

STATEMENT OF PERFORMANCE  
EXPECTATIONS 2016-17

REANZ

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## STATEMENT OF RESPONSIBILITY /

This Statement of Performance Expectations 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 service expectations for REANNZ for the period 1 July 2016 to 30 June 2017.

REANNZ's Board is responsible for the prospective financial statements and statement of performance expectations 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.



Jim Donovan  
Chair



Ross Peat  
Deputy Chair

31<sup>st</sup> May 2016



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# COMMUNITIES THAT SHARE AND CONVERT DATA INTO KNOWLEDGE WILL THRIVE /

Data drives modern economies. While goods manufacturing and finance were the hallmarks of the global economy in the 20th century, the 21st century is being defined by global flows of data and information.<sup>1</sup>

REANNZ is New Zealand's Crown-owned, high-performance network solutions provider. We're part of a world-wide network of research and education infrastructure that supports the global flow of data between researchers, educators and innovators; connecting them at speed to the tools, people, applications and resources they need to be successful in their fields, wherever they may be.

When our people have access to the infrastructure required to pursue and achieve excellence, it creates a ripple effect, attracting more funding, more talent, greater international collaboration and new breakthroughs. This positive cycle delivers benefits for all New Zealanders through improved social, economic, environmental and educational outcomes.

Access to this technology also provides a platform on which transformational change can take place. It creates opportunities to disrupt the way education is delivered, can revolutionise research methods, improve scientific outcomes and increase productivity in unprecedented ways.

A research and education network is essential to the success of a nation. High-performance connectivity is a pre-requisite for competition in a world where success requires access to resources on a global scale. New Zealanders need not be constrained by their physical location on the planet.

<sup>1</sup> Digital Globalisation: The New Era of Global Flows, McKinsey Global Institute, March 2016



**NEW ZEALANDERS ARE NO LONGER CONSTRAINED BY THEIR PHYSICAL LOCATION. THE LOCAL AND GLOBAL INFRASTRUCTURE IS IN PLACE, WE NOW NEED TO ENCOURAGE NEW ZEALAND TO REALISE ITS AMBITIONS AND TAKE ADVANTAGE /**

- REANNZ POP
- REANNZ 40Gbps International
- REANNZ National Network
- ..... Access to Tein Network
- Other R&E POP
- Other R&E Network



## ABOUT REANNZ

**REANNZ's members are New Zealand's Universities, Crown Research Institutes, Polytechnics and other research, education and innovative organisations. The impact of our high-performance network extends beyond our members to the collaborative research initiatives in which they participate.**

These include the National Science Challenges, Centres of Research Excellence and the programmes funded by Marsden grants, Royal Society of New Zealand grants, Health Research Council grants and MBIE contestable funding.

We are currently funded through a mix of membership fees and Crown funding. REANNZ's funding agreement with the Crown expires in June 2017, and a new sustainable business model must be developed to ensure New Zealand's research and education communities can continue to thrive in a data-intensive and digitally-enhanced world.

Globally, research and education networks are "closed systems". A limited number of participants contribute to and utilise a long-term infrastructure base. The specific needs of this small customer base requires us to manage our infrastructure for optimal performance, supporting the high-end requirements of New Zealand's researchers, as well as the needs of teaching, learning and innovation.

Our network is deliberately architected and managed to deliver optimal, high-performance for our users. This means:

- › The network backbone is managed to accommodate large but unpredictable bursts in traffic, from the most demanding of scientific applications. As a result, the network is not congested, allowing all users to gain benefits from high-capacity and high-speed network performance;
- › We focus on transfer performance; this means managing network equipment to ensure there is no packet loss (which can arise from congestion or poorly configured network equipment), and minimal latency and jitter (the time taken for a packet of data to get from one point to another and the consistency of that experience). This is essential for both transfer speed and for transfer quality (getting everything there fast, and complete);
- › Our network is highly-reliable, designed to be resilient and highly-available;
- › We are part of a global partnership of over 117 national research and education networks (NRENs) that have the same commitment to high-performance; allowing our users to collaborate with their peers world-wide and ensuring their connectivity experience is seamless from source to destination;
- › We work closely with our members to help ensure that performance is possible from their front door, by managing their access connections and devices – tuning them for maximum performance;
- › We look to provide tailored services that meet unique needs of research, education and innovation users and their communities. These are services that are not available, or cost-prohibitive, in the open market;
- › We invest in our talent, so we can provide our members with quality advice, expertise and technology leadership.



## VISION /

WE ARE ACKNOWLEDGED AS INDISPENSABLE TO NEW ZEALAND'S RESEARCH, EDUCATION AND INNOVATION COMMUNITY

## MISSION /

TO ENABLE NEW ZEALAND'S RESEARCH AND EDUCATION SECTORS TO THRIVE IN A DATA-INTENSIVE AND DIGITALLY-ENHANCED WORLD THROUGH THE PROVISION OF HIGH-PERFORMANCE NETWORK SERVICES AND CUSTOMISED SOLUTIONS

## PERFORMANCE FRAMEWORK /

### DELIVERS

THE ADVANCED RESEARCH, EDUCATION AND INNOVATION NETWORK AND RELATED TOOLS

**Quality**

National and international network availability

**Quantity**

Volume of member connections; increased service offerings

**Timeliness**

Issues resolved in a timely manner

**Cost effectiveness**

Membership base is retained

### ENABLES

RESEARCHERS ACROSS ALL FIELDS WILL BE ABLE TO CONDUCT DATA-INTENSIVE RESEARCH

Total traffic flows increase; and users consider the REANNZ network essential to their work

COLLABORATION BETWEEN SCIENCE, INNOVATIVE BUSINESS AND EDUCATION SECTORS IS ENHANCED

Traffic volume through the international network increases; and traffic volume through the national network increases

USERS HAVE COST-EFFECTIVE ACCESS TO THE CONTENT AND TOOLS THEY NEED

Subscriptions to services increase

### EQUALS

SECTOR OUTCOMES

Grow the New Zealand economy to deliver greater prosperity and opportunity for all New Zealanders

REANNZ OUTCOMES

High-performing and globally competitive research, education and innovation ecosystem

This performance framework shows how our output, the advanced network and related tools, enables research and education that leads to a strong research ecosystem and growing economy.

