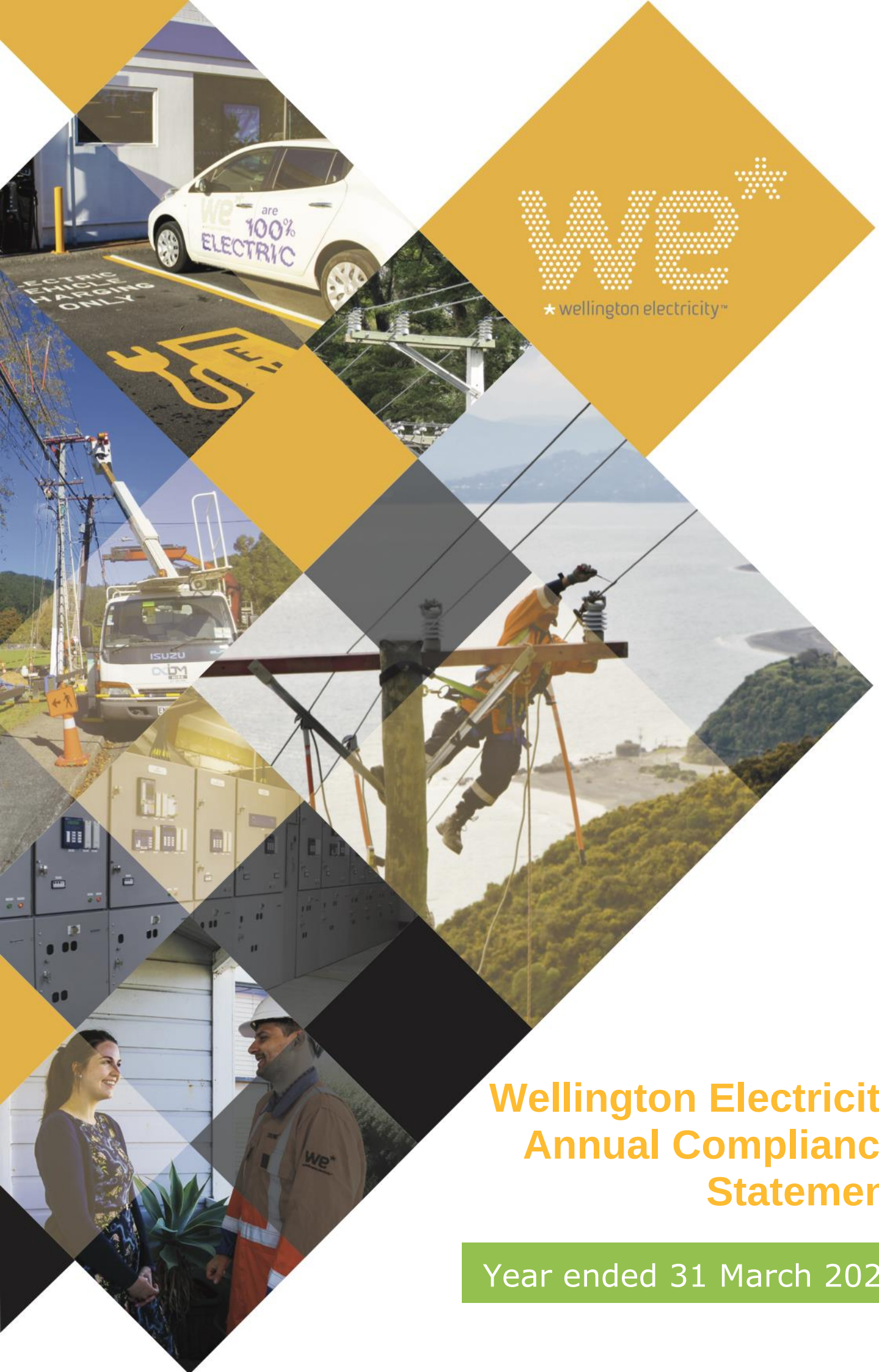


wellington electricity™

Wellington Electricity Annual Compliance Statement

Year ended 31 March 2020

Contents

Contact details

Email: we_customerservice@welectricity.co.nz

Web: www.welectricity.co.nz

A copy of this Annual Compliance Statement and the Asset Management Plan can be downloaded from www.welectricity.co.nz/disclosures

Any comments or suggestions regarding the Annual Compliance Statement can be made to:

Scott Scrimgeour
Commercial and Regulatory Manager
Wellington Electricity Lines Limited
sscrimgeour@welectricty.co.nz

1 Introduction

Wellington Electricity Lines Limited (WELL) owns and operates the electricity distribution network in the Wellington region. WELL manages the poles, wires and equipment that provide electricity to approximately 400,000 customers in the Wellington, Porirua, Lower Hutt and Upper Hutt areas.

WELL are investing around **$126m** in infrastructure on the Wellington network[1]

WELL provide electricity to over **167,000** households and to **400,000** people

WELL's total network is around **6,600km** in length with over **4,100km** of it being underground cables

WELL have around **4,000 substations** and **40,000 poles**

WELL own around **2,000km** of streetlight circuits but none of the streetlights themselves

Under Part 4 of the Commerce Act 1986, the Commerce Commission (Commission) regulates markets where competition is limited, including electricity distribution services. Regulation for electricity distribution services includes regulation of price and quality through a price-quality path to ensure incentives and pressures, similar to those in a workably competitive market, are faced by distributors so that consumers will benefit in the long term.

WELL is currently delivering a Customised Price-Quality Path (CPP) for the three year period from 1 April 2018 to 31 March 2021. The CPP includes prices to operate the Wellington network and to deliver an earthquake readiness programme.

There are a number of known earthquake fault lines in the region. In March 2018, WELL was granted $31.24 million of additional funding to improve its ability to respond after a major earthquake. WELL's earthquake readiness programme Includes:

1. Seismically strengthening 91 of our substation buildings to ensure that they can withstand the shaking.
2. Increase our stock of spares and have them distributed around the region so that we can restore critical power quicker.
3. Upgrade our radio and phone systems to improve our communications after an event.
4. Construct three data centres to ensure we have access to vital information which is accessible should telecommunications links fail.
5. Construct two portable substations (one for Wellington and the other for the Hutt Valley) that can be deployed at any substation which may be severely impacted by an earthquake.

The price-quality path set by the Commission includes the allowances WELL has to operate the network, how much revenue WELL can collect from its customers, the quality levels that WELL must perform to and the earthquake readiness milestones WELL must reach. To demonstrate that WELL has met these

[1] WELL's customised price-quality path includes $126m in capital work programmes on the Wellington network.

performance targets, it is required to provide two compliance statements, the *Annual Price-Setting Compliance Statement* and the *Annual Compliance Statement.*

The *Annual Price-Setting Compliance Statement* confirms that WELL's forecast prices for the 12-month period ended 31 March 2020 have been set at a level to collect the allowances determined by the CPP price path. The *Annual Price-Setting Compliance Statement* for the year ended 31 March 2020 was submitted to the Commission and provided on WELL's website in January 2019 (https://www.welectricity.co.nz/disclosures/price-quality-path-annual-compliance-statements/).

This document is the *Annual Compliance Statement* (Compliance Statement). The Compliance Statement confirms that WELL has met its revenue, quality and earthquake readiness expectations set out by the CPP price-quality path. The CPP price-quality path compliance targets and the requirements of the Annual Compliance Statement are provided in *Wellington Electricity Lines Limited Electricity Distribution Customised Price-Quality Path Determination 2018* (2018 CPP Determination).

This statement is WELL's Annual Compliance Statement for the second CPP assessment period ended 31 March 2020 (second assessment period).

1.1 2018 CPP Determination requirements

This Compliance Statement is made in accordance with the requirements of clause 11.5 of the 2018 CPP Determination. The statement includes WELL's compliance with the requirement to calculate the wash-up amount in clause 8.4, WELL's compliance with the quality standards in clause 9 and WELL's compliance to provide the transaction notifications in clause 10.

This Compliance Statement provides supporting information to demonstrate WELL has complied with clauses 8.4, 9 and 10. The supporting information meets the minimal specifications detailed in clause 11.6 of the 2018 CPP Determination.

1.2 Disclaimer

The information contained in the Compliance Statement has been prepared for the express purpose of complying with the requirements of clause 11 of the 2018 CPP Determination. The Compliance Statement has not been prepared for any other purpose. WELL expressly disclaims any liability to any other party who may rely on the Compliance Statement for any other purpose.

Representations in this Compliance Statement made by WELL relate solely to the services offered on the electricity distribution network in the Wellington region.

1.3 Rounding

For presentation purposes some numbers in this document have been rounded. In most cases calculations are based on more detailed numbers (i.e. to more decimal places than shown in this document). This may cause small discrepancies or rounding inconsistencies when aggregating some of the information presented in this document. These discrepancies do not affect the overall compliance calculations which have been based on the more detailed information.

2 Compliance statements

The following statements are made in accordance with the requirements of clause 11.4 and 11.5 of the 2018 CPP Determination.

2.1 Presentation of the annual Compliance Statement

The Compliance Statement has been presented in accordance with clause 11.4:

Presentation requirement	Confirmation
Clause 11.4 (a) Provide to the Commission 50 working days following the end of the assessment period, except for the 31 March 2020 assessment period, where Wellington Electricity must provide the Compliance Statement by 17 August 2020.[2]	To be emailed to the Commission
Clause 11.4 (b) Make public within 5 days of providing to the Commission	To be made publically available on WELL's website
Clause 11.4 (c) Provide prices and actual quantities used to calculate the wash-up amount in Excel to the Commission	To be emailed to the Commission

2.2 Wash-up calculation statement

As per clause 11.5 (a) (i) of the 2018 CPP Determination, WELL confirms that it has complied with the requirement to calculate the wash-up amount in clause 8.4 for the second assessment period.

The wash-up amount, as provided by clause 8.4, has been calculated as:

Wash-up amount calculation	Amount $000
Actual allowable revenue	$168,087
less actual revenue	$169,522
less revenue foregone	$0
Total wash-up amount	**($1,435)**

The detailed calculation and supporting information is provided in section 3, '*Wash-up calculation and supporting information'*.

2.3 Quality standard statement

As per clause 11.5 (a) (ii) of the 2018 CPP Determination, WELL confirms that it has complied with the quality standards provided in clause 9 for the second assessment period.

[2] This deadline has been extended by the Determination Amendment issued by the Commission, *Wellington Electricity Lines Limited Electricity Distribution Customised Price-Quality Path (Compliance Statement Due Date and Auditor's Report) Amendments Determination 2020.* The new presentation requirement for this Annual Compliance Statement is revised to 17 August 2020.

2.3.1 Compliance with the annual reliability assessment

WELL confirms that it has complied with the annual reliability assessment provided in clause 9.1 (a) and 9.3 for the second assessment period.

For the second assessment period, the SAIDI and SAIFI assessed values did not exceed the limits specified in schedule 3 of 2018 CPP Determination:

Reliability measure	Assessed value	Limit	Variance
SAIDI	30.3486	40.6300	(10.2814)
SAIFI	0.4528	0.6250	(0.1722)

The detailed calculation and supporting information is provided in section 4, '*Reliability calculation and supporting information'*.

2.3.2 Compliance with the annual resilience assessment

WELL confirms that it has complied with the annual resilience assessment provided in clause 9.2 and 9.4 for the second assessment period.

For the second assessment period, WELL's resilience index assessed value was above the resilience index minimum specified in Schedule 3 of the 2018 CPP Determination. WELL exceeded its annual resilience target:

Reliability measure	Resilience index assessed value	Resilience index minimum	Variance
Resilience Index	61.28	40.0	21.28

The detailed calculation and supporting information is provided in section 5, '*Resilience calculation and supporting information'*.

