Northpower

Asset Management Plan Update

2019 - 2029

March 2019

Northpower

northpower.com

Asset Management Plan Update 2019 - 2029

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1 Asset Management Plan Update

This supplement to our Asset Management Plan published in March 2018 (for the period 2018 - 2028) provides an update to Northpower's approach to managing its assets and delivering the planned programmes of capital and operational spend, as well as planned maintenance work for the period 1 April 2019 to 31 March 2029.

Northpower's 2018 Asset Management Plan is available from Northpower's website at **northpower.com/amp**. This update should be read in conjunction with that document and outlines how we are managing our Network assets for the efficient delivery of electricity to consumers.

Covered in this update are:

1. Material changes to the network development plans disclosed in the last AMP;
2. Material changes to the lifecycle asset management (maintenance and renewal) plans disclosed in the last AMP;
3. An outline of the reasons for material changes to the previous disclosures in the report on Forecast Capital Expenditure set out in Schedule 11a and Report on Forecast OPEX set out in Schedule 11b; and
4. Changes to Northpower's asset management practices.

Stakeholder Feedback

Northpower encourages feedback to enable continued improvement in meeting the needs of its consumers and stakeholders.

Feedback should be addressed to:

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Email: dennis.pushenko@northpower.com

2 Network Demand and Performance

2.1 Network Demand

Network demand continues to track to forecast, with emerging technologies not yet having an impact on peak demand.

Peak demand on Northpower's network for the year ended 31 March 2018 was 166MW (half-hour average) and 172MW (instantaneous). A total of 1,095GWhr of energy was delivered to 58,910 customers.

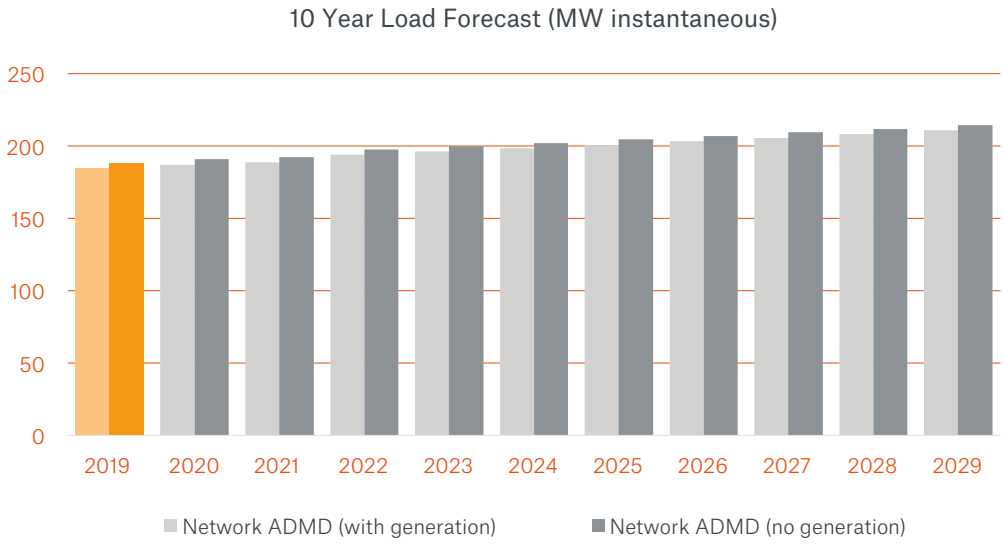
An updated 10 year load forecast shows an increase (MW instantaneous peak) in line with prior forecasts, as shown in the chart below. A more detailed forecast by zone substation and GXP is provided in **Appendix A**.

In this update, the two significant distributed generation plants (Wairua hydro station and Trustpower diesel peaking station) with a combined output of 15MW have been separated from the GXP stations to which they are connected, grouped together under generation in order to present forecast loadings with no generation and with maximum generation. The reason for this is that the generation station output at TOSP (time of system peak) is unpredictable and can influence peak demand by as much as 8%.

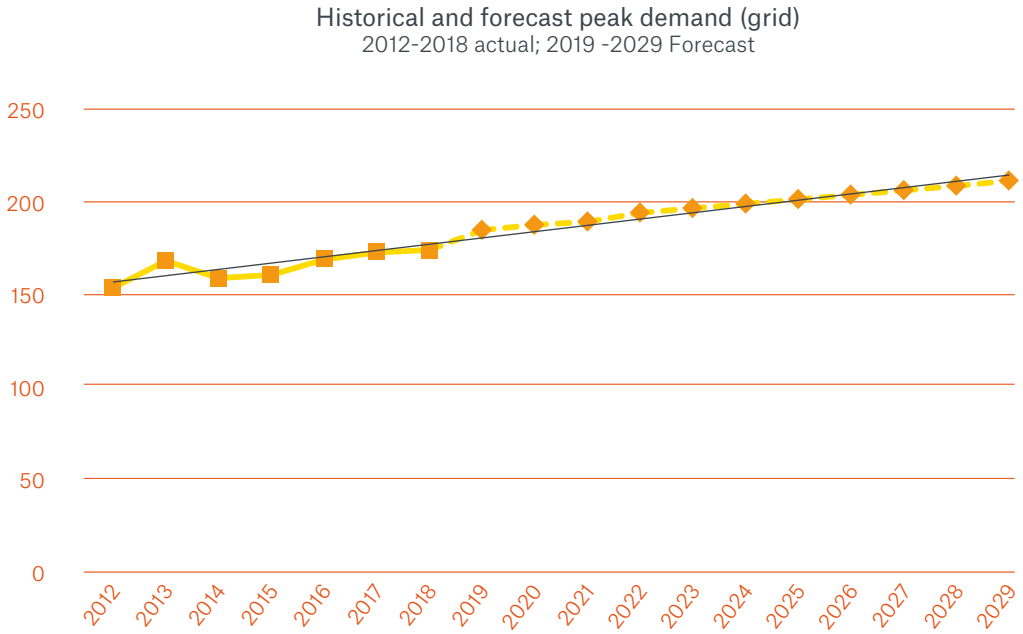
Growth in maximum demand over the next 10 years is largely dependent on economic activity, however developments in the areas of time of use tariffs, electric vehicle battery charging, PV generation and battery storage systems are expected to have an impact on peak demand towards the end of the planning period. As it is difficult to predict the future net effect of these developments on peak demand, at this stage no specific allowance has been made in the load forecast. We will consider the use of scenario based load forecasting methodologies as part of our next full Asset Management Plan (available 1 April 2020).

Solar PV system connections

A total of 649 solar PV generation systems were connected to the Northpower network for the year ended 31 March 2018, with a total installed capacity of 2.7MVA (an increase of 145 connections, with capacity of 539 kVA). Based on the information we have, less than 2% of these PV connections also have battery storage. The impact of PV generation on peak demand is currently negligible as it does not coincide with early morning and evening peak demand periods.



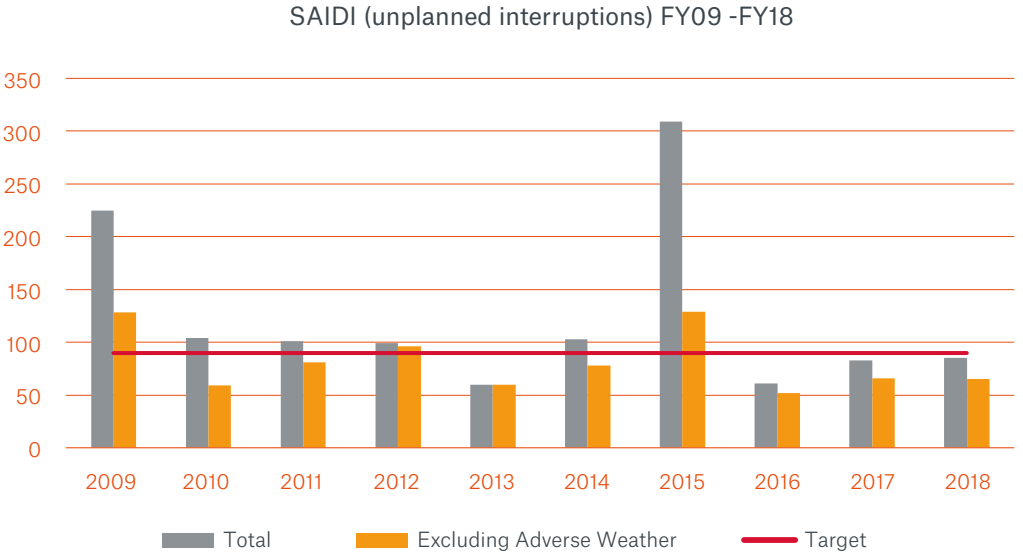
Consistent with previous forecasts, the below graph shows Northpower's recorded annual peak demand from 2012 to 2018 as well as the peak demand forecast from 2019 to 2029.



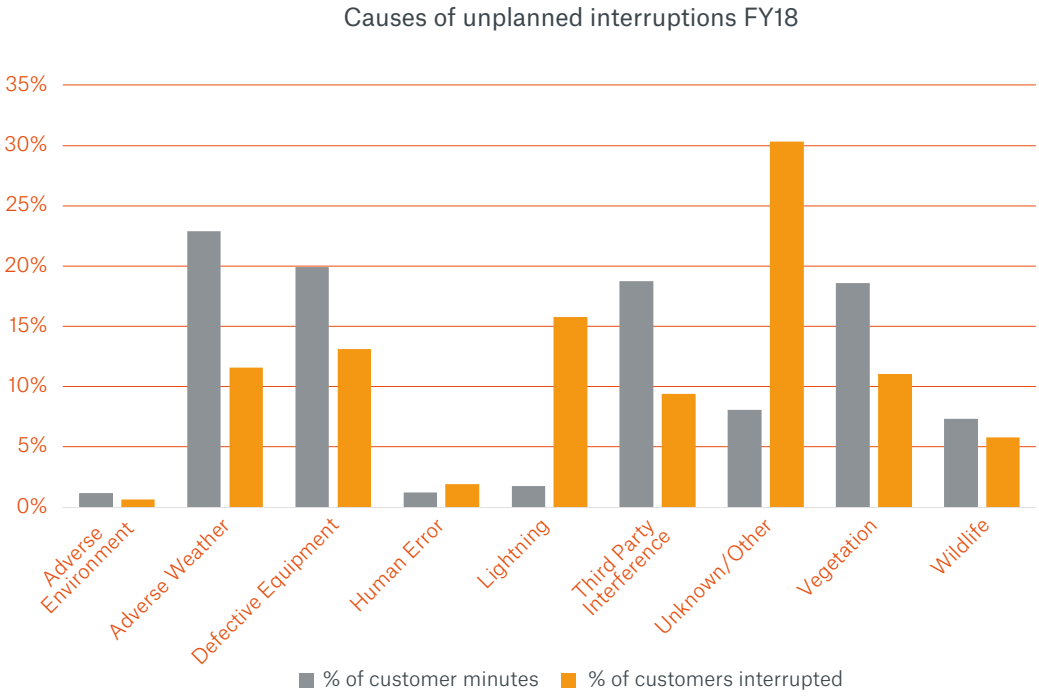
2.2 Network Performance

Network performance remains consistent with prior years.