OUR SUITE OF PERFORMANCE INDICATORS ATTEMPT TO MEASURE THE QUALITY, QUANTITY, TIMELINESS AND COST-EFFECTIVENESS OF OUR IMPACT ON NEW ZEALAND'S HIGH-PERFORMING AND GLOBALLY COMPETITIVE RESEARCH, EDUCATION AND INNOVATION SYSTEM /

ASSESSING OUR PERFORMANCE /

TRACKING OUR OUTCOMES /

REANNZ is one of many contributors to a high-performing and globally competitive research, education and innovation system. For this reason we track trends in this outcome using external, publicly available indicators of the performance of New Zealand's research education and innovation system, but we do not forecast specific changes in the trend indicators.

OUTCOME

High performing and globally competitive research, education and innovation system.

TREND INDICATORS

New Zealand progresses its position in the top 500 universities per GDP, as shown in the OECD's "Comparative performance of national science and innovation systems", published in the OECD Science, Technology and Industry Outlook, published every two years.

New Zealand maintains its ranking for 'university-industry collaboration in R&D' in the World Economic Forum global competitiveness index.

An improvement in New Zealand's ranking for 'capacity for innovation' in the World Economic Forum global competitiveness index.

FORECASTING AND  
MEASURING OUR IMPACTS /

**Impact: Researchers across all fields are able to conduct 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 high performance computing applications in research, for example climate and geological science, facilitated by the National eScience Infrastructure project (NeSI), genome sequencing services through New Zealand Genomics Ltd (NZGL), and radio astronomy data

analysis related to the international SKA project. All of these involve scientific instruments that generate massive datasets. These datasets need to be transported quickly and accurately from the instruments to hosting or processing centres, and to be shared with across the globe with scientists and researchers.

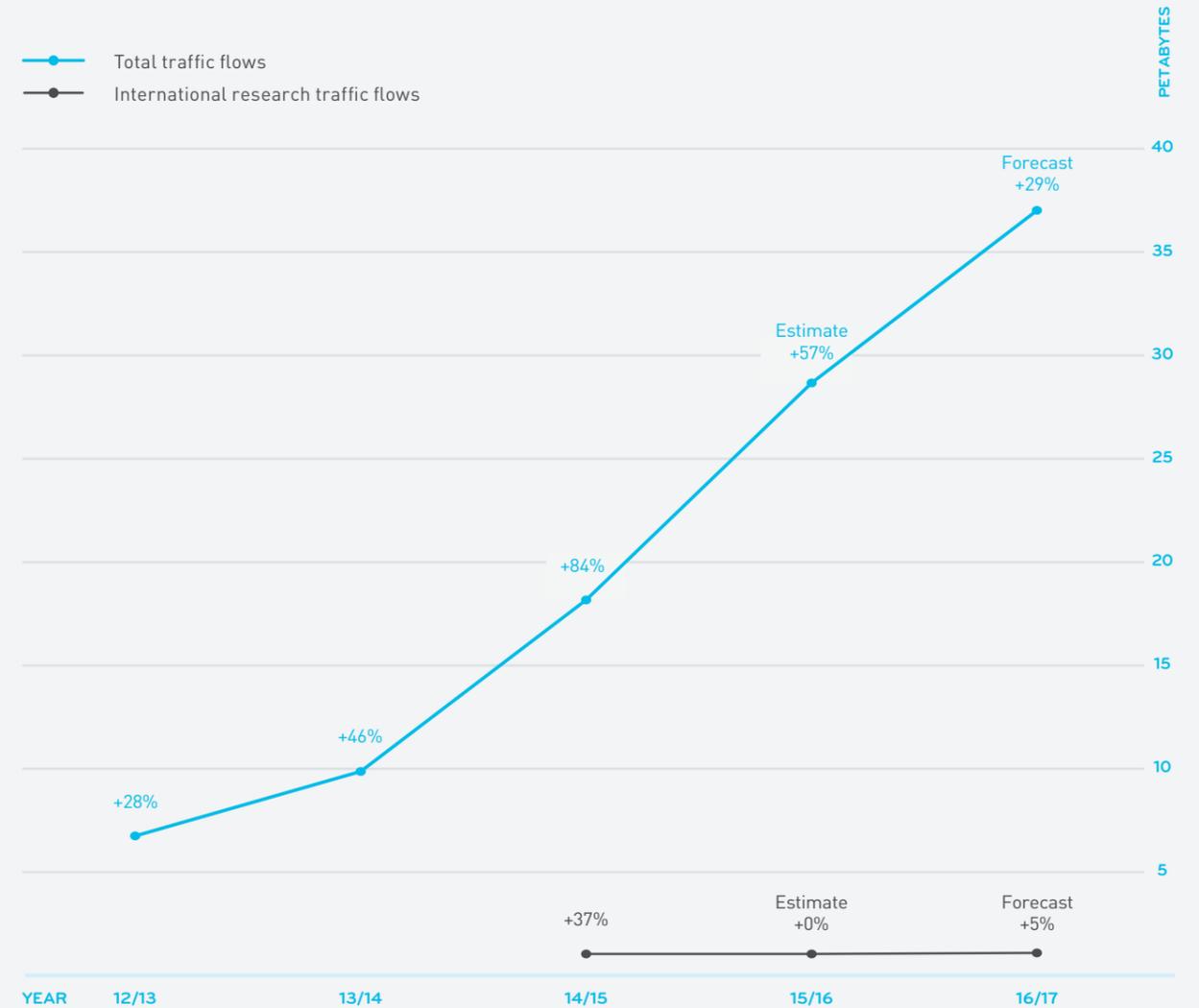
Indications of the amount of data intensive science occurring are represented by the amount of data flowing over the network, as well as our users' assessment of the need for the network.

