

REANNZ

RESEARCH AND EDUCATION
ADVANCED NETWORK
NEW ZEALAND

Research and Education Advanced Network
New Zealand Limited

Statement of Intent
2013 – 2016

May 2013





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Introduction

This Statement of Intent is submitted by the Board of Directors of Research and Education Advanced Network New Zealand Limited (REANNZ), pursuant to the Crown Entities Act 2004. It sets out the strategic direction for REANNZ for the period 1 July 2013 to 30 June 2016.

Statement of responsibility

REANNZ's Board is responsible for the prospective financial statements and statement of forecast service performance contained in this document, including the appropriateness of the assumptions underlying them. It is also responsible for internal control systems, which provide reasonable assurance as to the integrity and reliability of financial reporting.



Prof. John Raine
Chair



Prof. George Benwell
Deputy Chair

21 May 2013

About REANNZ

What is REANNZ?

REANNZ is the high-performance networking organisation serving the unique needs of the New Zealand Research, Education and Innovation (R, E & I) communities. REANNZ offers researchers, educators, students and innovative businesses access to a cohesive global fabric of advanced networking capabilities that encourage collaboration and enhance the competitiveness of the New Zealand economy.

In recent years, science has become increasingly distributed and data-intensive. With REANNZ's large data transfer capabilities boosting data mobility and tools facilitating multi-institutional collaboration, our members have access to the world's unique science facilities and more effective and efficient ways of working. Operating within a landscape without barriers to the exchange and development of ideas and knowledge, researchers can leverage networks to collect, sort, mine and analyse data quickly and effectively and be the first to create new technologies in areas like healthcare and manufacturing that will power New Zealand's future economy.

Why does New Zealand need a specialised R, E & I network?

When REANNZ's network went live in December 2006, the Crown Research Institutes and universities signed on as core members. Since then, membership has grown to include a significant number of smaller institutions as well: ITPs (institutes of technology and polytechnics), schools, wānanga, innovative companies, and the National Library. Institutions are drawn to REANNZ because many of the services they required are cost-prohibitive (or simply unavailable) on the commercial market.

It is important to understand that REANNZ differs from a commercial provider of Internet services. Large-scale science and data-intensive disciplines create massive data flows requiring different network capabilities than smaller flows generated by email, video, and web browsing. These unique capabilities are being driven by the following trends:

Exponential data growth. New instruments and computing systems continue to generate exponentially growing data sets. Moore’s Law¹ is transforming sensors and data growth in genomics exceeds Moore’s Law by a considerable margin. This relentless growth in data will require REANNZ to scale its capacity aggressively while maintaining service quality.

Data mobility. Researchers are depending increasingly on networks to support activities such as data replication, data sharing, remote access to storage, and bulk data transfer. Large data sets are being moved among Crown Research Institutes and Universities for analysis; moved again to remote facilities for secondary analysis; and eventually shared with collaborators. The desire to place data where it can be productively analysed is a hallmark of data-intensive science, and the need for *efficient* data mobility is driving much of REANNZ’s strategic planning activities.

Centrality of computing and networking. Computing is becoming essential in many areas of science in New Zealand. University and Crown Research Institute supercomputers, as well as New Zealand eScience Infrastructure (NeSI) and New Zealand Genomics Ltd (NZGL), are key components of the nation’s research complex and REANNZ provides the high-performance connections that make these facilities available and productive.

Global collaboration. Collaborations within the community are growing in scope and scale. Whether facilitating the teaching of Māori culture in remote NZ secondary schools or enabling NZ’s participation in the GeoPRISMS² plate tectonic boundary study, REANNZ must be able to support collaborations that comprise hundreds or even thousands of participants. Many of these large-scale projects are based on the assumption that the services provided by REANNZ and other networks of the world can connect instruments, facilities, and participating institutions.

¹ http://download.intel.com/museum/Moores_Law/Articles-Press_Releases/Gordon_Moore_1965_Article.pdf

² <http://www.geoprisms.org/>

Cloud-based services. Increasingly, institutions are relying on cloud service providers and cloud-based applications to control costs and achieve their strategic objectives. Whether its connecting universities to their online payroll provider or facilitating scientists accessing cloud computing resources, networks like REANNZ are becoming critical components of the research and education 'supply chain' used to produce and deliver the community's products and services.

Lossless networking. When the Internet was launched several decades ago, it employed a *variable, best-effort, and ad hoc* service model. In fact, this model was a key innovation of the Internet architecture, distinguishing it sharply from circuit-reservation systems that came before (most notably public telephony). Over time, the science data flows began to diverge from commodity Internet flows in their scale and service requirements. For those networks that failed to stay ahead of the demand for resources and changing traffic characteristics, the result was *packet loss*. A small rate of packet loss (less than .01%) in a national scale network causes hugely disproportionate effects (>50x reduction) on data transfer speeds for large flows, due to the characteristics of TCP, the dominant Internet transport protocol. For this reason, REANNZ's network is designed to be *lossless*. Commercial networks do not have the same design objectives, because the flows they support have much lower throughput and travel much shorter distances than science flows. If REANNZ failed to meet the exponential bandwidth demands of its users, or did so in a way that introduced packet loss, the user experience would resemble the experience of watching YouTube in a highly congested wireless environment. Such an outcome would be detrimental for the productivity of every collaboration and significantly impair New Zealand's ability to innovate.

As a network carefully optimised for its users' needs, REANNZ's capabilities include:

- high-speed data transport, scaling cost-effectively
- guaranteed end-to-end performance, spanning multiple network domains
- an engineering emphasis on *lossless* transport
- a distributed performance monitoring platform
- IPv6 service and performance parity

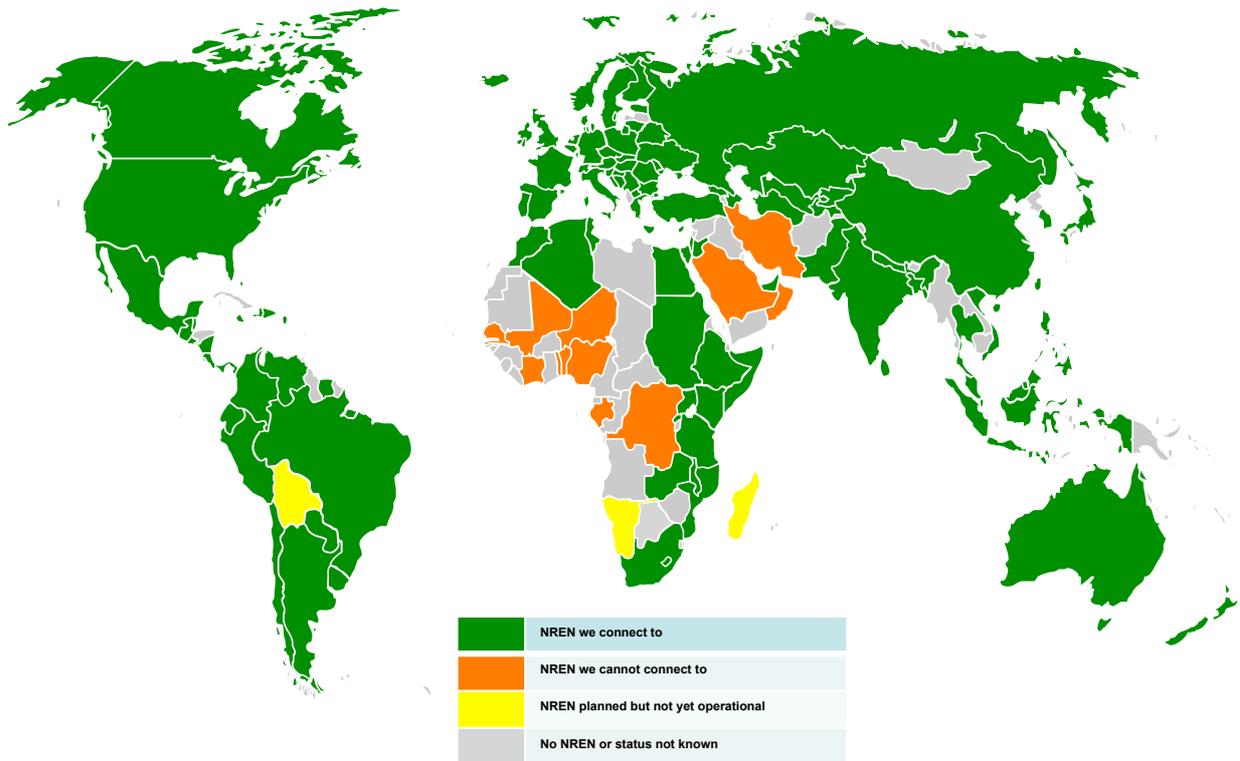
REANNZ

- a team of experts for rapid diagnosis of data transport issues
- advocacy for network and security architectures that enable high-throughput data exchange
- access to cloud-based services that are integral to the operation of the institution and the achievement of learning and research outcomes

The structure of modern science presumes the availability of reliable, high-bandwidth, feature-rich networks for interconnecting instruments and collaborators globally. In this context, REANNZ’s network serves as a vital “circulatory system” amongst those striving to educate the next generation of scientists or produce disruptive technological innovations. Without such purpose-built networks and tailored services, the community couldn’t function anywhere near the level it does today.

Whom does REANNZ support?

Networks are the fabric that binds communities. At REANNZ, we form part of the research, education and innovation ecosystem, connecting participants in those sectors to each other and the world. As depicted in the map below, nearly all developed countries, and many developing countries, have a national research and education network (NREN) similar to REANNZ.



