



Commerce Act (Electricity Lines Thresholds) Notice 2003

Threshold Compliance Statement

Section 2 - Quality Threshold

21 May 2004

Quality threshold for the
second assessment date (31 March 2004)

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EXECUTIVE SUMMARY

Introduction

1 This part of Vector's compliance statement relates to the two criteria of the quality threshold: reliability and consumer engagement

2 This executive summary is only provided to give a general overview and, therefore, by necessity, does not contain all relevant information related to Vector's performance against the quality threshold. Vector's compliance against the threshold should be assessed on the basis of this complete document, including all supporting information.

Vector's commitment to service quality

3 Vector strives to provide an adequate level of quality at any given price level and, where possible, to improve the level of quality (defined in terms of four aspects: safety, customer satisfaction, reliability and power quality), without increasing prices. To do this, Vector has developed and implemented industry leading business systems and practices such as:

- ensuring a company wide focus on quality by linking staff bonuses to team and company performance on quality, as well as publishing an internal newsletter (*On Target*), which focuses on Vector's performance with respect to quality and the ways in which this performance can be improved;
- ensuring world-class health and safety processes are in place by providing training to all staff; having zero tolerance for work place accidents and employing a world leader in safe work practices (Duke Energy) to audit Vector's practices; ensuring a company-wide focus on safety through assessing staff and service provider performance with respect to specific Key Performance Indicators (KPIs) related to safety;
- using network modeling in order to simulate the workings of Vector's network in entirety, starting from Transpower Grid Exit Points (GXPs) down to distribution transformers; and using the model to perform scenario analysis for changes in quality. The outputs of such analysis are used as an input into asset management planning decisions, as well as to present options to large consumers;

- implementing systems that effectively report and manage the impact of power quality on Vector’s customers; an ongoing programme to install power quality measuring equipment; an electronic mail system that automatically sends large customers a power quality report in real time; and a web based reporting system that makes both real time and historical power quality information available to customers; and
- a dedicated Business Information Unit utilising industry leading technology to gather, integrate and present information from a number of systems in a way that facilitates better understanding of Vector’s quality performance, which enhances Vector’s ability to better plan and manage its network.

Reliability criterion

4 Lines businesses are required to demonstrate that their SAIDI and SAIFI for the assessment year do not exceed the five year average for those respective reliability measures. Due to storms throughout the assessment year, Vector breaches both reliability measures, as summarised in the table below.

Notice Requirement	Result for assessment year		Five year average	Amount of breach	Breach as percentage of target
6(1)(a) - SAIDI	104.4	>	85.5	18.9	22.14%
6(1)(b) - SAIFI	1.447	>	1.313	0.134	10.23%

Exclusion of extreme events

5 The Commission has made clear that, post any breaches of the reliability criterion, it will consider the exclusion of extreme events, such as storms. Having breached the reliability measures, Vector is in the position of having to exclude such events in order to demonstrate that, had these events not occurred, Vector would not have breached the reliability criterion. In Vector’s view, the analysis it has presented to this effect is sufficient for the Commission to take no further action from Vector’s breach.

6 Specifically, Vector has analysed its reliability data across the assessment year and explained why a number of days need to be exempt, (across all or selected geographic areas of Vector's network (depending on the days in question)) on the basis of these resulting in uncontrollable HV faults as a result of storms (including the storms in February in Auckland and Wellington, which the Commission acknowledged as extreme events in a media release and subsequent correspondence with Vector), as well as impairing Vector's ability to repair faults (whether caused directly by the storms or not) due to high winds and the unusually high number of faults.

7 Clearly, Vector, like other lines businesses in similar circumstances has had to consider how a 'storm' or 'extreme weather event' should be defined. Similar consideration may also be required over time for other extreme events. Vector gave consideration to a range of methods (both quantitative and qualitative) for defining a storm. After considering a number of analytical methods and taking into account an expert report from NIWA regarding extreme weather events, Vector employed a method whereby outlier data points could be identified on the basis that they:

- were the outcome of grade 7 (near gale-force) or higher winds (as defined on the Beaufort wind scale, 50 km/h or higher) sustained on average over a period of one hour (noting that wind speeds of this level not only cause faults, but also make repair of the network difficult given safety concerns from, for example, using ladders); and
- resulted in SAIDI interruptions eight times the daily average number of interruptions – on the basis of an exponential distribution being fitted to HV fault frequencies, Vector's statistical analysis shows that occurrences of such faults above the cut off point chosen by Vector (8 times the average daily HV fault frequency) are extremely unlikely to take place, namely the probability of such events is 0.1% (Auckland), 0.1% (Northern) and 0.3% (Wellington); and
- included individual faults, at least 50% of which were the result of uncontrollable events, such as tree contact, branches on lines, lines clashing, broken cross-arms, poles, binders, insulators and jumpers, and lines on the ground, as recorded in Vector's fault classification; 50% of faults for which the cause is unknown¹ were also assumed to be the result of uncontrollable events.

¹ In Vector's view it is a reasonable and conservative assumption to make that there is a 50% chance of an "unknown" fault to have been caused, in the presence of a storm, by weather related events, such as, lines clash which was not observed or the fault cause (branches, bark, birds etc)

8 When removing extreme events, the *Gazette* and relevant Commission papers are silent, to Vector’s knowledge, on whether removal of any extreme events from the assessment year should be accompanied by any corresponding adjustment to the benchmark 5-year average (or some conceptually equivalent approach for the assessment year). Vector’s view is that there is no need to modify the average (or a modified adjustment to the assessment year), on the basis that the 5-year average is the Commission’s proxy for the long-term average that, due to its length, normalises out unders and overs for extreme events. Nevertheless, Vector has also presented analysis whereby the assessment year has only had the effect of storms removed, to the extent where this effect on the assessment year is greater in terms of SAIDI and SAIFI impact than the average annual impact of storms on SAIDI and SAIFI over the 5-years used to calculate the average.

9 Under the first approach, Vector would, with the impact of the storms removed (in entirety from the assessment year), be below the SAIDI and SAIFI targets. However, for the second approach, with the impact of the storms only removed in the assessment year to the extent that it is above the 5-year average impact from storms, Vector would still not be below the SAIDI and SAIFI targets (but instead be above the targets by 4.06% and 1.23% respectively). These results are shown in the table below:

Adjustment Method	Notice Requirement	Normalised result for assessment year		Five year average	Discrepancy from five year average	Discrepancy as percentage of target
1 – Storm impact excluded in entirety	6(1)(a) - SAIDI	78.3	<	85.5	-7.1	-8.32%
	6(1)(b) - SAIFI	1.210	<	1.313	-0.103	-7.85%
2 – Storm impact excluded to the extent it is above the five year average	6(1)(a) - SAIDI	88.9	>	85.5	3.5	4.06%
	6(1)(b) - SAIFI	1.329	>	1.313	0.016	1.23%

being blown clear of the site before the repair crew arrives. Vector believes that this chance is, in reality, much higher, but has adopted a conservative approach for the purpose of this analysis.

10 While removal of storms in the second approach would not bring Vector below its target, it is Vector's view that the residual non-compliance is sufficiently insignificant as to not warrant any further investigation by the Commission. Vector has already provided analysis to the Commission, in the context of setting thresholds, which demonstrated that a margin of 30% is ideally required above reliability targets to account for natural variability in reliability statistics. Vector's residual non-compliance is 4.06% and 1.23% for SAIDI and SAFI respectively, thereby, well within the natural variability bounds. As noted above, the Commission should, therefore, take no further action for Vector's breach.

Consumer engagement criterion

11 In broad terms, the Consumer Engagement Criterion seeks to ensure (in order to comply) that lines businesses are meaningfully engaging with their consumers. Vector considers it complies with this criterion given the extensive work it is doing with customers on a range of fronts. A summary of Vector's consumer engagement follows this executive summary. By way of example, some methods of Vector's direct and indirect consumer engagement include:

- specific consultation regarding the Consumer Engagement Criterion with organisations that, in Vector's view, accurately reflect the views of consumers;
- a dedicated call centre to ensure proper handling of consumer enquiries, service requests and/or complaints;
- external publications (AMP, newsletter, articles in local newspapers letters and brochures sent to consumers) providing information to consumers on Vector's quality performance and price-quality trade-offs;
- maintaining close relationships with Territorial Local Authorities (which are elected by consumers) through direct contact with Vector's CEO and senior staff and discussing quality and pricing issues with these Authorities on a regular basis;

- direct contact with groups of end consumers and their representatives through the Customer Services and Overhead Improvement Teams to present and discuss issues related to quality and price-quality trade-offs;
- maintaining a close relationship with the Auckland Energy Consumer Trust (which is elected by the consumers in the Auckland area) and annually developing and agreeing with the Trust a Statement of Corporate Intent which includes quality objectives; reporting twice yearly to the Trust on Vector's performance and achievements against the SCI;
- making publicly available a range of information related to quality, pricing and asset management on several websites maintained and promoted by Vector;
- carrying out monthly customer surveys to ensure that Vector understands what customers expect and what is important to them; and
- maintaining a close relationship with all retailers operating on Vector's network through day-to-day contact and regular meetings where a range of issues, including quality and price-quality tradeoffs are discussed.

12 The information and views gathered from such interactions are an important input into Vector's asset management planning decisions and are considered and taken into account when Vector reviews its Standard Service Levels and prepares its Asset Management Plan.

13 As the Commission has stated itself in various documents, the consumer engagement requirements are subjective to some degree and, therefore, what is specifically required to comply with the requirements is not clear-cut. As such, a more detailed explanation of Vector's views on consumer engagement is required.

14 Of particular importance in Vector's view is the Commission's advice that exhaustive and comprehensive research into consumers' willingness to pay for quality was not required (but optional); rather a demonstration of well-developed business processes directed at understanding and responding to consumers' preferences was expected.

15 Vector would like to note that a major input to the setting of its Standard Service Levels (SSLs) in the Auckland region on 7 August 1999 was a Grid Security Survey, carried out by Mercury Energy (a predecessor company of Vector that owned the electricity network in Auckland) in 1998, which specifically examined customer's

expectations and preferences with respect to quality, as well as their willingness to pay for higher levels of quality. Vector has not carried out a survey of that type since then.

16 Since the setting of SSLs in the Auckland area, nothing has come to Vector's attention to suggest that consumers are not satisfied with the levels set (noting that processes are in place to ensure that any queries regarding such concerns are properly handled, recorded and brought to the attention of relevant Vector staff). Also, Vector's prices in the area remained unchanged between the time the SSLs were set and the assessment date.

17 Vector's SSLs in the Wellington and Northern region were inherited from UnitedNetworks. Since Vector took control of the electricity network in those regions, nothing has come to Vector's attention to suggest that consumers in those regions are not satisfied with the SSLs set (noting that processes are in place to ensure that any queries regarding such concerns are properly handled, recorded and brought to the attention of relevant Vector staff). Also, Vector's prices in the area remained unchanged between the time of the merger and the assessment date.

18 Vector has focused in this compliance statement on describing its business processes, which Vector considers to be industry-leading and strongly focused on providing improved quality to consumers across a range of fronts. Vector also took the specific step for this compliance statement of surveying a range of consumer groups and retailers to obtain:

- their views on consumer preferences with respect to price-quality trade-offs;
- their views on what steps they believe are appropriate for Vector to take to ensure compliance; and
- an overview of the way these organisations engage with consumers.

19 While an extensive response has been provided to the consumer engagement requirements, Vector made a choice not to directly survey end consumers on price-quality trade-offs for a range of reasons, including:

- as signaled by the Commission, the evolutionary nature of the consumer engagement process over time, i.e. a progression toward better understanding customer willingness to pay for quality;
- the extensive work that Vector is already doing with respect to consumer engagement generally, including on price-quality tradeoffs as part of its day-

to-day work (Vector considers it is far ahead of other lines businesses in this area; something we will continue to monitor, including through the compliance statement process);

- the fact that Vector had previously surveyed end consumers extensively on their willingness to pay for price-quality tradeoffs as an input to the setting and adoption of Vector's service levels (being Vector's promise to its residential and small commercial customers, which, if not met, is subject to a compensation payment);
- as signaled by the Commission, a logical starting point for the consumer engagement requirement being a stock-take of business processes and a self-, audit- and Commission-assessment of whether there is sufficient focus in those processes on consumer requirements (a further consideration here for Vector was the recent acquisition of UnitedNetworks and the importance of relevant internal work (discussed below) being further advanced, if not completed, before another willingness to pay survey could be conducted);
- the fact that, as a further starting point, Vector surveyed a range of consumer groups and retailers for this compliance statement with the intent of, inter alia, getting a better understanding of customer engagement by others, which could then be used as a launching pad into other tailored, specific initiatives in the future (such as surveys), including working with other groups to achieve common goals where appropriate (noting that the general consensus of the limited responses Vector received was that engagement with consumers on price-quality tradeoffs was inherently difficult, and that consumers were not generally prepared to pay for increases in quality); and
- while Vector regularly surveys consumers on service quality generally, any survey focused in detail on the difficult issue of customer willingness to pay for quality needs very careful scoping (including defining 'quality' for the purpose of the survey, attaching cost/price information to different quality attributes, and designing questions or focus groups that elicit meaningful information).

20 Vector is conscious that some lines businesses may have conducted price-quality surveys for this assessment on the expectation of this being an automatic right of passage to consumer engagement compliance. Were this the case, it may automatically cast non-surveying lines businesses in a negative light. However, the reality is that a survey is not a silver bullet to understanding consumers' willingness to pay for price-quality tradeoffs. Instead, the Commission must holistically consider where each lines

business is at in terms of its consumer engagement generally and the sophistication of business processes aimed at understanding consumer requirements.

21 Vector has a range of work underway internally that will assist with better understanding of customer requirements over time, including price-quality tradeoffs. Specifically, Vector is:

- undertaking further analysis on linking price and quality for the next resetting of thresholds (building from the significant analysis that Vector has already undertaken, and shared with the Commission, in this area); and
- conducting internal business enhancement work in a range of areas to ensure Vector remains a leading infrastructure provider and further improves its operations, most relevant being with respect to (noting these are significant, high-importance internal projects drawing input from a large number of people across the business):
 - examining what business models best suit Vector (a larger company following the acquisition of UnitedNetworks), including with respect to conveyance versus interposed use of systems agreements with retailers (or a hybrid of both); and
 - examining the optimal specification of Vector's investment models, including with respect to how to explicitly encapsulate in those models a range of trade-offs (e.g. between price (cost) and quality, between capital expenditure and maintenance).

22 Given the above is work in progress, it has not been appropriate to share detailed information with the Commission at this time. Nevertheless, the above summary underscores the evolutionary nature of consumer engagement and capture of robust information on price-quality trade-offs. Vector will continue to work to be a leader in its field, including in the important areas of customer engagement and service quality, which remains a key focus of Vector's business.

SUMMARY OF CONSUMER ENGAGEMENT METHODS			
<i>Consumer Type</i>	<i>Consumer Location</i>	<i>Direct Methods of Engagement</i>	<i>Indirect Methods of Engagement</i>
Large	Auckland area	Retailer and Customer Relationships team, external publications, call centre, websites	Retailers, AECT, Local Body Authorities, MEUG. Specific consultation on consumer engagement criterion with MEUG, Auckland Chamber of Commerce, Retailers
	Former United Networks Areas (Wellington and Northern)	Retailer and Customer Relationships team, external publications, call centre websites	Retailers, Local Body Authorities, MEUG. Specific consultation on consumer engagement criterion with MEUG, Wellington Chamber of Commerce, Retailers
Residential and Small Commercial	Auckland Area	Call Centre, Customer Services Team, Overhead Improvement Team, surveys, external publications, call centre, websites	Retailers, AECT, Customer Services Team, Local Body Authorities. Specific consultation on consumer engagement criterion with Consumers' Institute, Ministry of Consumer Affairs, Grey Power, Consumer Coalition on Energy, Federated Farmers, Electricity Complaints Commission, Auckland Chamber of Commerce, Retailers

SUMMARY OF CONSUMER ENGAGEMENT METHODS			
<i>Consumer Type</i>	<i>Consumer Location</i>	<i>Direct Methods of Engagement</i>	<i>Indirect Methods of Engagement</i>
	Former United Networks Areas (Wellington and Northern)	Customer Services Team, surveys, external publications, call centre, websites	Retailers, Customer Services Team, Local Body Authorities. Specific consultation on consumer engagement criterion with Consumers' Institute, Ministry of Consumer Affairs, Grey Power, Consumer Coalition on Energy, Federated Farmers, Electricity Complaints Commission, Wellington Chamber of Commerce, Retailers

STRUCTURE OF DOCUMENT

23 The summary table below sets out the structure of the document, along with short summaries of the individual sections:

Section	Summary
<p>The Commission’s Requirements</p>	<ul style="list-style-type: none"> ○ sets out and discusses the Commission’s threshold requirements; ○ discusses Vector’s approach to demonstrating compliance; ○ provides detail on those organisations Vector considers accurately reflect the views of consumers with respect to the consumer engagement criterion.
<p>Vector’s Commitment to Quality</p>	<ul style="list-style-type: none"> ○ sets out Vector’s commitment to providing an adequate level of quality (defined in four components: safety, customer satisfaction, reliability and power quality) at any given price level and to, where possible, improving the quality delivered without increasing prices; ○ outlines Vector’s systems and processes aimed at achieving that commitment.
<p>Reliability Criteria of the Quality Threshold – Clauses 6(1)(a)&(b)</p>	<ul style="list-style-type: none"> ○ sets out Vector’s performance with respect to the reliability measures established by the Commission (Vector has breached this criterion); ○ explains that extreme uncontrollable events (storms)

Section	Summary
	<p>and, to some degree, natural variability, are the reasons behind the breach;</p> <ul style="list-style-type: none"> ○ provides evidence that with the effect of the storms removed, Vector would have complied with the reliability criterion.
<p>Consumer Engagement (Customer Communication) Criterion of the Quality Threshold - clause 6(1)(e)</p>	<ul style="list-style-type: none"> ○ defines the term "quality" (as above); ○ provides an overview of Vector's engagement with consumers; ○ outlines what methods are used to engage with large commercial and industrial consumers; ○ outlines what methods are used to engage with residential and small commercial consumers (addressed in two separate groups – consumers in the Auckland area and consumers in the Wellington and Northern areas); ○ discusses in detail each method used to engage with consumers; ○ discusses the actions resulting from Vector's consideration of feedback received through its consumer engagement initiatives.

THE COMMISSION'S REQUIREMENTS

24 The Commission's quality threshold, as set out in the final decision paper and the Gazette Notice, provides for two criteria, related to reliability and consumer engagement. The section below discusses these criteria in more detail.

Reliability criterion

25 In broad terms, the Reliability Criterion of the quality threshold seeks to ensure (in order to comply) that there is no material deterioration in quality (as measured by reliability statistics). Sections 6(1)(a) and 6(1)(b) set out the Reliability Criteria, viz:

"(a) *interruption duration*: the SAIDI of the lines business for the period of 12 months ending on the second assessment date *is not to exceed* the five-year average SAIDI of the lines business (calculated in accordance with the right-hand side of the following expression):

$$SAIDI_{2004} \leq \left(\frac{SAIDI_{1999} + SAIDI_{2000} + SAIDI_{2001} + SAIDI_{2002} + SAIDI_{2003}}{5} \right)$$

where:

SAIDI year in relation to every year other than 2004—

is the sum of SAIDI class B and SAIDI class C, for that year, where SAIDI for a particular class is calculated by dividing the sum obtained by adding together the interruption duration factors for all interruptions within that particular interruption class for the period of 12 months ending on 31 March in that year by the average of the total number of network connection points at the beginning of that year and the total number of network connection points at the end of that year;

in relation to the year 2004—

is (at the option of the lines business) *either* as defined above in relation to every year other than 2004 *or* the sum of SAIDI class B and SAIDI class C for the period commencing on the day after the publication date and ending on the second assessment date, where SAIDI for a particular class is calculated by dividing the sum obtained by adding together the interruption duration factors for all interruptions within that particular interruption class for that period by the average of the total number of network connection points at 6 June 2003 and the total number of network connection points at the second assessment date, and then dividing the result by 299 and multiplying it by 366;

(b) *interruption frequency*: the SAIFI of the lines business for the period of 12 months ending on the second assessment date *is not to exceed* the five-year average SAIFI of the lines business (calculated in accordance with the right-hand side of the following expression):

$$SAIFI_{2004} \leq \left(\frac{SAIFI_{1999} + SAIFI_{2000} + SAIFI_{2001} + SAIFI_{2002} + SAIFI_{2003}}{5} \right)$$

where:

SAIFI year in relation to every year other than 2004—

is the sum of SAIFI class B and SAIFI class C, for that year, where SAIFI for a particular class is calculated by dividing the sum obtained by adding together the number of network connection points affected by each interruption within that particular interruption class for the period of 12 months ending on 31 March in that year by the average of the total number of network connection points at the beginning of that year and the total number of network connection points at the end of that year;

in relation to the year 2004—

is (at the option of the lines business) *either* as defined above in relation to every year other than 2004 *or* the sum of SAIFI class B and SAIFI class C, for the period commencing on the day after the publication date and ending on the second assessment date, where SAIFI for a particular class is calculated by dividing the sum obtained by adding together the number of network connection points affected by each interruption within that particular interruption class for that period by the average of the total number of network connection points at 6 June 2003 and the total number of network connection points at the second assessment date, and then dividing the result by 299 and multiplying it by 366;”

Consumer engagement criterion

26 In broad terms, the Consumer Engagement Criterion seeks to ensure (in order to comply) that lines businesses are meaningfully engaging with their consumers. Section 6(1)(e) of the Notice sets out the Consumer Engagement Criterion, which places a number of requirements on lines businesses, viz:

“(e) *customer communication*: the lines business, during the period from the publication date to the second assessment date, is to—

- (i) properly advise (or ensure that another person properly advises on its behalf) its customers about the price-quality trade offs available to them in relation to the goods and services provided by the lines business; and
- (ii) consult (or ensure that another person consults on its behalf) with its customers about the quality of goods and services that they require, with reference to the prices of those goods and services; and
- (iii) properly consider the views expressed by customers during and after that consultation; and

- (iv) adequately take these views into account when making its asset management decisions.”