2.4 Statement preparation date

As per clause 11.5 (b) of the 2018 CPP Determination, WELL states that this Compliance Statement was prepared and approved on 29 July 2020.

2.5 Transaction statement

As per clause 11.5 (c) of the 2018 CPP Determination, WELL states that it has not entered into any agreement with another EDB or Transpower for an amalgamation, merger, major transaction or non-reopener transaction for the second assessment period.

2.6 Assurance report

As per clause 11.5 (e) of the 2018 CPP Determination and schedule 8, WELL has provided an assurance report by an independent auditor. The auditor's assurance report is provided in Appendix A. The assurance report confirms that the Annual Compliance Statement has been prepared in accordance with Standard on Assurance Engagements 3100 – Compliance Engagements (SAE 3100) and International Standard on Assurance Engagements (New Zealand) 3000 (ISAE (NZ) 3000).

2.7 Director's certification

As per clause 11.5 (d) of the 2018 CPP Determination, WELL has provided a signed Director's certificate. The Directors certificate is provided in Appendix B. This certificate certifies that the information contained in this Compliance Statement is true and accurate. The attached Directors certificate is in the form required by Schedule 7 of the 2018 CPP Determination.

3 Wash-up amount calculation and supporting information

As per clause 11.5 (a) (i) of the 2018 CPP Determination, WELL has calculated the wash-up amount using the methodology provided in clause 8.4 (which refers to schedule 1.5) for the second assessment period. The calculations include the supporting information reasonably necessary to demonstrate whether WELL has complied with clause 8.4. At a minimum the supporting information includes the information requested in clause 11.6 (a). The wash-up amount has been calculated as:

Wash-up amount calculation	Definition	Amount $000	Reference to supporting calculation/ information
Actual allowable revenue	Actual net allowable revenue *plus* actual pass-through costs and recoverable costs *plus* revenue wash-up draw down amount *plus* pass-through balance annual recovery.	$168,087	Supporting calculation provided in section 3.1.
less actual revenue	Means the sum of actual revenue from prices for the assessment period 1 April 2019 to 31 March 2020.	$169,522	Supporting calculation provided in section 3.2.
less revenue foregone	Where the ***revenue reduction percentage*** is greater than 20%, the 'revenue foregone' must be calculated in accordance with the formula: **actual net allowable revenue** X (**revenue reduction percentage** – 20%); where the revenue reduction percentage is not greater than 20%, the 'revenue foregone' is nil; Revenue reduction percentage is -0.4% which is less than 20%. Therefore revenue foregone is nil. ——————————————— ***Revenue reduction percentage*** is 1 minus (actual revenue from prices ÷ forecast revenue from prices); 1 – ($169,522 ÷ $168,896) = -0.4%	$0	Calculation method provided in clause 4.2 of the 2018 CPP Determination. Actual revenue from prices provided in section 3.2. Forecast revenue from prices is provided in section 2.1 of WELL's Annual Price Setting Compliance Statement[3].
Total wash-up amount		**($1,435)**	

[3] This can be found at: https://www.welectricity.co.nz/disclosures/price-quality-path-annual-compliance-statements/

3.1 Actual allowable revenue calculation

Actual allowable revenue has been calculated using the methodology provided in schedule 1.5 (2) (b).

For the second assessment period, actual allowable revenue is calculated as:

Actual allowable revenue calculation	Definition	Amount $000	Reference to supporting calculation/ information
Actual net allowable revenue	For the second assessment period, the amount calculated in accordance with Schedule 1.5 (3).	$107,187	Supporting calculation provided in section 3.3.
plus actual pass-through costs and recoverable costs	For the second assessment period, the sum of all pass-through costs and recoverable costs that were incurred in the assessment period, excluding any recoverable cost that is a revenue wash-up draw down amount. The revenue wash-up draw down amount for this assessment period is nil.	$64,477	Supporting calculation provided in section 3.4.
plus revenue wash-up draw down amount	For the second assessment period, nil, including voluntary undercharging amount foregone.	$0	Calculation method provided in paragraph (4) (a) of Schedule 1.5 of the 2018 CPP Determination.
plus pass-through balance annual recovery	For the second assessment period, the amount calculated in accordance with Schedule 1.7 (1) (b).	($3,576)	Supporting calculation provided in section 3.5
Total actual allowable revenue		**$168,087**	

3.2 Actual revenue calculation

WELL's actual revenue from prices is equal to the total of each of its prices multiplied by the actual quantities used. A detailed description of WELL's prices is provided in its Pricing Methodology which can be found at: www.welectricity.co.nz/disclosures/pricing/2019/.

Published prices for the second assessment period are provided in Appendix C.

A summary of actual revenue collected for each of the main pricing categories is provided in the table below.

Consumer Group	Actual revenue from prices $000
Residential (includes low user, standard user and EVB)	$109,585
General Low Voltage	$34,597
General Transformer	$18,766
Unmetered	$4,341
Non-standard consumers (individual contracts)	$2,233
Total actual revenue from prices	**$169,522**

As per clause 11.6, WELL has provided detailed revenue calculations for each price category in Appendix D.

3.3 Actual net allowable revenue calculation

For the second assessment period, actual net allowable revenue is calculated as the actual net allowable revenue of the first assessment period inflated by the derived change in CPI for the second assessment period. The table below provides the calculation provided in schedule 1.5 (3).

Actual net allowable revenue calculation	Definition	Amount $000[4]	Reference to supporting calculation/ information
Actual net allowable revenue of the previous assessment period	For the second assessment period, actual net allowable revenue is the amount specified as forecast net allowable revenue for the first assessment period.	$105,206	As specified in Schedule 1.3 of the 2018 CPP Determination.
multiplied by (1 + derived change in the CPI)	For the second assessment period, the derived change in the CPI is 0.0188. This is calculated in accordance with the below formula: ΔCPI is the derived change in the **CPI** to be applied for the **assessment period**, calculated in accordance with the formula: $\Delta CPI = \frac{CPI_{Jun,t-1} + CPI_{Sep,t-1} + CPI_{Dec,t-1} + CPI_{Mar,t}}{CPI_{Jun,t-2} + CPI_{Sep,t-2} + CPI_{Dec,t-2} + CPI_{Mar,t-1}} - 1$ where: $CPI_{q,t-n}$ is the **CPI** for the quarter year ending q in the 12 month period n years prior to year t; t is the year in which the **assessment period** ends; $\Delta CPI = \left(\frac{1032+1039+1044+1052}{1015+1024+1025+1026}\right) - 1$ = 0.0188 (1 + 0.0188) = 1.0188	1.0188	Calculation method as specified in paragraph (3) of Schedule 1.5 of the CPP Determination. CPI quarterly information sourced from Statistics NZ 'All Groups Index SE9A' as specified in clause 1.1.4 (2) of the IMs.
multiplied by (1 - the annual rate of change)	For the second assessment period, the annual rate of change is 0%. (1 - 0%) = 1	1	As specified in clause 8.2 of the 2018 CPP Determination.
Actual net allowable revenue		**$107,187**	

[4] Only applies to the "Actual net allowable revenue of the previous assessment period" and the total "Actual net allowable revenue". The other numbers in this table are whole numbers.

3.4 Actual pass-through costs and recoverable costs calculation

For the second assessment period, actual pass-through costs and recoverable costs are calculated as the sum of all pass-through costs and recoverable costs that were incurred in the assessment period, excluding any recoverable cost that is a revenue wash-up draw down amount[5]. Pass-through and recoverable costs are defined in the *Electricity Distribution Services Input Methodologies Determination 2012* consolidated 3 April 2018 and the amendments to the IMs provided in the 2018 CPP Determination.

Description	IM reference[6]	Amount $000	Reference to supporting calculation/information
Pass-through costs			
Council rates	3.1.2 (2) (a)	$2,824	As invoiced during the assessment year.
Commerce Act levies	3.1.2 (2) (b) (i)	$297	As invoiced during the assessment year.
Industry levies	3.1.2 (2) (b) (ii)	$468	As invoiced during the assessment year.
Utilities Dispute Limited levies	3.1.2 (2) (b) (iii)	$97	As invoiced during the assessment year.
Total pass-through costs		**$3,686**	
Recoverable costs			
Electricity lines service charge payable to Transpower	3.1.3 (1) (b)	$61,287	As invoiced during the assessment year.
Transpower new investment contract charges	3.1.3 (1) (c)	$1,129	As invoiced during the assessment year.
Distributed generation allowance	3.1.3 (1) (f)	$1,738	As invoiced during the assessment year.
Quality incentive adjustment	3.1.3 (1) (o)	($1,119)	Supporting calculation provided in section 3.4.1.
Capex wash-up adjustment	3.1.3 (1) (p)	$518	As specified in paragraph (9) of Schedule 2.1 of the 2018 CPP Determination.
IRIS incentive adjustment	3.1.3 (1) (a) (i)	($2,762)	Supporting calculation provided in section 3.4.2.
Total recoverable costs		**$60,790**	
Total pass-through and recoverable costs		**$64,477**	

[5] The revenue wash-up draw down amount is nil for the second assessment period

[6] Reference to Electricity distribution services input methodologies determination 2012 consolidated 3 April 2018

3.4.1 Quality incentive adjustment calculation

WELL has calculated the quality incentive adjustment using the methodology provided in schedule 4 (1) and 4 (5) of the 2018 CPP Determination for the second assessment period**.** Specifically, the quality incentive adjustment is calculated as:

Quality calculation	Definition	Amount ($000)	Reference to supporting calculation/information
S_{SAIDI}	SAIDI quality incentive.	($494)	Appendix E
plus S_{SAIFI}	SAIFI quality incentive.	($494)	Appendix E
plus $S_{RESILIENCE}$	For the second assessment period the resilience incentive is nil.	$0	Schedule 4 (10) (a) (i) of the 2018 CPP Determination.
S_{TOTAL}		**($988)**	
S_{TOTAL} (adjusted for the time value of money)	Adjusted for the time value of money, as per Schedule 4 (1) of the 2018 CPP Determination. S_{TOTAL} x (1+post tax WACC)^2 Post tax WACC for the 67th percentile is 6.44%.	**($1,119)**	Post tax WACC is provided in section 3.5.1.

3.4.2 IRIS incentive adjustment calculation

As per clause 3.3.1 of the IMs, a non-exempt EDB must calculate the IRIS incentive adjustment for each disclosure year of each regulatory period. The IRIS incentive adjustment is made up of the opex incentive amount and the capex incentive amount. The IRIS incentive adjustment has been calculated as:

IRIS incentive adjustment calculation	Definition	Amount ($000)	Reference to supporting calculation/information
Opex incentive amount	Annual opex IRIS adjustment.	($2,762)	Supporting calculation provided in Appendix F.
plus Capex incentive amount	Annual capex IRIS adjustment is nil.	$0	Clause 3.3.10 of the IMs and the IM variations provide in the 2018 CPP Determination.
Total IRIS incentive adjustment		**($2,762)**	

3.5 Calculation of pass-through balance annual recovery calculation

From schedule 1.7 of the 2018 CPP Determination, the pass-through balance annual recovery for the second assessment period is calculated as:

Pass-through balance annual recovery calculation	Definition	Amount ($000)[7]	Reference to supporting calculation/information
(-1 x pass-through balance) / 3	Pass-through balance is $9,470,000.	($3,157)	Where, the pass-through balance is provided in section '2.3 Pass-through Balance' of 'WELL's 2018 Price Quality Path Annual Compliance Statement' for the regulatory year ended 31 March 2018[8].
multiplied by (1 + WACC)^2	67th percentile estimate of post-tax WACC is 6.44%.	1.1329	Supporting information provided in Section 3.5.1.
Total pass-through balance annual recovery		**($3,576)**	

3.5.1 67th percentile estimate of post-tax WACC

The WACC calculation for Price-Quality Determinations is provided in clause 4.4.1 of the IMs. WACC for the 2018 CPP Determination is determined by the DPP2 price reset (as per clause 5.3.22 of the IMs).

