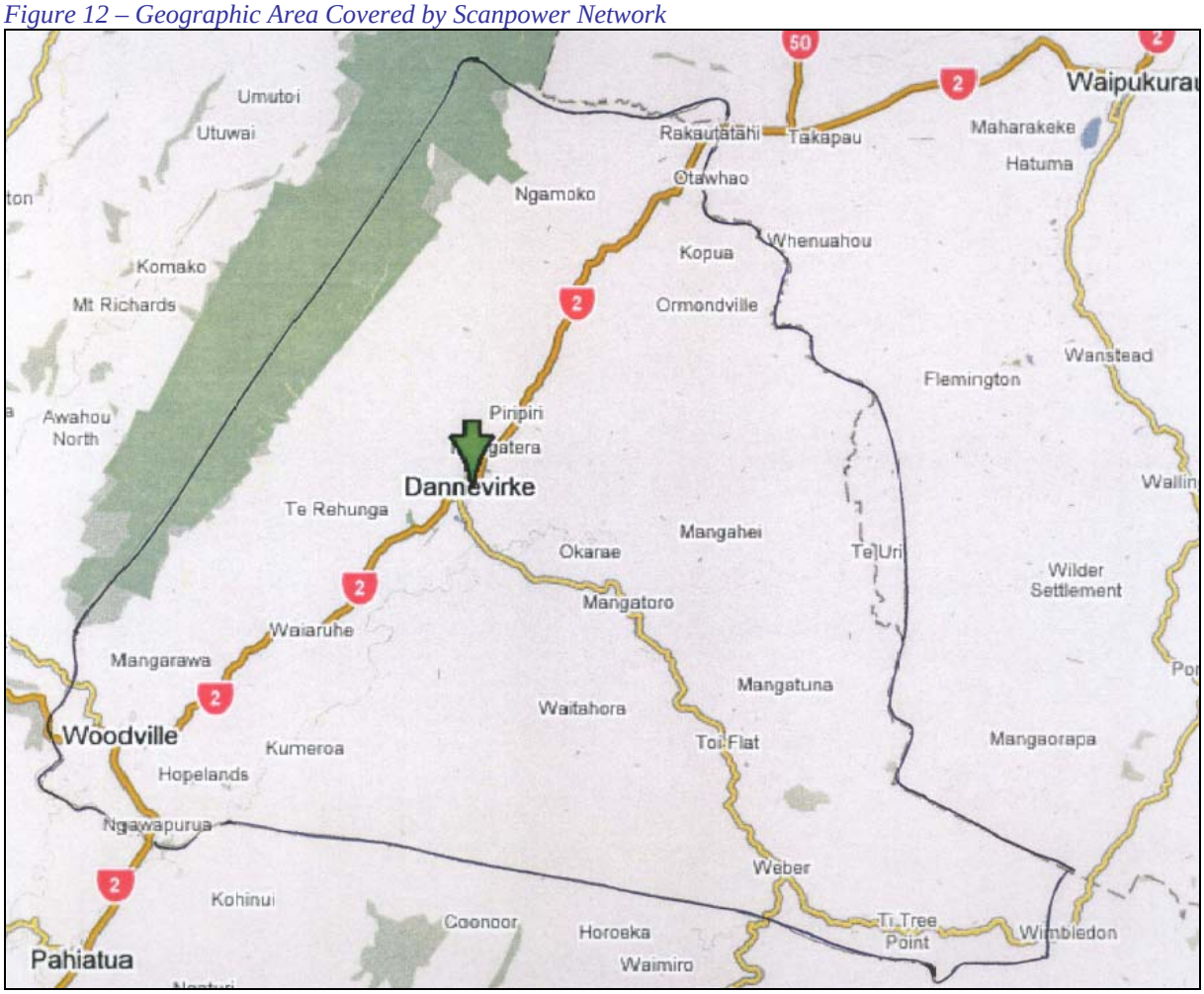
3.0 Assets Covered

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 12 – Geographic Area Covered by Scanpower Network



Demographic Context

Population numbers in the Tararua District has 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. This population trend has been reflected in the number of energised ICPs on the network (2005: *6750 ICPs*. 2007: *6692 ICPs*).

[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*

However, the annual volume of electricity distributed across the network has continued to increase, albeit at a relatively slow pace. This increase has, in recent years, been driven by an escalating number of dairy farming conversions and the construction of a new meat processing facility in Dannevirke.

Given the combination of these two factors, future load forecasts (detailed later in the document) are very conservative at 200 kVA.

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 another viable local land uses.

On an annual basis, 35-40% of total electricity distributed is used by a small number of industrial customers. These include:

- Two meat processing / freezing works
- A timber mill
- A textiles yarn and dye plant
- A knitting / clothing manufacturing facility
- Several light engineering works
- A major regional broadcast repeater station

The loss of anyone of these major customers would have a significant impact on Scanpower's network business. In this regard, the Company continues to watch with interest the possible merger of the PPCS and Alliance meat companies.

3.2 Network Configuration Details

Scanpower has electricity distribution network assets with a maximum demand in the range of 15 - 16MW and a total system length of 870.9 kilometres. Total connections number approximately 6,686 and for the year ended March 2007 97.1 GWh was injected into the network with an overall average loss factor of 6.76%.

The network serves two main areas – Dannevirke, Woodville and their surrounding rural areas. Bulk supply is taken from Transpower's 110 kV Bunnythorpe/Fernhill lines via two 110/11 kV substations at Dannevirke and Woodville.

The system is of relatively straightforward design. There are two Transpower points of supply, one at Dannevirke substation and one at Woodville substation, each supply separate non-interconnected parts of the Scanpower system.

There is currently no generation on the system, with the exception of several small microgeneration schemes (capacity not exceeding 10kW).

The Dannevirke Transpower point of supply has parallel 110/11 kV 20 MVA transformers, giving a firm supply of 20 MVA compared with a maximum demand of some 13.5 MW.

The Transpower transformers consist of 2 three phase units. Transformer circuit breakers are remotely switched from Transpower's Haywards substation.

Woodville has a single 110/11 kV 4.5 MVA transformer in a single phase bank format with a spare unit on site.

The wide separation between the two points of supply means there is no interconnection between the two supply areas for emergency interconnection or back up purposes. Interconnection of the two systems has been investigated but at present there are no plans for this to proceed. Eight 11 kV feeders radiate from the Dannevirke point of supply. The following table summarises the key details of each of these:

Figure 13 – Dannevirke 11 kV Feeder Configuration (at 31 March 2007)

11 kV Feeder	kWh pa	Description
Pacific	19,803,835	Rural feeder, predominantly servicing industrial load
Weber	10,710,731	Longest feeder servicing eastern extremity
Adelaide Road	12,153,036	Urban feeder into Dannevirke
Dannevirke East	11,062,515	Urban feeder into Dannevirke
Dannevirke Central	7,152,197	Urban feeder into Dannevirke
Mangatera	8,261,946	North Eastern rural area feeder
Te Rehunga	5,355,366	Southern rural area feeder
North	7,014,317	Northern rural area feeder
	81,513,942	

The Woodville point of supply supports:

Figure 14 – Woodville 11 kV Feeder Configuration (at 31 March 2007)

11 kV Feeder	kWh pa	Description
Town 1	6,372,456	Urban feeder into Woodville / Eastern rural area
Town 2	5,168,408	Urban feeder into Woodville / Western rural area
Country	4,071,207	Rural feeder to north of Woodville
	15,612,071	

The LV network system consists of 117.2 km of lines, 50.0 km of which have now been installed underground.

In regard to Scanpower's low voltage network, the company has pursued a policy of undergrounding in the urban Dannevirke and Woodville areas. This has been on the basis of aesthetic and reliability grounds, and conforms to the NZ Standard Code of Practice for Urban Subdivisions NZS 4404.

This policy will continue until such time as urban LV undergrounding is complete, or if as the result of annual review the policy is amended. Network system maps are provided as an appendix to this Asset Management Plan.

3.3 Identification of Assets by Category

Network assets are categorised as follows:

- 11kV Distribution Lines and Conductor
- LT Distribution Lines and Conductor
- Circuit Breakers/Sectionalisers/ Reclosers
- Distribution Transformers
- Communications (ripple control / SCADA)

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 of the discrete sizes of many classes of components.

- 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.

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. This ratio is sufficiently close to 1 to indicate a high level of asset justification.

3.5 Location, Age and Condition of Assets

3.51 11 kV Distribution Lines and Conductor

Scanpower has 753.7 km of 11kV distribution lines, 748.2 km of which is overhead and the remaining 5.5 km underground.

Of the 748.2 km overhead 11kV lines, 400.1 km of line is of concrete pole construction and 348.1 km of hard wood pole construction.

The Company has adopted a policy of replacing wooden poles with pre-stressed concrete poles, thereby extending typical life from 45 years to 60 years.

As loads on the Scanpower network are relatively low, 11kV conductor sizes are either "Light" (standard conductor - Ferret) or "Medium" (standard conductor - Dog) per ODV Handbook definitions. There is no "Heavy" conductor used on the system.