Northpower's network performance, as measured in unplanned SAIDI minutes, has remained reasonably consistent over the last 10 years, barring adverse weather events, against an internal target of not more than 90 unplanned SAIDI minutes a year.



As shown below defective equipment accounted for 13% of our interruptions in FY18 (and 20% of SAIDI minutes), a level consistent with prior years' performance.



With these factors and current understanding of asset condition, we are satisfied that the level of investment on asset replacement is sufficient to maintain current levels of service.

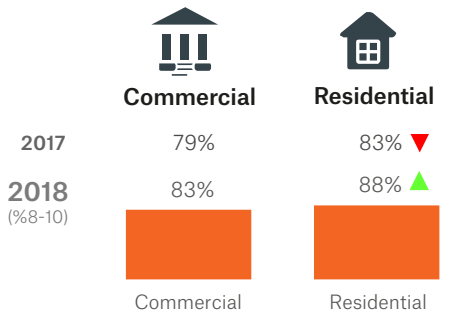
2.3 Customer Perspectives

Customer satisfaction with network performance remains strong.

Customer Satisfaction Survey

The annual survey of 400 Northpower consumers carried out in March 2018 highlighted continuing high satisfaction with Northpower and an improvement for the year ending March 2018, relative to the prior year. This was reflected in improvements in scores for reputation, communications and core service delivery.

Measured on a scale of 1 to 10, 83% of commercial customers and 88% of residential customers said they were very satisfied with Northpower (giving a score of 8 to 10), a favourable increase on the results of last year.



Overall Customer Satisfaction

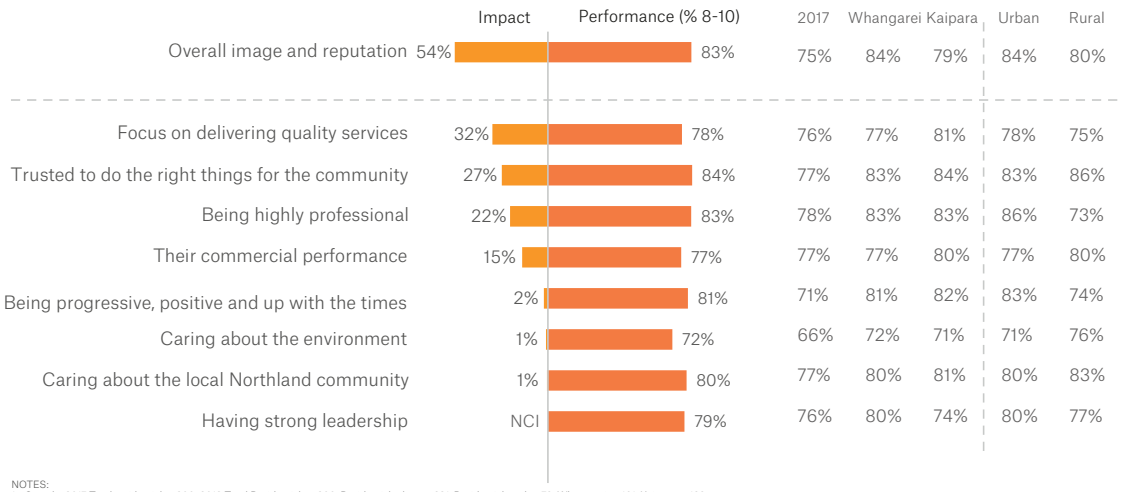
Our customers' view on Northpower's delivery against core services indicated that we were meeting expectations, as illustrated in the charts below.

Residential Customers:

Residential customers also have a positive view of Northpower's reputation and in particular, evaluate performance highly on the two key drivers: focus on quality and trust

Performance measurement: Image and reputation, Residential customers (1)(2)(3)(4)

Residential



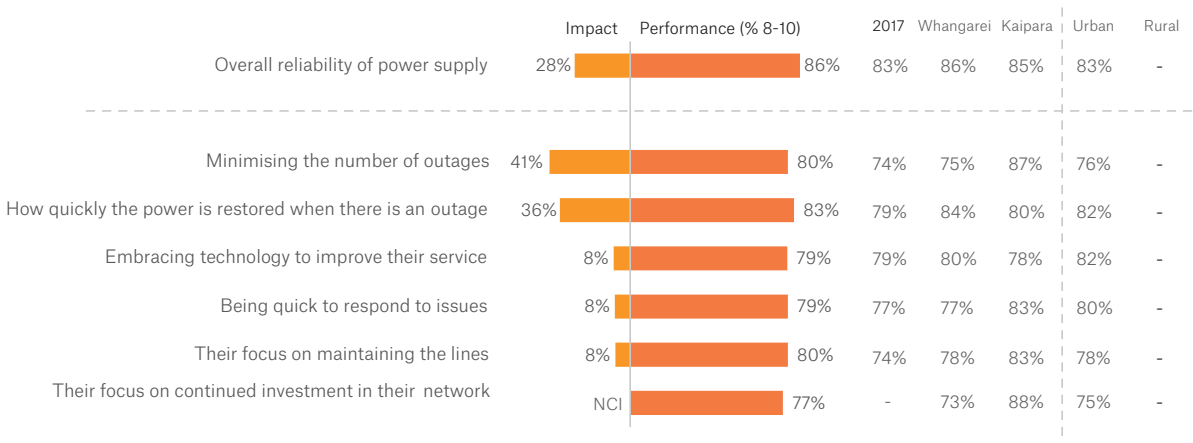
NOTES:
1. Sample: 2017 Total residential n=300; 2018 Total Residential n= 300, Residential urban n=221, Residential rural n=79; Whangarei n=161, Kaipara n=139
2. IR1. For the next few questions I'd like you to think about Northpower's image and reputation. Using a 1-10 scale where 1 means 'Extremely poor' and 10 means 'Excellent', how would you rate Northpower for each of the following?
3. IR9. And when you think about all of these things, the quality of their service, their leadership, vision, how they contribute to the community and the trust you have in them, overall how would you rate the image and reputation of Northpower?
4. NCI: No current impact

Commercial Customers:

Commercial customers evaluate Northpower's performance well on the major drivers of services, including the key driver, 'minimising outages

Performance measurement: Core services, Commercial customers (1)(2)(3)

Commercial



Small sample for rural commercial, n=14, data not shown.

NOTES:
1. Sample: 2017 Total commercial n=100; 2018 Total commercial n= 100, Commercial urban n=86, Commercial rural n=14, Commercial Whangarei n=64, Commercial Kaipara n=37
2. CS1. For these next few questions I'd like you to think about the services that Northpower provides. Again, we'll use a 1-10 scale where 1 means 'Extremely poor' and 10 means 'Excellent'. So how would you rate Northpower for...
3. NCI: No current impact

This feedback validates our current approach to asset management, including targeting reliability improvements such as improvements in vegetation management effectiveness and efficiency, our defect identification, classification and remediation process and asset replacement programme.
Also see Section 5.3 of this document for other Network initiatives.

Section 3 - Changes to the Network Development Plan

3 Changes to our Network Development Plans

3.1 Network Development Plans

There are no material changes to our network development plans to those disclosed in our 2018 Asset Management Plan.

Our modelling suggests that continued residential development in the Mangawhai area may result in faster than average load growth with potential capacity constraint. Current peak load is 7.5MW and with higher than normal incremental load growth, the two 5MVA transformers at Mangawhai zone substation may reach their firm capacity in FY28. In addition to the capacity constraint at Mangawhai substation, the projected load increase may require an increase in security of supply whereby the single 33kV sub-transmission line supplying Mangawhai will likely require duplication to comply with Network planning guidelines (duplication of transformer and sub transmission lines assets generally required where the connected total peak load exceeds 5MVA).

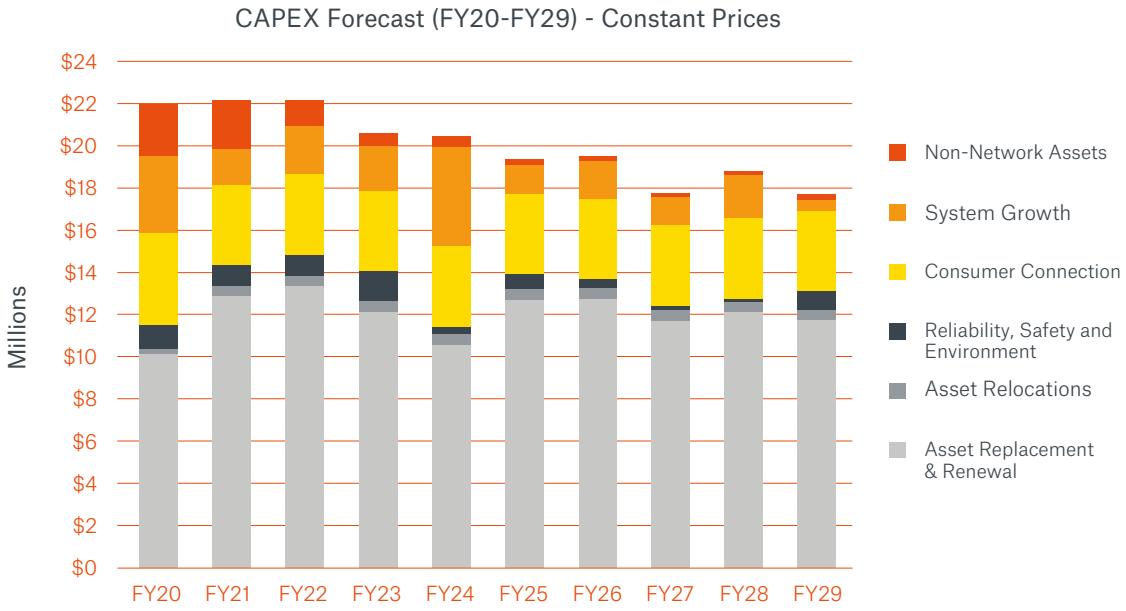
We will be examining a range of traditional network augmentation and non-network development options to relieve those constraints, including consulting with relevant stakeholders, and our preferred investment option will be reflected in our next full Asset Management Plan (available 1 April 2020).

Our 10 year network development plan can be found in **Appendix B.**

3.2 Changes to Forecast CAPEX (Schedule 11a)

Forecast CAPEX expenditure for the updated planning period is $200M (constant prices), unchanged from the 2018 AMP forecast CAPEX expenditure.

Our 10 year capital expenditure forecast is shown below.



A copy of our Schedule 11a disclosure – Report on forecast capital expenditure is also provided in **Appendix C.**

3.3 Major CAPEX Projects 2019

The major projects below have been completed or progressed in FY19.