Components of the WACC calculation for the DPP2 Price-Quality Path are provided by *Cost of capital determination for electricity distribution businesses' default price-quality paths and Transpower's individual price-quality path [2014] NZCC 28* (Cost of Capital Determination 2014).

67th percentile estimate of post-tax WACC has been calculated as 6.44%.

[7] Does not apply to the WACC component of this calculation, which is a whole number.

[8] The pass-through balance has been calculated in accordance with clause 8.6 of the 2015 DPP Determination (as provided by schedule 11 of the 2018 CPP Determination - Input Methodology variation Clause 3.1.1 (12)). The pass-through balance calculation in WELL's 2018 Price Quality Path Annual Compliance Statement has been audited and submitted to the Commission as part of its 2015 DPP Determination compliance requirements.

4 Reliability calculation and supporting information

This section of the Compliance Statement provides supporting information and calculations on WELL's compliance with the reliability quality standards under clause 9.3 of the 2018 CPP Determination for the second assessment period. At a minimum the supporting information includes the information requested in clause 11.6 (b) and (d) to (g).

WELL outperformed the quality targets for the second assessment period of the CPP. The performance was a result of the continued refinements to WELL's quality improvement programme. At a high level, the quality improvement programme for the second assessment period included:

- Continued work on improving feeder performance by undertaking refurbishment projects on 11 kV feeders;
- Continued predictive analysis of failure rates for sub transmission and substation assets, overhead conductors and poles, and 11 kV underground cables;
- A company-wide awareness of reliability performance through the wide circulation of weekly and monthly reports on network performance;
- Providing in-depth analysis of unplanned outages via the monthly outage report;
- Continued implementation of conductor covers on the network to reduce likelihood of outages due to vegetation contact during high winds; and
- The use of portable generators to reduce the impact of de-energised planned outages.

WELL will continue to investigate ways to improve the reliability of the network. WELL's AMP provides an analysis of critical trends and an annual update to the reliability performance improvement programme (the AMP can be found at: https://www.welectricity.co.nz/disclosures/asset-management-plan).

The 2018 CPP Determination specifies two reliability measures:

1. SAIDI (system average interruption duration index) which measures the average duration of outages on WELL's network during the assessment period
2. SAIFI (system average interruption frequency index) which measures the average number of outages on WELL's network during the assessment period

Outages are classified as a Class B outage which is a planned outage, or a Class C outage which is an unplanned outage.

4.1 Capturing reliability information

Clause 11.6 (f) requires WELL to provide a description of the policies and procedures used to capture and record Class B and C interruptions, and to calculate SAIDI and SAIFI assessed values.

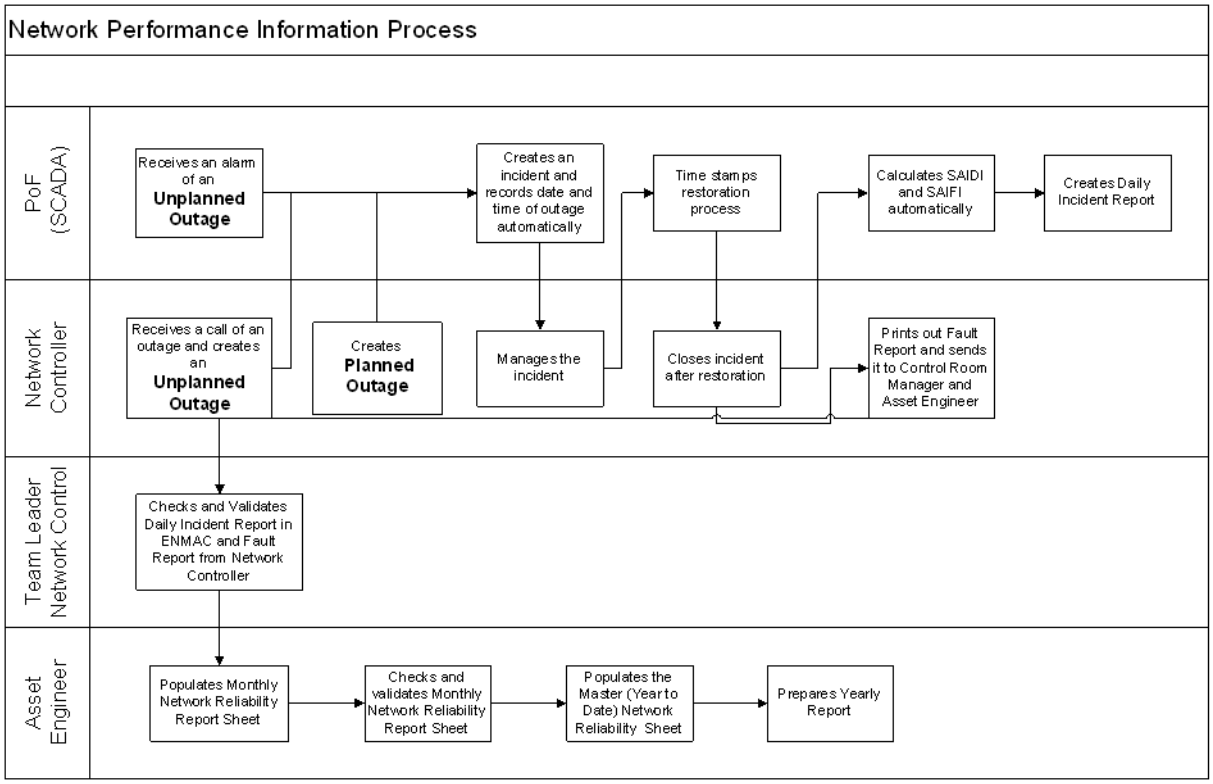
4.1.1 Recording outages

The control system WELL uses to record SAIDI and SAIFI information is the Power On Fusion (PoF) SCADA network management system (the system). The system is used for the real-time management and monitoring of the high voltage network. Specifically, the system provides information about the status of the network, including customer connection points and devices like circuit breakers and fuses. The systems automatically records outage information (including SAIDI and SAIFI details) in a database, including:

- All planned and unplanned outages of 11 kV and greater (the high voltage network), including details about the length of the outage and how many customers were impacted; and
- All unplanned outages less than one minute in duration, including successful auto-reclose events. Faults less than a minute outage are not included in the SAIDI and SAIFI counts.

All of the outage information is then error checked and validated daily by the Control Room Manager and the Asset Engineer to ensure it is correct. The reviewed data is recorded in the Reliability Report Sheet. The procedure to capture and validate network performance information for planned and unplanned outages is shown in Figure 1 below.

Figure 1: Summary of the procedure for capturing and validating network outage information.



For unplanned outages, the system identifies there has been a fault, automatically logs the incident and time stamps when it occurred. Any subsequent switching operations are also recorded and time stamped.

For faults on devices that are not directly monitored by the system and there is no definitive customer report, the outage is recorded from the time the on-site fault-man confirms there has been a high voltage fault. Subsequent switching operations are manually recorded and time stamped within the system. If a fault has been reported by a customer and it is confirmed that there is a fault on the high voltage network, the start time for the fault is taken from the time of the first phone call.

Successive interruptions have been treated same as prior periods. Where an interruption to the supply of electricity distribution services is followed by restoration, and then by a successive interruption within the same event, WELL records this as a single interruption.

4.1.2 Data validation and review

After an outage is resolved, an outage report is generated which includes notes from the Network Controllers on duty. The information is then validated for the following:

- Date outage started and ended;
- Time outage started and ended;
- Duration of outage;
- Number of customers impacted;
- Total customers minutes lost (based on switching operations);
- Total customer number (on network);
- SAIDI for outage;
- SAIFI for outage;
- Fault type; and
- Fault cause.

The data is reviewed for accuracy. Particularly attention is given to non-system faults where the information is manually entered by the Network Controller. Systems faults are automatically generated and rarely have errors. The Control Room Team Leader reviews all faults and approves the daily fault reports as accurate.

The Asset Engineer then compiles the reviewed individual event reports into a Monthly Network Reliability Report which is used for monthly reporting of SAIDI and SAIFI indices. The monthly reports are then aggregated into the master database from which WELL's regulatory quality reporting is based on.

For planned outages, the proposed switching operations are entered into the system by the Network Controller prior to the event. During the event, the system creates an incident and the Network Controller enters the time the operation occurred. Planned events are validated by the network controllers and the Network Control Team Leader by referring to the specific job documents. The validation process considers whether LV back feeds or portable generation have been used to ensure there was no loss of supply.

4.1.3 Calculating the assessed values

WELL calculates SAIDI and SAIFI by summing the duration and frequency of outages recorded on the master database. WELL also analyses the database for trends and common types of outages. This information is used to inform the quality improvement programme. WELL's AMP provides a detailed overview of its reliability programme, including a detailed analysis of the 2018/19 and 2019/20 reliability performance. WELL's AMP can be found at: https://www.welectricity.co.nz/disclosures/asset-management-plan.

4.1.4 Keeping customers informed

WELL provides up-to-date customer information on outage events and their restoration times through its website and outage mobile device application. The website and application provides live updates on restoration times when power outages occur. The application has resulted in positive feedback from customers and a reduction in calls to the contact centre. WELL also surveys those customers who have recently had an outage to understand whether the price-quality service they receive is appropriately balanced. The results suggest that customers are broadly satisfied with their current level of reliability and the price for delivering that service.

4.2 Assessed values and reliability limit calculations

For the second assessment period, WELL out performed the company's reliability limit:

Reliability measure	Assessed value	Limit[9]	Variance
SAIDI	30.3486	40.6300	(10.2814)
SAIFI	0.4528	0.6250	(0.1722)

Due to WELL complying with the annual reliability assessment provided in clause 9.1 (a), the information outlined in clause 11.6 (b) and (d) of the 2018 CPP Determination, is not required to be provided.

As per clause 11.6 (e) of the 2018 CPP Determination, WELL has provided the components of the annual reliability assessment:

Reliability component	Component value	Reference to supporting calculation/information
SAIDI		
Assessed value	30.3486	Supporting calculation provided in Appendix G.
Limit	40.6300	As specified in Schedule 3 (1) of the 2018 CPP Determination.
Unplanned boundary value	2.1030	As specified in Schedule 3 (1) of the 2018 CPP Determination.
Cap	40.6302	As specified in Schedule 4 (2) of the 2018 CPP Determination.
Collar	30.2414	As specified in Schedule 4 (2) of the 2018 CPP Determination.
Target	35.4358	As specified in Schedule 4 (2) of the 2018 CPP Determination.

[9] As specified in schedule 3 (1) of the 2018 CPP Determination

Reliability component	Component value	Reference to supporting calculation/information
SAIFI		
Assessed value	0.4528	Supporting calculation provided in Appendix G.
Limit	0.6250	As specified in Schedule 3 (1) of the 2018 CPP Determination.
Unplanned boundary value	0.0310	As specified in Schedule 3 (1) of the 2018 CPP Determination.
Cap	0.6248	As specified in Schedule 4 (3) of the 2018 CPP Determination.
Collar	0.4682	As specified in Schedule 4 (3) of the 2018 CPP Determination.
Target	0.5465	As specified in Schedule 4 (3) of the 2018 CPP Determination.