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

Figure 15 – Composition of 11kV Line Assets by ODV Handbook Category

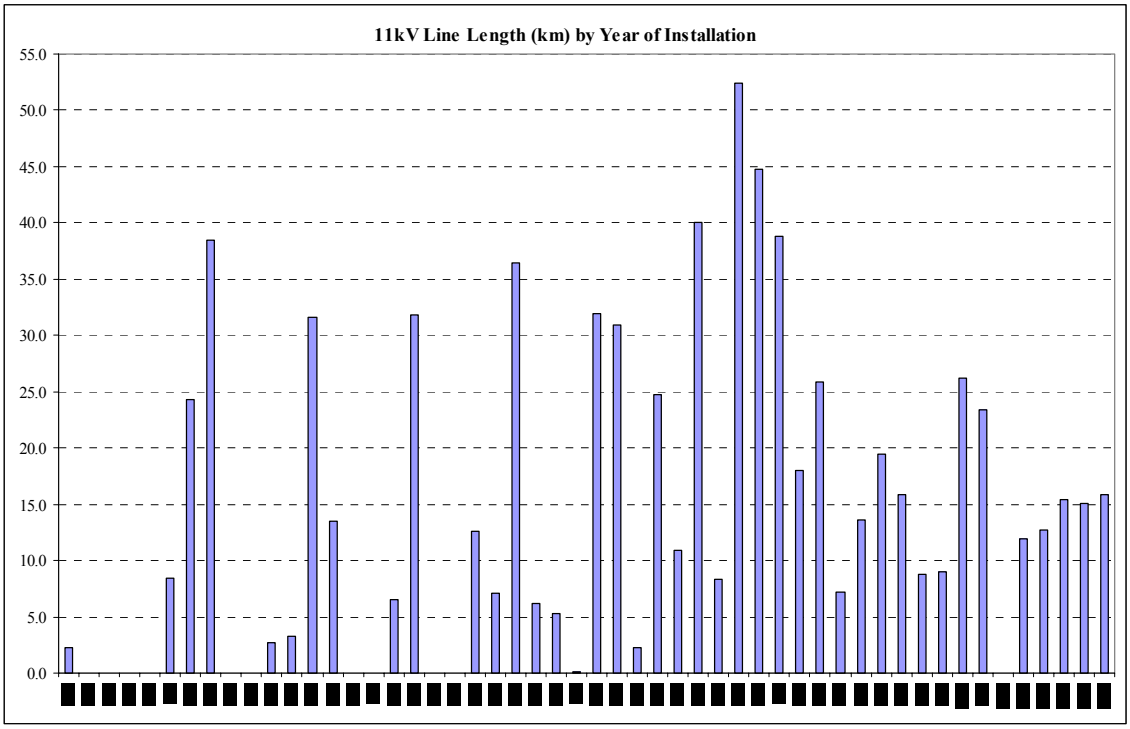
11kV DISTRIBUTION LINE ASSETS	Quantity (KM)
Distribution Lines 11kV O/H DCct Medium	5.6
Distribution Lines 11kV O/H Light (≤ 50mm2 Al)	592.1
Distribution Lines 11kV O/H Medium (>50mm2, <150mm2 Al)	147.8
Distribution Lines 11kV Single Phase or SWER Lines	2.8
Distribution Lines 11kV U/G Light (≤ 50mm2 Al)	3.7
Distribution Lines 11kV U/G Medium (>50mm2, ≤ 240mm2 Al)	1.8
	753.7

The following graph illustrates the age profile of 11kV distribution line assets shown by length per year of installation.

The profile is generally healthy, with 1985 being the average year of installation, and hence the average age being 22 years.

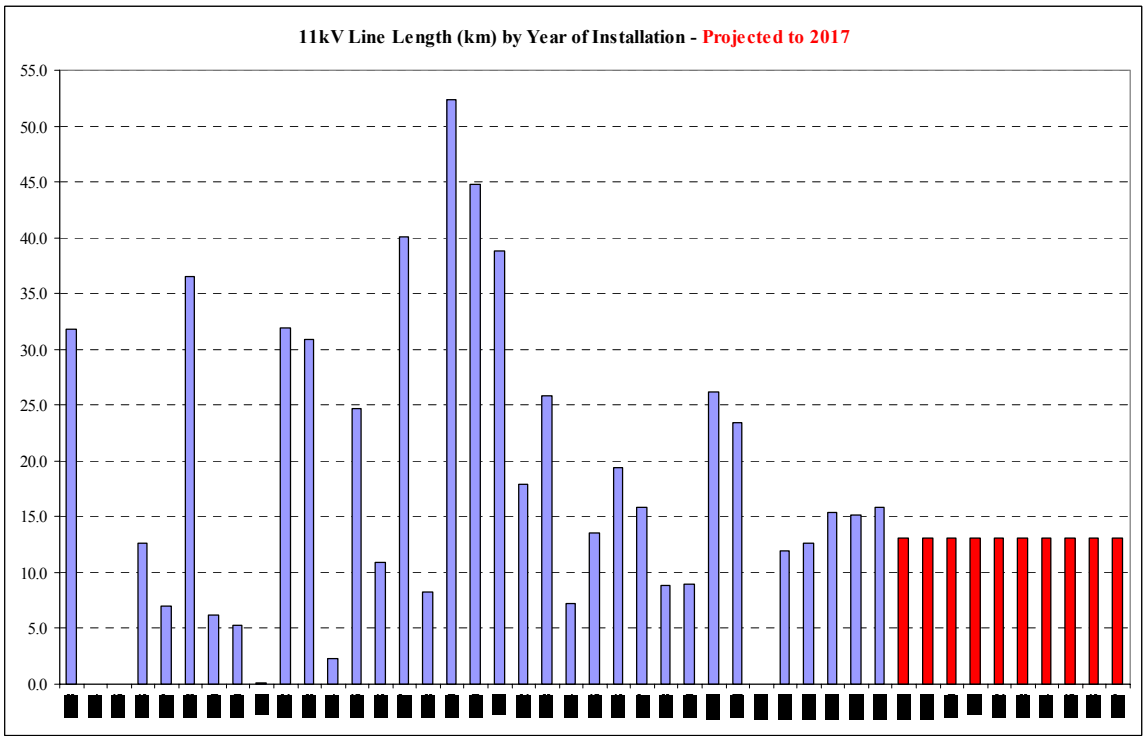
Furthermore, there are a number of replacement "peaks" approaching reflecting the rapid growth of the network in the 1960's; most notably in 1961 and 1962 when 72.5km of line was installed over a two year period.

Figure 16 – Age Profile of 11 kV Distribution Lines at at 31 March 2007



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.

Figure 17 – Forecast Age Profile of 11 kV Distribution Lines to 2017 Based on Replacement Plan



As is evident, the work completed in the past year is consistent with the required replacement trend going forward.

3.52 LV / 400 V Distribution Lines and Conductor

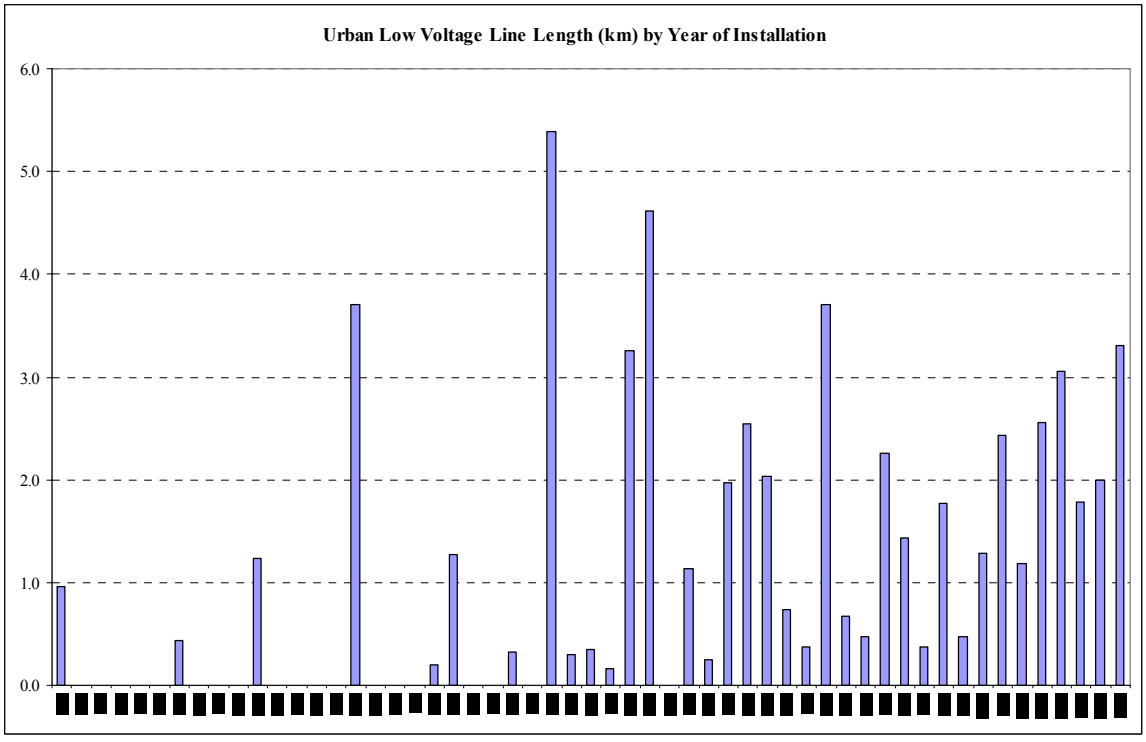
Scanpower has 117.2 km of low voltage distribution lines. All customers on the network take supply at LV with the exception of one which takes supply at 11kV. LV line assets are categorised as at 31 March 2006:

Figure 18 – Composition of LV Line Assets by ODV Handbook Category

LV DISTRIBUTION LINE ASSETS	Quantity (KM)
LV Lines Overhead Medium LV Only (≤150mm2)	5.4
LV Lines Overhead Medium Underbuilt (≤150mm2)	61.8
LV Lines - Underground - LV Only (≤240mm2)	50.0
	117.2

The age profile of urban LV distribution lines is as follows:

Figure 19 – Age Profile of LV Urban Distribution Lines at 31 March 2007



As the age profile suggests, urban low voltage lines are in generally modern condition with an average age of 18 years old (average year of installation 1989).

