Annual Compliance Statement

Pursuant to the Electricity Distribution Services Default Price-Quality Path Determination 2015

For the period ending 31 March 2018

Published 13 June 2018

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1. INTRODUCTION

1.1. Background

1.1.1. This Annual Compliance Statement ("the Statement") is submitted by Vector Limited ("Vector") pursuant to clause 11 of the Electricity Distribution Services Default Price-Quality Path Determination 2015 ("the Determination").

1.1.2. The Determination is issued pursuant to Part 4 of the Commerce Act 1986 and requires a non-exempt supplier of lines services ("EDB") to provide information to the Commerce Commission ("the Commission") relevant to the assessment of their performance against the price path and quality standards.

1.1.3. Under clause 8 of the Determination an EDB's Notional Revenue must not exceed the Allowable Notional Revenue during the current Assessment Period.

1.1.4. Under clause 9 of the Determination an EDB's assessed reliability values either must not exceed the reliability limits for the current Assessment Period or must not have exceeded the reliability limit for either of the two immediately preceding Assessment Periods.

1.1.5. The Statement has been approved for issue on 13 June 2018. In the Statement, references to Vector relate only to Vector's electricity distribution business.

1.2. Statement of compliance

1.2.1. As required by clause 11.2(a) of the Determination, this Statement confirms Vector's compliance with the price path in clause 8 and sets out Vector's non-compliance with the quality standards in clause 9 in respect of the Assessment Period ending on 31 March 2018.

1.2.2. As required by clause 11.2(d)(i) of the Determination, this statement confirms that Vector has not undertaken a Restructure of Prices during the Assessment Period. (detail provided in Section 2.4).

1.2.3. As required by clause 11.2(d)(ii) of the Determination, this statement confirms that no System Fixed Assets were transferred from Transpower to Vector, or from Vector to Transpower, during this Assessment Period.

1.2.4. As required by clause 11.2(d)(iii) – (iv) of the Determination, this statement confirms that no Amalgamation or Merger has occurred in the Assessment Period and no Major Transaction has occurred in the Assessment Period.

1.3. Disclaimer

1.3.1. The information contained in this Statement has been prepared for the express purpose of complying with the requirements of clause 11 of the Determination. This statement has not been prepared for any other purpose. Vector expressly disclaims any liability to any other party who may rely on this statement for any other purpose.

1.3.2. For presentation purposes, some numbers in this document have been rounded to the closest thousand dollars ($000). In most cases calculations are based on more detailed numbers. 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 are based on the more detailed information.

2. PRICE PATH

2.1. Introduction

2.1.1. In this section Vector demonstrates that it has complied with the price path requirements (clause 8) of the Determination.

2.2. Price path (clause 8 of the Determination)

2.2.1. As required by clause 8.3 of the Determination, to demonstrate compliance with the price path, an EDB must demonstrate that their Notional Revenue during the Assessment Period has not exceeded the Allowable Notional Revenue for the Assessment Period. The current Assessment Period is the third Assessment Period of the Determination and covers the 12 months to 31 March 2018.

2.2.2. As outlined in the table below, Vector complies with the price path:

Vector Price Path Compliance 2018		
Formula: $NR_{2018} \leq ANR_{2018}$		
Component:	**Description:**	**Value ($000):**
NR_{2018}	Notional Revenue for year ending 31 March 2018 [1]	397,462
ANR_{2018}	Allowable Notional Revenue for year ending 31 March 2018 [2]	397,463
Vector Result ($000):	**$397,462 ≤ $397,463**	

[1] Details of NR_{2018} are included in Section 2.2.3.
[2] Details of ANR_{2018} are included in Section 2.2.4.

2.2.3. The calculation of Notional Revenue for the 2018 Assessment Period is set out in clause 8.5 of the Determination and described with Vector values in the table below:

Notional Revenue 2018		
Formula: $NR_{2018} = \sum DP_{i,2018}\, Q_{i,2016}$		
Component:	**Description:**	**Value ($000):**
$\sum DP_{i,2018}\, Q_{i,2016}$	Distribution prices 2018 x lagged quantities 2016 [3]	397,462
NR_{2018}:	Notional Revenue 2018	397,462

2.2.4. The calculation of Allowable Notional Revenue for the 2018 Assessment Period is set out in clause 8.4 and Schedule 3B of the Determination and described with Vector values in the table below:

Allowable Notional Revenue 2018		
Formula: $ANR_{2018} = (\sum DP_{i,2017}\, Q_{i,2016} + (ANR_{2017} - NR_{2017}))(1 + \Delta CPI_{2018})(1 - X)$		
Component:	**Description:**	**Value ($000):**
$\sum DP_{i,2017}\, Q_{i,2016}$	Distribution prices 2017 x lagged quantities 2016 [4]	395,880
ANR_{2017}	Allowable Notional Revenue 2017 [5]	390,551
$- NR_{2017}$	Notional Revenue 2017	(390,289)
ΔCPI_{2018}	2017 base inflated by Consumer Price Index 2018 (ΔCPI_{2018} = 0.33%) [6]	1,321
X	Rate of change (X = 0%) [7]	0
ANR_{2018}:	Allowable Notional Revenue 2018	397,463

[3] Details of $\sum DP_{i,2018}\, Q_{i,2016}$ are included in Appendix 2.
[4] Details of $\sum DP_{i,2017}\, Q_{i,2016}$ are included in Appendix 5.
[5] ANR_{2017} and NR_{2017} are from the 2017 Compliance Statement https://www.vector.co.nz/about-us/regulatory/disclosures-electricity/price-quality-path
[6] Details of ΔCPI_{2018} are included in Appendix 6.
[7] X is set out in Schedule 2 of the Determination.

2.2.5. The Pass-through Balance for Vector for the 2018 Assessment Period is set out in the table below:

Pass-through Balance 2018		
Formula: $PTB_{2018} = \sum PTP_{i,2018}Q_{i,2018} - K_{2018} - V_{2018} + PTB_{2017}(1 + r)$		
Component:	**Description:**	**Value ($000s):**
$\sum PTP_{i,2018}Q_{i,2018}$	Pass-through prices 2018 x quantities 2018 [8]	231,184
$- K_{2018}$	Pass-through costs 2018 [9]	(11,779)
$- V_{2018}$	Recoverable costs 2018	(221,242)
PTB_{2017}	Pass-through Balance 2017 [10]	2,288
$PTB_{2017} \times r$	Cost of debt (r = 6.09%) [11]	139
PTB_{2018}:	Pass-through Balance 2018	590

2.2.6. As required under clause 8.6(a), the Pass-through Balance for the 2017 Assessment Period has been recalculated for additional information available at the end of the 2018 Assessment Period, being quantity data, $Q_{i,2017}$. The Pass-through Balance for the 2017 Assessment Period for Vector is set out in the table below:

Pass-through Balance 2017		
Formula: $PTB_{2017} = \sum PTP_{i,2017}Q_{i,2017} - K_{2017} - V_{2017} + PTB_{2016}(1 + r)$		
Component:	**Description:**	**Value ($000s):**
$\sum PTP_{i,2017}Q_{i,2017}$	Pass-through prices 2017 x quantities 2017 [12]	220,666
$- K_{2017}$	Pass-through costs 2017	(12,076)

[8] Details of $\sum PTP_{i,2018}$ $Q_{i,2018}$ are included in Appendix 3.
[9] Details of K_{2018} and V_{2018} are included in Section 2.5.
[10] Details of PTB_{2017} are included in Section 2.2.6.
[11] Details on r is set out in table 2 of the Cost of Capital Determination.
[12] Details of $\sum PTP_{i,2017}Q_{i,2017}$ are included in Appendix 4.

- V_{2017}	Recoverable costs 2017	(210,988)
PTB_{2016}	Pass-through Balance 2016	4,418
$PTB_{2016} \times r$	Cost of debt (r = 6.09%)	269
PTB_{2017}:	Pass-through Balance 2017	2,288

2.2.7. A reconciliation for the Pass-through Balance for the preceding Assessment Period for Vector is shown in the table below:

Reconciliation for Pass-through Balance 2017		
Formula: Updated PTB_{2017} = Original PTB_{2017} + $\Delta\sum PTP_{i,2017}Q_{i,2017}$ - $\Delta(K_{2017} + V_{2017})$ + ΔPTB_{2016} (1 + r)		
Component:	**Description:**	**Value ($000s):**
Original PTB_{2017} [13]	Pass-through Balance 2017 at May-17	2,733
$\Delta\sum PTP_{i,2017}Q_{i,2017}$	Change in Pass-through revenue 2017 from quantity wash-ups	(297)
- Δ (K_{2017} + V_{2017})	Change in Pass-through and Recoverable Costs 2017 from levy wash-ups	(147)
Δ PTB_{2016} (1 + r)	Change Pass-through Balance and cost of carrying forward 2016	0
Updated PTB_{2017}	Pass-through Balance 2017 at May-18	2,288

2.3. Distribution and pass-through prices

2.3.1. Distribution prices and pass-through prices are set out in Appendix 1.

2.3.2. Interested parties may refer to Vector's Pricing Methodology where we have set out in detail our methodology used to calculate delivery prices.[14] Further detail on how distribution and pass-through prices is set out in Appendix 10.

[13] Original PTB_{2017} is from the 2017 Compliance Statement https://www.vector.co.nz/about-us/regulatory/disclosures-electricity/price-quality-path

[14] https://vectorwebstoreprd.blob.core.windows.net/blob/vector/media/documents/pricing-methodology-disclosure-2017-certified.pdf, appendix 9.

2.4. Restructure of Prices

2.4.1. Vector did not undertake a Restructure of Prices during the 2018 Assessment Period.

2.4.2. Vector undertook a Restructure of Prices during the 2017 Assessment Period:

- Vector separated out price categories ARGL, ARGS, WRGS and WRGL from price categories ARUL, ARUS, WRUL and WRUS respectively. Each of these four new price categories contain a FIXD component representing a fixed charge, and a 24UC component representing a volume price.

- Vector limited the eligibility of non-time of use price categories ALVN, WLVN, ATXN, and WTXN to connections with installed capacity less than or equal to 345 kVA.

2.4.3. Vector adopted the following approach in determining the quantities corresponding to the Restructure of Prices:

- Each distribution price component of the ARGL, ARGS, WRGL, and WRGS price categories is the same value as its existing, corresponding price category ARUL, ARUS, WRUL and WRUS. Vector has elected not to derive a Quantity for the new price categories as doing so would only be arbitrary with no effect on notional revenue calculations in this or future Assessment Periods.

- Vector identified those connections on non-time of use price categories ALVN, WLVN, ATXN, WTXN with a capacity of more than 345 kVA and reassigned the quantities associated with these connections to the corresponding price components of the time of use equivalent price categories, ALVT, WLVH, ATXT and WTXH.[15]

2.5. Pass-through and Recoverable Costs

2.5.1. The table below sets out the forecast Pass-through and Recoverable Costs used to set prices ($K_{2018,\ forecast}$ and $V_{2018,\ forecast}$) and actual Pass-through and Recoverable Costs (K_{2018} and V_{2018}) used in the calculation of the Pass-through Balance for the 2018 Assessment Period.

[15] In the case of the DAMD price component of the time of use price categories, for which there was no equivalent non-time of use price component, quantities were derived by multiplying the CAPY quantity of reassigned connections by the ratio of the total DAMD quantity to total CAPY quantity of each corresponding time of use price category.

Pass-through Costs (K)			
Component ($000s):	**K_{2018}:**	**K_{2018}, forecast:**	**Difference:**
Local Authority Rates	8,961	9,255	(294)
Electricity Authority Levies	1,571	1,567	4
Utility Disputes Levies (EGCC)	353	268	85
Commerce Act Levy	895	895	0
Grand total (K)	**11,779**	**11,985**	**(205)**

Recoverable Costs (V)			
Component ($000s):	**V_{2018}:**	**V_{2018}, forecast:**	**Difference:**
Transmission Costs [16]	223,708	223,681	27
Quality Incentive Adjustment [17]	0	0	0
CAPEX wash-up	(2,466)	(2,466)	0
Grand total (V)	**221,242**	**221,215**	**27**

2.5.2. Variances between Pass-through and Recoverable Costs used to set prices and the same costs measured at the end of the Assessment Period arise due to the need to forecast these costs ex-ante, with the actual costs being determined ex-post. None of the costs are fully fixed and variances will naturally occur. The net impact of these differences is negligible.

2.6. New investment contracts

2.6.1. As required under clause 11.4(h) of the Determination, the amount of charge during the 2018 Assessment Period relating to any new investment contract entered into with Transpower in the 2018 Assessment Period is zero.

[16] Transmission costs (in $000s) are made up of Transpower electricity lines service charges ($210,738), Transpower new investment charges ($11,790) and distributed generation allowance ($1,180).
[17] Appendix 7 illustrates the calculation of the Quality Incentive Adjustment.

3. QUALITY STANDARDS

3.1. Introduction

3.1.1. In this section Vector demonstrates that it has not complied with the quality standards detailed in clause 9 of the Determination. Vector has provided information to illustrate the statement of non-compliance including: SAIDI and SAIFI Assessed Values, Limits, Unplanned Boundary Values, Caps, Collars, Targets for the Assessment Period, supporting calculations and the annual reliability assessments for the six previous Assessment Periods. Furthermore, Vector has included reasons for not complying with the annual reliability assessment and documented actions taken to mitigate and prevent non-compliance in future Assessment Periods. Finally, Vector has provided a description of the policies and procedures for recording SAIDI and SAIFI statistics and documented the cause of each Major Event Day within the Assessment Period.

