wellington electricity

Compliance Statement

Year ended 31 March 2019

Contents

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

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1 Introduction

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

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

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

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

We have around **4,000 substations** and **40,000 poles**.

We own around **2,000 km** 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.

We have a number of known earthquake fault lines in the region. In March 2018 we were granted $31.24 million of additional funding to improve our ability to respond after a major earthquake. Our 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 we can collect from our customers, the quality levels that we must perform to and the earthquake readiness milestones we must reach. To demonstrate that WELL has met these performance

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

targets, we are 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 2019 have been set at a level to collect the allowances determined by the CPP price path. The *Annual Price-Setting Compliance Statement* was submitted to the Commission and provided on our website in January 2018 (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 the 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 first CPP assessment period ended 31 March 2019 (first 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 our compliance with the requirement to calculate the wash-up amount in clause 8.4, demonstrate our compliance with the quality standards in clause 9 and 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 to clause 11.4:

Presentation requirement	Confirmation
Clause 11.4 (a) Provide to the Commission 50 working days after 31 March 2019 (by 14 June 2019)	To be E-mailed 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 e-mailed 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 first assessment period.

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

Wash-up calculation	($000)
Actual allowable revenue	$172,871
Less actual revenue	$172,789
Less revenue foregone	0
Total wash-up amount	$82

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 first assessment period.

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 first assessment period.

For the first 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	30.4217	40.6300	(10.2)
SAIFI	0.4557	0.6250	(0.2)

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 first assessment period.

For the first 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	25.14	20.0	5.14

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 12 June 2019.

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 first 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 Director's certificate signed by two directors. The Directors certificate is provided in Appendix B. This certificate certifies that the information contained in this 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 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 (1)) for the first 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 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 pass-through balance annual recovery (refer to table below)	$172,871	Supporting calculation provided in section 3.1
Less actual revenue	means the sum of actual revenue from prices for the Assessment Period 1 April 2018 to 31 March 2019	$172,789	Supporting calculation provided in section 3.2
Less revenue foregone	Revenue reduction percentage: is 1 minus (actual revenue from prices ÷ forecast revenue from prices); 1 – ($172,789 ÷ $172,603) = -0.1% _____ 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 -0.1% which is less than 20%. Therefore revenue foregone is nil.	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. This can be found at: https://www.welectricity.co.nz/disclosures/price-quality-path-annual-compliance-statements/
Total wash-up amount		$82	

3.1 Actual allowable revenue

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

For the first 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 first assessment period, 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
Plus actual pass-through costs and recoverable costs	for the first assessment period, the sum of all pass-through costs and recoverable costs that were incurred in the assessment period	$71,025	Supporting calculation provided in section 3.3
Plus pass-through balance annual recovery	From schedule 1.7 of the 2018 CPP Determination: $\frac{-1 \times \textbf{pass through balance}}{3} \times (1 + \textbf{WACC})$	(3,360)	Supporting calculation provided in section 3.4
Actual allowable revenue		$172,871	

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: https://www.welectricity.co.nz/disclosures/pricing/2018-pricing-2/.

Published prices for the first assessment period are provided in Appendix C. WELL deferred its annual price change from 1 April 2018 to 1 July 2018 to allow for the impacts on pricing arising from the 2018 CPP Determination to be assessed. This has resulted in two price sets for the first assessment period - those that apply to the period 1 April 2018 to 30 June 2018 and those that apply for the period 1 July 2018 to 31 March 2019.

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 and standard user and EV)	110,793
General Low Voltage	35,329
General Transformer	20,687
Unmetered	3,840
Non-standard consumers (individual contracts)	2,141
Total	**$172,789**

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

3.3 Actual pass-through costs and recoverable costs

For the first 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. 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 input methodology provided in the 2018 CPP Determination.

Description	IM reference[2]	Amount $000	Reference to supporting calculation/information
Pass-through Costs			
Council rates	3.1.2 (2) (a)	$2,858	As invoiced during the assessment year
Commerce Act levies	3.1.2 (2) (b) (i)	$286	As invoiced during the assessment year
Industry levies	3.1.2 (2) (b) (ii)	$463	As invoiced during the assessment year
Utilities Dispute Limited Levies	3.1.2 (2) (b) (iii)	$98	As invoiced during the assessment year
Total Pass-through Costs		**$3,705**	
Recoverable Costs			
Electricity lines service charge payable to Transpower	3.1.3 (1) (b)	$61,713	As invoiced during the assessment year
Transpower new investment contract charges	3.1.3 (1) (c)	$1,182	As invoiced during the assessment year

[2] Reference to Electricity distribution services input methodologies determination 2012 consolidated 3 April 2018.pdf

Distributed generation allowance	3.1.3 (1) (f)	$2,749	As invoiced during the assessment year
CPP Proposal Application Fee	3.1.3 (1) (h)	$23	CPP Determination Schedule 2.1(3)
CPP Assessment Fee payable to Commission	3.1.3 (1) (i)	$337	Commission charges invoiced to date as per CPP Determination Schedule 2.1(4)
CPP Auditor's costs	3.1.3 (1) (k)	$71	CPP Determination Schedule 2.1(6)
Quality Incentive Adjustment	3.1.3 (1) (o)	($1,119)	Section 3.3.1
Capex wash-up adjustment	3.1.3 (1) (p)	$489	As per schedule 2.1 of 2018 CPP Determination
IRIS incentive adjustment	3.1.3 (1) (a) (i)	$1,875	Section 3.3.2
Total Recoverable Costs		**$67,320**	
Total Pass-through and Recoverable Costs		**$71,025**	

3.3.1 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 first 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 first 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 3.4.1

3.3.2 IRIS incentive adjustment calculation

The IRIS incentive adjustment is calculated using the inputs provided in Schedule 2.2 of the 2018 CPP Determination for the first assessment period. The calculation uses the methodology provided in 'Subpart 3 Incremental rolling incentive scheme' of the Electricity Distribution Services Input Methodologies Determination 2012 (consolidated April 2018).

The IRIS incentive adjustment has been calculated as:

IRIS calculation	Definition	Amount ($000)	Reference to supporting calculation/information
Opex incentive amount	Annual opex IRIS adjustment	$1,875	Supporting calculation provided in Appendix F. Opex incentive calculation is from Clause 10 Electricity Distribution Services Input Methodologies Determination 2012 (Consolidated April 2018) and from the IM variations provide in the 2018 CPP Determination.
plus Capex incentive amount	Annual Capex IRIS adjustment – nil	0	Clause 3.3.10 Electricity Distribution Services Input Methodologies Determination 2012 (consolidated April 2018) and the IM variations provide in the 2018 CPP Determination
Total IRIS incentive adjustment		$1,875	

3.4 Calculation of pass-through balance annual recovery

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

$$\frac{-1 \times \textbf{pass through balance}}{3} \times (1 + \textbf{WACC})$$

Where:

Calculation	Definition	Amount ($000)	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[3].
Multiplied by (1 + WACC)	67th percentile estimate of post-tax WACC is 6.44%	1.0644	Supporting calculation provided in Section 3.4.1
Pass-through balance annual recovery		($3,360)	

3.4.1 67th percentile estimate of post-tax WACC

The WACC calculation for Price-Quality Determinations is provided in clause 4.4.1 of the Electricity Distribution Services Input Methodologies Determination 2012 (consolidated April 2018). WACC for the 2018 CPP Determination is determined by the DPP2 price reset (as per clause 5.3.22 of the Electricity Distribution Services Input Methodologies Determination 2012 (consolidated April 2018)).

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.

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

4 Reliability calculation and supporting information

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

WELL improved its quality performance from the previous two years and outperformed the quality targets for the first assessment period of the CPP. The improved performance was a result of refinements to our quality improvement programme. At a high level, the quality improvement programme for the first assessment period included:

- Continued work on improving feeder performance by undertaking refurbishment projects on 11kV feeders.

[3] 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 the '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.

- Predictive analysis of failure rates has been expanded from a focus on sub transmission and substation assets to include the overhead conductors and poles, and 11 kV underground cables.
- A greater focus on reliability performance has been provided by staff and contractor refresher training on SAIDI & SAIFI, a bi-weekly meeting on reliability with service providers and establishing a morning report on network performance.
- Review and refinement of the monthly outage report, providing more in-depth analysis of unplanned outages.
- Analysis showed that some overhead connectors are prone to failure due to exacerbated ageing when installed in close proximity to the coast. Connector covers have been successfully trailed and are being implemented on the network.
- Conductor covers are being used to reduce the number of outages caused by close vegetation.
- Generators are being used for de-energised planned outages. Supporting tools are also being developed to guide when generation should be used.

