Network Waitaki
Powering North Otago

Asset Management Plan Update

1 April 2017

Public Safety

Telarc. Registered

Public Safety NZS 7901

Network Waitaki Limited
10 Chelmer Street
PO Box 147,
Oamaru 9444

Telephone 03 433 0065
Facsimile 03 434 8845
service@networkwaitaki.co.nz
www.networkwaitaki.co.nz

Contents

1. Introduction

Welcome to our Asset Management Plan (AMP) Update for the Disclosure year 2017/18. This Update is intended to be read in conjunction with the full 2016 AMP which covers the 2016-2026 planning period. The complete AMP is available on our website www.networkwaitaki.co.nz.

The purpose of this Update is to provide stakeholders and other interested parties with the latest information on any material changes to the activities and plans detailed in the full asset management plan.

This update also includes schedules of information that we are required to disclose according to the Electricity Distribution Information Disclosure Determination 2012 – (consolidated in 2015). These schedules can be found in the appendices to the Update.

Along with the full AMP, this update is an integral part of our business planning process. The objectives of this process are to:

- Ensure asset lifecycle management is systematically planned with a long term view towards minimising lifecycle costs;
- Link our asset management practices to consumer and stakeholder preferences for prices, supply reliability, and public safety; and
- Provide a foundation for the ongoing management of risks surrounding operation of the network.

1.1.1 Approval Date

The 2017 AMP Update was approved by Network Waitaki Ltd's (NWL) Board of Directors on 27 March 2017. See Appendix B for a copy of the signed Certificate.

1.1.2 Scope of AMP Update

The scope of the AMP includes all areas of planning that relate to NWL's electrical distribution services as an Electrical Distribution Business (EDB). This does not include business streams outside the regulated EDB business, such as Electrical Contracting, Metering Services, and the Fibre Optic Network.

1.1.3 Structure of the Update

This Update is laid out in three major sections:

- Changes to Asset Management Practices – this section describes any material changes in our asset management systems and processes, and covers Section 2, 3 and 4 of the 2016-26 AMP;
- Updates on Lifecycle Asset Management - this section covers any material changes to our plans for renewals and maintenance on our network assets, Section 5 in the 2016-26 AMP;
- Updates on Network Development Plans – this section highlights any material changes to our plans to develop our network, Section 6 in the 2016-26 AMP.

Disclosure schedules are included in Appendix A.

2. Changes to Asset Management Practices

2.1 Live Line policy change

The Health and Safety at Work Act 2015 came into force in April 2016. Key components of the act and how it is interpreted by WorkSafe New Zealand triggered a review of how operational risks were considered in the planning of live line work. The ultimate assessment was that the practice of live line work at that time did not meet the requirements of the Health and Safety at Work Act 2015.

A new policy was introduced in June 2016 which required that all work tasks on the network were to include a risk analysis to identify the safest possible technique to complete the work. The default position is that any work should be carried out with the network isolated and earthed. Live line work can then be considered if a risk assessment shows there is added risk in isolating or earthing lines.

In any case where a risk assessment shows that live line techniques are the best option, the live line work must be approved by the Network Manager and the Contracting Manager prior to being authorised.

A line crew in action in Oamaru

NWL Contracting can field up to 3 live line crews for HV work, and prior to the policy change approximately 41% of our HV maintenance and construction work was carried out using live line techniques. Since the new work practices came into effect, the amount of work carried out using live line techniques has dropped to approximately 8%, based on analysis of operating logs.

The use of live line techniques was one of the key strategies used to meet our network reliability targets. Since the change in work practice the SAIDI and SAIFI measures for the network have increased, as work that would have not required an outage in the past now results in lost customer minutes. Our SAIDI and SAIFI figures are shown in the graphics below.

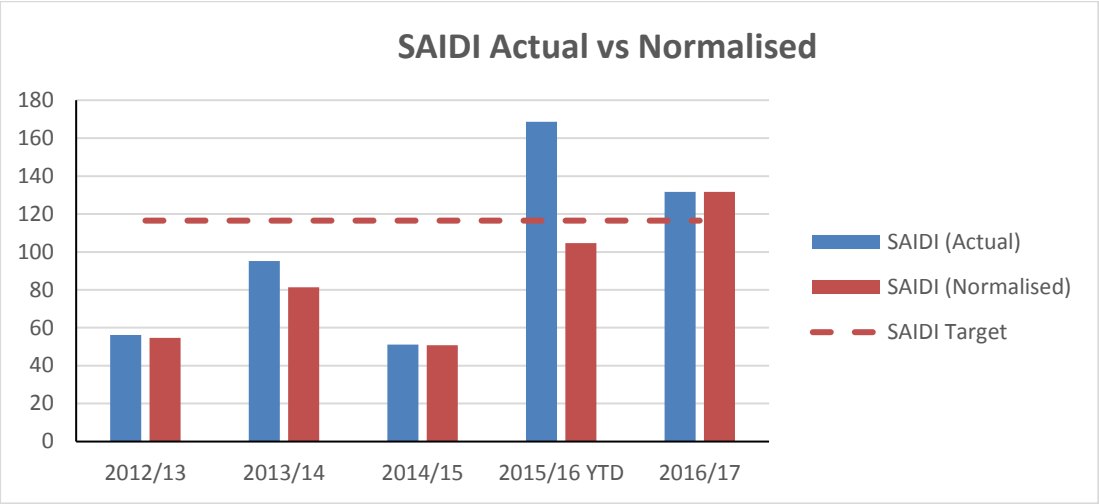

Figure 1 – Comparison of SAIDI performance against targets for last 5 years

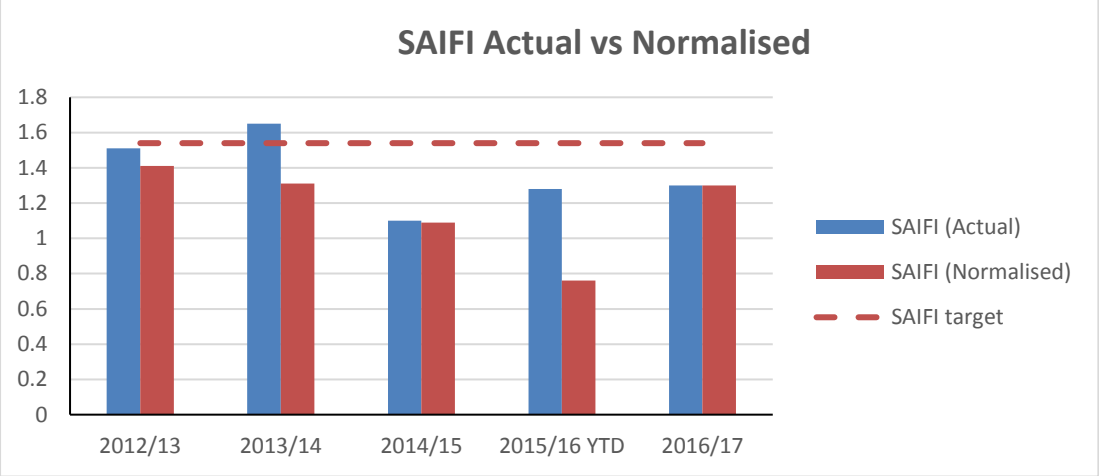

Figure 2 – Comparison of SAIFI performance against targets for last 5 years

There has been a noticeable increase in SAIDI, with the total for the year breaching our current target. The effect on SAIFI is not as obvious, but is still present.