4.3 Annual reliability assessments for the two previous assessment periods

As per clause 11.6 (e) of the 2018 CPP Determination, WELL has provided the annual reliability assessment of the previous two assessment periods:

DPP assessment period ended 31 March 2018 (from WELL's Compliance Statement for that period)

Requirement	Assessed value	Limit	Variance
SAIDI	52.8560	40.6302	12.2258
SAIFI	0.6760	0.6248	0.0512

CPP assessment period ended 31 March 2019 (from WELL's Compliance Statement for that period)

Requirement	Assessed value	Limit	Variance
SAIDI	30.4217	40.6302	(10.2085)
SAIFI	0.4557	0.6248	(0.1691)

5 Resilience calculation and supporting information

WELL's CPP Price-Quality Path includes an earthquake resilience programme to improve WELL's ability to respond after a major earthquake. The 2018 CPP Determination provides a resilience quality measure which measures and assesses progress against the programme deliverables. This section of the Compliance Statement provides supporting information and calculations on WELL's compliance with the resilience quality standards under clause 9.4 of the 2018 CPP Determination for the second assessment period. At a minimum the supporting information includes the information requested in clause 11.6 (c), (d) and (h) to (j).

5.1 WELL earthquake reliance programme

In March 2018, the Commission approved a CPP to improve WELL's ability to respond following a major earthquake in the Wellington region. In an earthquake, major roads are likely to be disrupted, breaking the region into five isolated areas or 'islands'[10]. It is expected to take between 10 days and four months for roads to be repaired and access to each area to be restored. The earthquake resilience programme is designed to allow electricity in each of the five areas to be restored independently without road access. This will significantly improve restoration times. To allow independent restoration within each of the areas, the programme includes five work streams:

1. Spares located in each area or island.
2. Data centres providing multiple backups to essential network information.
3. Mobile substations to allow fast restoration if a permanent substation is damaged. These will be located across the network.
4. Radio and phones to allow communication to be maintained across the network.
5. Seismic reinforcement to key assets across the network.

WELL's AMP provides a detailed description of each work programme and can be found at: www.welectricity.co.nz/disclosures/asset-management-plan.

5.2 How WELL has assessed resilience quality

The earthquake resilience programme has two assessment methodologies, a methodology for programme items that are procured and methodology for the seismic strengthening building works. The diagram below illustrates the two methodologies.

[10] "Restoring Wellington's transport links after a major earthquake" Wellington Lifelines Group, March 2013.

1. **Methodology for assessing the procurement and installation of mobile substations, data centres, spares and radio and telephones**

Step	1	2	3	4
Description	Purchase	Inspection	Transfer of ownership	Independent verification
Purpose	Procurement of the assets	Confirm the equipment is to standard and is installed correctly	WELL's acceptance of the asset	Independent confirmation that the CPP requirements have been meet
Who	WELL	WELL	WELL	Deloitte
Evidence	Paid invoice	Approved inspection report	Transfer of ownership form	Assurance report

2. **Methodology for assessing seismic strengthening building works**

Step	1	2	3	4
Description	Initial inspection	Design	Closeout inspection	Independent verification
Purpose	An initial survey of the current asset before any works	Earthquake strengthen design	Inspection against design to confirm works have been completed as per the design	Independent confirmation that the CPP requirements have been meet
Who	Independent engineering company	Independent engineering company	Independent engineering company	Deloitte
Evidence	Initial inspection report	Building designs	Closeout inspection report	Assurance report

For the second assessment period, WELL out performed the company's resilience targets:

Reliability measure	Resilience index assessed value	Resilience index minimum	Variance
Resilience Index	61.28	40.0	21.28

Due to WELL complying with the annual resilience assessment provided in clause 9.2, the information outlined in clause 11.6 (c) and (d) of the 2018 CPP Determination, is not required to be provided.

As per clause 11.6 (h) of the 2018 CPP Determination, WELL has provided the components of the annual resilience assessment:

Resilience component	Component value	Reference to supporting calculation/information
Resilience index assessed value	61.28	Supporting calculation provided in section 5.2.1.
Resilience index minimum	40.0	Provided in schedule 3 (1) of the 2018 CPP Determination.
Resilience index cap	Nil for second assessment period.	Provided in schedule 4 (10) of the 2018 CPP Determination.
Resilience index collar	Nil for second assessment period.	Provided in schedule 4 (10) of the 2018 CPP Determination.
Resilience index target	Nil for second assessment period.	Provided in schedule 4 (10) of the 2018 CPP Determination.

5.2.1 Resilience index assessed value calculation

The resilience index assessed value calculation methodology is provided in Schedule 3 (4) and (5) of the 2018 CPP Determination.

5.2.1.1 Responsiveness improvement resilience index assessed values

The table below summarises the assessed values for the works provided in Schedule 9 (the works to improve WELL's earthquake responsiveness) of the 2018 CPP Determination.

Work programme	Resilience performance value	Resilience index assessed value	Remaining
Mobile substations	15.72	0	15.72
Emergency hardware	15.76	15.76	0
Ability to respond to 11kV cable and equipment faults	16.44	16.1	0.34
Communication systems	17.48	2.85	14.63
Total	**65.4**	**34.71**	**30.69**

The full assessment calculations are provided in Appendix I: Responsiveness improvement resilience index calculation. The calculations are in accordance with Schedule 3 (4) of the 2018 CPP determination. Each assessment also provides an explanation of how WELL demonstrated the measure was met for the assessment period, as per clause 11.6 (i) of the 2018 CPP Determination.

5.2.1.2 Seismic strengthening resilience index assessed values

The table below summarises the assessed values for the works provided in Schedule 10 (the building seismic strengthening works) of the 2018 CPP Determination.

Work programme	Resilience performance value	Resilience index assessed value	Remaining
Seismic strengthening of substation buildings	34.6	26.57	8.03

The full assessment calculations are provided in Appendix J: Building seismic strengthening resilience index calculation. The calculations are in accordance with Schedule 3 (5) of the 2018 CPP determination. The detailed information provided in the appendix includes the information required by clause 11.6 (j).

5.2.1.3 Total resilience index assessed value

The total resilience index assessed value is provided below.

Work programme	Resilience performance value	Resilience index assessed value	Remaining
Responsiveness improvement	65.4	34.71	30.69
Seismic strengthening	34.6	26.57	8.03
Total	**100**	**61.28**	**38.72**

6 Appendix A: Audit assurance report

Deloitte.

INDEPENDENT ASSURANCE REPORT
TO THE DIRECTORS OF WELLINGTON ELECTRICITY LINES LIMITED AND
THE COMMERCE COMMISSION

Report on Wellington Electricity Lines Limited Electricity Distribution Customised Price-Quality Path Compliance Statement 2020

We have conducted a reasonable assurance engagement on whether the information disclosed by Wellington Electricity Lines Limited ('the Company') on pages 6 to 23 and related Appendices B to J of the Company's Electricity Distribution Customised Price-Quality Path Compliance Statement ('the Annual Compliance Statement') for the period 1 April 2019 to 31 March 2020 has been prepared, in all material respects, with the Wellington Electricity Lines Limited Electricity Distribution Customised Price-Quality Path Determination 2018 (dated 28 March 2018 including amendments dated 9 April 2020) ('the Determination').

In our opinion, for the period 1 April 2019 to 31 March 2020:

- the Company has complied, in all material aspects, with the Determination in preparing the Annual Compliance Statement; and
- as far as appears from an examination of the records, the information used in the preparation of the Disclosure Information has been properly extracted from the Company's accounting and other records and has been sourced, where appropriate, from the Company's financial and non-financial systems.

Basis for Opinion

We conducted our engagement in accordance with International Standard on Assurance Engagements (New Zealand) 3000 (Revised): *Assurance Engagements Other than Audits or Reviews of Historical Financial Information* ('ISAE (NZ) 3000 (Revised)') and the Standard on Assurance Engagements (SAE) 3100 (Revised): *Compliance Engagements* ('SAE 3100 (Revised)') issued by the External Reporting Board.

We have obtained sufficient recorded evidence and all the explanations we required to provide a basis for our opinion.

Board of Directors' Responsibilities

The Board of Directors is responsible on behalf of the Company for the preparation of the Annual Compliance Statement in accordance with the Determination. This responsibility includes the design, implementation and maintenance of internal control relevant to the Company's compliance with the Determination.

Our Independence and Quality Control

We have complied with the independence and other ethical requirements of the Professional and Ethical Standard 1 (Revised): *Code of Ethics for Assurance Practitioners* issued by the New Zealand Auditing and Assurance Standards Board, which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour.

Other than in our capacity as auditor, the provision of other assurance services, taxation services and a temporary secondment to provide mechanical modelling services, we have no relationship with or interests in the Company . These services have not impaired our independence as auditor.

The firm applies Professional and Ethical Standard 3 (Amended): *Quality Control for Firms that Perform Audits and Reviews of Financial Statements, and Other Assurance Engagements* issued by the New Zealand Auditing and Assurance Standards Board, and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Deloitte.

Our Responsibilities

Our responsibility is to express an opinion on whether the Company has complied, in all material respects, with the Determination in preparing its Annual Compliance Statement. ISAE (NZ) 3000 (Revised) and SAE 3100 (Revised) requires that we plan and perform our procedures to obtain reasonable assurance that the Company has complied, in all material respects, with the Determination in preparing its Annual Compliance Statement.

An assurance engagement to report on the Company's compliance with the Determination involves performing procedures to obtain evidence about the compliance activity and controls implemented to meet the requirements of the Determination. The procedures selected depend on our judgement, including the identification and assessment of risk of material non-compliance with the Determination.

In making those risk assessments, we consider internal control relevant to the Company's preparation of the Annual Compliance Statement in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control. A reasonable assurance engagement also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates, as well as evaluating the overall presentation of the Annual Compliance Statement.

Our procedures included:

- evaluating the methodologies used in preparing the Annual Compliance Statement and confirming that they are in accordance with the requirements set out in the Determination;
- identifying key inputs to the information;
- ensuring that the information used in preparing the Annual Compliance Statement has been properly extracted from the Company's accounting and other records, sourced from its financial and non-financial systems;
- assessing significant estimates and judgements, if any, made by the Company in the preparation of the Annual Compliance Statement; and
- ensuring that the calculations are mathematically correct.

These procedures have been undertaken to form an opinion as to whether the Company has complied, in all material respects, with the Determination in preparing its Annual Compliance Statement for the period 1 April 2019 to 31 March 2020.

Inherent Limitations

Because of the inherent limitations of evidence gathering procedures, it is possible that fraud, error or non-compliance may occur and not be detected. As the procedures performed for this engagement are not performed continuously throughout the period 1 April 2019 to 31 March 2020 and the procedures performed in respect of the Company's compliance with Determination are undertaken on a test basis, our assurance engagement cannot be relied on to detect all instances where the Company may not have complied with the Determination. We did not examine every transaction, adjustment or event underlying the Compliance Statement nor do we guarantee complete accuracy of the Annual Compliance Statement. The opinion expressed in this report has been formed on the above basis.

Deloitte.

Use of Report

This report is provided solely for your exclusive use and solely for the purpose of Clause 11.5(e) of the Determination. However we understand that a copy of this report has been requested by the Commerce Commission solely for the purpose above. We agree that a copy of our report may be provided to the Commerce Commission. This report is not to be used for any other purpose, recited or referred to in any document, copied or made available (in whole or in part) to any other person without our prior written consent. We accept or assume no duty, responsibility or liability to any party, other than you, in connection with the report or this engagement including without limitation, liability for negligence in relation to the opinion expressed in our report.

Deloitte Limited

Wellington, New Zealand
29 July 2020

This reasonable assurance report relates to the Annual Compliance Statement of Wellington Electricity Lines Limited ('the Company') for the year ended 31 March 2020 included on Wellington Electricity Lines Limited's website. The Board of Directors are responsible for the maintenance and integrity of the Company's website. We have not been engaged to report on the integrity of the Company's website. We accept no responsibility for any changes that may have occurred to the Annual Compliance Statement since they were initially presented on the website. The reasonable assurance report refers only to the Annual Compliance Statement named above. It does not provide an opinion on any other information which may have been hyperlinked to/from this Annual Compliance statement. If readers of this report are concerned with the inherent risks arising from electronic data communication they should refer to the published hard copy of the Annual Compliance Statement and related reasonable assurance report dated 29 July 2020 to confirm the information included in the Annual Compliance Statement presented on this website.