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

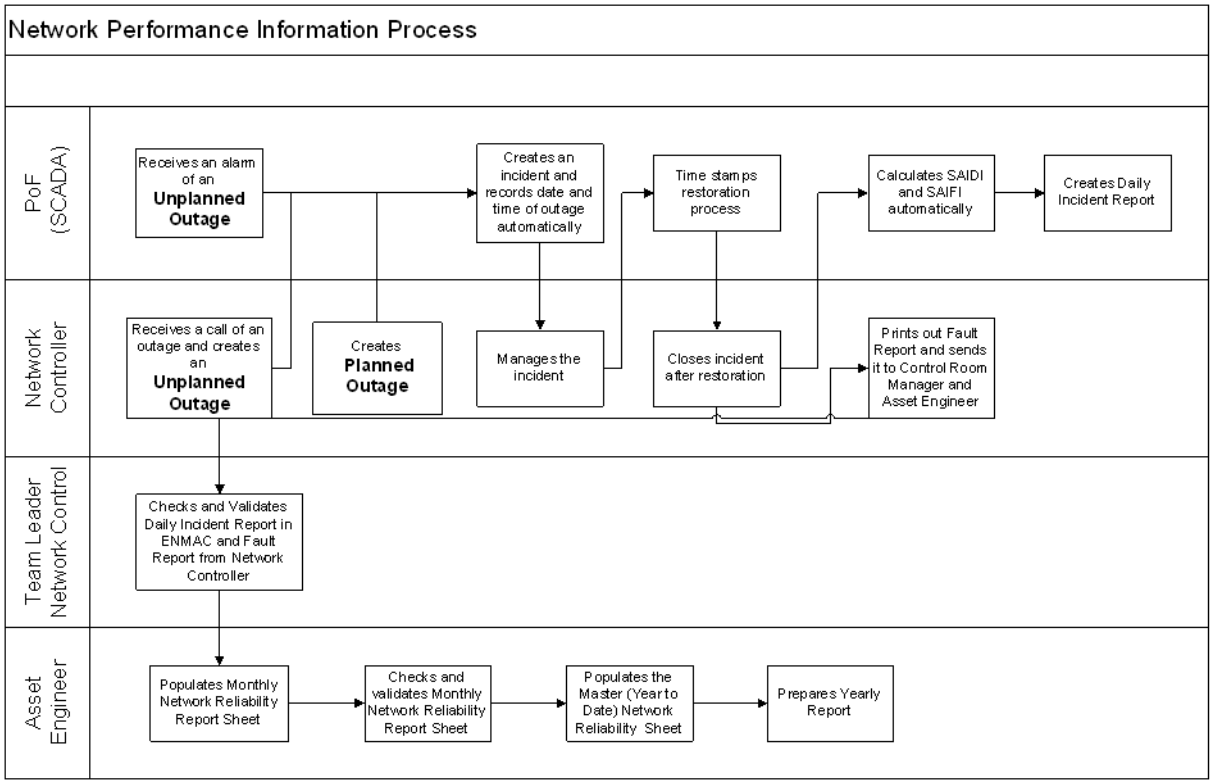
The control system WELL uses to record SAIDI and SAIFI information is the Power On Fusion (PoF) SCADA network management system (the system). The system is used for the real-time management and monitoring of the high voltage network. Specifically, the system provides information about the status of the 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.

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 frequency and duration 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 2017/18 and 2018/19 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 first assessment period, WELL out performed our reliability limit:

Reliability measure	Assessed value	Limit[4]	Variance
SAIDI	30.4217	40.6300	(10.2)
SAIFI	0.4557	0.6250	(0.2)

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

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, does not need 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	30.4217	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
SAIFI		
Assessed value	0.4557	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 2017 (from WELL's Compliance Statement for that period)

Requirement	Assessed value	Limit	Variance
SAIDI	49.732	40.630	9.102
SAIFI	0.711	0.625	0.086

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

Requirement	Assessed value	Limit	Variance
SAIDI	52.856	40.63	12.226
SAIFI	0.676	0.625	0.051

WELL did not comply with the quality targets in the previous two assessment periods – the assessed values were greater than the SAIDI and SAIFI limits. The reasons for WELL not meeting the quality targets for each of the two previous were different:

- In 2016/17, Wellington received a greater than average number of storms with abnormally turbulent wind conditions. This caused damage to trees and the overhead network;
- In 2017/18, outages increased due to earthquake-related cable damage, an increase in the number of car vs pole incidents and the effect of the HSW Act on live line work.

An explanation paper was provided to the Commerce Commission in August 2018 providing a detailed analysis of the causes of the outages. The report highlights that the increase in outages was due to an increase in unplanned events and not deteriorating asset health. The report also showed that the causes of the increase in outages were different in the 2016/17 and 2017/18 years.

WELL is committed to providing customers with a reliable and secure electricity supply. WELL has implemented a number of reliability improvement initiatives to improve the performance of the network. The following reliability improvements initiatives are examples of the many programmes that have contributed to WELL out performing its quality targets in the current assessment period:

- Continuous network improvement programme (which focuses on the worst performing assets) included work undertaken to improve the quality of supply experienced for customers in the Whiteman's Valley supplied by the Maidstone 10 11 kV feeder;
- Analysis of incidents and outages to identify continual improvement opportunities. In 2018 this included a greater use of portable generators to reduce the impact to consumers of planned outages; and
- A review of vegetation work practices, an increase in the preventative work programme and greater engagement with tree owners has resulted in a significant improvement in vegetation management performance.

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 to the resilience quality measures. The compliance assessment is calculated in accordance with clause 9.4 of the 2018 CPP Determination for the Assessment Period ended 31 March 2019. At a minimum the supporting information includes the information requested in clause 11.6 (c), (d) and (h) to (j).

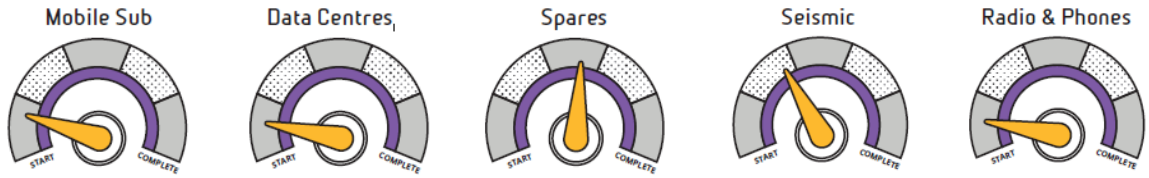
5.1 WELL earthquake reliance programme

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'[5]. 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
6. reinforcement to key assets across the network

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

WELL has made good progress overall, as illustrated below.



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.

[5] "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 first assessment period, WELL out performed our resilience targets:

Reliability measure	Resilience index assessed value	Resilience index minimum	Variance
Resilience Index	25.14	20.0	5.14

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, does not need 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	25.14	Supporting calculation provided in section 5.2.1
Resilience index minimum	20.0	Provided in schedule 3 (1) of the 2018 CPP Determination
Resilience index cap	nil for first assessment period	Provided in schedule 4 (10) of the 2018 CPP Determination
Resilience index collar	nil for first assessment period	Provided in schedule 4 (10) of the 2018 CPP Determination
Resilience index target	nil for first 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.

Responsiveness improvement work programme	Resilience performance value	Resilience Index Assessed Value	Remaining
Mobile substations	15.72	0	15.72
Emergency hardware	15.76	0.27	15.49
Ability to respond to 11KV cable and equipment faults	16.44	12.88	3.56
Communication systems	17.48	0	17.48
Total	65.4	13.15	52.25

The full assessment calculations are provided in Appendix I: Responsiveness improvement resilience index calculation. The calculations are in accordance with Schedule 3 (5) 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 Building 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
Substation buildings	34.6	11.99	22.61

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). 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.

5.2.1.3 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	13.15	52.25
Substation buildings	34.6	11.99	22.61
Total	100	25.14	74.86

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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 2019

We have conducted a reasonable assurance engagement on whether the information disclosed by Wellington Electricity Lines Limited ('the Company') on pages 6 to 45 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 2018 to 31 March 2019 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) ('the Determination').

In our opinion, for the period 1 April 2018 to 31 March 2019:

- 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 or any of its subsidiaries. These services have not impaired our independence as auditor.

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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.

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 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 2018 to 31 March 2019.

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 2018 to 31 March 2019 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.

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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.