MEASURE	ACTUAL 2012/13	ACTUAL 2013/14	ACTUAL 2014/15	ESTIMATE 2015/16	FORECAST 2016/17
Total traffic flows increase	+1.47 PB <sup>2</sup> (28%)	+3.12 PB (46%)	+8.3 PB (84%)	+10.5 PB (57%)	+8.35 PB (29%)
	6.75 PB	9.87 PB	18.17 PB	28.67 PB	37.02 PB

Increases in the total amount of traffic flowing over the network indicate more research and education services, applications and collaboration is being conducted and supported. Globally NREN traffic growth is still impressive – averaging between 30–50% annually depending on maturity and research investment policy.

REANNZ expects total growth in traffic of approximately 8PB over the next year, less than the last three years as traffic levels out and becomes closer to global averages<sup>2</sup>. Much higher growth in 2014 and 2015 was largely the result of better than expected uptake of our commodity internet service and many sites upgrading to 10Gbps from 1Gbps (including the Warkworth Radio Telescope).

<sup>2</sup> Petabytes (PB). One petabyte is equal to 1,000 terabytes or 1,000,000 gigabytes.



MEASURE	ACTUAL 2014/15	ESTIMATE 2015/16	FORECAST 2016/17
Total international research traffic increases	+37%	+0%	+5%
	1.04 PB	1.04 PB	1.09 PB

Increases in the amount of traffic flowing internationally between REANNZ members and the members of global NRENs is an indicator of the level of collaboration between New Zealand institutions and their international partners.

This measures the total amount of data sent and received, so a one-off project that is data intensive can cause significant variance in the results. As research data is shifted from on-premise to the cloud, this measure will also decline. We have seen a flattening off of total data sent between institutions

over the last 12–18 months. However, the peak load (the amount of data being sent at one time) has been increasing. Comparative information prior to 2014/15 is not reliable and has been excluded from this table.

Due to the unpredictable nature of R&E collaborations and the trends we've seen to date, we have forecast a 5% increase in international traffic.

MEASURE	ACTUAL 2011/12	ACTUAL 2012/13	ACTUAL 2013/14	ACTUAL 2014/15	ESTIMATE 2015/16	FORECAST 2016/17
Users consider the REANNZ network valuable or essential to their work	75% (43% essential, 32% valuable)	76% (44% essential, 32% valuable)	94% (69% essential, 25% valuable)	99% (74% essential, 25% valuable)	→80%	→80%

This indicator suggests users could not perform their work without the network platform REANNZ provides. In 2015, we saw a large increase in our users' perceived value of the REANNZ network with a record 99% considering the network essential or valuable to their work. We expect to maintain a result over 80% in the coming and following years.

### Impact: Collaboration between science, innovative business and education sectors is enhanced

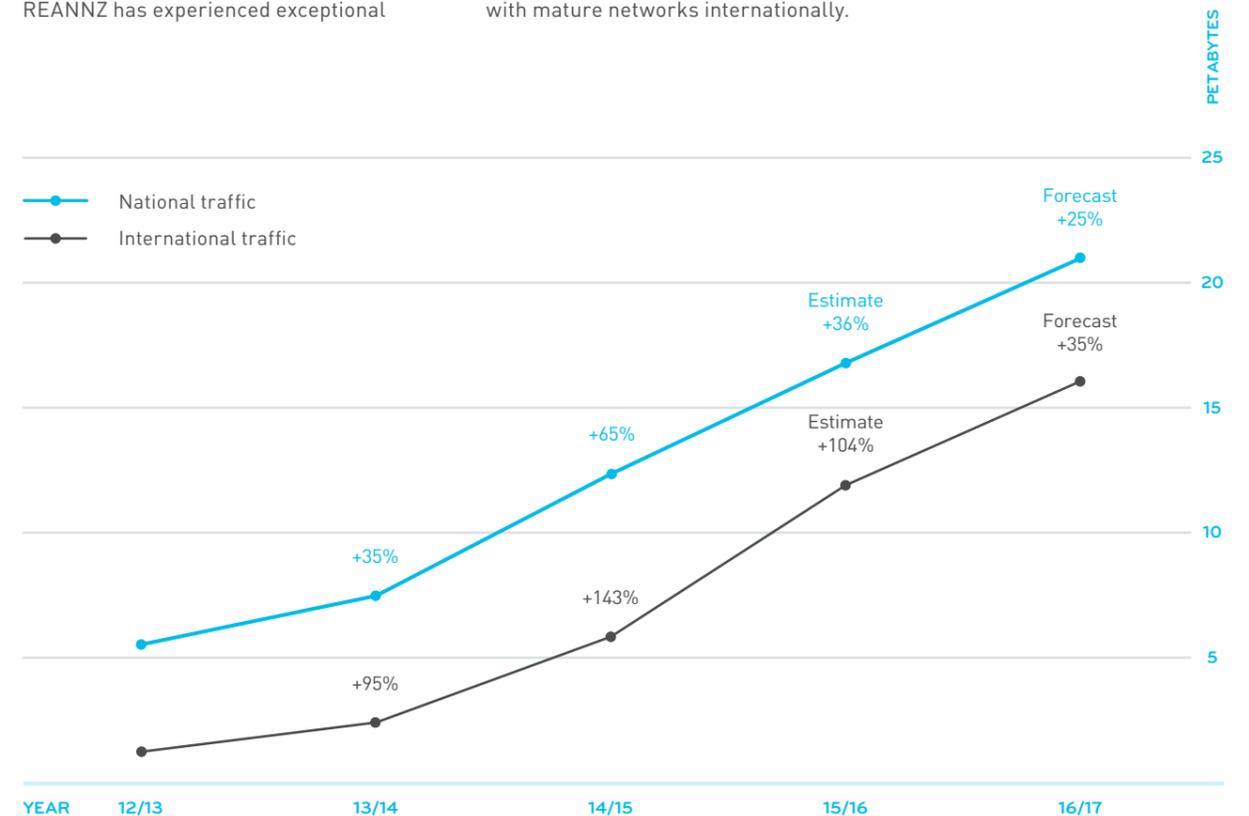
Collaboration takes many forms: it can be as simple as having a conversation over a videoconference, or as complex as the multistep process of turning one scientist's research project into a commercial product. REANNZ enables these collaborations by providing connectivity and the tools to make collaboration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

International and national traffic is an indirect indicator of the amount of collaboration enabled by REANNZ.