27 The Commission has acknowledged that the above requirements are subjective to some degree and, therefore, what is specifically required to comply with the requirements is not clear-cut. Specifically, in the Commission’s decision paper, published simultaneously with the Notice, the Commission noted:

“The Commission therefore considers lines businesses should be able to demonstrate:

- how they engage with consumers, directly or indirectly, to explain the trade-offs between quality and price, and to assess consumers’ willingness to pay for different quality levels;
- what service offers or commitments they make to consumers, directly or indirectly, in response to information obtained during these engagements;
- how they make decisions about target quality levels;
- what types of contractual or other arrangements, if any, they enter into in relation to quality; and
- how they plan to deliver the target quality in terms of medium-term service delivery.

91 For the avoidance of doubt, the Commission does not require lines businesses to embark upon exhaustive or comprehensive research into consumers’ willingness to pay for different levels or quality of line services. However, the Commission does require lines businesses to demonstrate that they have well-developed business processes directed at understanding and responding to consumers’ preferences.

92 The Commission does not intend to prescribe the nature of consumer engagement. In particular, distribution businesses may choose to engage directly with consumers and/or consumer groups, and/or via the retailers with which they have use of system agreements. However, in the latter cases, distribution businesses should be confident, and should seek to demonstrate to the satisfaction of the Commission, that the retailers or consumer groups accurately reflect the interests of the consumers which they supply or represent.”²

28 The above context, as well as that set out in other Commission documents and conference transcripts, is important in considering whether lines businesses comply with the Consumer Engagement Criterion, particularly for this first assessment. The Commission’s assessments will have a precedent effect, such that specific compliance requirements will become better known over time.

² Regulation of Electricity Lines Businesses: Targeted Control Regime, Threshold Decisions 6 June 2003, p25 paragraphs 90-92.

29 As noted in the above extract from the Commission’s decision paper, it is not a requirement that lines businesses engage with consumers directly on each and every aspect of the Consumer Engagement Criterion. Instead, the Commission has signaled that engaging with consumer groups and/or retailers is an appropriate substitute for direct engagement with consumers, so long as those surrogates are demonstrated to “accurately reflect the interests of the consumers which they supply or represent”.

30 In Vector’s case, we have engaged with consumers, consumer groups *and* retailers, as part of Vector’s standard business processes and commitment to offering quality customer service, as well as for the express purpose of the Consumer Engagement Criterion. In respect of the Criterion, Vector wrote to a range of consumer groups and all retailers on Vector’s network, and gave them a specific opportunity to comment on Vector’s compliance with the Criterion, offer insights on any aspect of the Criterion and share information on their own consumer engagement initiatives. The table below lists the organisations engaged, along with a short description of their activities and their role in representing consumers. Descriptions for the large part are taken from the organisations’ respective websites.

31 For each of the organisations below Vector has considered whether the organisation:

- regularly engages with, is elected by, or supplies with electricity a sizable group of consumers (1000 or more); and/or
- represents consumers in public consultation processes.

32 Where either of these criteria are met, it is Vector’s view that the organisation accurately reflects the views of the consumers it represents or supplies. No further research has been undertaken to establish whether the information provided to Vector or made publicly available by such organisations regarding their memberships, processes, activities and consumer views is complete or accurate. Such research would effectively amount to an audit of the information provided by the organisations in question and is, in Vector’s view, neither appropriate nor desirable for the purpose of this statement.

Organisation	Description
Consumers’ Institute	The Consumers’ Institute is an independent, non-profit organisation established in 1959 with the sole aim of getting New Zealand consumers a fairer deal. The Institute’s work covers a wide range of activities relating to consumer

Organisation	Description
	<p>protection and information.</p> <p>This includes: comparative tests and surveys of consumer goods and services; research into and advice on financial, food, health, safety, welfare and environmental matters; representation at parliamentary committees and public enquiries; and an interest in consumer education and complaints advisory work. The Institute is a member of Consumers International (previously known as the International Organisation of Consumers Unions), and as a result benefits from an exchange of information with consumer organisations around the world.</p> <p>As part of the Institute's work on behalf of all NZ consumers, it regularly makes submissions to Government and statutory authorities on a wide range of issues affecting consumers.</p> <p>The Institute's members (approximately 86,000) elect the board and are kept informed of the Institute's work through the <i>Consumer Magazine</i>.</p> <p>Based on its various functions, advocacy role, and constituency, the Institute clearly fits the criteria outlined above and, therefore in Vector's view, accurately reflects the views of domestic consumers.</p>
<p>Consumer Coalition on Energy</p>	<p>The Consumer Coalition on Energy (CC93) was formed in 1993 to ensure that electricity consumers in general had a voice during the electricity industry reform process. The Coalition represents the Consumers' Institute, Business New Zealand, Federated Farmers and MEUG.³</p> <p>The Coalition is actively involved in various areas of the electricity industry, including regulation. The Coalition was a participant in the Wholesale Electricity Market Development Group (WEMDG), as well as representing consumer interests when the Electricity Industry Reform Act 1998 was being developed. When Transpower commenced the Grid Security Project (GSP) process, CC93 had representatives on the Interim Grid security Committee (IGSC) and the governance and technical working groups. With the subsequent introduction of the Multilateral Agreement on Common Quality Standards (MACQS), the CC93 constituent members were allocated three seats at the Grid security Committee (GSC) table and have been actively involved in this process ever since.</p> <p>Due to its diverse membership and expertise in the electricity</p>

³ Refer CC93 Paper for Governance Working Group Meeting, 11 April 2001, Election of the Board and Associated Issues, Appendix 1, Page 9. Also refer Submission to Electricity Governance Establishment Committee, Response to the Consultation Package of 5 June 2001, Appendix 1, page 13.

Organisation	Description
	<p>industry, as well as its advocacy role, the Coalition clearly fits the criteria outlined above and, therefore in Vector’s view, accurately reflects the views of a wide range of domestic, commercial and industrial consumers. Also, through its extensive involvement in the electricity industry, the coalition has extensive knowledge of the issues relevant to the thresholds in general and price-quality trade-offs in particular.</p>
<p>Federated Farmers</p>	<p>Federated Farmers of New Zealand (FFNZ) represents more than 18,500 member farmers and rural families throughout New Zealand.⁴</p> <p>Through its network of 24 provinces, together with associated area networks or branches, FFNZ provides a locally based, democratic organisation that gives farmers a collective voice nationally and within each province.</p> <p>The Wellington office provides a centre for policy development, advocacy, lobbying and legal services. The main administration centre is based in Hamilton. There are also offices in Auckland, Tauranga, New Plymouth, Palmerston North, Nelson, Christchurch, Ashburton, Timaru, Dunedin and Invercargill to service the needs of members throughout New Zealand.</p> <p>A nation-wide team of Field Representatives regularly visit farmers. With nine industry groups representing the specific interests of meat and wool, dairy, mohair, rural butchers, high country and grain farmers, young farmers and beekeepers, the Federation covers a broad spectrum of the rural community.</p> <p>Each industry group represents the interests of that particular sector, and is supported by policy and administration staff.</p> <p>FFNZ is governed by a National Board and a National Council. The National Board meets six times a year and comprises of a President, Vice-President, two National Board Members and three Industry Group Chairs. The National Council involves the National Board and representatives from each of the 24 provinces and meets twice a year.</p> <p>As a voluntary, member-funded organisation, Federated Farmers is accountable to its members. Given the extent and breadth of its activity for its members and its advocacy role, Federated Farmers clearly fits the criteria outlined above and, therefore, in Vector’s view accurately represents the views of rural consumers (and for many issues, consumers generally).</p>

⁴ Refer Federated Farmer’s website at <http://www.fedfarm.org.nz>, reproduced in the supporting information.

Organisation	Description
<p>Grey Power</p>	<p>Grey Power represents a wide range of consumers throughout New Zealand. Grey Power has around 80 affiliated associations around New Zealand and has over 75,000 members.⁵</p> <p>Grey Power's national body, the Grey Power New Zealand Federation, has five office holders, seven zone directors, and five board members. The Grey Power New Zealand Federation has its office in Auckland and makes regular representation to government and to individual Ministers on issues of concern.</p> <p>The Federation is actively involved in many areas that concern consumers, including electricity. Grey Power was involved in the Ministerial Electricity Enquiry, as well as the process for the development and implementation of the thresholds regime. Grey Power, therefore, not only clearly fits the criteria outlined above, but also has a thorough understanding of the issues related to compliance with the thresholds, including price-quality trade-offs. Therefore, in Vector's view, Grey Power accurately reflects the views of domestic consumers</p>
<p>MEUG</p>	<p>The Major Electricity Users Group (MEUG) represents around 20 large consumers (Carter Holt Harvey, Fletcher Building, Air New Zealand, Comalco, etc) and Business New Zealand – a representative body that has affiliated organisations with approximately 76,000 members.</p> <p>MEUG's mission statement reads: "The members of MEUG are committed to ensuring the continuing availability of electricity services, at the lowest cost to the economy as a whole, consistent with sustainable development. Within this framework, the Group seeks to ensure competitive electricity prices and security of supply to the members of MEUG".</p> <p>MEUG members consume in aggregate approximately 34%⁶ of total power demand in New Zealand (this figure does not include Business NZ members). MEUG has been, and continues to be, actively involved in the electricity industry, including the development and implementation of the thresholds regime. MEUG also assists its members in taking forward issues specific to those members, often related to pricing and/or quality, directly with lines businesses. As a</p>

⁵ Refer Grey Power Board Bulletin 18, Vol2/12 December 2003, page 4, provided with the supporting information and Ministerial Briefing 2002 on Senior Citizens, Chapter 9, provided in the supporting information and available on the internet at <http://www.beehive.govt.nz/briefings/socialpolicy/seniorcitizens/chapter9a.cfm>

⁶ MEUG Letter to Electricity Governance Establishment Committee: Application form for voting rights from Consumers and Consumer Representatives, 25 October 2002, Attachment 2, page 2, included with the supporting information

Organisation	Description
	<p>result of its involvement in the industry and advocacy role, MEUG not only fits the criteria above (and therefore, in Vector's view accurately reflects the interests of large consumers), but also has a thorough understanding of the issues related to compliance with the thresholds, including price-quality trade-offs.</p>
<p>Ministry of Consumer Affairs</p>	<p>The Ministry's primary role is to create an environment that promotes good and accurate information flows between suppliers and consumers so that consumers can transact with confidence. The Ministry's work covers⁷ the:</p> <ul style="list-style-type: none"> o development of consumer policy including consumer protection, product safety and weights and measures; o provision of appropriate, accurate and accessible information, education and advice for consumers and businesses on consumer laws and issues ; o investigation of unsafe consumer products; o provision of advice on consumer representation, including a consumer representation nomination service to government departments and agencies; o administration of a range of consumer legislation; & o enforcement of the Weights and Measures Act 1987. <p>The Ministry also has a specific Energy Safety Service (ESS), comprising of the Energy Safety policy and operations personnel, which seeks to ensure the safe production, distribution, installation and use of electricity and gas. In particular, ESS look at:</p> <ul style="list-style-type: none"> o the safeguarding of people and property from the dangers of electric shock and electrical fire; o the safety of electrical appliances, electrical installation wiring, and electrical supply and generating systems; o quality measurements of gas; and o the quality of petrol and diesel. <p>The Service:</p> <ul style="list-style-type: none"> o provides advice to government on energy safety policy issues; o works with industry to promote high safety and quality

⁷ Refer "About Us" section of the Ministry's website at <http://www.consumeraffairs.govt.nz/aboutus/index.html> , which is reproduced in the supporting information for the Commission's convenience

Organisation	Description
	<p>standards in networks, installations and products;</p> <ul style="list-style-type: none"> ○ conducts research on energy safety issues; ○ provides information, education and advice for consumers and business. <p>As the Ministry, by definition, represents consumer interests and it is the Ministry's job to create an environment that ensures better information flow between suppliers and consumers, as well as safety of electricity delivery and its use, the Ministry, in Vector's view, accurately reflects the views of consumers.</p>
<p>Contact Energy Energy Online Mighty River Power Genesis Power Meridian Energy TrustPower</p>	<p>Together, these companies retail electricity to all consumers connected to Vector's network. Retailers engage with consumers directly (in the case of large consumers and domestic consumer complaints and queries) and indirectly by administering customer surveys⁸ to better understand consumers' needs and preferences, including with regard to the quality of distribution goods and services they require and pricing.</p> <p>Such engagement takes place on a regular basis and ensures that retailers are aware of consumer preferences and requirements. Retail companies also have a much better and much more detailed understanding (than the average domestic or small commercial consumer) of the electricity industry as a whole and the relevant issues (including those related to network engineering, reliability and quality of service, and regulation). Retailers, therefore, are able to accurately and effectively reflect the views of consumers and relay them to lines businesses by combining their understanding of consumers' needs with their knowledge of important technical and operational matters within the electricity industry, including the interface between its different components (generation, transmission, distribution and retail).</p> <p>These organisations meet the criteria outline above and therefore, in Vector's view, accurately reflect the views of small commercial and residential consumers.</p>
<p>Electricity Complaints Commission</p>	<p>The Commission (which Vector is a member of) offers an independent dispute resolution service for complaints consumers may have about their electricity lines or electricity retail company. The Commission investigates complaints about member companies of the scheme, once the complaint</p>

⁸ Refer Contact's letter of 23 January 2004 in response to Vector's letter of 17 December 2003, Genesis e-mail of 2 February 2004, Grid Security Survey carried out by Mercury Energy in 1998

Organisation	Description
	<p>has reached a deadlock (i.e. after company-specific complaints resolution procedures have been exhausted).⁹</p> <p>The Commission informs consumers on how they can make a complaint and provides a clear process, which gives consumers an easy step-by-step way to get their concerns heard. The Commission regularly engages with consumers, as well as with lines businesses on behalf of consumers, on a range of issues, including with respect to price and quality (and their link). Therefore, the Commission satisfies the criteria outlined above and is well placed to provide input with respect to the consumer engagement criterion, including with respect to price and quality matters.</p>
Wellington Chamber of Commerce	<p>Wellington Chamber of Commerce, established in 1856, encourages regional development and represents businesses in the Wellington region. The Chamber has around 1000 members, ranging from major corporations to sole traders. The Chamber promotes a broad pro-business policy platform.¹⁰</p> <p>The Chamber is governed by an elected President and a Board of Directors, supported by skilled and professional staff. Due to its varied membership and advocacy role, the Chamber satisfies the criteria outlined above and therefore, in Vector's view, accurately reflects the interests of commercial and industrial consumers in the Wellington area.</p>
Auckland Chamber of Commerce	<p>The Auckland Chamber of Commerce is a not-for-profit business association focused on leading business success in the City of Sails. The purpose of the Chamber is to provide the best commercial environment to help its 7,000 member organisations achieve their business goals.¹¹ Due to its varied membership and advocacy role, the Chamber satisfies the criteria outlined above and therefore, in Vector's view, accurately reflects the interests of commercial and industrial consumers in the Auckland area.</p>

33 The nature and outcomes of engagement with the above organisations is discussed in detail in the *Methods of Consumer Engagement* section. However, generally, the feedback received from this consultation suggested:

⁹ Refer the Electricity Commission's website at <http://www.electricitycomplaints.co.nz> and <http://www.electricitycomplaints.co.nz/about.htm>, reproduced in the supporting information.

¹⁰ Refer Wellington Chamber's website at <http://www.wgtn-chamber.co.nz/>, reproduced in the supporting information

¹¹ Refer the Auckland Chambers' website at <http://www.chamber.co.nz/> and the Case Study: Michael; Barnet, Auckland Chamber of Commerce, attached with the supporting information

- it was/is unrealistic to expect residential and small commercial consumers to form informed views on price-quality trade-offs;
- that consumers are generally happy with the current price-quality combination and would not be willing to pay higher prices in order to improve quality; and
- a decrease in quality is unlikely to be acceptable to most consumers.

34 In respect of price-quality trade-offs – one component of the Consumer Engagement Criterion – while Vector discusses these with its consumers on a regular basis, Vector has not sought to survey its customers on the basis of a menu of price-quality options for the express purpose of demonstrating compliance to the Commission. Vector has, however, conducted such a survey (discussed in more detail below) in 1998 and is continuing to advance work on price-quality trade-offs for the purpose of resetting the thresholds.

35 As the Commission knows, Vector has undertaken, and shared with the Commission, analysis in this area already and we will continue to do so going forward. As the Commission has itself signaled, Vector's view is that well-established business processes for consumer engagement are of far greater importance than the simple fact that a survey, irrespective of how meaningful, has been undertaken.

36 For this first assessment of the Criterion, Vector has, therefore, sought to focus on relevant business processes and the work it is already doing with respect to engagement with consumers. With the benefit of the Commission's feedback on this compliance statement, and other compliance statements becoming publicly available, Vector will continue to assess what, if any, new customer engagement initiatives are necessary or desirable for Vector to continue to be seen as a leader in this important area. Vector is currently working on a number of projects that are relevant, including:

- undertaking further analysis on linking price and quality for the next resetting of thresholds (building from the significant analysis that Vector has already undertaken, and shared with the Commission, in this area); and
- conducting internal business enhancement work in a range of areas to ensure Vector remains a leading infrastructure provider and further improves its operations, most relevant being with respect to (noting these are significant, high-importance internal projects drawing input from a large number of people across the business):

- examining what business models best suit Vector (a larger company following the acquisition of UnitedNetworks), including with respect to conveyance versus interposed use of systems agreements with retailers (or a hybrid of both); and
- examining the optimal specification of Vector's investment models, including with respect to how to explicitly encapsulate in those models a range of trade-offs (e.g. between price (cost) and quality, between capital expenditure and maintenance).

37 Given the above is work in progress, it has not been appropriate to share detailed information with the Commission at this time. Nevertheless, the above summary underscores the evolutionary nature of consumer engagement and capture of robust information on price-quality trade-offs.

38 Vector would also like to note that, historically, methods of consumer engagement and the type of information available about consumers in the Auckland area has been different to that in the Wellington and Northern areas (recently acquired from UnitedNetworks), which would have made it difficult at this time to conduct a meaningful customer survey specifically for the purpose of compliance with the Consumer Engagement Criterion. Vector continues to further integrate and improve its internal systems and information stores, following the acquisition, and to consider how best to engage consumers in the future on a consistent basis across all areas, including through the use of surveys.

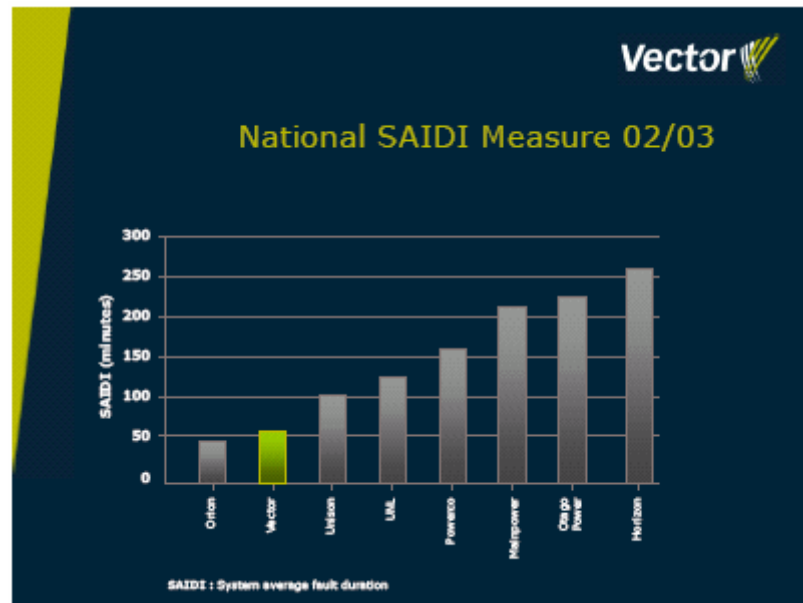
39 Vector continues to be of the view that price and quality, given their interdependence, should be quantitatively combined into one threshold. Vector is continuing to advance analysis in this area with a view to a robust methodology being available for setting thresholds for the next regulatory period.