REANNZ is a membership organisation, funded by a mix of Crown contributions and member revenues. From July 2013 onward, REANNZ will have a sustainable funding model in place, with 67% of core revenues obtained from member fees and the remaining 33% funded by Crown contributions. In comparison to most research networks its size, REANNZ receives a large proportion of its funding directly from its members.³

REANNZ’s core members are the New Zealand universities and Crown Research Institutes, with polytechs, institutes of technology and wānanga making up the remainder of the tertiary education membership base. We also support the unrestricted flow of knowledge from the tertiary to the secondary education sector, having connected nearly 130 schools across New Zealand since 2009. REANNZ also connects organisations that provide services to our membership

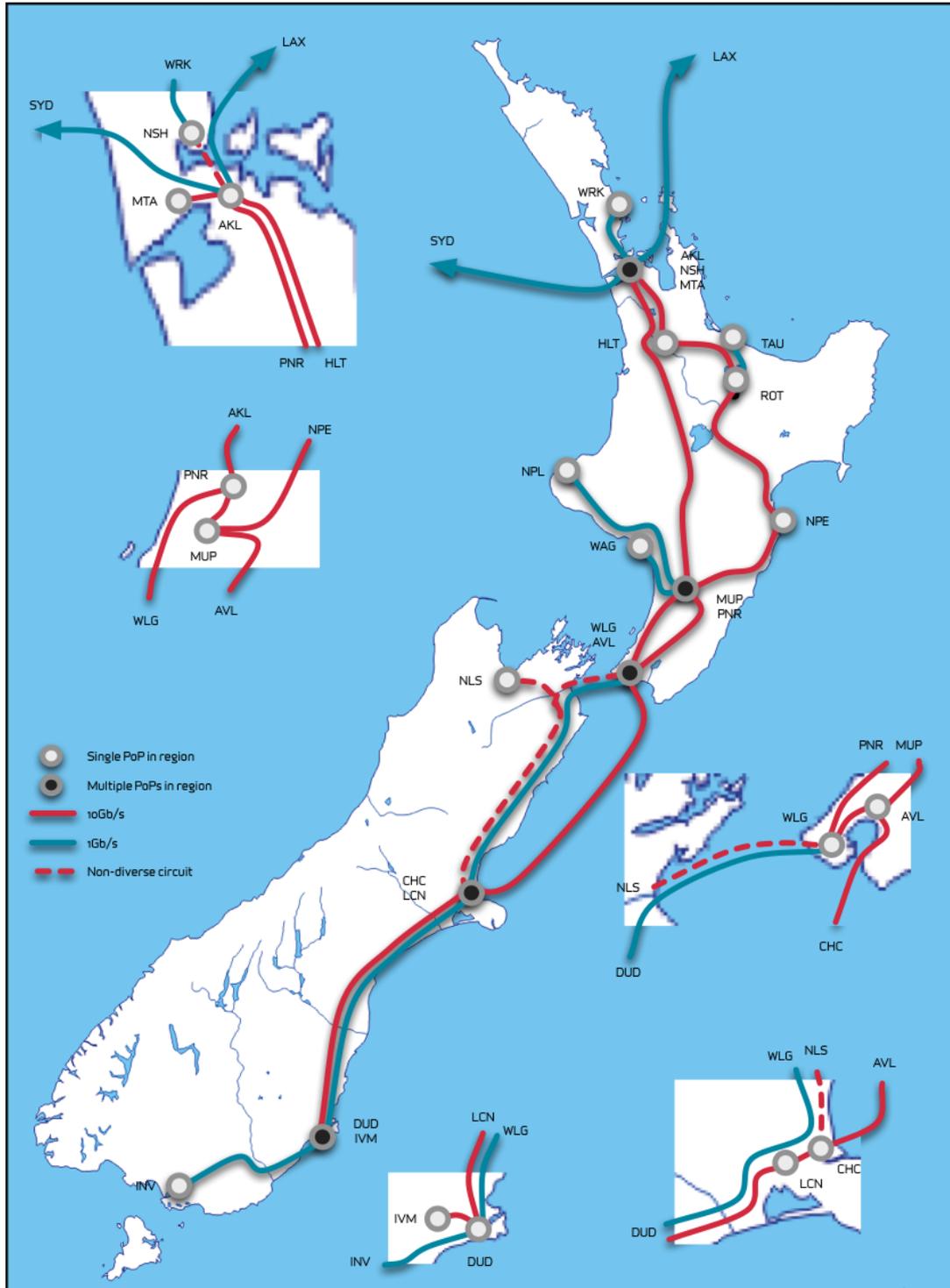
³ 2012 Terena Compendium, page 90 to 91

base, such as e-learning content providers. This both decreases the cost to members of accessing content by delivering it across our network instead of over commercial carriers, and improves the quality of their user experience by ensuring it is accessible at faster network speeds.

Additionally, REANNZ connects innovative businesses to the network, allowing them to work directly with the science and research institutions that are assisting them with product development or commercialisation.

As a not for profit entity, REANNZ looks to leverage our stakeholders' investment by maximising the public good we deliver. By helping our members achieve savings elsewhere and by reinvesting back into the business to maintain the breadth and quality of services we provide, REANNZ is able to foster innovation and increase New Zealand's competitiveness in the global marketplace.

Live network activity can be seen on our real time network weather map at <http://weathermap.reannz.co.nz>. REANNZ's network footprint is shown below:



What is REANNZ seeking to achieve?

Government and sector outcomes

A clear goal for Government is to grow the New Zealand economy. Recognising that modern economies are built upon the free exchange of ideas, a key pillar of this strategy is to stimulate economic growth through productive research, collaboration, and innovation.

The Ministry of Business, Innovation and Employment, is a key driver of these policies. A cornerstone of their Business Growth Agenda is *Building Innovation*⁴, which focuses on seven key initiatives, including:

- developing innovation infrastructure
- building international linkages
- boosting public science investment
- strengthening research institutions
- encouraging business innovation
- improving intellectual property settings, and
- growing the innovation workforce.

“Innovation is underpinned by scientific research capacity and skills that create and absorb new knowledge, technology and expertise. Flourishing innovation requires not only scientific discovery and invention, but successful commercial application”.⁵

The 2011 the *Powering Innovation Review*⁶ identified a fragmentation of resources in New Zealand and the need for much stronger networking of, and knowledge transfer between, the various research organisations and many industry partners. REANNZ, as key innovation infrastructure, can play a key role in enabling this vision.

4 Ministry of Business, Innovation and Employment, Business Growth Agenda, Building Innovation 2012 (<http://www.mbie.govt.nz/what-we-do/business-growth-agenda>)

5 Ministry of Science and Innovation, briefing for the incoming Minister 2011

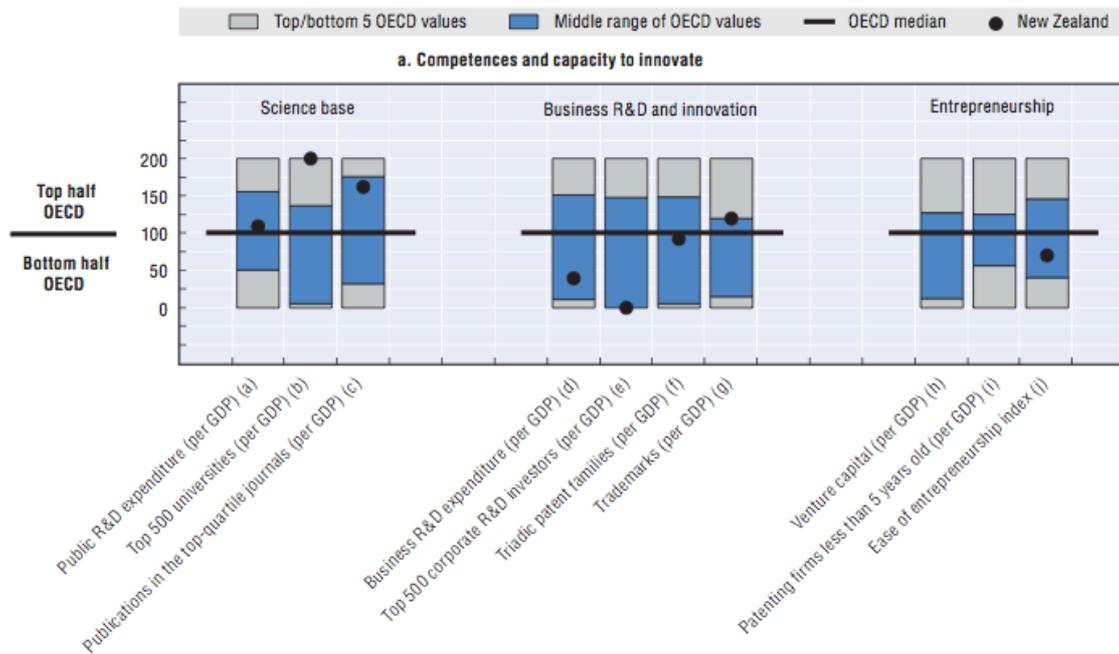
6 Ministry of Science and Innovation, Powering Innovation, Improving Access to and uptake of R&D in the high value manufacturing sector June 2011

REANNZ outcomes

REANNZ is one of many contributors to a high performing research, education and innovation ecosystem. The scale and diversity of the REANNZ member community (over 175 institutions serving thousands of scientists, researchers and educators) makes it difficult to isolate REANNZ’s direct contribution to this ecosystem. However, the goal for all participants is to lift performance across the board, with particular emphasis on the innovation system that turns ideas and knowledge into value.