In the 2017-2018 Statement of Corporate Intent, we have adjusted our targets for these reliability measures from a fixed number to a target band. We believe that this approach better reflects the measurement of the outage information, which involves a number of manual activities whereby errors can creep in. The revised targets are shown in the table below.

Network Non-Financial Performance Measures			
	31 March 2018	***31 March 2019***	***31 March 2020***
System Average Interruption Duration Index (SAIDI)	150 to 250	150 to 250	150 to 250
System Average Interruption Frequency Index (SAIFI)	1.0 to 2.0	1.0 to 2.0	1.0 to 2.0

Table 1 – Adjustments to SAIDI and SAIFI Targets.

In the coming year we will review the ongoing effect of the policy change on SAIDI and SAIFI and may revisit the appropriate targets. In addition we are adjusting our work practices to reduce the impact of the cessation of live line work by:

- reducing the number of individual outages and making more efficient use of them by combining as many tasks as possible within a given outage. This happens where possible at the moment, but it is expected that better awareness of future planned work and improvements in scheduling tools will further improve the situation.
- Increased use of mobile generators to minimise the effect of an outage. We are currently in the process of constructing a 635kVA trailer mounted generator which will be available for major outages, and will make use of this generator as well as leased units.

As we analyse the effects of these ongoing changes we will gain a clear picture of the correct service levels we should be setting under the new operational reality.

2.2 Asset Management Information Systems

The 2016/17 year has seen some major advancements in the systems that we use to manage our assets. We have been trialling a new GIS (geographic information systems) product that allows us to combine multiple sources of data to carry out analysis of our asset performance by factors such as:

- asset age;
- location;
- asset function;
- population factors;
- land use classification;
- expenditure on capital and maintenance in an area or on an asset; and
- fault data and history.

The results of these analyses can then be presented in a geographical format that will allow us to better visualise the performance of our assets, and improve the asset management decision making process.

In conjunction with this effort we are also in the process of digitising historic records that have previously been available only in hard copy form. This includes raw data from fault records and asset inspections, and when combined with the new software will allow us to move from the current reactive model of asset maintenance towards a more predictive model.

We are also trialling the use of tablet computers with the field staff. This initiative is intended to provide seamless access to asset data in the field, as well as allowing direct update of asset attributes and condition from crews doing work. This will make many of our processes much more efficient, by removing the need to transcribe data from written records and providing instant feedback to staff on appropriate actions in response to a particular asset status.

We believe that this work will significantly improve the maturity of our asset management practices in areas that we currently identify as weaker than desired.

3. Update on Lifecycle Asset Management

3.1 Subtransmission

3.1.1 Twizel to Omarama 33kV Reinforcement

During the last few years there have been several faults on the Twizel to Omarama 33kV circuit that, while caused by weather events, have highlighted that the line's performance is not up to the level that we require for subtransmission asset. This line was originally built under a design/build contract by an external contractor, and quality control appears to have been less than adequate.

A detailed review carried out in 2016/17 has identified several deficiencies that reach back to the design and construction of the line 10 years ago. These deficiencies include:

- 33kV conductors can sag into 11kV circuits when carrying snow loads;
- the improper use of poor quality softwood poles;
- the use of second hand crossarms; and
- lack of adequate "stop" structures (extra strong points on the line, typically located every 1km) which may lead to cascade failures in extreme weather events.

The most cost effective course of action in this case was to reinforce the line to bring it up to an adequate level of performance. This will include the replacement of failing equipment such as cross arms, and the replacement of certain softwood poles with hardwood stop structures specifically designed to bring the line up to the required standard.

The budget for this work has been set at $400,000.

Figure 3 - A typical pole on the Twizel to Omarama line, showing 33kV over 11kV construction

3.2 Zone Substations

3.2.1 Property Maintenance

The budget allocation for substation property maintenance has been increased from $60,000 to $100,000, as substation inspections have been showing a trend that that some housekeeping items such as fence and building maintenance and weed spraying were not occurring at a suitable rate to prevent degradation of the assets.

3.3 Low Voltage Network

3.3.1 Service Fuse Replacements

Service fuses are one of the last links in the electrical chain from the National Grid to the consumer's premises, and are typically located on cross arms on our poles in the overhead low voltage (LV) network. Older porcelain type fuse bases are known to be prone to breakage when an operator removes the fuse carrier. This does not stop the fuse from doing its job to protect against faults, and presents no safety risk during the normal operation of the network, however it does make it difficult to replace a fuse after a fault occurs.

Combined with this, our LV network has been constructed based around live line work. This has meant that the location of many fuse bases is difficult to operate from the ground, using traditional operator sticks.

To deal with these challenges we have allocated more budget to the replacement of old or poorly located fuse bases, increasing the budgeted expenditure for 2017/18 from $5,000 to $20,000.

3.4 Distribution Transformers

3.4.1 Distribution Transformer Monitoring System

We are carrying out a trial of a transformer monitoring system that provides detailed data on the loading of some of our ground mount distribution transformers. This information can be used to identify assets that are overloaded or performing poorly, and help with the planning of outages by identifying capacity on neighbouring transformers. The pilot will include identifying how well the system can integrate with our asset management software systems.

The budget for this work is $10,000. The outcome of the pilot study will determine whether we move to a larger rollout of the equipment in subsequent years.

3.5 Other System Fixed Assets

While Network Waitaki does not own streetlights in our area, we do own the streetlight supply conductors, and the control systems that turn the lights on and off. The older pilot wire control system is a cascade system, whereby the operation of one contactor operates the next in the sequence. There has been an increase in the number of malfunctions of this system, which can lead to large sections of the streetlight system failing to operate.

In response to this we will be carrying out a project to convert more of the streetlight system to control from more modern and reliable ripple control receivers. This will reduce the number of streetlights affected by a single failure in the old cascading control system.

The budget for this work is $20,000.

4. Update on Network Development Plan (NDP)

4.1 Sub-transmission Development

4.1.1.1 Completion of Kurow to Duntroon 66kV Line

The final activities to complete the new Kurow to Duntroon line, including the installation of vibration dampeners on the line and final tightening of hardware, were planned to be carried out as live line activities in the latter half of 2016. The policy change on live line work affected the ability to complete this work, and so $100,000 has been deferred to the 2017/18 works plan for these activities.

4.1.1.2 Ngapara to Enfield 33kV Circuit Breaker

The commissioning of the Kurow to Duntroon subtransmission line has changed the operating environment of our subtransmission network. Operational experience over the last year has shown that it is now necessary to be able to isolate the Ngapara to Enfield 33kV circuit at the Ngapara end, in order to allow Ngapara to be supplied from Waitaki GXP in the event of a fault on the circuit.

This work will involve the installation of a SCADA controlled 33kV recloser at Ngapara substation, and has a budget of $70,000.