VECTOR'S COMMITMENT TO QUALITY

Introduction

40 Vector strives to provide an adequate level of quality to its customers at any given price level and to, where possible, improve the quality delivered without increasing prices. Vector has systems and processes in place to do this. As discussed below, Vector considers the four main aspects of the quality of distribution goods and services to be safety, customer satisfaction, reliability and power quality. Vector has (as demonstrated

by the graph below) and discussion throughout this document historically performed well compared to the rest of the industry with respect to quality in general and reliability in particular.



Ensuring company-wide focus on quality

41 In order to maintain and improve quality of service, Vector has chosen to adopt business processes that ensure a company-wide focus on quality. As an example, Vector's Corporate Incentive Scheme (CIS) is structured so that staff bonuses are dependant on company performance, including quality targets, such as reliability, safety and customer satisfaction.¹²

42 To keep staff updated and focused on quality performance, Vector provides staff with access to various interactive reliability reports (through the Vector intranet). From February 2004¹³, Vector also began to publish *On Target* – a bi-weekly newsletter for internal staff and Vector's six performance managed contractors, with a focus on quality and customer service. The specific purpose of *On Target* is as follows:

¹² See attached description of Corporate Incentive Scheme

¹³ Prior to February 2004, Vector also published *Watt Matters*, a similar publication covering only issues related to the Auckland area.

"**On Target** is a tool to keep all members of the wider Vector family up to date on our customer satisfaction and service levels, and provides helpful hints on what we can do to improve our service to our customers. Everyone at Vector and its business partners can have an impact on customer satisfaction. Remember every time you have contact with a customer or do anything that will have an effect on the customer, you are representing our brands and the perceptions the customer has of our performance."¹⁴

Safety

43 Vector employs health and safety practices across all parts of the business with a vision to be the safest place to work in New Zealand.¹⁵ Our safe work practice requirements and training extend to anyone who works on any of the Vector network, including all staff and service providers.¹⁶

44 Vector has a zero tolerance philosophy for workplace accidents, believing that every individual who works on or around our network deserves to return home safely at the end of each day. All Vector staff participate in Health and Safety training upon joining the company.¹⁷

45 Vector also runs an annual Safety Day to ensure all staff and service providers (more than 1100 people in total) are continually aware of the health and safety risks associated with working in the field and in the office, and how to manage them. This is a major investment by Vector in this aspect of quality. All Vector staff and service providers attend one of a number of (repeat) sessions, convened by the Chief Executive, to ensure a dedicated focus on safety. As well as receiving presentations, Vector staff and contractors participate in case studies that focus on health and safety do's and don't's, to ensure a continued focus on improvement in this important area.

46 To ensure that Vector's practices are maintained to a high standard, Vector employs Duke Energy (a world leader in safe work practices) to conduct a safety audit and provide recommendations for continuous improvement. Vector also ensures a company-wide focus on safety through assessing staff and service provider performance with respect to specific Key Performance Indicators (KPIs) related to safety. Their performance with respect to these KPIs affects bonus payments to Vector's staff and service providers.

¹⁴ *On Target*, Issue 1

¹⁵ Refer to Vector's Health and Safety Policy attached in the supporting documentation

¹⁶ Contractors' staff, and their sub contractors' staff

¹⁷ Refer "Getting it Right on Site" booklet, provided in the supporting information

47 Vector also ensures a focus on environmental safety, by prioritising repair jobs that are related to faults on the network, which cause safety concerns (including with respect to the safety of the natural environment, such as oil leaking from a cable). Such jobs are put ahead of the normal schedule and are carried out as soon as possible. Vector sets and tracks progress against specific KPIs related to environmental issues, as well as maintaining a full time staff member responsible for contingency planning.

48 To further improve its performance, Vector ensures that any oil used in the process of installing, repairing or replacing fluid filled cables, is biodegradable. Vector also installs "envelopes" around joint cables (the most common location of leaks) to help ensure that any leaks are better contained (the case prevents the oil from escaping into the soil). Vector records and investigates "near miss" environmental events (that could have resulted in accidents) to better understand the trends and help prevent actual accidents in the future.

49 As a result of this dedicated approach, Vector and its service providers have the following safety record:

- more than 2 years and 2 million person-hours without any lost time injuries¹⁸ in the Auckland area since 3 April 2002;
- an overall lost time injury frequency rate (LTIFR) per million person-hours worked of 2.9 for the last 12 months (significantly less than the New Zealand industry average of 5.3); and
- total recordable injury frequency rate per million person-hours worked being reduced by 47.6% year on year for the Auckland region, between the years ending March 2003 (62.5 person hours) and March 2004 (32.75 person hours).

Network modelling

50 Vector uses a sophisticated approach to network modelling in order to simulate the workings of its network. Essentially, all our electricity network components (e.g. overhead lines, underground cables, transformers, switchgear) are modeled in entirety, starting from Transpower Grid Exit Points (GXPs) down to distribution transformers.¹⁹ The model can also 'drill down' in order to simulate the workings of a segment of the

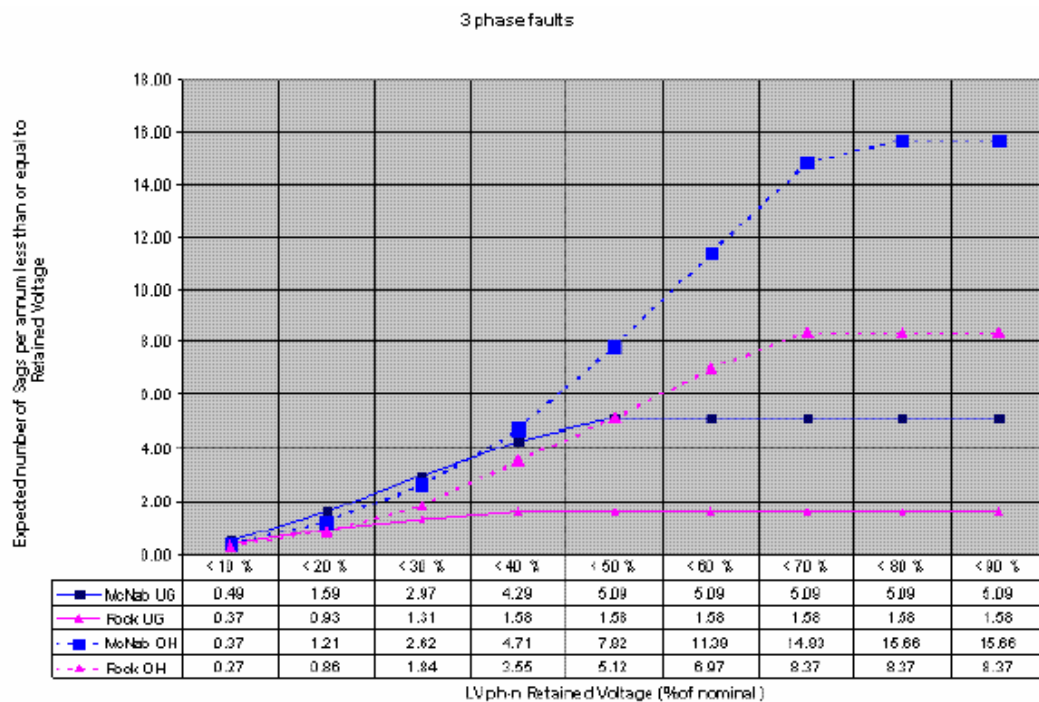
¹⁸ Injuries that result in time lost from work.

¹⁹ These, on average supply 50-60 residential consumers, or one industrial consumer.

network down to each individual connection point (ICP). To the best of our knowledge, this model is the largest of its kind in New Zealand.

51 The model allows Vector to simulate and analyse the effect that possible changes or events may have on the network. Thus, it can be used to run scenario tests, in order to analyse the impact of equipment failure, storms and other extreme events on reliability, as well as the effect of adding or removing load at different locations around the network. This allows Vector to identify parts of the network that could be improved and, accordingly, to plan efficient maintenance and investment around these weak links to improve reliability.

52 Importantly, the model also allows Vector to provide consumers (mostly large commercial and industrial) who are considering a new connection or a possible change to the quality of their supply, with detailed information about, and analysis of, different possible scenarios (often involving a price-quality trade-off). This information shows the customer what changes they are likely to see in terms of reliability and power quality, should they go ahead with a particular option. The graphic below is taken from a presentation given to a large customer and shows the expected impact of four different options on the number and severity of voltage sags.



53 Although this model is rarely used as a tool for direct engagement with residential and small commercial consumers, the analysis carried out using the model feeds directly into the asset management planning process, to select those projects that contribute most to the achievement of the targeted quality of service on the network.

Power quality

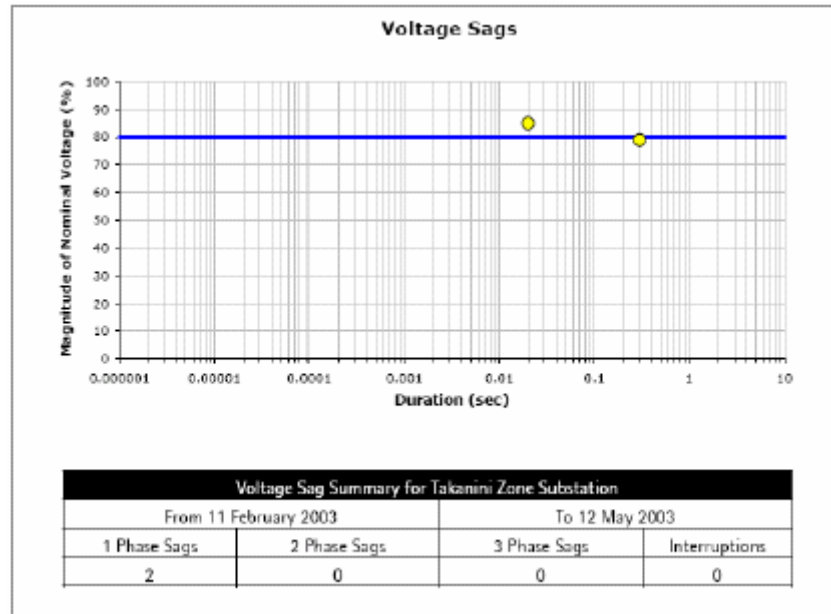
54 Vector recognises the importance of power quality²⁰ to our customers. Accordingly, Vector ensures that its network is designed to a quality level that most modern equipment can effectively operate with. However, as technology advances, new electronic equipment is becoming increasingly sensitive to power disturbances. Also, some specific businesses, especially those involved in manufacturing and service industries, have a higher reliance on disturbance-free power.

55 Vector continually strives to reduce power disturbances that affect our customers. However, all electricity networks, as a matter of engineering and physics, are subject to unplanned disturbances. It is, therefore, impossible to guarantee a perfect power supply free of voltage sags, surges or harmonic distortions. These are often the result of faults or incidents occurring elsewhere, including disturbances originating from neighbouring commercial premises or even the customer's own equipment, the effect of which ripples through other parts of Vector's network.

56 A range of strategies have been implemented to effectively report and manage the impact of power quality on Vector's customers, including:

- an ongoing programme to install power quality measuring equipment at Transpower's grid exit points, zone substations and customer sites (there are currently 20 such sites);
- an electronic mail system that automatically sends a power quality report (by e-mail) in real time to customers informing them that their plant could have experienced a power quality disturbance;
- a web based reporting system that makes both real time and historical power quality information available to customers. The graphic below illustrates a typical report that is available on the Vector intranet (or sent to a customer direct);

²⁰ Power quality relates to the consistency of voltage and current delivered by the network. Sudden sags or spikes in voltage (with corresponding changes in current) can damage equipment.



- application of modelling software and tools to predict the impact of power quality disturbances on customers; and
- application of mobile power quality instruments to investigate power quality related complaints.

Sponsoring research

57 Vector sponsors research that is relevant to improving the quality performance of its network. Currently Vector is supporting research being carried out by Kavinesh Singh, a PhD student at the University of Auckland. The objective of the research is to develop algorithms and software decision-support tools that use advanced mathematical optimisation techniques to devise network expansion plans, which are both reliable and cost-effective to build.

Business information unit

58 Vector has invested significantly in cutting edge technology to ensure that its assets are managed efficiently (continuously improving both quality and cost efficiency), make better business decisions and create business solutions tailored specifically to Vector's staff, service provider and customer needs. Vector's business information unit – a dedicated team undertaking information analysis, data visualisation and spatial analysis in a way that, to Vector's best knowledge, no other network company in New Zealand currently does – plays a key role in achieving this.

Purpose of Business Information Unit

59 Vector invests heavily in maintenance and capital works to ensure its network is running at optimum levels and can cater for future growth. The company generates extremely large volumes of multi-dimensional information – including asset, customer, financial and operational data – which all relate to each other, or are interlinked, to varying degrees. One of the challenges for the Business Information Unit is to process and present this information in a way that assists the company in making decisions on where best to target expenditure on the network in order to improve reliability and, ultimately, provide ongoing benefits to customers.

60 Summarised below are some of the systems and processes that assist the Unit in providing such valuable information and the impact they have on quality.

Systems

61 Vector has developed systems that allow multiple data types to be combined into a single, effective decision-making framework. Given the sheer volume of data available, the systems were developed so that information could be compiled and displayed in a number of formats, including:

- *interactive* - the provision of web-based reports that allow users to select different information views and drill down in to various areas for further detail; and
- *static* - the provision of hardcopy / PDF output, providing a fixed view of the information.

62 The systems use a number of different products depending on the information requirements, including:

- report development - "Business Objects" - used to produce interactive web reports;
- spatial analysis - "ArcMap" - analyses geographic and non-geographic information to produce various forms of maps;
- data visualisation - Vector developed tools using standard products - (produces hardcopy or PDF format diagrams);
- data manipulation - MS Access / MS Excel;
- data warehouse creation - Microsoft DTS; and

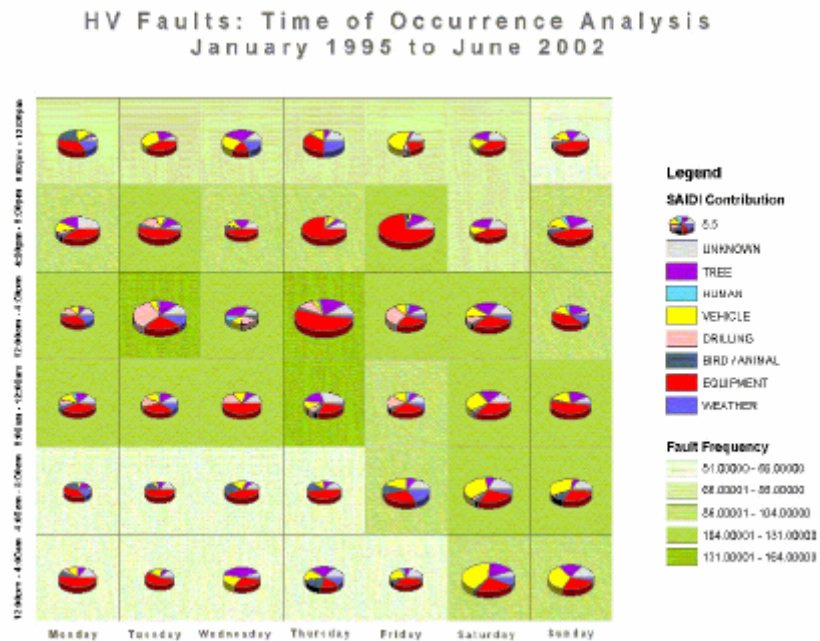
- o report distribution automation - Vector developed tools.

Resulting impact on quality

63 Through the use of graphs, spatial analysis and other data visualisations, service quality can be better understood, both in terms of reporting events, as well as proactive network maintenance and investment in targeted areas.

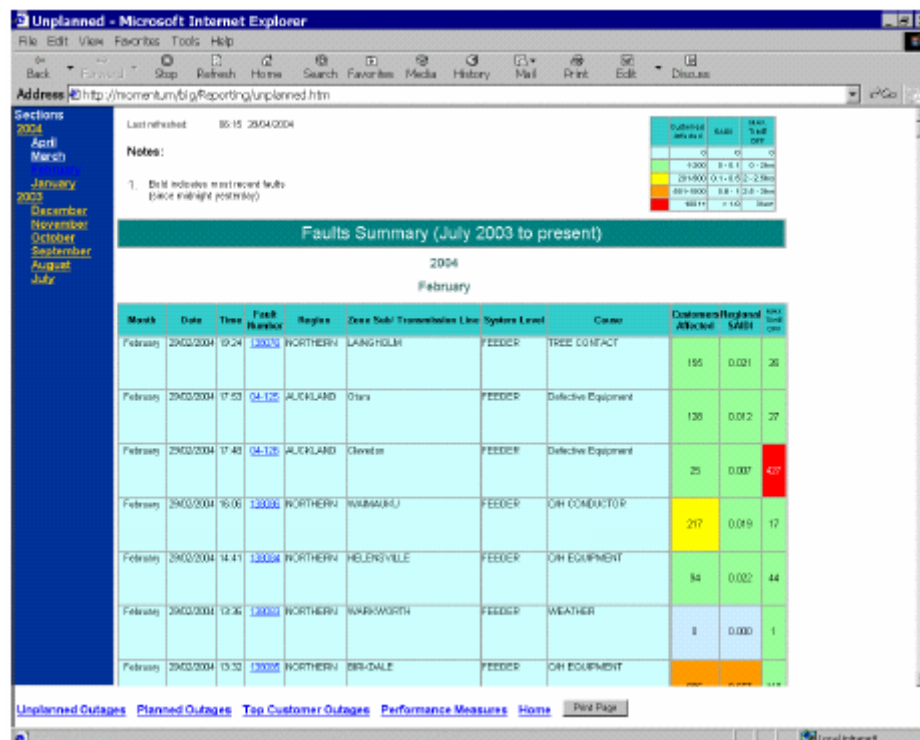
64 For example, in a single graphic below, the relationships between several parameters that relate to faults on the network are shown – such as the time of day, day of the week, fault frequency, impact on customers and fault cause. This helps Vector identify and focus on areas where improvements in network reliability are most needed. This kind of information also assists in the scheduling of work performed on the network, as well as the scheduling of down time to perform upgrades and maintenance on Vector’s call centre systems. If necessary, the information can also, for example, allow a large proportion of resources to be deployed to one part of the network (during a line upgrade for example), or the call centre being offline (for example, due to software upgrades), at a time when interruptions are least likely to occur.

65 The graphic below is an example of how the frequency, duration, causes and timing of faults are all captured on one screen.



66 Flexibility is one of the key capabilities of the systems, something that was identified at the design stage as imperative given the company's ever changing structure and focus. The purchase of UnitedNetworks in 2002, and the subsequent integration during 2003, proved the value of this flexibility as the reporting of data across both ex-businesses (the old Vector and UnitedNetworks) was achieved within 4 months of the merger taking place. The value was the provision of a consolidated view of the performance of both companies during the very early stages of integration. Through the use of such tools, Vector is able to better understand fault causes and restoration times. This enables Vector to focus on those areas that will improve its quality performance and benefit customers the most.

67 The graphic below shows a daily fault report, which is automatically updated on Vector's intranet (available to all staff) and sent by e-mail to relevant Vector staff and service providers. When needed, the system can also be accessed remotely. It extracts information from operational systems used to manage Vector's network and presents the relevant information in a consistent format, regardless of the source operational system. This is another tool that helps better plan and coordinate Vector's response to faults and improve the quality of service delivered to consumers by ensuring faults are dealt with in the most efficient way possible.