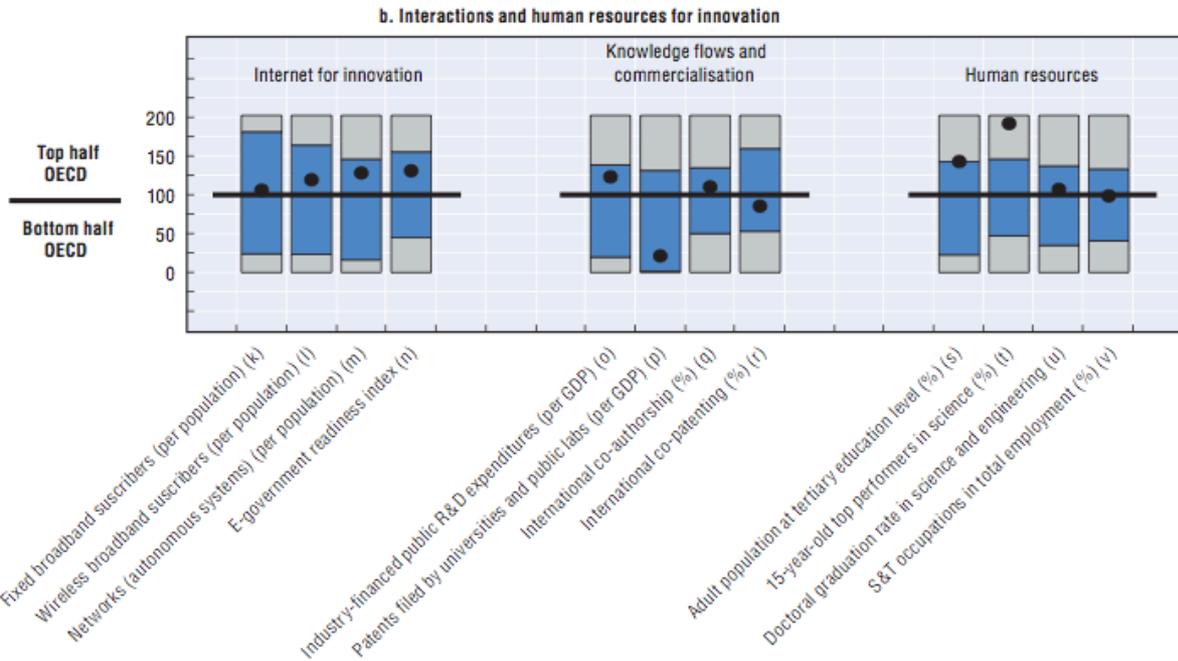
Figure 10.30. Science and innovation in New Zealand

Panel 1. Comparative performance of national science and innovation systems, 2011



OECD Science, Technology and Industry Outlook 2012

Tracking the performance of New Zealand’s science and innovation ecosystem as a whole is an indirect indicator of the achievement of REANNZ’s outcomes. The infographic above shows that New Zealand’s science base is generally well performing, although business R&D and innovation, and entrepreneurship generally remain below the OECD average.



Note: Normalised index of performance relative to the median values in the OECD area (Index median = 100).

OECD Science, Technology and Industry Outlook 2012

New Zealand’s “Internet for Innovation” capability (of which REANNZ is a part) is strong, with at or above average scores in this category. This has a positive impact on knowledge flow and commercialisation, as “Researchers are reasonably well integrated into global networks: 50% of scientific articles and 20% of PCT patent applications were produced with international collaboration”⁷. By increasing industry membership, including support for the newly created Callaghan Innovation, REANNZ may help lift the performance of New Zealand’s investment in business R&D and innovation.

The OECD report also emphasised the need for ICT capacity and infrastructure and referred to the critical and enabling role REANNZ plays in leveraging the investment the Crown is making in NeSI.⁸

⁷ OECD Science, Technology and Industry Outlook 2012, page 352.

⁸ OECD Science, Technology and Industry Outlook 2012, page 354.

The wider, more direct outcomes of REANNZ’s services are, by nature, generated through the outputs of the researchers who use our infrastructure. It is their use of our services, amongst other things, that will help lift the performance of the New Zealand research and development ecosystem.

The Ministry of Business, Innovation and Employment have set goals for improving business capability and driving a higher level of innovation. REANNZ indirectly contributes to these goals as a facilitator of science, research and education. Indicators of a high performing and globally competitive research, science and innovation ecosystem include:

Indicator	Indirect Measure
New Zealand maintains its high performing science base	<p>New Zealand maintains its position in the top 500 Universities per GDP</p> <p>New Zealand maintains its ranking for the university-industry collaboration in R&D in the World Economic Forum global competitiveness index (currently 23 out of 144 countries surveyed).</p>
New Zealand has improved capacity for innovation	An improvement in New Zealand’s ranking for capacity for innovation in the World Economic Forum global competitiveness index (currently ranked 24 th out of 144 countries surveyed).

What does success look like for REANNZ’s users?

If REANNZ is successful in delivering a high quality research, education and innovation network platform, we will have the following impact on our users:

Researchers across all fields are conducting data intensive research.

A number of science initiatives with large data requirements are being conducted that could not occur without the reach, reliability and speed of an advanced network. Examples include NeSI, NZGL (which performs genome sequencing), and radio astronomy. All of these projects involve instrumentation that generates massive datasets. These datasets need to be transported quickly and accurately from the instruments to hosting or processing centres, and to collaborating scientists performing the research.

The international connectivity REANNZ provides also reduces the negative impact our geographic remoteness has on our ability to participate in global science collaborations, creating opportunities for New Zealanders to participate in large-scale science initiatives. This plays a key role in being able to attract overseas talent to New Zealand, and for New Zealand to be competitive on the world stage.

Indications of the amount of data intensive science occurring are represented by the amount of data flowing over the network, as well as our users assessment of the need for the network.

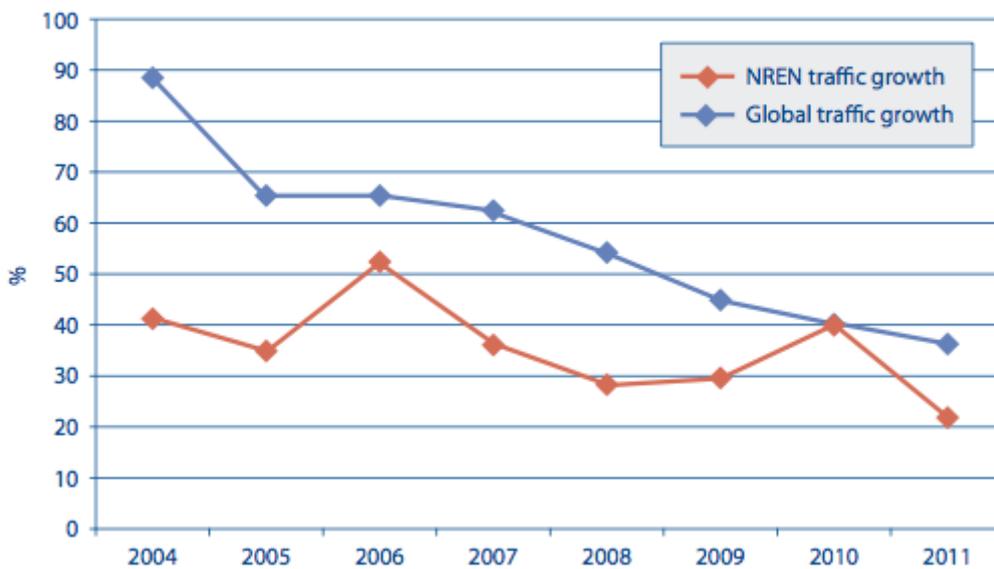
Able to conduct data intensive science & research	Actual 2010/11	Actual 2011/12	Estimate 2012/13	Forecast 2013/16
Total traffic flows increase	Not available	Not available	8.3 PB ⁹	25% growth
Increases in the total amount of traffic flowing over the network indicate more science is being				

⁹ Peta Bytes (PB), see glossary

conducted. This suggests REANNZ is enabling more and more scientific applications.

Globally NREN traffic growth is still impressive. REANNZ expects total growth in traffic of 25% over the next year, above global averages, as initiatives such as NeSI and NZGL gain momentum and as we move to improved national and international infrastructure that will help to realise suppressed demand.

Graph 4.3.2 - NREN traffic growth and global IP traffic growth rates, 2004-2011 (in %, T3+T4)



Source: Terena Compendium 2012, page 45

This year REANNZ is changing the way traffic flows are measured, by measuring traffic to and from members' connections rather than traffic flowing around the backbone network. No prior year data has been provided due to the change in measurement approach. This will align our measurement approach with that used by other research and education networks internationally, and enable us to benchmark New Zealand's activity with our global counterparts.

	Actual 2010/11	Actual 2011/12	Estimate 2012/13	Forecast 2013/16
Users consider the REANNZ network essential to their work	69%	75%	75% - 80%	Improvement on prior year

This indicator suggests users could not perform their work without the network platform REANNZ provides.

Collaboration between science, innovative business and education sectors is enhanced

Advanced networks provide a platform on which collaboration can take place. They provide connectivity that allows collaboration between institutions, sectors and countries. This collaboration drives the development of new ideas and leads to breakthrough science; the building blocks of an innovation-led economy.

Researchers now partner in virtual collaborations spanning time zones and continents; local laboratories have become global user facilities generating petabytes of data. This system is supported by advanced networks and computing resources. Large scientific instruments are routinely generating thousands of terabytes of data on a daily basis that need to be shared and analysed by researchers located at many sites around the world.