4.2 Zone Substations

4.2.1.1 Pukeuri Substation Upgrade

Pukeuri Substation supplies our second largest consumer, Alliance Pukeuri Freezing Works, on a single 33/11kV 10/12 MVA transformer. The substation load is approximately 8MVA. The substation also provides backup at 11kV for the Papakaio substation, which is in an area of irrigation load growth.

An upgrade of this substation was the subject of a Sanction for Expenditure (SFE) study for the 2017/18 financial year. The proposed upgrade included adding another transformer to the site, replacing aged equipment that represented an operational risk, and extending the switchboard to add provision for another 11kV feeder. The SFE for the project was partially approved, with the addition of an extra transformer not being approved.

The budget for this work has therefore been reduced from $1,200,000 to $770,000.

4.2.1.2 Otematata 11kV Switchboard Replacement

The 11kV switchboard at the Otematata zone substation is over 45 years old, with no arc flash protection, which is a safety issue for operating staff. It is also not SCADA controlled, which impacts our plans to install differential protection on our power transformers.

The 11kV switchboard will be replaced with a modern switchboard to suit the operational requirements of the network. Budget for this is set at $250,000.

4.3 Distribution Development

4.3.1 Waiareka Valley Rd Rebuild

The reduction in live line has required the increased use of interconnections on our 11kV network, as we seek to minimise the impact of outages. One effect of this is that it is focussing attention on feeder sections which are constrained when the network is not in its typical configuration.

The Waiareka Valley Rd 11kV line is one such constrained section, as the conductor on that section is significantly undersized compared to the network around it. As an interconnection it offers great benefit for providing alternative supply to the Totara area and hence towards the south of Oamaru.

While this project was initially planned to reconductor the section of line, assessment of the condition of the poles means that we will also take the opportunity to carry out some pole replacements and pole hardware refurbishment.

The budget for this work has been set at $110,000.

4.3.2 New Feeder from Redcastle Substation

A consumer in North Oamaru is in the process of considering a major upgrade to their facility, which would require a significant increase to their demand. This load would be in the region of 1MW, and would be supplied from Redcastle substation. The impact of the extra load is such that a new feeder will be required in the area.

This new feeder will require the installation of an additional circuit breaker on the 11kV switchboard at Redcastle zone substation, and the installation of approximately 1.5km of new underground cable.

The project is dependent on the expansion of the consumer's site - at this stage a PC sum of $600,000 has been included in the budget.

4.3.3 New Feeder from Pukeuri Substation

Customer projects on the Lower Waitaki Plains are predicted to add approximately 600kW of load around the airport area. This area of the network is fed from Pukeuri substation, and the increase in load will require that the existing 11kV feeder (CB432 Pukeuri) is split, with a new feeder being created.

The costs associated with a new circuit breaker at Pukeuri substation were included in the budget for the substation upgrade (see section 4.2.1.1), but the costs for the development of the distribution network have been added to the budget as a PC sum of $500,000.

4.3.4 New Feeder from Kurow Substation

Customer projects in the Aviemore area in the coming year may trigger the creation of a new Aviemore feeder fed from Kurow Substation. This will split the supply to the area away from the Haka feeder that it is presently supplied by.

The Kurow Substation 11kV switchboard has a spare circuit breaker which is earmarked for this development.

This project is dependent on the customer developments in the area - a PC sum of $100,000 has been allocated in the 2017/18 budget.

4.4 Other fixed Network Assets

4.4.1 Standby Power for Radio Repeater

The Network Waitaki radio repeater at Cloud Hill is prone to supply interruptions due to heavy snow events. We have decided to use this site to trial a new combined solar/methanol fuel cell system as a backup for the mains.

This will provide a rugged, reliable backup system for a key part of our communications infrastructure, while also providing us with operational experience of operating a remote area power system (RAPS). Systems of this type combine an expensive-but-reliable energy source (e.g. diesel or methanol) with a cheap-but-intermittent energy source (e.g. solar or wind power) to provide a reliable and cost effective off grid solution for power. As the technology develops, this concept may be provide a viable alternative for us to provide power to customers located in remote areas.

The budget allocated for this power supply is $25,000

4.5 Non-network Assets

4.5.1 Electric Vehicles

One of the areas of expected growth in the electricity distribution industry is the charging of electric vehicles (EVs). At this point the fleet is still very small, with only about 2,500 registered plug in EVs across New Zealand, but the number is growing. We feel that it is important that Network Waitaki leads the way in our region to support the uptake of electric vehicles by providing support facilities. It is also important for us to gain insight into how the use of these charging devices will affect future operations on our network.

To this end we are installing 4 electric vehicle rapid chargers in the Waitaki region. These chargers are DC type chargers, and support the two main charging systems in use, CHAdeMO and CCS type 2. The chargers deliver a charge of 80-90% of the battery capacity of the vehicle in 20-30 minutes, depending on the type of EV. They will be located at Hampden, Oamaru, Kurow and Omarama, providing access to EV charging on the main state highways running through the region.

The chargers are fully monitored, and will provide information on charging profiles that will guide us in planning for the future.

We have also purchased a Nissan Leaf plug in electric car. This will publicise the viability of electric cars to the public, as it is planned to be in regular use as part of our fleet. It will also provide us with a window into how the use of these vehicles will affect domestic electrical load profiles, as we will monitor the charging information on our own ICP.

4.5.2 Photovoltaic panels

Although the installed base of photovoltaic generation on our network is currently low, there is the potential for this to change as the purchase price drops. We will undertake a project to investigate PV technology in the 2017/18 financial year. The outcomes of this will be to investigate the

economic viability of small scale PV, the effect on the local network, and how we might make use of distributed PV and battery storage as an alternative to traditional investment methods.

The budget for this project is $100,000.

Appendix A: EDB Information Disclosure Requirements

As part of our reporting commitments under the Electricity Distribution Information Disclosure Determination 2012 – (consolidated in 2015), we are required to publish the following Information Disclosure schedules annually, with our AMP or AMP update.

Further information about the disclosure requirements, and how we work with the Commerce Commission can be found at their website under the section for regulated industries:

http://www.comcom.govt.nz/regulated-industries/electricity/

Schedule 11a and 11b are reports on our forecasts for Capital and Operational expenditure respectively, and Schedule 12 is a report on the state of our assets and the operating conditions of our network.