Unplanned - Microsoft Internet Explorer
 Address: http://momentum.big/Reporting/unplanned.htm
 Last refreshed: 05:15 29/04/2004

Notes:
 1. Bold indicates most recent fault (date and/or position)

Faults Summary (July 2003 to present)

2004
 February

Month	Date	Time	Fault Number	Region	Zone/Sub	Transmission Line	System Level	Cause	Customers Affected	Regional SAIFI	Total Outage
February	29/02/2004	09:24	130039	NORTHERN	LANGFOLDR		FEEDER	TREE CONTACT	155	0.021	26
February	29/02/2004	07:53	04126	AUCKLAND	Otara		FEEDER	Defective Equipment	130	0.012	27
February	29/02/2004	07:43	04126	AUCKLAND	Clevedon		FEEDER	Defective Equipment	25	0.007	42*
February	29/02/2004	06:06	130036	NORTHERN	WAIMAUKU		FEEDER	OH CONDUCTOR	217	0.019	17
February	29/02/2004	14:41	130028	NORTHERN	HELENSVILLE		FEEDER	OH EQUIPMENT	54	0.002	44
February	29/02/2004	02:26	130037	NORTHERN	WARKWORTH		FEEDER	WEATHER	1	0.000	1
February	29/02/2004	03:30	130035	NORTHERN	BIR-DALE		FEEDER	OH EQUIPMENT			

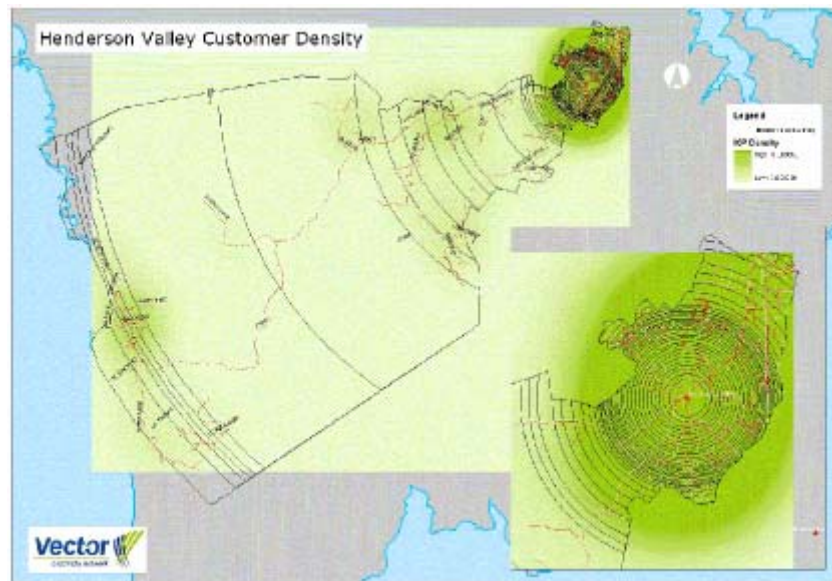
Unplanned Outages | Planned Outages | Top Customer Outages | Performance Measures | Home | Print Page

68 Other examples of the way Vector's technological and business systems help maintain and improve quality and reliability of service include:

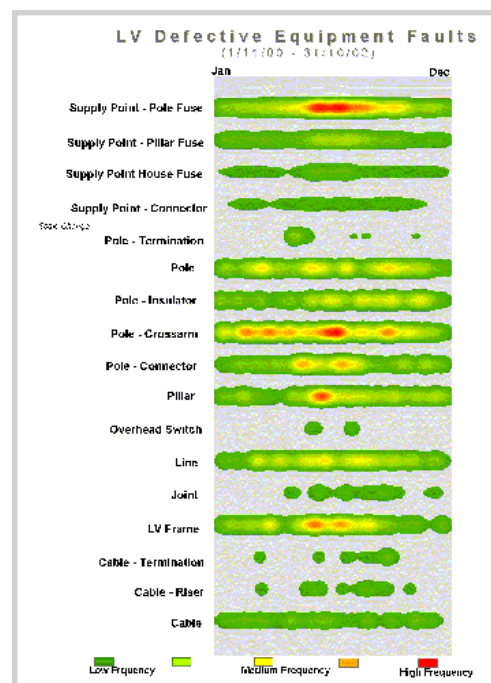
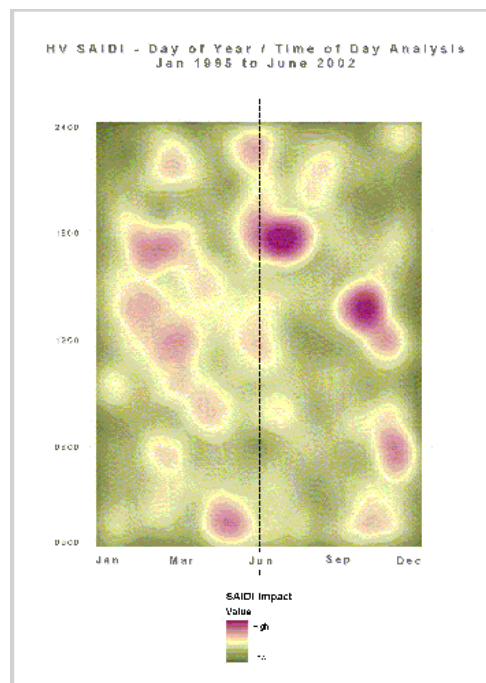
- gathering fault related information from and providing information to people working out in the field through the use of wireless hand-held devices (demonstrated in the graphic below) to ensure that Vector's head office and the people in the field have access to up to date information about the situation on the entire network, thus helping to improve the effectiveness with which Vector can respond to and repair faults on its network;



- gathering information using a Corona camera (the only one of its kind in New Zealand) to identify problem areas or 'hot spots' that require attention. The camera is able to identify the corona (an invisible halo or aura) defective electrical equipment produces that the naked eye and other commonly used maintenance techniques can not.
- calculating and graphing different geographic radii containing equal numbers of customers to better understand consumer density, which directly feeds into network design, build and maintenance (graphic directly below) to improve reliability and power quality; and



- o presenting complex information using creative visuals, which make the information easier to interpret (graphics below) and also assists Vector in identifying specific opportunities to improve reliability and quality of service.



69 The examples above are only a snap shot of the various outputs Vector uses to plan investment and maintenance on the network in order to improve reliability and, ultimately, provide further benefits to its customers.

RELIABILITY CRITERIA OF THE QUALITY THRESHOLD - CLAUSES 6(1)(A) AND 6(1)(B)

First reliability requirement (s6(1)(a) of the Notice) (SAIDI)

70 Vector does not comply with s6(1)(a) of the Notice.

71 As required by s6(1)(a), lines businesses are required to demonstrate that their SAIDI for the assessment year does not exceed their five year average SAIDI. As summarised in the tables below, Vector does not comply with this requirement.²¹

Notice Requirement	SAIDI for the assessment year	Is not to exceed	The five-year average SAIDI
Notice expression	$SAIDI_{,2004}$	\leq	$\left(\frac{SAIDI_{1999} + SAIDI_{2000} + SAIDI_{2001} + SAIDI_{2002} + SAIDI_{2003}}{5} \right)$
Vector Result	104.4	$>$	85.5

Magnitude of Vector Breach	18.9 SAIDI minutes	22.14% above target
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Second reliability requirement (s6(1)(b) of the Notice) (SAIFI)

72 Vector does not comply with s6(1)(b) of the Notice.

73 As required by s6(1)(b), lines businesses are required to demonstrate that their SAIFI for the assessment year does not exceed their five year average SAIFI. As summarised in the tables below, Vector does not comply with this requirement.²²

²¹ Detailed calculations of the figures are attached in the supporting information

²² Detailed calculations of the figures are attached in the supporting information

Notice Requirement	SAIFI for the assessment year	Is not to exceed	The five-year average SAIFI
Notice expression	$SAIFI_{,2004}$	\leq	$\left(\frac{SAIFI_{1999} + SAIFI_{2000} + SAIFI_{2001} + SAIFI_{2002} + SAIFI_{2003}}{5} \right)$
Vector Result	1.447	$>$	1.313

Magnitude of Vector Breach	0.134 SAIFI	10.23% above target
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Scope for post-breach exclusion of 'extreme events'

74 The Commission has made clear that, post any breaches of the reliability criterion, it will consider the exclusion of extreme events, such as storms. Specifically, the Commission has said:

"Any lines business breaching the reliability criterion may provide the Commission with an explanation supported by evidence of mitigating circumstances. The Commission will consider such explanatory information and will not investigate further if it is satisfied the breach was due to uncontrollable circumstances."²³

"The Commerce Commission has today [20 February 2004] confirmed that interruptions to electricity supply in the lower North Island due to severe storms this week would be taken into account in the electricity lines businesses quality threshold assessments for the current period."²⁴

"As explained in its draft Assessment and Inquiry Guidelines, and summarised its 20 February media release, the Commission will take into account the impact of relevant extreme and rare events when assessing lines businesses against the quality threshold."²⁵

²³ Regulation of Electricity Lines Businesses Targeted Control Regime: Threshold Decisions, 6 June 2003, page 24, para 86

²⁴ Commerce Commission Media Release 2004/93, issued on 20 February 2004

²⁵ Letter from Calum Gunn re Impact of storms on quality threshold, dated 26 February 2004, paragraph 3

75 Vector finds itself in the position of needing to invoke such exclusions from any post-breach investigation of Vector's breach, due to the breach being caused by extreme events (discussed below).

76 While the Commission has only explicitly commented on one set of specific extreme events – the February storms – the Commission's comments above signal that there are other extreme events that cause breaches of the quality threshold over time, including, for example, other storms similar in severity to the February storms (which is the case for Vector in the assessment year in question).

Explanation of breach of the reliability criterion

77 Vector submits that the breach of the reliability criteria of the quality threshold resulted due to circumstances outside Vector's reasonable control, including extreme weather conditions that affected:

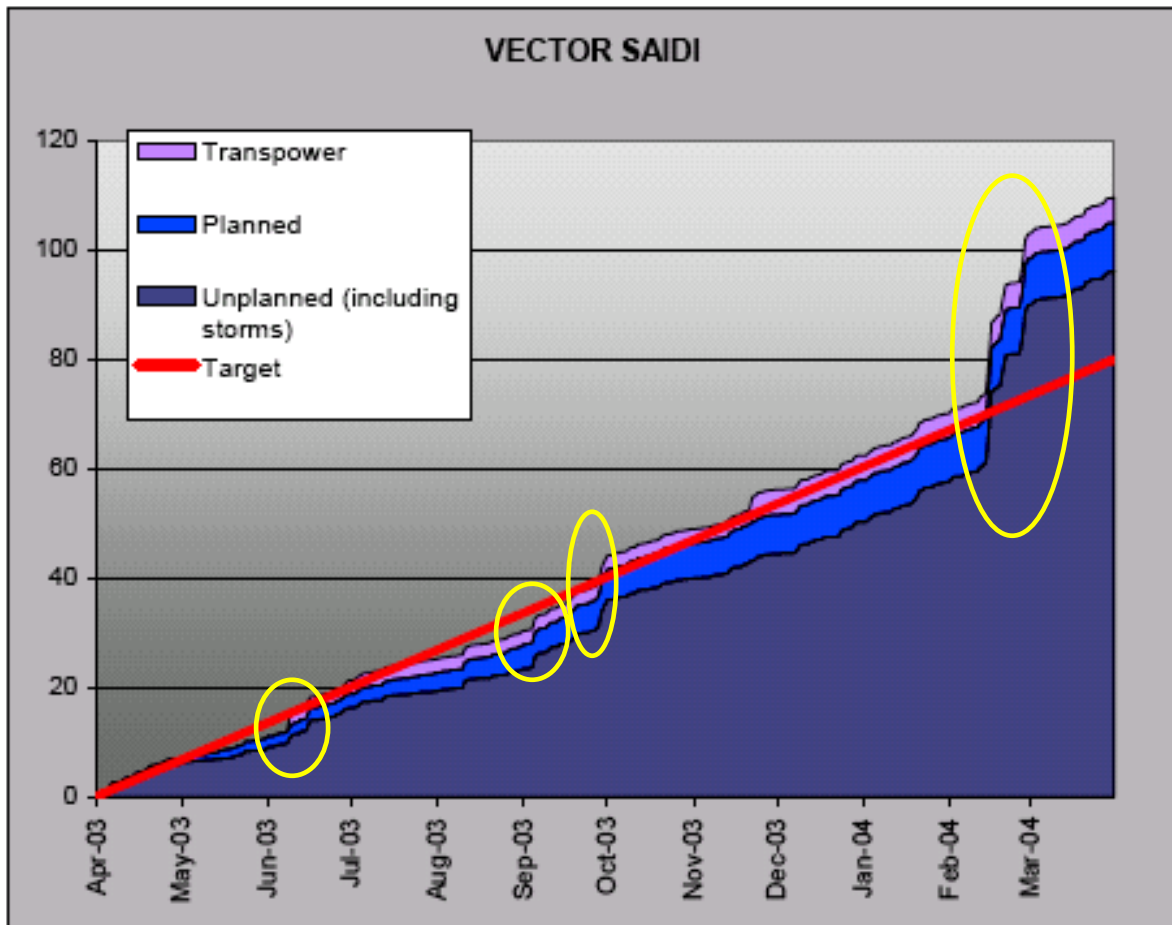
- the Wellington area on 9 and 10 June 2003, 18 September 2003, 21 January 2004 and 15, 16, 18 and 21 February 2004;
- the Northern area on 29 September 2003, and 15, 20, 27 and 28 February 2004; and
- the Auckland area on 15, 16, 20 and 28 February 2004.

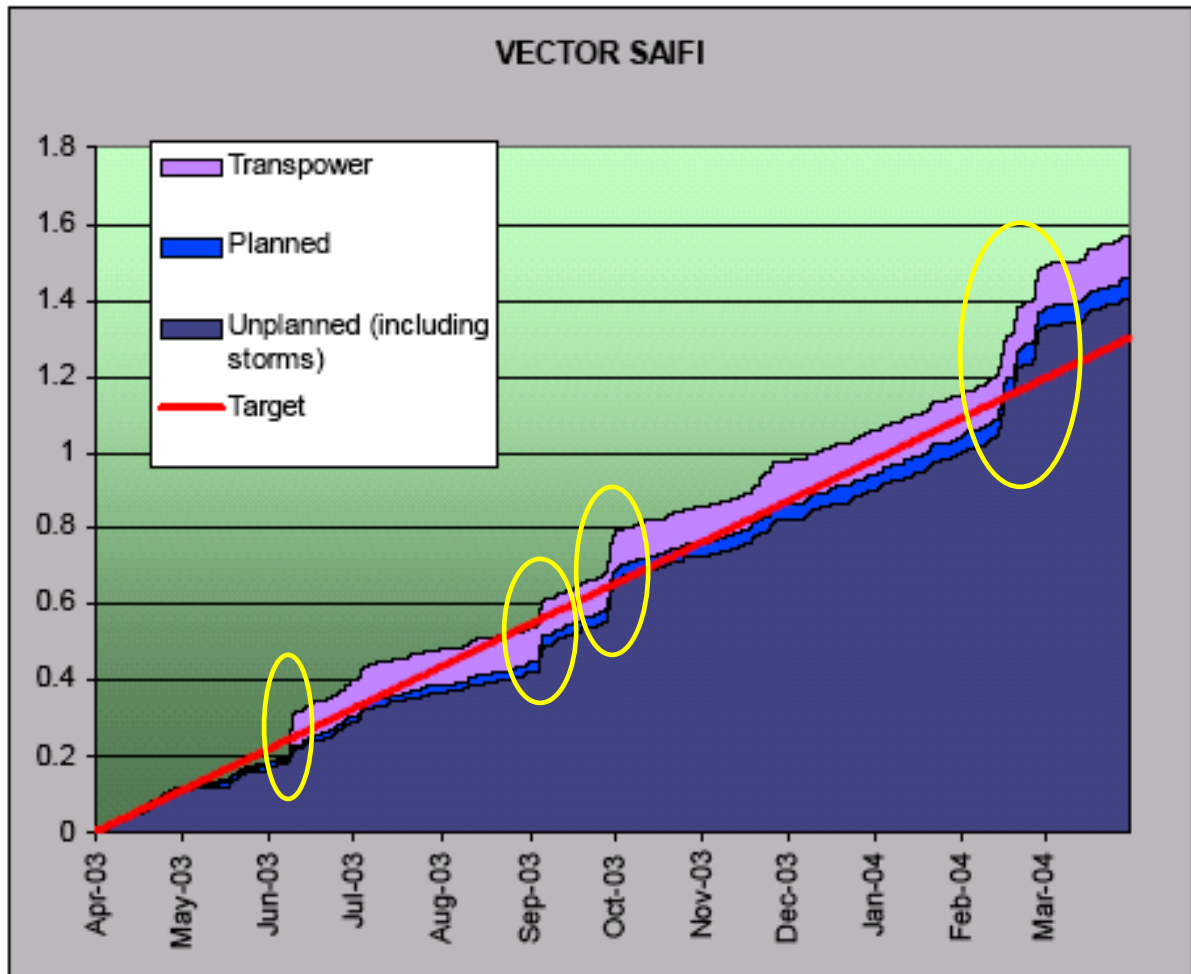
78 Whilst the storms in February, affecting most of the North Island, were well covered in the media and, as noted above, identified by the Commission in a media release as an extreme event, there were also other extreme weather events during the year – specifically, in September and June 2003, as well as January 2004 – that also, in Vector's view, constitute extreme events. Analysis shows (summarised below²⁶) that, had these storms not occurred, Vector would not have been in breach of the reliability criterion.

79 Before describing the analysis, the impact of the storms in September 2003 and February 2004 in particular can be readily seen on Vector's cumulative SAIDI and SAIFI trend graphs through the assessment year²⁷ (circled in red).

²⁶ The full details of the analysis are provided in the supporting information.

²⁷ Source: On Target – Issue 6, 26 April 2004

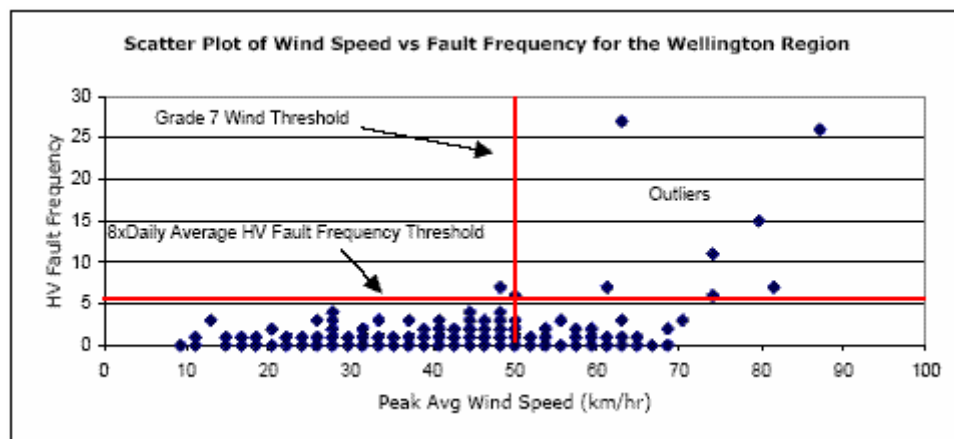
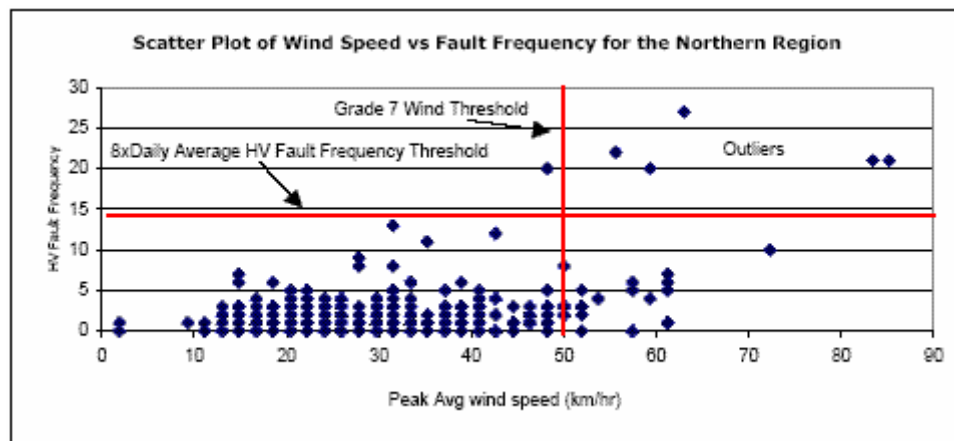
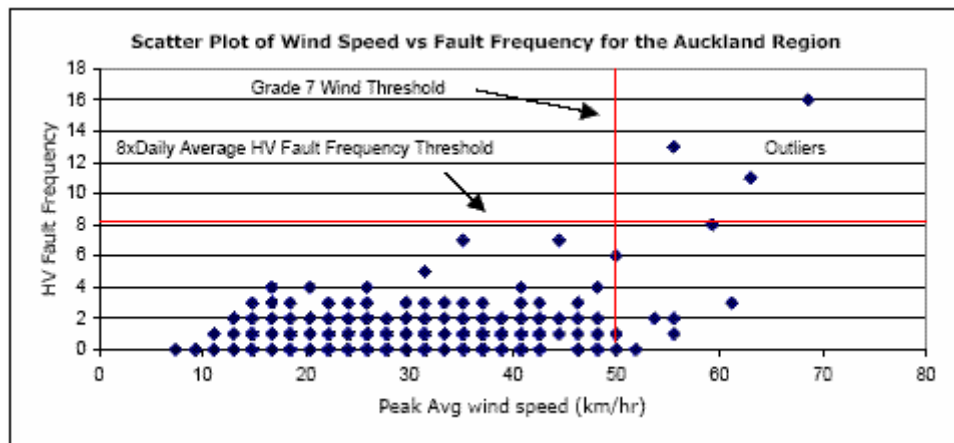




Analysis of extreme weather events

80 The analysis carried out by Vector identifies specific dates on which Vector's network were badly affected by extreme weather conditions.