MEASURE	ACTUAL 2012/13	ACTUAL 2013/14	ACTUAL 2014/15	ESTIMATE 2015/16	FORECAST 2016/17
International traffic volume	1.23 PB	+95% 2.4 PB	+143% 5.83 PB	+104% 11.89 PB	+35% 16.05 PB
National traffic volume	5.52 PB	+35% 7.47 PB	+65% 12.34 PB	+36% 16.78 PB	+25% 20.97 PB

Increasing amounts of traffic flowing through our network indicate that more collaboration with both national and international participants is taking place. REANNZ has experienced exceptional

growth over the last few years as upgrades were put in place. From next year we expect this to moderate to nearer to 25–35% annual growth, in line with mature networks internationally.



**Impact: Users have cost-effective access to the content and tools they need**

Many of the services required by the REANNZ community are cost-prohibitive (or simply unavailable) on the commercial market. Today, such services include eduroam™, Tuakiri identity and access management, schedule-able bandwidth, on-demand multi-domain circuits, flexible traffic engineering, IPv6 service and performance parity, and active multi-domain performance monitoring. These are networking features that are required by members in addition to core network bandwidth. This combination of very high network performance and reliability, and additional services offerings, provide a cost-effective package that ensures members are retained as REANNZ members.

MEASURE	ACTUAL 2012/13	ACTUAL 2013/14	ACTUAL 2014/15	ESTIMATE 2015/16	FORECAST 2016/17
Subscriptions to services increase	+21% 38 subscriptions	+111% 80 subscriptions	+56% 125 subscriptions	+20% 150 subscriptions	+20% 180 subscriptions

This measure demonstrates REANNZ's ability to deliver services that are relevant and value-for-money to our members. It 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. The large increase in 2013/14 and 2014/15 were the result of REANNZ introducing new services to the community, such as eduroam™ and content caching, that achieved considerable uptake.

**MONITORING OUR OUTPUT /**

**Output: to provide the REANNZ network and support the member community.**

REANNZ benchmarks and monitors the performance of our network on the dimensions of quality, quantity, timeliness and cost effectiveness.

MEASURE	ACTUAL 2011/12	ACTUAL 2012/13	ACTUAL 2013/14	ACTUAL 2014/15	ESTIMATE 2015/16	TARGET 2016/17
National network availability (12 month rolling average)	99.99%	99.96%	99.99%	99.99%	99.90%	99.90%
International network availability (12 month rolling average)	99.65%	99.87%	99.93%	100.00%	99.99%	99.99%

**Quality**

National and international network availability measures the reliability of the network. Network downtime includes faults and other connectivity or hardware outages, but excludes planned maintenance outages. 99.90% network availability is standard for research and education networks internationally. Our goal is to maintain this high level of reliability. REANNZ aims for network reliability to be as high as reasonably possible, given the need to balance the costs associated with each magnitude increase in network reliability.

	TARGET 2016/17
Packet delivery	99%

The REANNZ network is monitored with a suite of real-time, operational performance monitoring tools. We manage the network to ensure performance is optimal, and one of those features is minimising packet loss. Even a small amount of packets dropping can reduce the transfer speed and quality substantially.

While we monitor the network for packet loss, this year we have begun formal recording and reporting on packet delivery targets.

### Quantity

The number and size of our members' network connections demonstrate the quantity of the services we provide. Adding new services is another measure of providing an increasing quantity of services to our members.

MEASURE	ACTUAL 2012/13	ACTUAL 2013/14	ACTUAL 2014/15	ESTIMATE 2015/16	TARGET 2016/17
Volume of member connections	178 Gb	+46%	+45%	+47%	+15%
		259 Gb	375 Gb	551 Gb	634 Gb

The volume of member connections is a calculation based on the number of member connections to the network and their size. The more members, and the larger the size of their connection, the more use our network supports. The quantity we provide will grow as our members increase the size of their connections to meet increased demand, as they implement second connections to our network for resiliency, and as we add new members and connect new sites to the network.

This measure reflects the capability that REANNZ supports, rather than actual usage or traffic growth. Traffic or usage is expected to grow at 28% per annum, as our members better utilise their current connections to the network. As this growth is realised, the size and/or number of connections members need to perform their science will increase and this measure will grow, albeit more slowly over time as it takes members who upgraded from 1Gbps to 10Gbps time to grow their traffic needs above 10Gbps.

MEASURE	ACTUAL 2013/14	ACTUAL 2014/15	ESTIMATE 2015/16	TARGET 2016/17
Service offerings increase	4 new service offerings available to market	Not Achieved	2 new service offerings available to market	2 new service offerings available to market

REANNZ is working with members to develop service offerings that support improved security and access to cloud services. We are also focused on improving the effectiveness of existing services such as Tuakiri and eduroam™.

### Timeliness

The speed at which we identify and resolve faults and other network performance issues is not only a measure of the quality of our customer service, but also a measure of the timeliness of our network management activity. We actively manage the network to identify issues before they affect our members, and proactively advise of issues rather than being simply reactive to member calls.