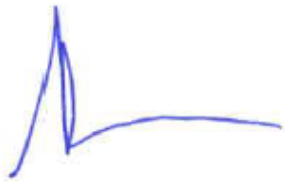
7 Appendix B: Directors certification

Directors' Certification

We, Richard Pearson and Andrew Hunter, being Directors of Wellington Electricity Lines Limited certify that, having made all reasonable enquiry, to the best of our knowledge and belief, the attached Annual Compliance Statement of Wellington Electricity Lines Limited, and related information, prepared for the purposes of the *Wellington Electricity Lines Limited Electricity Distribution Customised Price-Quality Path Determination 2018* has been prepared in accordance with all the relevant requirements.

Richard Pearson
Director

29 July 2020



Andrew Hunter
Director

29 July 2020

Note: Section 103(2) of the Commerce Act 1986 provides that no person shall attempt to deceive or knowingly mislead the Commission in relation to any matter before it. It is an offence to contravene section 103(2) and any person who does so is liable on summary conviction to a fine not exceeding $100,000 in the case of an individual or $300,000 in the case of a body corporate.

8 Appendix C: Prices used for the second assessment period

			01/04/2019 to 31/03/2020		
Price Code	Units	Description	Distribution Price	Transmission & Other Pass-through Price[6]	Delivery Price
Residential					
RLU-FIXD	$/con/day	Low user daily	0.0900	0.0600	0.1500
RLU-24UC	$/kWh	Low user uncontrolled	0.0730	0.0404	0.1134
RLU-AICO	$/kWh	Low user all inclusive	0.0586	0.0324	0.0910
RLU-CTRL	$/kWh	Low user controlled	0.0352	0.0195	0.0547
RLU-NITE	$/kWh	Low user night boost	0.0119	0.0066	0.0185
RSU-FIXD	$/con/day	Standard user daily	0.6600	0.4400	1.1000
RSU-24UC	$/kWh	Standard user uncontrolled	0.0457	0.0254	0.0711
RSU-AICO	$/kWh	Standard user all inclusive	0.0315	0.0174	0.0489
RSU-CTRL	$/kWh	Standard user controlled	0.0140	0.0077	0.0217
RSU-NITE	$/kWh	Standard user night boost	0.0109	0.0060	0.0169
Residential electric vehicle and battery storage					
RLUEVB-FIXD	$/con/day	Residential EV & battery storage low user daily	0.0900	0.0600	0.1500
RLUEVB-PEAK	$/kWh	Residential EV & battery storage low user peak[1]	0.0846	0.0656	0.1502
RLUEVB-OFFPEAK	$/kWh	Residential EV & battery storage low user off-peak[2]	0.0376	0.0292	0.0668
RLUEVB-CTRL	$/kWh	Residential EV & battery storage low user controlled	0.0352	0.0195	0.0547
RSUEVB-FIXD	$/con/day	Residential EV & battery storage standard user daily	0.6600	0.4400	1.1000
RSUEVB-PEAK	$/kWh	Residential EV & battery storage standard user peak[1]	0.0608	0.0471	0.1079
RSUEVB-OFFPEAK	$/kWh	Residential EV & battery storage standard user off-peak[2]	0.0138	0.0106	0.0244
RSUEVB-CTRL	$/kWh	Residential EV & battery storage standard user controlled	0.0140	0.0077	0.0217
General low voltage connection					
GLV15-FIXD	$/con/day	General low voltage <=15kVA daily	0.3948	0.2191	0.6139
GLV15-24UC	$/kWh	General low voltage <=15kVA uncontrolled	0.0357	0.0198	0.0555
GLV69-FIXD	$/con/day	General low voltage >15kVA and <=69kVA daily	0.9766	0.5419	1.5185
GLV69-24UC	$/kWh	General low voltage >15kVA and <=69kVA uncontrolled	0.0247	0.0137	0.0384
GLV138-FIXD	$/con/day	General low voltage >69kVA and <=138kVA daily	5.5338	3.0707	8.6045
GLV138-24UC	$/kWh	General low voltage >69kVA and <=138kVA uncontrolled	0.0293	0.0163	0.0456
GLV300-FIXD	$/con/day	General low voltage >138kVA and <=300kVA daily	7.8828	4.3742	12.2570
GLV300-24UC	$/kWh	General low voltage >138kVA and <=300kVA uncontrolled	0.0121	0.0068	0.0189
GLV1500-FIXD	$/con/day	General low voltage >300kVA and <=1500kVA daily	19.8773	11.0299	30.9072
GLV1500-24UC	$/kWh	General low voltage >300kVA and <=1500kVA uncontrolled	0.0054	0.0030	0.0084
GLV1500-DAMD	$/kVA/month	General low voltage >300kVA and <=1500kVA demand	4.8214	2.6754	7.4968
General transformer connection					
GTX15-FIXD	$/con/day	General transformer <=15kVA daily	0.3584	0.1990	0.5574
GTX15-24UC	$/kWh	General transformer <=15kVA uncontrolled	0.0332	0.0185	0.0517
GTX69-FIXD	$/con/day	General transformer >15kVA and <=69kVA daily	0.8863	0.4917	1.3780
GTX69-24UC	$/kWh	General transformer >15kVA and <=69kVA uncontrolled	0.0233	0.0129	0.0362
GTX138-FIXD	$/con/day	General transformer >69kVA and <=138kVA daily	5.0213	2.7863	7.8076
GTX138-24UC	$/kWh	General transformer >69kVA and <=138kVA uncontrolled	0.0274	0.0152	0.0426
GTX300-FIXD	$/con/day	General transformer >138kVA and <=300kVA daily	7.1528	3.9691	11.1219
GTX300-24UC	$/kWh	General transformer >138kVA and <=300kVA uncontrolled	0.0113	0.0063	0.0176
GTX1500-FIXD	$/con/day	General transformer >300kVA and <=1500kVA daily	15.4332	8.5639	23.9971
GTX1500-24UC	$/kWh	General transformer >300kVA and <=1500kVA uncontrolled	0.0044	0.0024	0.0068
GTX1500-CAPY	$/kVA/day	General transformer >300kVA and <=1500kVA capacity	0.0105	0.0059	0.0164
GTX1500-DAMD	$/kVA/month	General transformer >300kVA and <=1500kVA demand	4.0526	2.2487	6.3013
GTX1501-FIXD	$/con/day	General transformer >1500kVA connection daily	0.0343	0.0191	0.0534
GTX1501-24UC	$/kWh	General transformer >1500kVA connection uncontrolled	0.0009	0.0006	0.0015
GTX1501-CAPY	$/kVA/day	General transformer >1500kVA connection capacity	0.0186	0.0104	0.0290
GTX1501-DOPC	$/kW/month	General transformer >1500kVA connection on-peak demand[3]	7.6356	4.2370	11.8726
GTX1501-PWRF	$/kVAr/month	General transformer, >1500kVA connection, power factor[4]	5.5135	3.0595	8.5730
Unmetered					
G001-FIXD	$/fitting/day	Non-street lighting daily	0.0272	0.0151	0.0423
G001-24UC	$/kWh	Non-street lighting uncontrolled	0.0883	0.0491	0.1374
G002-FIXD	$/fitting/day	Street lighting daily	0.1457	0.0811	0.2268
G002-24UC	$/kWh	Street lighting uncontrolled	0.0000	0.0000	0.0000
Distributed generation					
*DGEN	$/kWh	Small scale distributed generation[5]	0.0000	0.0000	0.0000

Pricing notes for 01/04/2019 to 31/03/2020

1. Peak: Monday to Friday 07:00 - 11:00 (incl. public holidays); and Monday to Friday 17:00 - 21:00 (incl. public holidays).
2. Off-peak: Monday to Friday 11:00 - 17.00 (incl. public holidays); Monday to Friday 21:00 - 07:00 (incl. public holidays); and Saturday and Sunday all times.
3. Charge is applicable to demand measured from 7:30 to 9:30 and 17:30 to 19:30 on weekdays including public holidays.
4. Charge is applicable for power factor <0.95 from 07:00 to 20:00 on weekdays where the kVAr charge amount represents twice the largest difference between the recorded kVArh and one third of the recorded kWh in any one half-hour period.
5. WE* has various codes for small scale distributed generation volumes, being RLU-DGEN, RSU-DGEN, RLUEVB-DGEN, RSUEVB-DGEN, GLV15-DGEN, GLV69-DGEN, GLV138-DGEN, GLV300-DGEN, GLV1500-DGEN, GTX15-DGEN, GTX69-DGEN, GTX138-DGEN, GTX300-DGEN, GTX1500-DGEN and GTX1501-DGEN.
6. Transmission charges makes up 92% of the Transmission & Other Pass-through Price (excluding wash-ups and incentives). Other pass-through charges recovered include costs such as Commerce Act Levies, Electricity Authority Levies, Council rates and other recoverable costs.