SYSTEM GROWTH	
Onerahi substation ($1.8M) - 60% completion	Upgrade to substation transformers to meet increasing capacity requirements due to population growth.
Maunu substation ($3.2M) - Stage 1 completed – Design and Procurement	Construction of new substation to meet increasing capacity demands due to population growth. Provides enhanced back-feeding capacity to strengthen network resilience and n-1 supply to the Whangarei base hospital.
RELIABILITY IMPROVEMENTS	
Maungatapere substation ($1M) - 80% completed	Installation of a new transformer to ensure continued n-1 security and reliability.
Kioreroa Sub-transmission circuit ($1.5M) - 60% completed	Construction of a second sub-transmission circuit to provide a reliable supply to the Kioreroa industrial area.
Overhead conductor replacement ($0.9M) - 30km of conductor replaced	Assessment and replacement of overhead conductor in poor condition to ensure continuing reliable and safe supply.
Whangarei south 11kV switchboard replacement ($1.8M) - 30% completed	Replacement of end of life switchgear.
Ngunguru transformer upgrade ($0.7M) - 30% completed	Replacement of an end of life 3.75MVA transformer with a new 5MVA unit to meet increased capacity requirements.

Section 4 - Changes to the Life Cycle Asset Management Plan

4 Changes to Life Cycle Asset Management Plans (Maintenance and Renewal)

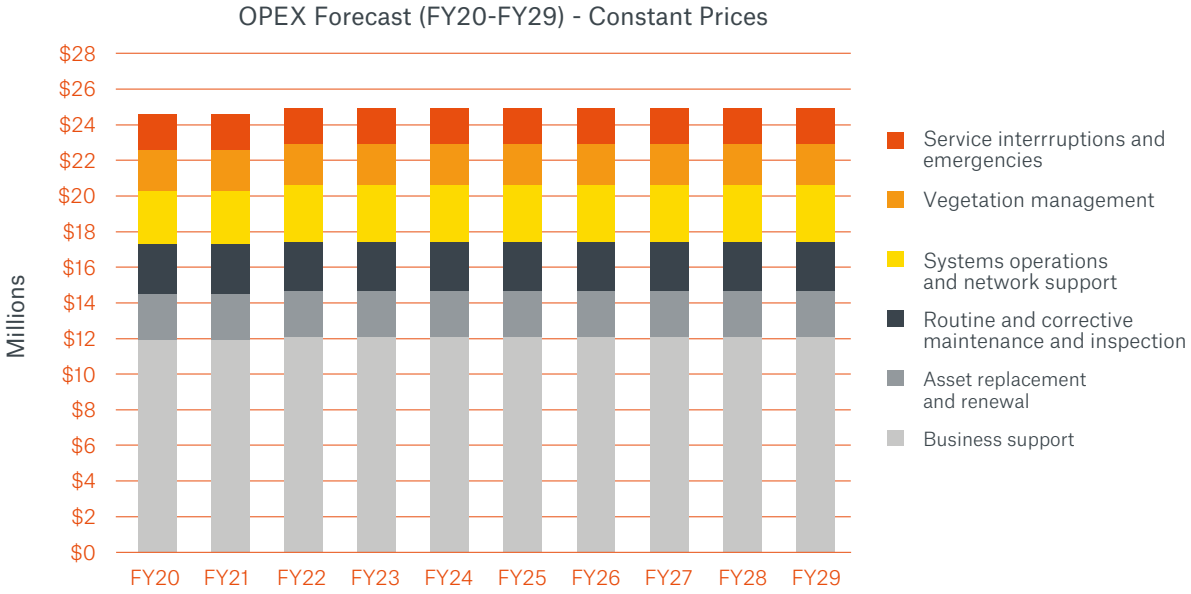
4.1 Life Cycle Asset Management Plan

There are no material changes to Northpower's maintenance and renewal plans as disclosed in our 2018 Asset Management Plan.

4.2 Changes to Forecast OPEX (Schedule 11b)

Forecast OPEX expenditure for the planning period is $248M (FY19 NZ Dollars) reflecting targeted investments in key service areas.

The new forecast is $17M above the figures showed in the 2018 AMP and reflects an increase in the cost of proposed work over the 10 years of $4.1M and investment in business support costs of $13.3M for the same period.



The increase in business support costs are aimed at increasing our capability in strategic initiatives and ensuring Northpower network is meeting internal and external stakeholder expectations. The areas of investment include:

Health, Safety, Quality and Environment	Investment in capability to meet Network obligations as a PCBU, to support public safety strategy, ensure safety inputs at the planning and design stages of network projects and to support safety auditing.
Customer Services	Provision of enhanced customer services to meet customer expectations, particularly in respect of network connections and contestability of network services. Increased capability to support structured and meaningful engagement with customers and stakeholders to enable the network to best meet long-term customer needs.
Asset Management Maturity	Support the adoption of risk based asset management for asset portfolios and network as a whole.
Project Delivery	Implementation of centralised project management methodology supported by software solutions.
Network Operations	Improvement in operational performance and resiliency through ADMS implementation, response & contingency plan development and enhancement of operational procedures and outage management.

A copy of the Schedule 11b disclosure is also provided in **Appendix C.**

5 Changes to Asset Management Practices

Northpower is expecting to make significant enhancements to its asset management practices over the next two to five years.

5.1 Asset Management Maturity

Northpower is committed to adopting a modern asset management approach whereby investment decisions are made based on the combination of asset health and criticality. This is consistent with our long-term aim to reflect an asset management approach consistent with ISO 55000:2016.

Our anticipated predictive asset management model will provide more automated work programming options for asset and network risk management investments. We expect to complete the asset risk categorisation by 2022 and integrate this into asset investment decisions by 2025.

5.2 Changes in practices

Northpower is evolving its approach to applying asset health and criticality assessments to inform investment replacement decisions and some changes in this respect have been made in the last 12 months. This work is ongoing and explained below.

Asset Health Indices	Former Grade Indices (G1-G4) have been reviewed and translated to the new Health Index scale. Asset Health Indices (H1-H5) have been applied for all major network installations. The adopted approach takes into consideration the age of the asset compared to the Standard Life Values (ODV), empirical evidence of typical asset performance based on recorded defects and faults and major maintenance or refurbishment applied to the assets. Northpower is undertaking asset specific analysis of the available condition data and refinement of the data requirements followed by further calibration of Health Index categories. This will assist in identifying assets that are likely to fail first and replacement programs will be adjusted accordingly.
Asset Criticality	Work is underway on defining asset criticality. All assets have been categorised by their Failure Modes and Failure Causes, followed by analysis of Failure Consequences (Effects) and risk Controls (FaMECA). Risks associated with the specifics of asset aging, location and modes of operation have been estimated and these values are applied in the asset registers. Assets with particularly high exposure to safety, reliability or environmental risks are set with highest criticality. When this work is completed, the asset criticality assessments will assist the prioritisation of work in the delivery planning process.

5.3 Network improvement initiatives:

Over the next two to three years the following network improvement projects are being advanced to improve reliability and prepare the network for the impact of emerging technologies.

- Review and improvement of maintenance standards and improvement of maintenance efficiency.
- Installation of remote control switches, reclosers and sectionalisers as well as improvement of telemetry and automation in areas with higher impact on reliability to support reliability improvements.
- Implementation of an ADMS (Advanced Distribution Management System) to improve system security, enhance safety controls, improve operational outcomes and provide a pathway for increased visibility of the low voltage network.

NORTHPOWER 10 YEAR PEAK LOAD FORECAST	0	1	2	3	4	5	6	7	8	9	10	Notes
(MW instantaneous)	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	
Kensington	**65.9**	**66.9**	**67.1**	**68.1**	**69.2**	**70.3**	**71.4**	**72.5**	**73.6**	**74.8**	**75.9**	
Alexander Street 11kV	15.3	15.5	15.2	15.4	15.5	15.7	15.8	16.0	16.1	16.3	16.5	In 2021, some load will be transferred to new Maunu zone substation
Hikurangi 11kV	6.5	6.6	6.7	6.8	7.0	7.1	7.3	7.4	7.6	7.7	7.9	
Kamo 11kV	11.9	12.2	12.5	12.8	13.1	13.4	13.8	14.1	14.5	14.8	15.2	
Ngunguru 11kV	3.4	3.5	3.6	3.6	3.7	3.8	3.9	3.9	4.0	4.1	4.2	
Onerahi 11kV	8.3	8.3	8.4	8.5	8.6	8.7	8.8	8.9	8.9	9.0	9.1	
Parua Bay 11kV	3.4	3.5	3.6	3.6	3.7	3.8	3.9	3.9	4.0	4.1	4.2	
Tikipunga 11kV	15.9	16.1	16.3	16.6	16.8	17.1	17.3	17.6	17.9	18.1	18.4	
Kauri [Industry 1] 33kV	7.9	7.9	8.0	8.1	8.2	8.3	8.3	8.4	8.5	8.6	8.7	
Bream Bay (no TP generation)	**55.4**	**56.7**	**57.0**	**60.3**	**60.6**	**61.0**	**61.4**	**61.8**	**62.1**	**62.5**	**62.9**	
Bream Bay [industry 2] 33kV	4.7	4.7	4.8	4.8	4.9	4.9	5.0	5.0	5.1	5.1	5.2	
Bream Bay [industry 3] 33kV	41.0	42.0	42.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	Expected spot load increase in 2022
Bream Bay 11kV	4.7	4.8	5.0	5.1	5.3	5.4	5.6	5.7	5.9	6.1	6.3	
Ruakaka 11kV	7.1	7.2	7.4	7.5	7.7	4.9	5.0	5.1	5.2	5.3	5.4	In 2024, some load will be transferred to new Waipu zone substation
Waipu 11kV [planned 2024]						3.0	3.1	3.1	3.2	3.2	3.3	Planned new substation
Maungatapere (no WPS generation)	**45.5**	**45.9**	**46.7**	**47.1**	**47.6**	**48.1**	**48.6**	**49.1**	**49.6**	**50.1**	**50.7**	
Maungatapere [industry 4] 33kV	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	
Maungatapere [industry 5] 33kV	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	
Maungatapere 11kV	7.2	7.3	6.1	6.2	6.2	6.3	6.3	6.4	6.5	6.5	6.6	In 2021, some load will be transferred to new Maunu zone substation