Company Name	**Network Waitaki Ltd**
AMP Planning Period	**1 April 2017 – 31 March 2027**

SCHEDULE 11a: REPORT ON FORECAST CAPITAL EXPENDITURE

This schedule requires a breakdown of forecast expenditure on assets for the current disclosure year and a 10 year planning period. The forecasts should be consistent with the supporting information set out in the AMP. The forecast is to be expressed in both constant price and nominal dollar terms. Also required is a forecast of the value of commissioned assets (i.e., the value of RAB additions)
EDBs must provide explanatory comment on the difference between constant price and nominal dollar forecasts of expenditure on assets in Schedule 14a (Mandatory Explanatory Notes).
This information is not part of audited disclosure information.

sch ref			*Current Year CY*	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*	*CY+6*	*CY+7*	*CY+8*	*CY+9*	*CY+10*
8		for year ended	**31 Mar 17**	**31 Mar 18**	**31 Mar 19**	**31 Mar 20**	**31 Mar 21**	**31 Mar 22**	**31 Mar 23**	**31 Mar 24**	**31 Mar 25**	**31 Mar 26**	**31 Mar 27**
9	**11a(i): Expenditure on Assets Forecast**		**$000 (in nominal dollars)**										
10		Consumer connection	1,201	505	516	526	537	549	338	266	272	278	283
11		System growth	5,098	2,300	3,931	5,994	2,767	1,413	1,342	1,371	1,399	1,429	1,459
12		Asset replacement and renewal	1,833	1,545	1,506	1,246	1,272	1,266	1,348	1,376	1,405	1,435	1,465
13		Asset relocations	-	-	-	-	-	-	-	-	-	-	-
14		Reliability, safety and environment:											
15		Quality of supply	475	2,412	1,456	614	153	156	166	170	173	177	181
16		Legislative and regulatory	77	50	51	52	53	54	55	57	58	59	60
17		Other reliability, safety and environment	-	-									
18		**Total reliability, safety and environment**	552	2,462	1,507	666	206	211	222	227	231	236	241
19		**Expenditure on network assets**	8,684	6,812	7,459	8,432	4,783	3,438	3,251	3,240	3,308	3,377	3,448
20		Non-network assets	1,067	2,127	560	402	636	650	666	680	694	709	723
21		**Expenditure on assets**	9,751	8,939	8,019	8,835	5,420	4,088	3,917	3,919	4,002	4,086	4,172
22													
23	*plus*	Cost of financing	558	511	459	505	310	234	224	224	229	234	239
24	*less*	Value of capital contributions	1,958	1,300	1,327	1,355	1,384	1,413	1,442	1,473	1,504	1,535	1,567
25	*plus*	Value of vested assets											
26													
27		**Capital expenditure forecast**	8,351	8,150	7,150	7,985	4,346	2,909	2,698	2,671	2,727	2,784	2,843
28													
29		Value of commissioned assets	9,527	8,150	7,150	7,985	4,346	2,909	2,698	2,671	2,727	2,784	1,500

			Current Year CY	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*	*CY+6*	*CY+7*	*CY+8*	*CY+9*	*CY+10*
30		for year ended	**31 Mar 17**	**31 Mar 18**	**31 Mar 19**	**31 Mar 20**	**31 Mar 21**	**31 Mar 22**	**31 Mar 23**	**31 Mar 24**	**31 Mar 25**	**31 Mar 26**	**31 Mar 27**
32			**$000 (in constant prices)**										
33		Consumer connection	1,201	505	505	505	505	505	305	235	235	235	235
34		System growth	5,098	2,300	3,850	5,750	2,600	1,300	1,210	1,210	1,210	1,210	1,210
35		Asset replacement and renewal	1,833	1,545	1,475	1,195	1,195	1,165	1,215	1,215	1,215	1,215	1,215
36		Asset relocations	-	-	-	-	-	-	-	-	-	-	-
37		Reliability, safety and environment:											
38		Quality of supply	475	2,412	1,426	589	144	144	150	150	150	150	150
39		Legislative and regulatory	77	50	50	50	50	50	50	50	50	50	50
40		Other reliability, safety and environment	-	-	-	-	-	-	-	-	-	-	-
41		**Total reliability, safety and environment**	552	2,462	1,476	639	194	194	200	200	200	200	200
42		**Expenditure on network assets**	8,684	6,812	7,306	8,089	4,494	3,164	2,930	2,860	2,860	2,860	2,860
43		Non-network assets	1,067	2,127	548	386	598	598	600	600	600	600	600
44		**Expenditure on assets**	9,751	8,939	7,854	8,475	5,092	3,762	3,530	3,460	3,460	3,460	3,460
45													
46		**Subcomponents of expenditure on assets (where known)**											
47		Energy efficiency and demand side management, reduction of energy losses	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
48		Overhead to underground conversion	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
49		Research and development	100,000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

		Current Year CY	CY+1	CY+2	CY+3	CY+4	CY+5	CY+6	CY+7	CY+8	CY+9	CY+10
	for year ended	31 Mar 17	31 Mar 18	31 Mar 19	31 Mar 20	31 Mar 21	31 Mar 22	31 Mar 23	31 Mar 24	31 Mar 25	31 Mar 26	31 Mar 27
11a(i): Expenditure on Assets Forecast		$000 (in nominal dollars)										
Consumer connection		1,201	505	516	526	537	549	338	266	272	278	283
System growth		5,098	2,300	3,931	5,994	2,767	1,413	1,342	1,371	1,399	1,429	1,459
Asset replacement and renewal		1,833	1,545	1,506	1,246	1,272	1,266	1,348	1,376	1,405	1,435	1,465
Asset relocations		-	-	-	-	-	-		-	-	-	-
Reliability, safety and environment:												
Quality of supply		475	2,412	1,456	614	153	156	166	170	173	177	181
Legislative and regulatory		77	50	51	52	53	54	55	57	58	59	60
Other reliability, safety and environment		-										
Total reliability, safety and environment		552	2,462	1,507	666	206	211	222	227	231	236	241
Expenditure on network assets		8,684	6,812	7,459	8,432	4,783	3,438	3,251	3,240	3,308	3,377	3,448
Non-network assets		1,067	2,127	560	402	636	650	666	680	694	709	723
Expenditure on assets		9,751	8,939	8,019	8,835	5,420	4,088	3,917	3,919	4,002	4,086	4,172
plus Cost of financing		558	511	459	505	310	234	224	224	229	234	239
less Value of capital contributions		1,958	1,300	1,327	1,355	1,384	1,413	1,442	1,473	1,504	1,535	1,567
plus Value of vested assets												
Capital expenditure forecast		8,351	8,150	7,150	7,985	4,346	2,909	2,698	2,671	2,727	2,784	2,843
Value of commissioned assets		9,527	8,150	7,150	7,985	4,346	2,909	2,698	2,671	2,727	2,784	1,500

		Current Year CY	CY+1	CY+2	CY+3	CY+4	CY+5	CY+6	CY+7	CY+8	CY+9	CY+10
	for year ended	31 Mar 17	31 Mar 18	31 Mar 19	31 Mar 20	31 Mar 21	31 Mar 22	31 Mar 23	31 Mar 24	31 Mar 25	31 Mar 26	31 Mar 27
		$000 (in constant prices)										
Consumer connection		1,201	505	505	505	505	505	305	235	235	235	235
System growth		5,098	2,300	3,850	5,750	2,600	1,300	1,210	1,210	1,210	1,210	1,210
Asset replacement and renewal		1,833	1,545	1,475	1,195	1,195	1,165	1,215	1,215	1,215	1,215	1,215
Asset relocations		-	-	-	-	-	-	-	-	-	-	
Reliability, safety and environment:												
Quality of supply		475	2,412	1,426	589	144	144	150	150	150	150	150
Legislative and regulatory		77	50	50	50	50	50	50	50	50	50	50
Other reliability, safety and environment		-	-	-	-	-	-	-	-	-	-	-
Total reliability, safety and environment		552	2,462	1,476	639	194	194	200	200	200	200	200
Expenditure on network assets		8,684	6,812	7,306	8,089	4,494	3,164	2,930	2,860	2,860	2,860	2,860
Non-network assets		1,067	2,127	548	386	598	598	600	600	600	600	600
Expenditure on assets		9,751	8,939	7,854	8,475	5,092	3,762	3,530	3,460	3,460	3,460	3,460
Subcomponents of expenditure on assets (where known)												
Energy efficiency and demand side management, reduction of energy losses		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Overhead to underground conversion		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Research and development		100,000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