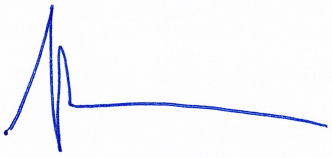
Deloitte Limited

Wellington, New Zealand
12 June 2019

This reasonable assurance report relates to the Annual Compliance Statement of Wellington Electricity Lines Limited ('the Company') for the year ended 31 March 2019 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 12 June 2019 to confirm the information included in the Annual Compliance Statement presented on this website.

Directors' Certificate

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.



Director

12 June 2019

Director

12 June 2019

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 first assessment period

			1/04/2018 to 30/06/2018		
Code	Description	Units	Distribution price	Transmission and pass through Price[6]	Delivery Price
Residential					
RLU-FIXD	Low user daily	$/con/day	0.1500	0.0000	0.1500
RLU-24UC	Low user uncontrolled	$/kWh	0.0468	0.0690	0.1158
RLU-AICO	Low user all inclusive	$/kWh	0.0367	0.0562	0.0929
RLU-CTRL	Low user controlled	$/kWh	0.0219	0.0339	0.0558
RLU-NITE	Low user night boost	$/kWh	0.0080	0.0109	0.0189
RLU-EVNITE	Low user electric vehicle night only[1]	$/kWh	0.0080	0.0109	0.0189
RLU-EVDMND	Low user electric vehicle demand[2]	$/kW/month	0.0000	0.0000	0.0000
RSU-FIXD	Standard user daily	$/con/day	1.1000	0.0000	1.1000
RSU-24UC	Standard user uncontrolled	$/kWh	0.0316	0.0409	0.0725
RSU-AICO	Standard user all inclusive	$/kWh	0.0228	0.0271	0.0499
RSU-CTRL	Standard user controlled	$/kWh	0.0107	0.0115	0.0222
RSU-NITE	Standard user night boost	$/kWh	0.0071	0.0102	0.0173
RSU-EVNITE	Standard user electric vehicle night only[1]	$/kWh	0.0071	0.0102	0.0173
RSU-EVDMND	Standard user electric vehicle demand[2]	$/kW/month	0.0000	0.0000	0.0000
General low voltage connection					
GLV15-FIXD	General low voltage <=15kVA daily	$/con/day	0.6268	0.0000	0.6268
GLV15-24UC	General low voltage <=15kVA uncontrolled	$/kWh	0.0207	0.0360	0.0567
GLV69-FIXD	General low voltage >15kVA and <=69kVA daily	$/con/day	1.5504	0.0000	1.5504
GLV69-24UC	General low voltage >15kVA and <=69kVA uncontrolled	$/kWh	0.0143	0.0250	0.0393
GLV138-FIXD	General low voltage >69kVA and <=138kVA daily	$/con/day	8.7851	0.0000	8.7851
GLV138-24UC	General low voltage >69kVA and <=138kVA uncontrolled	$/kWh	0.0170	0.0295	0.0465
GLV300-FIXD	General low voltage >138kVA and <=300kVA daily	$/con/day	12.5144	0.0000	12.5144
GLV300-24UC	General low voltage >138kVA and <=300kVA uncontrolled	$/kWh	0.0070	0.0123	0.0193
GLV1500-FIXD	General low voltage >300kVA and <=1500kVA daily	$/con/day	31.5561	0.0000	31.5561
GLV1500-24UC	General low voltage >300kVA and <=1500kVA uncontrolled	$/kWh	0.0031	0.0055	0.0086
GLV1500-DAMD	General low voltage >300kVA and <=1500kVA demand	$/kVA/month	2.7627	4.8915	7.6542
General transformer connection					
GTX15-FIXD	General transformer <=15kVA daily	$/con/day	0.5690	0.0000	0.5690
GTX15-24UC	General transformer <=15kVA uncontrolled	$/kWh	0.0201	0.0328	0.0529
GTX69-FIXD	General transformer >15kVA and <=69kVA daily	$/con/day	1.4069	0.0000	1.4069
GTX69-24UC	General transformer >15kVA and <=69kVA uncontrolled	$/kWh	0.0140	0.0229	0.0369
GTX138-FIXD	General transformer >69kVA and <=138kVA daily	$/con/day	7.9715	0.0000	7.9715
GTX138-24UC	General transformer >69kVA and <=138kVA uncontrolled	$/kWh	0.0166	0.0269	0.0435
GTX300-FIXD	General transformer >138kVA and <=300kVA daily	$/con/day	11.3555	0.0000	11.3555
GTX300-24UC	General transformer >138kVA and <=300kVA uncontrolled	$/kWh	0.0069	0.0111	0.0180
GTX1500-FIXD	General transformer >300kVA and <=1500kVA daily	$/con/day	24.5009	0.0000	24.5009
GTX1500-24UC	General transformer >300kVA and <=1500kVA uncontrolled	$/kWh	0.0026	0.0044	0.0070
GTX1500-CAPY	General transformer >300kVA and <=1500kVA capacity	$/kVA/day	0.0063	0.0104	0.0167
GTX1500-DAMD	General transformer >300kVA and <=1500kVA demand	$/kVA/month	2.4243	4.0093	6.4336
GTX1501-FIXD	General transformer >1500kVA connection daily	$/con/day	0.0545	0.0000	0.0545
GTX1501-24UC	General transformer >1500kVA connection uncontrolled	$/kWh	0.0006	0.0009	0.0015
GTX1501-CAPY	General transformer >1500kVA connection capacity	$/kVA/day	0.0119	0.0177	0.0296
GTX1501-DOPC	General transformer >1500kVA connection on-peak demand[3]	$/kW/month	4.8536	7.2683	12.1219
GTX1501-PWRF	General transformer, >1500kVA connection, power factor[4]	$/kVAr/month	3.5047	5.2483	8.7530
Unmetered					
G001-FIXD	Non-street lighting daily	$/fitting/day	0.0432	0.0000	0.0432
G001-24UC	Non-street lighting uncontrolled	$/kWh	0.0549	0.0854	0.1403
G002-FIXD	Street lighting daily	$/fitting/day	0.1246	0.0938	0.2184
G002-24UC	Street lighting uncontrolled	$/kWh	0.0000	0.0000	0.0000
Distributed generation					
*DGEN	Small scale distributed generation[5]	$/kWh	0.0000	0.0000	0.0000