As well as this, the REANNZ helpdesk logs incident reports from users. Although we have target resolution times agreed with our suppliers and are in most cases able to resolve transfer or performance issues ourselves, the true test of our timeliness is our members' opinion of our responsiveness to their challenges.

MEASURE	ACTUAL 2012/13	ACTUAL 2013/14	ACTUAL 2014/15	ESTIMATE 2015/16	TARGET 2016/17
Users consider reported issues to be resolved in a timely manner	92%	84%	100%	80%	80% <sup>3</sup>

<sup>3</sup> Our target of 80% of responses resolved in a timely manner represents an appropriate balance between responsiveness and the cost of resourcing to increase responsiveness. Falling below this target would indicate that we had not adequately resourced the helpdesk facility.

**Cost Effectiveness**

REANNZ assesses the cost effectiveness of our network for our members, and for New Zealand as a whole. The cost effectiveness of the REANNZ network for our members is best demonstrated by retaining our core membership base. If we are not cost effective in providing valuable networking solutions, alternative suppliers would enter the market, and we would lose members.

REANNZ addresses a niche market that commercial networks cannot – the provisioning of the unique services that meet the needs of science, research and education. 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.

With the Crown's contribution ending in June 2017, REANNZ will need to work with members and government to find a balance between value-for-money for individual members, and the cost of running a high-performance network; critical research and education infrastructure.

MEASURE	ACTUAL 2012/13	ACTUAL 2013/14	ACTUAL 2014/15	ESTIMATE 2015/16	TARGET 2016/17
REANNZ maintains its core membership base	8/8 Universities	8/8 Universities	8/8 Universities	8/8 Universities	8/8 Universities
	8/8 CRIs	7/7 CRIs	7/7 CRIs	7/7 CRIs	7/7 CRIs
	12/18 ITPs	1/1 ATI	1/1 ATI	1/1 ATI	1/1 ATI
	2/3 Wānanga	11/18 ITPs	12/18 ITPs	12/16 ITPs	12/16 ITPs
		1/3 Wānanga	1/3 Wānanga	1/3 Wānanga	1/3 Wānanga

**EXPECTED REVENUES AND  
PROPOSED EXPENSES /**

**Output: The advanced research, education and innovation network and related tools**

	2016/17 \$ 000
<b>Revenues</b>	
Crown income	9,250
Network income	8,289
Other income	4,489
<b>Total Income</b>	<b>22,028</b>
<b>Expenses</b>	
Amortisation and depreciation	2,342
Network expenses	9,452
Operating expenses	5,401
<b>Total Expenditure</b>	<b>17,195</b>
<b>Surplus / (Deficit)</b>	<b>4,833</b>

# PROSPECTIVE FINANCIAL STATEMENTS /

## PROSPECTIVE STATEMENT OF COMPREHENSIVE REVENUE AND EXPENSE /

RESEARCH AND EDUCATION ADVANCED  
NETWORK NEW ZEALAND LIMITED

FOR THE YEAR ENDED 30 JUNE

FORECAST 2016 \$000		2017 \$000	2018 \$000	2019 \$000
<b>REVENUE</b>				
	Grant revenue			
4,000	Crown Funding Agreement	4,000	-	-
6,750	Hawaiki contribution	5,250	-	3,000
8,133	Network revenue	8,289	8,476	8,536
2,710	Other revenue	3,919	4,707	5,384
598	Interest income	570	485	170
<b>22,191</b>	<b>Total Revenue Excluding Gains</b>	<b>22,028</b>	<b>13,668</b>	<b>17,090</b>
<b>NETWORK EXPENSES</b>				
1,598	Amortisation and depreciation	2,131	2,573	3,275
1,435	Employment expenses	1,724	1,750	1,785
5,692	Network operating expenses	7,729	8,596	12,454
<b>8,725</b>	<b>Total Network Expenses</b>	<b>11,584</b>	<b>12,919</b>	<b>17,514</b>
<b>13,466</b>	<b>Gross Surplus / (Loss)</b>	<b>10,444</b>	<b>749</b>	<b>(424)</b>
<b>LESS:</b>				
<b>OPERATING EXPENSES</b>				
40	Audit	40	41	42
185	Amortisation and depreciation	210	244	257
119	Directors fees	121	124	126
2,111	Employment expenses	2,760	2,674	2,727
992	Other operating expenses	1,272	1,188	1,202
324	Professional services	624	484	361
157	Operating leases	221	233	234
287	Travel expenses	363	354	361
<b>4,215</b>	<b>Total Operating Expenses</b>	<b>5,611</b>	<b>5,342</b>	<b>5,310</b>
<b>9,251</b>	<b>SURPLUS / (DEFICIT) EXCLUDING GAINS</b>	<b>4,833</b>	<b>(4,593)</b>	<b>(5,734)</b>
96	Foreign currency gains / (losses)	-	-	-
<b>9,347</b>	<b>SURPLUS / (DEFICIT)</b>	<b>4,833</b>	<b>(4,593)</b>	<b>(5,734)</b>
-	Other comprehensive revenue	-	-	-
<b>9,347</b>	<b>TOTAL COMPREHENSIVE REVENUE AND EXPENSE</b>	<b>4,833</b>	<b>(4,593)</b>	<b>(5,734)</b>