9 Appendix D: Detailed revenue calculation

Price Code	Units	Description	Quantity 1 April 2019 to 31 March 2020	Distribution Price 1 April 2019 to 31 March 2020	Transmission & Other Pass-through Price 1 April 2019 to 31 March 2020	Revenue 1 April 2019 to 31 March 2020
Residential						
RLU-FIXD	con/day	Low user daily	34,435,156	0.0900	0.0600	5,165,273
RLU-24UC	kWh	Low user uncontrolled	248,328,405	0.0730	0.0404	28,160,441
RLU-AICO	kWh	Low user all inclusive	214,046,951	0.0586	0.0324	19,478,273
RLU-CTRL	kWh	Low user controlled	16,956,845	0.0352	0.0195	927,539
RLU-NITE	kWh	Low user night only	2,449,307	0.0119	0.0066	45,312
RSU-FIXD	con/day	Standard user daily	21,105,356	0.6600	0.4400	23,215,892
RSU-24UC	kWh	Standard user uncontrolled	272,034,948	0.0457	0.0254	19,341,685
RSU-AICO	kWh	Standard user all inclusive	256,994,190	0.0315	0.0174	12,567,016
RSU-CTRL	kWh	Standard user controlled	22,580,259	0.0140	0.0077	489,992
RSU-NITE	kWh	Standard user night only	4,241,107	0.0109	0.0060	71,675
RLUEVB-FIXD	con/day	Low user EV & Battery daily	24,767	0.0900	0.0600	3,715
RLUEVB-PEAK	kWh	Low user electric vehicle and battery PEAK	102,008	0.0846	0.0656	15,322
RLUEVB-OFFPEAK	kWh	Low user electric vehicle and battery OFFPEAK	345,017	0.0376	0.0292	23,047
RLUEVB-CTRL	kWh	Low user EV & Battery controlled	10,350	0.0352	0.0195	566
RSUEVB-FIXD	con/day	Standard user EV & Battery daily	27,774	0.6600	0.4400	30,551
RSUEVB-PEAK	kWh	Standard user electric vehicle and battery PEAK	278,775	0.0608	0.0471	30,080
RSUEVB-OFFPEAK	kWh	Standard user electric vehicle and battery OFFPEAK	713,355	0.0138	0.0106	17,406
RSUEVB-CTRL	kWh	Standard user EV & Battery controlled	42,586	0.0140	0.0077	924
					Subtotal	**109,584,708**
General low voltage connection						
GLV15-FIXD	con/day	General low voltage <=15kVA daily	1,883,316	0.3948	0.2191	1,156,168
GLV15-24UC	kWh	General low voltage <=15kVA uncontrolled	44,856,415	0.0357	0.0198	2,489,531
GLV69-FIXD	con/day	General low voltage >15kVA and <=69kVA daily	3,627,600	0.9766	0.5419	5,508,511
GLV69-24UC	kWh	General low voltage >15kVA and <=69kVA uncontrolled	307,804,956	0.0247	0.0137	11,819,710
GLV138-FIXD	con/day	General low voltage >69kVA and <=138kVA daily	149,141	5.5338	3.0707	1,283,282
GLV138-24UC	kWh	General low voltage >69kVA and <=138kVA uncontrolled	52,900,035	0.0293	0.0163	2,412,242
GLV300-FIXD	con/day	General low voltage >138kVA and <=300kVA daily	129,833	7.8828	4.3742	1,591,360
GLV300-24UC	kWh	General low voltage >138kVA and <=300kVA uncontrolled	101,241,530	0.0121	0.0068	1,913,465
GLV1500-FIXD	con/day	General low voltage >300kVA and <=1500kVA daily	76,804	19.8773	11.0299	2,373,809
GLV1500-24UC	kWh	General low voltage >300kVA and <=1500kVA uncontrolled	136,168,872	0.0054	0.0030	1,143,819
GLV1500-DAMD	kVA/month	General low voltage >300kVA and <=1500kVA demand	387,538	4.8214	2.6754	2,905,298
					Subtotal	**34,597,195**
General transformer connection						
GTX15-FIXD	con/day	General transformer <=15kVA daily	732	0.3584	0.1990	408
GTX15-24UC	kWh	General transformer <=15kVA uncontrolled	16,203	0.0332	0.0185	838
GTX69-FIXD	con/day	General transformer >15kVA and <=69kVA daily	7,432	0.8863	0.4917	10,241
GTX69-24UC	kWh	General transformer >15kVA and <=69kVA uncontrolled	404,863	0.0233	0.0129	14,656
GTX138-FIXD	con/day	General transformer >69kVA and <=138kVA daily	6,193	5.0213	2.7863	48,355
GTX138-24UC	kWh	General transformer >69kVA and <=138kVA uncontrolled	1,773,646	0.0274	0.0152	75,557
GTX300-FIXD	con/day	General transformer >138kVA and <=300kVA daily	38,706	7.1528	3.9691	430,479
GTX300-24UC	kWh	General transformer >138kVA and <=300kVA uncontrolled	46,703,368	0.0113	0.0063	821,979
GTX1500-FIXD	con/day	General transformer >300kVA and <=1500kVA daily	96,961	15.4332	8.5639	2,326,788
GTX1500-24UC	kWh	General transformer >300kVA and <=1500kVA uncontrolled	331,611,694	0.0044	0.0024	2,254,960
GTX1500-CAPY	kVA/day	General transformer >300kVA and <=1500kVA capacity	74,961,514	0.0105	0.0059	1,229,369
GTX1500-DAMD	kVA/month	General transformer >300kVA and <=1500kVA demand	934,321	4.0526	2.2487	5,887,470
GTX1501-FIXD	con/day	General transformer >1500kVA connection daily	14,092	0.0343	0.0191	753
GTX1501-24UC	kWh	General transformer >1500kVA connection uncontrolled	160,834,807	0.0009	0.0006	241,252
GTX1501-CAPY	kVA/day	General transformer >1500kVA connection capacity	32,774,492	0.0186	0.0104	950,460
GTX1501-DOPC	kVA/month	General transformer >1500kVA connection on-peak demand	357,886	7.6356	4.2370	4,249,031
GTX1501-PWRF	kVA/month	General transformer >1500kVA connection power factor	26,029	5.5135	3.0595	223,144
					Subtotal	**18,765,740**
Unmetered						
G001-FIXD	fitting/day	Non-street lighting daily	555,947	0.0272	0.0151	23,517
G001-24UC	kWh	Non-street lighting uncontrolled	4,705,116	0.0883	0.0491	646,483
G002-FIXD	fitting/day	Street lighting daily	16,186,704	0.1457	0.0811	3,671,144
G002-24UC	kWh	Street lighting uncontrolled	24,085,103	-	-	-
					Subtotal	**4,341,144**
Non standard charges						
Special	Unit	Non standard charges				2,233,110
					TOTAL	**169,521,898**

10 Appendix E: Quality incentive calculation

As per Schedule 4 (1) of the 2018 CPP determination, the quality incentive is based on the quality performance from the regulatory year finishing 31 March 2018 – a two year lag after the assessment period for this Compliance Statement.

10.1 Calculating SAIDI incentive (S_{SAIDI})

WELL has calculated the SAIDI quality incentive adjustment using the methodology provided in Schedule 5B (5) of the Electricity Distribution Services Default Price-Quality Path Determination 2015 (2015 DPP Determination) for the second assessment period.

SAIDI incentive (S_{SAIDI}) calculation	Definition	Amount $000[11]	Reference to supporting calculation/information
$SAIDI_{IR}$	For the second assessment period, the SAIDI incentive rate for the 31 March 2018 regulatory year.	$95	Supporting calculation provided in section 10.3.
multiplied by ($SAIDI_{target}$ – $SAIDI_{assess}$)	$SAIDI_{assess}$ (52.8560) is greater than the $SAIDI_{cap}$ (40.6302). Therefore, $SAIDI_{assess}$ equals the $SAIDI_{cap}$. (35.4358 – 40.6302)	(5.1944)	As specified in Schedule 5B (2) and (5)(b) of the 2015 DPP Determination. Reliability components in section 10.5.
Total S_{SAIDI}		**($494)**	

10.2 Calculating SAIFI incentive (S_{SAIFI})

WELL has calculated the SAIFI quality incentive adjustment using the methodology provided in Schedule 5B (7) of the 2015 DPP Determination for the second assessment period.

SAIFI incentive (S_{SAIFI}) calculation	Definition	Amount $000[12]	Reference to supporting calculation/information
$SAIFI_{IR}$	For the second assessment period, the SAIFI incentive rate for the 31 March 2018 regulatory year.	$6,308	Supporting calculation provided in section 10.4.
multiplied by ($SAIFI_{target}$ – $SAIFI_{assess}$)	$SAIFI_{assess}$ (0.6760) is greater than the $SAIFI_{cap}$ (0.6248). Therefore, $SAIFI_{assess}$ equals the $SAIFI_{cap}$. (0.5465 – 0.6248)	(0.0783)	As specified in Schedule 5B (2) and (5)(b) of the 2015 DPP Determination. Reliability components in section 10.5.
Total S_{SAIFI}		**($494)**	

[11] Does not apply to the $SAIDI_{target}$ - $SAIDI_{assess}$ component of this calculation, which is a whole number.
[12] Does not apply to the $SAIFI_{target}$ - $SAIFI_{assess}$ component of this calculation, which is a whole number.

10.3 Calculating $SAIDI_{IR}$

$SAIDI_{IR}$ is calculated as per Schedule 5B (6) of the 2015 DPP Determination.

SAIDI incentive rate ($SAIDI_{IR}$) calculation	Definition	Amount $000[13]	Reference to supporting calculation/information
0.5 x REV_{RISK}	Where REV_{RISK} is 1% of the maximum allowable revenue (MAR) specified in Schedule 1 of the 2015 DPP Determination. 0.5 x 1% x 98,788,230	$494	MAR from Schedule 1 of the 2015 DPP Determination.
divided by ($SAIDI_{cap}$ – $SAIDI_{target}$)	(40.6302 – 35.4358)	5.1944	Section 10.5.
Total $SAIDI_{IR}$		**$95**	

10.4 Calculating $SAIFI_{IR}$

$SAIFI_{IR}$ is calculated as per Schedule 5B (8) of the 2015 DPP Determination.

SAIFI incentive rate ($SAIFI_{IR}$) calculation	Definition	Amount $000[14]	Reference to supporting calculation/information
0.5 x REV_{RISK}	Where REV_{RISK} is 1% of the maximum allowable revenue (MAR) specified in Schedule 1 of the 2015 DPP Determination. 0.5 x 1% x 98,788,230	$494	MAR from Schedule 1 of the 2015 DPP Determination.
divided by ($SAIFI_{cap}$ – $SAIFI_{target}$)	(0.6248 - 0.5465)	0.0783	Section 10.5.
Total $SAIFI_{IR}$		**$6,308**	

[13] Does not apply to the $SAIDI_{cap}$ - $SAIDI_{target}$ component of this calculation, which is a whole number.
[14] Does not apply to the $SAIFI_{cap}$ - $SAIFI_{target}$ component of this calculation, which is a whole number.

10.5 Reliability components for year ended 31 March 2018

Reliability component	Component value	Reference to supporting calculation/information
SAIDI		
Assessed value	52.8560	From section 4.3.
Cap	40.6302	From WELL's Compliance Statement for period ended 31 March 2018.
Collar	30.2414	From WELL's Compliance Statement for period ended 31 March 2018.
Target	35.4358	From WELL's Compliance Statement for period ended 31 March 2018.
Assessment period	Year ended 31/03/2018	As specified in Schedule 4 (1) of the 2018 CPP Determination.
SAIFI		
Assessed value	0.6760	From section 4.3.
Cap	0.6248	From WELL's Compliance Statement for period ended 31 March 2018.
Collar	0.4682	From WELL's Compliance Statement for period ended 31 March 2018.
Target	0.5465	From WELL's Compliance Statement for period ended 31 March 2018.
Assessment period	Year ended 31/03/2018	As specified in Schedule 4 (1) of the 2018 CPP Determination.

11 Appendix F: Opex incentive amount calculation

11.1 Opex incentive amount

WELL has calculated the opex incentive amount using the methodology provided in clause 3.3.2 of the IMs. The opex incentive amount is made up of amounts carried forward into that disclosure year from a disclosure year in a preceding regulatory period and, where applicable, an adjustment to the opex incentive for that disclosure year.

Opex incentive amount calculation	Definition	Amount $000	Reference to supporting calculation/information
Amount carried forward	All amounts carried forward into that disclosure year from a disclosure year in a preceding regulatory period.	$1,875	Supporting calculation provided in section 11.2.
plus an adjustment to the opex incentive, where applicable	Calculated in accordance with the formula specified in the IM variation provided in paragraph 12 of Schedule 11 of the CPP Determination.	($4,637)	Supporting calculation provided in section 11.3.
Total opex incentive amount		**($2,762)**	

11.2 Amount carried forward

The amount carried forward is calculated as per clause 3.3.3 of the IMs.

Amount carried forward calculation	Definition	Amount $000	Reference to supporting calculation/information
Amount carried forward for the year ended 31 March 2016	For the first disclosure year of a regulatory period, the 'amount carried forward' is calculated as: forecast $opex_t$ - actual $opex_t$ Where, t means the disclosure year in question (30,899 - 29,622)	$1,277	Calculation method provided in clause 3.3.3 (2) of the IMs. Forecast and actual opex provided in section 11.4.
Amount carried forward for the year ended 31 March 2017	For a disclosure year which is not the first or last disclosure year of a regulatory period, 'amount carried forward' is calculated as: (forecast $opex_t$ - actual $opex_t$) - (forecast $opex_{t-1}$ - actual $opex_{t-1)}$ Where: t means the disclosure year in question, and t-1 means the disclosure preceding the disclosure year in question (31,950 - 30,075) - (30,899 - 29,622)	$598	Calculation method provided in clause 3.3.3 (3) of the IMs. Forecast and actual opex provided in section 11.4.
Amount carried forward for the year ended 31 March 2018	The 'amount carried forward' for the last disclosure year of a regulatory period is nil.	$0	Calculation method provided in clause 3.3.3 (4) of the IMs.
Amount carried forward for the year ended 31 March 2019	This year is within the current regulatory period (CPP period), therefore no amount is carried forward for the CPP regulatory period, and instead this will be carried forward to the next regulatory period.	$0	As described in clause 3.3.2 (2) (a) of the IMs.
Total amount carried forward		**$1,875**	

11.3 Adjustment to the opex incentive

As per clause 3.3.4 of the IMs, an adjustment to the opex incentive is required for the second year of a regulatory period. This is applicable for the current year and has been calculated based on the methodology in clause 3.3.2 (2) (b) of the IMs below.