Code	Description	Units	1/07/2018 to 31/03/2019 Distribution price	Transmission and pass through Price[6]	Delivery Price
Residential					
RLU-FIXD	Low user daily	$/con/day	0.0900	0.0600	0.1500
RLU-24UC	Low user uncontrolled	$/kWh	0.0740	0.0418	0.1158
RLU-AICO	Low user all inclusive	$/kWh	0.0594	0.0335	0.0929
RLU-CTRL	Low user controlled	$/kWh	0.0357	0.0201	0.0558
RLU-NITE	Low user night boost	$/kWh	0.0121	0.0068	0.0189
RLU-EVNITE	Low user electric vehicle night only	$/kWh	discontinued	discontinued	discontinued
RLU-EVDMND	Low user electric vehicle demand	$/kW/month	discontinued	discontinued	discontinued
RSU-FIXD	Standard user daily	$/con/day	0.6600	0.4400	1.1000
RSU-24UC	Standard user uncontrolled	$/kWh	0.0463	0.0262	0.0725
RSU-AICO	Standard user all inclusive	$/kWh	0.0319	0.0180	0.0499
RSU-CTRL	Standard user controlled	$/kWh	0.0142	0.0080	0.0222
RSU-NITE	Standard user night boost	$/kWh	0.0111	0.0062	0.0173
RSU-EVNITE	Standard user electric vehicle night only	$/kWh	discontinued	discontinued	discontinued
RSU-EVDMND	Standard user electric vehicle demand	$/kW/month	discontinued	discontinued	discontinued
Residential electric vehicle and battery storage					
RLUEVB-FIXD	Residential EV & battery storage low user daily	$/con/day	0.0900	0.0600	0.1500
RLUEVB-PEAK	Residential EV & battery storage low user peak[1]	$/kWh	0.0858	0.0678	0.1536
RLUEVB-OFFPEAK	Residential EV & battery storage low user off-peak[2]	$/kWh	0.0381	0.0302	0.0683
RLUEVB-CTRL	Residential EV & battery storage low user controlled	$/kWh	0.0357	0.0201	0.0558
RSUEVB-FIXD	Residential EV & battery storage standard user daily	$/con/day	0.6600	0.4400	1.1000
RSUEVB-PEAK	Residential EV & battery storage standard user peak[1]	$/kWh	0.0616	0.0487	0.1103
RSUEVB-OFFPEAK	Residential EV & battery storage standard user off-peak[2]	$/kWh	0.0140	0.0110	0.0250
RSUEVB-CTRL	Residential EV & battery storage standard user controlled	$/kWh	0.0142	0.0080	0.0222
General low voltage connection					
GLV15-FIXD	General low voltage <=15kVA daily	$/con/day	0.4002	0.2264	0.6266
GLV15-24UC	General low voltage <=15kVA uncontrolled	$/kWh	0.0362	0.0205	0.0567
GLV69-FIXD	General low voltage >15kVA and <=69kVA daily	$/con/day	0.9901	0.5600	1.5501
GLV69-24UC	General low voltage >15kVA and <=69kVA uncontrolled	$/kWh	0.0250	0.0142	0.0392
GLV138-FIXD	General low voltage >69kVA and <=138kVA daily	$/con/day	5.6101	3.1732	8.7833
GLV138-24UC	General low voltage >69kVA and <=138kVA uncontrolled	$/kWh	0.0297	0.0168	0.0465
GLV300-FIXD	General low voltage >138kVA and <=300kVA daily	$/con/day	7.9916	4.5202	12.5118
GLV300-24UC	General low voltage >138kVA and <=300kVA uncontrolled	$/kWh	0.0123	0.0070	0.0193
GLV1500-FIXD	General low voltage >300kVA and <=1500kVA daily	$/con/day	20.1516	11.3980	31.5496
GLV1500-24UC	General low voltage >300kVA and <=1500kVA uncontrolled	$/kWh	0.0055	0.0031	0.0086
GLV1500-DAMD	General low voltage >300kVA and <=1500kVA demand	$/kVA/month	4.8879	2.7647	7.6526
General transformer connection					
GTX15-FIXD	General transformer <=15kVA daily	$/con/day	0.3633	0.2056	0.5689
GTX15-24UC	General transformer <=15kVA uncontrolled	$/kWh	0.0337	0.0191	0.0528
GTX69-FIXD	General transformer >15kVA and <=69kVA daily	$/con/day	0.8985	0.5081	1.4066
GTX69-24UC	General transformer >15kVA and <=69kVA uncontrolled	$/kWh	0.0236	0.0133	0.0369
GTX138-FIXD	General transformer >69kVA and <=138kVA daily	$/con/day	5.0906	2.8793	7.9699
GTX138-24UC	General transformer >69kVA and <=138kVA uncontrolled	$/kWh	0.0278	0.0157	0.0435
GTX300-FIXD	General transformer >138kVA and <=300kVA daily	$/con/day	7.2515	4.1016	11.3531
GTX300-24UC	General transformer >138kVA and <=300kVA uncontrolled	$/kWh	0.0115	0.0065	0.0180
GTX1500-FIXD	General transformer >300kVA and <=1500kVA daily	$/con/day	15.6461	8.8497	24.4958
GTX1500-24UC	General transformer >300kVA and <=1500kVA uncontrolled	$/kWh	0.0045	0.0025	0.0070
GTX1500-CAPY	General transformer >300kVA and <=1500kVA capacity	$/kVA/day	0.0106	0.0061	0.0167
GTX1500-DAMD	General transformer >300kVA and <=1500kVA demand	$/kVA/month	4.1085	2.3238	6.4323
GTX1501-FIXD	General transformer >1500kVA connection daily	$/con/day	0.0348	0.0197	0.0545
GTX1501-24UC	General transformer >1500kVA connection uncontrolled	$/kWh	0.0009	0.0006	0.0015
GTX1501-CAPY	General transformer >1500kVA connection capacity	$/kVA/day	0.0189	0.0107	0.0296
GTX1501-DOPC	General transformer >1500kVA connection on-peak demand[3]	$/kW/month	7.7410	4.3784	12.1194
GTX1501-PWRF	General transformer, >1500kVA connection, power factor[4]	$/kVAr/month	5.5896	3.1616	8.7512
Unmetered					
G001-FIXD	Non-street lighting daily	$/fitting/day	0.0276	0.0156	0.0432
G001-24UC	Non-street lighting uncontrolled	$/kWh	0.0895	0.0507	0.1402
G002-FIXD	Street lighting daily	$/fitting/day	0.1385	0.0838	0.2223
G002-24UC	Street lighting uncontrolled	$/kWh	0.0000	0.0000	0.0000
Distributed generation					
*DGEN	Small scale distributed generation[5]	$/kWh	0.0000	0.0000	0.0000

Pricing notes for 01/04/2018 to 30/06/2018

1. EV night rate applies from 9 p.m. to 7 a.m.
2. Electric vehicle demand is measured between 5 p.m. and 9 p.m. during weekdays including public holidays.
3. Charge is applicable to demand measured from 7.30 a.m. to 9.30 a.m. and 5.30 p.m. to 7.30 p.m. on weekdays including public holidays.
4. Charge is applicable for power factor <0.95 from 7 a.m. to 8 p.m. 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, 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 91% of the Transmission and Other pass through Price. Other pass through charges recovered include costs such as Commerce Act Levies, Electricity Authority Levies, Council rates and other recoverable costs.