81 This was achieved by analysing all days over the assessment period to identify outliers with respect to unusually high number of faults occurring *and* unusually high peak average wind speed for that day. The graphics below show the scatter diagrams used to identify such outliers.



82 More specifically, the graphs were compiled on the following basis:

- all HV faults during the assessment year were plotted on a scatter-gram, by wind speed (x-axis) and fault frequency per day (y-axis) (noting that some data points coincide such that 365 data points may not appear);

- o the vertical black line is based on grade 7 (near gale-force) or higher winds (as defined on the Beaufort wind scale to be 50 km/h or higher) *sustained on average over a period of one hour* (noting that wind speeds of this level not only cause faults, but also make repair of the network difficult given safety concerns from, for example, using ladders);

Land Beaufort Wind Scale				
B.No.	Description	Knots	Km/hr	How to recognise
0	Calm	0 - 1	0 - 2	Smoke rises straight up
1	Light Air	1 - 3	3 - 6	Smoke drifts
2	Light Breeze	4 - 6	7 - 11	Wind felt on face; leaves rustle
3	Gentle Breeze	7 - 10	12 - 19	Flags flap; twigs move all the time
4	Moderate Breeze	11 - 16	20 - 28	Papers blow; small branches move.
5	Fresh Breeze	17 - 21	29 - 38	Small trees sway
6	Strong Breeze	22 - 27	39 - 49	Large branches move, wind whistles
7	Near Gale	28 - 33	50 - 61	Whole trees sway
8	Gale	34 - 40	62 - 74	Twigs break off, Gale warning on radio
9	Strong gale	41 - 47	75 - 88	Large branches break, some damage
10	Storm	48 - 55	89 - 102	Trees uprooted; major damage
11	Violent Storm	56 - 63	103 - 117	DANGER - TAKE SHELTER
12	Hurricane Force	64+	118+	DISASTROUS

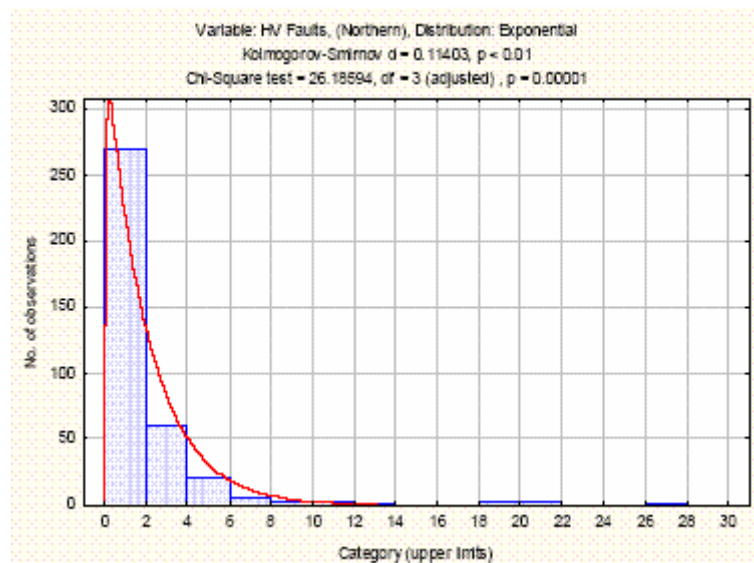
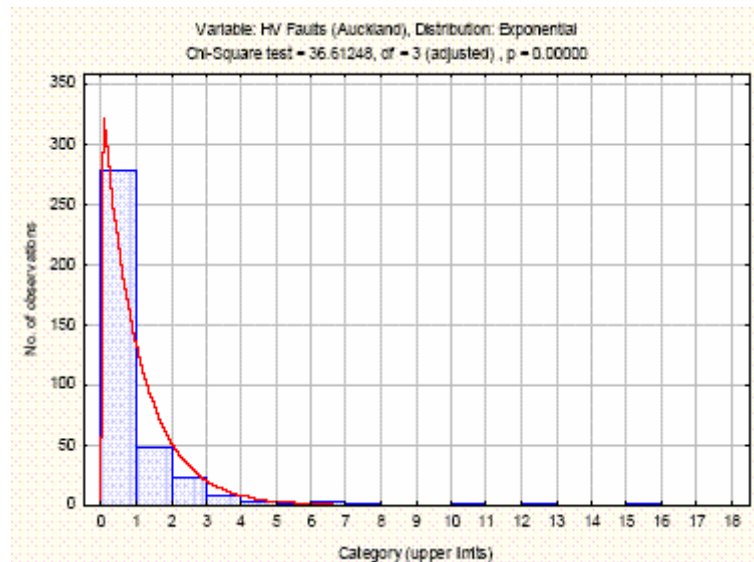
From our discussions with NIWA (National Institute of Water & Atmospheric Research) and the MetService, (both of which are expert meteorological bodies) as well as our own research on the internet, the Beaufort wind scale is an internationally accepted standard used by the World Meteorological Organisation (WMO). The above graph is sourced from the MetService website.²⁸ Vector has attached with the supporting information a report from NIWA, which discusses the extreme nature of the weather during the days Vector has excluded in its analysis. NIWA's report also identifies a number of other days, which Vector has not sought to exclude, during which extreme weather events occurred.

- o the horizontal black line is based on HV fault frequency, with the number of HV faults recorded for all days above the line being eight or more times the

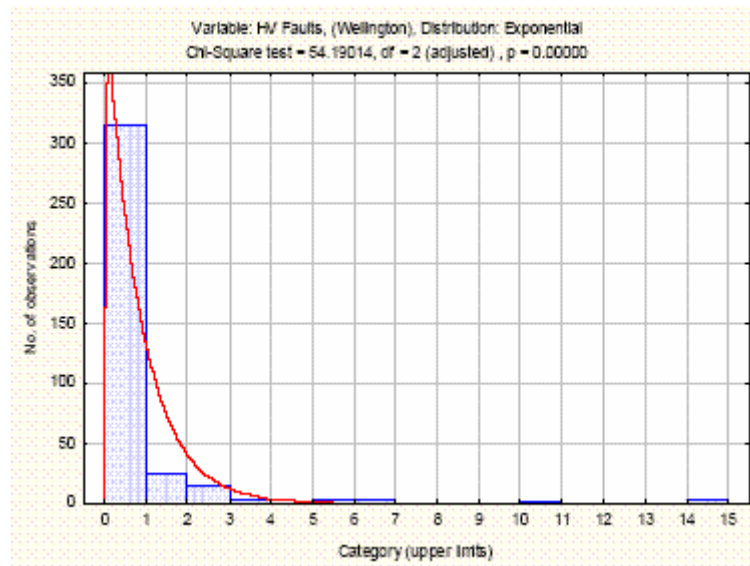
²⁸ http://www.metservice.co.nz/learning/instruments_anemometer.asp

daily average number of HV faults for that year (being an informed judgement by Vector’s reliability experts as to whether the number of interruptions is outside the ordinary / is extreme).

83 Whilst the assumption that outlier days must be over 8 times the daily average number of HV fault frequencies was initially a judgement by Vector’s reliability experts, Vector has also tested the statistical significance of this assumption by fitting an exponential distribution to the data (illustrated below (noting that Vector also examined (but not shown) statistical fits on the basis of a Poisson distribution and a Geometric one))²⁹.



²⁹ The full analysis is attached with the supporting information



84 This analysis allowed Vector to further assess the reasonableness of the 8-multiple assumption that Vector made. Vector's analysis shows that occurrences of HV faults above the cut off point chosen by Vector (8 times the average daily HV fault frequency) are extremely unlikely to take place, namely the probability of such events is 0.1% (Auckland), 0.1% (Northern) and 0.3% (Wellington). The low-level of these probabilities further underscores the reasonableness of the assumption Vector has made to identify true outlier days for fault frequencies. Vector notes that this was an initial attempt at statistical analysis for the purpose of excluding weather related events, which Vector will continue to try and advance over time.

85 Based on the approach described above (8-multiple of average daily HV faults and 50kmh and above winds) the graphs then identify, in the top right quadrant, a number of candidate data points that *may* (but are not definitely to) be removed on the basis that they are due to storms. In other words, near gale force winds and high interruptions are necessary but not sufficient conditions for a data point to be removed. Data points were only then removed after examining Vector's register of HV faults and that proving that at least 50%³⁰ of the interruptions were the result of storm-related uncontrollable events, such as tree contact, branches on lines, lines clashing, broken cross-arms, poles, binders, insulators and jumpers, and lines on the ground, as recorded in Vector's fault classification; 50% of faults for which the cause is unknown³¹ were also assumed to be the result of uncontrollable events.

³⁰ As is demonstrated in the detailed analysis, for most data points this percentage was much higher

³¹ In Vector's view it is a reasonable and conservative assumption to make that there is a 50% chance of an "unknown" fault to have been, in the presence of a storm, caused by weather related

86 It is important to note that although only a percentage of the faults occurring on such days can be linked directly to storms, Vector’s ability to repair faults is severely affected by extreme weather (for example, due to safety concerns when using ladders during high winds). Thus the SAIDI and SAIFI impact of faults on storm days, the causes of which could not be directly linked to extreme weather, is far higher than it would have been had they occurred on a normal day.

87 In order to normalise Vector’s performance over the assessment year, the SAIDI and SAIFI figures for outlier days were replaced with the average SAIDI and SAIFI figures for non-outlier days in the assessment year. Repeating the calculations set out in s6(1)(a) and s6(1)(b), but using the normalised SAIDI and SAIFI figures (the results are summarised in the table below) shows that Vector would not have breached either of the reliability criteria.

Notice Requirement	SAIDI excluding storm impact	Is not to exceed	The five-year average SAIDI
Notice expression	$SAIDI_{,2004}$	\leq	$\left(\frac{SAIDI_{1999} + SAIDI_{2000} + SAIDI_{2001} + SAIDI_{2002} + SAIDI_{2003}}{5} \right)$
Vector Normalised Result	78.3	<	85.5

Notice Requirement	SAIFI excluding storm impact	Is not to exceed	The five-year average SAIFI
Notice expression	$SAIFI_{,2004}$	\leq	$\left(\frac{SAIFI_{1999} + SAIFI_{2000} + SAIFI_{2001} + SAIFI_{2002} + SAIFI_{2003}}{5} \right)$
Vector Result	1.210	<	1.313

events, such as, lines clash which was not observed or the fault cause (branches, bark, birds etc) being blown clear of the site before the repair crew arrives. Vector believes that this chance is, in reality, much higher, but has adopted a conservative approach for the purpose of this analysis.

88 Vector hopes that the Commission, based on the information provided, can quickly come to a view that no further investigation is required with regard to the breach of the reliability criterion of the quality threshold.

Comment on definition of 'extreme events' (e.g. a 'storm')

89 The ability, subject to the Commission's acceptance, to remove extreme events from any post-breach investigation raises the obvious issue as to how extreme events are defined, including, for example, what constitutes a "storm". The approach Vector adopted has been described above.

90 Before adopting that approach, Vector gave consideration to different possible "storm" definitions (both quantitative and qualitative). Definitions for other possible extreme events were not required to be considered on this occasion given no such other events eventuated during the year in question (but may be required over time).

91 In considering definitions, Vector has initially minded to derive a strict formulaic definition that could be readily executed over time to test for "storms", thereby setting a clear precedent that could inform future compliance statements and indicate, with certainty, whether or not, based on the formula, a particular spell of bad weather constituted a "storm".

92 Vector's considered view is that a concrete, formulaic definition is not the best approach. While a formulaic approach has benefits – specifically, its clarity and, therefore, certainty – it also has downsides, specifically, it cannot accommodate the wide array of events and circumstances that may arise over time. As such, any concrete definition would need to allow for exceptions, which undermines the very purpose of having a concrete definition in the first place.

93 Instead, Vector supports, and has used in this compliance statement, an approach, based on sound analytical principles, of carefully analysing data points in the year of interest and assessing whether or not they constitute an "extreme event". Importantly, each data point and post-breach exclusion needs to be supported by transparent and robust analysis, which is subject to acceptance by the Commission.

Modified approach to Vector's storm exclusions

94 When removing extreme events, the *Gazette* and relevant Commission papers is silent, to Vector's knowledge, on whether removal of any extreme events from the assessment year should be accompanied by any corresponding adjustment to the benchmark 5-year average (or some conceptually equivalent approach for the

assessment year). Vector’s view is that there is no need to modify the average (or a modified adjustment to the assessment year) on the basis that the 5-year average is the Commission’s proxy for the long-term average that, due to its length, normalises out unders and overs for extreme events (and this is the basis of the analysis and post-storm-removal results presented above). Nevertheless, Vector has also undertaken analysis (below) whereby the normalised figures calculated in the first method (described above) were adjusted upwards by the amount of the five year average impact of events fitting the same criteria that occurred between 1998 and 2002.

95 Essentially, Vector applied the criteria used in the first method to identify storm days in every year that is included in the Commission’s five year average measure and then calculated the average annual impact such days had on SAIDI and SAIFI over those five years. The average annual impact figures were then added to the normalised SAIDI and SAIFI figures calculated using the first exclusion method (presented in the table above). The results are presented below.

Notice Requirement	SAIDI excluding storm impact to the extent it is above the five year average	Is not to exceed	The five-year average SAIDI
Notice expression	$SAIDI_{2004}$	\leq	$\left(\frac{SAIDI_{1999} + SAIDI_{2000} + SAIDI_{2001} + SAIDI_{2002} + SAIDI_{2003}}{5} \right)$
Vector Normalised Result	88.9	$>$	85.5

Target exceeded by 3.4 SAIDI minutes 4.06% above target

Notice Requirement	SAIFI excluding storm impact to the extent it is above the five year average	Is not to exceed	The five-year average SAIFI
Notice expression	$SAIFI_{,2004}$	\leq	$\left(\frac{SAIFI_{1999} + SAIFI_{2000} + SAIFI_{2001} + SAIFI_{2002} + SAIFI_{2003}}{5} \right)$
Vector Result	1.329	$>$	1.313

Target exceeded by 0.016 SAIFI 1.23% above target

96 This analysis ensures that any difference between the normalised and further adjusted SAIDI and SAIFI figures (presented in the table directly above) and the requirements as per clauses 6(1)(a) and 6(1)(b) is due to the incremental impact of the storms throughout the assessment year over and above the average annual impact of such storms over the previous five years.

Interpretation of the analysis outcomes

97 As already discussed above, under the first approach, Vector would, with the storms removed (in entirety from the assessment year), be below the SAIDI and SAIFI targets. However, for the second approach, with the storms only removed in the assessment year to the extent that they impact SAIDI and SAIFI over and above the 5-year average impact of such storms, Vector would still not be below the SAIDI and SAIFI targets (but instead be above the targets by 4.06% and 1.23% respectively, as presented in the table above).

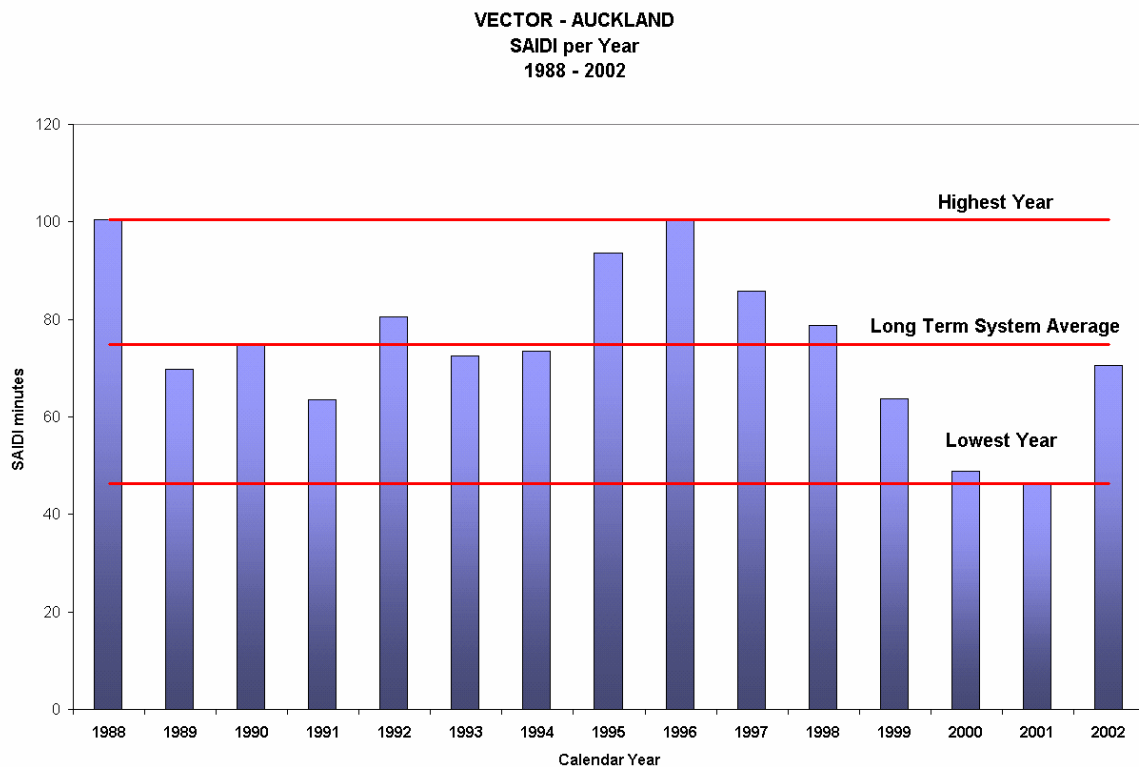
98 While removal of storms in the second approach would not bring Vector below its target, it is Vector’s view that the residual non-compliance is sufficiently insignificant as to not warrant any further investigation by the Commission.

99 Vector has already provided analysis to the Commission, in the context of setting thresholds, that demonstrated that a margin of 30% is ideally required above reliability

targets to account for natural variability in reliability statistics.³² This analysis is summarised below and provided in full to the Commission again in the supporting information. Vector’s residual non-compliance (4.06% for SAIDI and 1.23% for SAIFI) is, thereby well within the natural variability bounds. As noted above, the Commission should, therefore, take no further action for Vector’s breach. The Commission has previously indicated that it would prefer to consider the natural variability of reliability statistics at the time of any breaches. Vector’s situation underscores the importance of the Commission now doing this.

Summary of natural variability analysis

100 Vector used data from its Auckland area to analyse natural variability in SAIDI. The graph below depicts the variability in SAIDI figures year on year. The full analysis was provided in Vector’s letter of 13 January 2004 and a copy of the letter is attached with the supporting information.

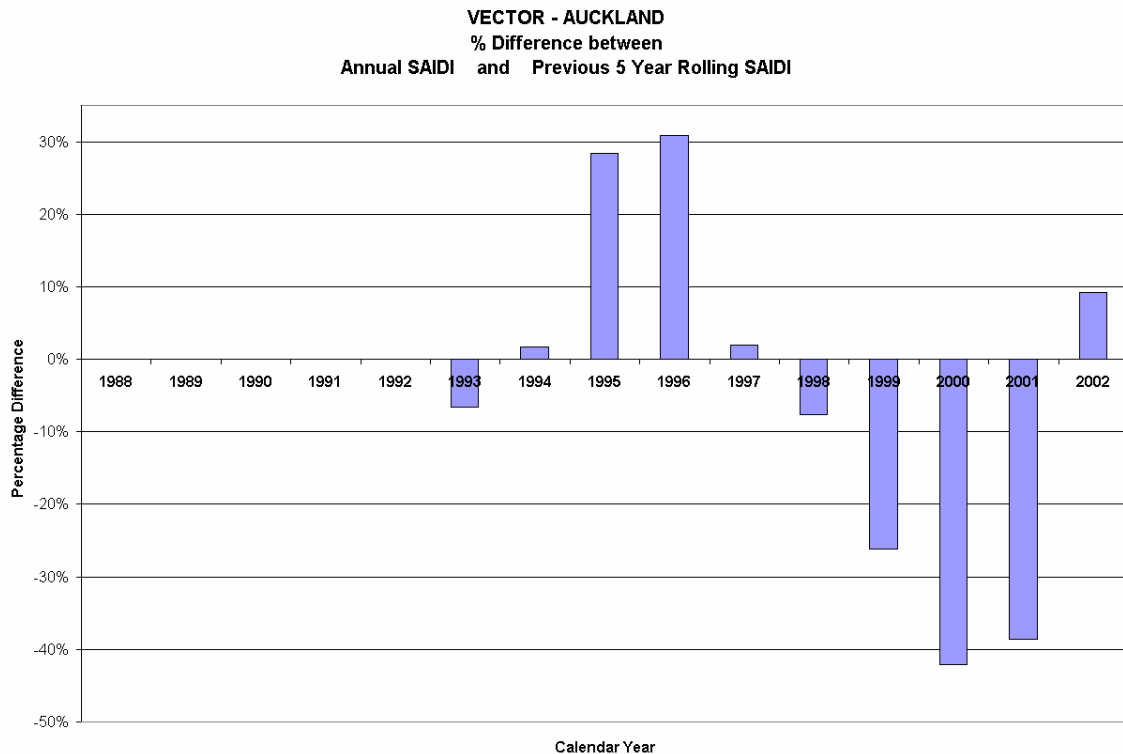


101 The graph clearly illustrates the large extent of variability in annual SAIDI figures, showing that the long-term average SAIDI in Vector’s Auckland area is 75 minutes. The

³² Refer Vector letter to Commission re Variation to the Quality Threshold, dated 13 January 2004

lowest year (2001) had SAIDI of 46 minutes, being 38% less than the average. The highest year had SAIDI of 100, being 33% above the average.