NORTHPOWER 10 YEAR PEAK LOAD FORECAST	0	1	2	3	4	5	6	7	8	9	10	Notes
(MW instantaneous)	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	
Kioreroa 11kV	11.5	12.8	13.1	13.3	13.6	13.9	14.1	14.4	14.7	15.0	15.3	In 2020, some load will be transferred from Whangarei South to Kioreroa zone substation
Poroti 11kV	3.1	3.1	3.1	3.2	3.2	3.2	3.2	3.3	3.3	3.3	3.4	
Maunu 11kV [planned 2019]			2.7	2.8	2.9	3.0	3.0	3.1	3.2	3.3	3.4	Planned new substation
Whangarei South 11kV	12.2	11.3	10.4	10.5	10.6	10.7	10.8	10.9	11.0	11.2	11.3	In 2020 and 2021 some load will be transferred to Kioreroa & Maunu zone substations
Dargaville	**12.4**	**12.5**	**12.7**	**12.9**	**13.1**	**13.3**	**13.5**	**13.7**	**13.9**	**14.1**	**14.3**	
Dargaville 11kV	12.4	12.5	12.7	12.9	13.1	13.3	13.5	13.7	13.9	14.1	14.3	
Maungaturoto	**19.1**	**19.4**	**19.7**	**20.0**	**20.4**	**20.7**	**21.1**	**21.4**	**21.8**	**22.2**	**22.6**	
Maungaturoto 11kV	2.6	2.6	2.6	2.6	2.7	2.7	2.7	2.7	2.8	2.8	2.8	
Maungaturoto [industry 6] 11kV	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Ruawai 11kV	3.1	3.1	3.1	3.2	3.2	3.2	3.2	3.3	3.3	3.3	3.4	
Kaiwaka 11kV	2.1	2.1	2.2	2.2	2.3	2.3	2.3	2.4	2.4	2.5	2.5	
Mangawhai 11kV	7.6	7.9	8.1	8.3	8.6	8.9	9.1	9.4	9.7	10.0	10.3	
Mareretu 11kV	2.9	2.9	3.0	3.0	3.1	3.1	3.2	3.2	3.2	3.3	3.3	
Network ADMD (no generation)	**187.9**	**190.9**	**192.6**	**197.6**	**199.8**	**202.2**	**204.6**	**207.0**	**209.5**	**212.0**	**214.5**	Average increase: 1.5% pa
Generation (at TOSP)	-3.6	-3.6	-3.6	-3.6	-3.6	-3.6	-3.6	-3.6	-3.6	-3.6	-3.6	
Wairua PS (Maungatapere GXP) 33kV	-3.6	-3.6	-3.6	-3.6	-3.6	-3.6	-3.6	-3.6	-3.6	-3.6	-3.6	Assumed station output at TOSP
Trustpower PS (Bream Bay GXP) 11kV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Assumed station output at TOSP
Network ADMD (with generation)	**184.3**	**187.3**	**189.0**	**194.0**	**196.2**	**198.6**	**201.0**	**203.4**	**205.9**	**208.4**	**210.9**	Average increase: 1.5% pa

NORTHPOWER EDB 10 YEAR CAPEX PLAN ($000) constant price			1	2	3	4	5	6	7	8	9	10
WS	PROJECT TITLE	EXPENDITURE CATEGORY	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29
6108	Transformer Acquisition Cost	Consumer Connections	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040	1,040
6109	Transformer Credits from Upgrades	Consumer Connections	-130	-130	-130	-130	-130	-130	-130	-130	-130	-130
6463	Ripple relay purchases	Consumer Connections	85	85	85	85	85	85	85	85	85	85
6107	Capital contributions (Customer)	Consumer Connections	2,900	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500
6106	Capital contributions (Network)	Consumer Connections	500	300	300	300	300	300	300	300	300	300
	Total	Consumer Connections	4,395	3,795	3,795	3,795	3,795	3,795	3,795	3,795	3,795	3,795
6198	Power Factor Improvement	System Growth	0	0	108	0	0	0	117	0	0	100
6449	Power Factor Monitoring 11kV Feeders	System Growth	0	82	0	0	0	0	0	0	0	0
6401	Minor capital expenditure (system growth)	System Growth	75	75	75	75	75	75	75	75	75	75
6430	Distribution Transformer & LV Feeder Optimisation	System Growth	50	50	50	50	50	50	50	50	50	50
6461	Maunu Zone Substation	System Growth	3,350	0	0	0	0	0	0	0	0	0
6479	Waipu Zone Substation	System Growth	0	0	0	0	3,300	0	0	0	0	0
6480	Bream Bay Second 10MVA Transformer	System Growth	0	0	0	0	600	1,200	0	0	0	0
6481	Bream Bay New 11kV Feeder	System Growth	0	0	0	0	0	0	0	0	0	0
6603	Onerahi transformer upgrade (2x10MVA)	System Growth	150	0	0	0	0	0	0	0	0	0
6489	Kensington-Kamo Third Circuit	System Growth	0	0	0	0	0	0	1,000	1,000	1,900	0
6595	Distribution feeder voltage support	System Growth	0	0	190	0	200	0	0	250	0	250
6551	Land Purchases (future substations Waipu, Helena Bay)	System Growth	0	0	400	0	500	0	500	0	0	0
6573	EV Charging Stations	System Growth	0	0	0	0	0	0	0	0	0	0
6611	Maungatapere transformer upgrade (ex Onerahi)	System Growth	0	0	0	0	0	0	0	0	0	0
6612	Kensington substation 33/11kV transformer	System Growth	0	200	1,500	2,000	0	0	0	0	0	0
****	Ruawai and Paparoa fibre backhaul	System Growth	0	1,300	0	0	0	0	0	0	0	0
	Total	System Growth	3,625	1,707	2,323	2,125	4,725	1,325	1,742	1,375	2,025	475
6402	Minor capital expenditure (relocation)	Asset Relocations	55	55	55	55	55	55	55	55	55	55
6540	Roading works asset relocations	Asset Relocations	100	50	50	50	50	50	50	50	50	50
6613	Overhead to underground conversion	Asset Relocations	0	250	250	250	250	250	250	250	250	250
6614	Ground mounting of 2/4 pole distribution transformers	Asset Relocations	100	150	150	150	150	150	150	150	150	150
	Total	Asset Relocations	255	505	505	505	505	505	505	505	505	505

NORTHPOWER EDB 10 YEAR CAPEX PLAN ($000) constant price			1	2	3	4	5	6	7	8	9	10
WS	PROJECT TITLE	EXPENDITURE CATEGORY	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29
6274	RTU Replacements (Zone substations)	Asset Replacement & Renewal	150	0	0	0	0	150	150	50	0	50
6596	Remote switch RTU and comms replacements	Asset Replacement & Renewal	0	0	0	60	60	60	60	0	0	60
6598	Ripple injection plant replacements	Asset Replacement & Renewal	0	100	100	100	100	0	0	0	0	0
6599	Battery bank and battery charger upgrades	Asset Replacement & Renewal	0	50	0	50	0	50	0	50	0	50
6393	Power transformer refurbishment	Asset Replacement & Renewal	0	0	0	110	0	0	0	0	125	0
6601	Microwave radio terminal (Airmux) link replacements	Asset Replacement & Renewal	100	0	0	0	0	0	0	0	0	0
6531	Ahikiwi Voltage regulator replacement	Asset Replacement & Renewal	110	0	0	0	0	0	0	0	0	0
6396	Protection Relay Upgrades	Asset Replacement & Renewal	100	100	100	120	120	130	130	130	140	130
6397	33kV CT and VT replacements	Asset Replacement & Renewal	0	0	80	0	90	0	90	0	100	0
6494	Ngunguru transformer upgrade to 5MVA	Asset Replacement & Renewal	600	0	0	0	0	0	0	0	0	0
6483	Parua Bay transformer upgrade to 5MVA	Asset Replacement & Renewal	0	250	300	0	0	0	0	0	0	0
6501	Kaiwaka 11kV Switchboard replacement	Asset Replacement & Renewal	0	500	1,300	0	0	0	0	0	0	0
6502	Ruawai 11kV Switchboard replacement	Asset Replacement & Renewal	0	0	500	1,300	0	0	0	0	0	0
6503	Hikurangi 11kV Switchboard replacement	Asset Replacement & Renewal	400	1,500	0	0	0	0	0	0	0	0
6504	Whangarei South 11kV Switchboard replacement	Asset Replacement & Renewal	1,100	0	0	0	0	0	0	0	0	0
6505	Ngunguru 11kV Switchboard replacement	Asset Replacement & Renewal	0	0	1,045	300	0	0	0	0	0	0
6506	Poroti 11kV Switchboard replacement	Asset Replacement & Renewal	0	1,000	550	0	0	0	0	0	0	0
6507	Tap Changer Controller Upgrades	Asset Replacement & Renewal	0	60	0	60	0	0	60	0	0	60
6510	Maungatapere 110/33kV Transformer replacement	Asset Replacement & Renewal	0	0	0	0	0	0	1,925	1,925	0	0
6512	Kensington 110/33kV Transformer replacement	Asset Replacement & Renewal	0	0	0	0	0	2,693	2,630	0	0	0
6522	Abbey System Comms Upgrade	Asset Replacement & Renewal	0	0	0	0	0	0	0	0	0	0
6600	SCADA system hardware and software replacements	Asset Replacement & Renewal	0	0	0	300	0	0	120	0	0	0
6529	Maungaturoto 11kV Switchboard replacement	Asset Replacement & Renewal	0	0	0	0	500	1,209	0	0	0	0
6530	Whangarei Hospital 11kV Switchboard replacement	Asset Replacement & Renewal	0	0	0	0	0	0	0	0	0	0
6597	Security systems replacements	Asset Replacement & Renewal	0	0	0	0	75	75	75	75	0	0
6532	Chip Mill Transformer Replacement	Asset Replacement & Renewal	0	0	0	0	650	0	0	0	0	0
6533	Hikurangi Transformer replacements	Asset Replacement & Renewal	400	1,500	0	0	0	0	0	0	0	0
6534	Poroti Transformer Replacement	Asset Replacement & Renewal	0	0	0	0	650	0	0	0	0	0
6605	Ruakaka T2 replacement	Asset Replacement & Renewal	0	0	0	0	0	0	0	650	0	0