		Current Year CY	CY+1	CY+2	CY+3	CY+4	CY+5	CY+6	CY+7	CY+8	CY+9	CY+10
for year ended		31 Mar 17	31 Mar 18	31 Mar 19	31 Mar 20	31 Mar 21	31 Mar 22	31 Mar 23	31 Mar 24	31 Mar 25	31 Mar 26	31 Mar 27
Difference between nominal and constant price forecasts		$000										
Consumer connection		-	-	11	21	32	44	33	31	37	43	48
System growth		-	-	81	244	167	113	132	161	189	219	249
Asset replacement and renewal		-	-	31	51	77	101	133	161	190	220	250
Asset relocations		-	-	-	-	-	-	-	-	-	-	-
Reliability, safety and environment:												
Quality of supply		-	-	30	25	9	12	16	20	23	27	31
Legislative and regulatory		-	-	1	2	3	4	5	7	8	9	10
Other reliability, safety and environment		-	-	-	-	-	-	-	-	-	-	-
Total reliability, safety and environment		-	-	31	27	12	17	22	27	31	36	41
Expenditure on network assets		-	-	153	343	289	274	321	380	448	517	588
Non-network assets		-	-	12	16	38	52	66	80	94	109	123
Expenditure on assets		-	-	165	360	328	326	387	459	542	626	712

	Current Year CY	CY+1	CY+2	CY+3	CY+4	CY+5
for year ended	31 Mar 17	31 Mar 18	31 Mar 19	31 Mar 20	31 Mar 21	31 Mar 22
11a(ii): Consumer Connection						
*Consumer types defined by EDB**	$000 (in constant prices)					
Small: residential and commercial to 15kVA	192	85	85	85	85	85
Medium: residential and commercial 16kVA to 50kVA	237	100	100	100	100	100
Large: commercial and industrial 51kVA and above	772	320	320	320	320	320
[EDB consumer type]						
[EDB consumer type]						
*include additional rows if needed						
Consumer connection expenditure	1,201	505	505	505	505	505
less Capital contributions funding consumer connection	1,201	505	505	505	505	505
Consumer connection less capital contributions	-	-	-	-	-	-
11a(iii): System Growth						
Subtransmission	2,837	270	1,750	1,350	-	600
Zone substations	974	1,200	1,900	4,200	2,400	500
Distribution and LV lines	1,250	750	120	120	120	120
Distribution and LV cables		-	-	-	-	
Distribution substations and transformers	37	80	80	80	80	80
Distribution switchgear		-	-	-	-	
Other network assets		-	-	-	-	
System growth expenditure	5,098	2,300	3,850	5,750	2,600	1,300
less Capital contributions funding system growth						
System growth less capital contributions	5,098	2,300	3,850	5,750	2,600	1,300

		Current Year CY	CY+1	CY+2	CY+3	CY+4	CY+5
for year ended		31 Mar 17	31 Mar 18	31 Mar 19	31 Mar 20	31 Mar 21	31 Mar 22
11a(iv): Asset Replacement and Renewal		$000 (in constant prices)					
Subtransmission		97	60	60	60	60	60
Zone substations		38	280	280	-	-	-
Distribution and LV lines		1,182	765	765	765	765	765
Distribution and LV cables		40	35	35	35	35	35
Distribution substations and transformers		263	160	150	150	150	120
Distribution switchgear		213	225	165	165	165	165
Other network assets		-	20	20	20	20	20
Asset replacement and renewal expenditure		1,833	1,545	1,475	1,195	1,195	1,165
less Capital contributions funding asset replacement and renewal							
Asset replacement and renewal less capital contributions		1,833	1,545	1,475	1,195	1,195	1,165
11a(v):Asset Relocations							
*Project or programme**							
[Description of material project or programme]							
[Description of material project or programme]							
[Description of material project or programme]							
[Description of material project or programme]							
[Description of material project or programme]							
*include additional rows if needed							
All other asset relocations projects or programmes							
Asset relocations expenditure		-	-	-	-	-	-
less Capital contributions funding asset relocations							
Asset relocations less capital contributions		-	-	-	-	-	-
11a(vi):Quality of Supply							
*Project or programme**							
New Recloser on Solway Feeder			25				
Fibre for Pukeuri			85				
Fibre (Waitaki - Kurow)		1	28				
Fibre from Weston - Ngapara			40				
Fibre from Ngapara - Duntroon				115			
Fibre from Duntroon - Kurow					235		
Replace Ohau 11kV oil switches with Halo RMU		31	60				
Fibre from Enfield - Ngapara				120			
TWZ/Kurow/Parsons Ripple isolation Project			50				
Replace 1 X 551 relay and unsafe protection panel		32	30	30	30	30	30
Rural switch gear		23	30	30	30	30	30
Purchase and Install Reclosers/Sectionalisers/Tie Switches		97	35	35	35	35	35
UG Ducting HV LV Fibre (General)		26	25	25	25	25	25
Ferry Road Feeder - Upgrade from Mink to Dog			200				
Upgrade Pukeuri Substation			770				
Arc Flash Protection (Weston 33, Chelmer, Redcastle)		42	40	40	60		
PV Trial			100				
Duplicate 33kV DC-DC Power Supply			20				
Replace 1 x rural 2 pole Transformer Structures		18	25				
Reconductor 1.7km - Waiareka Valley Road			110				
Omarama - Replace 11kV Oil switches with CBs			140				
Ngapara - 33kV CB to isolate Enfield			70				
Install new ABS's		17	24	24	24	24	24
Twizel to Omarama Reinforcement			400				

		11kV Feeder extension from Arundel St to Foyle St			300			
		New Line Peaks Road to Five Forks Feeder at Tunnel Road - 3.4km			187			
		Reconductor from ABS1034 to end of Peaks Rd - 7.7km			270			
		Backup supply for radio repeater		25				
		Replace OLTC relay Reg-D with SEL2414		30				
		Radio Link Upgrade		50	150	150		
		Develop new feeder out of Pukeuri Substation			100			
132		Zone Transformer Differential protection	30					
133		Ohau Feeder rebuild	40					
134		Line differential protection	58					
		EV Charger	29					
135		Birchwood repeater	31					
136		*include additional rows if needed						
137		All other quality of supply projects or programmes						
138		**Quality of supply expenditure**	475	2,412	1,426	589	144	144
139	*less*	Capital contributions funding quality of supply						
140		**Quality of supply less capital contributions**	475	2,412	1,426	589	144	144
141								
142		**11a(vii): Legislative and Regulatory**						
143		*Project or programme**						
144		Distribution Box Replacement	77	50	50	50	50	50
145		[Description of material project or programme]						
146		[Description of material project or programme]						
147		[Description of material project or programme]						
148		[Description of material project or programme]						
149		*include additional rows if needed						
150		All other legislative and regulatory projects or programmes						
151		**Legislative and regulatory expenditure**	77	50	50	50	50	50
152	*less*	Capital contributions funding legislative and regulatory						
153		**Legislative and regulatory less capital contributions**	77	50	50	50	50	50