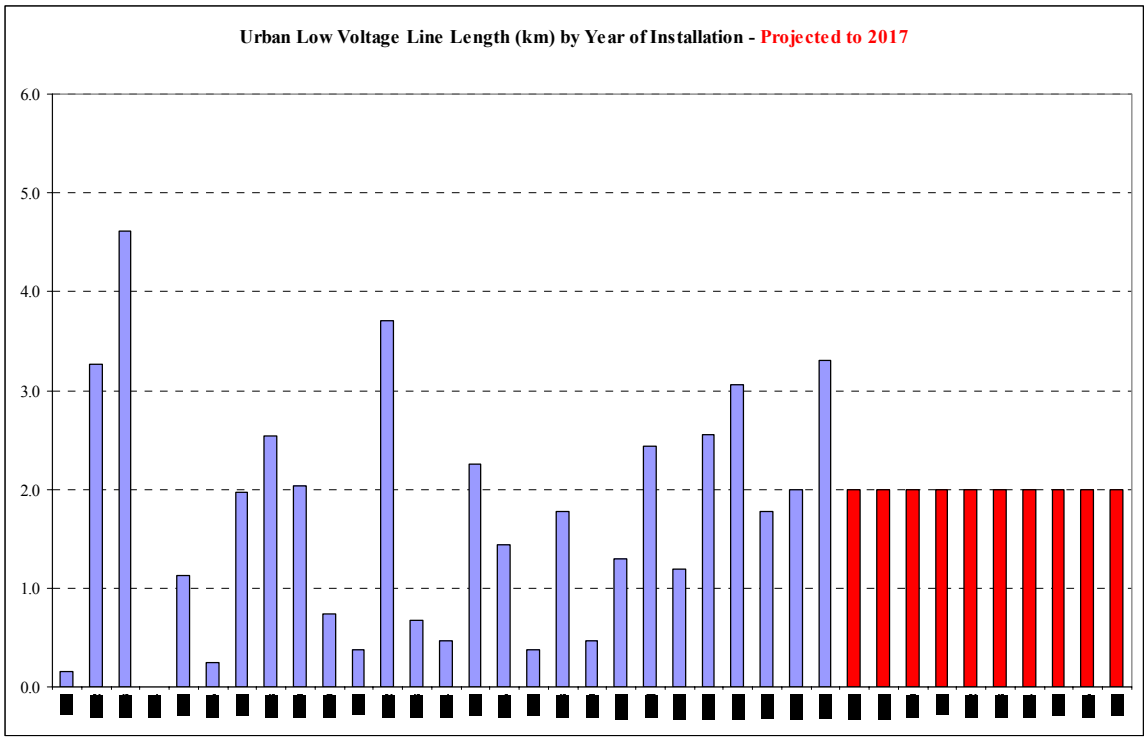
Scanpower is progressively working to complete undergrounding of all urban low voltage distribution lines. This is on the basis of environmental grounds and to conform to NZ Standard Code of Practice for Urban Subdivisions NZS 4404.

Undergrounding is undertaken in conjunction with the Council road sealing programme and is also co-coordinated with Telecom undergrounding initiatives.

Low voltage undergrounding cables are single core Beetle aluminium PVC insulated unarmoured cables. Cables are buried 600mm deep under plastic slab protection. All joints are above ground in distribution pillars.

The expected requirement to replace assets constructed in the 1950's and early 1960's over the coming ten years has produced a future annual replacement plan of ~2km overhead per year. This gives the following forecast age profile to 2017:

Figure 20 – Forecast Age Profile of LV Urban Distribution Lines to 2017



3.53 Circuit Breakers / Reclosers

Circuit Breakers / Reclosers

Scanpower has 21 circuit breakers; nineteen are presently installed on the network and two are in stock having been removed when the new Te Rehunga circuit breaker was installed. 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 require replacement prior to 2017.

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

Figure 21 – Circuit Breaker Asset Summary at 31 March 2007

OCB No.	Feeder Name	Sub No.	Location	Type	Installed	Age
CB1	Pacific	3060	Richmonds Oringi No 1 Incomer OCB	AEI	1978	29
CB2	Pacific	3060	Richmonds Oringi No 2 Incomer OCB	AEI	1978	29
CB3	Pacific	3060	Richmonds Oringi Killing Floor OCB	AEI	1978	29
CB4	Pacific	3060	Richmonds Oringi No 1 Plantroom OCB	AEI	1978	29
CB5	Pacific	3060	Richmonds Oringi No 2 Plantroom/Boning Room	AEI	1978	29
CB6	Pacific	3060	Richmonds Oringi Pumps OCB	AEI	1978	29
CB7	Country	B200	Hopelands Road - by bridge	Cooper	2003	4
CB8	Town 2	A040	Bushmill Road, Woodville	Cooper	1999	8
CB9	Te Rehunga	4040	Kiritaki Road	Cooper	1999	8
CB10	North	1080	Gundries road, Norsewood	Cooper	1999	8
CB11	Weber	4240	Weber Road, Weber	Cooper	1999	8
CB12	North	1060	SH2 Matamau	Cooper	1999	8
CB13	Mangatera	2100	Matamau/Ormondville Rd, Matamau	Cooper	1999	8
CB14	Mangatera	2160	Ormondville Metal Pit	Cooper	2000	7
CB15	Weber	4160	Millers Road	Cooper	2000	7
CB16	Weber	4180	Mangahei Road, Awariki	Cooper	2000	7
CB17	Mangatera	2060	Smith Road	Nulec	2000	7
CB18	Country	B140	SH2 Woodville	Nulec	2000	7
CB19	Weber	4160	Weber Road, Tipapakuku	Nulec	2000	7
CB21	Stores	Stores	Stores	Nulec	2000	7
CB22	Stores	Stores	Stores	Nulec	2000	7

Sectionalisers

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

Figure 22 – Sectionaliser Asset Summary at 31 March 2007

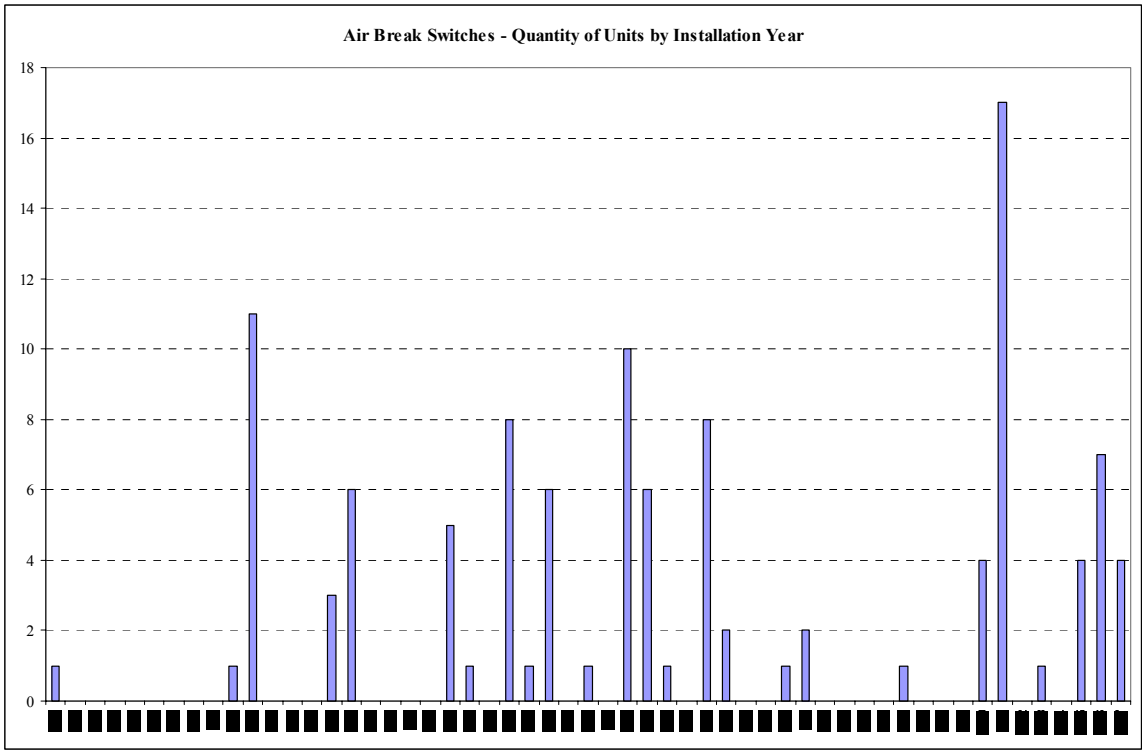
Asset #	Type	Sub Number	Location Detail	Feeder	Installed FY Ending	Age
SC1	Cooper	P26	Oxford Road, WDV	Country	2006	1
SC2	Cooper	P45	Otope Road	Weber	2004	3
SC3	Cooper	P76	Lincoln Bend	Weber	2004	3
SC4	Cooper	P77	Ti Tree Point	Weber	2004	3
SC5	Cooper	P149	Normanby Street, WDV	Town 1	2006	1
SC6	Cooper	P157	Weber Rd, Waitahora	Weber	2004	3
SC7	Cooper	P177	Motea	Weber	2006	1
SC8	Cooper	P925	Te Uri Road, Mangahei	Mangatera	2004	3

Air Break Switches

Scanpower has a manual air break switch population of 112 with an average age of 22 years. During the previous year four manual units were replaced.