3.2. Quality standards (clause 9 of the Determination)

3.2.1. As required by clause 9 of the Determination, in order to demonstrate compliance with the quality standards (per clause 9.1) in respect of each Assessment Period, EDB's must either:

3.2.2. Comply with the annual reliability assessment specified in clause 9.2 for that Assessment Period; or

3.2.3. Have complied with those annual reliability assessments for the two immediately preceding Assessment Periods.

3.2.4. Vector does not comply with either of the quality standards in clause 9.1. As outlined in the calculations below, Vector has exceeded the annual reliability assessment requirement for SAIDI and SAIFI specified in clause 9.2(a) of the Determination for the 2018 Assessment Period. Vector also exceeded the annual reliability assessment requirement for SAIDI for the four previous Assessment Periods.

3.3. Assessed Values

3.3.1. SAIDI and SAIFI values were calculated for the 2018 Assessment Period, incorporating Class B and Class C interruption types (planned interruptions and unplanned interruptions originating within the system fixed assets) per connection

point served during the period. Average connection point numbers for the year were used in the calculation.

3.3.2. Results of this Assessment Period and previous Assessment Periods (normalised) for Vector are summarised in the table below. An explanation of the reasons for exceeding the SAIDI and SAIFI Limit for the 2018 Assessment Period is provided in Appendix 9.

Results of current Assessment Period and previous Assessment Periods						
Period	**$SAIDI_{assess}$**	**$SAIDI_{limit}$**	**SAIDI Outcome**	**$SAIFI_{assess}$**	**$SAIFI_{limit}$**	**SAIFI Outcome**
2016	117	104	Exceeded	1.11	1.40	Not Exceeded
2017	174	104	Exceeded	1.85	1.40	Exceeded
2018	226	104	Exceeded	2.14	1.40	Exceeded

3.3.3. Calculation of the SAIDI and SAIFI Assessed Values is as per that described in Schedule 4A of the Determination.

3.3.4. The SAIDI Assessed Value ($SAIDI_{assess}$) for the Assessment Period for Vector are described in the table below:

SAIDI Assessed Value 2018		
Formula: $SAIDI_{assess} = (0.5 \times SAIDI_B) + SAIDI_C$		
Component:	**Description:**	**Value:**
$(0.5 \times SAIDI_B)$	$SAIDI_B$: is the sum of the daily SAIDI Values for Class B Interruptions commencing within the Assessment Period	49.3
$SAIDI_C$	$SAIDI_C$:is the sum of the daily SAIDI Values for Class C Interruptions commencing within the Assessment Period, where any daily SAIDI Value for Class C Interruptions greater than the SAIDI Unplanned Boundary Value equals the SAIDI Unplanned Boundary Value	176.9
$SAIDI_{assess}$	SAIDI Assessed Value	226.2

3.3.5. The SAIFI Assessed Value ($SAIFI_{assess}$) for the Assessment Period for Vector are described in the table below:

SAIFI Assessed Value 2018		
Formula: $SAIFI_{assess} = (0.5 \times SAIFI_B) + SAIFI_C$		
Component:	**Description:**	**Value:**
$(0.5 \times SAIFI_B)$	$SAIFI_B$: is the sum of the daily SAIDI Values for Class B Interruptions commencing within the Assessment Period	0.234
$SAIFI_C$	$SAIFI_C$: is the sum of the daily SAIFI Values for Class C Interruptions commencing within the Assessment Period, where any daily SAIFI Value for Class C Interruptions greater than the SAIDI Unplanned Boundary Value equals the SAIFI Unplanned Boundary Value	1.910
$SAIFI_{assess}$	SAIFI Assessed Value	2.144

3.3.6. The SAIDI Limits, SAIFI Limits, SAIDI Unplanned Boundary Values and SAIFI Unplanned Boundary Values, for Vector for the Regulatory Period 1 April 2015 to 31 March 2020, as set out in Table 4A.1 in the Determination, are as follows:

3.3.7. The Reliability Limits and Boundary Values for the Assessment Period for Vector are set out in the table below:

Reliability Limits and Boundary Values				
Non-exempt EDB	**SAIDI Limit**	**SAIDI Unplanned Boundary Value**	**SAIFI Limit**	**SAIFI Unplanned Boundary Value**
Vector	104.173	3.374	1.395	0.039

3.3.8. The SAIDI Target, SAIDI Collar, and SAIDI Cap for Vector during the Regulatory Period 1 April 2015 to 31 March 2020, as set out in Table 5B.1 in the Determination, are set out in the table below:

SAIDI Limits			
Non-exempt EDB	**SAIDI Target**	**SAIDI Collar**	**SAIDI Cap**
Vector	96.0364	87.8999	104.1728

3.3.9. The SAIFI Target, SAIFI Collar, and SAIFI Cap for Vector during the Regulatory Period 1 April 2015 to 31 March 2020, as set out in Table 5B.2 in the Determination, are set out in the table below:

SAIFI Limits			
Non-exempt EDB	**SAIFI Target**	**SAIFI Collar**	**SAIFI Cap**
Vector	1.2914	1.1874	1.3954

3.4. Major Event Days within the Assessment Period

3.4.1. Within the 2018 Assessment Period Vector experienced three Major Event Days. The results of these days for Vector are summarised in the Major Event Day table below with the SAIDIC and SAIFIC values set out where the SAIDI / SAIFI Unplanned Boundary Value is used in the SAIDI / SAIFI Assessed Values calculation. The cause of each Major Event Day is set out in further detail in Appendix 8.

Major Event Days				
Date	**$SAIDI_C$**	**SAIDI Unplanned Boundary Value**	**$SAIFI_C$**	**SAIFI Unplanned Boundary Value**
04/01/2018	15.721	3.374	0.079	0.039
05/01/2018	22.060	3.374	0.091	0.039
17/01/2018	3.549	3.374	0.028	0.039

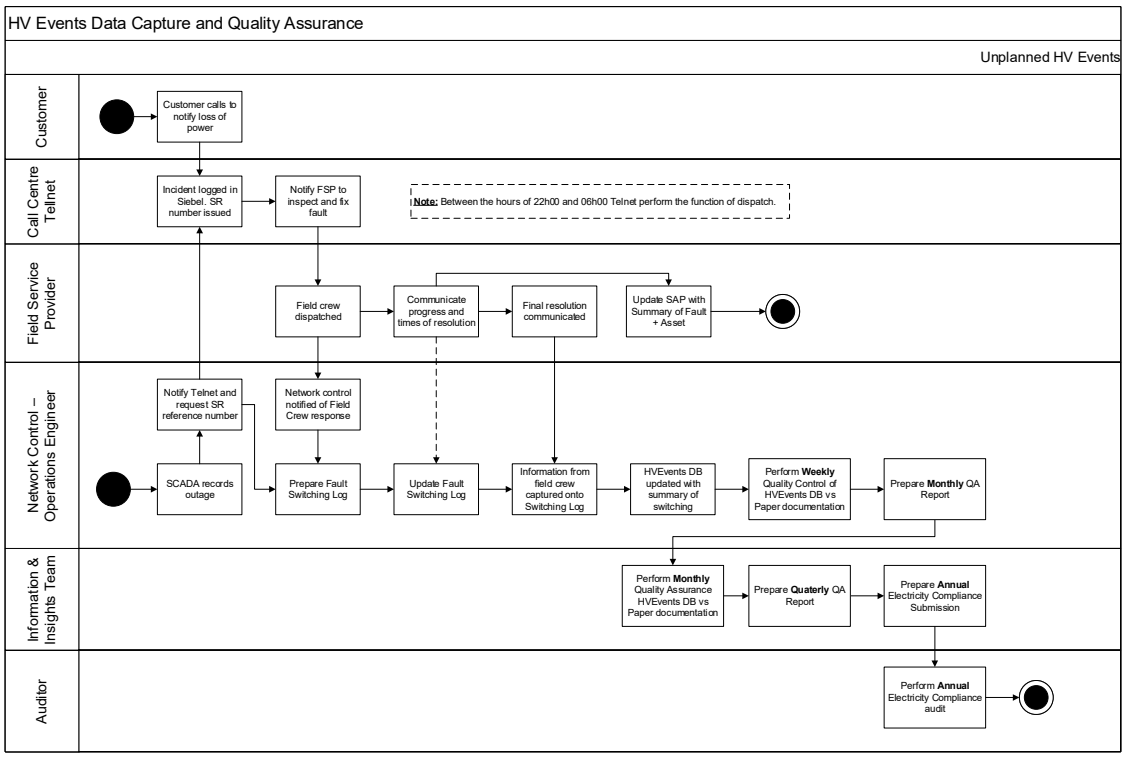
3.5. Policies and procedures for recording SAIDI and SAIFI

3.5.1. Vector's Electricity Operations Centre (EOC) is responsible for managing the electricity network. Resolution of planned and unplanned events is under direction of the duty Electricity Operations Controller. The EOC also manages the network in accordance with Vector's standard ESD-003 - HV SPEC HV Event Data. This standard defines the end-to-end process for capturing and reporting reliability performance data.

3.5.2. The majority of medium voltage and high voltage interruptions are monitored and controlled in real-time by the EOC through Vector's SCADA system. Where equipment is involved that is not SCADA enabled, it is operated by Vector's service providers, with communication to the EOC by radio. All planned and unplanned records are captured by the network control engineer both in hard copy (electricity fault switching log) and electronically (the HVSPEC database described below). All interruptions are also logged and tracked separately in Vector's Customer Management System by Vector's customer services team.

3.5.3. Vector maintains a bespoke system for recording interruptions, HVSPEC. HVSPEC holds a replica of Vector's high voltage and medium voltage network structure, including customer numbers. The EOC controllers record details of all network interruptions, in accordance with the standard ESD-003. For each interruption, the event type, location, duration and number of customers affected is identified. HVSPEC is also used to prioritise network reconfiguration and restoration after an event. The figure below illustrates the HVSPEC data capture process and the quality assurance carried out on outage information.

HVSPEC Data Capture Process



3.5.4. SAIDI and SAIFI are calculated in HVSPEC for each interruption, and the data retained in a database for reporting and analysis.

3.5.5. At the end of each year the period's average network customer base is calculated using the Gentrack billing and revenue system (averaging customers at the start and end of the year). The following reliability metrics are extracted from the HVSPEC database for disclosure reporting:

- Interruption frequency and duration by class;
- Interruption frequency and duration by cause;
- Interruption frequency and duration by main equipment involved; and
- SAIDI/SAIFI/CAIDI (calculated using average customer count).

APPENDIX 1: DETAILS OF $DP_{I,2018}$ AND $PTP_{I,2018}$

Northern Prices

Residential

Price plan	Code	Description	Units	*DPi,2018*	*PTPi,2018*	*Delivery price*
WRCL	WRCL-FIXD	Fixed	$/day	0.1500	-	0.1500
WRCL	WRCL-AICO	Volumetric, controlled	$/kWh	0.0644	0.0313	0.0957
WRUL	WRUL-FIXD	Fixed	$/day	0.1500	-	0.1500
WRUL	WRUL-24UC	Volumetric, uncontrolled	$/kWh	0.0644	0.0393	0.1037
WRGL	WRGL-FIXD	Fixed	$/day	0.1500	-	0.1500
WRGL	WRGL-24UC	Volumetric, uncontrolled	$/kWh	0.0644	0.0313	0.0957
WRCS	WRCS-FIXD	Fixed	$/day	1.0100	-	1.0100
WRCS	WRCS-AICO	Volumetric, controlled	$/kWh	0.0252	0.0313	0.0565
WRUS	WRUS-FIXD	Fixed	$/day	1.0100	-	1.0100
WRUS	WRUS-24UC	Volumetric, uncontrolled	$/kWh	0.0252	0.0393	0.0645
WRGS	WRGS-FIXD	Fixed	$/day	1.0100	-	1.0100
WRGS	WRGS-24UC	Volumetric, uncontrolled	$/kWh	0.0252	0.0313	0.0565
WRHL	WRHL-FIXD	Fixed	$/day	0.1500	-	0.1500
WRHL	WRHL-OFPK	Volumetric, off peak	$/kWh	0.0644	-	0.0644
WRHL	WRHL-PEAK	Volumetric, peak	$/kWh	0.0644	0.1000	0.1644
WRHS	WRHS-FIXD	Fixed	$/day	1.0100	-	1.0100
WRHS	WRHS-OFPK	Volumetric, off peak	$/kWh	0.0252	-	0.0252
WRHS	WRHS-PEAK	Volumetric, peak	$/kWh	0.0252	0.1000	0.1252

General

Price plan	Code	Description	Units	*DPi,2018*	*PTPi,2018*	*Delivery price*
WBSU	WBSU-FIXD	Fixed	$/day/fitting	0.1500	-	0.1500
WBSU	WBSU-24UC	Volumetric	$/kWh	0.0320	0.0393	0.0713
WBSN	WBSN-FIXD	Fixed	$/day	1.0100	-	1.0100
WBSN	WBSN-24UC	Volumetric	$/kWh	0.0252	0.0393	0.0645
WBSH	WBSH-FIXD	Fixed	$/day	1.0100	-	1.0100
WBSH	WBSH-OFPK	Volumetric, off peak	$/kWh	0.0252	-	0.0252
WBSH	WBSH-PEAK	Volumetric, peak	$/kWh	0.0252	0.1000	0.1252

Low voltage

Price plan	Code	Description	Units	*DPi,2018*	*PTPi,2018*	*Delivery price*
WLVN	WLVN-FIXD	Fixed	$/day	6.0500	-	6.0500
WLVN	WLVN-24UC	Volumetric	$/kWh	0.0199	0.0242	0.0441
WLVN	WLVN-CAPY	Capacity	$/kVA/day	0.0327	-	0.0327
WLVN	WLVN-PWRF	Power Factor	$/kVAr/day	0.2917	-	0.2917
WLVH	WLVH-FIXD	Fixed	$/day	11.4100	-	11.4100
WLVH	WLVH-24UC	Volumetric	$/kWh	0.0057	-	0.0057
WLVH	WLVH-CAPY	Capacity	$/kVA/day	0.0327	-	0.0327
WLVH	WLVH-DAMD	Demand	$/kVA/day	0.0580	0.2520	0.3100
WLVH	WLVH-PWRF	Power Factor	$/kVAr/day	0.2917	-	0.2917