NORTHPOWER EDB 10 YEAR CAPEX PLAN ($000) constant price			1	2	3	4	5	6	7	8	9	10
WS	PROJECT TITLE	EXPENDITURE CATEGORY	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29
6606	Whangarei South transformer replacements	Asset Replacement & Renewal	0	0	0	0	0	0	0	600	1,400	0
6536	Maungaturoto Transformer Replacements	Asset Replacement & Renewal	0	0	0	900	900	0	0	0	0	0
6586	Recloser replacements	Asset Replacement & Renewal	0	65	0	65	0	65	0	65	0	65
6587	Long & Crawford GMS replacement	Relocated to Asset Replacement & Renewal from RSE	200	100	100	100	100	100	0	100	0	0
6588	Recloser controller upgrades	Asset Replacement & Renewal	0	0	0	50	0	0	0	50	0	10
6583	Communications System Upgrades	Relocated to Asset Replacement & Renewal from RSE	355	0	100	0	0	0	100	0	0	100
6616	RT Network DMR Tier II upgrade	Asset Replacement & Renewal	0	150	0	0	0	0	0	0	0	0
6617	Analogue UHF point to point link digital upgrade	Asset Replacement & Renewal	0	0	0	0	0	0	0	0	0	0
6618	Kensington substation 33kV switchboard replacement	Asset Replacement & Renewal	0	550	2,450	0	0	0	0	0	0	0
6620	Distribution substation LV panel upgrades	Asset Replacement & Renewal	0	35	35	35	35	35	35	35	35	35
6621	Network strategic spares	Asset Replacement & Renewal	0	0	55	50	0	60	0	0	65	0
6622	Pole EOL replacements	Asset Replacement & Renewal	200	200	300	300	500	500	500	500	500	500
6623	Subtransmission line conductor EOL replacement	Asset Replacement & Renewal	500	200	200	200	200	300	300	300	500	1,000
6624	Distribution line conductor EOL replacement	Asset Replacement & Renewal	1,000	1,200	1,200	1,400	1,400	1,600	1,300	1,700	1,800	1,800
6625	Low voltage line conductor EOL replacement	Asset Replacement & Renewal	250	200	200	200	200	200	250	250	250	250
6626	Overhead switch EOL replacement	Asset Replacement & Renewal	50	50	60	60	60	70	70	70	80	80
6627	Low voltage service connection EOL replacements	Asset Replacement & Renewal	50	60	60	70	70	80	80	80	80	80
6628	Distribution transformer EOL replacements	Asset Replacement & Renewal	100	100	100	130	130	150	150	150	200	200
6629	Subtransmission oil cable EOL replacements	Asset Replacement & Renewal	0	0	0	1,500	0	0	0	0	1,500	2,500
6630	Distribution cable EOL replacements	Asset Replacement & Renewal	20	20	30	30	30	40	40	50	50	50
6631	Low voltage cable EOL replacements	Asset Replacement & Renewal	20	20	30	30	30	40	40	50	50	50
6632	Ripple relay EOL replacements	Asset Replacement & Renewal	0	20	30	30	40	40	40	50	50	50

NORTHPOWER EDB 10 YEAR CAPEX PLAN ($000) constant price			1	2	3	4	5	6	7	8	9	10
WS	PROJECT TITLE	EXPENDITURE CATEGORY	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29
6633	33kV Circuit Breaker EOL replacement	Asset Replacement & Renewal	0	0	0	0	100	0	0	0	110	0
6634	Zone substation buildings EOL upgrades	Asset Replacement & Renewal	0	400	0	0	0	430	0	0	450	0
6635	Zone substation outdoor switch EOL replacements	Asset Replacement & Renewal	0	0	0	50	0	0	0	60	0	0
6636	Zone substation outdoor structure EOL replacements	Asset Replacement & Renewal	0	0	0	100	0	0	0	110	0	0
6637	Capacitor bank EOL replacements	Asset Replacement & Renewal	0	0	15	0	0	20	0	0	25	0
6638	Minor CAPEX (asset replacement & renewal)	Asset Replacement & Renewal	75	75	75	75	75	75	75	75	75	75
	Subtotal (Projects)		5,780	8,505	9,015	7,775	6,115	8,172	8,220	7,175	7,585	7,195
9500	Corrective CAPEX - BATT Battery Systems	Asset Replacement & Renewal	5	5	5	5	5	5	5	5	5	5
9501	Corrective CAPEX - COND Distribution Conductor	Asset Replacement & Renewal	350	350	350	350	350	350	350	350	350	350
9502	Corrective CAPEX - DEAR Distribution Earthing	Asset Replacement & Renewal	200	200	200	200	200	200	200	200	200	200
9503	Corrective CAPEX - GMSU Ground mounted distribution substation	Asset Replacement & Renewal	200	200	200	200	200	200	200	200	200	200
9504	Corrective CAPEX - MANY	Asset Replacement & Renewal	21	21	21	21	21	21	21	21	21	21
9506	Corrective CAPEX - OHLN Distribution overhead line	Asset Replacement & Renewal	1,570	1,570	1,570	1,570	1,650	1,650	1,650	1,650	1,650	1,650
9507	Corrective CAPEX - OHSW Distribution overhead switch	Asset Replacement & Renewal	100	100	100	100	100	100	100	100	100	100
9508	Corrective CAPEX - PILL Distribution Pillars	Asset Replacement & Renewal	150	150	150	150	150	150	150	150	150	150
9509	Corrective CAPEX - POLE Poles	Asset Replacement & Renewal	350	350	350	350	350	350	350	350	350	350
9510	Corrective CAPEX - PROT Protection relays	Asset Replacement & Renewal	5	5	5	5	5	5	5	5	5	5
9511	Corrective CAPEX - RIPP Ripple plant	Asset Replacement & Renewal	5	5	5	5	5	5	5	5	5	5
9512	Corrective CAPEX - UCAB Distribution cables	Asset Replacement & Renewal	20	20	20	20	20	20	20	20	20	20
9513	Corrective CAPEX - XARM Distribution crossarm	Asset Replacement & Renewal	1,300	1,300	1,300	1,300	1,300	1,400	1,400	1,400	1,400	1,400
9514	Corrective CAPEX - ZSBG Zone substation buildings	Asset Replacement & Renewal	5	5	5	5	5	5	5	5	5	5
9515	Corrective CAPEX - ZSTX Zone substation transformers	Asset Replacement & Renewal	15	15	15	15	15	15	15	15	15	15
9516	Corrective CAPEX - CAPA Capacitor banks	Asset Replacement & Renewal	2	2	2	2	2	2	2	2	2	2

NORTHPOWER EDB 10 YEAR CAPEX PLAN ($000) constant price			1	2	3	4	5	6	7	8	9	10
WS	PROJECT TITLE	EXPENDITURE CATEGORY	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29
9517	Corrective CAPEX - COMM Communication network	Asset Replacement & Renewal	10	10	10	10	10	10	10	10	10	10
9518	Corrective CAPEX - OILC Distribution oil cables	Asset Replacement & Renewal	2	2	5	5	5	5	5	5	5	5
9519	Corrective CAPEX - AREG Voltage regulators	Asset Replacement & Renewal	15	15	15	15	15	15	15	15	15	15
9520	Corrective CAPEX - SCAB Subtransmision cables	Asset Replacement & Renewal	5	5	5	5	5	5	5	5	5	5
9521	Corrective CAPEX - ZSEA Zone substation earthing	Asset Replacement & Renewal	5	5	5	5	5	5	5	5	5	5
9523	Corrective CAPEX - ZSUB Zone substation	Asset Replacement & Renewal	5	5	5	5	5	5	5	5	5	5
9524	Corrective CAPEX - SCDA SCADA system	Asset Replacement & Renewal	6	6	6	6	6	6	6	6	6	6
9525	Corrective CAPEX - OSTR Zone substation outdoor structure	Asset Replacement & Renewal	10	10	10	10	10	10	10	10	10	10
	Subtotal (Follow up maintenance)	Asset Replacement & Renewal	4,356	4,356	4,359	4,359	4,439	4,539	4,539	4,539	4,539	4,539
	Total	Asset Replacement & Renewal	10,136	12,861	13,374	12,134	10,554	12,711	12,759	11,714	12,124	11,734
6348	New Reclosers	Reliability, Safety, Environment	0	45	0	0	50	0	0	55	0	0
6472	Whangarei South 33kV T - Stage 2	Reliability, Safety, Environment	300	0	0	0	0	0	0	0	0	0
6400	Whangarei City additional 11kV RMU's	Reliability, Safety, Environment	0	0	50	0	0	0	56	0	0	0
6581	Provision for fibre	Reliability, Safety, Environment	60	60	50	50	50	50	50	50	50	50
6370	Zone Substations Risk Mitigation	Reliability, Safety, Environment	134	150	0	0	0	0	0	0	0	0
6374	Zone Substations Security Improvement	Reliability, Safety, Environment	65	75	0	0	75	0	0	0	0	0
6404	Comms for remote control of motorised switches	Reliability, Safety, Environment	0	0	0	0	0	0	0	0	0	0
6425	11kV feeder backstopping improvements	Reliability, Safety, Environment	0	0	0	85	0	0	90	0	0	100
6607	Distribution feeder auto-reclosing	Reliability, Safety, Environment	0	0	0	0	0	0	0	0	0	0
6434	DSUB MDI Meters (CBD)	Reliability, Safety, Environment	100	65	0	0	0	0	0	0	0	0
6435	Minor capital expenditure (reliability, safety, environment)	Reliability, Safety, Environment	100	100	100	100	100	100	100	100	100	100
6447	AC/DC Panel Upgrades	Reliability, Safety, Environment	0	0	0	0	0	0	0	0	0	0
6497	Whakapara Feeder Express Line to Hikurangi	Reliability, Safety, Environment	0	300	0	0	0	0	0	0	0	0
6519	Fault Passage Indicators	Reliability, Safety, Environment	0	0	0	0	0	0	0	0	0	0
6537	Maungaturoto 33kV Circuit Separation	Reliability, Safety, Environment	0	0	0	0	0	0	0	0	0	0
6560	Communications Network Security Improvements	Reliability, Safety, Environment	0	0	50	0	0	0	60	0	0	60

NORTHPOWER EDB 10 YEAR CAPEX PLAN ($000) constant price			1	2	3	4	5	6	7	8	9	10
WS	PROJECT TITLE	EXPENDITURE CATEGORY	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29
6565	Zone Substation Neutral Earthing Resistors	Reliability, Safety, Environment	0	125	0	100	0	0	105	0	0	0
6567	Busbar Arc Flash Protection	Reliability, Safety, Environment	50	0	0	0	0	0	0	0	0	0
6591	SCADA comms transfer to dark fibre	Reliability, Safety, Environment	0	0	0	0	0	0	0	0	0	0
6592	Remote station SCADA monitoring	Reliability, Safety, Environment	300	0	0	0	0	0	0	0	0	0
6639	SMART Distribution system (load monitoring)	Reliability, Safety, Environment	0	50	100	100	100	0	0	0	0	0
****	Poroti Transformer T2 (new purchase)	Reliability, Safety, Environment	0	0	0	0	0	0	0	0	0	600
6640	Ruawai Transformer T2 (new purchase)	Reliability, Safety, Environment	0	0	600	0	0	0	0	0	0	0
6641	Kaiwaka Transformer T2 (new purchase)	Reliability, Safety, Environment	0	0	0	700	0	0	0	0	0	0
6642	Ngunguru Transformer T2 (ex Hikurangi)	Reliability, Safety, Environment	0	0	30	300	0	0	0	0	0	0
6643	Mareretu Transformer T2 (new purchase)	Reliability, Safety, Environment	0	0	0	0	0	600	0	0	0	0
	Total	Reliability, Safety, Environment	1,109	970	980	1,435	375	750	461	205	150	910
6443	Network strategic spare store	Non-Network Assets	0	0	0	0	0	40	0	0	0	0
6546	Research and Development (component testing)	Non-Network Assets	30	30	30	30	30	50	50	50	80	50
6569	Aerial Imagery (GIS)	Non-Network Assets	0	0	40	0	0	0	50	0	0	50
6572	Engineering hardware/Software	Non-Network Assets	0	50	0	0	0	55	0	0	0	55
6574	UAV Asset Inspection Platform	Non-Network Assets	0	0	0	0	0	0	0	0	16	0
6577	University Project Collaboration	Non-Network Assets	0	0	0	0	0	0	0	0	0	0
6590	Research and Development (new technology)	Non-Network Assets	50	50	50	50	60	70	80	85	90	100
6571	AMS (WASP replacement and CBRM software)	Non-Network Assets	0	400	0	500	400	0	0	0	0	0
6525	ADMS (Advanced Distribution Management System)	Non-Network Assets	2,206	1,659	1,045	0	0	0	0	0	0	0
6644	Minor capital expenditure (non-network assets)	Non-Network Assets	25	25	25	25	25	25	25	25	5	25
6645	Low voltage network operational management system	Non-Network Assets	100	100	0	0	0	0	0	0	0	0
	Total	Non-Network Assets	2,411	2,314	1,190	605	515	240	205	160	191	280
	Total EDB		21,931	22,152	22,167	20,599	20,469	19,326	19,467	17,754	18,790	17,699