Collaboration takes many forms, it can be as simple as having a conversation over videoconference, or as complex as the multistep process of turning one scientist’s research project into a commercial product. REANNZ can help these collaborations take place, by providing connectivity and the tools to make collaboration easier and more effective.

The following indicators are indirect measures of the collaboration enabled by REANNZ. Traffic volume through the international network is an indirect measure of the international collaboration enabled by the network platform.

Enhanced collaboration	Actual 2011/12	Estimate 2012/13	Forecast 2013/16
International traffic volume	.87 PB	1.23 PB	30% increase
National traffic volume	Not available	7.07 PB	25% increase

International and national traffic is an indirect measure of the amount of collaboration enabled by REANNZ. Increasing amounts of traffic flowing through our network most likely indicate that more collaboration with both national and international participants is taking place.
REANNZ is changing the way national traffic flows are measured, by measuring traffic to and from

members' connections rather than traffic flowing around the network. No prior year data has been provided due to the change in measurement approach. However, we still expect continual growth in traffic volumes over time.

Our users have access to content and tools necessary to efficiently perform their work

Many of the services required by the REANNZ community are cost-prohibitive (or simply unavailable) on the commercial market. Today, such services include schedule-able bandwidth, on-demand multi-domain circuits, flexible traffic engineering, IPv6¹⁰ service and performance parity, and active multi-domain performance monitoring. These are networking features that are required by members on top of core network bandwidth. As a not-for-profit company that acts in the best interests of its community, REANNZ is able to provide those services that would otherwise be unavailable or unaffordable via the commercial market.

Another way in which REANNZ contributes to this impact is by operating as a procurement vehicle, aggregating demand in order to drive down the cost of services for our members. In this sense REANNZ acts as a market provider, with members buying cost-effective procured services such as videoconferencing, commodity Internet, and cloud services through REANNZ. However, where the services REANNZ procures are more widely available in the marketplace, REANNZ often becomes a market maker, forcing competitors to drop their prices to all customers in reaction to our activity. Without our activity in the marketplace, prices most likely would have remained high.

Being able maintain this position is dependent on the support of our members themselves. It is the strength of our co-operative that generates the buying power necessary for sustainable, lower cost services.

Indicators of our success at enabling our member's access to cost effective content and tools include:

¹⁰ see glossary

Cost effective access	Actual 2011/12	Estimate 2012/13	Forecast 2013/16
Subscriptions to services are maintained (100%) or increased (>100%)	100%	120%	135%
<p>Members subscribing to REANNZ services indicate that they are better value for money than others available in the market, as otherwise members would buy elsewhere. This demonstrates REANNZ ability to take cost out of the sector and deliver services that are relevant to our members.</p> <p>This measure compares the number of members subscribed to REANNZ services at the start of the year, with the number of members subscribed to REANNZ services at the end of the year. New services, or additional members subscribing to existing services will produce a result above 100%.</p> <p>With plans in place for implementing Net+ services over the coming year, we expect our services subscriptions to be over 100% of those at the start of the year.</p>			

What does success look like for REANNZ?

REANNZ believes a high-performance network is a strategic asset that can be leveraged to increase the economic competitiveness of a nation. To that end, we are committed to providing an exceptional user experience and a portfolio of services that forges strong ties with our community and delivers improved learning and research outcomes.

Success for REANNZ is the deployment of a high-performance network along with cutting-edge services that enables the research, education and innovation community to contribute to the success of New Zealand.

In addition, REANNZ also seeks to contribute directly by raising the international profile of New Zealand in the networking community through innovation, thought-leadership and disruptive change.

A full forecast statement of service performance, including performance measures by which the quality, quantity, cost effectiveness and timeliness of our services may be assessed, can be found later in the document.

What will REANNZ do to achieve these results?

Our vision

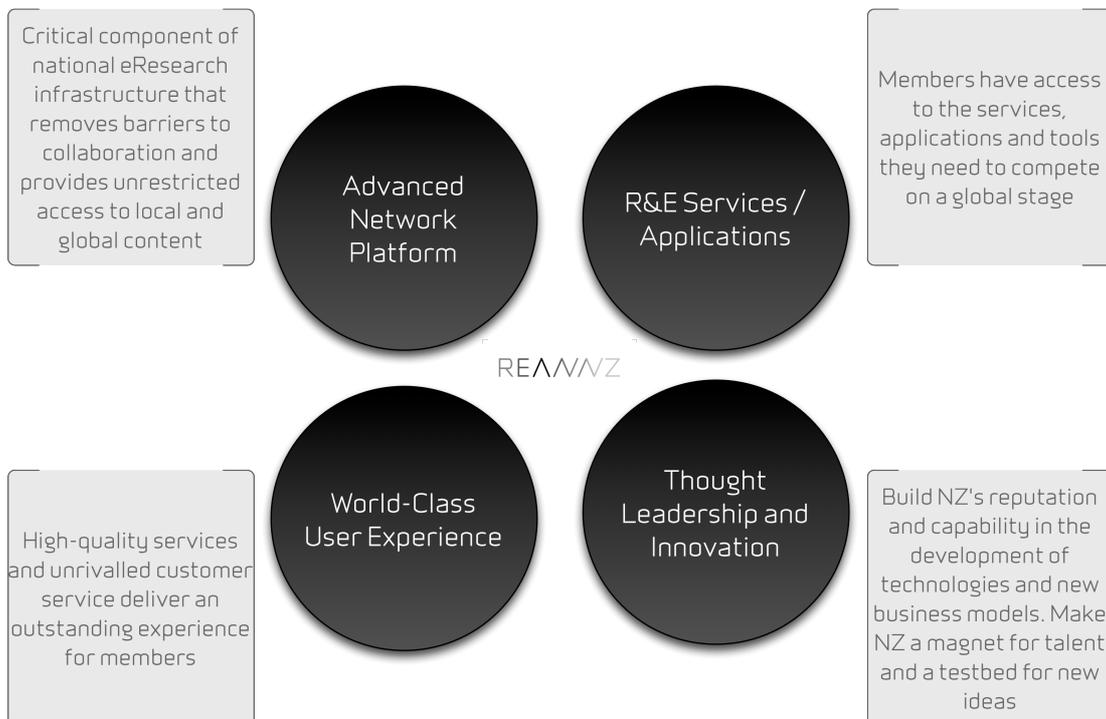
A New Zealand where transformative ideas flourish and the exchange of knowledge is completely unconstrained by physical location, ensuring our nation's prosperity and wellbeing.

Our mission

To provide cutting edge network services, unparalleled infrastructure and ground-breaking tools that enable collaboration and accelerate education, science and innovation.

Our strategic priorities

REANNZ has set the following long-term strategic framework to achieve the impacts and wider outcomes outlined above:



Each strategic priority is supported by key actions for the upcoming year.

Advanced network platform

Researchers, in their pursuit of discovery and innovation, continue to be the earliest adopters of networking technology in the world. For precisely this reason, REANNZ must build, maintain and operate a robust network platform with the flexibility that supports both our members' daily business operations and high-end science (a "production-quality" network), as well as the development of innovative, network technologies.

To achieve this REANNZ will:

- Maintain and operate production-quality national and international networks, including the transition to new national and international infrastructures during 2013/14
- Provide researchers and the private sector a realistic test bed environment to experiment with new technologies, protocols and applications

Provide research & education centric network-based services & applications

REANNZ is in a unique position to leverage existing infrastructure to deliver affordable applications and services that are often cost-prohibitive, or simply unavailable, in the commercial market. This is essential for New Zealanders to remain competitive and stay at the forefront of their respective fields.

REANNZ will provide members access to the tools and services they need to not only perform their work, but to do it better and faster than their international counterparts, by:

- Leading a cloud-based services deployment program
- Offering commodity Internet
- Providing a high quality videoconferencing solution
- Working closely with NeSI and NZGL to ensure their users have high-speed access to their science instruments
- Investigating opportunities for enhancing value and efficiency through greater collaboration or integration of education and science e-infrastructure

- Working with Callaghan Innovation to support their corporate objectives

Provide a world-class user experience

The structure of large-scale science now assumes the availability of high-bandwidth, reliable, feature-rich networks that can interconnect globally-distributed instruments, facilities and collaborators. While this hierarchical, multi-domain, multi-scale model connects research facilities no matter where they are located, it is far from seamless. To help address these and many other challenges, REANNZ has adopted a service culture, one that puts users at the centre and supports them end to end.

To achieve this REANNZ will:

- Improve the reliability of member edge connections
- Improve end-to-end network performance and throughput
- Improve member awareness and decision making to ensure networking and information technology expenditure is applied strategically.

Provide thought leadership and innovation

Looking ahead, REANNZ recognizes the oncoming data deluge is just the beginning of a long-term, data intensive trend that will only accelerate as more and more machines become connected to the network and 'talk' to one another. To help our members cope, REANNZ will use its networking expertise to ensure all have access to the best tools and networking technologies available. REANNZ will do this by:

- Contributing to the development and deployment of bleeding edge software defined networking infrastructures
- Supporting members participation in network technologies research & development by providing a fibre testbed
- Leading workshops on advanced networking technologies that educate members and inform purchasing discussions
- Participating in global forums to build New Zealand's reputation for innovation and stay informed of international networking developments

Organisational capability

Structure

REANNZ is governed by a Board of Directors, appointed by its shareholding Ministers following agreement by Cabinet.

Current directors are:

- Professor John Raine (Chair) – to June 2015
- Professor George Benwell (Deputy Chair) – to June 2014
- Susie Johnstone – to June 2014
- Jim Donovan – to June 2015
- Phil Norman – to June 2015

The Board appoints the Chief Executive, who is responsible for the day-to-day operations of REANNZ.