Transformer

Price plan	Code	Description	Units	*DPi,2018*	*PTPi,2018*	*Delivery price*
WTXN	WTXN-FIXD	Fixed	$/day	5.4400	-	5.4400
WTXN	WTXN-24UC	Volumetric	$/kWh	0.0155	0.0242	0.0397
WTXN	WTXN-CAPY	Capacity	$/kVA/day	0.0321	-	0.0321
WTXN	WTXN-PWRF	Power Factor	$/kVAr/day	0.2917	-	0.2917
WTXH	WTXH-FIXD	Fixed	$/day	10.2700	-	10.2700
WTXH	WTXH-24UC	Volumetric	$/kWh	0.0056	-	0.0056
WTXH	WTXH-CAPY	Capacity	$/kVA/day	0.0321	-	0.0321
WTXH	WTXH-DAMD	Demand	$/kVA/day	0.0519	0.2520	0.3039
WTXH	WTXH-PWRF	Power Factor	$/kVAr/day	0.2917	-	0.2917

High voltage

Price plan	Code	Description	Units	*DPi, 2018*	*PTPi, 2018*	*Delivery price*
WHVN	WHVN-FIXD	Fixed	$/day	5.2800	-	5.2800
WHVN	WHVN-24UC	Volumetric	$/kWh	0.0143	0.0242	0.0385
WHVN	WHVN-CAPY	Capacity	$/kVA/day	0.0311	-	0.0311
WHVN	WHVN-PWRF	Power Factor	$/kVAr/day	0.2917	-	0.2917
WHVH	WHVH-FIXD	Fixed	$/day	9.9600	-	9.9600
WHVH	WHVH-24UC	Volumetric	$/kWh	0.0054	-	0.0054
WHVH	WHVH-CAPY	Capacity	$/kVA/day	0.0311	-	0.0311
WHVH	WHVH-DAMD	Demand	$/kVA/day	0.0428	0.2520	0.2948
WHVH	WHVH-DEXA	Excess demand	$/kVA/day	0.6842	-	0.6842
WHVH	WHVH-PWRF	Power Factor	$/kVAr/day	0.2917	-	0.2917

Injection

Price plan	Code	Description	Units	*DPi, 2018*	*PTPi, 2018*	*Delivery price*
WRCL	WRCL-INJT	Volumetric	$/kWh	-	-	-
WRUL	WRUL-INJT	Volumetric	$/kWh	-	-	-
WRHL	WRHL-INJT	Volumetric	$/kWh	-	-	-
WRCS	WRCS-INJT	Volumetric	$/kWh	-	-	-
WRUS	WRUS-INJT	Volumetric	$/kWh	-	-	-
WRHS	WRHS-INJT	Volumetric	$/kWh	-	-	-
WBSU	WBSU-INJT	Volumetric	$/kWh	-	-	-
WBSN	WBSN-INJT	Volumetric	$/kWh	-	-	-
WBSH	WBSH-INJT	Volumetric	$/kWh	-	-	-
WLVN	WLVN-INJT	Volumetric	$/kWh	-	-	-
WLVH	WLVH-INJT	Volumetric	$/kWh	-	-	-
WTXN	WTXN-INJT	Volumetric	$/kWh	-	-	-
WTXH	WTXH-INJT	Volumetric	$/kWh	-	-	-
WHVN	WHVN-INJT	Volumetric	$/kWh	-	-	-
WHVH	WHVH-INJT	Volumetric	$/kWh	-	-	-

Auckland Prices

Residential

Price plan	Code	Description	Units	*DPi, 2018*	*PTPi, 2018*	*Delivery price*
ARCL	ARCL-FIXD	Fixed	$/day	0.1500	-	0.1500
ARCL	ARCL-AICO	Volumetric, controlled	$/kWh	0.0644	0.0313	0.0957
ARUL	ARUL-FIXD	Fixed	$/day	0.1500	-	0.1500
ARUL	ARUL-24UC	Volumetric, uncontrolled	$/kWh	0.0644	0.0393	0.1037
ARGL	ARGL-FIXD	Fixed	$/day	0.1500	-	0.1500
ARGL	ARGL-24UC	Volumetric, uncontrolled	$/kWh	0.0644	0.0313	0.0957
ARCS	ARCS-FIXD	Fixed	$/day	1.0100	-	1.0100
ARCS	ARCS-AICO	Volumetric, controlled	$/kWh	0.0252	0.0313	0.0565
ARUS	ARUS-FIXD	Fixed	$/day	1.0100	-	1.0100
ARUS	ARUS-24UC	Volumetric, uncontrolled	$/kWh	0.0252	0.0393	0.0645
ARGS	ARGS-FIXD	Fixed	$/day	1.0100	-	1.0100
ARGS	ARGS-24UC	Volumetric, uncontrolled	$/kWh	0.0252	0.0313	0.0565
ARHL	ARHL-FIXD	Fixed	$/day	0.1500	-	0.1500
ARHL	ARHL-OFPK	Volumetric, off peak	$/kWh	0.0644	-	0.0644
ARHL	ARHL-PEAK	Volumetric, peak	$/kWh	0.0644	0.1000	0.1644
ARHS	ARHS-FIXD	Fixed	$/day	1.0100	-	1.0100
ARHS	ARHS-OFPK	Volumetric, off peak	$/kWh	0.0252	-	0.0252
ARHS	ARHS-PEAK	Volumetric, peak	$/kWh	0.0252	0.1000	0.1252

General

Price plan	Code	Description	Units	*DPi, 2018*	*PTPi, 2018*	*Delivery price*
ABSU	ABSU-FIXD	Fixed	$/day/fitting	0.1500	-	0.1500
ABSU	ABSU-24UC	Volumetric	$/kWh	0.0320	0.0393	0.0713
ABSN	ABSN-FIXD	Fixed	$/day	1.0100	-	1.0100
ABSN	ABSN-24UC	Volumetric	$/kWh	0.0252	0.0393	0.0645
ABSH	ABSH-FIXD	Fixed	$/day	1.0100	-	1.0100
ABSH	ABSH-OFPK	Volumetric, off peak	$/kWh	0.0252	-	0.0252
ABSH	ABSH-PEAK	Volumetric, peak	$/kWh	0.0252	0.1000	0.1252

Low voltage

Price plan	Code	Description	Units	*DPi,2018*	*PTPi,2018*	*Delivery price*
ALVN	ALVN-FIXD	Fixed	$/day	1.7300	-	1.7300
ALVN	ALVN-24UC	Volumetric	$/kWh	0.0391	0.0242	0.0633
ALVN	ALVN-CAPY	Capacity	$/kVA/day	0.0407	-	0.0407
ALVN	ALVN-PWRF	Power Factor	$/kVAr/day	0.2917	-	0.2917
ALVT	ALVT-24UC	Volumetric	$/kWh	0.0134	-	0.0134
ALVT	ALVT-CAPY	Capacity	$/kVA/day	0.0407	-	0.0407
ALVT	ALVT-DAMD	Demand	$/kVA/day	0.0857	0.2520	0.3377
ALVT	ALVT-PWRF	Power Factor	$/kVAr/day	0.2917	-	0.2917

Transformer

Price plan	Code	Description	Units	*DPi,2018*	*PTPi,2018*	*Delivery price*
ATXN	ATXN-FIXD	Fixed	$/day	1.6800	-	1.6800
ATXN	ATXN-24UC	Volumetric	$/kWh	0.0378	0.0242	0.0620
ATXN	ATXN-CAPY	Capacity	$/kVA/day	0.0398	-	0.0398
ATXN	ATXN-PWRF	Power Factor	$/kVAr/day	0.2917	-	0.2917
ATXT	ATXT-24UC	Volumetric	$/kWh	0.0132	-	0.0132
ATXT	ATXT-CAPY	Capacity	$/kVA/day	0.0398	-	0.0398
ATXT	ATXT-DAMD	Demand	$/kVA/day	0.0788	0.2520	0.3308
ATXT	ATXT-PWRF	Power Factor	$/kVAr/day	0.2917	-	0.2917

High voltage

Price plan	Code	Description	Units	*DPi,2018*	*PTPi,2018*	*Delivery price*
AHVN	AHVN-FIXD	Fixed	$/day	1.6200	-	1.6200
AHVN	AHVN-24UC	Volumetric	$/kWh	0.0360	0.0242	0.0602
AHVN	AHVN-CAPY	Capacity	$/kVA/day	0.0386	-	0.0386
AHVN	AHVN-PWRF	Power Factor	$/kVAr/day	0.2917	-	0.2917
AHVT	AHVT-24UC	Volumetric	$/kWh	0.0128	-	0.0128
AHVT	AHVT-CAPY	Capacity	$/kVA/day	0.0386	-	0.0386
AHVT	AHVT-DAMD	Demand	$/kVA/day	0.0688	0.2520	0.3208
AHVT	AHVT-DEXA	Excess demand	$/kVA/day	0.8492	-	0.8492
AHVT	AHVT-PWRF	Power Factor	$/kVAr/day	0.2917	-	0.2917

Injection

Price plan	Code	Description	Units	*DPi,2018*	*PTPi,2018*	*Delivery price*
ARCL	ARCL-INJT	Volumetric	$/kWh	-	-	-
ARUL	ARUL-INJT	Volumetric	$/kWh	-	-	-
ARHL	ARHL-INJT	Volumetric	$/kWh	-	-	-
ARCS	ARCS-INJT	Volumetric	$/kWh	-	-	-
ARUS	ARUS-INJT	Volumetric	$/kWh	-	-	-
ARHS	ARHS-INJT	Volumetric	$/kWh	-	-	-
ABSU	ABSU-INJT	Volumetric	$/kWh	-	-	-
ABSN	ABSN-INJT	Volumetric	$/kWh	-	-	-
ABSH	ABSH-INJT	Volumetric	$/kWh	-	-	-
ALVN	ALVN-INJT	Volumetric	$/kWh	-	-	-
ALVT	ALVT-INJT	Volumetric	$/kWh	-	-	-
ATXN	ATXN-INJT	Volumetric	$/kWh	-	-	-
ATXT	ATXT-INJT	Volumetric	$/kWh	-	-	-
AHVN	AHVN-INJT	Volumetric	$/kWh	-	-	-
AHVT	AHVT-INJT	Volumetric	$/kWh	-	-	-

Non-Standard Prices

Price plan	Code	Description	Units	$DPi,2018\ wrt\ Qi,2016$	$PTPi,2018$	
	WN1		$/year	205,102	247,210	
	WN2		$/year	61,469	-	
	WN3		$/year	143,759	-	
	WN4		$/year	-	-	
	WN5		$/year	-	-	
	WN6		$/year	43,328	-	
	WN7		$/year	17,590	-	
	WN8		$/year	435,538	268,122	
	AN1		$/year	28,266	-	
	AN2		$/year	104,915	-	
	AN3		$/year	-	-	
	AN4		$/year	674,764	69,224	
	AN5		$/year	976,149	1,894,415	
	AN6		$/year	-	-	
	AN7		$/year	51,420	-	
	AN8		$/year	96,575	-	
	AN9		$/year	370,597	133,562	
	AN10		$/year	594,894	677,560	
	AN11		$/year	85,664	-	
	AN12		$/year	677,829	376,348	
	AN13		$/year	-	-	
	AN14		$/year	-	-	
	AN15		$/year	-	-	
	AN16		$/year	-	-	
	AN17		$/year	31,089	-	
	AN18		$/year	223,017	294,315	
	AN19		$/year	182,473	504,834	
	AN20		$/year	217,950	-	
	AN21		$/year	1,212,742	488,839	
	AN22		$/year	-	552,487	
	AN23		$/year	496,428	-	
	AN24		$/year	-	-	
	AN25		$/year	157,672	-	
	AN26		$/year	278,801	-	
	AN27		$/year	371,357	951,934	
	AN28		$/year	22,334	-	
	AN29		$/year	-	-	
	AN30		$/year	-	-	
	AN31		$/year	485,087	251,608	
	AN32		$/year	73,306	-	
	AN33		$/year	466,013	410,927	
	AN34		$/year	-	-	
	AN35		$/year	162,205	-	
	AN36		$/year	-	-	
	AN37		$/year	-	-	
	AN38		$/year	536,440	595,802	
	AN39		$/year	699,686	129,929	
	AN40		$/year	-	-	
	AN41		$/year	443,844	81,910	
	AN42		$/year	57,773	20,096	
	AN43		$/year	78,408	568,421	
	AN44		$/year	16,414	100,952	
	AN45		$/year	-	233,162	
	AN46		$/year	274,452	359,796	
	WP1		$/year	-28,150	-	
	AP1		$/year	-51,850	-	

APPENDIX 2: DETAILS OF $DP_{I,2018}Q_{I,2016}$

Summary of DPi,2018 Qi,2016 for the 2018 assessment period

	DPi,2018 Qi,2016
Sum	**$397,461,640**

	DPi,2018 Qi,2016
Northern charges between 1 April 2017 to 31 March 2018	$135,993,107
Auckland charges between 1 April 2017 to 31 March 2018	$250,493,182
Non-standard charges between 1 April 2017 to 31 March 2018	$10,975,351