102 Vector has previously indicated to the Commission, based on Vector’s analysis, that a margin of around 30% would be appropriate. The reasonableness of this 30% margin is illustrated in the graph below, which sets out the resulting differences (in % terms) from comparing an annual measure to a 5-year rolling average, using the Vector historical data.



Caveat re removal of extreme events

103 It is noted that Vector picked a number of data points sufficient to demonstrate, with the outliers removed, Vector’s notional compliance with the reliability criterion under the first adjustment method. In Vector’s view, the approach taken by Vector, with respect to exclusion of storm days is a conservative one. Vector has not sought to exclude, in this compliance statement, a range of other days that could potentially and appropriately be excluded (e.g. days when high wind speeds were recorded, but the

number of HV faults was relatively low). As such, Vector makes clear to the Commission that the method used for storm day exclusions in this statement should not be viewed in any way as a precedent for the method of storm day exclusions that may be used in future compliance statements. Vector, therefore, reserves its right to justify storm exclusions to the Commission using a different method in the future, i.e. the Commission should not see the analysis to date as a fixed precedent, but remain open to other ways and means of improving analysis of this kind over time.

CONSUMER ENGAGEMENT (CUSTOMER COMMUNICATION)³³ CRITERION OF THE QUALITY THRESHOLD - CLAUSE 6(1)(E)

Introduction

104 This section provides a definition of quality; describes how Vector engages with consumers and how this engagement differs across various types of consumers in the different areas of Vector's network. This section also describes in detail all of Vector's consumer engagement methods.

Definition of quality

105 Clause 6(1)(e) of the Notice extensively refers to quality and price-quality trade-offs, without defining these terms. Throughout the development of the thresholds, it was noted by the Commission that the reliability of the network is a major contributor to quality, but is not the sole determinant.³⁴ Vector's view is that the quality of distribution related goods and services can be split into and evaluated using the following four measures:

- Safety (including with respect to environmental considerations);
- Customer satisfaction (with service provided by the Call Centre, the lines service people, Key Account Managers, etc);
- Reliability (measured by quantitative measures, such as SAIDI, SAIFI, CAIDI³⁵, Volts, Amperes, etc.); and

³³ Whilst the Commission's decision papers refer to the "consumer engagement" criterion, section 6(1)(e) Gazette Notice refers to "customer communication". For the avoidance of doubt, the words "customer" and "consumer" (used interchangeably in this document) mean "customer" as defined in the Gazette Notice.

³⁴ Paragraphs 34 and 89-90 of the *Regulation of Electricity Lines Businesses Targeted Control: Draft Decisions* published by the Commission on 23 December 2002; last paragraph (p4) of the Quality Threshold section of the Executive Summary in the *Regulation of Electricity Lines Businesses Targeted Control: Implementation Details Draft Decisions* published by the Commission on 31 January 2003; paragraph 77 of the *Regulation of Electricity Lines Businesses Targeted Control: Threshold Decisions* published by the Commission on 2 May 2003; paragraph 205 of the *Regulation of Electricity Lines Businesses Targeted Control: Draft Decisions Resetting the Price Path Threshold* published by the Commission on 5 September 2003; paragraphs 32, 93 and 135 of the *Regulation of Electricity Lines Businesses Targeted Control: Threshold Decisions (Regulatory Period Beginning 2004)* published by the Commission on 23 December 2003.

³⁵ SAIDI - System Average Interruption Duration Index. Put simply, SAIDI is the average length of time (in minutes) customers are without power in a year. SAIFI - System Average Interruption Frequency Index. SAIFI represents the average number of times power goes off to customers in a

- Power Quality (measured by quantitative measures, such as Volts and Amperes).

106 While to some degree these are interdependent (e.g. Vector's safety record and reliability performance impacts on customer satisfaction), they are nevertheless, in Vector's view, the four pillars of service quality that must be considered and information on all four aspects is therefore included in this statement.

107 Vector aims, and has business processes in place, to understand its customers' requirements and expectations with respect to these measures, and to meet and exceed them where possible. Such processes are part of business as usual for Vector and have been in place for considerable time. However, Vector has also separately consulted with interested parties with respect to their views on Vector's compliance with the consumer engagement criterion, as well as specifically seeking input on all aspects of the Consumer Engagement Criterion.

Vector's engagement with consumers

108 Due to the size of Vector's network, the fact that it consists of three separate geographic areas (Auckland, Wellington and Northern), current use of both conveyance and interposed business models, and the sheer diversity of consumers on the network, the way in which Vector engages with different consumers varies. The sections below set out methods of engagement for different consumer types, whilst a further section discusses in detail all consumer engagement methods utilised by Vector to better understand consumer preferences. The final section describes how feedback gathered through engagement with consumers is taken into account and incorporated into Vector's asset management process.

Engagement with large commercial and industrial consumers

General methods of engagement

109 The quality needs of large consumers are very different in many cases from those of residential and small commercial consumers. For the most part, Vector's engagement with large consumers is through direct contact, which is discussed in detail below. However, other methods of engagement (discussed in the *Methods of Engagement* section below) are also relevant. Specifically, large consumers are engaged directly through Vector's external publications, the call centre (Auckland area customers only)

year. CAIDI - Customer Average Interruption Duration Index. CAIDI is the average length of time (in minutes) power is off to customers each time there is an interruption to supply.

and Vector's websites, as well as indirectly through Vector's engagement with the Auckland Energy Consumer Trust (Auckland area customers only), retailers, Territorial Local Authorities and consumer representatives (e.g. Major Electricity Users' Group - MEUG).

110 Vector also indirectly engaged large consumers through representative groups (MEUG, Wellington Chamber of Commerce and Auckland Chamber of Commerce) as part of the specific consultation carried out with interested parties on Vector's compliance with the consumer engagement criterion (discussed further below).

Specific methods of engagement (large consumers)

111 Large consumers have a direct ongoing relationship with Vector, which is managed by dedicated Account Managers. Vector's Account Managers discuss needs with customers, including quality of supply, and co-ordinate activities to ensure that advice is provided, options are developed and presented, agreements are recorded through tailored line service contracts, including pricing, and network upgrades are implemented to meet the agreed levels of service. This ongoing process takes place through both formal (e.g. exchange of letters, contracts) and informal (phone calls, e-mails, etc.) interactions. Throughout this process, the price-quality trade-offs available to the customer, as well as the customer's preferred quality levels are explicitly discussed directly with the customer.

112 A recent example is Pacific Steel, a large steel producer in Auckland. Recent interactions with this customer have discussed the current condition of the existing assets (which are covered by a tailored line services agreement) and a long term asset management plan to meet future needs for the customers operations, including a significant re-investment in replacement plant.

113 Many such interactions are initiated by customers and relate to new connections or improvements in quality. Large consumers, in most cases, are much more sophisticated in their quality requirements than residential and small commercial consumers. For example, power quality (the provision of supply within acceptable parameters such as voltage, frequency and waveform distortion) is, in many cases, as critical as the frequency and duration of outages. In such cases, customers have a good understanding of their preferred level of quality, and also what price/quality trade-offs are available. Commonly, customers will engage their own independent technical advisors (power systems engineering consultants) and Vector works with both parties to determine needs and reach agreement on solutions.

114 Commercially, investment by Vector in user-specific assets is approached through a transparent analysis of costs arising from both the user-specific assets themselves and an appropriate allocation of shared costs from the parts of the non-dedicated distribution network that the customer benefits from. Vector is generally flexible in the commercial aspects of the contract, for example the term of the contract, so long as the specific risks are clearly identified and allocated to the party best placed to manage them.

115 As noted above, in addition to direct contact through Vector's Account Managers, engagement with large consumers also takes place through many of the processes described in the *Methods of Consumer Engagement* section below. Collectively, these processes ensure that large consumers are advised of the price-quality trade-offs available and are consulted with respect to which of these trade-offs they prefer. Ultimately, all information gathered through such interactions is also taken into account as an input into Vector's Asset Management Planning process (further discussed in the *Actions Resulting from Consumer Engagement* section below), the main output of which is Vector's Asset Management Plan.

Engagement with residential and small commercial consumers

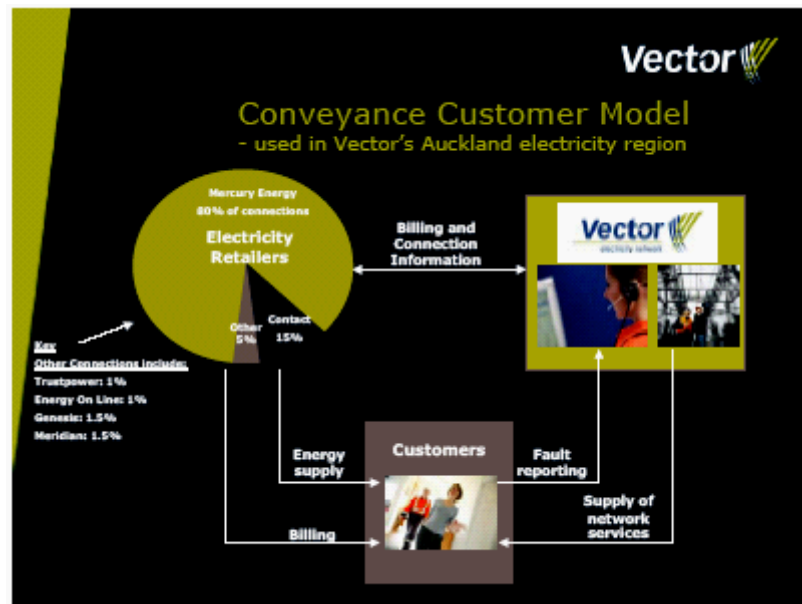
Introduction

116 Due to Vector's ownership structure and the recent acquisition of UnitedNetworks, the way Vector engages with residential and small commercial consumers differs somewhat across the three geographic areas of Vector's network (Wellington, Auckland and Northern). Information gathered from consumers through the various methods of engagement is recorded and used as an input into the development of Vector's Standard Service Levels and Asset Management Plan.

Engagement in the Auckland region

Specific methods of engagement

117 Vector has a direct relationship with all end consumers in the Auckland area through direct contracts with all customers under the conveyance business model (visually represented below).



118 Under this model, retailers bill Vector's charges for distribution services on Vector's behalf. This means that all enquiries and/or complaints regarding the distribution goods and services provided by Vector (including the quality of these goods and services) are handled directly by Vector, as opposed to being relayed through a retailer (as is the case in the alternative interposed business model environment). These enquiries and/or complaints are handled by a dedicated Customer Services Team and the call centre (discussed further below) and relate to faults, connections, cable locations, customer service and any other matters raised by consumers.

119 Auckland consumers are also well represented by the Auckland Energy Consumer Trust (elected by consumers every three years), which owns Vector (Vector's relationship with the Trust is discussed in more detail below). The Trust's role is to appoint Directors and distribute dividends paid by Vector. Vector and the Trust develop a Statement of Corporate Intent (SCI) annually. The Trust and Vector have entered into a Deed of Essential Operating Requirements, which commits Vector to an undergrounding scheme in the Auckland area.³⁶ The Trust's strong focus on undergrounding (which was part of its election campaign) is a good example of Auckland consumers' views being well represented by the Trust (and now operationalised through the Trust's interactions with Vector).

³⁶ See attached Statement of Corporate Intent

General methods of engagement

120 Residential and small commercial consumers in Auckland are also engaged using a number of other methods (discussed below). Specifically, such consumers are directly engaged through, external publications, surveys, Vector's website and interactions with the Customer Services and Overhead Improvement Teams, as well as indirectly through Vector's engagement with Local Body Authorities, retailers and consumer groups.

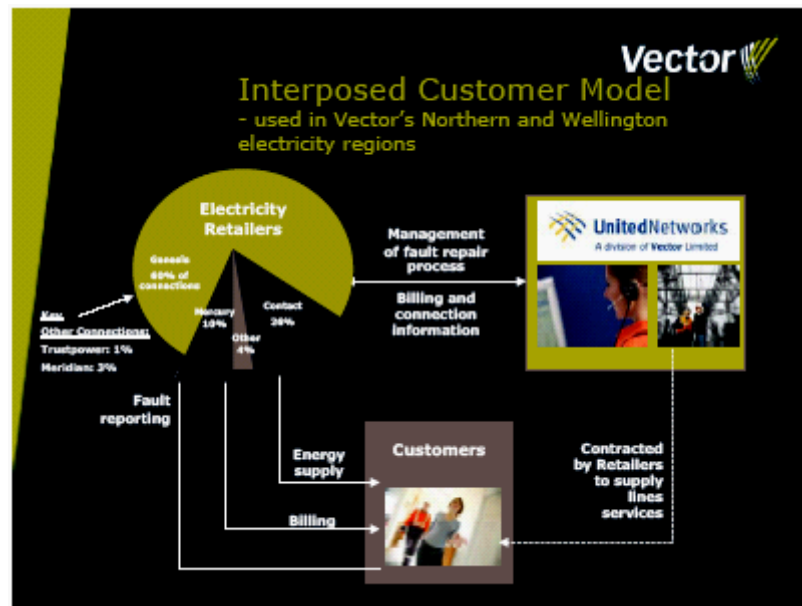
121 Vector also engaged with such consumers indirectly through representative groups (Consumers' Institute, Ministry of Consumer Affairs, Grey Power, Consumer Coalition on Energy, Federated Farmers, Electricity Complaints Commission, and Auckland Chamber of Commerce) as part of the specific consultation carried out with interested parties on Vector's compliance with the consumer engagement criterion (discussed further below).

122 Together, these processes help ensure that residential and small commercial consumers and/or their representatives in the Auckland area are advised of the price-quality trade-offs available and are given the opportunity for consultation on these trade-offs should they wish to do so. Ultimately, information gathered through such interactions is duly considered and taken into account as an input into Vector's Asset Management Planning process (further discussed in the *Actions Resulting from Consumer Engagement* section below).

Engagement in the Northern and Wellington regions

Specific methods of engagement

123 In the case of the Northern and Wellington areas (recently acquired from UnitedNetworks) the relationship with consumers is mostly indirect through the interposed business model (visually represented below).



124 Vector (operating under the UnitedNetworks brand) charges the relevant retailer for lines services to residential and small commercial consumers, and the retailer, treating this as one cost input to delivered energy, then sets out the pricing options for end-consumers. Consequently, Vector's engagement with consumers in these areas is mostly indirect, for the most part taking place through retailers, Local Body Authorities and Consumer Representative Groups (such engagements are discussed in more detail below).

125 Vector considers that retailers accurately reflect the quality requirements (especially in relation to reliability) of small and residential consumers. Retailers engage with consumers through administering customer surveys³⁷ to better understand consumers' needs and preferences, including with regard to the quality of distribution goods and services they require and pricing. Engagement also takes the form of consumer complaints and queries, as well as direct meetings with large consumers.

126 Such engagement takes place on a regular basis and ensures that retailers are aware of consumer preferences and requirements. Retail companies also have a much better and much more detailed understanding (than the average domestic or small commercial consumer) of the electricity industry as a whole and the relevant issues (including those related to network engineering, reliability and quality of service, and regulation). Retailers, therefore, are in a position to accurately and effectively reflect the views of consumers and relay them to lines businesses by combining their

³⁷ Refer Contact's letter of 23 January 2004 in response to Vector's letter of 17 December 2003, Genesis e-mail of 2 February 2004, Grid Security Survey carried out by Mercury Energy

understanding of consumers' needs with their knowledge of important technical and operational matters within the electricity industry, including the interface between its different components (generation, transmission, distribution and retail). Whilst retailers have a good understanding of consumer needs, they agree that it is difficult to ascertain consumer preferences and willingness to pay for different price-quality trade-offs³⁸.

127 Vector interacts with retailers through its day-to-day business activities, spanning a number of inter-business process areas (requests for customer service in respect of faults or new connections, billing, etc.). The relationship with retailers is coordinated by a dedicated Major Account Manager, who maintains a Retailer Partner Plan. The plan discusses issues and activities relevant to specific retailers.

128 Retailers are given a continuous opportunity for direct interaction with Vector under the Retailer Partner Plan (discussed in more detail below), which, amongst other things, provides for retailer input into the development of Vector's Asset Management Plan.

129 For example, concerns over power supply reliability from residents in the Muriwai community were raised in 2002 both directly with Vector and through the incumbent retailer Genesis. Vector and Genesis worked together to address these community concerns and jointly met with community representatives to explore the issues and present improved asset performance initiatives. Working in partnership with retailers in this way produced a coordinated response to power quality issues and the best overall outcomes for affected consumers.

130 Since extending its coverage to the Northern and Wellington areas, Vector has taken a more direct approach to consumer engagement and has rolled out the customer surveys (previously administered in the Auckland area only) in the Northern and Wellington regions, under the UnitedNetworks brand name (the surveys are further discussed in the *Methods of Engagement* section below). Vector is also working with the relevant retailers to align our call centres (to ensure that retailer Customer Service Representatives are aware of all the information required by Vector, Vector's escalation processes and contingency plans, etc.) through bi-monthly meetings.

General methods of consumer engagement

131 Residential and small commercial consumers in the Northern and Wellington areas are also engaged using a number of other methods, discussed below. Specifically, such

³⁸ Contact letter re Engaging consumers re price-quality trade-off, dated 23 January 2004, page 1; Meridian Energy letter re Customer Engagement for Commerce Commission Regulations, dated 29 January 2004, page 1;

consumers are engaged directly through external publications, surveys, Vector’s website (under the UnitedNetworks brand) and direct contact with consumers or their representatives through the Customer Services Team.

132 Vector also engaged with such consumers indirectly through representative groups (Consumers’ Institute, Ministry of Consumer Affairs, Grey Power, Consumer Coalition on Energy, Federated Farmers, Electricity Complaints Commission and Wellington Chamber of Commerce) as part of the specific consultation carried out with interested parties on Vector’s compliance with the Consumer Engagement Criterion (discussed further below).

133 Together, these processes help ensure that residential and small commercial consumers and/or their representatives in the Northern and Wellington areas are advised of the price-quality trade-offs available and are given the opportunity for consultation on these trade-offs should they wish to do so. Ultimately, information gathered through such interactions is duly considered and taken into account as an input into Vector’s Asset Management Planning process (further discussed in the *Actions Resulting from Consumer Engagement* section below).

SUMMARY OF CONSUMER ENGAGEMENT METHODS			
<i>Consumer Type</i>	<i>Consumer Location</i>	<i>Direct Methods of Engagement</i>	<i>Indirect Methods of Engagement</i>
Large	Auckland area	Retailer and Customer Relationships team, external publications, call centre, websites	Retailers, AECT, Local Body Authorities, MEUG. Specific consultation on consumer engagement criterion with MEUG, Auckland Chamber of Commerce, Retailers
	Former United Networks Areas (Wellington and Northern)	Retailer and Customer Relationships team, external publications, call centre websites	Retailers, Local Body Authorities, MEUG. Specific consultation on consumer engagement criterion with MEUG, Wellington Chamber of Commerce, Retailers

SUMMARY OF CONSUMER ENGAGEMENT METHODS			
<i>Consumer Type</i>	<i>Consumer Location</i>	<i>Direct Methods of Engagement</i>	<i>Indirect Methods of Engagement</i>
Residential and Small Commercial	Auckland Area	Call Centre, Customer Services Team, surveys, external publications, call centre, websites	Retailers, AECT, Customer Services Team, Local Body Authorities. Specific consultation on consumer engagement criterion with Consumers' Institute, Ministry of Consumer Affairs, Grey Power, Consumer Coalition on Energy, Federated Farmers, Electricity Complaints Commission, Auckland Chamber of Commerce, Retailers
	Former United Networks Areas (Wellington and Northern)	Customer Services Team, Overhead Improvement Team, surveys, external publications, call centre, websites	Retailers, Customer Services Team, Local Body Authorities. Specific consultation on consumer engagement criterion with Consumers' Institute, Ministry of Consumer Affairs, Grey Power, Consumer Coalition on Energy, Federated Farmers, Electricity Complaints Commission, Wellington Chamber of Commerce, Retailers

Methods of consumer engagement

Introduction

134 This section discusses in detail the different ways Vector engages with consumers of distribution goods and services on its network. Some of these engagement methods

are relevant to all consumers, whilst others relate to specific subsets (as identified above).