Company Name	**Northpower Ltd**
AMP Planning Period	**1 April 2019 – 31 March 2029**

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*
		for year ended	**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**	**31 Mar 28**	**31 Mar 29**
	11a(i): Expenditure on Assets Forecast		**$000 (in nominal dollars)**										
	Consumer connection		3,795	4,395	4,004	4,084	4,165	4,249	4,334	4,420	4,509	4,599	4,691
	System growth		3,613	3,625	1,801	2,500	2,332	5,290	1,513	2,029	1,634	2,454	587
	Asset replacement and renewal		8,400	10,136	13,568	14,391	13,318	11,816	14,515	14,861	13,917	14,692	14,504
	Asset relocations		205	255	533	543	554	565	577	588	600	612	624
	Reliability, safety and environment:												
	Quality of supply		1,793	800	591	1,001	1,410	280	799	356	184	121	1,063
	Legislative and regulatory		-	-	-	-	-	-	-	-	-	-	-
	Other reliability, safety and environment		400	309	433	54	165	140	57	181	59	61	62
	Total reliability, safety and environment		2,193	1,109	1,024	1,055	1,575	420	856	537	243	182	1,125
	Expenditure on network assets		18,206	19,520	20,930	22,573	21,944	22,340	21,795	22,435	20,903	22,539	21,531
	Expenditure on non-network assets		601	2,411	2,441	1,281	664	577	274	239	190	231	346
	Expenditure on assets		18,807	21,931	23,371	23,854	22,608	22,917	22,069	22,674	21,093	22,770	21,877
	plus Cost of financing		99	109	108	113	110	116	103	106	99	108	102
	less Value of capital contributions		2,500	2,900	2,637	2,690	2,744	2,799	2,855	2,912	2,970	3,030	3,090
	plus Value of vested assets		-	-	-	-	-	-	-	-	-	-	-
	Capital expenditure forecast		16,406	19,140	20,842	21,277	19,974	20,234	19,317	19,868	18,222	19,848	18,889
	Assets commissioned		15,002	17,509	19,074	19,470	18,276	18,508	17,677	18,182	16,673	18,161	17,284

		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 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**	**31 Mar 28**	**31 Mar 29**
	$000 (in constant prices)											
	Consumer connection	3,795	4,395	3,795	3,795	3,795	3,795	3,795	3,795	3,795	3,795	3,795
	System growth	3,613	3,625	1,707	2,323	2,125	4,725	1,325	1,742	1,375	2,025	475
	Asset replacement and renewal	8,401	10,136	12,861	13,374	12,134	10,554	12,711	12,759	11,714	12,124	11,734
	Asset relocations	205	255	505	505	505	505	505	505	505	505	505
	Reliability, safety and environment:											
	Quality of supply	1,793	800	560	930	1,285	250	700	306	155	100	860
	Legislative and regulatory	-	-	-	-	-	-	-	-	-	-	-
	Other reliability, safety and environment	400	309	410	50	150	125	50	155	50	50	50
	Total reliability, safety and environment	2,193	1,109	970	980	1,435	375	750	461	205	150	910
	Expenditure on network assets	18,207	19,520	19,838	20,977	19,994	19,954	19,086	19,262	17,594	18,599	17,419
	Expenditure on non-network assets	601	2,411	2,314	1,190	605	515	240	205	160	191	280
	Expenditure on assets	18,808	21,931	22,152	22,167	20,599	20,469	19,326	19,467	17,754	18,790	17,699
	Subcomponents of expenditure on assets (where known)											
	Energy efficiency and demand side management, reduction of energy losses											
	Overhead to underground conversion											
	Research and development											

Company Name	**Northpower Ltd**
AMP Planning Period	**1 April 2019 – 31 March 2029**

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*
	for year ended	**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**	**31 Mar 28**	**31 Mar 29**
	Difference between nominal and constant price forecasts	**$000**										
	Consumer connection	-	-	209	289	370	454	539	625	714	804	896
	System growth	-	-	94	177	207	565	188	287	259	429	112
	Asset replacement and renewal	(1)	-	707	1,017	1,184	1,262	1,804	2,102	2,203	2,568	2,770
	Asset relocations	-	-	28	38	49	60	72	83	95	107	119
	Reliability, safety and environment:											
	Quality of supply	-	-	31	71	125	30	99	50	29	21	203
	Legislative and regulatory	-	-	-	-	-	-	-	-	-	-	-
	Other reliability, safety and environment	-	-	23	4	15	15	7	26	9	11	12
	Total reliability, safety and environment	-	-	54	75	140	45	106	76	38	32	215
	Expenditure on network assets	(1)	-	1,092	1,596	1,950	2,386	2,709	3,173	3,309	3,940	4,112
	Expenditure on non-network assets	-	-	127	91	59	62	34	34	30	40	66
	Expenditure on assets	(1)	-	1,219	1,687	2,009	2,448	2,743	3,207	3,339	3,980	4,178

		Current Year CY	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*
	for year ended	**31 Mar 19**	**31 Mar 20**	**31 Mar 21**	**31 Mar 22**	**31 Mar 23**	**31 Mar 24**
	11a(ii): Consumer Connection						
	*Consumer types defined by EDB**	**$000 (in constant prices)**					
	Transformer Acquisition Cost	1,040	1,040	1,040	1,040	1,040	1,040
	Transformer Credits from Upgrades	(130)	(130)	(130)	(130)	(130)	(130)
	Ripple relay purchases	85	85	85	85	85	85
	Capital contributions (Customer)	2,500	2,900	2,500	2,500	2,500	2,500
	Capital contributions (Network)	300	500	300	300	300	300
	**include additional rows if needed*						
	Consumer connection expenditure	3,795	4,395	3,795	3,795	3,795	3,795
less	Capital contributions funding consumer connection	2,500	2,900	2,500	2,500	2,500	2,500
	Consumer connection less capital contributions	1,295	1,495	1,295	1,295	1,295	1,295
	11a(iii): System Growth						
	Subtransmission	-	-	-	-	-	-
	Zone substations	2,888	3,500	282	1,900	2,000	4,400
	Distribution and LV lines	155	75	75	183	75	75
	Distribution and LV cables	350	-	-	-	-	-
	Distribution substations and transformers	50	50	50	50	50	50
	Distribution switchgear	-	-	-	-	-	-
	Other network assets	170	-	1,300	190	-	200
	System growth expenditure	3,613	3,625	1,707	2,323	2,125	4,725
less	Capital contributions funding system growth	-	-	-	-	-	-
	System growth less capital contributions	3,613	3,625	1,707	2,323	2,125	4,725

		Current Year CY	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*
	for year ended	**31 Mar 19**	**31 Mar 20**	**31 Mar 21**	**31 Mar 22**	**31 Mar 23**	**31 Mar 24**
	11a(iv): Asset Replacement and Renewal	**$000 (in constant prices)**					

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AMP Planning Period	**1 April 2019 – 31 March 2029**

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								
94		Subtransmission	505	505	205	205	1,705	205
95		Zone substations	1,215	2,805	5,985	6,410	3,075	3,105
96		Distribution and LV lines	5,018	5,168	5,328	5,443	5,638	5,918
97		Distribution and LV cables	192	212	212	235	235	235
98		Distribution substations and transformers	615	425	315	315	345	345
99		Distribution switchgear	485	550	550	495	610	495
100		Other network assets	371	471	266	271	526	251
101		**Asset replacement and renewal expenditure**	8,401	10,136	12,861	13,374	12,134	10,554
102	*less*	Capital contributions funding asset replacement and renewal	-	-	-	-	-	-
103		**Asset replacement and renewal less capital contributions**	8,401	10,136	12,861	13,374	12,134	10,554
104								

105			*Current Year CY*	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*
106		for year ended	**31 Mar 19**	**31 Mar 20**	**31 Mar 21**	**31 Mar 22**	**31 Mar 23**	**31 Mar 24**

11a(v): Asset Relocations

107								
108		*Project or programme**	**$000 (in constant prices)**					
109		Minor capital expenditure (relocation)	55	55	55	55	55	55
110		Roading works asset relocations	50	100	50	50	50	50
111		Overhead to underground conversion	-	-	250	250	250	250
112		Ground mounting of 2/4 pole distribution transformers	100	100	150	150	150	150
114		**include additional rows if needed*						
115		All other project or programmes - asset relocations	-	-	-	-	-	-
116		**Asset relocations expenditure**	205	255	505	505	505	505
117	*less*	Capital contributions funding asset relocations	-	-	-	-	-	-
118		**Asset relocations less capital contributions**	205	255	505	505	505	505
119								

120			*Current Year CY*	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*
121		for year ended	**31 Mar 19**	**31 Mar 20**	**31 Mar 21**	**31 Mar 22**	**31 Mar 23**	**31 Mar 24**

11a(vi): Quality of Supply

122								
123		*Project or programme**	**$000 (in constant prices)**					
124		New Reclosers	45	-	45	-	-	50
125		Whangarei South 33kV T - Stage 2	700	300	-	-	-	-
126		Whangarei City additional 11kV RMU's	50	-	-	50	-	-
		Comms for remote control of motorised switches	175	-	-	-	-	-
		11kV feeder backstopping improvements	-	-	-	-	85	-
		Distribution feeder auto-reclosing	25	-	-	-	-	-
		DSUB MDI Meters (CBD)	65	100	65	-	-	-
		Minor capital expenditure (reliability, safety, environment)	100	100	100	100	100	100
		AC/DC Panel Upgrades	50	-	-	-	-	-
		Whakapara Feeder Express Line to Hikurangi	250	-	300	-	-	-
		Fault Passage Indicators	75	-	-	-	-	-
		Maungaturoto 33kV Circuit Separation	258	-	-	-	-	-
		Communications Network Security Improvements	-	-	-	50	-	-
		Remote station SCADA monitoring	-	300	-	-	-	-
		SMART Distribution system (load monitoring)	-	-	50	100	100	100
		Poroti Transformer T2 (new purchase)	-	-	-	-	-	-