		Current Year CY	CY+1	CY+2	CY+3	CY+4	CY+5
	for year ended	31 Mar 17	31 Mar 18	31 Mar 19	31 Mar 20	31 Mar 21	31 Mar 22
11a(viii): Other Reliability, Safety and Environment							
*Project or programme**		$000 (in constant prices)					
[Description of material project or programme]							
[Description of material project or programme]							
[Description of material project or programme]							
[Description of material project or programme]							
[Description of material project or programme]							
*include additional rows if needed							
All other reliability, safety and environment projects or programmes							
Other reliability, safety and environment expenditure		-	-	-	-	-	-
less Capital contributions funding other reliability, safety and environment							
Other reliability, safety and environment less capital contributions		-	-	-	-	-	-
11a(ix): Non-Network Assets							
Routine expenditure							
*Project or programme**							
Vehicles		543	775	400	250	450	450
Plant		134	304	100	88	100	100
Software		110	48	48	48	48	48
*include additional rows if needed							
All other routine expenditure projects or programmes							
Routine expenditure		787	1,127	548	386	598	598
Atypical expenditure							
*Project or programme**							
Buildings			800				
Software			200				
Yard redevelopment		124					
Mobile Generator		156					
*include additional rows if needed							
All other atypical projects or programmes							
Atypical expenditure		280	1,000	-	-	-	-
Non-network assets expenditure		1,067	2,127	548	386	598	598

Company Name	**Network Waitaki Ltd**
AMP Planning Period	**1 April 2017 – 31 March 2027**

SCHEDULE 11b: REPORT ON FORECAST OPERATIONAL EXPENDITURE

This schedule requires a breakdown of forecast operational expenditure for the disclosure year and a 10 year planning period. The forecasts should be consistent with the supporting information set out in the AMP. The forecast is to be expressed in both constant price and nominal dollar terms.
EDBs must provide explanatory comment on the difference between constant price and nominal dollar operational expenditure forecasts in Schedule 14a (Mandatory Explanatory Notes).
This information is not part of audited disclosure information.

sch ref												
7		*Current Year CY*	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*	*CY+6*	*CY+7*	*CY+8*	*CY+9*	*CY+10*
8	for year ended	**31 Mar 17**	**31 Mar 18**	**31 Mar 19**	**31 Mar 20**	**31 Mar 21**	**31 Mar 22**	**31 Mar 23**	**31 Mar 24**	**31 Mar 25**	**31 Mar 26**	**31 Mar 27**
9	**Operational Expenditure Forecast**	**$000 (in nominal dollars)**										
10	Service interruptions and emergencies	397	304	341	320	330	340	351	361	374	385	397
11	Vegetation management	497	400	408	417	430	443	457	471	486	501	516
12	Routine and corrective maintenance and inspection	786	670	752	695	698	716	739	761	785	810	836
13	Asset replacement and renewal	502	610	684	642	662	682	703	726	748	771	796
14	**Network Opex**	2,182	1,984	2,186	2,074	2,120	2,182	2,250	2,320	2,393	2,467	2,544
15	System operations and network support	1,935	1,500	1,532	1,564	1,596	1,630	1,664	1,699	1,735	1,771	1,809
16	Business support	935	2,180	2,226	2,273	2,320	2,369	2,419	2,470	2,521	2,574	2,628
17	**Non-network opex**	2,870	3,680	3,757	3,836	3,917	3,999	4,083	4,169	4,256	4,346	4,437
18	**Operational expenditure**	5,052	5,664	5,943	5,911	6,037	6,181	6,333	6,489	6,649	6,812	6,981

19		*Current Year CY*	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*	*CY+6*	*CY+7*	*CY+8*	*CY+9*	*CY+10*
20	for year ended	**31 Mar 17**	**31 Mar 18**	**31 Mar 19**	**31 Mar 20**	**31 Mar 21**	**31 Mar 22**	**31 Mar 23**	**31 Mar 24**	**31 Mar 25**	**31 Mar 26**	**31 Mar 27**
21		**$000 (in constant prices)**										
22	Service interruptions and emergencies	397	304	334	307	310	313	316	319	323	326	329
23	Vegetation management	497	400	400	400	404	408	412	416	420	424	428
24	Routine and corrective maintenance and inspection	786	670	737	667	656	659	666	672	679	686	693
25	Asset replacement and renewal	502	610	670	616	622	628	634	641	647	653	660
26	**Network Opex**	2,182	1,984	2,141	1,990	1,992	2,008	2,028	2,048	2,069	2,089	2,110
27	System operations and network support	1,400	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
28	Business support	2,725	2,180	2,180	2,180	2,180	2,180	2,180	2,180	2,180	2,180	2,180
29	**Non-network opex**	4,125	3,680	3,680	3,680	3,680	3,680	3,680	3,680	3,680	3,680	3,680
30	**Operational expenditure**	6,307	5,664	5,821	5,670	5,672	5,688	5,708	5,728	5,749	5,769	5,790
31	**Subcomponents of operational expenditure (where known)**											
32	Energy efficiency and demand side management, reduction of											
33	energy losses	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
34	Direct billing*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
35	Research and Development	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Insurance	84	84	84	84	84	84	84	84	84	84	84
37	** Direct billing expenditure by suppliers that direct bill the majority of their consumers*											
38												
39		*Current Year CY*	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*	*CY+6*	*CY+7*	*CY+8*	*CY+9*	*CY+10*
40	for year ended	**31 Mar 17**	**31 Mar 18**	**31 Mar 19**	**31 Mar 20**	**31 Mar 21**	**31 Mar 22**	**31 Mar 23**	**31 Mar 24**	**31 Mar 25**	**31 Mar 26**	**31 Mar 27**
41	**Difference between nominal and real forecasts**	**$000**										
42	Service interruptions and emergencies	-	-	7	13	20	27	35	42	51	59	68
43	Vegetation management	-	-	8	17	26	35	45	55	66	77	88
44	Routine and corrective maintenance and inspection	-	-	15	28	42	57	73	89	106	124	143
45	Asset replacement and renewal	-	-	14	26	40	54	69	85	101	118	136
46	**Network Opex**	-	-	45	84	128	174	222	272	324	378	434
47	System operations and network support	535	-	31	64	96	130	164	199	235	271	309
48	Business support	(1,790)	-	46	93	140	189	239	290	341	394	448
49	**Non-network opex**	(1,255)	-	77	156	237	319	403	489	576	666	757
50	**Operational expenditure**	(1,255)	-	122	241	365	493	625	761	900	1,043	1,191

Company Name	**Network Waitaki Ltd**
AMP Planning Period	**1 April 2017 – 31 March 2027**