Pricing notes for 01/07/2018 to 31/03/2019

1. Peak: Monday to Friday 07:00 - 11:00 (incl. public holidays); and Monday to Friday 17:00 - 21:00 (incl. public holidays)
2. Offpeak: 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 90% of the Transmission and 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 2018 to 30 June 2018	Quantity 1 July 2018 to 31 March 2019	Quantity 2018/19	Distribution Price 1 April 2018 to 30 June 2018	Transmission Price 1 April 2018 to 30 June 2018	Distribution Price 1 July 2018 to 31 March 2019	Transmission Price 1 July 2018 to 31 March 2019		Revenue 1 April 2018 to 31 March 2019
Residential											
RLU-FIXD	con/day	Low user daily	8,381,175	25,143,577	33,524,752	0.1500	-	0.0900	0.0600		5,028,713
RLU-24UC	kWh	Low user uncontrolled	66,378,034	168,495,303	234,873,338	0.0468	0.0690	0.0740	0.0418		27,198,332
RLU-AICO	kWh	Low user all inclusive	64,384,537	164,371,185	228,755,723	0.0367	0.0562	0.0594	0.0335		21,251,407
RLU-CTRL	kWh	Low user controlled	4,541,928	12,663,153	17,205,082	0.0219	0.0339	0.0357	0.0201		960,044
RLU-NITE	kWh	Low user night only	426,674	1,758,096	2,184,770	0.0080	0.0109	0.0121	0.0068		41,292
RLU-EVNITE	kWh	Low user electric vehicle night only	32,165	74,264	106,429	0.0080	0.0109	0.0121	0.0068		2,012
RSU-FIXD	con/day	Standard user daily	5,268,895	16,141,920	21,410,815	1.1000	-	0.6600	0.4400		23,551,896
RSU-24UC	kWh	Standard user uncontrolled	74,423,778	184,128,518	258,552,296	0.0316	0.0409	0.0463	0.0262		18,745,041
RSU-AICO	kWh	Standard user all inclusive	75,855,655	191,956,291	267,811,946	0.0228	0.0271	0.0319	0.0180		13,363,816
RSU-CTRL	kWh	Standard user controlled	6,564,116	17,362,325	23,926,441	0.0107	0.0115	0.0142	0.0080		531,167
RSU-NITE	kWh	Standard user night only	1,096,551	2,790,312	3,886,863	0.0071	0.0102	0.0111	0.0062		67,243
RSU-EVNITE	kWh	Standard user electric vehicle night only	32,595	109,814	142,409	0.0071	0.0102	0.0111	0.0062		2,464
RLUEVB-FIXD	con/day	Low user EV & Battery daily	-	7,415	7,415	-	-	0.0900	0.0600		1,112
RLUEVB-PEAK	kWh	Low user electric vehicle and battery PEAK	-	53,214	53,214	-	-	0.0858	0.0678		8,174
RLUEVB-OFFPEAK	kWh	Low user electric vehicle and battery OFFPEAK	-	112,230	112,230	-	-	0.0381	0.0302		7,665
RLUEVB-CTRL	kWh	Low user EV & Battery controlled	-	3,399	3,399	-	-	0.0357	0.0201		190
RSUEVB-FIXD	con/day	Standard user EV & Battery daily	-	9,693	9,693	-	-	0.6600	0.4400		10,662
RSUEVB-PEAK	kWh	Standard user electric vehicle and battery PEAK	-	137,424	137,424	-	-	0.0616	0.0487		15,158
RSUEVB-OFFPEAK	kWh	Standard user electric vehicle and battery OFFPEAK	-	259,330	259,330	-	-	0.0140	0.0110		6,483
RSUEVB-CTRL	kWh	Standard user EV & Battery controlled	-	8,616	8,616	-	-	0.0142	0.0080		191
										subtotal	**110,793,062**
General low voltage connection											
GLV15-FIXD	con/day	General low voltage <=15kVA daily	462,302	1,407,940	1,870,242	0.6268	-	0.4002	0.2264		1,171,986
GLV15-24UC	kWh	General low voltage <=15kVA uncontrolled	12,058,413	31,901,215	43,959,628	0.0207	0.0360	0.0362	0.0205		2,492,511
GLV69-FIXD	con/day	General low voltage >15kVA and <=69kVA daily	901,473	2,719,277	3,620,750	1.5504	-	0.9901	0.5600		5,612,795
GLV69-24UC	kWh	General low voltage >15kVA and <=69kVA uncontrolled	83,062,470	221,119,605	304,182,075	0.0143	0.0250	0.0250	0.0142		11,932,244
GLV138-FIXD	con/day	General low voltage >69kVA and <=138kVA daily	34,824	108,132	142,956	8.7851	-	5.6101	3.1732		1,255,684
GLV138-24UC	kWh	General low voltage >69kVA and <=138kVA uncontrolled	13,623,555	38,620,580	52,244,135	0.0170	0.0295	0.0297	0.0168		2,429,352
GLV300-FIXD	con/day	General low voltage >138kVA and <=300kVA daily	32,087	96,321	128,407	12.5144	-	7.9916	4.5202		1,606,689
GLV300-24UC	kWh	General low voltage >138kVA and <=300kVA uncontrolled	26,504,438	76,923,023	103,427,460	0.0070	0.0123	0.0123	0.0070		1,996,150
GLV1500-FIXD	con/day	General low voltage >300kVA and <=1500kVA daily	19,921	59,270	79,191	31.5561	-	20.1516	11.3980		2,498,587
GLV1500-24UC	kWh	General low voltage >300kVA and <=1500kVA uncontrolled	38,573,308	99,082,725	137,656,033	0.0031	0.0055	0.0055	0.0031		1,183,842
GLV1500-DAMD	kVA/month	General low voltage >300kVA and <=1500kVA demand	93,775	317,665	411,440	2.7627	4.8915	4.8879	2.7647		3,148,740
										subtotal	**35,328,580**
General transformer connection											
GTX15-FIXD	con/day	General transformer <=15kVA daily	182	516	698	0.5690	-	0.3633	0.2056		397
GTX15-24UC	kWh	General transformer <=15kVA uncontrolled	5,080	940	6,021	0.0201	0.0328	0.0337	0.0191		318
GTX69-FIXD	con/day	General transformer >15kVA and <=69kVA daily	1,497	4,970	6,467	1.4069	-	0.8985	0.5081		9,097
GTX69-24UC	kWh	General transformer >15kVA and <=69kVA uncontrolled	136,969	400,968	537,936	0.0140	0.0229	0.0236	0.0133		19,850
GTX138-FIXD	con/day	General transformer >69kVA and <=138kVA daily	1,547	4,617	6,164	7.9715	-	5.0906	2.8793		49,132
GTX138-24UC	kWh	General transformer >69kVA and <=138kVA uncontrolled	706,427	2,111,784	2,818,211	0.0166	0.0269	0.0278	0.0157		122,592
GTX300-FIXD	con/day	General transformer >138kVA and <=300kVA daily	9,298	27,035	36,333	11.3555	-	7.2515	4.1016		412,516
GTX300-24UC	kWh	General transformer >138kVA and <=300kVA uncontrolled	13,002,354	34,959,136	47,961,490	0.0069	0.0111	0.0115	0.0065		863,307
GTX1500-FIXD	con/day	General transformer >300kVA and <=1500kVA daily	29,254	71,493	100,747	24.5009	-	15.6461	8.8497		2,468,037
GTX1500-24UC	kWh	General transformer >300kVA and <=1500kVA uncontrolled	91,952,844	267,230,607	359,183,451	0.0026	0.0044	0.0045	0.0025		2,514,284
GTX1500-CAPY	kVA/day	General transformer >300kVA and <=1500kVA capacity	18,462,500	54,979,089	73,441,588	0.0063	0.0104	0.0106	0.0061		1,226,475
GTX1500-DAMD	kVA/month	General transformer >300kVA and <=1500kVA demand	277,021	739,276	1,016,297	2.4243	4.0093	4.1085	2.3238		6,537,489
GTX1501-FIXD	con/day	General transformer >1500kVA connection daily	3,955	10,619	14,573	0.0545	-	0.0348	0.0197		794
GTX1501-24UC	kWh	General transformer >1500kVA connection uncontrolled	42,544,076	129,926,573	172,470,650	0.0006	0.0009	0.0009	0.0006		258,706
GTX1501-CAPY	kVA/day	General transformer >1500kVA connection capacity	8,544,713	24,469,525	33,014,238	0.0119	0.0177	0.0189	0.0107		977,221
GTX1501-DOPC	kVA/month	General transformer >1500kVA connection on-peak demand	108,033	303,362	411,396	4.8536	7.2683	7.7410	4.3784		4,986,138
GTX1501-PWRF	kVA/month	General transformer >1500kVA connection power factor	8,816	18,678	27,494	3.5047	5.2483	5.5896	3.1616		240,625
										subtotal	**20,686,979**
Unmetered											
G001-FIXD	fitting/day	Non-street lighting daily	232,103	418,919	651,021	0.0432	-	0.0276	0.0156		28,124
G001-24UC	kWh	Non-street lighting uncontrolled	730,492	2,019,407	2,749,899	0.0549	0.0854	0.0895	0.0507		385,609
G002-FIXD	fitting/day	Street lighting daily	3,933,045	11,548,541	15,481,585	0.1246	0.0938	0.1385	0.0838		3,426,218
G002-24UC	kWh	Street lighting uncontrolled	92,336	15,313,836	15,406,172	-	-	-	-		-
										subtotal	**3,839,951**
Non standard charges											
Special	Unit	Non standard charges									2,140,874
										TOTAL	**172,789,445**

10 Appendix E: Quality incentive calculation

As per clause 4 (1), the quality incentive is based on the quality performance from the regulatory year finishing 31 March 2017 – 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 4 (1) and 4 (6) of the 2018 CPP Determination for the first assessment period**.** Specifically, the SAIDI quality incentive adjustment is calculated as:

Calculation	Definition	Amount	Reference to supporting calculation/information
$SAIDI_{IR}$	Incentive Rate	$95,091	Section 10.3
Multiplied by $(SAIDI_{target} - SAIDI_{assess})$	$SAIDI_{assess}$ is greater than the cap. Therefore, $SAIDI_{assess}$ = $SAIDI_{cap}$ as per schedule 4 (6) (b) of the 2018 CPP Determination. (35.4358 – 40.6302)	(5.1944)	Section 10.5
S_{SAIDI}		($493,941)	

10.2 Calculating SAIFI incentive (S_{SAIFI})

WELL has calculated the SAIFI quality incentive adjustment using the methodology provided in schedule 4 (8) of the 2018 CPP Determination for the first assessment period**.** Specifically, the SAIDI quality incentive adjustment is calculated as:

Calculation	Definition	Amount	Reference to supporting calculation/information
$SAIFI_{IR}$	Incentive Rate	$6,308,316	Section 10.4
Multiplied by $(SAIFI_{target} - SAIFI_{assess})$	$SAIFI_{assess}$ is greater than the cap. Therefore, $SAIFI_{assess}$ = $SAIFI_{cap}$ as per schedule 4 (6) (b) of the 2018 CPP Determination. (0.5465 – 0.6248)	(0.0783)	Section 10.5
S_{SAIFI}		($493,941)	

10.3 Calculating $SAIDI_{IR}$

$SAIDI_{IR}$ is calculated as per schedule 4 (7).

Calculation	Definition	Amount	Reference to supporting calculation/information
0.5 x REV_{RISK}	Is 0.5 x revenue at risk, where revenue at risk is 1% of MAR for the DPP year ended 31 March 2017. 0.5 x 1% x 98,788,230	$493,941	MAR from Electricity Distribution Services Default Price-Quality Path Determination 2015
Divided by $(SAIDI_{cap} - SAIDI_{target})$	(40.6302 – 35.4358)	5.1944	Section 10.5
$SAIDI_{IR}$		$95,091	

10.4 Calculating $SAIFI_{IR}$

$SAIFI_{IR}$ is calculated as per schedule 4 (9).