# PROSPECTIVE STATEMENT OF FINANCIAL POSITION /

AS AT 30 JUNE

RESEARCH AND EDUCATION ADVANCED  
NETWORK NEW ZEALAND LIMITED

FORECAST 2016 \$000		2017 \$000	2018 \$000	2019 \$000
<b>CURRENT ASSETS</b>				
3,931	Cash and cash equivalents	2,631	3,380	3,078
10,465	Funds held in escrow <sup>4</sup>	3,806	3,806	-
3,446	Receivables and debtors	3,897	4,159	4,156
18,000	Investments	18,000	14,000	2,000
417	Derivative financial instruments	316	232	46
458	Prepayments	439	330	321
388	Prepaid network expenses	388	1,023	1,502
<b>37,105</b>	<b>Total Current Assets</b>	<b>29,477</b>	<b>26,930</b>	<b>11,103</b>
<b>CURRENT LIABILITIES</b>				
1,676	Accounts payable and accrued expenses	1,041	1,205	1,645
118	GST payable	247	307	293
157	Employee entitlements	157	157	157
3,563	Revenue in advance	3,883	4,041	3,976
5,250	Deferred revenue	-	3,000	-
<b>10,764</b>	<b>Total Current Liabilities</b>	<b>5,328</b>	<b>8,710</b>	<b>6,071</b>
<b>26,341</b>	<b>NET CURRENT ASSETS</b>	<b>24,149</b>	<b>18,220</b>	<b>5,032</b>
<b>NON-CURRENT ASSETS</b>				
13,836	Property, plant and equipment	14,905	14,494	16,470
594	Derivative financial instruments	278	46	-
9,609	Prepaid network expenses	15,880	14,858	20,382
<b>24,039</b>	<b>Total Non-Current Assets</b>	<b>31,063</b>	<b>29,398</b>	<b>36,852</b>
<b>NON-CURRENT LIABILITIES</b>				
3,000	Deferred revenue	3,000	-	-
<b>3,000</b>	<b>Total Non-Current Liabilities</b>	<b>3,000</b>	<b>-</b>	<b>-</b>
<b>47,380</b>	<b>NET ASSETS</b>	<b>52,212</b>	<b>47,618</b>	<b>41,884</b>
<b>PUBLIC EQUITY</b>				
16,001	Share capital	16,001	16,001	16,001
31,379	Accumulated surplus	36,211	31,617	25,883
<b>47,380</b>	<b>TOTAL PUBLIC EQUITY</b>	<b>52,212</b>	<b>47,618</b>	<b>41,884</b>

<sup>4</sup> Funds held in escrow relates to the remaining portion of the initial deposit amount for the second cable, held in USD. This includes exchange rate adjustments to re-state in NZD, each movement being recognised as an unrealised gain or loss on foreign exchange in the Statement of Financial Performance. As payment milestones are made from the Escrow Account in USD, they are recognised as a prepaid asset in NZD, and amortised as an expense in NZD over the life of the service to be received.

# PROSPECTIVE STATEMENT OF CASH FLOWS /

FOR THE YEAR ENDED 30 JUNE

RESEARCH AND EDUCATION ADVANCED  
NETWORK NEW ZEALAND LIMITED

FORECAST 2016 \$000		2017 \$000	2018 \$000	2019 \$000
<b>CASH FLOWS FROM OPERATING ACTIVITIES</b>				
<b>Cash was provided from (applied to)</b>				
4,000	Receipts from the Crown	4,000	-	-
8,096	Network revenue	8,278	8,464	8,525
663	Interest received	570	485	171
2,809	Other revenue	3,859	4,647	5,334
138	Net GST	591	500	851
(8,339)	Payments to suppliers and employees	(13,839)	(14,303)	(15,478)
(8,563)	Prepayments for network connectivity	(6,660)	-	(9,177)
<b>(1,196)</b>	<b>Net Cash Flow from Operating Activities</b>	<b>(3,201)</b>	<b>(207)</b>	<b>(9,774)</b>
<b>CASH FLOWS FROM INVESTING ACTIVITIES</b>				
<b>Cash was provided from (applied to)</b>				
(1,465)	Purchase of plant and equipment	(4,759)	(3,044)	(6,334)
8,563	Funds transferred from escrow	6,660	-	3,806
(6,978)	Term deposit investments	-	4,000	12,000
<b>120</b>	<b>Net Cash Flow from Investing Activities</b>	<b>1,901</b>	<b>956</b>	<b>9,472</b>
<b>CASH FLOWS FROM FINANCING ACTIVITIES</b>				
<b>Cash was provided from (applied to)</b>				
-	<b>Net Cash Flow from Financing Activities</b>	-	-	-
<b>(1,076)</b>	<b>Net (Decrease)/Increase in Cash Held</b>	<b>(1,300)</b>	<b>749</b>	<b>(302)</b>
5,007	Cash at beginning of year	3,931	2,631	3,380
<b>3,931</b>	<b>CASH AT END OF YEAR</b>	<b>2,631</b>	<b>3,380</b>	<b>3,078</b>
Represented by:				
<b>3,931</b>	<b>CASH AT BANK</b>	<b>2,631</b>	<b>3,380</b>	<b>3,078</b>

## 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 Performance Expectations 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 key assumptions:

### Revenues

The Crown Funding Agreement finishes at the end of the 2016/17 year. For REANNZ to continue to provide unique high-performance network services, and achieve the Impacts and Outcomes identified in this Statement of Performance Expectations, this funding needs to be replaced.

The prospective financial statements presented here reflect REANNZ's current business model, without ongoing Crown funding or alternatives in place. During the coming financial year REANNZ will work with our key stakeholders to agree a business model that delivers sustainable ongoing provision of services.

While REANNZ remains confident that it can develop a sustainable business model that addresses the \$4m p.a funding shortfall, without having finalised the range of possible solutions it would be premature to indicate in our financial forecasts what that solution might be. Any change to our business model is not expected to take effect until after the 2016/17 financial year.

The forecast beyond the 2016/17 financial year is, therefore, a reflection of the revenue shortfall that REANNZ needs to address to become sustainable.

REANNZ continues to explore opportunities to grow and improve its product and service offering to members. Revenues and costs from a growing managed services portfolio have been included in the forecasts. New service opportunities will be included in REANNZ's forecasts as business cases are developed and the nature and scope of new services are known.