Northern charges between 1 April 2017 to 31 March 2018

Residential

Price plan	Code	Description	Units	*DPi,2018*	*Qi,2016*	*DPi,2018 Qi,2016*
WRCL	WRCL-FIXD	Fixed	$/day	0.1500	31,736,077	$ 4,760,412
WRCL	WRCL-AICO	Volumetric, controlled	$/kWh	0.0644	465,595,384	$ 29,984,343
WRUL	WRUL-FIXD	Fixed	$/day	0.1500	5,829,249	$ 874,387
WRUL	WRUL-24UC	Volumetric, uncontrolled	$/kWh	0.0644	79,592,219	$ 5,125,739
WRCS	WRCS-FIXD	Fixed	$/day	1.0100	27,888,846	$ 28,167,734
WRCS	WRCS-AICO	Volumetric, controlled	$/kWh	0.0252	742,393,603	$ 18,708,319
WRUS	WRUS-FIXD	Fixed	$/day	1.0100	5,845,826	$ 5,904,284
WRUS	WRUS-24UC	Volumetric, uncontrolled	$/kWh	0.0252	136,105,721	$ 3,429,864
WRHL	WRHL-FIXD	Fixed	$/day	0.1500	294	$ 44
WRHL	WRHL-OFPK	Volumetric, off peak	$/kWh	0.0644	4,552	$ 293
WRHL	WRHL-PEAK	Volumetric, peak	$/kWh	0.0644	1,203	$ 77
WRHS	WRHS-FIXD	Fixed	$/day	1.0100	658	$ 665
WRHS	WRHS-OFPK	Volumetric, off peak	$/kWh	0.0252	2,052	$ 52
WRHS	WRHS-PEAK	Volumetric, peak	$/kWh	0.0252	8,692	$ 219

Business

Price plan	Code	Description	Units	*DPi,2018*	*Qi,2016*	*DPi,2018 Qi,2016*
WBSU	WBSU-FIXD	Fixed	$/day/fitting	0.1500	12,736,656	$ 1,910,498
WBSU	WBSU-24UC	Volumetric	$/kWh	0.0320	18,867,835	$ 603,771
WBSN	WBSN-FIXD	Fixed	$/day	1.0100	7,970,169	$ 8,049,871
WBSN	WBSN-24UC	Volumetric	$/kWh	0.0252	392,403,803	$ 9,888,576
WBSH	WBSH-FIXD	Fixed	$/day	1.0100	4,062	$ 4,103
WBSH	WBSH-OFPK	Volumetric, off peak	$/kWh	0.0252	1,377,239	$ 34,706
WBSH	WBSH-PEAK	Volumetric, peak	$/kWh	0.0252	436,351	$ 10,996

Low voltage

Price plan	Code	Description	Units	*DPi,2018*	*Qi,2016*	*DPi,2018 Qi,2016*
WLVN	WLVN-FIXD	Fixed	$/day	6.0500	290,789	$ 1,759,273
WLVN	WLVN-24UC	Volumetric	$/kWh	0.0199	130,488,801	$ 2,596,727
WLVN	WLVN-CAPY	Capacity	$/kVA/day	0.0327	42,618,298	$ 1,393,618
WLVN	WLVN-PWRF	Power Factor	$/kVAr/day	0.2917	472,809	$ 137,918
WLVH	WLVH-FIXD	Fixed	$/day	11.4100	74,238	$ 847,056
WLVH	WLVH-24UC	Volumetric	$/kWh	0.0057	109,569,274	$ 624,545
WLVH	WLVH-CAPY	Capacity	$/kVA/day	0.0327	17,908,389	$ 585,604
WLVH	WLVH-DAMD	Demand	$/kVA/day	0.0580	8,464,996	$ 490,970
WLVH	WLVH-PWRF	Power Factor	$/kVAr/day	0.2917	678,673	$ 197,969

Transformer

Price plan	Code	Description	Units	*DPi,2018*	*Qi,2016*	*DPi,2018 Qi,2016*
WTXN	WTXN-FIXD	Fixed	$/day	5.4400	48,380	$ 263,187
WTXN	WTXN-24UC	Volumetric	$/kWh	0.0155	40,879,912	$ 633,639
WTXN	WTXN-CAPY	Capacity	$/kVA/day	0.0321	11,727,192	$ 376,443
WTXN	WTXN-PWRF	Power Factor	$/kVAr/day	0.2917	286,390	$ 83,540
WTXH	WTXH-FIXD	Fixed	$/day	10.2700	93,430	$ 959,526
WTXH	WTXH-24UC	Volumetric	$/kWh	0.0056	354,650,859	$ 1,986,045
WTXH	WTXH-CAPY	Capacity	$/kVA/day	0.0321	71,287,806	$ 2,288,339
WTXH	WTXH-DAMD	Demand	$/kVA/day	0.0519	29,128,783	$ 1,511,784
WTXH	WTXH-PWRF	Power Factor	$/kVAr/day	0.2917	1,432,294	$ 417,800

High voltage

Price plan	Code	Description	Units	*DPi,2018*	*Qi,2016*	*DPi,2018 Qi,2016*
WHVN	WHVN-FIXD	Fixed	$/day	5.2800	300	$ 1,584
WHVN	WHVN-24UC	Volumetric	$/kWh	0.0143	261	$ 4
WHVN	WHVN-CAPY	Capacity	$/kVA/day	0.0311	9,104	$ 283
WHVN	WHVN-PWRF	Power Factor	$/kVAr/day	0.2917	-	$ -
WHVH	WHVH-FIXD	Fixed	$/day	9.9600	5,734	$ 57,111
WHVH	WHVH-24UC	Volumetric	$/kWh	0.0054	107,773,385	$ 581,976
WHVH	WHVH-CAPY	Capacity	$/kVA/day	0.0311	11,979,050	$ 372,548
WHVH	WHVH-DAMD	Demand	$/kVA/day	0.0428	7,402,947	$ 316,846
WHVH	WHVH-DEXA	Excess demand	$/kVA/day	0.6842	5,584	$ 3,821
WHVH	WHVH-PWRF	Power Factor	$/kVAr/day	0.2917	157,691	$ 45,998

Injection

Price plan	Code	Description	Units	*DPi,2018*	*Qi,2016*	*DPi,2018 Qi,2016*
WRCL	WRCL-INJT	Volumetric	$/kWh	-	746,055	$ -
WRUL	WRUL-INJT	Volumetric	$/kWh	-	337,820	$ -
WRHL	WRHL-INJT	Volumetric	$/kWh	-	-	$ -
WRCS	WRCS-INJT	Volumetric	$/kWh	-	- 190,801	$ -
WRUS	WRUS-INJT	Volumetric	$/kWh	-	416,469	$ -
WRHS	WRHS-INJT	Volumetric	$/kWh	-	-	$ -
WBSU	WBSU-INJT	Volumetric	$/kWh	-	-	$ -
WBSN	WBSN-INJT	Volumetric	$/kWh	-	92,979	$ -
WBSH	WBSH-INJT	Volumetric	$/kWh	-	-	$ -
WLVN	WLVN-INJT	Volumetric	$/kWh	-	20,546	$ -
WLVH	WLVH-INJT	Volumetric	$/kWh	-	-	$ -
WTXN	WTXN-INJT	Volumetric	$/kWh	-	-	$ -
WTXH	WTXH-INJT	Volumetric	$/kWh	-	-	$ -
WHVN	WHVN-INJT	Volumetric	$/kWh	-	-	$ -
WHVH	WHVH-INJT	Volumetric	$/kWh	-	-	$ -

Auckland charges between 1 April 2017 to 31 March 2018

Residential

Price plan	Code	Description	Units	*DPi,2018*	*Qi,2016*	*DPi,2018 Qi,2016*
ARCL	ARCL-FIXD	Fixed	$/day	0.1500	45,193,617	$ 6,779,043
ARCL	ARCL-AICO	Volumetric, controlled	$/kWh	0.0644	647,519,325	$ 41,700,245
ARUL	ARUL-FIXD	Fixed	$/day	0.1500	14,547,357	$ 2,182,104
ARUL	ARUL-24UC	Volumetric, uncontrolled	$/kWh	0.0644	167,546,628	$ 10,790,003
ARCS	ARCS-FIXD	Fixed	$/day	1.0100	35,675,224	$ 36,031,976
ARCS	ARCS-AICO	Volumetric, controlled	$/kWh	0.0252	923,731,753	$ 23,278,040
ARUS	ARUS-FIXD	Fixed	$/day	1.0100	8,790,645	$ 8,878,551
ARUS	ARUS-24UC	Volumetric, uncontrolled	$/kWh	0.0252	203,031,969	$ 5,116,406
ARHL	ARHL-FIXD	Fixed	$/day	0.1500	741	$ 111
ARHL	ARHL-OFPK	Volumetric, off peak	$/kWh	0.0644	9,315	$ 600
ARHL	ARHL-PEAK	Volumetric, peak	$/kWh	0.0644	2,108	$ 136
ARHS	ARHS-FIXD	Fixed	$/day	1.0100	238	$ 240
ARHS	ARHS-OFPK	Volumetric, off peak	$/kWh	0.0252	13,920	$ 351
ARHS	ARHS-PEAK	Volumetric, peak	$/kWh	0.0252	3,952	$ 100

Business

Price plan	Code	Description	Units	*DPi,2018*	*Qi,2016*	*DPi,2018 Qi,2016*
ABSU	ABSU-FIXD	Fixed	$/day/fitting	0.1500	24,174,846	$ 3,626,227
ABSU	ABSU-24UC	Volumetric	$/kWh	0.0320	38,664,927	$ 1,237,278
ABSN	ABSN-FIXD	Fixed	$/day	1.0100	13,228,693	$ 13,360,980
ABSN	ABSN-24UC	Volumetric	$/kWh	0.0252	767,966,647	$ 19,352,760
ABSH	ABSH-FIXD	Fixed	$/day	1.0100	11,085	$ 11,196
ABSH	ABSH-OFPK	Volumetric, off peak	$/kWh	0.0252	4,005,647	$ 100,942
ABSH	ABSH-PEAK	Volumetric, peak	$/kWh	0.0252	1,255,222	$ 31,632

Low voltage

Price plan	Code	Description	Units	*DPi,2018*	*Qi,2016*	*DPi,2018 Qi,2016*
ALVN	ALVN-FIXD	Fixed	$/day	1.7300	750,816	$ 1,298,912
ALVN	ALVN-24UC	Volumetric	$/kWh	0.0391	220,952,283	$ 8,639,234
ALVN	ALVN-CAPY	Capacity	$/kVA/day	0.0407	109,773,424	$ 4,467,778
ALVN	ALVN-PWRF	Power Factor	$/kVAr/day	0.2917	476,078	$ 138,872
ALVT	ALVT-24UC	Volumetric	$/kWh	0.0134	576,283,480	$ 7,722,199
ALVT	ALVT-CAPY	Capacity	$/kVA/day	0.0407	132,322,777	$ 5,385,537
ALVT	ALVT-DAMD	Demand	$/kVA/day	0.0857	51,036,389	$ 4,373,819
ALVT	ALVT-PWRF	Power Factor	$/kVAr/day	0.2917	6,038,216	$ 1,761,348

Transformer

Price plan	Code	Description	Units	*DPi,2018*	*Qi,2016*	*DPi,2018 Qi,2016*
ATXN	ATXN-FIXD	Fixed	$/day	1.6800	55,419	$ 93,104
ATXN	ATXN-24UC	Volumetric	$/kWh	0.0378	19,727,491	$ 745,699
ATXN	ATXN-CAPY	Capacity	$/kVA/day	0.0398	11,874,832	$ 472,618
ATXN	ATXN-PWRF	Power Factor	$/kVAr/day	0.2917	22,692	$ 6,619
ATXT	ATXT-24UC	Volumetric	$/kWh	0.0132	1,110,450,348	$ 14,657,945
ATXT	ATXT-CAPY	Capacity	$/kVA/day	0.0398	217,298,102	$ 8,648,464
ATXT	ATXT-DAMD	Demand	$/kVA/day	0.0788	90,151,924	$ 7,103,972
ATXT	ATXT-PWRF	Power Factor	$/kVAr/day	0.2917	6,092,161	$ 1,777,083

High voltage

Price plan	Code	Description	Units	*DPi,2018*	*Qi,2016*	*DPi,2018 Qi,2016*
AHVN	AHVN-FIXD	Fixed	$/day	1.6200	2,592	$ 4,199
AHVN	AHVN-24UC	Volumetric	$/kWh	0.0360	775,686	$ 27,925
AHVN	AHVN-CAPY	Capacity	$/kVA/day	0.0386	530,400	$ 20,473
AHVN	AHVN-PWRF	Power Factor	$/kVAr/day	0.2917	16,055	$ 4,683
AHVT	AHVT-24UC	Volumetric	$/kWh	0.0128	435,073,099	$ 5,568,936
AHVT	AHVT-CAPY	Capacity	$/kVA/day	0.0386	54,135,957	$ 2,089,648
AHVT	AHVT-DAMD	Demand	$/kVA/day	0.0688	34,268,711	$ 2,357,687
AHVT	AHVT-DEXA	Excess demand	$/kVA/day	0.8492	135,155	$ 114,774
AHVT	AHVT-PWRF	Power Factor	$/kVAr/day	0.2917	1,826,313	$ 532,736

Injection

Price plan	Code	Description	Units	*DPi,2018*	*Qi,2016*	*DPi,2018 Qi,2016*
ARCL	ARCL-INJT	Volumetric	$/kWh	-	463,419	$ -
ARUL	ARUL-INJT	Volumetric	$/kWh	-	256,262	$ -
ARHL	ARHL-INJT	Volumetric	$/kWh	-	166	$ -
ARCS	ARCS-INJT	Volumetric	$/kWh	-	585,075	$ -
ARUS	ARUS-INJT	Volumetric	$/kWh	-	245,522	$ -
ARHS	ARHS-INJT	Volumetric	$/kWh	-	-	$ -
ABSU	ABSU-INJT	Volumetric	$/kWh	-	-	$ -
ABSN	ABSN-INJT	Volumetric	$/kWh	-	131,852	$ -
ABSH	ABSH-INJT	Volumetric	$/kWh	-	-	$ -
ALVN	ALVN-INJT	Volumetric	$/kWh	-	48,142	$ -
ALVT	ALVT-INJT	Volumetric	$/kWh	-	5,626	$ -
ATXN	ATXN-INJT	Volumetric	$/kWh	-	-	$ -
ATXT	ATXT-INJT	Volumetric	$/kWh	-	-	$ -
AHVN	AHVN-INJT	Volumetric	$/kWh	-	-	$ -
AHVT	AHVT-INJT	Volumetric	$/kWh	-	6,198	$ -