The Network Operations team is responsible for the day-to-day operational management of the REANNZ network, management of network supply contracts, implementation and support of new network services, connecting members and supporting their end-to-end network performance, network use policy, and technology planning.

The Business Development and Relationships team is responsible for catalysing a network-enabled community of researchers, educators and innovative institutions in New Zealand with the capabilities to take full advantage of the opportunities advanced network connectivity provides. The team is responsible for service development, and is focused on engaging with our members to identify ways in which REANNZ can help them perform their work more effectively.

The Corporate and Finance team provides administrative, financial and commercial support to ensure our staff and the company can operate effectively and professionally.

Capability

As a small organisation, REANNZ is heavily dependent upon its human resources. The highly specialised nature of REANNZ's work means these resources are scarce.

REANNZ supports flexible work arrangements for staff to maintain a proper work-life balance, which leads to happier, healthier and more productive employees. The nature of our work provides exciting, leading-edge opportunities for personal and professional development.

Good employer

To ensure that REANNZ meets its Good Employer obligations prescribed in the Crown Entities Act Part 3 Section 118, REANNZ will provide opportunities to:

- Enhance the abilities of individual employees
- Recognise the aims, aspirations and employment requirements of women, and the cultural differences of ethnic or minority groups
- Recognise the employment requirements of persons with disabilities.

REANNZ values the uniqueness of its employees and their contribution to the organisational personality and culture. Being responsive to a diverse range of viewpoints and cultures within the workplace will help the organisation develop a more representative workforce able to respond to an increasingly diverse NZ society.

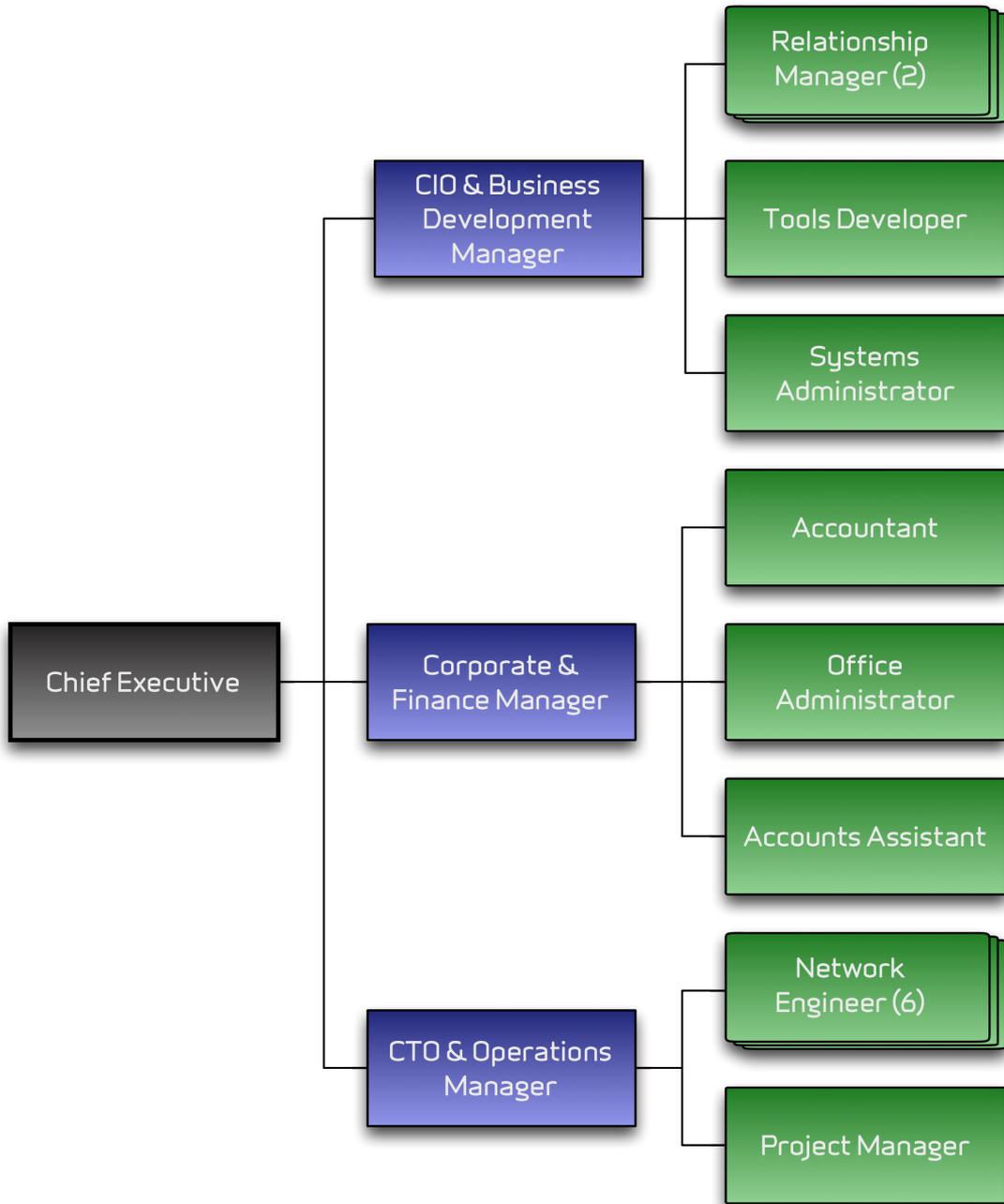
Sustainability

In 2011, REANNZ secured revenue commitments from members and the Crown sufficient to ensure that the REANNZ network could be sustainably delivered and supported for the foreseeable future. REANNZ has developed a four pillar approach to ensuring the financial sustainability of the network and the Company over the long term. These include:

- Active revenue management
- Moving to a lower unit cost network
- Containing corporate costs, and
- Active cash management.

REANNZ actively monitors its business risks and has appropriate mitigation strategies in place.

Organisational chart



Accountability

Corporate

REANNZ is a Crown-owned company, listed under schedule 4 of the Public Finance Act 1989 and incorporated under the Companies Act 1993. Its current shareholders are the Minister of Finance and the Minister of Science and Innovation. Each shareholder holds 908 shares on behalf of the New Zealand public.

Although REANNZ is not a Crown entity listed under the Crown Entities Act 2004, it is the intent of the shareholders that it acts in a manner consistent with the Crown Entities Act. REANNZ is subject to the Official Information Act 1982.

The functions and purpose of the company are contained in its constitution and further augmented by an annual Letter of Expectations from shareholding Ministers.

REANNZ's performance is currently monitored by the Ministry of Business, Innovation and Employment. The Ministry of Business, Innovation and Employment, in partnership with Treasury, maintain policy oversight roles with respect to REANNZ's outcomes.

Stakeholders

As a network company – both literally and figuratively – REANNZ must retain excellent relationships with a large number of members, government and non-government stakeholders.

Key working relationships are important with:

- Members, associates and partners
- Ministry of Business, Innovation and Employment as monitoring agency and financial analysts
- Crown Ownership Monitoring Unit; shareholders' financial analysts
- Ministry of Education; as policy developer and co-ordinator of technology strategies for schools
- Network for Learning; as co-ordinator of e-learning initiatives for schools
- Supplier partners – the local and national fibre providers

- Internet community – InternetNZ and related community for their foresight and influence
- Other NRENS – to ensure good transit and peering agreements and to leverage their experience.

Acquisitions and disposals

While it is unlikely that the Board will seek to acquire or form a subsidiary, it would only take such action after providing adequate written notice seeking shareholding Ministers’ approval of its intentions, in accordance with Government policy.

REANNZ will advise the shareholding Ministers, in consultation with the Ministry Business, Innovation and Employment, where it is contemplating new investments exceeding \$5 million per transaction (or related set of transactions), and will seek shareholding Ministers’ approval for major transactions in line with the Companies Act 1993.

Reporting

Annual Report

An Annual Report will be made available to Ministers within four months of the end of each financial year. It will comply with the reporting provisions of the Crown Entities Act 2004, the Companies Act 1993, and the Financial Reporting Act 1993.

Statement of Intent

A draft of our Statement of Intent will be made available to shareholding Ministers no later than one month prior to the commencement of the financial year.

Quarterly reports

Quarterly reports will be submitted to shareholding Ministers providing provisional financial and non-financial performance data, measured against the forecasts in this Statement of Intent. This information will be provided through CFISnet, the Crown’s Financial Information System.

Other information

REANNZ will provide other information relating to the affairs of the company as requested by its shareholding Ministers.

Forecast Statement of Service Performance 2013-2014

REANNZ’s output is the high performance network infrastructure and tools that are optimised for research and education. The below service performance measures and prospective statement of service performance relate to the delivery of this output.

Performance measures

Quality

The quality of our service can be measured by the reliability of the network and its reach.

	Actual 2010/11	Actual 2011/12	Estimate 2012/13	Target 2013/14
National network availability	99.90% 12 month rolling average	99.99% 12 month rolling average	99.99% 12 month rolling average	99.9% 12 month rolling average

	Actual 2010/11	Actual 2011/12	Estimate 2012/13	Target 2013/14
International network availability	99.90% 12 month rolling average	99.65% ¹¹ 12 month rolling average	99.9% 12 month rolling average	99.9% 12 month rolling average

National and international network availability measures the reliability of the network. Downtime includes faults and other connectivity or hardware outages, but excludes planned maintenance outages. 99.9% network availability is standard for research and education networks internationally.

¹¹ During 2011/12 some hardware in our Los Angeles PoP suffered an unplanned outage.