SCHEDULE 12a: REPORT ON ASSET CONDITION

This schedule requires a breakdown of asset condition by asset class as at the start of the forecast year. The data accuracy assessment relates to the percentage values disclosed in the asset condition columns. Also required is a forecast of the percentage of units to be replaced in the next 5 years. All information should be consistent with the information provided in the AMP and the expenditure on assets forecast in Schedule 11a. All units relating to cable and line assets, that are expressed in km, refer to circuit lengths.

sch ref						Asset condition at start of planning period (percentage of units by grade)						
	Voltage	**Asset category**	**Asset class**	**Units**	**Grade 1**	**Grade 2**	**Grade 3**	**Grade 4**	**Grade unknown**	**Data accuracy (1–4)**	**% of asset forecast to be replaced in next 5 years**
10	All	Overhead Line	Concrete poles / steel structure	No.	0.50%	3.00%	96.50%			2	5.00%
11	All	Overhead Line	Wood poles	No.	0.50%	3.00%	96.50%			2	5.00%
12	All	Overhead Line	Other pole types	No.						N/A	
13	HV	Subtransmission Line	Subtransmission OH up to 66kV conductor	km			75.00%	25.00%		3	
14	HV	Subtransmission Line	Subtransmission OH 110kV+ conductor	km						N/A	
15	HV	Subtransmission Cable	Subtransmission UG up to 66kV (XLPE)	km			100.00%			3	
16	HV	Subtransmission Cable	Subtransmission UG up to 66kV (Oil pressurised)	km						N/A	
17	HV	Subtransmission Cable	Subtransmission UG up to 66kV (Gas pressurised)	km						N/A	
18	HV	Subtransmission Cable	Subtransmission UG up to 66kV (PILC)	km			100.00%			3	
19	HV	Subtransmission Cable	Subtransmission UG 110kV+ (XLPE)	km						N/A	
20	HV	Subtransmission Cable	Subtransmission UG 110kV+ (Oil pressurised)	km						N/A	
21	HV	Subtransmission Cable	Subtransmission UG 110kV+ (Gas Pressurised)	km						N/A	
22	HV	Subtransmission Cable	Subtransmission UG 110kV+ (PILC)	km						N/A	
23	HV	Subtransmission Cable	Subtransmission submarine cable	km						N/A	
24	HV	Zone substation Buildings	Zone substations up to 66kV	No.			94.00%	6.00%		3	
25	HV	Zone substation Buildings	Zone substations 110kV+	No.						N/A	
26	HV	Zone substation switchgear	22/33kV CB (Indoor)	No.				100.00%		3	
27	HV	Zone substation switchgear	22/33kV CB (Outdoor)	No.				100.00%		3	
28	HV	Zone substation switchgear	33kV Switch (Ground Mounted)	No.						N/A	
29	HV	Zone substation switchgear	33kV Switch (Pole Mounted)	No.			100.00%			3	
30	HV	Zone substation switchgear	33kV RMU	No.						N/A	
31	HV	Zone substation switchgear	50/66/110kV CB (Indoor)	No.						N/A	
32	HV	Zone substation switchgear	50/66/110kV CB (Outdoor)	No.			100.00%			3	
33	HV	Zone substation switchgear	3.3/6.6/11/22kV CB (ground mounted)	No.		10.00%	85.00%	5.00%		3	10.00%
34	HV	Zone substation switchgear	3.3/6.6/11/22kV CB (pole mounted)	No.			100.00%			3	

					Asset condition at start of planning period (percentage of units by grade)						
	Voltage	Asset category	Asset class	Units	Grade 1	Grade 2	Grade 3	Grade 4	Grade unknown	Data accuracy (1–4)	% of asset forecast to be replaced in next 5 years
45	HV	Zone Substation Transformer	Zone Substation Transformers	No.			76.00%	24.00%		3	
46	HV	Distribution Line	Distribution OH Open Wire Conductor	km	5.00%		95.00%			3	5.00%
47	HV	Distribution Line	Distribution OH Aerial Cable Conductor	km						N/A	
48	HV	Distribution Line	SWER conductor	km						N/A	
49	HV	Distribution Cable	Distribution UG XLPE or PVC	km			97.00%	3.00%		3	
50	HV	Distribution Cable	Distribution UG PILC	km		1.00%	99.00%			3	1.00%
51	HV	Distribution Cable	Distribution Submarine Cable	km						N/A	
52	HV	Distribution switchgear	3.3/6.6/11/22kV CB (pole mounted) - reclosers and sectionalisers	No.		5.00%	95.00%			3	2.00%
53	HV	Distribution switchgear	3.3/6.6/11/22kV CB (Indoor)	No.						N/A	
54	HV	Distribution switchgear	3.3/6.6/11/22kV Switches and fuses (pole mounted)	No.	1.00%	4.00%	95.00%			3	5.00%
55	HV	Distribution switchgear	3.3/6.6/11/22kV Switch (ground mounted) - except RMU	No.						N/A	
56	HV	Distribution switchgear	3.3/6.6/11/22kV RMU	No.		5.00%	88.00%	7.00%		3	5.00%
57	HV	Distribution Transformer	Pole Mounted Transformer	No.	2.00%	3.00%	92.00%	3.00%		3	5.00%
58	HV	Distribution Transformer	Ground Mounted Transformer	No.	1.00%	1.00%	91.50%	6.50%		3	2.00%
59	HV	Distribution Transformer	Voltage regulators	No.			34.00%	66.00%		3	
60	HV	Distribution Substations	Ground Mounted Substation Housing	No.			100.00%			2	
61	LV	LV Line	LV OH Conductor	km		4.00%	96.00%			2	4.00%
62	LV	LV Cable	LV UG Cable	km			100.00%			3	
63	LV	LV Streetlighting	LV OH/UG Streetlight circuit	km		5.00%	95.00%			3	5.00%
64	LV	Connections	OH/UG consumer service connections	No.		2.00%	98.00%			3	2.00%
65	All	Protection	Protection relays (electromechanical, solid state and numeric)	No.		3.00%	97.00%			3	3.00%
66	All	SCADA and communications	SCADA and communications equipment operating as a single system	Lot			100.00%			3	
67	All	Capacitor Banks	Capacitors including controls	No.				100.00%		3	
68	All	Load Control	Centralised plant	Lot			100.00%			3	
69	All	Load Control	Relays	No.		20.00%		80.00%		3	
70	All	Civils	Cable Tunnels	km						N/A	

Company Name	**Network Waitaki Ltd**
AMP Planning Period	**1 April 2017 – 31 March 2027**

SCHEDULE 12b: REPORT ON FORECAST CAPACITY

This schedule requires a breakdown of current and forecast capacity and utilisation for each zone substation and current distribution transformer capacity. The data provided should be consistent with the information provided in the AMP. Information provided in this table should relate to the operation of the network in its normal steady state configuration.