Adjustment to the opex incentive calculation	Definition	Amount $000[15]	Reference to supporting calculation/information
Adjustment to the opex incentive	An adjustment to the opex incentive must be calculated in the disclosure year immediately following a starting price year, unless the disclosure year in question is also a starting price year.	($8,487)	Supporting calculation provided in section 11.5.
divided by l-1	Where: l is the number of disclosure years in the regulatory period = 3 - 1	2	Calculation method as specified in IM variation provided in paragraph 12 of Schedule 11 of the CPP Determination.
multiplied by $(1 + r)^{y+0.5}$	Where: r is the cost of debt applying to the DPP or CPP in question y is the number of disclosure years preceding the disclosure year in question in the regulatory period $= (1 + 0.0609)^{1+0.5}$	1.0927	Calculation method as specified in paragraph 12 of Schedule 11 of the CPP Determination. The cost of debt used in this calculation is 6.09% as per the Cost of Capital Determination 2014.
Total adjustment to the opex incentive		**($4,637)**	

11.4 Forecast and actual opex

	31 March 2016 $000	31 March 2017 $000	31 March 2018 $000	31 March 2019 $000	Reference to supporting calculation/information
DDP2 allowance (forecast opex)	$30,899	$31,950	$32,914		As per 2015 DPP Determination.
CPP allowance (forecast opex)				$34,131	As per 2018 CPP Determination.
Actual opex	$29,622	$30,075	$33,311	$34,017	As per Wellington Electricity's Information Disclosures.

[15] Only applies to the "Adjustment to the opex incentive" and the "Total adjustment to the opex incentive". The other numbers in this table are whole numbers.

11.5 Adjustment to the opex incentive amount

Adjustment to the opex incentive amount calculation	Definition	Amount $000	Reference to supporting calculation/information
Base year adjustment term	A 'base year adjustment term' is calculated in accordance with the formula $-\left(\frac{(\text{forecast opex}_{t-1} - \text{actual opex}_{t-1}) - (\text{forecast opex}_{t-2} - \text{actual opex}_{t-2})}{(1+WACC)^4}\right)$ where– *WACC* means- (i) in the case of a **DPP**, the **WACC** as determined by the **Commission** and applicable to the **DPP**; or (ii) in the case of a **CPP**, the **DPP WACC** as determined by the **Commission** and as applicable to the **CPP** at the start of the **EDB's** current **CPP regulatory period** in accordance with clause 5.3.22; *t-1* means the **disclosure year** immediately prior to the current **regulatory period**; and *t-2* means the **disclosure year** commencing two years prior to the current **regulatory period**. = - ([32,914 - 33,311] - [31,950 - 30,075]) / (1 + 0.0719)^4	$1,721	Calculation method provided in clause 3.3.5 of the IMs. Forecast and actual opex provided in section 11.4. The WACC used in this calculation is 7.19% as per the Cost of Capital Determination 2014.
plus baseline adjustment term	A 'baseline adjustment term' is calculated in accordance with the formula $-(\text{forecast opex}_{t-2} - \text{actual opex}_{t-2}) \times ((1-(1+WACC)^{-6})/WACC) \times (1+WACC)^2$ where– *t-2* means the **disclosure year** commencing two years prior to the current **regulatory period**; *WACC* means the **DPP WACC** as determined by the **Commission** and as applicable to the **CPP** at the start of the **EDB's** current **CPP regulatory period** in accordance with clause 5.3.22. = - (31,950 - 30,075) x ([1 - (1+0.0719)$^{-6}$] / 0.0719) x (1+0.0719)^2	($10,208)	Calculation method provided in clause 3.3.7 (1) of the IMs. Forecast and actual opex provided in section 11.4. The WACC used in this calculation is 7.19% as per the Cost of Capital Determination 2014.
Total adjustment to the opex incentive		**($8,487)**	

12 Appendix G: SAIDI and SAIFI assessed value calculation

WELL has calculated the SAIDI and SAIFI assessed values using the methodology provided in Schedule 3 of the 2018 CPP Determination for the second assessment period. In this section, WELL has also provided information necessary to demonstrate whether WELL has complied with clause 9.

12.1 Calculating the SAIDI assessed value

WELL has calculated the SAIDI assessed value using the methodology provided in Schedule 3 (2) of the 2018 CPP Determination. Specifically, the SAIDI assessed value is calculated as:

Calculation	Definition	Amount	Reference to supporting calculation/information
Unplanned minutes lost (Class C)	Total unplanned minutes lost	4,583,274	Method of data collection and validation described in section 4.1.
Planned minutes lost (Class B)	Total planned minutes lost	1,094,024	Method of data collection and validation described in section 4.1.
Average number of customers	From the Gentrack billing system. A report is run monthly and an average is calculated for the regulatory year.	169,045	Provided by Appendix H.
Unplanned SAIDI (Class C)	(Total unplanned customer minutes lost/average number of customers)	27.1127	As specified in Schedule 3 (2) of the 2018 CPP Determination.
Planned SAIDI (Class B)	(Total planned customer minutes lost/average number of customers) x 0.5	3.2359	As specified in Schedule 3 (2) of the 2018 CPP Determination.
Total SAIDI (un-normalised)	**Unplanned SAIDI (Class C) + planned SAIDI (Class B)**	**30.3486**	
less normalization	Major event day adjustment - where any daily SAIDI value for Class C interruptions greater than the SAIDI unplanned boundary value equals the SAIDI unplanned boundary value.	0	There were no major event days in the 2019/20 year.
$SAIDI_{assess}$		**30.3486**	

12.2 Calculating the SAIFI assessed value

WELL has calculated the SAIFI assessed value using the methodology provided in schedule 3 (3) of 2018 CPP Determination. Specifically, the SAIFI assessed value is calculated as:

Calculation	Definition	Amount	Reference to supporting calculation/information
Unplanned outages (Class C)	Total number of unplanned customers outages (Class C)	71,880	Method of data collection and validation described in section 4.1.
Planned outages (Class B)	Total number of planned customers outage (Class B)	9,341	Method of data collection and validation described in section 4.1.
Average number of customers	From the Gentrack billing system. A report is run monthly and an average is calculated for the regulatory year.	169,045	Provided by Appendix H.
Unplanned SAIFI (Class C)	(Total number of unplanned customers outages/average number of customers)	0.4252	As specified in Schedule 3 (3) of the 2018 CPP Determination.
Planned SAIFI (Class B)	(Total number of planned customers outages/average number of customers) x 0.5	0.0276	As specified in Schedule 3 (3) of the 2018 CPP Determination.
Total SAIFI (un-normalised)	**Unplanned + planned SAIFI**	**0.4528**	
less normalization	Major event day adjustment - where any daily SAIFI value for Class C interruptions greater than the SAIFI unplanned boundary value equals the SAIFI unplanned boundary value.	0	There were no major event days in the 2019/20 year.
$SAIFI_{assess}$		**0.4528**	

13 Appendix H: Average customer number calculation

The monthly number of customers is provided by the Gentrack billing system.

Month	ICP numbers
Apr-19	168,550
May-19	168,626
Jun-19	168,770
Jul-19	168,879
Aug-19	169,038
Sep-19	169,119
Oct-19	169,277
Nov-19	169,416
Dec-19	169,355
Jan-20	169,239
Feb-20	169,286
Mar-20	168,987
Average	**169,045**

14 Appendix I: Responsiveness improvement resilience index assessed values

Mobile substations					
Resilience performance	**Measured by demonstrating**	**Resilience performance value**	**Attained resilience performance value**	**Audit date**	**Explanation of how WELL has met target**
Ability to get a key Hutt area substations downed in and earthquake up and running	Wellington Electricity has one mobile 10MVA substation +11KV portable switch board deployed in the Hutt region	9.17			
Ability to get key CBD substations downed in and earthquake up and running	Wellington Electricity has one mobile 10MVA substation deployed in the Wellington Central Business District Area	6.55			
Total		**15.72**	**0**		

Emergency hardware					
Resilience performance	**Measured by demonstrating**	**Resilience performance value**	**Attained resilience performance value**	**Audit date**	**Explanation of how WELL has met target**
Capability to replace 33kV fluid filled cables, damaged in and earthquake, with overhead lines.	Spare hardware required to construct at least **4km** emergency overhead power lines to replace 33kV fluid filled cable damage.	3.26	3.26	31/03/2020	Material purchased to construct 4km of overhead lines stored as per stock report and supporting invoices
	Spare hardware required to construct at least **8km** emergency overhead power lines to replace 33kV fluid filled cable damage.	3.26	3.26	31/03/2020	Material purchased to construct 4-8km of overhead lines stored as per stock report and supporting invoices
	Spare hardware required to construct at least **12km** emergency overhead power lines to replace 33kV fluid filled cable damage.	3.26	3.26	31/03/2020	Material purchased to construct 8-12km of overhead lines stored as per stock report and supporting invoices
	Spare hardware required to construct at least **16km** emergency overhead power lines to replace 33kV fluid filled cable damage.	3.26	3.26	31/03/2020	Material purchased to construct 12-16km of overhead lines stored as per stock report and supporting invoices
	Spare hardware required to construct at least **19km** emergency overhead power lines to replace 33kV fluid filled cable damage.	2.45	2.45	31/03/2020	Material purchased to construct 16-19km of overhead lines stored as per stock report and supporting invoices
Capability to repair damaged 33KV XLPE cable damaged in an earthquake	Wellington Electricity holds stock of 12 cable joining kits and 500m 33KV cable lengths.	0.27	0.27	31/03/2019	33kV joint kits and cable purchased and stored. Supporting invoices describe equipment purchased and provide evidence of receipt
Total		**15.76**	**15.76**		

Ability to respond to 11kV cable and equipment faults					
Resilience performance	**Measured by demonstrating**	**Resilience performance value**	**Attained resilience performance value**	**Audit date**	**Explanation of how WELL has met target**
Capability to respond to 11KV cable and equipment faults	WELL holds 12 11kV transformers and 30 units of 11kV switchgear available for deployment in the case of an earthquake.	3.22	3.22	31/03/2020	Transformer and switchgear purchased as per stock report and supporting invoices
	WELL holds three sets of cable fault location equipment available for deployment in the case of an earthquake.	2.01	2.01	31/03/2019	Three cable fault location test sets have been purchased received and stored. The Avo NZ invoice 24/7/18 describes the equipment purchased and provides evidence of receipt
	WELL holds 200 11kV cable joint repair kits available for deployment in the case of an earthquake.	1.95	1.95	31/03/2019	1018 Joint kits purchased and stored. The Northpower invoice 12/12/18 describes the equipment purchased and provides evidence of receipt
	WELL holds 400 11kV cable joint repair kits available for deployment in the case of an earthquake.	1.95	1.95	31/03/2019	
	WELL holds 600 11kV cable joint repair kits available for deployment in the case of an earthquake	1.95	1.95	31/03/2019	
	WELL holds 800 11kV cable joint repair kits available for deployment in the case of an earthquake.	1.95	1.95	31/03/2019	
	WELL holds 1018 11kV cable joint repair kits available for deployment in the case of an earthquake.	2.13	2.13	31/03/2019	
	WELL holds 4,090m of spare 11kV cable available for deployment in the case of an earthquake.	0.94	0.94	31/03/2019	11kV cable purchased and stored. Supporting invoices describe equipment purchased and provide evidence of receipt
	WELL holds a generation connection transformer available for deployment in the case of an earthquake.	0.34			
Total		**16.44**	**16.1**		