Calculation	Definition	Amount	Reference to supporting calculation/information
0.5 x REV_{RISK}	Is 0.5 x revenue at risk, where revenue at risk is 1% of MAR for the DPP year ended 31 March 2017. 0.5 x 1% x 98,788,230	$493,941	MAR from Electricity Distribution Services Default Price-Quality Path Determination 2015
Divided by $(SAIFI_{cap} - SAIFI_{target})$	(0.6248 - 0.5465)	0.0783	Section 10.5
$SAIFI_{IR}$		$6,308,316	

10.5 Reliability components for year ended 31 March 2017

Reliability component	Component value	Reference to supporting calculation/information
SAIDI		
Assessed value	49.7320	From section 4.3
Cap	40.6302	from WELL's Compliance Statement for period ended 31 March 2017
Collar	30.2414	from WELL's Compliance Statement for period ended 31 March 2017

Target	35.4358	from WELL's Compliance Statement for period ended 31 March 2017
Assessment period	ended 31/03/2017	As specified in Schedule 4 (1) of the 2018 CPP Determination
SAIFI		
Assessed value	0.7110	From section 4.3
Cap	0.6248	from WELL's Compliance Statement for period ended 31 March 2017
Collar	0.4682	from WELL's Compliance Statement for period ended 31 March 2017
Target	0.5465	from WELL's Compliance Statement for period ended 31 March 2017
Assessment period	ended 31/03/2017	As specified in Schedule 4 (1) of the 2018 CPP Determination

11 Appendix F: Opex incentive calculation

Regulatory year-ended	31-Mar-16	31-Mar-17	31-Mar-18	31-Mar-19	Description	Reference to supporting calculation/information
DDP2 allowance	30,899	31,950	32,914			Electricity Distribution Services Default Price-Quality Path Determination 2015
Actual Opex	29,622	30,075	33,311			From Wellington Electricity's Information Disclosures
Difference (allowance less actuals)	1,277	1,875	(397)			Allowances less actuals
Incremental under(over) spend in period	1,277	598	(2,272)			
Amounts carried forward from current DPP period						
Amount carried forward from year-ended 31 March 2016				1,277	Amounts carried forward' from the current DPP period. This reflects under/over-spends in RY16 and RY17. This provides for the five year retention period on opex savings. It only considers opex savings up to the penultimate year of the DPP because there is a lag built into the last year of the regulatory period, to allow the next determination to be made.	Clause 3.3.3 (7) Electricity Distribution Services Input Methodologies Determination 2012 (consolidated April 2018)
Amount carried forward from year-ended31 March 2017				598		Clause 3.3.3 (7) Electricity Distribution Services Input Methodologies Determination 2012 (consolidated April 2018)
Amount carried forward from year-ended 31 March 2018				-		Clause 3.3.3 (4) Electricity Distribution Services Input Methodologies Determination 2012 (consolidated April 2018)
Amounts carried forward to opex incentive amount	-	-	-	1,875		
Adjustment to the opex incentive	-	-	-	-		Clause 3.3.2 (2) (a) Electricity Distribution Services Input Methodologies Determination 2012 (consolidated April 2018)
Opex incentive amount	-	-	-	1,875		

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 first assessment period. In this section, WELL has also provided information necessary to demonstrate whether Wellington Electricity 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	4,440,682	Method of data collection and validation described in section 4.1
Planned minutes lost (Class B)	Total planned minutes lost	1,332,030	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.	167,864	Provided by Appendix H
Unplanned SAIDI (Class C)	(Total unplanned customer minutes lost / average number of customers)	26.4541	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	3.9676	As specified in Schedule 3 (2) of the 2018 CPP Determination
Total SAIDI (un-normalised)	Unplanned SAIDI (Class C) + planned SAIDI (Class B)	30.4217	As specified in Schedule 3 (2) of the 2018 CPP Determination
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	Major event day normalisation provided in section 1
$SAIDI_{assess}$		30.4217	As specified in Schedule 3 (2) of the 2018 CPP Determination

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)	70,571	Method of data collection and validation described in section 4.1
Planned outages (Class B)	Total number of planned customers outage (Class B)	12,825	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.	167,864	Provided by Appendix H
Unplanned SAIFI (Class C)	(Total number of unplanned customers outages / average number of customers)	0.4204	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	0.0382	As specified in Schedule 3 (3) of the 2018 CPP Determination
Total SAIFI (un-normalised)	Unplanned + planned SAIFI	0.4586	As specified in Schedule 3 (3) of the 2018 CPP Determination
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.	0.0029	Major event day normalisation provided in section 12.3
$SAIFI_{assess}$		0.4557	As specified in Schedule 3 (3) of the 2018 CPP Determination

12.3 Major event day normalization

As per schedule 3 (2) of the 2018 CPP Determination Major event day adjustment – if any daily SAIDI value for Class C interruptions is greater than the SAIDI unplanned boundary, then the daily SAIDI value is adjusted to equal the SAIDI unplanned boundary value.

As per schedule 3 (3) of the 2018 CPP Determination Major event day adjustment – if any daily SAIFI value for Class C interruptions is greater than the SAIFI unplanned boundary, then the daily SAIFI value is adjusted to equal the SAIFI unplanned boundary value.

WELL confirms that there were two Major Event Days (MED) occurred during the Assessment Period, only the SAIFI was exceeded for both events. There were no SAIDI adjustments for the assessment period. The SAIFI adjustments for the first assessment period were:

Date	Daily SAIFI for Class C interuptions	Daily SAIFI boundary	SAIFI difference	Cause
2-Jun-18	0.0312	0.0310	0.0002	Bird strike at Trentham. 5,239 Customers affected. A bird strike on pole caused damage to overhead equipment and resulted in substation outage.
24-Oct-18	0.0337	0.0310	0.0027	Lightning strike during a storm. 5,663 customers affected. Lightning strike on 33kV line during a storm.
Total			0.0029	

13 Appendix H: Average customer number calculation

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

Month	ICP Numbers
Apr-18	167,336
May-18	167,502
Jun-18	167,536
Jul-18	167,628
Aug-18	167,808
Sep-18	167,859
Oct-18	167,900
Nov-18	167,985
Dec-18	168,216
Jan-19	168,153
Feb-19	168,238
Mar-19	168,201
Average	**167,864**

14 Appendix I: Responsiveness improvement resilience index assessed values

Mobile substations				
Resilience performance	**Measured by demonstrating**	**Resilience performance value**	**Resilience Index Assessed Value**	**Explanation of how WELL has met target**
Ability to get a key Hutt area substations operating after an earthquake	Wellington Electricity has one mobile 10MVA substation +11KV portable switch board deployed in the Hutt region	9.17		
Ability to get key CBD substations operating after an earthquake	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**	**Resilience Index Assessed Value**	**Explanation of how WELL has met target**
Capability to replace 33kV fluid filled cables, c	Spare hardware required to construct at least **4km** emergency overhead power lines to replace 33kV fluid filled cable damage.	3.26		
	Spare hardware required to construct at least **8km** emergency overhead power lines to replace 33kV fluid filled cable damage.	3.26		
	Spare hardware required to construct at least **12km** emergency overhead power lines to replace 33kV fluid filled cable damage.	3.26		
	Spare hardware required to construct at least **16km** emergency overhead power lines to replace 33kV fluid filled cable damage.	3.26		
	Spare hardware required to construct at least **19km** emergency overhead power lines to replace 33kV fluid filled cable damage.	2.45		
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	Northpower invoices 67823 & 62103 dated 28/01/19 & 27/09/18 describes the equipment and provides evidence of the receipt.
Total		**15.76**	**0.27**	

Ability to respond to 11KV cable and equipment faults				
Resilience performance	**Measured by demonstrating**	**Resilience performance value**	**Resilience Index Assessed Value**	**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		
	WELL holds three sets of cable fault location equipment available for deployment in the case of an earthquake.	2.01	2.01	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	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	
	WELL holds 600 11kV cable joint repair kits available for deployment in the case of an earthquake	1.95	1.95	
	WELL holds 800 11kV cable joint repair kits available for deployment in the case of an earthquake.	1.95	1.95	
	WELL holds 1018 11kV cable joint repair kits available for deployment in the case of an earthquake.	2.13	2.13	
	WELL holds 4,090m of spare 11kV cable available for deployment in the case of an earthquake.	0.94	0.94	
	WELL holds a generation connection transformer available for deployment in the case of an earthquake.	0.34		
Total		16.44	12.88	