Company Name	**Northpower Ltd**
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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)
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sch ref								
		Ruawai Transformer T2 (new purchase)	-	-	-	600	-	-
127		Kaiwaka Transformer T2 (new purchase)	-	-	-	-	700	-
128		Ngunguru Transformer T2 (ex Hikurangi)	-	-	-	30	300	-
129		*include additional rows if needed						
130		All other projects or programmes - quality of supply	-	-	-	-	-	-
131		**Quality of supply expenditure**	1,793	800	560	930	1,285	250
132	*less*	Capital contributions funding quality of supply	-	-	-	-	-	-
133		**Quality of supply less capital contributions**	1,793	800	560	930	1,285	250
134								
135			*Current Year CY*	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*
136		for year ended	**31 Mar 19**	**31 Mar 20**	**31 Mar 21**	**31 Mar 22**	**31 Mar 23**	**31 Mar 24**
137	**11a(vii): Legislative and Regulatory**							
138		*Project or programme**	**$000 (in constant prices)**					
139								
143								
144		*include additional rows if needed						
145		All other projects or programmes - legislative and regulatory						
146		**Legislative and regulatory expenditure**	-	-	-	-	-	-
147	*less*	Capital contributions funding legislative and regulatory						
148		**Legislative and regulatory less capital contributions**	-	-	-	-	-	-
149								
150			*Current Year CY*	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*
		for year ended	**31 Mar 19**	**31 Mar 20**	**31 Mar 21**	**31 Mar 22**	**31 Mar 23**	**31 Mar 24**
151	**11a(viii): Other Reliability, Safety and Environment**							
152		*Project or programme**	**$000 (in constant prices)**					
153		Provision for fibre	60	60	60	50	50	50
154		Zone Substations Risk Mitigation	100	134	150	-	-	-
155		Zone Substations Security Improvement	65	65	75	-	-	75
156		Zone Substation Neutral Earthing Resistors	125	-	125	-	100	-
157		Busbar Arc Flash Protection	50	50	-	-	-	-
158		*include additional rows if needed						
159		All other projects or programmes - other reliability, safety and environment	-	-	-	-	-	-
160		**Other reliability, safety and environment expenditure**	400	309	410	50	150	125
161	*less*	Capital contributions funding other reliability, safety and environment	-	-	-	-	-	-
162		**Other reliability, safety and environment less capital contributions**	400	309	410	50	150	125
163								
164			*Current Year CY*	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*
165		for year ended	**31 Mar 19**	**31 Mar 20**	**31 Mar 21**	**31 Mar 22**	**31 Mar 23**	**31 Mar 24**
166	**11a(ix): Non-Network Assets**							
167	**Routine expenditure**							
168		*Project or programme**	**$000 (in constant prices)**					
169								
173								
174		*include additional rows if needed						
175		All other projects or programmes - routine expenditure						

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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								
176	**Routine expenditure**	-	-	-	-	-	-
177	**Atypical expenditure**						
178	*Project or programme**						
179	Network strategic spare store	50	-	-	-	-	-
	Research and Development (component testing)	30	30	30	30	30	30
	Aerial Imagery (GIS)	-	-	-	40	-	-
	Engineering hardware/Software	-	-	50	-	-	-
	UAV Asset Inspection Platform	30	-	-	-	-	-
	University Project Collaboration	16	-	-	-	-	-
	Research and Development (new technology)	50	50	50	50	50	60
180	AMS (WASP replacement and CBRM software)	300	-	400	-	500	400
181	ADMS (Advanced Distribution Management System)	50	2,206	1,659	1,045	-	-
182	Minor capital expenditure (non-network assets)	25	25	25	25	25	25
183	Low voltage network operational management system	50	100	100	-	-	-
184	**include additional rows if needed*						
185	All other projects or programmes - atypical expenditure	-	-	-	-	-	-
186	**Atypical expenditure**	601	2,411	2,314	1,190	605	515
187							
188	**Expenditure on non-network assets**	601	2,411	2,314	1,190	605	515

Company Name	**Northpower Ltd**
AMP Planning Period	**1 April 2019 – 31 March 2029**

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 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**	**31 Mar 28**	**31 Mar 29**
9	**Operational Expenditure Forecast**	**$000 (in nominal dollars)**										
10	Service interruptions and emergencies	2,070	2,066	2,108	2,150	2,193	2,237	2,281	2,327	2,373	2,421	2,469
11	Vegetation management	2,300	2,369	2,416	2,465	2,514	2,564	2,616	2,668	2,721	2,776	2,831
12	Routine and corrective maintenance and inspection	2,957	2,864	2,921	2,980	3,039	3,100	3,162	3,225	3,290	3,356	3,423
13	Asset replacement and renewal	2,586	2,661	2,714	2,768	2,824	2,880	2,938	2,997	3,057	3,118	3,180
14	**Network Opex**	9,913	9,960	10,159	10,363	10,570	10,781	10,997	11,217	11,441	11,671	11,903
15	System operations and network support	3,025	3,071	3,132	3,367	3,434	3,503	3,573	3,644	3,717	3,791	3,867
16	Business support	11,131	12,293	12,539	12,961	13,220	13,485	13,754	14,030	14,310	14,596	14,888
17	**Non-network opex**	14,156	15,364	15,671	16,328	16,654	16,988	17,327	17,674	18,027	18,387	18,755
18	**Operational expenditure**	24,069	25,324	25,830	26,691	27,224	27,769	28,324	28,891	29,468	30,058	30,658

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 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**	**31 Mar 28**	**31 Mar 29**
21		**$000 (in constant prices)**										
22	Service interruptions and emergencies	2,070	2,006	2,006	2,006	2,006	2,006	2,006	2,006	2,006	2,006	2,006
23	Vegetation management	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300	2,300
24	Routine and corrective maintenance and inspection	2,957	2,780	2,780	2,780	2,780	2,780	2,780	2,780	2,780	2,780	2,780
25	Asset replacement and renewal	2,586	2,583	2,583	2,583	2,583	2,583	2,583	2,583	2,583	2,583	2,583
26	**Network Opex**	9,913	9,669	9,669	9,669	9,669	9,669	9,669	9,669	9,669	9,669	9,669
27	System operations and network support	3,025	2,982	2,982	3,142	3,142	3,142	3,142	3,142	3,142	3,142	3,142
28	Business support	11,131	11,935	11,935	12,095	12,095	12,095	12,095	12,095	12,095	12,095	12,095
29	**Non-network opex**	14,156	14,917	14,917	15,237	15,237	15,237	15,237	15,237	15,237	15,237	15,237
30	**Operational expenditure**	24,069	24,586	24,586	24,906	24,906	24,906	24,906	24,906	24,906	24,906	24,906

31	**Subcomponents of operational expenditure (where known)**											
32	Energy efficiency and demand side management, reduction of energy losses											
33												
34	Direct billing*											
35	Research and Development											
36	Insurance											
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 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**	**31 Mar 28**	**31 Mar 29**
41	**Difference between nominal and real forecasts**	**$000**										
42	Service interruptions and emergencies	-	60	102	144	187	231	275	321	367	415	463
43	Vegetation management	-	69	116	165	214	264	316	368	421	476	531
44	Routine and corrective maintenance and inspection	-	84	141	200	259	320	382	445	510	576	643
45	Asset replacement and renewal	-	78	131	185	241	297	355	414	474	535	597
46	**Network Opex**	-	291	490	694	901	1,112	1,328	1,548	1,772	2,002	2,234
47	System operations and network support	-	89	150	225	292	361	431	502	575	649	725
48	Business support	-	358	604	866	1,125	1,390	1,659	1,935	2,215	2,501	2,793
49	**Non-network opex**	-	447	754	1,091	1,417	1,751	2,090	2,437	2,790	3,150	3,518
50	**Operational expenditure**	-	738	1,244	1,785	2,318	2,863	3,418	3,985	4,562	5,152	5,752

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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	H1	H2	H3	H4	H5	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.	1.60%	2.30%	39.80%	51.60%	4.70%	-	2	2.40%
11	All	Overhead Line	Wood poles	No.	12.00%	5.80%	41.20%	40.30%	0.70%	-	2	17.00%
12	All	Overhead Line	Other pole types	No.	28.00%	18.00%	39.00%	14.00%	1.00%	-	2	28.80%
13	HV	Subtransmission Line	Subtransmission OH up to 66kV conductor	km	-	24.60%	44.60%	30.80%	-	-	3	13.60%
14	HV	Subtransmission Line	Subtransmission OH 110kV+ conductor	km	-	-	99.70%	0.30%	-	-	4	-
15	HV	Subtransmission Cable	Subtransmission UG up to 66kV (XLPE)	km	-	-	5.30%	94.70%	-	-	3	-
16	HV	Subtransmission Cable	Subtransmission UG up to 66kV (Oil pressurised)	km	-	-	98.90%	1.10%	-	-	4	25.00%
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%	-	-	4	-
19	HV	Subtransmission Cable	Subtransmission UG 110kV+ (XLPE)	km	-	-	-	100.00%	-	-	4	-
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	-	-	-	100.00%	-	-	4	-
24	HV	Zone substation Buildings	Zone substations up to 66kV	No.	-	5.00%	35.00%	60.00%	-	-	4	5.00%
25	HV	Zone substation Buildings	Zone substations 110kV+	No.	-	-	-	100.00%	-	-	4	-
26	HV	Zone substation switchgear	22/33kV CB (Indoor)	No.	-	-	63.30%	36.70%	-	-	4	-
27	HV	Zone substation switchgear	22/33kV CB (Outdoor)	No.	-	-	13.60%	78.00%	8.40%	-	4	5.00%
28	HV	Zone substation switchgear	33kV Switch (Ground Mounted)	No.	-	-	-	100.00%	-	-	4	-
29	HV	Zone substation switchgear	33kV Switch (Pole Mounted)	No.			58.00%	42.00%	-	-	2	-
30	HV	Zone substation switchgear	33kV RMU	No.	-	-	-	100.00%	-	-	4	-
31	HV	Zone substation switchgear	50/66/110kV CB (Indoor)	No.	-	-	-	-	-	-	N/A	-
32	HV	Zone substation switchgear	50/66/110kV CB (Outdoor)	No.	-	-	60.00%	40.00%	-	-	2	-
33	HV	Zone substation switchgear	3.3/6.6/11/22kV CB (ground mounted)	No.	11.70%	1.40%	32.40%	54.50%	-	-	4	30.00%
34	HV	Zone substation switchgear	3.3/6.6/11/22kV CB (pole mounted)	No.	-	-	-	-	-	-	4	-