The following graph shows the age profile of air break switch assets.

Figure 23 – Air Break Switch Age Profile at 31 March 2007

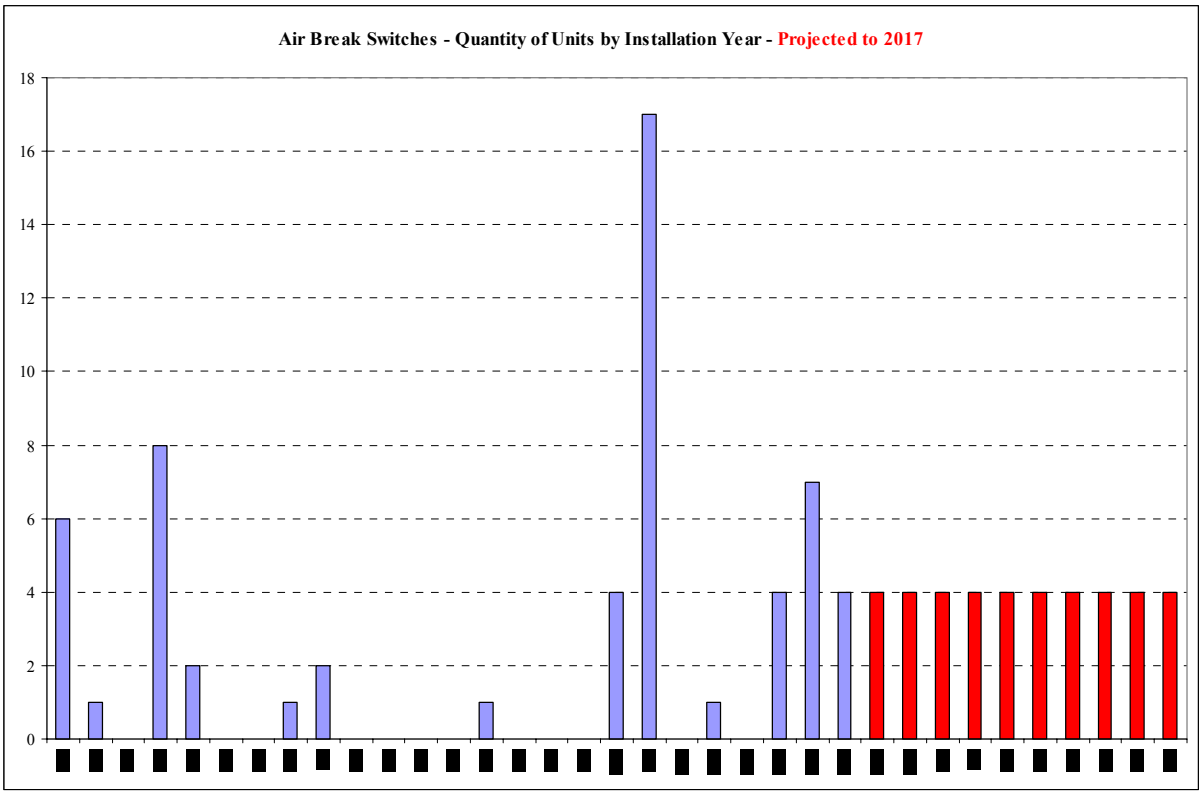


As with the 11kV line asset profile, rapid expansion in the 1960's is mirrored in the ABS age profile.

As with previous asset categories, a ten year replacement programme has been devised which smoothes these investment peaks, whilst minimising timing risks and taking into account anticipated failure rates.

The graph below (figure 24) shows the forecast ABS profile over the coming ten year period.

Figure 24 – Air Break Switch Age Profile to 2017



In addition to manual ABS replacement, Scanpower has instigated a programme of installing strategically placed remote controlled ABS's which can be operated from the Scanpower Control Room. As of 31 March 2007 18 of these units had been installed as part of Scanpower's network development process.

Figure 25 – Remote Air Break Switch Asset Summary at 31 March 2007

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

3.54 Transformers

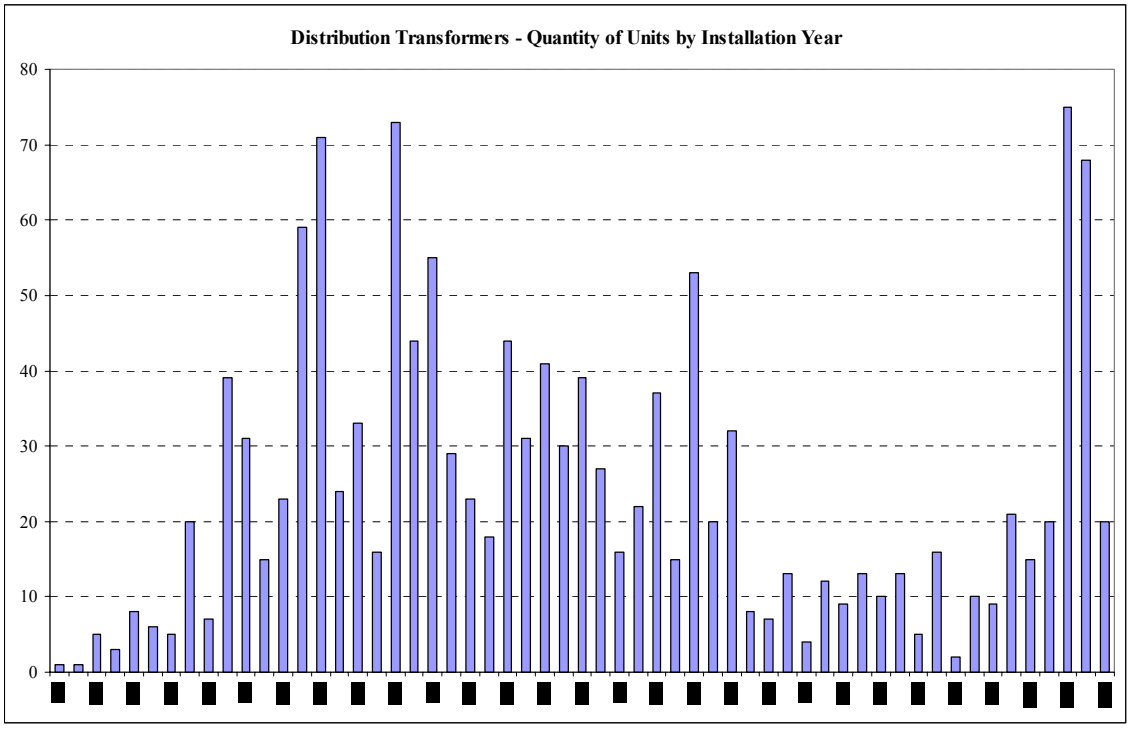
Scanpower has a distribution transformer population of 1,347 units (excluding spares) ranging from 2kVA to 1,000kVA capacity. The total installed capacity is 65,141 kVA with a capacity utilisation rating of 27.03%. The units are oil immersed 11kV / 400V fixed tap transformers.

Figure 26 – Breakdown of Distribution Transformer Assets at 31 March 2007

DISTRIBUTION TRANSFORMER ASSETS	Quantity
11 / 0.4kV Single Phase Unit 30 kVA	16
11 / 0.4kV Single Phase Unit Up To And Including 15 kVA	59
11 / 0.4kV Single Phase Unit Up To And Including 15 kVA (Pole Mounted - Bushing Terminations)	4
11 / 0.4kV Three Phase Unit 100 kVA (Pole Mounted - Bushing Terminations)	28
11 / 0.4kV Three Phase Unit 1000 kVA (Customer Premises)	7
11 / 0.4kV Three Phase Unit 200 kVA (Cable Entry)	64
11 / 0.4kV Three Phase Unit 200 kVA (Pole Mounted - Bushing Terminations)	7
11 / 0.4kV Three Phase Unit 300 kVA (Cable Entry)	17
11 / 0.4kV Three Phase Unit 300 kVA (Pole Mounted - Bushing Terminations)	10
11 / 0.4kV Three Phase Unit 50 kVA (Pole Mounted - Bushing Terminations)	71
11 / 0.4kV Three Phase Unit 500 kVA (Cable Entry)	4
11 / 0.4kV Three Phase Unit 750 kVA (Cable Entry)	4
11 / 0.4kV Three Phase Unit Up To And Including 30 kVA (Pole Mounted - Bushing Terminations)	1,056
Total	**1,347**

As is evident, the majority of Scanpower transformer assets fall into the three phase, pole mounted up to 30kVA category.