Communication systems				
Resilience performance	**Measured by demonstrating**	**Resilience performance value**	**Resilience Index Assessed Value**	**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; and	2.85		
	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	0	

15 Appendix J: Building seismic strengthening resilience index calculation

Seismic strengthening of substation buildings							
Substation building	Maximum Resilience performance value	Resilience Performance Value Attained (RPV Attaine	Explanation of how WELL has met target	NBS start	NBS target (as per clause schedule 3 (5))	NBS Assess	NBS Assess (for the RPV calculation
	$RPV_{attained} = (NBS_{assess} - NBS_{start}) \times \left(\frac{RPV_{max}}{NBS_{target} - NBS_{start}}\right)$						
Palm Grove Zone substation building strengthened to at least 67% of NBS	0		Engineering Consultant GHD has provided a detailed seismic assessment and has an NBS assessed value of 67%	67%	0.67		0.67
The Terrace Zone substation building strengthened to at least 67% of NBS	0		Engineering Consultant Powesland Consulting has provided a detailed seismic assessment and has an NBS assessed value of 70%	70%	0.67		0.67
Plimmerton Zone substation building strengthened to at least 67% of NBS	0			75%	0.67		0.67
209 Hutt Road Zone substation building strengthened to at least 67% of NBS	0.2	0.2	Engineering Consultant JACOBS has provided a formal statement (PS4) confirming the completed building has an NBS assessed value of 67%, dated 23/11/18	40%	0.67	67%	0.67
Colway Street Zone substation building strengthened to at least 67% of NBS	0.17	0.17	Engineering Consultant JACOBS has provided a formal statement (PS4) confirming the completed building has an NBS assessed value of 67%, dated 23/11/18	40%	0.67	67%	0.67
69 Miramar Avenue Zone substation building strengthened to at least 67% of NBS	0.47	0.47	Engineering Consultant Calibre has provided a formal statement (PS4) confirming the completed building has an NBS assessed value of 67%, dated 10/9/18	49%	0.67	67%	0.67
Messines Road (TS718) 6 Zone substation building strengthened to at least 67% of NBS	0.4	0.4	Engineering Consultant Calibre has provided a formal statement (PS4) confirming the completed building has an NBS assessed value of 67%, dated 09/11/18	41%	0.67	67%	0.67
Upland Road 59 Zone substation building strengthened to at least 67% of NBS	0.33	0.33	Engineering Consultant Calibre has provided a formal statement (PS4) confirming the completed building has an NBS assessed value of 100%, dated 1/10/18	45%	0.67	100%	0.67
Marsden Street Zone substation building strengthened to at least 67% of NBS	0.17	0.17	Engineering Consultant Jacobs has provided a formal statement (PS4) confirming the completed building has an NBS assessed value of 67%, dated 2/10/18	30%	0.67	67%	0.67
Park Street B Zone substation building strengthened to at least 67% of NBS	0.13	0.13	Engineering Consultant Jacobs has provided a formal statement (PS4) confirming the completed building has an NBS assessed value of 100%, dated 8/11/18	55%	0.67	100%	0.67
3 Wall Place Zone substation building strengthened to at least 67% of NBS	0.27	0.27	Engineering Consultant Jacobs has provided a formal statement (PS4) confirming the completed building has an NBS assessed value of 100%, dated 23/11/18	20%	0.67	100%	0.67

Substation building	Maximum Resilience performance value	Resilience Performance Value Attained (RPV Attained)	Explanation of how WELL has met target	NBS start	NBS target (as per clause schedule 3 (5))	NBS Assess	NBS Assess (for the RPV calculation)
66 Mabey Road Zone substation building strengthened to at least 67% of NBS	0.27	0.27	Engineering Consultant Jacobs has provided a formal statement (PS4) confirming the completed building has an NBS assessed value of 67%, dated 8/11/18	30%	0.67	67%	0.67
St Andrews Road Zone substation building strengthened to at least 67% of NBS	0.47	0.47	Engineering Consultant Jacobs has provided a formal statement (PS4) confirming the completed building has an NBS assessed value of 67%, dated 19/9/18	50%	0.67	67%	0.67
Frederick Street Zone substation building strengthened to at least 67% of NBS	0.73			16%	0.67		
Wallace Street Zone substation building strengthened to at least 67% of NBS	0.67			56%	0.67		
215 The Terrace Zone substation building strengthened to at least 67% of NBS	0.33			40%	0.67		
Ira Street 8 Zone substation building strengthened to at least 67% of NBS	0.86	0.86	Engineering Consultant Jacobs has provided a formal statement (PS4) confirming the completed building has an NBS assessed value of 100%, dated 24/01/2019	34%	0.67	100%	0.67
Kenepuru Zone substation building strengthened to at least 67% of NBS	0.8	0.8	Engineering Consultant Jacobs has provided a formal statement (PS4) confirming the completed building has an NBS assessed value of 100%, dated 18/12/18	20%	0.67	100%	0.67
Flagstaff hill (Flagstaff Line Street) Zone substation building strengthened to at least 67% of NBS	0.8			45%	0.67		
Waikowhai Zone substation building strengthened to at least 67% of NBS	0.71			40%	0.67		
Chaytor Street Zone substation building strengthened to at least 67% of NBS	0.4			48%	0.67		
Karori Zone substation building strengthened to at least 67% of NBS	0.53			40%	0.67		
University Zone substation building strengthened to at least 67% of NBS	0.6				0.67		
Customhouse Quay 40 Zone substation building strengthened to at least 67% of NBS	0.6			55%	0.67		
36 Dixon Street Zone substation building strengthened to at least 67% of NBS	0.37			38%	0.67		
Moore Street Zone substation building strengthened to at least 67% of NBS	0.66			40%	0.67		
22 Donald Street Zone substation building strengthened to at least 67% of NBS	0.23	0.23	Engineering Consultant Jacobs has provided a formal statement (PS4) confirming the completed building has an NBS assessed value of 100%, dated 22/03/19	58%	0.67	100%	0.67
Hataitai Zone substation building strengthened to at least 67% of NBS	0.28			60%	0.67		
174 Victoria Street (TS847 & TS743) Zone substation building strengthened to at least 67% of NBS	0.5			50%	0.67		
Nairn Street Zone substation building strengthened to at least 67% of NBS	0.53	0.53	Engineering Consultant Calibre has provided a formal statement (PS4) confirming the completed building has an NBS assessed value of 67%, dated 20/12/18	43%	0.67	67%	0.67
41 Bloomfield Terrace Zone substation building strengthened to at least 67% of NBS	0.23				0.67		
Bowen Hospital Zone substation building strengthened to at least 67% of NBS	0.28			45%	0.67		
Ngauranga Zone substation building strengthened to at least 67% of NBS	0.66				0.67		
Waterloo Zone substation building strengthened to at least 67% of NBS	0.63			45%	0.67		
92 Washington Avenue Zone substation building strengthened to at least 67% of NBS	0.2	0.2	Engineering Consultant Calibre has provided a formal statement (PS4) confirming the completed building has an NBS assessed value of 67%, dated 20/12/18	40%	0.67	100%	0.67