The way in which REANNZ calculates availability, and the effect of downtime will change for 2013/14. We intend to include into the availability calculation a weighting for severity of the outages experienced. For example, an outage that affects more members, and larger connections, will result in a greater percentage decrease in availability. Despite this, our availability targets will not change.

Our goal is to maintain this level of reliability. Network reliability is a function of cost, as every order of magnitude increase in reliability is usually matched by a greater order of magnitude increase in network costs, due to the law of diminishing returns. REANNZ aims for network reliability to be as high as reasonably possible, given the need to balance the costs associated with each magnitude increase.

Quantity

The number and size of our member network connections, our scale and reach, demonstrates the quantity of the services we provide.

	Actual 2011/12	Estimate 2012/13	Target 2013/14
Network scale and reach (volume of member connections)	N/A	233 Gb	256 Gb (10% increase)

Network scale and reach is a combination of the number of member connections and their size. The more members and the greater the size of their connection, the more use our network supports, and the greater quantity of service we provide.

At the end of the 2012/13 financial year, we expect to be supporting member connections to the network representing a total of 233 Gb in size. This will grow as our members increase the size of their connections as their usage increases, and as they implement second connections to our network for resiliency as they depend further on our services.

This measure reflects the capability that REANNZ supports, rather than actual usage or traffic growth. Traffic or usage is expected to grow at 25% per annum, as our members better utilise the connections to the network that are currently in place (see the section “What success looks like for REANNZ’s users”, earlier in the document). As this growth is realised, the size or number of connections members need to perform their science will increase and this measure will grow.

In previous Statement of Intents we have used the capacity of the national network backbone (10Gb/s) and international network (1Gb/s) to demonstrate the quantity of services REANNZ provided. As we deploy new network infrastructure over the next year, the capacity of individual network segments will vary based on demand. We expect the national network backbone to have some segments at 10Gbs, some at 20Gb/s and some at 30Gb/s. For this reason, we have retired this measure and instead focused on the total volume of connections we support as an indicator of the quantity of the services we provide.

New Services Added	Target 2013/14
Service Offerings increase	5 new cloud service offerings available to members 5 members connected to the network via ScienceDMZs

REANNZ is participating in a global programme that will result in cloud applications, specifically for the R&E sector, available to its members. In addition to this, we are working with members to deploy ScienceDMZs, a method of connecting data-intensive science instruments directly to the network, to avoid internal campus bottlenecks and drastically improve throughput and performance.

These additional service offerings help ensure our members have the tools and resources necessary for New Zealand to remain competitive in the global marketplace.

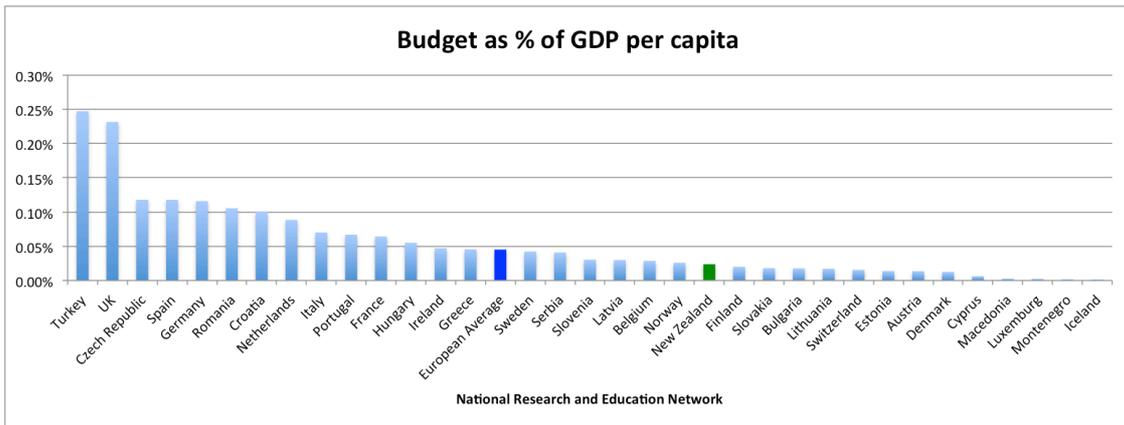
Cost effectiveness

The cost effectiveness of the REANNZ network platform is best demonstrated by our ability to retain our core membership base. If we were not cost effective and providing valuable networking solutions, alternative suppliers would enter the market, and we would lose our membership base.

	Actual 2011/12	Estimate 2012/13	Target 2013/14
REANNZ maintains its core membership base	8/8 Universities 8/8 CRIs 13/20 ITPs 2/3 Wanangas	8/8 Universities 8/8 CRIs 13/20 ITPs 2/3 Wanangas	8/8 Universities 8/8 CRIs 13/20 ITPs 2/3 Wanangas

REANNZ addresses a niche market that commercial networks cannot - the provisioning of the unique services that meet science, research and education needs. Comparisons of cost with commercial telecommunications providers are misleading, as not only is our network designed to support time sensitive and bursty traffic flows, but the network has other performance attributes, such as low latency and jitter, which commercial networks cannot economically provide. Performance is more valuable to our members than maximising utilisation.

We are one of many research networks internationally. While it is difficult to directly compare costs with our international counterparts, as each network operates within different geographical constraints and supply markets and are at different stages of maturity with regards to its service offerings, we can provide an indicative comparison of REANNZ’s budget compared with similar networks who are members of the European networking association, TERENA.



The average budget of the European NREN between 2009 and 2012 was EUR12,8 million. In comparison, REANNZ’s budget over the same period was the equivalent of EUR6,1 million. As demonstrated above, New Zealand is spending less per citizen on research networking than most other european countries, despite the relatively high cost to New Zealand of international connectivity to access the rest of the world.

Over the coming year we will continue to develop measures that will allow REANNZ to benchmark its cost effectiveness and performance against similar research networks internationally.

Timeliness

	Actual 2011/12	Estimate 2012/13	Target 2013/14
Member survey of helpdesk users	74%	75%	80% of users considered issues to be resolved in a timely manner

The speed at which we identify and resolve faults and other network performance issues is a measure of the timeliness of our network management activity. The REANNZ helpdesk logs incident reports from users, and our service manager actively monitors the network for performance issues. Although we have target resolution times agreed with our suppliers, the true test of our timeliness is our members’ opinion of our responsiveness to their issues.

Prospective Statement of Service Performance

Output: The Advanced Research, Education and Innovation Network and Related Tools	
2013/14	\$ 000
Revenues	
Crown Income	4,000
Network Income	8,256
Other	2,352
Total Income	14,608
Expenses	
Amortisation & Depreciation	1,643
Network Expenses	10,640
Corporate Expenses	2,658
Total Expenditure	14,941
Surplus/(Deficit)	(333)

Prospective Financial Statements

Prospective Statement of Comprehensive Income

Research and Education Advanced Network New Zealand Limited

For the year ending 30 June

2013 F'cast		2014	2015	2016
\$000		\$000	\$000	\$000
	Revenue			
-	Revenue from the Crown	4,000	4,000	4,000
8,191	Network Income	8,256	8,178	8,254
2,342	Other Income	2,068	1,364	893
605	Interest Income	284	286	364
11,138	Total Revenue	14,608	13,828	13,511
	Network Expenses			
1,093	Depreciation & Amortisation	1,456	1,629	1,720
1,241	Employment Expenses	1,300	1,460	1,626
7,633	Network Operating Expenses	9,340	6,970	6,582
9,967	Total Network Expenses	12,096	10,059	9,928
1,171	Gross Surplus / (Loss)	2,512	3,769	3,583
	Corporate Expenses			
35	Audit	36	37	37
118	Depreciation & Amortisation	187	147	226
113	Directors Fees	122	126	130
653	Employment Expenses	1,224	1,380	1,549
455	Other Operating Expenses	655	682	713
493	Professional Services	312	321	331
301	Operating Leases	134	136	138
104	Travel Expenses	175	180	186
2,272	Total Corporate Expenses	2,845	3,009	3,310
(1,101)	Surplus / (Deficit)	(333)	760	273
-	Other Comprehensive Income	-	-	-
(1,101)	Total Comprehensive Income / (Loss)	(333)	760	273

Prospective Statement of Cashflows
 Research & Education Advanced Network New Zealand Limited
 For the year ending 30 June

2013 F'cast		2014	2015	2016
	\$000	\$000	\$000	\$000
<u>CASH FLOWS FROM OPERATING ACTIVITIES</u>				
Cash was provided from (applied to)				
-	Crown Revenue	4,000	4,000	4,000
981	Other Government Department Funding	724	166	-
8,135	Network Income	8,256	8,176	8,252
605	Interest Received	284	286	364
678	Other Income	723	894	891
(1,138)	Net GST	883	(387)	(416)
(5,804)	Payments to Suppliers & Employees	(8,777)	(9,230)	(9,629)
(641)	Prepayments for Network Connectivity	(4,644)	(1,650)	-
2,817	Net Operating Cash Flows	1,449	2,253	3,462
<u>CASH FLOWS FROM INVESTING ACTIVITIES</u>				
Cash was provided from (applied to)				
(7,510)	Purchase of plant & equipment	(5,057)	(457)	(1,526)
4,172	Term Investments	4,000	(1,000)	(2,000)
(3,338)	Net Investing Cash Flows	(1,057)	(1,457)	(3,526)
<u>CASH FLOWS FROM FINANCING ACTIVITIES</u>				
Cash was provided from (applied to)				
-	Issue of equity share capital	-	-	-
-	Net Financing Cash Flows	-	-	-
(521)	Net increase/(decrease) in cash held	392	796	(64)
1,835	Cash at beginning of year	1,314	1,706	2,502
1,314	Cash at end of year	1,706	2,502	2,438
<i>Represented by:</i>				
1,314	Cash at bank	1,706	2,502	2,438