Non-standard charges between 1 April 2017 to 31 March 2018

Price plan	Code	Description	Units	*DPi,2018*	*Qi,2016*	*DPi,2018 Qi,2016*
	WN1		$/year	$ 205,102	1	$ 205,102
	WN2		$/year	$ 61,469	1	$ 61,469
	WN3		$/year	$ 143,759	1	$ 143,759
	WN4		$/year	$ -	1	$ -
	WN5		$/year	$ -	1	$ -
	WN6		$/year	$ 43,328	1	$ 43,328
	WN7		$/year	$ 17,590	1	$ 17,590
	WN8		$/year	$ 435,538	1	$ 435,538
	AN1		$/year	$ 28,266	1	$ 28,266
	AN2		$/year	$ 104,915	1	$ 104,915
	AN3		$/year	$ -	1	$ -
	AN4		$/year	$ 674,764	1	$ 674,764
	AN5		$/year	$ 976,149	1	$ 976,149
	AN6		$/year	$ -	1	$ -
	AN7		$/year	$ 51,420	1	$ 51,420
	AN8		$/year	$ 96,575	1	$ 96,575
	AN9		$/year	$ 370,597	1	$ 370,597
	AN10		$/year	$ 594,894	1	$ 594,894
	AN11		$/year	$ 85,664	1	$ 85,664
	AN12		$/year	$ 677,829	1	$ 677,829
	AN13		$/year	$ -	1	$ -
	AN14		$/year	$ -	1	$ -
	AN15		$/year	$ -	1	$ -
	AN16		$/year	$ -	1	$ -
	AN17		$/year	$ 31,089	1	$ 31,089
	AN18		$/year	$ 223,017	1	$ 223,017
	AN19		$/year	$ 182,473	1	$ 182,473
	AN20		$/year	$ 217,950	1	$ 217,950
	AN21		$/year	$ 1,212,742	1	$ 1,212,742
	AN22		$/year	$ -	1	$ -
	AN23		$/year	$ 496,428	1	$ 496,428
	AN24		$/year	$ -	1	$ -
	AN25		$/year	$ 157,672	1	$ 157,672
	AN26		$/year	$ 278,801	1	$ 278,801
	AN27		$/year	$ 371,357	1	$ 371,357
	AN28		$/year	$ 22,334	1	$ 22,334
	AN29		$/year	$ -	1	$ -
	AN30		$/year	$ -	1	$ -
	AN31		$/year	$ 485,087	1	$ 485,087
	AN32		$/year	$ 73,306	1	$ 73,306
	AN33		$/year	$ 466,013	1	$ 466,013
	AN34		$/year	$ -	1	$ -
	AN35		$/year	$ 162,205	1	$ 162,205
	AN36		$/year	$ -	1	$ -
	AN37		$/year	$ -	1	$ -
	AN38		$/year	$ 536,440	1	$ 536,440
	AN39		$/year	$ 699,686	1	$ 699,686
	AN40		$/year	$ -	1	$ -
	AN41		$/year	$ 443,844	1	$ 443,844
	AN42		$/year	$ 57,773	1	$ 57,773
	AN43		$/year	$ 78,408	1	$ 78,408
	AN44		$/year	$ 16,414	1	$ 16,414
	AN45		$/year	$ -	1	$ -
	AN46		$/year	$ 274,452	1	$ 274,452
	WP1		$/year	-$ 28,150	1	-$ 28,150
	AP1		$/year	-$ 51,850	1	-$ 51,850

APPENDIX 3: DETAILS OF $PTP_{I,2018}Q_{I,2018}$

Summary of PTPi,2018 Qi,2018 for the 2018 assessment period

	PTPi,2018 Qi,2018
Sum	**$231,183,826**

	PTPi,2018 Qi,2018
Northern charges between 1 April 2017 to 31 March 2018	$78,643,780
Auckland charges between 1 April 2017 to 31 March 2018	$143,328,594
Non-standard charges between 1 April 2017 to 31 March 2018	$9,211,453

Northern charges between 1 April 2017 to 31 March 2018

Residential

Price plan	Code	Description	Units	*PTPi,2018*	*Qi,2018*	*PTPi,2018 Qi,2018*
WRCL	WRCL-FIXD	Fixed	$/day	-	31,886,477	$ -
WRCL	WRCL-AICO	Volumetric, controlled	$/kWh	0.0313	473,211,643	$ 14,811,524
WRUL	WRUL-FIXD	Fixed	$/day	-	4,207,760	$ -
WRUL	WRUL-24UC	Volumetric, uncontrolled	$/kWh	0.0393	58,877,252	$ 2,313,876
WRGL	WRGL-FIXD	Fixed	$/day	-	3,126,097	$ -
WRGL	WRGL-24UC	Volumetric, uncontrolled	$/kWh	0.0313	40,779,102	$ 1,276,386
WRCS	WRCS-FIXD	Fixed	$/day	-	25,822,752	$ -
WRCS	WRCS-AICO	Volumetric, controlled	$/kWh	0.0313	685,534,935	$ 21,457,243
WRUS	WRUS-FIXD	Fixed	$/day	-	5,313,032	$ -
WRUS	WRUS-24UC	Volumetric, uncontrolled	$/kWh	0.0393	114,343,921	$ 4,493,716
WRGS	WRGS-FIXD	Fixed	$/day	-	2,089,328	$ -
WRGS	WRGS-24UC	Volumetric, uncontrolled	$/kWh	0.0313	49,467,729	$ 1,548,340
WRHL	WRHL-FIXD	Fixed	$/day	-	410,051	$ -
WRHL	WRHL-OFPK	Volumetric, off peak	$/kWh	-	3,453,307	$ -
WRHL	WRHL-PEAK	Volumetric, peak	$/kWh	0.1000	1,392,975	$ 139,297
WRHS	WRHS-FIXD	Fixed	$/day	-	403,781	$ -
WRHS	WRHS-OFPK	Volumetric, off peak	$/kWh	-	6,143,776	$ -
WRHS	WRHS-PEAK	Volumetric, peak	$/kWh	0.1000	2,487,705	$ 248,771

Business

Price plan	Code	Description	Units	*PTPi,2018*	*Qi,2018*	*PTPi,2018 Qi,2018*
WBSU	WBSU-FIXD	Fixed	$/day/fitting	-	14,895,227	$ -
WBSU	WBSU-24UC	Volumetric	$/kWh	0.0393	21,172,147	$ 832,065
WBSN	WBSN-FIXD	Fixed	$/day	-	7,949,899	$ -
WBSN	WBSN-24UC	Volumetric	$/kWh	0.0393	385,971,533	$ 15,168,681
WBSH	WBSH-FIXD	Fixed	$/day	-	157,527	$ -
WBSH	WBSH-OFPK	Volumetric, off peak	$/kWh	-	7,256,726	$ -
WBSH	WBSH-PEAK	Volumetric, peak	$/kWh	0.1000	3,577,534	$ 357,753

Low voltage

Price plan	Code	Description	Units	*PTPi,2018*	*Qi,2018*	*PTPi,2018 Qi,2018*
WLVN	WLVN-FIXD	Fixed	$/day	-	303,961	$ -
WLVN	WLVN-24UC	Volumetric	$/kWh	0.0242	123,098,432	$ 2,978,982
WLVN	WLVN-CAPY	Capacity	$/kVA/day	-	44,090,614	$ -
WLVN	WLVN-PWRF	Power Factor	$/kVAr/day	-	379,313	$ -
WLVH	WLVH-FIXD	Fixed	$/day	-	84,295	$ -
WLVH	WLVH-24UC	Volumetric	$/kWh	-	120,209,080	$ -
WLVH	WLVH-CAPY	Capacity	$/kVA/day	-	20,351,227	$ -
WLVH	WLVH-DAMD	Demand	$/kVA/day	0.2520	9,241,818	$ 2,328,938
WLVH	WLVH-PWRF	Power Factor	$/kVAr/day	-	783,690	$ -

Transformer

Price plan	Code	Description	Units	*PTPi,2018*	*Qi,2018*	*PTPi,2018 Qi,2018*
WTXN	WTXN-FIXD	Fixed	$/day	-	49,220	$ -
WTXN	WTXN-24UC	Volumetric	$/kWh	0.0242	39,154,637	$ 947,542
WTXN	WTXN-CAPY	Capacity	$/kVA/day	-	11,976,309	$ -
WTXN	WTXN-PWRF	Power Factor	$/kVAr/day	-	220,848	$ -
WTXH	WTXH-FIXD	Fixed	$/day	-	98,859	$ -
WTXH	WTXH-24UC	Volumetric	$/kWh	-	367,444,784	$ -
WTXH	WTXH-CAPY	Capacity	$/kVA/day	-	75,415,959	$ -
WTXH	WTXH-DAMD	Demand	$/kVA/day	0.2520	29,517,618	$ 7,438,440
WTXH	WTXH-PWRF	Power Factor	$/kVAr/day	-	1,723,070	$ -

High voltage

Price plan	Code	Description	Units	*PTPi,2018*	*Qi,2018*	*PTPi,2018 Qi,2018*
WHVN	WHVN-FIXD	Fixed	$/day	-	-	$ -
WHVN	WHVN-24UC	Volumetric	$/kWh	0.0242	-	$ -
WHVN	WHVN-CAPY	Capacity	$/kVA/day	-	-	$ -
WHVN	WHVN-PWRF	Power Factor	$/kVAr/day	-	-	$ -
WHVH	WHVH-FIXD	Fixed	$/day	-	7,836	$ -
WHVH	WHVH-24UC	Volumetric	$/kWh	-	137,391,025	$ -
WHVH	WHVH-CAPY	Capacity	$/kVA/day	-	14,042,686	$ -
WHVH	WHVH-DAMD	Demand	$/kVA/day	0.2520	9,135,808	$ 2,302,224
WHVH	WHVH-DEXA	Excess demand	$/kVA/day	-	113,235	$ -
WHVH	WHVH-PWRF	Power Factor	$/kVAr/day	-	201,379	$ -

Injection

Price plan	Code	Description	Units	*PTPi,2018*	*Qi,2018*	*PTPi,2018 Qi,2018*
WRCL	WRCL-INJT	Volumetric	$/kWh	-	1,031,900	$ -
WRUL	WRUL-INJT	Volumetric	$/kWh	-	390,867	$ -
WRHL	WRHL-INJT	Volumetric	$/kWh	-	16,922	$ -
WRCS	WRCS-INJT	Volumetric	$/kWh	-	958,302	$ -
WRUS	WRUS-INJT	Volumetric	$/kWh	-	571,426	$ -
WRHS	WRHS-INJT	Volumetric	$/kWh	-	20,680	$ -
WBSU	WBSU-INJT	Volumetric	$/kWh	-	-	$ -
WBSN	WBSN-INJT	Volumetric	$/kWh	-	184,810	$ -
WBSH	WBSH-INJT	Volumetric	$/kWh	-	3,554	$ -
WLVN	WLVN-INJT	Volumetric	$/kWh	-	- 9,714	$ -
WLVH	WLVH-INJT	Volumetric	$/kWh	-	- 54	$ -
WTXN	WTXN-INJT	Volumetric	$/kWh	-	-	$ -
WTXH	WTXH-INJT	Volumetric	$/kWh	-	- 219,282	$ -
WHVN	WHVN-INJT	Volumetric	$/kWh	-	-	$ -
WHVH	WHVH-INJT	Volumetric	$/kWh	-	-	$ -

Auckland charges between 1 April 2017 to 31 March 2018

Residential

Price plan	Code	Description	Units	*PTPi,2018*	*Qi,2018*	*PTPi,2018 Qi,2018*
ARCL	ARCL-FIXD	Fixed	$/day	-	46,959,340	$ -
ARCL	ARCL-AICO	Volumetric, controlled	$/kWh	0.0313	675,621,790	$ 21,146,962
ARUL	ARUL-FIXD	Fixed	$/day	-	9,307,334	$ -
ARUL	ARUL-24UC	Volumetric, uncontrolled	$/kWh	0.0393	97,980,513	$ 3,850,634
ARGL	ARGL-FIXD	Fixed	$/day	-	7,492,335	$ -
ARGL	ARGL-24UC	Volumetric, uncontrolled	$/kWh	0.0313	94,852,413	$ 2,968,881
ARCS	ARCS-FIXD	Fixed	$/day	-	31,451,744	$ -
ARCS	ARCS-AICO	Volumetric, controlled	$/kWh	0.0313	821,361,931	$ 25,708,628
ARUS	ARUS-FIXD	Fixed	$/day	-	5,675,931	$ -
ARUS	ARUS-24UC	Volumetric, uncontrolled	$/kWh	0.0393	113,542,677	$ 4,462,227
ARGS	ARGS-FIXD	Fixed	$/day	-	4,251,454	$ -
ARGS	ARGS-24UC	Volumetric, uncontrolled	$/kWh	0.0313	109,179,115	$ 3,417,306
ARHL	ARHL-FIXD	Fixed	$/day	-	414,546	$ -
ARHL	ARHL-OFPK	Volumetric, off peak	$/kWh	-	3,231,166	$ -
ARHL	ARHL-PEAK	Volumetric, peak	$/kWh	0.1000	1,336,397	$ 133,640
ARHS	ARHS-FIXD	Fixed	$/day	-	345,671	$ -
ARHS	ARHS-OFPK	Volumetric, off peak	$/kWh	-	5,137,720	$ -
ARHS	ARHS-PEAK	Volumetric, peak	$/kWh	0.1000	2,167,476	$ 216,748