Substation building	Maximum Resilience performance value	Resilience Performance Value Attained (RPV Attained)	Explanation of how WELL has met target	NBS start	NBS target (as per clause schedule 3 (5))	NBS Assess	NBS Assess (for the RPV calculation)
Wha Street (TS703) Zone substation building strengthened to at least 67% of NBS	0.27			58%	0.67		
2 Awa Road Zone substation building strengthened to at least 67% of NBS	0.2			40%	0.67		
Trentham Zone substation building strengthened to at least 67% of NBS	0.53			45%	0.67		
Wainuiomata Zone substation building strengthened to at least 67% of NBS	0.66			39%	0.67		
Porirua Zone substation building strengthened to at least 67% of NBS	0.4			60%	0.67		
Gracefield Zone substation building strengthened to at least 67% of NBS	1			47%	0.67		
Queen Street Zone substation building strengthened to at least 67% of NBS	0.2	0.2	Engineering Consultant Jacobs has provided a formal statement (PS4) confirming the completed building has an NBS assessed value of 100%, dated 23/11/18	55%	0.67	100%	0.67
139 Thorndon Quay Zone substation building strengthened to at least 67% of NBS	0.47			48%	0.67		
Wayside West Zone substation building strengthened to at least 67% of NBS	0.2	0.2	Engineering Consultant Calibre has provided a formal statement (PS4) confirming the completed building has an NBS assessed value of 67%, dated 22/02/2019	49%	0.67	67%	0.67
Seaview Zone substation building strengthened to at least 67% of NBS	0.53			34%	0.67		
Korokoro Zone substation building strengthened to at least 67% of NBS	0.52			45%	0.67		
Brown Owl Zone substation building strengthened to at least 67% of NBS	0.57			40%	0.67		
Maidstone Zone substation building strengthened to at least 67% of NBS	0.53			45%	0.67		
Johnsonville Zone substation building strengthened to at least 67% of NBS	0.53			55%	0.67		
Tawa Zone substation building strengthened to at least 67% of NBS	0.5			42%	0.67		
Waitangirua Zone substation building strengthened to at least 67% of NBS	0.4			60%	0.67		
Downer Street Zone substation building strengthened to at least 67% of NBS	0.17			26%	0.67		
Titahi Bay Zone substation building strengthened to at least 67% of NBS	0.53			45%	0.67		
Johnsonville Town Centre Zone substation building strengthened to at least 67% of NBS	0.2			45%	0.67		
Mana Zone substation building strengthened to at least 67% of NBS	0.33				0.67		
9 Semple Street Zone substation building strengthened to at least 67% of NBS	0.2			37%	0.67		
41 Barber Grove Zone substation building strengthened to at least 67% of NBS	0.27	0.27	Engineering Consultant Jacobs has provided a formal statement (PS4) confirming the completed building has an NBS assessed value of 65%, dated 25/9/18	45%	0.67	67%	0.67
254 Willis Street Zone substation building strengthened to at least 67% of NBS	0.33				0.67		
Makara Radio Zone substation building strengthened to at least 67% of NBS	0.33				0.67		
BP Terminal Zone substation building strengthened to at least 67% of NBS	0.43				0.67		
VIC Zone substation building strengthened to at least 67% of NBS	0.3				0.67		
Fergusson Drive A Zone substation building strengthened to at least 67% of NBS	0.23	0.23	Engineering Consultant Jacobs has provided a formal statement (PS4) confirming the completed building has an NBS assessed value of 67%, dated 11/12/18	12%	0.67	67%	0.67
Bathurst Street Zone substation building strengthened to at least 67% of NBS	0.23	0.23	Engineering Consultant Jacobs has provided a formal statement (PS4) confirming the completed building has an NBS assessed value of 100%, dated 19/12/18	28%	0.67	100%	0.67

Substation building	Maximum Resilience performance value	Resilience Performance Value Attained (RPV Attained)	Explanation of how WELL has met target	NBS start	NBS target (as per clause schedule 3 (5))	NBS Assess	NBS Assess (for the RPV calculation)
26 Gower Street (TS801) Zone substation building strengthened to at least 67% of NBS	0.3				0.67		
Fire Station Zone substation building strengthened to at least 67% of NBS	0.5				0.67		
Bill Cutting Place Zone substation building strengthened to at least 67% of NBS	0.3	0.3	Engineering Consultant Jacobs has provided a formal statement (PS4) confirming the completed building has an NBS assessed value of 67%, dated 24/01/19	13%	0.67	67%	0.67
MacDonald Crescent Zone substation building strengthened to at least 67% of NBS	0.53				0.67		
415 Adelaide Road Zone substation building strengthened to at least 67% of NBS	0.3	0.3	Engineering Consultant Jacobs has provided a formal statement (PS4) confirming the completed building has an NBS assessed value of 67%, dated 22/03/19	21%	0.67	67%	0.67
25 Mein Street Zone substation building strengthened to at least 67% of NBS	0.27				0.67		
Petone Zone substation building strengthened to at least 67% of NBS	0.53			37%	0.67		
130 Rintoul Street Zone substation building strengthened to at least 67% of NBS	0.3	0.3	Engineering Consultant Jacobs has provided a formal statement (PS4) confirming the completed building has an NBS assessed value of 67%, dated 01/03/2019	23%	0.67	67%	0.67
Whitemans Road Zone substation building strengthened to at least 67% of NBS	0.27	0.27	Engineering Consultant Jacobs has provided a formal statement (PS4) confirming the completed building has an NBS assessed value of 67%, dated 21/12/18	55%	0.67	67%	0.67
Housing Corporation Zone substation building strengthened to at least 67% of NBS	0.4				0.67		
Kings Crescent Zone substation building strengthened to at least 67% of NBS	0.27				0.67		
Hutt Park Road B Zone substation building strengthened to at least 67% of NBS	0.28	0.28	Engineering Consultant Jacobs has provided a formal statement (PS4) confirming the completed building has an NBS assessed value of 100%, dated 21/12/18	33%	0.67	100%	0.67
Haywards Load Control Zone substation building strengthened to at least 67% of NBS	0.5				0.67		
Dulux Zone substation building strengthened to at least 67% of NBS	0.27	0.27	Engineering Consultant Jacobs has provided a formal statement (PS4) confirming the completed building has an NBS assessed value of 67%, dated 21/12/18	11%	0.67	67%	0.67
Knights Road Zone substation building strengthened to at least 67% of NBS	0.3	0.3	Engineering Consultant Jacobs has provided a formal statement (PS4) confirming the completed building has an NBS assessed value of 100%, dated 29/3/19	20%	0.67	100%	0.67
Hutt Rec A Zone substation building strengthened to at least 67% of NBS	0.23	0.23	Engineering Consultant Jacobs has provided a formal statement (PS4) confirming the completed building has an NBS assessed value of 67%, dated 22/03/19	18%	0.67	67%	0.67

Substation building	Maximum Resilience performance value	Resilience Performance Value Attained (RPV Attained)	Explanation of how WELL has met target	NBS start	NBS target (as per clause schedule 3 (5))	NBS Assess	NBS Assess (for the RPV calculation)
Waterloo Road A substation building strengthened to at least 67% of NBS	0.27	0.27	Engineering Consultant Jacobs has provided a formal statement (PS4) confirming the completed building has an NBS assessed value of 100%, dated 27/03/19	23%	0.67	100%	0.67
Awatea Street A Zone substation building strengthened to at least 67% of NBS	0.4	0.4	Engineering Consultant Jacobs has provided a formal statement (PS4) confirming the completed building has an NBS assessed value of 100%, dated 19/12/18	20%	0.67	100%	0.67
Broken Hill Road A Zone substation building strengthened to at least 67% of NBS	0.27	0.27	Engineering Consultant Jacobs has provided a formal statement (PS4) confirming the completed building has an NBS assessed value of 67%, dated 25/01/2019	24%	0.67	67%	0.67
37 Mersey Street Zone substation building strengthened to at least 67% of NBS	0.17			40%	0.67		
Eastern Hutt Road A Zone substation building strengthened to at least 67% of NBS	0.27	0.27	Engineering Consultant Jacobs has provided a formal statement (PS4) confirming the completed building has an NBS assessed value of 100%, dated 19/12/18	22%	0.67	100%	0.67
Keys Street Zone substation building strengthened to at least 67% of NBS	0.3	0.3	Engineering Consultant Jacobs has provided a formal statement (PS4) confirming the completed building has an NBS assessed value of 100%, dated 11/12/18	25%	0.67	100%	0.67
Main Road 24 Zone substation building strengthened to at least 67% of NBS	0.23			45%	0.67		
32 Dragon Street Zone substation building strengthened to at least 67% of NBS	0.43	0.43	Engineering Consultant Jacobs has provided a formal statement (PS4) confirming the completed building has an NBS assessed value of 100%, dated 29/3/19	33%	0.67	100%	0.67
Whakatiki Street A Zone substation building strengthened to at least 67% of NBS	0.3	0.3	Engineering Consultant Jacobs has provided a formal statement (PS4) confirming the completed building has an NBS assessed value of 100%, dated 30/11/18	21%	0.67	100%	0.67
Lyttelton Avenue B Zone substation building strengthened to at least 67% of NBS	0.33	0.33	Engineering Consultant Jacobs has provided a formal statement (PS4) confirming the completed building has an NBS assessed value of 100%, dated 29/3/19	14%	0.67	100%	0.67
Whakatiki Street B Zone substation building strengthened to at least 67% of NBS	0.27	0.27	Engineering Consultant Jacobs has provided a formal statement (PS4) confirming the completed building has an NBS assessed value of 100%, dated 29/3/19	15%	0.67	100%	0.67
Islington Street Zone substation building strengthened to at least 67% of NBS	0.27	0.27	Engineering Consultant Jacobs has provided a formal statement (PS4) confirming the completed building has an NBS assessed value of 100%, dated 30/11/18	31%	0.67	100%	0.67
Total	34.6	11.99					