Figure 27 – Distribution Transformer Asset Age Profile at 31 March 2007

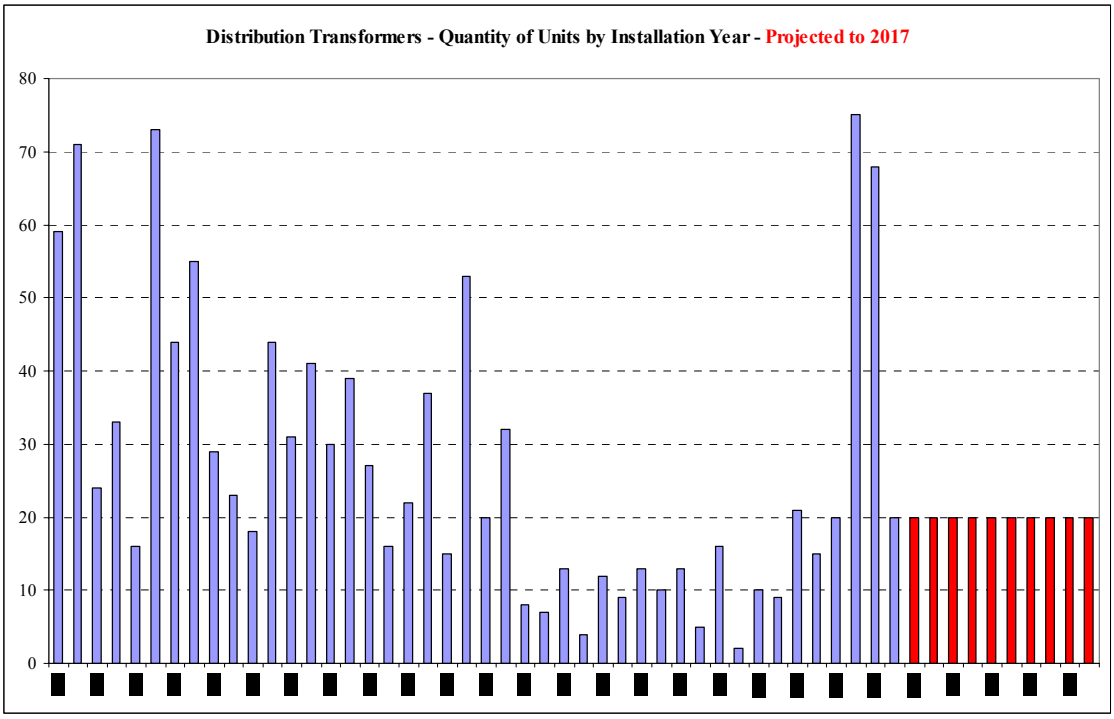


The current average transformer age is 27 years, which is consistent with the position at 31 March 2006. Based on handbook standard asset life of 45 years, this places the transformers on the older side of mid point.

The following graph (Figure 28) illustrates the ten year forecast replacement position through to 2017.

Again, as is evident from the graph, the intention of the plan is to smooth capital expenditure levels and operational activity over the period.

Figure 28 – Forecast Distribution Transformer Asset Age Profile to 2017



3.55 Communications (Personnel / Ripple Control / SCADA)

Scanpower has 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. Until such time that all the ripple relays are changed to the new frequency the new plant will slave off the existing static plant. During the 2007/2008 financial year the existing static plant at Woodville will be replaced by a new 283 Hz and all relays changed. Both static plants are operated from the master controller which is situated in the Scanpower control room in Dannevirke. Woodville ripple injection plant and ripple relays will be replaced in 2007/08.

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.

4.0 Service Levels

4.1 Reliability and Security of Supply Targets

SAIDI and SAIFI (Class B & C)

Scanpower uses SAIDI class B (network owner planned) and SAIDI class C (network owner unplanned) as primary indicators of network reliability.

SAIDI refers to "System Average Interruption Duration Index", and is the average total duration of interruptions of supply that a customer experiences in the period. The SAIDI for the total of interruptions is the sum obtained by adding together the interruption duration factors for all interruptions divided by the total number of connected customers.

SAIFI refers to "System Average Interruption Frequency Index" and is the average number of interruptions that a consumer experiences in the period. The SAIFI for the total number of interruptions is the sum obtained by adding together the number of electricity consumers affected by each of those interruptions divided by the total number of connected customers.

Historically, reliability performance targets have been generated internally and proposed for approval by the Board of Trustees via the annual Statement of Corporate Intent. The Board of Trustees represent, and are elected by, customers connected to the Scanpower network. As such, the preferences expressed by the Trust are regarded as an appropriate reflection of all customer preferences. Typically targets have initially been set on the basis of previously achieved performance results with an "improvement factor" applied.

With the advent of the Commerce Commission Electricity Lines Business Thresholds, minimum reliability performance standards have been prescribed. The calculation for establishing targets is the average of each measure for the base measurement five years, giving:

$$\mathbf{S}_t \leq \{(\mathbf{S}_{1999}+\mathbf{S}_{2000}+\mathbf{S}_{2001}+\mathbf{S}_{2002}+\mathbf{S}_{2003}) / 5\}$$

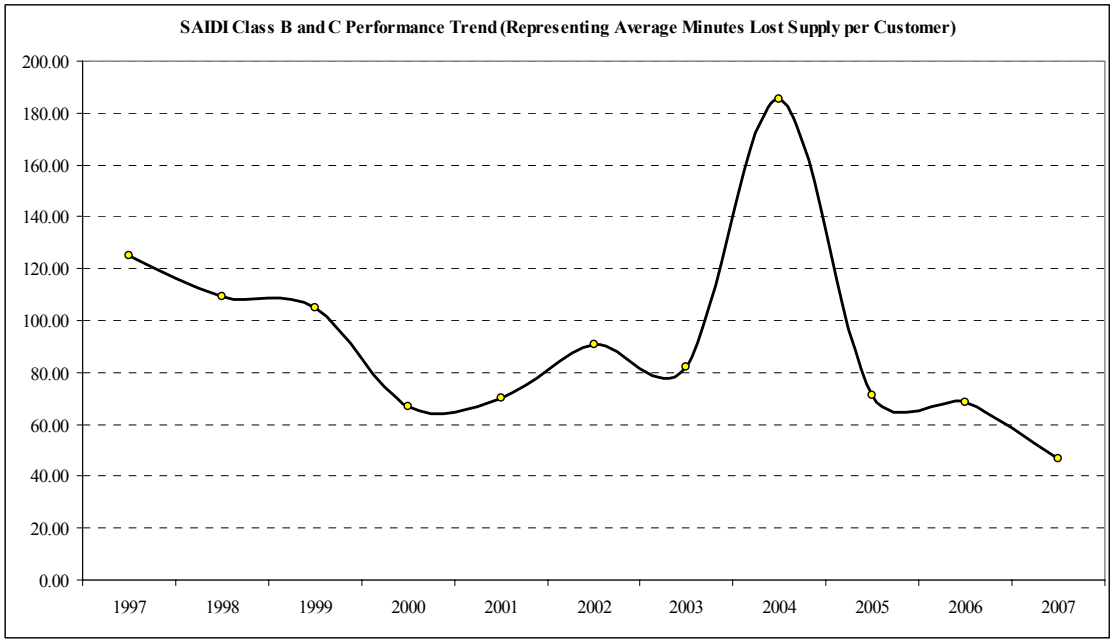
(where $\mathbf{S}_t$ is the SAIDI or SAIFI disclosed for year t (ended 31 March)

Scanpower has used this methodology to establish reliability performance targets for proposal to the Trust in the annual Statement of Corporate Intent. This process now also includes a formal consultation on matters of price vs quality to assess whether the proposed performance targets are in line with customer expectations and preferences.

The outcome of a second round of consultation undertaken with the Trust in early 2006 was that for the coming two years, the targets established under the threshold methodology were satisfactory in terms of quality and price. There was no expressed customer desire for the company to reduce reliability service levels (and consequently breach the threshold) or for the company to aim to significantly exceed targets established under the threshold methodology (which may have necessitated breaching the price threshold).

The following graph illustrates recent Scanpower reliability performance results.

Figure 29 – Scanpower SAIDI Class B & C Performance 1997 – 2007



As is evident, SAIDI (class B & C) performance has shown a general downward trend over the period 1997 to 2007. 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.

SAIDI reliability performance in 2007 fell within Commerce Commission regulatory thresholds, and represented a return to more conventional levels. It is anticipated that the network automation plan will contribute to steadily improving reliability performance in the coming years.

Security of Supply

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

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

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

Given this, and a number of other network specific considerations, a security level of **n** has been generally adopted unless consultation with customers reveals a preference for a higher level of security, and a corresponding willingness to pay for it. At this level, it is appropriate

that Scanpower focus on improving the ability to restore supply in the event of unplanned outages, rather than prevent interruption through increased security level measures.

Improving the ability to restore supply as quickly as possible and improving system reliability are seen as two important factors in enhancing customer satisfaction. To achieve this Scanpower have instigated the following initiatives:

Figure 30 – Network Reliability Improvement Initiatives

Asset-based initiatives	Operational initiatives
• Installation of remote controlled air break switches to reduce the number of customers lost during contingent events.	• Continuing to ensure that priority is given to restoring critical customers through proper fault dispatch processes.
• Replacing aged transformers on the network reducing possible failure rates	• Network reconfiguration to reduce outage numbers during fault conditions
• Separating feeders configured as dual-circuits into single-circuit configurations in widely spaced corridors.	• Ensuring an appropriate AUFLS sequence is maintained.
• Generally replacing old network components to reduce the incidence of asset failures.	• Maintaining an intensive tree trimming program. (budgeted at $195,000 for the year)

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, or load factor, is disclosed annually to the Ministry of Economic Development. It is an efficiency measure based on asset utilisation. Generally the higher the load factor, the more efficient the lines business is at utilising their line investment.

Review of annual Electricity Information Disclosure Statistics shows that Scanpower has consistently been above the mean and median load factor for the past eight years (1999 – 2006[2]).