No major changes to REANNZ's membership revenue base are forecast, as REANNZ has already connected the most significant New Zealand research and education organisations allowable under our mandate. While we pursue opportunities with other research, education and innovation organisations that have high-performance or data-intensive needs, these are not expected to be at a scale or price point that would generate a significant revenue contribution.

Other than annual CPI adjustments, no fee increases for services have been forecast on the basis that any increases in fees at this stage creates a risk for REANNZ of members withdrawing their membership. Our business model is currently reliant on all members remaining part of the community due to our limited ability to work with new members to replace lost revenue. The withdrawal of a member would mean fees would have to increase for the remaining members, potentially creating a self-fulfilling cycle of exit and fee increases from which we would not be able to recover. The work on our sustainable business model seeks to address these issues.

### Network Expenditure

Provision has been made over the next three years to upgrade the national network from 20Gbps capacity to 100Gbps, in line with increasing backbone utilisation rates.

REANNZ is an anchor tenant on a new submarine cable system. The initiative supports the government's policy objective of encouraging an alternative international cable to New Zealand for the purpose of telecommunications market competition, and secures REANNZ's growing international capacity needs over the long term at affordable prices.

REANNZ is the vehicle for Crown support of a new submarine cable, through the allocation of a \$15M grant received from Vote Communications. The Crown grant will be recognised as revenue in line with key milestone payments made during the construction of the cable. Two payments are forecast to be made during the 2015/16 financial year and the new cable is anticipated to be ready for service by the end of 2018.

**REANNZ 10 Year Cash Projection 2016–2026**

**Comparison of Funding Alternatives**

- Major capex refreshes funded
- \$4m p.a. additional revenues
- No revenue replacement

**Forward Cash Projections**

REANNZ owns and operates infrastructure to deliver its high-performance network services. As with most infrastructure-based businesses, REANNZ operates on medium-to long-term infrastructure investment cycles.

To support the periodic investment in this infrastructure, REANNZ’s business model requires the accumulation of cash reserves. Major network reinvestment points include:

- › the shift to a new international cable provider, which is forecast to be ready for service in the 2018/19 financial year. This includes assumptions about maximum international capacity demand and the cost of appropriate resiliency options; and
- › the renewal of national network infrastructure which will be required in 2022/23, as the useful life of existing infrastructure and the associated operating agreements expire. Assumptions about the scale and cost of the replacement have been made, and given the dynamic nature of the telecommunications market actual requirements may vary significantly from the estimates shown.

The graph below shows REANNZ projected cash balances over the coming ten year period under different funding scenarios.

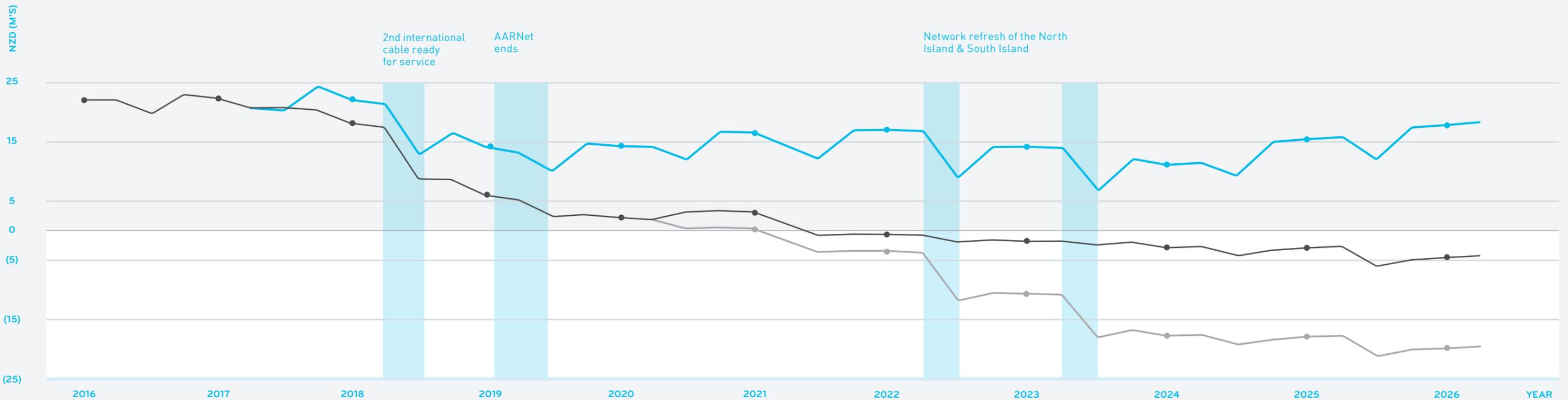
The grey line shows the cash balance as forecast in the financial statements presented in this Statement of Performance Expectations. It assumes no sustainable business model has been agreed, and shows the significant impact that a failure to resolve this issue would have. It includes cashflows from both the advanced network and additional services, resulting in our additional services providing support to advanced network capital investments.

As part of our sustainability goal for 2016/17 we are seeking to stabilise REANNZ’s financial position by securing “\$4m p.a in additional revenues” (shown by the blue line). The exact nature and sources of these revenues has not yet been determined, and this forms a key part of the work to be undertaken this year. As shown by the blue line, \$4m should leave REANNZ in a sustainable position, with the ability to manage network reinvestment in 2022/23, and start accumulating reserves for the next investment cycle.

REANNZ aims to have a minimum cash balance of more than \$5m, enough to cover roughly three months of operating expenses, and manage ongoing foreign exchange and membership risk.

We have also modelled an alternative scenario, where no annual funding is received, but instead the cost of the national network infrastructure renewal is funded through one-off capital or other funding injections (the black line). Under this scenario, REANNZ would still need to either make some adjustments or quality trade-offs in its service offering (which may not be desirable if we wish to continue to achieve our performance targets and outcomes), or find some other ongoing revenue stream to remain cash positive.