Business

Price plan	Code	Description	Units	*PTPi,2018*	*Qi,2018*	*PTPi,2018 Qi,2018*
ABSU	ABSU-FIXD	Fixed	$/day/fitting	-	24,604,822	$ -
ABSU	ABSU-24UC	Volumetric	$/kWh	0.0393	33,978,216	$ 1,335,344
ABSN	ABSN-FIXD	Fixed	$/day	-	12,876,361	$ -
ABSN	ABSN-24UC	Volumetric	$/kWh	0.0393	743,785,686	$ 29,230,777
ABSH	ABSH-FIXD	Fixed	$/day	-	238,132	$ -
ABSH	ABSH-OFPK	Volumetric, off peak	$/kWh	-	14,905,375	$ -
ABSH	ABSH-PEAK	Volumetric, peak	$/kWh	0.1000	6,984,141	$ 698,414

Low voltage

Price plan	Code	Description	Units	*PTPi,2018*	*Qi,2018*	*PTPi,2018 Qi,2018*
ALVN	ALVN-FIXD	Fixed	$/day	-	773,283	$ -
ALVN	ALVN-24UC	Volumetric	$/kWh	0.0242	230,814,673	$ 5,585,715
ALVN	ALVN-CAPY	Capacity	$/kVA/day	-	113,648,460	$ -
ALVN	ALVN-PWRF	Power Factor	$/kVAr/day	-	411,336	$ -
ALVT	ALVT-24UC	Volumetric	$/kWh	-	553,982,704	$ -
ALVT	ALVT-CAPY	Capacity	$/kVA/day	-	129,992,676	$ -
ALVT	ALVT-DAMD	Demand	$/kVA/day	0.2520	47,676,992	$ 12,014,602
ALVT	ALVT-PWRF	Power Factor	$/kVAr/day	-	5,047,318	$ -

Transformer

Price plan	Code	Description	Units	*PTPi,2018*	*Qi,2018*	*PTPi,2018 Qi,2018*
ATXN	ATXN-FIXD	Fixed	$/day	-	60,514	$ -
ATXN	ATXN-24UC	Volumetric	$/kWh	0.0242	23,544,672	$ 569,781
ATXN	ATXN-CAPY	Capacity	$/kVA/day	-	13,798,753	$ -
ATXN	ATXN-PWRF	Power Factor	$/kVAr/day	-	46,750	$ -
ATXT	ATXT-24UC	Volumetric	$/kWh	-	1,154,336,924	$ -
ATXT	ATXT-CAPY	Capacity	$/kVA/day	-	233,302,470	$ -
ATXT	ATXT-DAMD	Demand	$/kVA/day	0.2520	92,014,473	$ 23,187,647
ATXT	ATXT-PWRF	Power Factor	$/kVAr/day	-	5,157,580	$ -

High voltage

Price plan	Code	Description	Units	*PTPi,2018*	*Qi,2018*	*PTPi,2018 Qi,2018*
AHVN	AHVN-FIXD	Fixed	$/day	-	2,555	$ -
AHVN	AHVN-24UC	Volumetric	$/kWh	0.0242	653,480	$ 15,814
AHVN	AHVN-CAPY	Capacity	$/kVA/day	-	492,750	$ -
AHVN	AHVN-PWRF	Power Factor	$/kVAr/day	-	-	$ -
AHVT	AHVT-24UC	Volumetric	$/kWh	-	455,726,356	$ -
AHVT	AHVT-CAPY	Capacity	$/kVA/day	-	58,971,965	$ -
AHVT	AHVT-DAMD	Demand	$/kVA/day	0.2520	34,862,987	$ 8,785,473
AHVT	AHVT-DEXA	Excess demand	$/kVA/day	-	101,208	$ -
AHVT	AHVT-PWRF	Power Factor	$/kVAr/day	-	1,644,225	$ -

Injection

Price plan	Code	Description	Units	*PTPi,2018*	*Qi,2018*	*PTPi,2018 Qi,2018*
ARCL	ARCL-INJT	Volumetric	$/kWh	-	815,502	$ -
ARUL	ARUL-INJT	Volumetric	$/kWh	-	241,694	$ -
ARHL	ARHL-INJT	Volumetric	$/kWh	-	12,465	$ -
ARCS	ARCS-INJT	Volumetric	$/kWh	-	776,228	$ -
ARUS	ARUS-INJT	Volumetric	$/kWh	-	346,517	$ -
ARHS	ARHS-INJT	Volumetric	$/kWh	-	15,846	$ -
ABSU	ABSU-INJT	Volumetric	$/kWh	-	-	$ -
ABSN	ABSN-INJT	Volumetric	$/kWh	-	174,910	$ -
ABSH	ABSH-INJT	Volumetric	$/kWh	-	3,070	$ -
ALVN	ALVN-INJT	Volumetric	$/kWh	-	19,340	$ -
ALVT	ALVT-INJT	Volumetric	$/kWh	-	- 237,584	$ -
ATXN	ATXN-INJT	Volumetric	$/kWh	-	27	$ -
ATXT	ATXT-INJT	Volumetric	$/kWh	-	-	$ -
AHVN	AHVN-INJT	Volumetric	$/kWh	-	-	$ -
AHVT	AHVT-INJT	Volumetric	$/kWh	-	- 4,541,490	$ -

Price plan	Code	Description	Units	$PTPi,2018$	$Qi,2018$	$PTPi,2018\ Qi,2018$
	WN1		$/year	$ 247,210	1	$ 247,210
	WN2		$/year	$ -	1	$ -
	WN3		$/year	$ -	1	$ -
	WN4		$/year	$ -	1	$ -
	WN5		$/year	$ -	1	$ -
	WN6		$/year	$ -	1	$ -
	WN7		$/year	$ -	1	$ -
	WN8		$/year	$ 268,122	1	$ 268,122
	AN1		$/year	$ -	1	$ -
	AN2		$/year	$ -	1	$ -
	AN3		$/year	$ -	1	$ -
	AN4		$/year	$ 69,224	1	$ 69,224
	AN5		$/year	$ 1,894,415	1	$ 1,894,415
	AN6		$/year	$ -	1	$ -
	AN7		$/year	$ -	1	$ -
	AN8		$/year	$ -	1	$ -
	AN9		$/year	$ 133,562	1	$ 133,562
	AN10		$/year	$ 677,560	1	$ 677,560
	AN11		$/year	$ -	1	$ -
	AN12		$/year	$ 376,348	1	$ 376,348
	AN13		$/year	$ -	1	$ -
	AN14		$/year	$ -	1	$ -
	AN15		$/year	$ -	1	$ -
	AN16		$/year	$ -	1	$ -
	AN17		$/year	$ -	1	$ -
	AN18		$/year	$ 294,315	1	$ 294,315
	AN19		$/year	$ 504,834	1	$ 504,834
	AN20		$/year	$ -	1	$ -
	AN21		$/year	$ 488,839	1	$ 488,839
	AN22		$/year	$ 552,487	1	$ 552,487
	AN23		$/year	$ -	1	$ -
	AN24		$/year	$ -	1	$ -
	AN25		$/year	$ -	1	$ -
	AN26		$/year	$ -	1	$ -
	AN27		$/year	$ 951,934	1	$ 951,934
	AN28		$/year	$ -	1	$ -
	AN29		$/year	$ -	1	$ -
	AN30		$/year	$ -	1	$ -
	AN31		$/year	$ 251,608	1	$ 251,608
	AN32		$/year	$ -	1	$ -
	AN33		$/year	$ 410,927	1	$ 410,927
	AN34		$/year	$ -	1	$ -
	AN35		$/year	$ -	1	$ -
	AN36		$/year	$ -	1	$ -
	AN37		$/year	$ -	1	$ -
	AN38		$/year	$ 595,802	1	$ 595,802
	AN39		$/year	$ 129,929	1	$ 129,929
	AN40		$/year	$ -	1	$ -
	AN41		$/year	$ 81,910	1	$ 81,910
	AN42		$/year	$ 20,096	1	$ 20,096
	AN43		$/year	$ 568,421	1	$ 568,421
	AN44		$/year	$ 100,952	1	$ 100,952
	AN45		$/year	$ 233,162	1	$ 233,162
	AN46		$/year	$ 359,796	1	$ 359,796
	WP1		$/year	$ -	1	$ -
	AP1		$/year	$ -	1	$ -

APPENDIX 4: DETAILS OF $PTP_{I,2017}Q_{I,2017}$

Summary of PTPi,2017 Qi,2017 for the 2018 assessment period

	PTPi,2017 Qi,2017
Sum	**$220,665,964**

	PTPi,2017 Qi,2017
Northern charges between 1 April 2016 to 31 March 2017	$73,527,596
Auckland charges between 1 April 2016 to 31 March 2017	$136,986,421
Non-standard charges between 1 April 2016 to 31 March 2017	$10,151,946

Northern charges between 1 April 2016 to 31 March 2017

Residential

Price plan	Code	Description	Units	*PTPi,2017*	*Qi,2017*	*PTPi,2017 Qi,2017*
WRCL	WRCL-FIXD	Fixed	$/day	-	32,001,379	$ -
WRCL	WRCL-AICO	Volumetric, controlled	$/kWh	0.0300	467,384,456	$ 14,021,534
WRUL	WRUL-FIXD	Fixed	$/day	-	4,123,642	$ -
WRUL	WRUL-24UC	Volumetric, uncontrolled	$/kWh	0.0380	57,167,849	$ 2,172,378
WRGL	WRGL-FIXD	Fixed	$/day	-	2,344,734	$ -
WRGL	WRGL-24UC	Volumetric, uncontrolled	$/kWh	0.0300	30,123,413	$ 903,702
WRCS	WRCS-FIXD	Fixed	$/day	-	27,007,848	$ -
WRCS	WRCS-AICO	Volumetric, controlled	$/kWh	0.0300	706,016,700	$ 21,180,501
WRUS	WRUS-FIXD	Fixed	$/day	-	4,843,305	$ -
WRUS	WRUS-24UC	Volumetric, uncontrolled	$/kWh	0.0380	106,615,326	$ 4,051,382
WRGS	WRGS-FIXD	Fixed	$/day	-	1,793,580	$ -
WRGS	WRGS-24UC	Volumetric, uncontrolled	$/kWh	0.0300	41,192,828	$ 1,235,785
WRHL	WRHL-FIXD	Fixed	$/day	-	1,032	$ -
WRHL	WRHL-OFPK	Volumetric, off peak	$/kWh	-	12,173	$ -
WRHL	WRHL-PEAK	Volumetric, peak	$/kWh	0.1000	3,313	$ 331
WRHS	WRHS-FIXD	Fixed	$/day	-	2,275	$ -
WRHS	WRHS-OFPK	Volumetric, off peak	$/kWh	-	35,503	$ -
WRHS	WRHS-PEAK	Volumetric, peak	$/kWh	0.1000	13,671	$ 1,367

Business

Price plan	Code	Description	Units	*PTPi,2017*	*Qi,2017*	*PTPi,2017 Qi,2017*
WBSU	WBSU-FIXD	Fixed	$/day/fitting	-	16,186,276	$ -
WBSU	WBSU-24UC	Volumetric	$/kWh	0.0380	20,835,165	$ 791,736
WBSN	WBSN-FIXD	Fixed	$/day	-	8,039,406	$ -
WBSN	WBSN-24UC	Volumetric	$/kWh	0.0380	383,561,103	$ 14,575,322
WBSH	WBSH-FIXD	Fixed	$/day	-	6,350	$ -
WBSH	WBSH-OFPK	Volumetric, off peak	$/kWh	-	2,136,384	$ -
WBSH	WBSH-PEAK	Volumetric, peak	$/kWh	0.1000	691,806	$ 69,181

Low voltage

Price plan	Code	Description	Units	*PTPi,2017*	*Qi,2017*	*PTPi,2017 Qi,2017*
WLVN	WLVN-FIXD	Fixed	$/day	-	293,862	$ -
WLVN	WLVN-24UC	Volumetric	$/kWh	0.0204	125,877,202	$ 2,567,895
WLVN	WLVN-CAPY	Capacity	$/kVA/day	-	42,639,484	$ -
WLVN	WLVN-PWRF	Power Factor	$/kVAr/day	-	449,316	$ -
WLVH	WLVH-FIXD	Fixed	$/day	-	78,367	$ -
WLVH	WLVH-24UC	Volumetric	$/kWh	-	113,519,301	$ -
WLVH	WLVH-CAPY	Capacity	$/kVA/day	-	18,511,591	$ -
WLVH	WLVH-DAMD	Demand	$/kVA/day	0.2480	8,454,545	$ 2,096,727
WLVH	WLVH-PWRF	Power Factor	$/kVAr/day	-	675,943	$ -

Transformer

Price plan	Code	Description	Units	*PTPi,2017*	*Qi,2017*	*PTPi,2017 Qi,2017*
WTXN	WTXN-FIXD	Fixed	$/day	-	50,638	$ -
WTXN	WTXN-24UC	Volumetric	$/kWh	0.0204	39,196,819	$ 799,615
WTXN	WTXN-CAPY	Capacity	$/kVA/day	-	12,381,972	$ -
WTXN	WTXN-PWRF	Power Factor	$/kVAr/day	-	225,165	$ -
WTXH	WTXH-FIXD	Fixed	$/day	-	97,793	$ -
WTXH	WTXH-24UC	Volumetric	$/kWh	-	362,853,051	$ -
WTXH	WTXH-CAPY	Capacity	$/kVA/day	-	74,440,325	$ -
WTXH	WTXH-DAMD	Demand	$/kVA/day	0.2480	28,619,987	$ 7,097,757
WTXH	WTXH-PWRF	Power Factor	$/kVAr/day	-	1,600,984	$ -