Figure 31 – Scanpower Load Factor Trend vs Disclosed Industry Average

Measure	1999	2000	2001	2002	2003	2004	2005	2006	2007
Load Factor	67.00	67.40	68.00	67.80	70.43	69.80	67.88	67.30	62.97
Median	*60.00*	*60.29*	*62.60*	*61.27*	*63.02*	*64.7*	*64.9*	*65.0*	*NA*
Mean	*61.79*	*62.28*	*63.63*	*61.02*	*64.42*	*64.1*	*64.4*	*64.6*	*NA*

NA = Not available at the time of this report

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 regulatorily constrained revenues.

[2] Source: MOED Electricity Information Disclosure Statistics & PWC Electricity Line Business Information Disclosure Compendium 2006

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

- Electrical Interference

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

  - Harmonic Levels (NZECP36:1993)
  - SWER Load Limitation to 8A (NZECP41:1993)

- Statutory Requirements

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

- Electricity Act 1992 and amendments
- Electricity Industry Reform Act 1998 and amendments
- Electricity Regulations 1997 and amendments
- 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

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.

- 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 understanding 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;
- Load growth on the system as a whole, and on specific feeders;
- Voltage regulation;
- Analysis of network faults captured in outage logs / database;
- Network reliability performance relative to targets over the previous period;
- Network performance under emergency conditions;
- 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.

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:

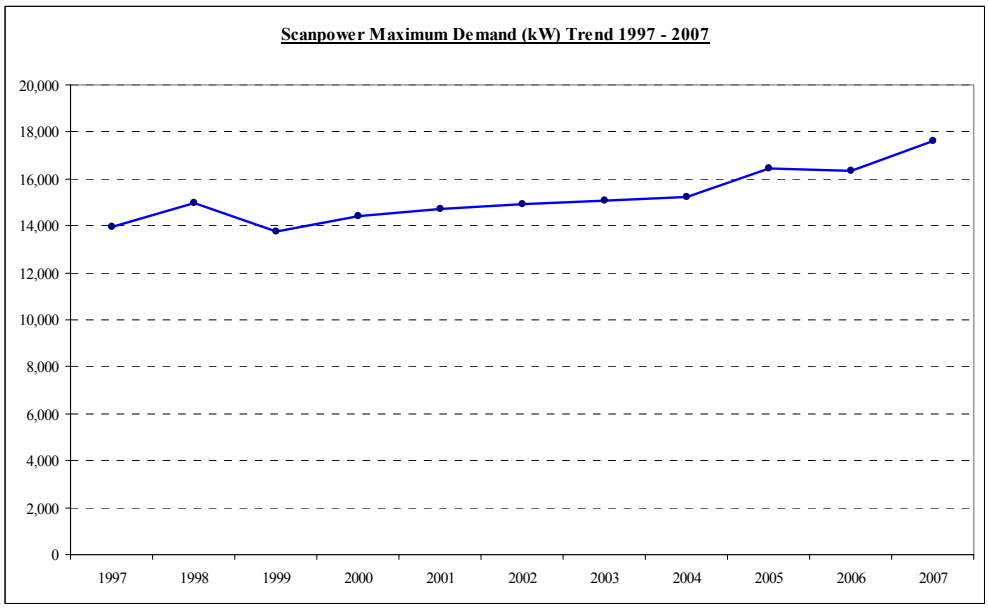
- Is the development necessary to maintain existing service levels?
- Is the development necessary to meet new customer demand?
- How many customers / size of load will benefit from the proposed project?
- What is the probability and frequency of the anticipated benefits arising?
- What are the costs 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

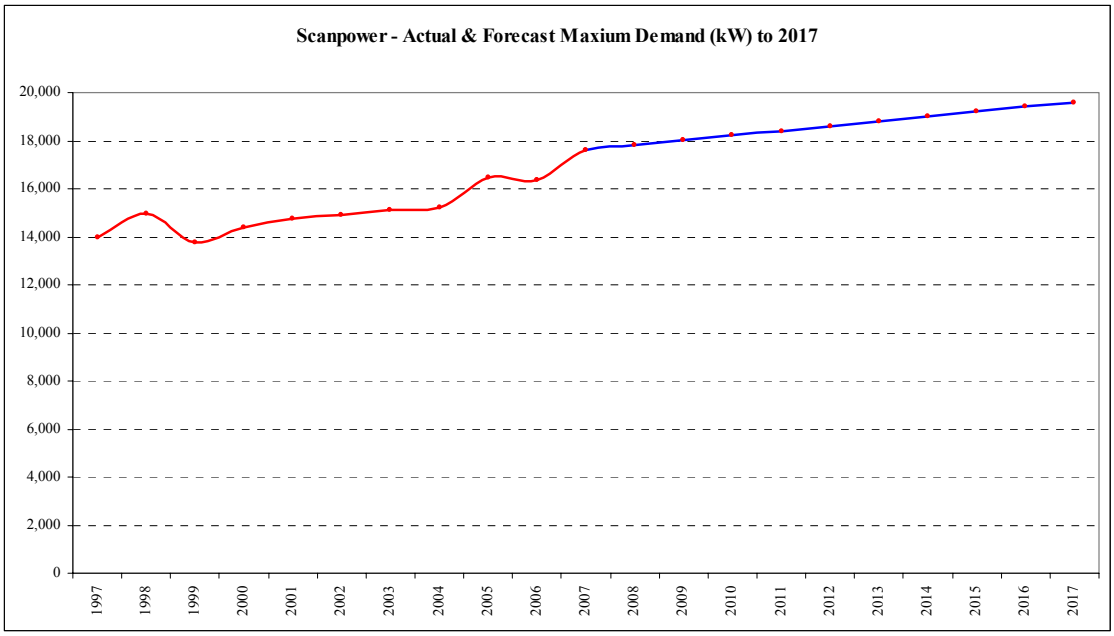
Over the last ten years, the Scanpower demand trend is as follows:

Figure 32 – Scanpower Annual Maximum Demand Trend



As is evident, there has been a general upward trend, with an anomalous result in 1998. Whilst it is confirmed that the 1998 peak was genuine, it occurred due to a fault on Scanpower load control equipment and occurred for a brief period of time. 2005 saw a notable increase in maximum demand, primarily as a result of a new freezing works becoming operational on the network.

Figure 33 – Annual Maximum Demand Trend and Forward Forecast



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

- Scanpower's base load is relatively static, with annual organic growth occurring at a rate of 200 kVA.
- No anticipated "step changes" anticipated (either up or down).

Therefore over the coming ten year period, load is expected to increase by:

*(200 kVA x 10 years) = **2 MW***

This would give a Year Ten demand of **19.61 MW**.

Given the rate of growth and magnitude of peak demands on the Scanpower network, it is not anticipated that any network locations will be constrained within this ten year period.

5.4 Policies on 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 Policies on Non-network Solutions

Scanpower understands 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 ~25% 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 incentivise 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. Within the

past eighteen months over 400 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:

- Replacement of dual circuit, main feeder lines with single circuit structures

  Of the eight main feeders supplied from the Dannevirke GXP, six feeders (three pairs) were reticulated on dual circuit, single pole structures for an average distance of 6km, emanating from the substation towards Dannevirke. This was considered a high outage risk given the importance of these feeders to the regional supply.

  Therefore, the decision was made that when these feeder sections fell due for replacement, the dual circuit structures would be replaced with single circuit structures, thereby significantly reducing the likelihood of losing two feeders simultaneously.

  In 2005 / 2006 the North and Mangatera feeders were split onto single circuit structures, and in 2006 / 2007 the Adelaide Road and Weber feeders were split. In the coming year, the Central and East feeders will be split, and all concluding work associated with this project finalised.

- 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.

  In the coming year, 2007 / 2008 stage two of this initiative will be implemented, this being the replacement of similar equipment in the Woodville area of supply.

- Woodville Substation / GXP Upgrade

Transpower has indicated that it will be upgrading its assets at the Woodville point of supply at some stage in the near future. This is an appropriate opportunity for Scanpower to similarly replace aged assets within / around the substation.

This project is planned to include the potential installation of new 11kV circuit breakers and the replacement of aged 11kV underground feeder cables from the circuit breakers in the substation to Scanpower's network.

- Communications Infrastructure

  In 2005 / 2006 Scanpower built and commissioned its own radio communications network, with a view to improving communications functionality and interfaces across the network, including expanded use of the SCADA system (particularly with reference to operation of the new ripple injection plant and additional remote control equipment installed on the network).

  Other aspects of this development include a SCADA fault paging system for after-hours communication, convergence of comms devices (i.e. wireless internet / laptop / cell phone / pager), and improved back-up and UPS capability.

- Network Automation

  Prior to three years ago, only limited remote control functionality existed on the Scanpower network. On this basis, an initiative was implemented to install selected remote control / automatic devices (such as sectionalisers and automatic air break switches) across the network.

  Having completed the first phase of this initiative, which has resulted in the installation of twenty new devices, a period of consolidation and review is currently in place which will include a detailed assessment of network wide protection settings. Given the reliability performance gains made to date, a further study will be made relating to the effectiveness of additional network automation.

- 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.

  This initiative is ongoing, and will form part of the 2007 / 2008 development programme.

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:

- Splitting of the East Feeder from the Central Feeder.
- Replacement of assets at and around Woodville substation.
- Replacement of load control equipment in the Woodville network area.
- Enhancement of existing communications and SCADA gear.
- Replacement of low voltage, overhead lines with underground cables in urban areas.