It is clear from the models presented above that failing to replace annual revenues or a capex injection for the national network reinvestment on its own are not viable options. REANNZ is committed to identifying a revised business model which delivers the necessary financial performance, including timing of cashflows to support infrastructure investment, for REANNZ to operate sustainably.



# 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 data network for the research and education sector. As such, REANNZ's aim is to provide services for the ultimate benefit of the New Zealand public, rather than make a financial return.

Accordingly, REANNZ has designated itself as a public benefit entity ("PBE") for the purposes of Public Benefit Entity (PBE) accounting standards with reduced disclosures.

## Basis for preparation

### Statement of compliance

The prospective financial statements have been prepared in accordance with Crown Entities Act 2004 and with generally accepted accounting practice in New Zealand (NZ GAAP).

These prospective financial statements comply with PBE accounting standards, that includes PBE FRS 42 Prospective Financial Statements.

REANNZ elected to report in accordance with Tier 2 PBE Accounting Standards with reduced disclosure requirements and is eligible to report as a Tier 2 reporting entity on the basis that it does not have public accountability and is not large.

### 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:

### Revenue

The specific accounting policies for significant revenue items are explained below:

#### Grant revenue

REANNZ is funded in part by the Crown. Where a grant is provided to partially fund the operation of a high-speed communication network for the research and education sector, REANNZ considers there are no conditions attached, and the grant is recognised as revenue at the point of entitlement.

Other grants are recognised as revenue when they become receivable unless there is an obligation in substance to return the funds if conditions of the grant are not met. If there is such an obligation, the grants are initially recorded as deferred revenue in the Statement of Financial Position, and recognised as revenue when conditions of the grant are satisfied.

#### Network and other revenue

Revenue is measured at the fair value of the consideration received or receivable. All transactions are exchange transactions.

#### Interest revenue

Interest revenue is recognised using the effective interest method.

#### Foreign currency transactions

Transactions in foreign currencies, including those for which forward foreign exchange contracts are held, are translated to New Zealand dollars (the functional currency) at the spot rate on the date of transaction.

Foreign exchange gains and losses resulting from the settlement of such transactions and from the translation at year end exchange rates of monetary assets and liabilities denominated in foreign currencies are recognised in the Statement of Comprehensive Revenue and Expense.

### 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 Revenue and Expense. 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 revenue, these prepayments are released to the Statement of Comprehensive Revenue and Expense on a straight-line basis over the period of the remaining operating lease term.

### Finance leases

A finance lease is a lease that transfers to the lessees substantially all the risks and rewards incidental to ownership of an asset, whether or not title is eventually transferred.

At the commencement of the lease term, prepaid finance leases where REANNZ is the lessee are recognised as an asset in the Statement of Financial Position at the fair value of the leased item.

The amount recognised as an asset is depreciated over its useful life. If there is no reasonable certainty as to whether REANNZ will obtain ownership at the end of the lease term, the asset is fully depreciated over the shorter of the lease term and its useful life.

### 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 Revenue and Expense.

## Investments

### Bank Term Deposits

Investments in bank term deposits are initially measured at the amount invested.

After initial recognition, investments in bank deposits are measured at amortised cost using the effective interest rate method, less any provision for impairment.

### Derivative financial instruments

REANNZ enters into 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 or issue derivatives for trading purposes. REANNZ has not adopted hedge accounting.

Derivatives are initially recognised at the fair value on the date a derivative contract is entered into and are subsequently revalued at each balance date, with the resulting gain or loss recognised in the Statement of Comprehensive Revenue and Expense.

The fair value of a forward foreign exchange derivative is classified as current if the contract is due for settlement within 12 months of balance date; otherwise foreign exchange derivatives are classified as non-current.

### Property, plant and equipment

Property, plant and equipment asset classes consist of office equipment, ICT equipment, national PoP equipment, international PoP equipment, leasehold improvements, fibre & fibre housing and network services equipment.

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 through a non-exchange transaction, 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 Revenue and Expense.

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 Revenue and Expense 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:

Leasehold improvements	6 years
Routers, switches and optical equipment	3-8 years
Information technology equipment	3 years
Office equipment	5 years
PoP equipment	8 years
Fibre and fibre housing	20 years

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

#### 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.

Costs associated with maintaining computer software are recognised as an expense when incurred.

Staff training costs are recognised as an expense when incurred.

Costs associated with the development and maintenance of the REANNZ website are recognised as an expense when incurred.

The useful life and associated amortisation rates of major classes of intangible assets have been estimated as follows:

Software	3 years
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#### Impairment of property, plant and equipment and intangible assets

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 Revenue and Expense.

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 Revenue and Expense.

Any reversal of an impairment loss is recognised in the Statement of Comprehensive Revenue and Expense. 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 that have been re-valued, 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 Revenue and Expense, a reversal of impairment loss is also recognised in the Statement of Comprehensive Revenue and Expense.

#### 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 non-interest bearing and are normally settled on 30 day terms. Therefore, the carrying value of payables approximates their fair values.

#### 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 that 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.

#### Cash flow statement

The prospective Statement of Cash Flows is prepared exclusive of GST, which is consistent with the method used in the Statement of Comprehensive Revenue and Expense.

Definitions of the terms used in the Statement of Cash Flows are:

"Cash" includes coins and notes, demand deposits and other highly liquid investments readily convertible into cash used by REANNZ as part of its day-to-day cash management.

"Investing activities" are those activities relating to the acquisition and disposal of long-term assets and other investments not included in cash equivalents.

"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.

#### Goods and Services Tax (GST)

These prospective financial statements have been prepared on a GST exclusive basis except for accounts receivable and accounts payable that are stated inclusive of GST.

The net GST paid to, or received from, Inland Revenue, 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.

#### Income tax

As a public entity under section CW 38(2) of the Income Tax Act 2007, the company is exempt from income tax. Accordingly, no provision has been made for income tax.