Prospective Statement of Financial Position
 Research & Education Advanced Network New Zealand Limited
 As at 30 June

2013 F'cast		2014	2015	2016
\$000		\$000	\$000	\$000
CURRENT ASSETS				
1,314	Cash and cash equivalents	1,706	2,502	2,438
9,000	Investments	5,000	6,000	8,000
2,506	Receivables and debtors	2,763	2,593	2,651
979	GST receivable	8	-	-
453	General prepayments	453	453	453
4,283	Prepaid network expenses	1,814	1,313	1,313
18,535	Total Current Assets	11,744	12,861	14,855
NON-CURRENT ASSETS				
8,831	Property, plant & equipment	12,001	10,683	10,355
6	Intangible assets	4	2	2
105	Prepaid network expenses	4,585	3,272	1,959
8,942	Total Non-Current Assets	16,590	13,957	12,316
27,477	TOTAL ASSETS	28,334	26,818	27,171
CURRENT LIABILITIES				
787	Accounts payable & accrued expenses	2,481	470	520
-	GST payable	-	232	209
83	Employee entitlements	83	83	83
156	Other Current Liabilities	50	-	-
2,635	Income in advance	2,778	2,796	2,849
541	Deferred income	465	-	-
4,202	Total Current Liabilities	5,857	3,581	3,661
NON-CURRENT LIABILITIES				
465	Deferred income	-	-	-
465	Total Non-Current Assets	-	-	-
4,667	TOTAL LIABILITIES	5,857	3,581	3,661
22,810	NET ASSETS	22,477	23,237	23,510
PUBLIC EQUITY				
16,001	Share capital	16,001	16,001	16,001
6,809	Accumulated surplus	6,476	7,236	7,509
22,810	Total Public Equity	22,477	23,237	23,510

Prospective Statement of Movements in Public Equity
 Research and Education Advanced Network New Zealand Limited
 For the year ending 30 June

2013 F'cast		2014	2015	2016
	\$000	\$000	\$000	\$000
23,911	Public Equity at beginning of year	22,810	22,477	23,237
(1,101)	Comprehensive Income for the year	(333)	760	273
-	Share Capital introduced	-	-	-
<hr/>				
22,810	Public Equity at end of year	22,477	23,237	23,510

Nature and purpose of prospective financial statements

The prospective financial statements above have been prepared to the best of our knowledge and belief as an indication of REANNZ's future financial performance. Actual financial results achieved for the period covered may vary from the information presented, potentially in a material manner.

The purpose of the prospective financial statements is to inform readers of this Statement of Intent of REANNZ's best estimate of its future financial performance at the date of publication, and to comply with REANNZ's specific reporting and disclosure obligations. The statements may not be suitable for other purposes.

Statement of significant assumptions

The prospective financial statements have been prepared on the basis of the following value for money principles:

- REANNZ will maximise the public good outcomes for New Zealand by reinvesting in products and services which deliver further value to members, and
- REANNZ will build sufficient cash reserves to maintain and improve network infrastructure to meet growing demand without Crown support beyond the committed \$4 million annual contribution.

These forecast financial statements have also been prepared using the following key financial assumptions:

1. The Crown's annual \$4 million commitment is received in July 2013, and continues annually thereafter
2. REANNZ's proposed shared national network investment is approved and implemented by October 2013, and
3. REANNZ invests in additional international connectivity to Sydney and Los Angeles during 2013/14 to meet mid-term international capacity needs in the absence of Pacific Fibre.

Income

- All existing network revenue contracts have been forecast to continue, with network income from core members expected to increase in line with inflation annually from January 2014, to keep pace with inflating costs.
- No further schools income or National Education Network income has been forecast past the end of the current National Education Network trial in June 2014, as schools are expected to transition to the Network for Learning.
- Videoconferencing fees are forecast at current contracted rates until the end of current contracts in July 2013. It is likely that the service will continue past this date, however revenues have not been forecast past this time due to the uncertainty around the exact nature of the service that will be procured.
- Commodity Internet services are forecast on an ongoing basis, as an integral part of the funding mechanism for the proposed international capacity alternative.

Network costs

REANNZ's national and international network connectivity arrangements expire in December 2013 and August 2014 respectively.

In July 2011, REANNZ entered into an anchor tenancy agreement with Pacific Fibre, for capacity on a new international submarine cable. In July 2012, Pacific Fibre withdrew its plans for the cable due to capital constraints. REANNZ's deposit (which was held in escrow) was returned, and REANNZ now seeks an alternative to the Pacific Fibre cable to meet ongoing international capacity demands.

A five year international capacity alternative on the existing Southern Cross cable has been budgeted, which will meet our members short to mid term needs for international capacity. REANNZ will continue to seek opportunities to establish alternative international connectivity options to ensure it can maintain its international network capability over the longer term, in line with increasing international capacity needs.

REANNZ also intends to participate in a shared national network arrangement, which will replace current national connectivity services before December 2013.

The costs associated with this five year arrangement, including the purchase of long-term (20 year) dark fibre, have been budgeted. This provides REANNZ with the ability to scale the network to meet demand at minimal additional capital and operational cost. We expect some high demand paths on the network to be lit at up to 30Gb/s on transition to this new model, an increase from the 10Gb/s currently available.

Significant cash outlay for fibre is expected in the 2012/13 financial year, with the remaining costs associated with the network expected in early 2013/14. Actual timing of cashflows are dependent on hardware delivery times and the finalised deployment schedule.

Network costs stabilise in 2014/15 and 2015/16 as the transition between network contracts, and the associated costs of the current service contract, concludes. Overlap of service during transition is essential to minimise operational risk.

Corporate costs

REANNZ continues to monitor its corporate expenditure closely. Changes to the corporate cost base are intended to assist REANNZ deliver on its strategy.

Cost efficiencies generated through the new national and international network arrangements will support an increased network engineering headcount (network expenditure), and build a more focussed business development and member relationship team (corporate expenditure). This is needed to enable REANNZ to drive value for members through being able to assist with troubleshooting and maximising network performance, and cultivate and implement leading edge technology developments for New Zealand.

General cost escalation on corporate costs has been forecast at 3% per annum.

Capital expenditure

Capital expenditure forecast for the three years from 2013/14 is as follows:

REANNZ Capital expenditure			
\$000	2013/14	2014/15	2015/16
Corporate			
Office Equipment	12	12	12
Leasehold Improvements	-	-	-
ICT Equipment	80	80	285
	92	92	297
Network			
Network Services	1,000	-	-
National PoP Equipment	1,226	364	1,321
International PoP Equipment	2,494	-	-
	4,720	364	1,321
Total	4,812	456	1,618

Significant network asset purchases in 2013/14 relate to the purchase of optical hardware and other assets for the move to the new national and international network, as well as a videoconferencing platform. Corporate asset purchases allow for a programme of office ICT equipment refreshes, including additional expenditure in 2015/16 expected with the replacement of back-end systems infrastructure at the end of its useful life. Replacement of REANNZ’s Layer 2/3 national PoP equipment is expected to occur in 2015/16.

Cash

REANNZ maintains cash reserves to fund periodic network reinvestment, usually on a three to five year cycle. It is necessary for REANNZ to accumulate reserves over the forecast period in order to meet our members’ long term national and international connectivity requirements. Significant cash outlays in the national and international network will be required after the timeframe shown in this forecast, in line with these business cycles.

Interest on cash balances has been forecast at 3% pa.

Financial Position

- 30 day terms for accounts payable and accounts receivable have been used for the purposes of this forecast.

Taxation

- REANNZ is exempt from income tax in terms of the Income Tax Act 2007. Accordingly, no income tax has been provided for
- GST has been forecast at the current rate of 15%.

Foreign Exchange

It is anticipated that the new international connectivity arrangements will be contracted in USD. A rate of USD0.79:NZD1 has been used for the purposes of this forecast.

Actual exchange rates are likely to vary. In accordance with REANNZ's treasury policy, REANNZ will take appropriate advice on forward foreign currency hedging arrangements to manage this risk. REANNZ also maintains cash reserves to manage any downside risk.

Notes to the Prospective Financial Statements

The reporting entity is Research and Education Advanced Network New Zealand Limited ("REANNZ"), a Crown entity as defined by the Crown Entities Act 2004 and a New Zealand incorporated company. As a Crown entity, REANNZ's ultimate parent is the New Zealand Crown.

REANNZ's primary objective is to establish, own and operate a high-speed communication network for the research and education sector. As such, REANNZ's aim is to provide services to the public, rather than make a financial return.

Accordingly, REANNZ has designated itself as a public benefit entity for the purposes of New Zealand Equivalents to International Financial Reporting Standards.

Basis for preparation

Statement of compliance

The prospective financial statements have been prepared in accordance with the Crown Entities Act 2004, which includes the requirement to comply with New Zealand generally accepted accounting practice ('NZ GAAP').

The prospective financial statements comply with the New Zealand Equivalents to International Financial Reporting Standards ('NZ IFRS') and other applicable financial

reporting standards as appropriate for public benefit entities.

Measurement base

The prospective financial statements have been prepared on the basis of historical cost, except where modified by the revaluation of certain items of Property, plant and equipment, and the measurement of derivative financial instruments at fair value. The accounting policies for these items are stated below.

Functional currency

The prospective financial statements are presented in New Zealand dollars, rounded to the nearest thousand (\$000). The functional currency of REANNZ is New Zealand dollars.