Figure 34 – Planned Capital Works / Development Initiatives 2007 / 2008 and Budgets

Scanpower Category	Description	2007/08 Budget
11kV Line Reconstruction	*Dannevirke East Feeder (Sub to Makirikiri)*	$150,000
	Weber Feeder (Sub to Te Rehunga North)	$50,000
	Te Rehunga Feeder (Sub to ABS 185)	$55,000
	Te Rehunga Feeder (ABS 48 to Ross Rd & T668 to Maharahara)	$82,000
	Mangatera Feeder (2.4 km before Matamau)	$95,000
	Trafalgar St	$12,000
		$444,000
Undergrounding LT Supplies	*Trafalgar St (cont from 2006)*	$65,000
	Service Lanes (Ward & Station Sts)	$45,000
	Tennyson St	$130,000
	Manila St	$48,000
	Madrid St	$65,000
	Stanley St	$41,000
		$394,000
Transformer Replacement	*Aged based replacements, new supplies, unit failures*	$150,000
		$150,000
Switchgear	*Manual ABS's*	$11,000
		$11,000
Communications / SCADA	*Radio Gear*	$25,000
	SCADA Backup	$25,000
		$50,000
Other Capital Projects	*Woodville substation recabling project*	$140,000
	Woodville load control injection plant	$300,000
	Woodville area ripple relays	$190,000
		$630,000
Non Line Assets	*Plant & Tooling*	$30,000
	Vehicle Replacement (4WD 3L Diesel)	$45,000
	Network Laptop	$3,500
		$78,500
TOTAL CAPITAL BUDGET		**$1,757,500**

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 annual inspection of specific asset classes (such as 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 35 – Asset Condition Survey Timetable

Feeder	2007/08	2008/09	2009/10	2010/11	2011/12
North		Survey 1			
Mangatera				Survey 2	
Pacific				Survey 2	
Dannevirke Central					Survey 2
Dannevirke East					Survey 2
Weber		Survey 1			
Adelaide	Survey 1				
Te Rehunga	Survey 1				
Woodville Town 2			Survey 1		
Woodville Country			Survey 1		
Woodville Town 1			Survey 1		

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 evident.

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 which 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 an annual basis to ensure the following:

- Doors and locks are secure and operate safely.
- No damage has occurred to the cubical.
- HT and LT 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 has a dedicated Tree Control Project Manager. 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 regrowth rates, an annual tree survey is considered appropriate, as opposed to being included in the rolling five year 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 2007 / 2008

Budgeted maintenance expenditure for the coming year is as follows:

Figure 36 – Forecast Maintenance Expenditure 2007 / 08

MAINTENANCE EXPENDITURE	2007 / 08 Budget
Distribution Maintenance	$250,000
Faults Maintenance	$100,000
Non Line Asset Maintenance (including vegetation management)	$195,000
	$545,000

Maintenance Activities by Asset Class

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

Figure 37 – Maintenance Activities by Asset Class

Asset Class	Activity
11kV / 400V Overhead Line	• Full survey once every five years and resultant maintenance work.
11kV / 400V Underground Cables	• Visual inspection of cable terminations in transformer 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 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"; examples include:

- Replacement of overhead low voltage lines (requiring replacement) with underground cables.

- Replacement of dual circuit 11kV feeder lines (requiring replacement) with two separate single circuit 11kV lines

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 for the coming year:

Figure 38 – Planned Capital Works / Development Initiatives 2007 / 2008 and Budgets

Scanpower Category	Description	2007/08 Budget
11kV Line Reconstruction	*Dannevirke East Feeder (Sub to Makirikiri)*	$150,000
	Weber Feeder (Sub to Te Rehunga North)	$50,000
	Te Rehunga Feeder (Sub to ABS 185)	$55,000
	Te Rehunga Feeder (ABS 48 to Ross Rd & T668 to Maharahara)	$82,000
	Mangatera Feeder (2.4 km before Matamau)	$95,000
	Trafalgar St	$12,000
		$444,000
Undergrounding LT Supplies	*Trafalgar St (cont from 2006)*	$65,000
	Service Lanes (Ward & Station Sts)	$45,000
	Tennyson St	$130,000
	Manila St	$48,000
	Madrid St	$65,000
	Stanley St	$41,000
		$394,000
Transformer Replacement	*Aged based replacements, new supplies, unit failures*	$150,000
		$150,000
Switchgear	*Manual ABS's*	$11,000
		$11,000
Communications / SCADA	*Radio Gear*	$25,000
	SCADA Backup	$25,000
		$50,000
Other Capital Projects	*Woodville substation recabling project*	$140,000
	Woodville load control injection plant	$300,000
	Woodville area ripple relays	$190,000
		$630,000
Non Line Assets	*Plant & Tooling*	$30,000
	Vehicle Replacement (4WD 3L Diesel)	$45,000
	Network Laptop	$3,500
		$78,500
TOTAL CAPITAL BUDGET		**$1,757,500**

7.0 Risk Management

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.

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

7.1 Risk Assessment Methodology

During the 2004/05 year Scanpower performed a detailed network risk assessment based on AS/NZS 4360:1999. The assessment indicated the following risk exposures:

- All feeders have a moderate vulnerability to the most likely earthquake scenario (the absence of zone substations reduces Scanpower's earthquake risk profile in comparison to other utilities that have a 33kV network).
- Feeder poles may be susceptible to deterioration below-ground. The replacement programme instigated will capture the majority of these.
- Most feeders are vulnerable to damage from either wind or wind-borne debris for which a range of strengthening measures have been recommended.
- Several feeders are vulnerable to either gradual erosion of land or land-slips.

Scanpower's 11kV replacement programme including the separation of two feeders on a single pole near the Dannevirke GXP will assist in reducing the overall risk profile.

7.2 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 three plans to assist in responding to emergencies…

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

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.

Transpower

Single contingency events at Transpower's points of supply at Dannevirke and Woodville have been discussed with Transpower. Most extended time events would be of an exceptional nature. Scanpower 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, pole mounted transformers and circuit breakers. 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 Evaluation of Performance (Financial and Service Levels)

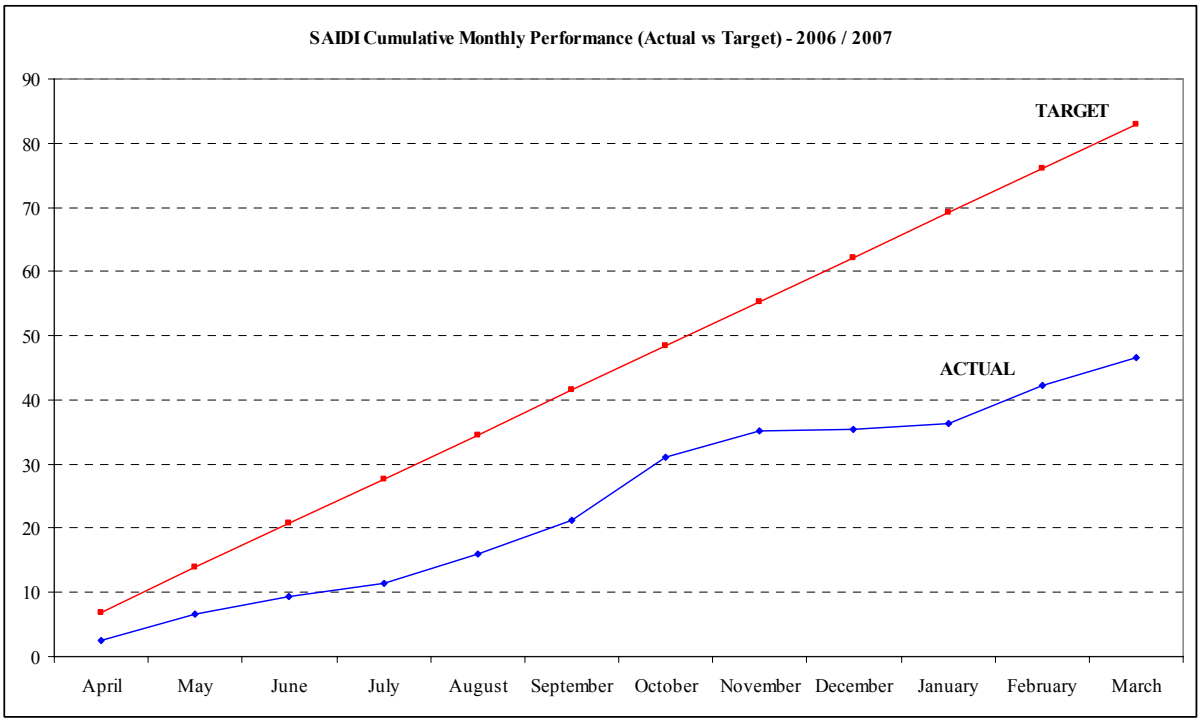
8.11 Reliability Performance 2006 / 2007

Scanpower's Statement of Corporate Intent and regulatory planning target for SAIDI (Class B & C) for the year was 82.93 minutes. Actual performance is compared to this target below.