					Asset condition at start of planning period (percentage of units by grade)							
	Voltage	Asset category	Asset class	Units	H1	H2	H3	H4	H5	Grade unknown	Data accuracy (1–4)	% of asset forecast to be replaced in next 5 years
39	HV	Zone Substation Transformer	Zone Substation Transformers	No.	-	5.10%	59.00%	30.80%	5.10%	-	4	10.00%

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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												
40	HV	Distribution Line	Distribution OH Open Wire Conductor	km	2.20%	2.00%	37.90%	52.90%	5.00%	-	2	2.90%
41	HV	Distribution Line	Distribution OH Aerial Cable Conductor	km	-	-	-	-	-	-	N/A	-
42	HV	Distribution Line	SWER conductor	km	-	-	-	-	-	-	N/A	-
43	HV	Distribution Cable	Distribution UG XLPE or PVC	km	0.50%	0.10%	4.20%	88.20%	7.00%	-	3	0.70%
44	HV	Distribution Cable	Distribution UG PILC	km			24.10%	72.80%	3.10%	-	2	1.00%
45	HV	Distribution Cable	Distribution Submarine Cable	km	-	-	100.00%	-	-	-	1	-
46	HV	Distribution switchgear	3.3/6.6/11/22kV CB (pole mounted) - reclosers and sectionalisers	No.	-	-		93.30%	6.70%	-	4	10.00%
47	HV	Distribution switchgear	3.3/6.6/11/22kV CB (Indoor)	No.	-	-	-	-	-	-	N/A	-
48	HV	Distribution switchgear	3.3/6.6/11/22kV Switches and fuses (pole mounted)	No.	3.40%	1.40%	23.50%	67.80%	3.90%	-	2	3.90%
49	HV	Distribution switchgear	3.3/6.6/11/22kV Switch (ground mounted) - except RMU	No.	17.20%	48.30%	34.50%	-	-	-	3	45.00%
50	HV	Distribution switchgear	3.3/6.6/11/22kV RMU	No.	-	0.50%	9.10%	80.80%	9.60%	-	4	7.00%
51	HV	Distribution Transformer	Pole Mounted Transformer	No.	7.00%	3.30%	19.00%	63.70%	7.00%	-	3	7.70%
52	HV	Distribution Transformer	Ground Mounted Transformer	No.	1.90%	5.70%	23.00%	62.10%	7.30%	-	3	1.80%
53	HV	Distribution Transformer	Voltage regulators	No.	-	-	20.00%	50.00%	30.00%	-	4	10.00%
54	HV	Distribution Substations	Ground Mounted Substation Housing	No.	12.70%	8.50%	27.10%	50.00%	1.70%	-	4	12.70%
55	LV	LV Line	LV OH Conductor	km	1.00%	1.90%	41.10%	52.40%	3.60%	-	4	1.50%
56	LV	LV Cable	LV UG Cable	km	-	-	10.70%	78.20%	11.10%	-	2	0.10%
57	LV	LV Streetlighting	LV OH/UG Streetlight circuit	km	9.50%	3.40%	52.50%	32.20%	2.40%	-	2	9.40%
58	LV	Connections	OH/UG consumer service connections	No.	-	-	-	20.10%	79.90%	-	2	7.00%
59	All	Protection	Protection relays (electromechanical, solid state and numeric)	No.	2.10%	0.30%	21.10%	68.70%	7.80%	-	2	15.00%
60	All	SCADA and communications	SCADA and communications equipment operating as a single system	Lot	-	100.00%	-	-	-	-	4	100.00%
61	All	Capacitor Banks	Capacitors including controls	No.	-	-	-	96.60%	3.40%	-	4	5.00%
62	All	Load Control	Centralised plant	Lot	33.30%	33.30%	16.70%	16.70%	-	-	4	41.70%
63	All	Load Control	Relays	No.	26.40%	9.90%	36.50%	26.60%	0.60%	-	3	28.80%
64	All	Civils	Cable Tunnels	km	-	-	-	-	-	-	N/A	-

Company Name	**Northpower Ltd**
AMP Planning Period	**1 April 2019 – 31 March 2029**

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
Alexander Street	15	15	N-1	5	100%	15	104%	No constraint within +5 years	Load transfer to new Maunu Substation
Bream Bay	5	-	N	2	-	-	-	No constraint within +5 years	
Dargaville	12	15	N-1	3	80%	15	88%	No constraint within +5 years	
Hikurangi	6	5	N-1	2	124%	10	71%	No constraint within +5 years	New transformers
Kaiwaka	2	-	N	2	-	-	-	No constraint within +5 years	
Kamo	11	15	N-1	3	75%	15	89%	No constraint within +5 years	
Kioreroa	11	20	N-1	2	56%	20	69%	No constraint within +5 years	
Mangawhai	7	-	N	1	-	-	-	No constraint within +5 years	
Mareretu	3	-	N	2	-	-	-	No constraint within +5 years	
Maungatapere	7	10	N-1	3	71%	10	63%	No constraint within +5 years	Load transfer to new Maunu Substation
Maungaturoto	7	8	N-1	2	93%	8	96%	No constraint within +5 years	
Ngunguru	3	-	N	2	-	-	-	No constraint within +5 years	
Onerahi	8	15	N-1	2	54%	15	58%	No constraint within +5 years	
Parua Bay	3	-	N	2	-	-	-	No constraint within +5 years	
Poroti	3	-	N	3	-	-	-	No constraint within +5 years	
Ruakaka	7	10	N-1	2	68%	10	49%	No constraint within +5 years	Load transfer to Waipu
Ruawai	3	-	N	2	-	-	-	No constraint within +5 years	
Tikipunga	15	20	N-1	4	77%	20	85%	No constraint within +5 years	
Whangarei South	12	10	N-1	4	120%	10	107%	No constraint within +5 years	Load transfer to Kioreroa and new Maunu Substation

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

Company Name	**Northpower Ltd**
AMP Planning Period	**1 April 2019 – 31 March 2029**

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 19**	**31 Mar 20**	**31 Mar 21**	**31 Mar 22**	**31 Mar 23**	**31 Mar 24**
	*Consumer types defined by EDB**						
	Very large industrial	-	-	-	-	-	-
	Commercial and Industrial (demand based ND9)	1	1	1	1	1	1
	Mass market	988	1,008	1,028	1,049	1,070	1,091
	Connections total	989	1,009	1,029	1,050	1,071	1,092

**include additional rows if needed*

Distributed generation

	Number of connections	200	250	300	300	300	300
	Capacity of distributed generation installed in year (MVA)	1	1	1	1	1	1

12c(ii) System Demand

		Current Year CY	*CY+1*	*CY+2*	*CY+3*	*CY+4*	*CY+5*
	for year ended	**31 Mar 19**	**31 Mar 20**	**31 Mar 21**	**31 Mar 22**	**31 Mar 23**	**31 Mar 24**
	Maximum coincident system demand (MW)						
	GXP demand	188	191	193	198	200	202
plus	Distributed generation output at HV and above	4	4	4	4	4	4
	Maximum coincident system demand	192	195	196	201	203	206
less	Net transfers to (from) other EDBs at HV and above						
	Demand on system for supply to consumers' connection points	192	195	196	201	203	206
	Electricity volumes carried (GWh)						
	Electricity supplied from GXPs	1,117	1,141	1,165	1,189	1,213	1,237
less	Electricity exports to GXPs	-	-	-	-	-	-
plus	Electricity supplied from distributed generation	22	22	22	22	22	22
less	Net electricity supplied to (from) other EDBs	-	-	-	-	-	-
	Electricity entering system for supply to ICPs	1,139	1,163	1,187	1,211	1,235	1,259
less	Total energy delivered to ICPs	1,092	1,114	1,137	1,159	1,182	1,206
	Losses	47	49	50	52	53	54
	Load factor	68%	68%	69%	69%	69%	70%
	Loss ratio	4.1%	4.2%	4.2%	4.3%	4.3%	4.3%

Company Name	**Northpower Ltd**
AMP Planning Period	**1 April 2019 – 31 March 2029**
Network / Sub-network Name	

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 19**	**31 Mar 20**	**31 Mar 21**	**31 Mar 22**	**31 Mar 23**	**31 Mar 24**
10	**SAIDI**						
11	Class B (planned interruptions on the network)	95.0	80.0	80.0	80.0	80.0	80.0
12	Class C (unplanned interruptions on the network)	90.0	90.0	90.0	90.0	90.0	90.0
13	**SAIFI**						
14	Class B (planned interruptions on the network)	0.30	0.25	0.25	0.25	0.25	0.25
15	Class C (unplanned interruptions on the network)	2.00	2.25	2.25	2.25	2.25	2.25

Appendix C

Schedule 14a: Mandatory Explanatory Notes on Forecast Information

Electricity Distribution Information Disclosure Determination 2012 – (consolidated in 2015)

1. This Schedule requires EDBs to provide explanatory notes to reports prepared in accordance with clause 2.6.6.

2. This Schedule is mandatory-EDBs must provide the explanatory comment specified below, in accordance with clause 2.7.2. This information is not part of the audited disclosure information, and so is not subject to the assurance requirements specified in section 2.8.

Commentary on difference between nominal and constant price capital expenditure forecasts (Schedule 11a)

3. In the box below, comment on the difference between nominal and constant price capital expenditure for the disclosure year and 10 year planning period, as disclosed in Schedule 11a.

Box 1: Commentary on difference between nominal and constant price capital expenditure forecasts

The difference between nominal and constant prices is based on application of an escalation factor, using economic forecasts provided by the New Zealand Institute of Economic Research.

Commentary on difference between nominal and constant price capital expenditure forecasts (Schedule 11b)

4. In the box below, comment on the difference between nominal and constant price operational expenditure for the disclosure year and 10 year planning period, as disclosed in Schedule 11b.

Box 2: Commentary on difference between nominal and constant price operational expenditure forecasts

The difference between nominal and constant prices is based on application of an escalation factor, using economic forecasts provided by the New Zealand Institute of Economic Research.

Appendix C

Schedule 17: Certification for Year-beginning Disclosures

(Asset Management Plan and Forecast Information)

Clause 2.9.1

We, Laurence Kubick and Phillip Hutchings, being directors of Northpower Limited certify that, having made all reasonable enquiry, to the best of our knowledge:

a) The following attached information of Northpower Limited prepared for the purposes of clauses 2.6.1, 2.6.6 and 2.7.2 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.

c) The forecasts in Schedules 11a, 11b, 12a, 12b, 12c and 12d are based on objective and reasonable assumptions which both align with Northpower Limited's corporate vision and strategy and are documented in retained records.

Director

Date: 27/03/2019

Director

Date: 27/03/2019

Northpower

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