Communication systems					
Resilience performance	**Measured by demonstrating**	**Resilience performance value**	**Attained resilience performance value**	**Audit date**	**Explanation of how WELL has met target**
Ability to maintain communications and run network systems following a major earthquake	WELL has established a containerised data centre at Haywards with back up generation of 500kVA.	2.93			
	WELL has established a containerised data centre in Newtown with back up generation of 500kVA.	5.01			
	WELL has established a containerised data centre Porirua with back up generation of 500kVA.	5.01			
	WELL has a communications connection between the primary control centre at Petone head office and disaster recovery control centre at Haywards, as well as between the other two data centres.	2.85	2.85	31/03/2020	New Phone system installed. Connection agreement for HAY PET link. Connection of station phone system to new phone system creating comms links to other two data centre sites
	WELL has a system in place that will allow field service providers access to the Push-Wireless Digital Network in the case of a major earthquake.	1.68			
Total		**17.48**	**2.85**		

15 Appendix J: Building seismic strengthening resilience index calculation

Seismic strengthening of substation buildings					
Substation building	**Maximum resilience performance value (RPV_{max})**	**Attained resilience performance value ($RPV_{attained}$)**	**Audit date**	**NBS_{start}**	**NBS_{assess}**
Palm Grove Zone substation building strengthened to at least 67% of NBS	0	0	N/A	67%	N/A
The Terrace Zone substation building strengthened to at least 67% of NBS	0	0	N/A	70%	N/A
Plimmerton Zone substation building strengthened to at least 67% of NBS	0	0	N/A	75%	N/A
209 Hutt Road Zone substation building strengthened to at least 67% of NBS	0.2	0.2	31/03/2019	40%	67%
Colway Street Zone substation building strengthened to at least 67% of NBS	0.17	0.17	31/03/2019	40%	67%
69 Miramar Avenue Zone substation building strengthened to at least 67% of NBS	0.47	0.47	31/03/2019	49%	67%
Messines Road (TS718) 6 Zone substation building strengthened to at least 67% of NBS	0.4	0.4	31/03/2019	41%	67%
Upland Road 59 Zone substation building strengthened to at least 67% of NBS	0.33	0.33	31/03/2019	45%	100%
Marsden Street Zone substation building strengthened to at least 67% of NBS	0.17	0.17	31/03/2019	30%	67%
Park Street B Zone substation building strengthened to at least 67% of NBS	0.13	0.13	31/03/2019	55%	100%
3 Wall Place Zone substation building strengthened to at least 67% of NBS	0.27	0.27	31/03/2019	20%	100%
66 Mabey Road Zone substation building strengthened to at least 67% of NBS	0.27	0.27	31/03/2019	30%	67%
St Andrews Road Zone substation building strengthened to at least 67% of NBS	0.47	0.47	31/03/2019	50%	67%
Frederick Street Zone substation building strengthened to at least 67% of NBS	0.73	0.73	31/03/2020	16%	67%
Wallace Street Zone substation building strengthened to at least 67% of NBS	0.67	0.67	31/03/2020	56%	67%
215 The Terrace Zone substation building strengthened to at least 67% of NBS	0.33			40%	
Ira Street 8 Zone substation building strengthened to at least 67% of NBS	0.86	0.86	31/03/2019	34%	100%
Kenepuru Zone substation building strengthened to at least 67% of NBS	0.8	0.8	31/03/2019	20%	100%
Flagstaff hill (Flagstaff Line Street) Zone substation building strengthened to at least 67% of NBS	0.8	0.8	31/03/2020	45%	67%
Waikowhai Zone substation building strengthened to at least 67% of NBS	0.71	0.71	31/03/2020	40%	67%
Chaytor Street Zone substation building strengthened to at least 67% of NBS	0.4	0.4	31/03/2020	48%	67%
Karori Zone substation building strengthened to at least 67% of NBS	0.53	0.53	31/03/2020	40%	67%
University Zone substation building strengthened to at least 67% of NBS	0.6	0.6	31/03/2020	30%	67%
Customhouse Quay 40 Zone substation building strengthened to at least 67% of NBS	0.6	0.6	31/03/2020	55%	67%
36 Dixon Street Zone substation building strengthened to at least 67% of NBS	0.37	0.37	31/03/2020	38%	75%
Moore Street Zone substation building strengthened to at least 67% of NBS	0.66			40%	
22 Donald Street Zone substation building strengthened to at least 67% of NBS	0.23	0.23	31/03/2019	58%	100%
Hataitai Zone substation building strengthened to at least 67% of NBS	0.28	0.28	31/03/2020	60%	67%

Seismic strengthening of substation buildings

Substation building	Maximum resilience performance value (RPV_{max})	Attained resilience performance value ($RPV_{attained}$)	Audit date	NBS_{start}	NBS_{assess}
174 Victoria Street (TS847 & TS743) Zone substation building strengthened to at least 67% of NBS	0.5			50%	
Nairn Street Zone substation building strengthened to at least 67% of NBS	0.53	0.53	31/03/2019	43%	67%
41 Bloomfield Terrace Zone substation building strengthened to at least 67% of NBS	0.23	0.23	31/03/2020	56%	100%
Bowen Hospital Zone substation building strengthened to at least 67% of NBS	0.28			45%	
Ngauranga Zone substation building strengthened to at least 67% of NBS	0.66	0.66	31/03/2020	<10%	67%
Waterloo Zone substation building strengthened to at least 67% of NBS	0.63	0.63	31/03/2020	45%	67%
92 Washington Avenue Zone substation building strengthened to at least 67% of NBS	0.2	0.2	31/03/2019	40%	100%
Wha Street (TS703) Zone substation building strengthened to at least 67% of NBS	0.27	0.27	31/03/2020	58%	67%
2 Awa Road Zone substation building strengthened to at least 67% of NBS	0.2			40%	
Trentham Zone substation building strengthened to at least 67% of NBS	0.53	0.53	31/03/2020	45%	67%
Wainuiomata Zone substation building strengthened to at least 67% of NBS	0.66			39%	
Porirua Zone substation building strengthened to at least 67% of NBS	0.4	0.4	31/03/2020	60%	67%
Gracefield Zone substation building strengthened to at least 67% of NBS	1			47%	
Queen Street Zone substation building strengthened to at least 67% of NBS	0.2	0.2	31/03/2019	55%	100%
139 Thorndon Quay Zone substation building strengthened to at least 67% of NBS	0.47	0.47	31/03/2020	48%	100%
Wayside West Zone substation building strengthened to at least 67% of NBS	0.2	0.2	31/03/2019	49%	67%
Seaview Zone substation building strengthened to at least 67% of NBS	0.53	0.53	31/03/2020	34%	67%
Korokoro Zone substation building strengthened to at least 67% of NBS	0.52			45%	
Brown Owl Zone substation building strengthened to at least 67% of NBS	0.57	0.57	31/03/2020	40%	67%
Maidstone Zone substation building strengthened to at least 67% of NBS	0.53			45%	
Johnsonville Zone substation building strengthened to at least 67% of NBS	0.53			55%	
Tawa Zone substation building strengthened to at least 67% of NBS	0.5			42%	
Waitangirua Zone substation building strengthened to at least 67% of NBS	0.4	0.4	31/03/2020	60%	67%
Downer Street Zone substation building strengthened to at least 67% of NBS	0.17	0.17	31/03/2020	26%	100%
Titahi Bay Zone substation building strengthened to at least 67% of NBS	0.53	0.53	31/03/2020	45%	100%
Johnsonville Town Centre Zone substation building strengthened to at least 67% of NBS	0.2			45%	
Mana Zone substation building strengthened to at least 67% of NBS	0.33	0.33	31/03/2020	45%	67%
9 Semple Street Zone substation building strengthened to at least 67% of NBS	0.2	0.2	31/03/2020	37%	100%
41 Barber Grove Zone substation building strengthened to at least 67% of NBS	0.27	0.27	31/03/2019	45%	100%
254 Willis Street Zone substation building strengthened to at least 67% of NBS	0.33				
Makara Radio Zone substation building strengthened to at least 67% of NBS	0.33	0.33	31/03/2020	40%	100%
BP Terminal Zone substation building strengthened to at least 67% of NBS	0.43				
VIC Zone substation building strengthened to at least 67% of NBS	0.3	0.3	31/03/2020	45%	100%

Seismic strengthening of substation buildings

Substation building	Maximum resilience performance value (RPV_{max})	Attained resilience performance value ($RPV_{attained}$)	Audit date	NBS_{start}	NBS_{assess}
Fergusson Drive A Zone substation building strengthened to at least 67% of NBS	0.23	0.23	31/03/2019	12%	67%
Bathurst Street Zone substation building strengthened to at least 67% of NBS	0.23	0.23	31/03/2019	28%	100%
26 Gower Street (TS801) Zone substation building strengthened to at least 67% of NBS	0.3				
Fire Station Zone substation building strengthened to at least 67% of NBS	0.5	0.5	31/03/2020	42%	75%
Bill Cutting Place Zone substation building strengthened to at least 67% of NBS	0.3	0.3	31/03/2019	13%	67%
MacDonald Crescent Zone substation building strengthened to at least 67% of NBS	0.53				
415 Adelaide Road Zone substation building strengthened to at least 67% of NBS	0.3	0.3	31/03/2019	21%	67%
25 Mein Street Zone substation building strengthened to at least 67% of NBS	0.27	0.27	31/03/2020	20%	67%
Petone Zone substation building strengthened to at least 67% of NBS	0.53			37%	
130 Rintoul Street Zone substation building strengthened to at least 67% of NBS	0.3	0.3	31/03/2019	23%	67%
Whitemans Road Zone substation building strengthened to at least 67% of NBS	0.27	0.27	31/03/2019	55%	67%
Housing Corporation Zone substation building strengthened to at least 67% of NBS	0.4	0.4	31/03/2020	44%	67%
Kings Crescent Zone substation building strengthened to at least 67% of NBS	0.27	0.27	31/03/2020	30%	100%
Hutt Park Road B Zone substation building strengthened to at least 67% of NBS	0.28	0.28	31/03/2019	33%	100%
Haywards Load Control Zone substation building strengthened to at least 67% of NBS	0.5	0.5	31/03/2020	40%	67%
Dulux Zone substation building strengthened to at least 67% of NBS	0.27	0.27	31/03/2019	11%	67%
Knights Road Zone substation building strengthened to at least 67% of NBS	0.3	0.3	31/03/2019	20%	100%
Hutt Rec A Zone substation building strengthened to at least 67% of NBS	0.23	0.23	31/03/2019	18%	67%
Waterloo Road A substation building strengthened to at least 67% of NBS	0.27	0.27	31/03/2019	23%	100%
Awatea Street A Zone substation building strengthened to at least 67% of NBS	0.4	0.4	31/03/2019	20%	100%
Broken Hill Road A Zone substation building strengthened to at least 67% of NBS	0.27	0.27	31/03/2019	24%	67%
37 Mersey Street Zone substation building strengthened to at least 67% of NBS	0.17	0.17	31/03/2020	40%	100%
Eastern Hutt Road A Zone substation building strengthened to at least 67% of NBS	0.27	0.27	31/03/2019	22%	100%
Keys Street Zone substation building strengthened to at least 67% of NBS	0.3	0.3	31/03/2019	25%	100%
Main Road 24 Zone substation building strengthened to at least 67% of NBS	0.23	0.23	31/03/2020	45%	67%
32 Dragon Street Zone substation building strengthened to at least 67% of NBS	0.43	0.43	31/03/2019	33%	100%
Whakatiki Street A Zone substation building strengthened to at least 67% of NBS	0.3	0.3	31/03/2019	21%	100%
Lyttelton Avenue B Zone substation building strengthened to at least 67% of NBS	0.33	0.33	31/03/2019	14%	100%
Whakatiki Street B Zone substation building strengthened to at least 67% of NBS	0.27	0.27	31/03/2019	15%	100%
Islington Street Zone substation building strengthened to at least 67% of NBS	0.27	0.27	31/03/2019	31%	100%
Total	**34.6**	**26.57**			