High voltage

Price plan	Code	Description	Units	*PTPi,2017*	*Qi,2017*	*PTPi,2017 Qi,2017*
WHVN	WHVN-FIXD	Fixed	$/day	-	-	$ -
WHVN	WHVN-24UC	Volumetric	$/kWh	0.0204	-	$ -
WHVN	WHVN-CAPY	Capacity	$/kVA/day	-	-	$ -
WHVN	WHVN-PWRF	Power Factor	$/kVAr/day	-	-	$ -
WHVH	WHVH-FIXD	Fixed	$/day	-	6,935	$ -
WHVH	WHVH-24UC	Volumetric	$/kWh	-	118,326,940	$ -
WHVH	WHVH-CAPY	Capacity	$/kVA/day	-	12,555,349	$ -
WHVH	WHVH-DAMD	Demand	$/kVA/day	0.2480	7,912,832	$ 1,962,382
WHVH	WHVH-DEXA	Excess demand	$/kVA/day	-	652	$ -
WHVH	WHVH-PWRF	Power Factor	$/kVAr/day	-	222,464	$ -

Injection

Price plan	Code	Description	Units	*PTPi,2017*	*Qi,2017*	*PTPi,2017 Qi,2017*
WRCL	WRCL-INJT	Volumetric	$/kWh	-	926,101	$ -
WRUL	WRUL-INJT	Volumetric	$/kWh	-	332,819	$ -
WRHL	WRHL-INJT	Volumetric	$/kWh	-	-	$ -
WRCS	WRCS-INJT	Volumetric	$/kWh	-	926,359	$ -
WRUS	WRUS-INJT	Volumetric	$/kWh	-	466,618	$ -
WRHS	WRHS-INJT	Volumetric	$/kWh	-	-	$ -
WBSU	WBSU-INJT	Volumetric	$/kWh	-	-	$ -
WBSN	WBSN-INJT	Volumetric	$/kWh	-	159,945	$ -
WBSH	WBSH-INJT	Volumetric	$/kWh	-	-	$ -
WLVN	WLVN-INJT	Volumetric	$/kWh	-	17,383	$ -
WLVH	WLVH-INJT	Volumetric	$/kWh	-	-	$ -
WTXN	WTXN-INJT	Volumetric	$/kWh	-	-	$ -
WTXH	WTXH-INJT	Volumetric	$/kWh	-	-	$ -
WHVN	WHVN-INJT	Volumetric	$/kWh	-	-	$ -
WHVH	WHVH-INJT	Volumetric	$/kWh	-	-	$ -

Auckland charges between 1 April 2016 to 31 March 2017

Residential

Price plan	Code	Description	Units	*PTPi,2017*	*Qi,2017*	*PTPi,2017 Qi,2017*
ARCL	ARCL-FIXD	Fixed	$/day	-	46,858,493	$ -
ARCL	ARCL-AICO	Volumetric, controlled	$/kWh	0.0300	667,504,091	$ 20,025,123
ARUL	ARUL-FIXD	Fixed	$/day	-	9,829,435	$ -
ARUL	ARUL-24UC	Volumetric, uncontrolled	$/kWh	0.0380	103,740,538	$ 3,942,140
ARGL	ARGL-FIXD	Fixed	$/day	-	5,638,020	$ -
ARGL	ARGL-24UC	Volumetric, uncontrolled	$/kWh	0.0300	71,861,970	$ 2,155,859
ARCS	ARCS-FIXD	Fixed	$/day	-	33,389,289	$ -
ARCS	ARCS-AICO	Volumetric, controlled	$/kWh	0.0300	862,268,531	$ 25,868,056
ARUS	ARUS-FIXD	Fixed	$/day	-	5,673,067	$ -
ARUS	ARUS-24UC	Volumetric, uncontrolled	$/kWh	0.0380	116,833,529	$ 4,439,674
ARGS	ARGS-FIXD	Fixed	$/day	-	3,492,224	$ -
ARGS	ARGS-24UC	Volumetric, uncontrolled	$/kWh	0.0300	88,471,729	$ 2,654,152
ARHL	ARHL-FIXD	Fixed	$/day	-	2,313	$ -
ARHL	ARHL-OFPK	Volumetric, off peak	$/kWh	-	18,296	$ -
ARHL	ARHL-PEAK	Volumetric, peak	$/kWh	0.1000	9,052	$ 905
ARHS	ARHS-FIXD	Fixed	$/day	-	1,382	$ -
ARHS	ARHS-OFPK	Volumetric, off peak	$/kWh	-	45,961	$ -
ARHS	ARHS-PEAK	Volumetric, peak	$/kWh	0.1000	14,423	$ 1,442

Business

Price plan	Code	Description	Units	*PTPi,2017*	*Qi,2017*	*PTPi,2017 Qi,2017*
ABSU	ABSU-FIXD	Fixed	$/day/fitting	-	24,392,757	$ -
ABSU	ABSU-24UC	Volumetric	$/kWh	0.0380	36,835,444	$ 1,399,747
ABSN	ABSN-FIXD	Fixed	$/day	-	13,085,868	$ -
ABSN	ABSN-24UC	Volumetric	$/kWh	0.0380	758,436,328	$ 28,820,580
ABSH	ABSH-FIXD	Fixed	$/day	-	16,849	$ -
ABSH	ABSH-OFPK	Volumetric, off peak	$/kWh	-	5,718,139	$ -
ABSH	ABSH-PEAK	Volumetric, peak	$/kWh	0.1000	1,840,260	$ 184,026

Low voltage

Price plan	Code	Description	Units	*PTPi,2017*	*Qi,2017*	*PTPi,2017 Qi,2017*
ALVN	ALVN-FIXD	Fixed	$/day	-	758,976	$ -
ALVN	ALVN-24UC	Volumetric	$/kWh	0.0204	223,525,305	$ 4,559,916
ALVN	ALVN-CAPY	Capacity	$/kVA/day	-	110,944,967	$ -
ALVN	ALVN-PWRF	Power Factor	$/kVAr/day	-	473,681	$ -
ALVT	ALVT-24UC	Volumetric	$/kWh	-	562,641,389	$ -
ALVT	ALVT-CAPY	Capacity	$/kVA/day	-	129,376,577	$ -
ALVT	ALVT-DAMD	Demand	$/kVA/day	0.2480	48,135,148	$ 11,937,517
ALVT	ALVT-PWRF	Power Factor	$/kVAr/day	-	5,218,182	$ -

Transformer

Price plan	Code	Description	Units	*PTPi,2017*	*Qi,2017*	*PTPi,2017 Qi,2017*
ATXN	ATXN-FIXD	Fixed	$/day	-	59,039	$ -
ATXN	ATXN-24UC	Volumetric	$/kWh	0.0204	22,240,260	$ 453,701
ATXN	ATXN-CAPY	Capacity	$/kVA/day	-	13,296,706	$ -
ATXN	ATXN-PWRF	Power Factor	$/kVAr/day	-	38,948	$ -
ATXT	ATXT-24UC	Volumetric	$/kWh	-	1,125,467,218	$ -
ATXT	ATXT-CAPY	Capacity	$/kVA/day	-	225,923,616	$ -
ATXT	ATXT-DAMD	Demand	$/kVA/day	0.2480	89,197,010	$ 22,120,858
ATXT	ATXT-PWRF	Power Factor	$/kVAr/day	-	5,652,645	$ -

High voltage

Price plan	Code	Description	Units	*PTPi,2017*	*Qi,2017*	*PTPi,2017 Qi,2017*
AHVN	AHVN-FIXD	Fixed	$/day	-	2,830	$ -
AHVN	AHVN-24UC	Volumetric	$/kWh	0.0204	1,149,348	$ 23,447
AHVN	AHVN-CAPY	Capacity	$/kVA/day	-	752,252	$ -
AHVN	AHVN-PWRF	Power Factor	$/kVAr/day	-	38,426	$ -
AHVT	AHVT-24UC	Volumetric	$/kWh	-	443,269,729	$ -
AHVT	AHVT-CAPY	Capacity	$/kVA/day	-	56,378,951	$ -
AHVT	AHVT-DAMD	Demand	$/kVA/day	0.2480	33,868,052	$ 8,399,277
AHVT	AHVT-DEXA	Excess demand	$/kVA/day	-	57,972	$ -
AHVT	AHVT-PWRF	Power Factor	$/kVAr/day	-	1,850,951	$ -

Injection

Price plan	Code	Description	Units	*PTPi,2017*	*Qi,2017*	*PTPi,2017 Qi,2017*
ARCL	ARCL-INJT	Volumetric	$/kWh	-	637,951	$ -
ARUL	ARUL-INJT	Volumetric	$/kWh	-	239,938	$ -
ARHL	ARHL-INJT	Volumetric	$/kWh	-	-	$ -
ARCS	ARCS-INJT	Volumetric	$/kWh	-	775,127	$ -
ARUS	ARUS-INJT	Volumetric	$/kWh	-	262,714	$ -
ARHS	ARHS-INJT	Volumetric	$/kWh	-	253	$ -
ABSU	ABSU-INJT	Volumetric	$/kWh	-	-	$ -
ABSN	ABSN-INJT	Volumetric	$/kWh	-	121,937	$ -
ABSH	ABSH-INJT	Volumetric	$/kWh	-	-	$ -
ALVN	ALVN-INJT	Volumetric	$/kWh	-	67,380	$ -
ALVT	ALVT-INJT	Volumetric	$/kWh	-	877	$ -
ATXN	ATXN-INJT	Volumetric	$/kWh	-	31	$ -
ATXT	ATXT-INJT	Volumetric	$/kWh	-	-	$ -
AHVN	AHVN-INJT	Volumetric	$/kWh	-	-	$ -
AHVT	AHVT-INJT	Volumetric	$/kWh	-	1,426,702	$ -

Non-standard charges between 1 April 2016 to 31 March 2017

Price plan	Code	Description	Units	$PTPi,2017$	$Qi,2017$	$PTPi,2017\ Qi,2017$
	WN1		$/year	$ 224,565	1	$ 224,565
	WN2		$/year	$ -	1	$ -
	WN3		$/year	$ 271,662	1	$ 271,662
	WN4		$/year	$ -	1	$ -
	WN5		$/year	$ -	1	$ -
	WN6		$/year	$ -	1	$ -
	WN7		$/year	$ -	1	$ -
	WN8		$/year	$ 247,574	1	$ 247,574
	AN1		$/year	$ -	1	$ -
	AN2		$/year	$ 71,774	1	$ 71,774
	AN3		$/year	$ -	1	$ -
	AN4		$/year	$ 374,363	1	$ 374,363
	AN5		$/year	$ 1,848,649	1	$ 1,848,649
	AN6		$/year	$ -	1	$ -
	AN7		$/year	$ -	1	$ -
	AN8		$/year	$ -	1	$ -
	AN9		$/year	$ 86,578	1	$ 86,578
	AN10		$/year	$ 682,981	1	$ 682,981
	AN11		$/year	$ -	1	$ -
	AN12		$/year	$ 353,614	1	$ 353,614
	AN13		$/year	$ -	1	$ -
	AN14		$/year	$ -	1	$ -
	AN15		$/year	$ -	1	$ -
	AN16		$/year	$ -	1	$ -
	AN17		$/year	$ -	1	$ -
	AN18		$/year	$ 415,812	1	$ 415,812
	AN19		$/year	$ 553,737	1	$ 553,737
	AN20		$/year	$ -	1	$ -
	AN21		$/year	$ 428,213	1	$ 428,213
	AN22		$/year	$ 219,490	1	$ 219,490
	AN23		$/year	$ -	1	$ -
	AN24		$/year	$ -	1	$ -
	AN25		$/year	$ -	1	$ -
	AN26		$/year	$ 116,531	1	$ 116,531
	AN27		$/year	$ 995,948	1	$ 995,948
	AN28		$/year	$ -	1	$ -
	AN29		$/year	$ 398,201	1	$ 398,201
	AN30		$/year	$ -	1	$ -
	AN31		$/year	$ 229,502	1	$ 229,502
	AN32		$/year	$ 18,884	1	$ 18,884
	AN33		$/year	$ 386,514	1	$ 386,514
	AN34		$/year	$ -	1	$ -
	AN35		$/year	$ -	1	$ -
	AN36		$/year	$ -	1	$ -
	AN37		$/year	$ -	1	$ -
	AN38		$/year	$ 613,263	1	$ 613,263
	AN39		$/year	$ 102,848	1	$ 102,848
	AN40		$/year	$ -	1	$ -
	AN41		$/year	$ 48,969	1	$ 48,969
	AN42		$/year	$ 326,697	1	$ 326,697
	AN43		$/year	$ 613,976	1	$ 613,976
	AN44		$/year	$ 123,401	1	$ 123,401
	AN45		$/year	$ -	1	$ -
	AN46		$/year	$ 398,201	1	$ 398,201
	WP1		$/year	$ -	1	$ -
	AP1		$/year	$ -	1	$ -

APPENDIX 5: DETAILS OF $DP_{I,2017}Q_{I,2016}$

Summary of DPi,2017 Qi,2016 for the 2018 assessment period

	DPi,2017 Qi,2016
Sum	**$395,879,829**

	DPi,2017 Qi,2016
Northern charges between 1 April 2016 to 31 March 2017	$ 134,002,106
Auckland charges between 1 April 2016 to 31 March 2017	$ 250,318,692
Non-standard charges between 1 April 2016 to 31 March 2017	$ 11,559,032

Northern charges between 1 April 2016 to 31 March 2017

Residential

Price plan	Code	Description	Units	*DPi,2017*	*Qi,2016*	*DPi,2017 Qi,2016*
WRCL	WRCL-FIXD	Fixed	$/day	0.1500	31,736,077	$ 4,760,412
WRCL	WRCL-AICO	Volumetric, controlled	$/kWh	0.0638	465,595,384	$ 29,704,985
WRUL	WRUL-FIXD	Fixed	$/day	0.1500	5,829,249	$ 874,387
WRUL	WRUL-24UC	Volumetric, uncontrolled	$/kWh	0.0638	79,592,219	$ 5,077,984
WRCS	WRCS-FIXD	Fixed	$/day	0.9900	27,888,846	$ 27,609,958
WRCS	WRCS-AICO	Volumetric, controlled	$/kWh	0.0255	742,393,603	$ 18,931,037
WRUS	WRUS-FIXD	Fixed	$/day	0.9900	5,845,826	$ 5,787,368
WRUS	WRUS-24UC	Volumetric, uncontrolled	$/kWh	0.0255	136,105,721	$ 3,470,696
WRHL	WRHL-FIXD	Fixed	$/day	0.1500	294	$ 44
WRHL	WRHL-OFPK	Volumetric, off peak	$/kWh	0.0638	4,552	$ 290
WRHL	WRHL-PEAK	Volumetric, peak	$/kWh	0.0638	1,203	$ 77
WRHS	WRHS-FIXD	Fixed	$/day	0.9900	658	$ 651
WRHS	WRHS-OFPK	Volumetric, off peak	$/kWh	0.0255	2,052	$ 52
WRHS	WRHS-PEAK	Volumetric, peak	$/kWh	0.0255	8,692	$ 222