sch ref

12b(i): System Growth - Zone Substations

Existing Zone Substations	Current Peak Load (MVA)	Installed Firm Capacity (MVA)	Security of Supply Classification (type)	Transfer Capacity (MVA)	Utilisation of Installed Firm Capacity %	Installed Firm Capacity +5 years (MVA)	Utilisation of Installed Firm Capacity + 5yrs %	Installed Firm Capacity Constraint +5 years (cause)	Explanation
Ohau	1	-	N	2	-	-	-	Transformer	Only 1 transformer. NWL security standard is to have switched contingent capacity for rural substation.
Omarama	2	3	N-1	2	50%	3	50%	No constraint within +5 years	
Otematata	1	-	N	-	-	-	-	Transformer	Diesel generator on site can supply existing loads if transformer is out of service.
Kurow	5	12	N-1	7	42%	12	50%	No constraint within +5 years	
Duntroon	5	-	N	2	-	-		Transformer	Only 1 transformer. NWL security standard is to have switched contingent capacity for rural substation.
Ngapara	5	7	N-1	2	69%	7	60%	No constraint within +5 years	
Enfield	3	-	N	4	-	-		Transformer	Only 1 transformer. NWL security standard is to have switched contingent capacity for rural substation.
Parsons	4	-	N	6	-	-		Transformer	Only 1 transformer. NWL security standard is to have switched contingent capacity for rural substation.
Papakaio	5	-	N	2	-	-		Transformer	Only 1 transformer. NWL security standard is to have switched contingent capacity for rural substation.
Pukeuri	8	-	N	2	-	10	90%	No constraint within +5 years	
Redcastle	6	15	N-1	6	38%	12	50%	No constraint within +5 years	
Chelmer	15	28	N-1	13	54%	28	36%	No constraint within +5 years	
Maheno	3	-	N	2	-	-		Transformer	Only 1 transformer. NWL security standard is to have switched contingent capacity for rural substation.
Hampden	1	-	N	6	-	-		Transformer	Only 1 transformer. NWL security standard is to have switched contingent capacity for rural substation.
Five Forks	1	-	N	4	-	-		Transformer	Only 1 transformer. NWL security standard is to have switched contingent capacity for rural substation.
Ruataniwha	1	-	N	-	-	-		Transformer	Only 1 transformer. NWL security standard is to have switched contingent capacity for rural substation.
[Zone Substation_17]					-			[Select one]	
[Zone Substation_18]					-			[Select one]	
[Zone Substation_19]					-			[Select one]	
[Zone Substation_20]					-			[Select one]	

[1] *Extend forecast capacity table as necessary to disclose all capacity by each zone substation*

12b(ii): Transformer Capacity

	(MVA)
Distribution transformer capacity (EDB owned)	194
Distribution transformer capacity (Non-EDB owned)	3
Total distribution transformer capacity	197
Zone substation transformer capacity	201

Company Name	**Network Waitaki Ltd**
AMP Planning Period	**1 April 2017 – 31 March 2027**

SCHEDULE 12C: REPORT ON FORECAST NETWORK DEMAND

This schedule requires a forecast of new connections (by consumer type), peak demand and energy volumes for the disclosure year and a 5 year planning period. The forecasts should be consistent with the supporting information set out in the AMP as well as the assumptions used in developing the expenditure forecasts in Schedule 11a and Schedule 11b and the capacity and utilisation forecasts in Schedule 12b.

sch ref

12c(i): Consumer Connections

Number of ICPs connected in year by consumer type

		Number of connections					
		Current Year CY	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*
	for year ended	**31 Mar 17**	**31 Mar 18**	**31 Mar 19**	**31 Mar 20**	**31 Mar 21**	**31 Mar 22**
	*Consumer types defined by EDB**						
	Small: residential and commercial to 15kVA	10,679	10,710	10,740	10,770	10,800	10,830
	Medium: residential and commercial 16kVA to 50kVA	1,449	1,459	1,469	1,479	1,489	1,499
	Large: commercial and industrial 51kVA and above	527	537	547	557	567	577
	Indpendent Contract Consumers ("IND")	88	88	88	88	88	88
	[EDB consumer type]						
	Connections total	12,743	12,794	12,844	12,894	12,944	12,994
	**include additional rows if needed*						
	Distributed generation						
	Number of connections	26	45	65	100	140	200
	Installed connection capacity of distributed generation (MVA)						

12c(ii) System Demand

		Current Year CY	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*
	Maximum coincident system demand (MW) for year ended	**31 Mar 17**	**31 Mar 18**	**31 Mar 19**	**31 Mar 20**	**31 Mar 21**	**31 Mar 22**
	GXP demand	55	60	61	62	63	64
plus	Distributed generation output at HV and above						
	Maximum coincident system demand	55	60	61	62	63	64
less	Net transfers to (from) other EDBs at HV and above						
	Demand on system for supply to consumers' connection points	55	60	61	62	63	64
	Electricity volumes carried (GWh)						
	Electricity supplied from GXPs	242	292	295	298	301	301
less	Electricity exports to GXPs						
plus	Electricity supplied from distributed generation						
less	Net electricity supplied to (from) other EDBs						
	Electricity entering system for supply to ICPs	242	292	295	298	301	301
less	Total energy delivered to ICPs	218	272	277	280	282	282
	Losses	24	20	18	18	19	19
	Load factor	50%	56%	55%	55%	55%	54%
	Loss ratio	9.9%	6.8%	6.1%	6.0%	6.3%	6.3%

Company Name	**Network Waitaki Ltd**
AMP Planning Period	**1 April 2017 – 31 March 2027**
Network / Sub-network Name	**Network Waitaki Ltd**

SCHEDULE 12d: REPORT FORECAST INTERRUPTIONS AND DURATION

This schedule requires a forecast of SAIFI and SAIDI for disclosure and a 5 year planning period. The forecasts should be consistent with the supporting information set out in the AMP as well as the assumed impact of planned and unplanned SAIFI and SAIDI on the expenditures forecast provided in Schedule 11a and Schedule 11b.

sch ref		*Current Year CY*	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*
9	for year ended	**31 Mar 17**	**31 Mar 18**	**31 Mar 19**	**31 Mar 20**	**31 Mar 21**	**31 Mar 22**
10	**SAIDI**						
11	Class B (planned interruptions on the network)	100.0	100.0	100.0	100.0	100.0	100.0
12	Class C (unplanned interruptions on the network)	40.0	40.0	40.0	40.0	40.0	40.0
13	**SAIFI**						
14	Class B (planned interruptions on the network)	0.50	0.50	0.50	0.50	0.50	0.50
15	Class C (unplanned interruptions on the network)	0.90	0.90	0.90	0.90	0.90	0.90

Appendix B: Board Certification of AMP

Network Waitaki Limited
10 Chelmer Street
P O Box 147
Oamaru

Telephone 03 433 0065
Facsimile 03 434 8645
Email service@networkwaitaki.co.nz

SCHEDULE 17
Certification for Year-beginning Disclosures
Clause 2.9.1 of section 2.9

We,

Clare Margaret Kearney
Anthony James Wood

being directors of Network Waitaki Limited certify that, having made all reasonable enquiry, to the best of our knowledge-

a. the following attached information of Network Waitaki Limited prepared for the purposes of clause 2.4.1, clause 2.6.1 and sub-clauses 2.6.3(4) and 2.6.5(3) of the Electricity Distribution Information Disclosure Determination 2012 in all material respects complies with that determination.

b. The prospective financial or non-financial information included in the attached information has been measured on a basis consistent with regulatory requirements or recognised industry standards.

Clare Margaret Kearney

Anthony James Wood

DATED: 27 March 2017