Significant accounting policies

Accounting policies are selected and applied in a manner that ensures that the resulting financial information satisfies the concepts of relevance and reliability. REANNZ accounting policies, therefore, are designed to report the substance of the underlying transactions undertaken by the entity.

The following significant accounting policies have been adopted in the preparation and presentation of the prospective financial statements:

a) Revenue recognition

Revenue is measured at the fair value of the consideration received or receivable.

Grant income is recognised by REANNZ as it is received or receivable from the Crown, when the conditions relating to the grant are met.

Where there are no conditions attached to the grant, other than the requirement for REANNZ to own and operate a high speed

communication network for the research and education sector, grant income is also recognised as it is received or receivable.

Where grant income has been received but the conditions of the grant are not yet satisfied, grant income is recognised as income received in advance in the statement of financial position.

Interest revenue is recognised using the effective interest method.

b) Property, plant and equipment

Property plant and equipment asset classes consist of office equipment, ICT equipment, PoP equipment, leasehold improvements and network hardware and dark fibre.

Property, plant and equipment are stated at cost or valuation less accumulated depreciation and any impairment losses. Cost includes consideration given to acquire or create the asset and any directly attributable costs of bringing the asset to working condition for its intended use.

The cost of an item of property, plant and equipment is only recognised as an asset when it is probable that future economic benefits or service potential associated with the item will flow to REANNZ and the cost of the item can be measured reliably.

Where an asset is acquired at no cost, or for a nominal cost, the asset will be recorded at fair value at the date when control of the asset is obtained.

Gains and losses on disposals are determined by comparing the proceeds of disposal with the carrying amount of the asset. Gains and losses on disposal are included in the Statement of Comprehensive Income.

Assets under construction are held in work in progress until they are completed, at which point they are transferred to the appropriate category of property, plant and equipment.

Costs incurred subsequent to initial acquisition are capitalised only when it is probable that future economic benefits or service potential associated with the item will flow to REANNZ and the cost of the item can be measured reliably.

The costs of servicing property, plant and equipment are recognised in the Statement of Comprehensive Income as they are incurred.

Depreciation on property, plant and equipment (excluding work in progress) is calculated on a straight line basis, from the time the asset is in the location and condition necessary for its intended use. This basis allocates the cost or value of the asset, less its residual value, over its estimated useful life.

The depreciation method, estimated useful lives and residual values of property, plant and equipment are reviewed annually to assess appropriateness.

The following estimated useful lives are used in the calculation of depreciation:

Dark fibre	20 years
Pop equipment	8 years
Network hardware (routers, switches and optics)	5 - 7 years
ICT equipment	3 years
Office equipment	5 years
Leasehold improvements	3 years

Leasehold improvements are depreciated on the basis of estimated useful life or the remaining lease term, whichever is shorter.

c) Intangible assets

Software is a finite life intangible and is recorded at cost less accumulated amortisation and impairment. Amortisation is charged on a straight line basis over the estimated useful life of the intangible asset. The following amortisation rates are used in the calculation of amortisation:

Software	3 years
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d) Impairment

At each reporting date, assets are reviewed by the Directors to determine whether there are any events or changes in circumstances that indicate that carrying amounts may not be recoverable. An impairment loss is recognised as the amount by which the asset's carrying amount exceeds its estimated recoverable amount.

If the carrying amount of an asset exceeds its recoverable amount, the asset is impaired and the carrying amount is written down to the recoverable amount. The impairment loss is

then recognised as an expense in the Statement of Comprehensive Income.

Where an item of property, plant or equipment has been revalued, any impairment loss is recognised against the revaluation reserve for that class of asset. Where this results in a debit balance in the revaluation reserve, the balance is recognised in the Statement of Comprehensive Income.

Any reversal of an impairment loss is recognised in the Statement of Comprehensive Income. Impairment losses can only be reversed to the extent that the carrying amount of the asset matches the carrying amount as calculated under the cost less accumulated depreciation method.

For items of property, plant or equipment which have been revalued, any reversal of impairment loss is credited back to the revaluation reserve. However, to the extent that an impairment loss for that class of asset was previously recognised in the Statement of Comprehensive Income, a reversal of impairment loss is also recognised in the Statement of Comprehensive Income.

e) Borrowing costs

Borrowing costs are recognised as an expense in the period in which they are incurred.

f) Inventories

Inventories held for sale or use in the provision of services on a commercial basis is valued at the lower of cost and net realisable value. The cost of purchased inventory is determined using the first-in first-out method. The write down from cost to net realisable value is recognised in the Statement of

Comprehensive Income, in the period when the write-down occurs.

g) Operating leases

Operating lease payments, where the lessors effectively retain substantially all the risks and benefits of ownership of the leased items, are included in the Statement of Comprehensive Income. Where the leased items are in use, operating lease payments are allocated in equal instalments over the lease term.

Where the leased items are not in use, the operating lease payments will be treated as a prepayment in the Statement of Financial Position. Once the items begin to be used in deriving income, these prepayments are released to the Statement of Comprehensive Income on a straight line basis over the period of the remaining operating lease term.

h) Financial assets

Investments

For investments under a contract where the terms require delivery within a specified timeframe, the investment is recognised on the date of trade at fair value, net of transaction costs.

Other financial assets are classified into "Cash and cash equivalents" and "receivables". The classification depends on the nature and purpose of the financial assets and is determined at the time of initial recognition.

Cash and cash equivalents

Cash and cash equivalents comprise cash on hand; cash held in banks, other short-term highly liquid investments with original

maturities of three months or less and are net of outstanding bank overdrafts.

Receivables

Accounts receivable are recognised at fair value. A provision for impairment of accounts receivable is made where there is objective evidence that REANNZ will not collect all amounts due according to the original terms of the receivable. When this occurs, the receivable is recorded at amortised cost, less provision for impairment. When the receivable is uncollectible, it is expensed in the Statement of Comprehensive Income.

i) Financial liabilities

Payables

Accounts payable, comprising trade payables and other accounts payable, are recognised when REANNZ becomes obliged to make future payments resulting from the purchase of goods and services. Payables are initially measured at fair value and subsequently measured at amortised cost using the effective interest method.

j) Derivatives

REANNZ enters into a variety of derivative financial instruments, including forward foreign exchange contracts, as part of its normal operations to manage its exposure to foreign exchange rate risk. REANNZ does not hold these financial instruments for trading purposes.

Financial instruments that constitute hedges, including forward foreign exchange contracts, are valued at the prevailing exchange rate at year end. Any unrealised gains or losses are

recognised in the Statement of Comprehensive Income.

Financial instruments that do not constitute hedges are stated at fair value and any resulting gain or loss is recognised in the Statement of Comprehensive Income.

k) Foreign currency transactions

Transactions in foreign currencies are translated to New Zealand dollars at the rate applying at the date of transaction.

At balance date foreign currency monetary assets and liabilities are translated at the closing rate and exchange variations arising from these translations are recognised in the Statement of Comprehensive Income.

l) Employee entitlements

Provision for accrued annual leave is made when it is probable that settlement will be required and the provision is capable of being measured reliably.

Provisions made for employee benefits expected to be settled within 12 months of the reporting date are measured using the best estimate of the amount required to settle the obligation, based on the remuneration rate expected.

Provisions made in respect of employee benefits which are not expected to be settled within 12 months of the reporting date are measured at the present value of the estimated future cash outflows to be made in respect of services provided by employees up to reporting date.

m) Taxation

REANNZ, as a public entity, is exempt from taxation. Accordingly, no charge for income tax has been provided for.

n) Cash flow statement

The prospective cash flow statement is prepared exclusive of GST, which is consistent with the method used in the Prospective Statement of Comprehensive Income.

Definitions of the terms used in the cash flow statement are:

“Cash” includes coins and notes, demand deposits and other highly liquid investments readily convertible into cash and includes at call borrowings such as bank overdrafts, used by REANNZ as part of its day to day cash management.

“Investing activities” are those activities relating to the acquisition and disposal of current and non-current investments and any other non-current assets.

“Financing activities” are those activities relating to changes in equity of REANNZ.

“Operating activities” include all transactions and other events that are not investing or financing activities.

o) Goods and Services Tax (GST)

These prospective financial statements have been prepared on a GST exclusive basis except for accounts receivable and accounts payable, which are stated inclusive of GST. The net GST paid to, or received from, the Inland Revenue Department, including the GST relating to investing and financing activities, is classified as an operating cash flow in the Statement of Cash Flows.

Commitments and contingencies are disclosed exclusive of GST.

p) Compliance

REANNZ's prospective financial statements have been prepared in compliance with FRS-42 and in accordance with generally accepted accounting practice, and are compliant with NZIFRS.

Glossary of Terms

Acronym	Term	Definition / Description
Core member		Universities and Crown Research Institutes connected to the REANNZ Network.
Gb/s	Giga bits per second	The speed at which traffic is transferred across the network. 1 Gb = 1,024 Mb (Megabits)
Internet2		The US national NREN, with a membership of over 200 US based universities.
IPv4 / IPv6	Internet Protocol version 4 / Internet Protocol version 6	Internet addressing protocols. IPv6 addresses are becoming more prevalent as IPv4 addresses "run out" globally.
NREN	National Research and Education Network	The name given to research and education networks globally.
PB	PetaByte	A measure of the quantity of traffic. 1 PB = 1,024 TB (Terra Bytes) 1 TB = 1,024 GB (Giga Bytes) 1 GB = 1,024 MB (Mega Bytes) or 8 Gb (Gigabits)
PoP	Point of Presence	A place in which members can connect to the REANNZ network.
REANNZ	Research and Education Advanced Network New Zealand Limited	A limited company owned by the Crown. REANNZ owns and operates the REANNZ network.