Consultation with interested parties on compliance with the consumer engagement criterion

Nature of engagement

135 On 17 December 2003, Vector invited comments from organisations that directly engage with and/or represent electricity customers in some way,³⁹ with respect to their views on Vector's compliance with the Consumer Engagement Criterion. The letter (attached) provided general background information on Vector's pricing and quality of service, including relative to other lines companies' and other countries' performance. The letter also included the consumer engagement requirements, as published in the Notice, and specifically invited comment on:

- the organisation's views on the preferences of customers with respect to trade-offs between price and quality;
- the organisation's views as to what steps they consider Vector is required to take to comply with the requirements; and
- an overview of the activities that assist the organisation in understanding the preferences of customers it represents or directly engages with.

136 Vector also used this letter as a barometer of the extent to which there were any shortcomings in Vector's business-as-usual approach to customer service and quality. If the responses had suggested major shortcomings in the approach to date, Vector would have been minded to undertake further, specific consultation for this compliance statement. However, as summarised further below, none of the responses raised concerns with respect to customer engagement, customer service or quality, including price-quality trade-offs, which suggested no further, specific measures were required.

Feedback from engagement

137 The feedback received from this consultation suggested that it was unrealistic to expect residential and small commercial consumers to form informed views on price-

³⁹ Consumers' Institute, Consumer Coalition on Energy, Federated Farmers, Grey Power, MEUG, Ministry of Consumer Affairs, Contact Energy, Energy Online, Mighty River Power, Genesis Power, Meridian Energy, TrustPower, Electricity Complaints Commission, Wellington Chamber of Commerce, Auckland Chamber of Commerce

quality trade-offs (Grey Power, Consumer's Institute, Contact Energy). However, some respondents submitted that customers are happy with the current price-quality combination and would not be willing to pay higher prices in order to improve quality (Contact, Federated Farmers). It was also noted in a number of responses that a decrease in quality is unlikely to be acceptable to most consumers (Grey Power, Federated Farmers, Consumers Institute), for example:

"Consumers have got used to the present degree of reliability and a policy of deliberate deterioration would not be appreciated" - Grey Power⁴⁰

138 This quote, along with comments from Federated Farmers and the Consumers' Institute, clearly expresses a strong preference for reliability to be at least maintained at current levels, for example:

"...how is an individual domestic consumer to make such a decision? With current technology it seems to us that any trade-offs can't be made on an individual basis, but must be at a network level. That really opnly [sic re spelling] gets you back to square one - how to consult with a mass-market of domestic consumers? This is one of the reasons, we would have thought, that consumers fund the extremely expensive and complex Commerce Commission process [sic, noting that the Commerce Commission levies are not a pass through to consumers (inappropriately so in Vector's view)]... As a starting point, domestic consumers would not expect that existing quality would suffer. Any attempt to increase prices as a trade-off for maintaining existing service levels would need to be clearly justified (and would, we think, face opposition) by reference to infrastructural investment needed etc ... Consultation with domestic consumers realistically must be via organisations such as ours that broadly represent consumer interests..." - Consumers Institute ⁴¹

139 As noted above, this points to a strong preference for reliability to remain at least at its current levels. The Consumers' Institute also recognises that while it is not realistic to expect individual domestic consumers to make price-quality trade-offs, representative groups with a better understanding of the electricity industry might be better suited to the task. A view expressed by Federated Farmers also seems to bear this out, viz:

"[referring to a survey⁴² carried out by Federated Farmers] 70 percent of respondents were satisfied with the current level of electricity service supplied by their lines company ... Nearly 90 percent of respondents were not prepared

⁴⁰ Grey Power letter received from David Berry January 2004

⁴¹ Consumers' Institute e-mail of 3 February 2004

⁴² The survey was conducted by e-mail and had just over 100 respondents, resulting in a 12% response rate, which is fair when compared with other surveys carried out by Federated Farmers

to pay more in order to improve the quality of electricity supply from their line supplier. Conversely 94 percent were not prepared to pay less for electricity, but at the risk of a reduced level of service.” – Federated Farmers⁴³

140 Vector commends the work carried out by Federated Farmers to better understand the price-quality trade-offs preferred by its members. Vector notes that the results show that approximately 90% of respondents are happy with the current balance between price and quality. Meridian also seemed to support this view:

“It is worth noting that from the research, particularly in the residential market, customers do not understand and do not want to understand the complex delivery chain that the electricity sector uses. They are purely focused on the total cost to them.” - Meridian⁴⁴

141 Meridian’s comments also support the notion that it is not reasonable to expect individual domestic and small commercial consumers to be able to make decisions on price-quality trade-offs, simply because there is little or no incentive for them to do so (since they are more concerned with total cost, as opposed to distribution costs). Contact’s response further bears this out, including with respect to there being little, if any, willingness to pay for increased reliability (further supporting the outcomes of the Federated Farmers survey):

“By way of example Contact has repetitively spoken to account managed customers to make them aware of the issues of quality and reliability of supplies...They all cite they want a higher level of security or quality of supply though...in general they are suddenly very silent if it means higher prices” - Contact⁴⁵

142 Letters were sent to 15 organisations and only 7 responses were received. Those that responded, however, were pleased with Vector’s initiative and appreciated the opportunity to comment. For example:

“I am more than happy to provide some comments”⁴⁶ – Electricity Complaints Commission (albeit no further comments were received)

“One line company [Vector] has actually contacted me and asked me for my opinion and that's great. Nobody else has but I haven't managed to give them a view...”⁴⁷ - MEUG

⁴³ Federated Farmers e-mail of 2 February

⁴⁴ Meridian letter of 29 January 2004

⁴⁵ Contact letter of 23 January 2004

⁴⁶ e-mail of 4 February 2004 from Judi Jones

143 Given that the organizations invited to comment were are well resourced and able to comment, but in many cases have chosen not to do so, Vector has assumed that they have no significant concerns with respect to price-quality trade-offs being selected by Vector. In addition, the responses that were received did not raise any significant concerns regarding the current price-quality trade-offs being selected by Vector. In Vector's view, therefore, this consultation has demonstrated that there are no major differences between the price-quality trade-offs being selected by Vector and those preferred by any sizeable group of consumers on our network, represented by the organisations consulted.

144 A summary of all responses received on Vector's consultation is set out in the table below.

SUMMARY OF RESPONSES TO CONSULTATION		
Organisation	Response	Summary of views
Consumers' Institute	Yes	<ul style="list-style-type: none"> ○ Consultation with domestic consumers realistically must be via organisations, such as the Consumers' Institute, that broadly represent consumer interests, although individuals who are interested should also be given the opportunity to have input. ○ With current technology, any trade-offs can't be made on an individual basis, but must be at a network level. ○ Difficult for a mass market of domestic consumers to interact with line companies; this is why consumers fund bodies such as the Commerce Commission. ○ Domestic consumers would not expect existing quality to decrease. ○ Any attempt to increase prices as a trade-off for maintaining existing service levels would need to be clearly justified (and would likely face opposition) by reference to infrastructural investment needed, etc.
Consumer	No	

⁴⁷ Transcript of the ODV Handbook Conference - Day 3, 16 April 2004, p456 22-24

SUMMARY OF RESPONSES TO CONSULTATION		
Organisation	Response	Summary of views
Coalition on Energy		
Federated Farmers (FF)	Yes	<ul style="list-style-type: none"> ○ Provided the results of a survey carried out by FF amongst its members. ○ 70% of respondents were satisfied with the current level of electricity service supplied by their lines company. ○ Nearly 90% of respondents were not prepared to pay more in order to improve the quality of electricity supply from their line supplier. ○ Conversely, 94% were not prepared to pay less at the risk of a reduced level of service.
Grey Power	Yes	<ul style="list-style-type: none"> ○ Doubt very much if a consensus among consumers on the trade off between price and quality is possible, given that the vast majority of consumers have no idea of the issues. Therefore, the realistic approach is not to seek such a consensus, but to aim at an economically efficient level of service. ○ Consumers are used to the current level of reliability and deliberate deterioration of reliability would not be appreciated. ○ Generally, an increase in reliability is more appropriate. ○ International reliability and price comparisons are irrelevant due to NZ's unique circumstances.
MEUG	No	
Ministry of Consumer Affairs	Yes	<ul style="list-style-type: none"> ○ Lines businesses must supply services with reasonable care and skill, as required by the Consumer Guarantees Act. ○ Trade-offs are likely to vary for individual consumers. ○ Provided additional information on

SUMMARY OF RESPONSES TO CONSULTATION		
Organisation	Response	Summary of views
		generic consultation processes (i.e. how to consult).
Contact Energy	Yes	<ul style="list-style-type: none"> ○ Trade-offs not well understood due to complexities of issues and NZ's robust and secure electricity supply. ○ Account managed customers not prepared to pay higher prices to increase quality. ○ Suggested direct consultation by way of discussion document, followed by submissions. (As discussed elsewhere, Vector will be giving consideration to further consumer engagement initiatives over time to continually improve in this important area). ○ Noted that Contact regularly surveys consumers (but did not provide a summary of that work).
Energy Online	No	
Mighty River Power	No	
Genesis Power	Yes	<ul style="list-style-type: none"> ○ Need adequate disclosure of service performance and costs at feeder level for customers to make appropriately informed price-quality trade-off choices. This information could be disclosed through the Asset Management Plan. (As a result of this comment, Vector is considering whether disclosing more detailed information in its AMP would be useful). ○ Genesis has developed a research program that surveys customers through telephone interviews and focus groups to create a greater understanding of customer satisfaction, needs and preferences (but no details provided).
Meridian Energy	Yes	<ul style="list-style-type: none"> ○ Meridian surveys customers on a six-monthly basis in order to understand

SUMMARY OF RESPONSES TO CONSULTATION		
Organisation	Response	Summary of views
		<p>their requirements (but no details provided).</p> <ul style="list-style-type: none"> o Customers do not understand and do not want to understand the complex electricity delivery chain, but are focused on the total cost of delivered energy.
TrustPower	No	
Electricity Complaints Commission	No	(It is also noted that, in addition to the original letter sent, an overview of complaints received about lines businesses price or quality issues was also specifically requested (but not received))
Wellington Chamber of Commerce	No	
Auckland Chamber of Commerce	No	

Call centre

145 To ensure proper handling of consumer enquiries, service requests and/or complaints, Vector employs Telnet Ltd as an outsourced call centre for the network in the Auckland area. The call centre also provides an indirect service in the Wellington and Northern areas through an Outage Manager, who manages and co-ordinates requests for service from retailers and allocates the requests to service providers. The call centre supports five separate phone numbers:⁴⁸

- o Faults (0508 VECTOR), which operates 24 hours a day, seven days a week and ensures a quick response to safety issues and faults on the network;

⁴⁸ These phone numbers are publicised in Vector's external publication and on its website at <http://www.vectorelectricity.co.nz/utilities/contacts.php>

- General Enquiries (09 303 0626), which operates 7am to 6pm Monday to Friday and provides general information about Vector, our charges and contracts with consumers, as well as collecting comments and general feedback from our customers;
- Connection Centre (09 529 8444), which operates 7am to 6pm Monday to Friday and handles requests for new connections, network extensions and alterations;
- Cable Locations (0508 B4U DIG), which operates 7am to 6pm Monday to Friday and allows customers to request a Vector linesman to locate their cables before the customer undertakes digging activities. This service helps ensure the safety of our customers and is a free service;
- UnitedNetworks (0800 948 100), which provides information to customers in the Wellington and Northern regions. Complaints and enquiries related to Vector (as opposed to retailers, who manage the direct relationship with most consumers under the interposed model) are forwarded to Vector's General Enquiries call centre.

146 Although there is a pool of allocated Telnet agents answering calls to Vector's numbers at any one time, outsourcing the call centre option allows Vector to have extra capacity (through Telnet temporarily allocating additional agents) in fault situations to handle short high volume periods, such as when faults affecting a large number of consumers occur. Vector's payments to Telnet are on a per call basis with the cost of calls being impacted by Telnet's performance (discussed below) and volume (the more calls the lower the cost per call).

147 Vector's contract with Telnet is a performance based one, which includes Key Performance Indicators (KPI's) related to service and customer satisfaction as the contract's main driving force. Each month, Telnet's invoice is scaled according to how well they perform, thereby ensuring a strong focus on quality of service. Our agreement with Telnet makes it clear that Vector expects the service level to be maintained even in extreme event situations when major outages are likely. Indeed, this is the time when many consumers expect a high level of service.

148 The call centre takes between 11,000 and 15,000 calls per month from customers in the Auckland area. All jobs are logged into Vector's Customer Management System (CMS), which allows the Customer Service Representatives at Telnet (or anyone else at Vector) to have visibility as to the progress of a fault job and/or any history on a job, should a customer phone for further information.

149 The CMS is then used by Vector's ZBCs to manage the jobs, record customer interactions and to bill Vector for the work completed. Thus, the CMS provides for a full history of any job and ensures efficient information flow of the relevant details relating to customer queries. With the help of this system, Vector is able to provide customers with extensive information, such as, for example, estimated arrival times, cause of fault, details of work completed and details of further work to be carried out. Importantly, the service is seamless from the customer's point of view, no matter who they're in contact with at any given point in time (service provider, call centre, retailer).

150 Aside from providing for an important interface with respect to faults, the call centre also deals with customer enquiries and complaints, in many cases referring consumers to a relevant Vector staff member, which in some cases results in other forms of direct engagements through the Customer Services Team (discussed below).

External publications

Introduction

151 Vector regularly publishes and distributes documents, which inform consumers about quality on our network and the price-quality trade-offs being made. The most important document with respect to information on price-quality trade-offs is Vector's Asset Management Plan (AMP). The AMP is the result of a detailed asset management planning process (described in more detail below), which provides every opportunity for consumers to express their views and where these views are provided, takes them into account.

AMP

152 The purpose of the Asset Management Plan (AMP) is to describe how Vector will manage its assets and investment in the network in order to achieve the performance targets and strategic goals it has set. Importantly, the goals and targets are transparent, such that input on those is also possible and received in practice. The AMP also includes an overview of Vector's approach to maintenance, asset renewal, replacement and development.

153 Vector's AMP is publicly available to enable customers and other interested parties to identify Vector's performance targets, areas of business focus, forecast levels of maintenance expenditure and capital investment planned to manage its asset base. The plan also identifies Vector's approach to network risk management and contingency planning.

154 Vector welcomes feedback on the AMP at all times and specifically invites comment on the draft AMP (prior to it being disclosed as required by information disclosure regulations) from all retailers operating on its network. The AMP is also proactively sent out to hundreds of interested parties (a full list is attached in the supporting information). Notwithstanding the broad opportunity for comment, Vector receives little feedback on the AMP. This, in Vector's view, demonstrates that customers and their representatives are satisfied with Vector's asset management and the price-quality trade-offs selected, or at least have no significant concerns.

155 Vector's approach to asset management is one, which seeks to strike the appropriate balance between the needs and expectations of our customers, and the cost of providing the network service (the right price-quality trade-off). In general terms, Vector's asset management approach is to:

- provide a safe environment for operating personnel and the general public;
- avoid environmental damage as a result of failing equipment;
- ensure that the required standard service levels are met; and
- preserve the required functionality, performance and value of assets to enable the continuation of a viable network business.

156 As noted above, no significant concerns have been raised by consumers with regard to this approach.

Other publications

157 Vector also publishes a monthly community newsletter, *Community Times*, which is placed in all local newspapers in the Auckland, Northern and Wellington areas. The publication is designed to provide the community with a range of information on Vector, including company performance (such as with respect to quality). For example, SAIDI and SAIFI targets, as well as Vector's progress against them is discussed in the articles. The publication provides safety tips, information about recent faults, explanations of our free services (such as cable location), as well as the relevant contact details to encourage customer feedback.⁴⁹

158 New residential and small commercial customers in the Auckland area receive a "Welcome to Vector" pack. The pack contains a letter explaining why the customer is

⁴⁹ Several issues of the *Community Times* are attached in the supporting information

receiving this welcome pack, the terms and conditions of Vector's contract with the customer and a brochure outlining Vector's Standard Service Levels, the "Vector promise" (entitlement to payment if Vector breaches the SSLs), Vector's pricing, as well as other service provided by Vector.

159 Vector has also recently sent out a "safety pack" to all schools within Vector's area. The pack introduced a number of teaching aids (student workbooks, teacher curriculum aids) available from Vector (free of charge) to aid teachers in educating children about safety.⁵⁰ This initiative is designed to improve public safety around electricity networks, thereby promoting improved quality (given Vector considers safety is an important component of quality).

Relationships with Territorial Local Authorities

160 Vector has a close relationship with Territorial Local Authorities in the areas where it operates its network. Such authorities are elected by consumers and, in Vector's view, it reasonable to assume that their views and preferences, with regard to service quality, are closely aligned to those of consumers. Given the strong interests Local Body Authorities have in infrastructure, Vector engages with them on a regular basis. Direct engagement takes place through designated individuals in the business on a regular basis, as well as through partnering work groups and workshops aimed at improving cooperation with Territorial Local Authorities. These authorities also receive and are encouraged to comment on Vector's AMP.

161 Currently Vector is working closely with the Waitakare and Rodney Territorial Local Authorities (as well as engaging directly with the consumers in the area, discussed further below) to identify and implement different options for improving the reliability levels for customers on the Waitakare, Muriwai, Red Beach and Piha feeders.

162 Vector's CEO meets with the mayors of the Territorial Local Authorities in the areas where Vector operates its network. At these meetings a range of issues are discussed, including pricing, reliability and power quality.

Direct contact with end consumers and their representatives

163 As discussed above, Vector has systems in place to ensure that every opportunity is given for customers to communicate any dissatisfaction with the level of quality or the price-quality trade-offs being selected. Processes are in place to ensure that

⁵⁰ A sample of a safety pack is attached in the supporting information

communications received are duly noted and relayed to the relevant people within Vector.

Customer Services Team

164 Where such feedback is received, Vector often engages with consumers directly through its dedicated Customer Services Team to discuss quality and price-quality trade-offs. Members of the team from time to time attend community meetings, as well as meeting with individual consumers or their representatives (often outside normal working hours) to present and discuss issues related to quality and price-quality trade-offs. Issues under discussion usually include quality of service history in the area, current quality levels and what Vector is doing to improve them, and/or why Vector does or does not believe certain investments in quality improvement are warranted.

165 Recent examples of such engagements include Ara Kotinga (Vector's Service Performance Manager attended a weekend community meeting to listen to customers' concerns and talk about quality of supply and price-quality trade-offs, following complaints from residents – a new autorecloser has subsequently been ordered and is about to be installed to improve reliability in the area), Clevedon (Service Performance Manager attended a meeting with the National MP for the region to present and discuss information regarding quality and price-quality trade-offs) and Piha (Service Performance Manager met with individual consumers to discuss quality and price-quality trade-offs, as well as attending a rate payers' meeting to discuss the issues – as a result of these engagements Vector committed to undertake specific investment to improve reliability in that area of the network).

166 The team members also write articles for community papers and respond in writing to individual queries from consumers regarding quality (examples of such articles are attached with the supporting information provided by Vector). These articles and letters explain quality levels relevant to the customers concerned and the reasons behind them, including future investment planned by Vector for improving and/or maintaining quality of service. Feedback from such interactions is taken into consideration during the asset management planning process.

167 The Customer Services Team also engages and works with customers to identify potential privately-funded undergrounding projects, where customers and/or customer groups are willing to pay, in order to receive the improved reliability and view that result from undergrounding (further discussed below).

Overhead Improvement Team

168 As noted above, in addition to the overhead improvement projects carried out by Vector as part of its commitment to the AECT's focus on undergrounding, Vector also works with groups of customers in situations where consumers on the same street are willing to financially support the undergrounding of electricity (and possibly other network) reticulation along their street. Following initial discussions with the Customer Services Team, Vector's Overhead Improvement Team communicates directly with such customers in order to explain the scope and costs of the project, to ensure that consumers can make an informed choice, as to whether the costs (to the consumers) of the project are worth the quality and amenity improvements that would eventuate.

169 If more than 80% of the customers are willing to go ahead with the project, Vector then attempts to sign individual agreements with all customers involved (usually there are between 15 and 50 parties involved). Following the successful completion of that stage, Vector carries out the undergrounding work. Vector has completed 8 such projects in the last 12 months. An example of the before and after photos from two such projects are presented below.







Relationship with AECT

170 The Auckland Energy Consumer Trust⁵¹ was created in 1993 and controls and owns the share capital of Vector.

171 The three territorial local authorities in the District (Auckland City, Manukau City and Papakura District) are the Capital Beneficiaries. Under the Terms of the Trust Deed, the Capital Beneficiaries will receive the Trust's assets when it is wound up in 2073.

172 The Trust Deed defines a Consumer as an Income Beneficiary and an Income Beneficiary as follows:

"Income Beneficiary means a person who:(a) is an end-customer shown in the records of the Company as the holder of an ICP; (b) has the Point of Connection for that ICP located within the District" and (c) is liable in respect of that ICP for payment of any amount payable for services in relation to the lines of the Company's electricity lines business."