Figure 39 – Scanpower Consolidated SAIDI Results 2006 / 2007 & Graph

Month	April	May	June	July	August	September
SAIDI	2.54	4.02	2.71	2.10	4.52	5.42
YEAR TO DATE TOTAL	**2.54**	**6.56**	**9.27**	**11.38**	**15.90**	**21.32**
TARGET	*6.91*	*13.82*	*20.73*	*27.64*	*34.55*	*41.46*
VARIANCE TO TARGET	*-4.37*	*-7.26*	*-11.46*	*-16.26*	*-18.65*	*-20.14*

Month	October	November	December	January	February	March
SAIDI	9.85	4.09	0.22	0.84	5.87	4.66
YEAR TO DATE TOTAL	**31.17**	**35.26**	**35.49**	**36.32**	**42.20**	**46.67**
TARGET	*48.37*	*55.28*	*62.19*	*69.10*	*76.01*	*82.93*
VARIANCE TO TARGET	*-17.20*	*-20.02*	*-26.70*	*-32.78*	*-33.81*	*-36.25*



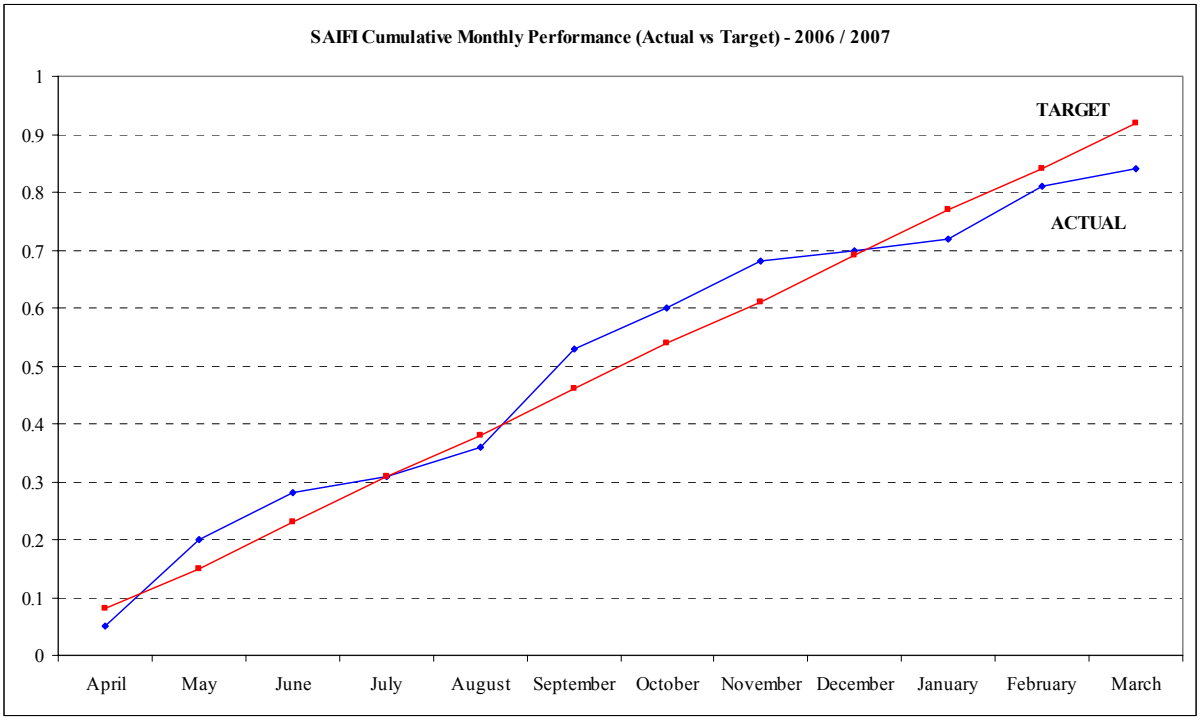
As is evident, SAIDI actual performance results fell within target, with a result of 46.67 in comparison to target of 82.93.

Scanpower's Statement of Corporate Intent and business planning target for SAIFI (Class B & C) for the year was 0.93 interruptions. Actual performance is compared to this target below.

Figure 40 – Scanpower Consolidated SAIFI Results 2006 / 2007 & Graph

Month	April	May	June	July	August	September
SAIFI	0.05	0.15	0.08	0.04	0.05	0.18
YEAR TO DATE TOTAL	**0.05**	**0.20**	**0.28**	**0.31**	**0.36**	**0.53**
TARGET	*0.08*	*0.15*	*0.23*	*0.31*	*0.38*	*0.46*
VARIANCE TO TARGET	*-0.03*	*0.04*	*0.05*	*0.01*	*-0.02*	*0.07*

Month	October	November	December	January	February	March
SAIFI	0.06	0.08	0.02	0.02	0.09	0.04
YEAR TO DATE TOTAL	**0.60**	**0.68**	**0.70**	**0.72**	**0.81**	**0.84**
TARGET	*0.54*	*0.61*	*0.69*	*0.77*	*0.84*	*0.92*
VARIANCE TO TARGET	*0.06*	*0.07*	*0.01*	*-0.05*	*-0.03*	*-0.08*



Factors which are considered to have contributed to this favourable SAIDI and SAIFI reliability performance are:

- Relatively favourable weather conditions, with no extreme storm events.
- An absence of major motor vehicle / collision incidents.
- Increased adoption of live-line working techniques.
- Improved network automation resulting in shorter fault response times.

- A significant programme of tree and vegetation clearance.

8.12 Financial Performance (Capital & Maintenance Expenditure)

Figure 41 – Financial Performance 2006 / 07

2005 / 2006 FINANCIAL PERFORMANCE	2007 ACTUAL	2007 PLAN
CAPITAL EXPENDITURE		
11 kV Line Reconstruction	$398,762	$466,016
LT Replacement & Undergrounding	$263,860	$375,181
Transformer Replacements	$158,388	$147,800
Switchgear / Automation	$53,165	$151,950
Load Control	$100,239	$152,950
Unplanned Capital Expenditure	$45,784	$0
TOTAL CAPITAL EXPENDITURE	**$1,020,198**	**$1,293,647**
MAINTENANCE EXPENDITURE		
Distribution Maintenance	$205,627	$250,000
Faults Maintenance	$119,263	$145,000
Non Line Asset Maintenance (including tree clearance)	$278,027	$330,000
TOTAL MAINTENANCE EXPENDITURE	**$602,917**	**$725,000**
TOTAL NETWORK EXPENDITURE	**$1,623,115**	**$2,018,647**

Capital Expenditure Variances

11kV Line Reconstruction

- All 11kV line reconstruction projects were completed during the year with a favourable capital cost variance of $67,254 (14%).

- This favourable variance was generated by lower than anticipated labour costs and this is attributed to increased efficiency, arising from reduced multi-tasking and good weather conditions.

LT Replacement & Undergrounding

- Capital expenditure in this category was $263,860 and fell short of target of $375,181 by $111,321.

- This shortfall occurred as a result of a decision to defer one particular project (Trafalgar Street – Barruad to Swinburn Street) for approximately four months, into the next financial year.

- It is not anticipated that the deferral of this project will have any adverse consequences, or disrupt any subsequent planned activities.

Transformer Replacements

- Programmed transformer changes were completed as planned, however a greater number of unplanned changes / installations occurred due to moderately higher asset failure rates and a higher number of requests for new installations.

- The result of this was total expenditure of $158,388 relative to a budget of $147,800.

Switchgear / Automation

- Having completed several stages in recent years, the network automation plan was temporarily suspended early this year. Due to some technical issues with the 20 remote control units installed in the past two years, the decision was made to enter a consolidation phase, including completion and implementation of a network wide protection settings study.

- This has now been completed, resulting in improved operation of the assets installed in previous years. Given that the automation project is specifically a network development initiative, no adverse consequences are expected from the suspension of planned installation activity.

- The financial outcome of these decisions was that capital expenditure in this category was significantly lower than originally forecast at $56,165 (compared to budget of $151,950).

Load Control

- $152,950 was budgeted this year for the installation of ~4,500 relays at customer premises in the Dannevirke area. All installation work was completed successfully within the requisite time frame, and at a favourable cost of $100,239. The project savings occurred in labour costs, and are attributed to a higher learning curve effect than expected, and the use of lower cost staff for elements of the project.

Unplanned Capital Expenditure

- An unplanned opportunity was taken during the year to reconfigure switching in the northern areas of the network (around Matamau). This arose due to the identification of recurring problem in this area of the network.

Maintenance Expenditure Variances

Distribution Maintenance

- This cost category primarily covers system maintenance work arising from the feeder surveys undertaken during the year. It also covers the cost of routine ground mount transformer and major customer premises inspections.

- Against a budget of $250,000 the total actual maintenance expenditure for the year was $205,627. The main reason for the difference between budget and actual was a lower than expected volume of remedial maintenance work arising from the annual surveys.

Faults Maintenance

- This cost category covers unplanned maintenance arising from network faults / outages; for example damage caused by storms, or vehicle collisions.

- As previously noted, reliability performance has been strong for the year, with significantly fewer / less serious levels of outage activity than has been the case in recent years. As a result, total fault maintenance expenditure of $119,263 was lower than expected.

Non-Line Asset Maintenance

- Of the $330,000 total budgeted in this category, $300,000 was allocated for tree / vegetation clearance, and the balance for miscellaneous maintenance to communications and SCADA equipment.

- As a result of establishing an in-house tree felling / trimming capability Scanpower has managed to reduce the costs associated with its vegetation clearance programme. Correspondingly actual expenditure in this category totaled $278,027 which was 15% less than anticipated.

8.2 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 addition to this, Scanpower does not currently have complete information as to the location and quantity of rural / remote low voltage lines. In the past general estimates as to quantity and age have been applied for reporting and revaluation purposes.

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

- Comprehensive audit / 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).

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.

Appendix A - Scanpower Reticulation Area