⁵¹ Further information on the AECT is available at their website – <http://www.aect.co.nz>

173 The Trust is made up of five Trustees who are elected by Consumers (as defined above) every 3 years, which facilitates the proper representation of Consumers' views. As for any trust, potential trustees are free to campaign upon any basis that they consider would appeal to a sufficiently large base of the constituency for them to be elected. Past and present potential trustees have campaigned on a wide range of platforms, including dividend returns, service quality, pricing and undergrounding, which highlights the direct ability of the Trust to represent its income beneficiaries in the areas the Commission is interested in. The election process helps ensure that candidates whose policies best reflect the views of Consumers are more likely to become the Trustees.

174 The Trust, as a body elected by Vector's consumers within the original Auckland Electric Power Board area (the District) (who are also income beneficiaries)), is representative of those consumers and is a body which is legally obliged to ensure the company, which it owns, acts in the best interests of the Trust's beneficiaries (consumers (income beneficiaries) and Councils (capital beneficiaries) in the Auckland area). However, in exercising any discretion the trust is legally entitled, pursuant to clause 2.3 of the Trust Deed, to:

"prefer the interests of Consumers over the interests of the Capital Beneficiaries"

175 As a result of the Trust's approval of the acquisition of UnitedNetworks, Trustees entered into a Deed Recording Essential Operating Requirements with Vector. The Deed sets out the rights of consumers in the Auckland area for the next 70 years, including with respect to continuously improving quality through undergrounding, where possible, subject to commercial common sense. The Trust's strong focus on undergrounding (which was part of its election campaign) is a good example of Auckland consumers' views being well represented by the Trust (and now operationalised through the Trust's interactions with Vector).

176 The Trustees, in accordance with Vector's Constitution, elect directors of Vector. There are presently seven Board Directors, with an option to increase the number to 9.

177 The Statement of Corporate Intent of the Company (which is developed by the Trustees and Vector) sets out Vector's intentions and objectives (including with respect to quality) agreed between Vector and the Trust and is reviewed annually. It is a requirement of the Statement of Corporate Intent that Vector report twice yearly to the Trust on its performance and achievements against the Statement of Corporate Intent.

178 Briefings to Trustees are a vital part of the governance process, and are held regularly with the Company Chairman and Chief Executive Officer. Vector's performance, including with respect to quality and reliability, is discussed during these meetings.

Websites

179 Vector maintains several websites⁵², which provide information to consumers, including with respect to quality. The Vector website hosts Vector's Asset Management Plan. The sites also provide information on service quality standards and pricing, as well as relevant contact details to encourage customer feedback. The Vector Electricity website also provides a facility that features current work programmes and projects being undertaken by Vector so that consumers are informed about work being done in the Auckland area.⁵³

Customer surveys

Customer Service Monitors

180 Vector regularly surveys its customers in the Auckland area and has recently begun surveying customers on the Northern and Wellington areas to obtain feedback on what is important to consumers and how Vector's service can be further improved.

181 The surveys, also known as the Customer Service Monitors (CSM), are carried out monthly in the three network areas to ensure that Vector understands what customers expect and what is important to them. The CSM asks a sample of customers (that have had recent contact with Vector) for their views and comments on the company, covering their perception of Vector and their interface with us via the phone and/or with servicemen in the field. Vector uses the results of these surveys to seek continual improvement in its customer service.

182 The results of the surveys are an important input into Vector's business plans, asset management planning process and service provisions, thereby ensuring a central focus on customer needs.

⁵² <http://www.vectornetworks.co.nz>, <http://www.vectorelectricity.co.nz>,
<http://www.unitednetworks.co.nz>

⁵³ <http://www.vectorelectricity.co.nz/projects.php>

Grid Security Survey

183 In 1998, Mercury Energy (a predecessor company of Vector that owned the electricity network in Auckland), conducted a survey relating to grid security.⁵⁴ The aim of the survey was to identify regions where the importance of power quality and reliability differs, and the implications of such for prices. The survey covered both residential and business customers.

184 Using questions aimed at identifying how often and for how long a person would find it acceptable to experience power outages and fluctuations, as well as questions related to the impact outages and power fluctuations would have on that individual, participants were grouped into low, medium and high priority power user groups. High priority power users were those identified as being worst affected by, and having a lower tolerance to, power outages and fluctuations.

185 The survey then specifically examined the consumers' willingness to pay for an improved quality and reliability of supply, by asking them whether they would be prepared to pay higher prices in order to ensure fewer outages or fewer power fluctuations. The results (summarised in a table below) showed that the vast majority of consumers in all three priority groups were not prepared to pay for such improvements.

Customer Group	Priority Group	Prepared to pay for fewer outages	Not prepared to pay for fewer outages	Prepared to pay for fewer power fluctuations	Not prepared to pay for fewer power fluctuations
Residential	Low	16%	84%	7%	93%
	Medium	13%	87%	16%	84%
	High	12%	88%	15%	85%
Business	Low	12%	88%	10%	90%
	Medium	18%	82%	13%	87%
	High	22%	78%	23%	77%

⁵⁴ The detailed results of the survey are contained in Vector's supporting information

186 The results of this survey were a direct input into Vector's designation of zones and Standard Service Levels for those zones (discussed in more detail below). One of the main inputs into Vector's asset management decisions is the potential effect such decisions will have on Vector's performance against the Standard Service Levels, which were set in accordance with consumer preferences.

Retailer interaction

187 As noted above, for a significant portion of its connection base (the Northern and Wellington areas), Vector contracts for its services with retailers that are interposed between Vector and end-consumers. For the reasons noted above, Vector considers that retailers accurately reflect the quality requirements of small and residential consumers.

188 Vector has a well-developed relationship and business management system in place with its retailers, which includes a strong planning and implementation focus via a Retailer Partner Plan. This framework provides for regular interaction with retailers across a broad range of inter-business issues, including:

- consultation with retailers over Vector's plans for development of its pricing methodology. The input from retailers, over a number of years, has significantly influenced choices that Vector has made in streamlining pricing methodologies across its various network areas;
- routinely sharing Vector's annual Asset Management Plan with retailers and encouraging feedback on the content of that plan. Vector highlights projects of significance and, where performance issues have arisen, works in co-ordination with retailers to ensure effective communication of remedial plans across affected communities;
- annually surveying retailers on a range of relevant service related areas, including pricing and operations;
- monthly meetings to discuss a range of issues, including quality of service and reliability raised by the retailers themselves, or raised by them on behalf of consumers; and
- regular interaction through key account managers.

189 The fact that retailers and distributors ultimately provide services to the same consumers facilitates the continuous development of communication and cooperation with retailers, especially regarding issues of quality, including reliability of service. Through this close and developing relationship, price and quality trade-offs are discussed and there is considerable opportunity for retailers to voice their views. These views are taken into consideration through the asset management planning process.

Actions resulting from consumer engagement

Choice of tariffs

190 Vector understands that different consumers have different needs and, therefore, where possible (in this case, in the Auckland area), Vector provides individual residential and small commercial consumers with a price-quality trade-off they can make themselves at any point in time.

191 Vector offers such consumers a choice of an interruptible or non-interruptible supply. By choosing interruptible supply, consumers are able to save 14.6% off their variable lines charge in exchange for allowing Vector to interrupt their supply in order to shed load. This enables Vector to manage abnormal conditions more effectively without the need to disconnect large groups of customers to protect the system, as well as to better manage peaks on Transpower Grid Exit Points, thereby reducing transmission costs. This trade-off allows those consumers that are willing to accept a slightly lower level of reliability to receive a price reduction.

Customer Standard Service Levels and asset management planning process

192 As discussed above, Vector places great emphasis on understanding what customers require and meeting those requirements cost effectively. This includes providing our customers with a safe, reliable supply of electricity, providing customer specific solutions, being accessible to customers and providing accurate and timely information.

193 Vector regularly surveys its customers in all network areas (discussed above) to obtain feedback on what is important to consumers and how we can improve our service. The results are an input to Vector's business plans, asset management planning process and service provisions, thereby ensuring a central focus on customer needs.

194 As a result of our customer focus and the results of the 1998 grid security survey (discussed above), Vector has moved away from the traditional “universal service” approach to focusing on defining levels of expected service by area and customer type, as shown below. Vector evaluates, sets and publishes standard service levels for Auckland customers on an annual basis. Vector has also inherited Standard Service Levels in the Northern and Wellington areas as part of the Use of Network Agreement, through the acquisition of UnitedNetworks. These standards are Vector’s commitment to its customers – where the level of service set out in the standards for small commercial and residential customers is not met (except due to extreme events), the customer is entitled to a payment (see the table below for details).

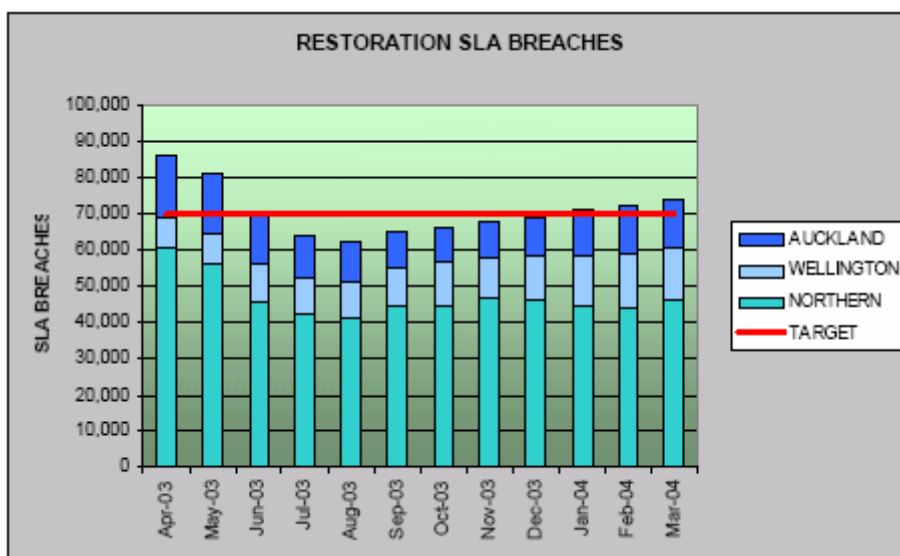
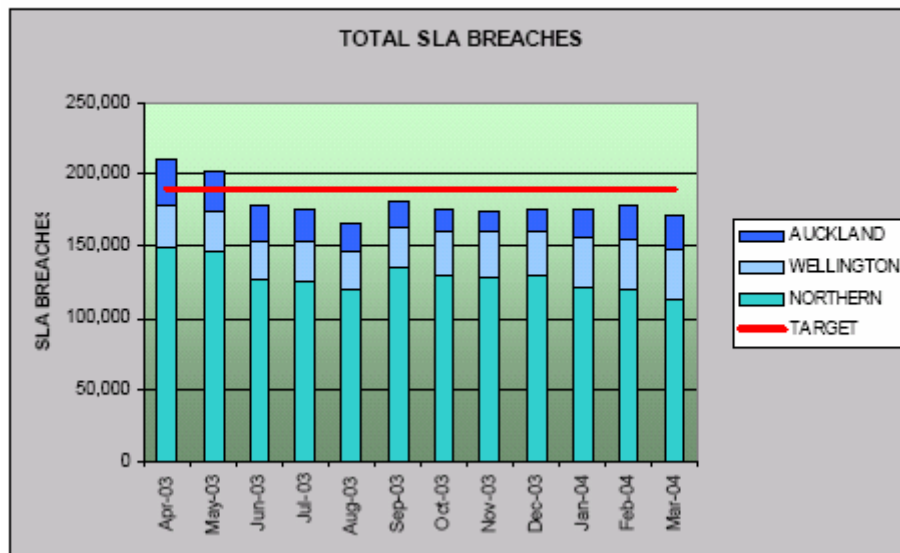
VECTOR STANDARD SERVICE LEVELS						
Network Location	Customer type	Service Area	Maximum restoration time per outage (hours)	Potential number of outages per year	Potential number of voltage sags below 80% of nominal value per year	Payment entitled to if SSLs breached (dollars)
Auckland	Large Commercial	CBD	0-2	0-3	0-20	-
		Industrial	0-2	0-4	0-20	-
		Urban	0-2.5	0-4	0-30	-
		Rural	0-3	0-14	0-40	-
	Business	Rural	0-3	0-14	0-40	\$200
		Urban	0-2.5	0-4	0-30	\$200
	Residential	Rural	0-3	0-14		\$50
		Urban	0-2.5	0-4		\$50
Wellington and Northern	Residential	Rural	0-6			\$40
		Urban	0-3			\$40
	Commercial	Rural	0-6			\$100
		Urban	0-3			\$100

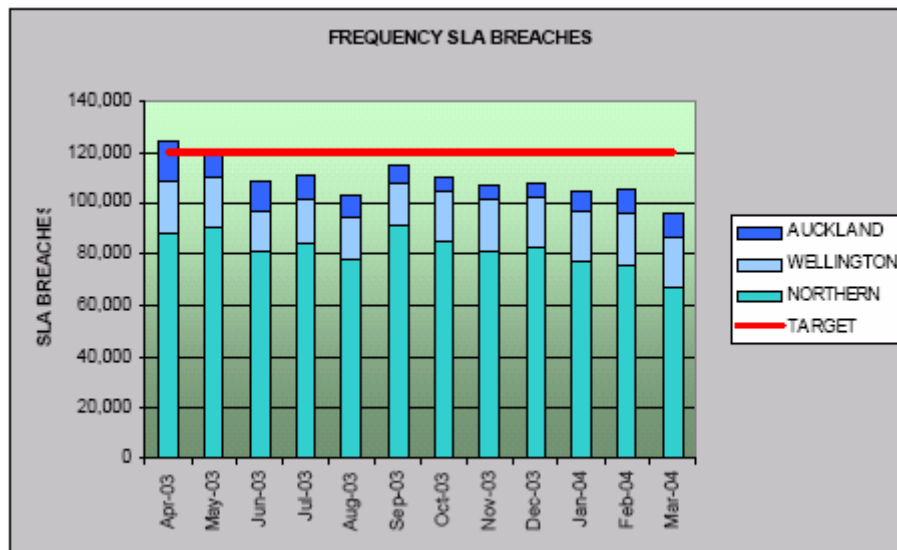
195 Of importance is that while these levels were originally largely based on the results of the Grid Security Survey carried out in 1998, Vector did not increase prices between the SSLs being set and the assessment date. Vector also reconsidered the SSLs

from time to time and ensured that processes were in place to collect feedback on SSLs, where such was offered. Throughout that time, no serious concerns have been raised with Vector by consumers with respect to the SSLs set.

196 Vector sets specific targets with regard to the maximum potential customers experiencing a Service Standard Breach. The graphs below show Vector's performance against those targets over the last year, using a twelve month rolling average.

NOTE: Breaches in these charts exclude Transpower outages and extreme events





197 Prior to 1998, service standards were set by the supply system capability rather than customer requirements. Accordingly, plans had previously focused on a universal system of quality, service and maintenance provisions across the entire network. The design and management of customer service and investment in assets were generally undertaken using a single criteria under a “one size fits all” approach. Through engagement with consumers over the last several years, it became clear that this approach could be improved.

198 Vector’s customer research⁵⁵ has shown that different groups have different needs and tolerances of power fluctuations in terms of length and time of day. Research also indicates that reliability in terms of fault frequency and duration of outages is important to customers, but with different levels of criticality.

199 For a number of commercial and industrial customers, feedback has indicated that power quality (the provision of supply within acceptable parameters such as voltage, frequency and waveform distortion) is, in many cases, as critical as outages. There are a number of customers on the Vector network who are sensitive to voltage fluctuations, many of whom run continuous process operations that have high costs associated with a disturbance or loss of supply.

200 To ensure that customer requirements and willingness to pay for varying service levels will ultimately drive performance, Vector has introduced a number of standard service levels against which Vector’s performance is assessed. The standards give Vector a basis for measuring performance and for determining the extent of required

⁵⁵ Refer to the results of the 1998 Grid Security Survey attached in supporting information.

asset maintenance, repair, refurbishment and acquisition. The standards also assist in managing customer expectations.

201 Network performance at Vector is currently managed at three levels:

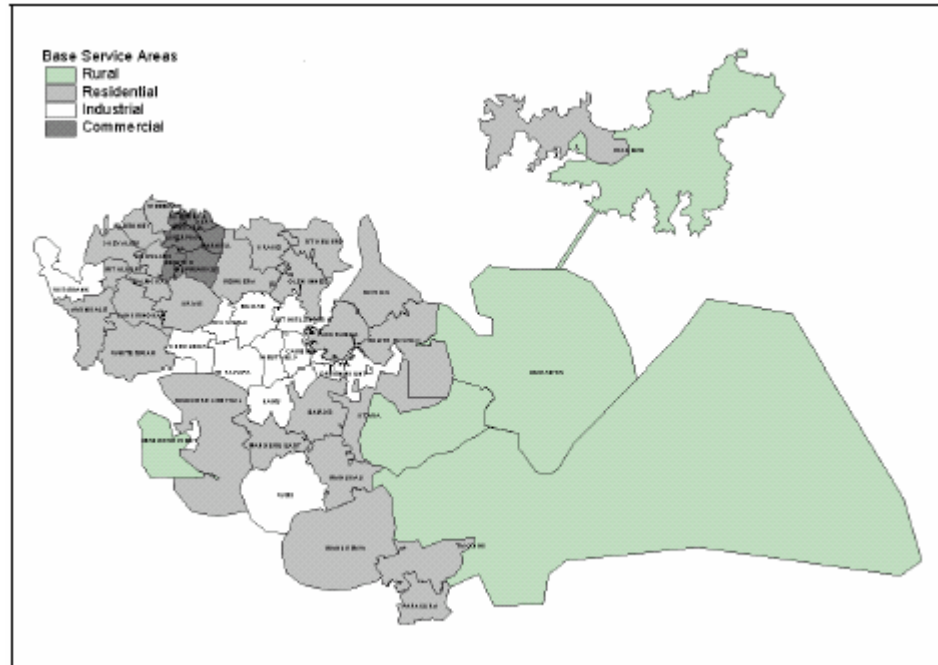
- reliability targets set for individual zones to align with our standard service levels by customer type, SAIFI and CAIDI (which in turn, give SAIDI);
- ability to handle extreme contingencies with the minimum impact to the customer, through risk mitigation (this is managed through Vector's formal risk management process and involves extreme event scenarios, such as, for example, a loss of a substation); and
- power quality and customer responsiveness.

202 As noted above, to ensure reliability targets are in line with our customers' requirements and expectations (which vary across the network), Vector moved away from a universal standard of service (one-size-fits-all approach), to specific outcome targets for different zone levels (rural, urban, CBD, industrial, etc). Consequently, Vector's philosophy requires a reliability-based assessment of the need for expenditure in the network, before an investment is made.

203 The risk of an outage occurring for customers in a given area is calculated and assessed against the baseline level of service for that customer type (calculated by assessing past reliability performance of the network with respect to the relevant customer type). This 'probabilistic assessment' ensures that effort is directed to proactively highlight areas where specific corrective actions are required to enhance reliability in those areas. Where, and if, required, some customers (usually commercial and industrial customers) are also able to contract for higher levels of quality.

204 The standard service level targets for our customers, as shown above, have been derived from such a performance analysis. For network management purposes, Vector has translated the standard service levels into individual SAIFI and CAIDI targets for the Auckland area service providers (ZBCs), based on the mix of customer types in their area (as shown below). Currently these are at zonal level and reflect the predominant customer type within the zone.

Customer Groups by Zone Substation



205 Performance against the SAIFI fault frequency targets are reviewed across the network to understand if there is a particular asset or group of assets causing high fault frequencies, or a particular fault cause in an area. The results of the analysis are then used to initiate revised preventative maintenance, asset refurbishment or replacement programmes, or other solutions if the fault cause is external (such as car versus pole or directional drilling).

206 The CAIDI fault duration targets are reviewed to understand what is causing the high duration outages and what the potential solutions could be. The solutions could include restructuring of the fault crew response, automation, or installation of fault passage indicators to assist efficient fault location. Annual maintenance plans are developed as a result of the review and analysis of SAIFI and CAIDI performance, and the optimum management plan to achieve the standard service level for that zone is then established.

207 This sort of analysis is used to ensure that the network will be able to deliver the quality levels expected by customers. It is also one of the main inputs into the development of Vector's Asset Management Plan.

Performance nature of contracts with Zone Based Contractors (ZBCs)

208 ZBCs are incentivised under the performance nature of their contracts to manage the operation and maintenance of the network to achieve zone targets. All of Vector's ZBC's (Northpower, Energex and Siemens) have zonal SAIFI and CAIDI targets (in addition to other incentive targets related to customer satisfaction and Vector's satisfaction), against which Vector measures their performance. The service providers' performance against these targets affects directly the amounts paid by Vector for the services rendered.