Business

Price plan	Code	Description	Units	*DPi,2017*	*Qi,2016*	*DPi,2017 Qi,2016*
WBSU	WBSU-FIXD	Fixed	$/day/fitting	0.1500	12,736,656	$ 1,910,498
WBSU	WBSU-24UC	Volumetric	$/kWh	0.0320	18,867,835	$ 603,771
WBSN	WBSN-FIXD	Fixed	$/day	0.9900	7,970,169	$ 7,890,467
WBSN	WBSN-24UC	Volumetric	$/kWh	0.0255	392,403,803	$ 10,006,297
WBSH	WBSH-FIXD	Fixed	$/day	0.9900	4,062	$ 4,021
WBSH	WBSH-OFPK	Volumetric, off peak	$/kWh	0.0255	1,377,239	$ 35,120
WBSH	WBSH-PEAK	Volumetric, peak	$/kWh	0.0255	436,351	$ 11,127

Low voltage

Price plan	Code	Description	Units	*DPi,2017*	*Qi,2016*	*DPi,2017 Qi,2016*
WLVN	WLVN-FIXD	Fixed	$/day	5.5000	290,789	$ 1,599,340
WLVN	WLVN-24UC	Volumetric	$/kWh	0.0237	130,488,801	$ 3,092,585
WLVN	WLVN-CAPY	Capacity	$/kVA/day	0.0298	42,618,298	$ 1,270,025
WLVN	WLVN-PWRF	Power Factor	$/kVAr/day	0.2917	472,809	$ 137,918
WLVH	WLVH-FIXD	Fixed	$/day	10.3800	74,238	$ 770,590
WLVH	WLVH-24UC	Volumetric	$/kWh	0.0057	109,569,274	$ 624,545
WLVH	WLVH-CAPY	Capacity	$/kVA/day	0.0298	17,908,389	$ 533,670
WLVH	WLVH-DAMD	Demand	$/kVA/day	0.0339	8,464,996	$ 286,963
WLVH	WLVH-PWRF	Power Factor	$/kVAr/day	0.2917	678,673	$ 197,969

Transformer

Price plan	Code	Description	Units	*DPi,2017*	*Qi,2016*	*DPi,2017 Qi,2016*
WTXN	WTXN-FIXD	Fixed	$/day	4.9500	48,380	$ 239,481
WTXN	WTXN-24UC	Volumetric	$/kWh	0.0193	40,879,912	$ 788,982
WTXN	WTXN-CAPY	Capacity	$/kVA/day	0.0292	11,727,192	$ 342,434
WTXN	WTXN-PWRF	Power Factor	$/kVAr/day	0.2917	286,390	$ 83,540
WTXH	WTXH-FIXD	Fixed	$/day	9.3400	93,430	$ 872,636
WTXH	WTXH-24UC	Volumetric	$/kWh	0.0056	354,650,859	$ 1,986,045
WTXH	WTXH-CAPY	Capacity	$/kVA/day	0.0292	71,287,806	$ 2,081,604
WTXH	WTXH-DAMD	Demand	$/kVA/day	0.0283	29,128,783	$ 824,345
WTXH	WTXH-PWRF	Power Factor	$/kVAr/day	0.2917	1,432,294	$ 417,800

High voltage

Price plan	Code	Description	Units	$DPi,2017$	$Qi,2016$	$DPi,2017\ Qi,2016$
WHVN	WHVN-FIXD	Fixed	$/day	4.8000	300	$ 1,440
WHVN	WHVN-24UC	Volumetric	$/kWh	0.0181	261	$ 5
WHVN	WHVN-CAPY	Capacity	$/kVA/day	0.0283	9,104	$ 258
WHVN	WHVN-PWRF	Power Factor	$/kVAr/day	0.2917	-	$ -
WHVH	WHVH-FIXD	Fixed	$/day	9.0600	5,734	$ 51,950
WHVH	WHVH-24UC	Volumetric	$/kWh	0.0054	107,773,385	$ 581,976
WHVH	WHVH-CAPY	Capacity	$/kVA/day	0.0283	11,979,050	$ 339,007
WHVH	WHVH-DAMD	Demand	$/kVA/day	0.0200	7,402,947	$ 148,059
WHVH	WHVH-DEXA	Excess demand	$/kVA/day	0.6226	5,584	$ 3,477
WHVH	WHVH-PWRF	Power Factor	$/kVAr/day	0.2917	157,691	$ 45,998

Injection

Price plan	Code	Description	Units	$DPi,2017$	$Qi,2016$	$DPi,2017\ Qi,2016$
WRCL	WRCL-INJT	Volumetric	$/kWh	-	746,055	$ -
WRUL	WRUL-INJT	Volumetric	$/kWh	-	337,820	$ -
WRHL	WRHL-INJT	Volumetric	$/kWh	-	-	$ -
WRCS	WRCS-INJT	Volumetric	$/kWh	-	- 190,801	$ -
WRUS	WRUS-INJT	Volumetric	$/kWh	-	416,469	$ -
WRHS	WRHS-INJT	Volumetric	$/kWh	-	-	$ -
WBSU	WBSU-INJT	Volumetric	$/kWh	-	-	$ -
WBSN	WBSN-INJT	Volumetric	$/kWh	-	92,979	$ -
WBSH	WBSH-INJT	Volumetric	$/kWh	-	-	$ -
WLVN	WLVN-INJT	Volumetric	$/kWh	-	20,546	$ -
WLVH	WLVH-INJT	Volumetric	$/kWh	-	-	$ -
WTXN	WTXN-INJT	Volumetric	$/kWh	-	-	$ -
WTXH	WTXH-INJT	Volumetric	$/kWh	-	-	$ -
WHVN	WHVN-INJT	Volumetric	$/kWh	-	-	$ -
WHVH	WHVH-INJT	Volumetric	$/kWh	-	-	$ -

Auckland charges between 1 April 2016 to 31 March 2017

Residential

Price plan	Code	Description	Units	$DPi,2017$	$Qi,2016$	$DPi,2017\ Qi,2016$
ARCL	ARCL-FIXD	Fixed	$/day	0.1500	45,193,617	$ 6,779,043
ARCL	ARCL-AICO	Volumetric, controlled	$/kWh	0.0638	647,519,325	$ 41,311,733
ARUL	ARUL-FIXD	Fixed	$/day	0.1500	14,547,357	$ 2,182,104
ARUL	ARUL-24UC	Volumetric, uncontrolled	$/kWh	0.0638	167,546,628	$ 10,689,475
ARCS	ARCS-FIXD	Fixed	$/day	0.9900	35,675,224	$ 35,318,472
ARCS	ARCS-AICO	Volumetric, controlled	$/kWh	0.0255	923,731,753	$ 23,555,160
ARUS	ARUS-FIXD	Fixed	$/day	0.9900	8,790,645	$ 8,702,739
ARUS	ARUS-24UC	Volumetric, uncontrolled	$/kWh	0.0255	203,031,969	$ 5,177,315
ARHL	ARHL-FIXD	Fixed	$/day	0.1500	741	$ 111
ARHL	ARHL-OFPK	Volumetric, off peak	$/kWh	0.0638	9,315	$ 594
ARHL	ARHL-PEAK	Volumetric, peak	$/kWh	0.0638	2,108	$ 134
ARHS	ARHS-FIXD	Fixed	$/day	0.9900	238	$ 236
ARHS	ARHS-OFPK	Volumetric, off peak	$/kWh	0.0255	13,920	$ 355
ARHS	ARHS-PEAK	Volumetric, peak	$/kWh	0.0255	3,952	$ 101

Business

Price plan	Code	Description	Units	$DPi,2017$	$Qi,2016$	$DPi,2017\ Qi,2016$
ABSU	ABSU-FIXD	Fixed	$/day/fitting	0.1500	24,174,846	$ 3,626,227
ABSU	ABSU-24UC	Volumetric	$/kWh	0.0320	38,664,927	$ 1,237,278
ABSN	ABSN-FIXD	Fixed	$/day	0.9900	13,228,693	$ 13,096,406
ABSN	ABSN-24UC	Volumetric	$/kWh	0.0255	767,966,647	$ 19,583,150
ABSH	ABSH-FIXD	Fixed	$/day	0.9900	11,085	$ 10,974
ABSH	ABSH-OFPK	Volumetric, off peak	$/kWh	0.0255	4,005,647	$ 102,144
ABSH	ABSH-PEAK	Volumetric, peak	$/kWh	0.0255	1,255,222	$ 32,008

Low voltage

Price plan	Code	Description	Units	*DPi,2017*	*Qi,2016*	*DPi,2017 Qi,2016*
ALVN	ALVN-FIXD	Fixed	$/day	1.5800	750,816	$ 1,186,289
ALVN	ALVN-24UC	Volumetric	$/kWh	0.0429	220,952,283	$ 9,478,853
ALVN	ALVN-CAPY	Capacity	$/kVA/day	0.0370	109,773,424	$ 4,061,617
ALVN	ALVN-PWRF	Power Factor	$/kVAr/day	0.2917	476,078	$ 138,872
ALVT	ALVT-24UC	Volumetric	$/kWh	0.0166	576,283,480	$ 9,566,306
ALVT	ALVT-CAPY	Capacity	$/kVA/day	0.0370	132,322,777	$ 4,895,943
ALVT	ALVT-DAMD	Demand	$/kVA/day	0.0590	51,036,389	$ 3,011,147
ALVT	ALVT-PWRF	Power Factor	$/kVAr/day	0.2917	6,038,216	$ 1,761,348

Transformer

Price plan	Code	Description	Units	*DPi,2017*	*Qi,2016*	*DPi,2017 Qi,2016*
ATXN	ATXN-FIXD	Fixed	$/day	1.5300	55,419	$ 84,791
ATXN	ATXN-24UC	Volumetric	$/kWh	0.0416	19,727,491	$ 820,664
ATXN	ATXN-CAPY	Capacity	$/kVA/day	0.0362	11,874,832	$ 429,869
ATXN	ATXN-PWRF	Power Factor	$/kVAr/day	0.2917	22,692	$ 6,619
ATXT	ATXT-24UC	Volumetric	$/kWh	0.0163	1,110,450,348	$ 18,100,341
ATXT	ATXT-CAPY	Capacity	$/kVA/day	0.0362	217,298,102	$ 7,866,191
ATXT	ATXT-DAMD	Demand	$/kVA/day	0.0528	90,151,924	$ 4,760,022
ATXT	ATXT-PWRF	Power Factor	$/kVAr/day	0.2917	6,092,161	$ 1,777,083

High voltage

Price plan	Code	Description	Units	*DPi,2017*	*Qi,2016*	*DPi,2017 Qi,2016*
AHVN	AHVN-FIXD	Fixed	$/day	1.4800	2,592	$ 3,836
AHVN	AHVN-24UC	Volumetric	$/kWh	0.0398	775,686	$ 30,872
AHVN	AHVN-CAPY	Capacity	$/kVA/day	0.0351	530,400	$ 18,617
AHVN	AHVN-PWRF	Power Factor	$/kVAr/day	0.2917	16,055	$ 4,683
AHVT	AHVT-24UC	Volumetric	$/kWh	0.0158	435,073,099	$ 6,874,155
AHVT	AHVT-CAPY	Capacity	$/kVA/day	0.0351	54,135,957	$ 1,900,172
AHVT	AHVT-DAMD	Demand	$/kVA/day	0.0437	34,268,711	$ 1,497,543
AHVT	AHVT-DEXA	Excess demand	$/kVA/day	0.7722	135,155	$ 104,367
AHVT	AHVT-PWRF	Power Factor	$/kVAr/day	0.2917	1,826,313	$ 532,736

Injection

Price plan	Code	Description	Units	*DPi,2017*	*Qi,2016*	*DPi,2017 Qi,2016*
ARCL	ARCL-INJT	Volumetric	$/kWh	-	463,419	$ -
ARUL	ARUL-INJT	Volumetric	$/kWh	-	256,262	$ -
ARHL	ARHL-INJT	Volumetric	$/kWh	-	166	$ -
ARCS	ARCS-INJT	Volumetric	$/kWh	-	585,075	$ -
ARUS	ARUS-INJT	Volumetric	$/kWh	-	245,522	$ -
ARHS	ARHS-INJT	Volumetric	$/kWh	-	-	$ -
ABSU	ABSU-INJT	Volumetric	$/kWh	-	-	$ -
ABSN	ABSN-INJT	Volumetric	$/kWh	-	131,852	$ -
ABSH	ABSH-INJT	Volumetric	$/kWh	-	-	$ -
ALVN	ALVN-INJT	Volumetric	$/kWh	-	48,142	$ -
ALVT	ALVT-INJT	Volumetric	$/kWh	-	5,626	$ -
ATXN	ATXN-INJT	Volumetric	$/kWh	-	-	$ -
ATXT	ATXT-INJT	Volumetric	$/kWh	-	-	$ -
AHVN	AHVN-INJT	Volumetric	$/kWh	-	-	$ -
AHVT	AHVT-INJT	Volumetric	$/kWh	-	6,198	$ -

Non-standard charges between 1 April 2016 to 31 March 2017

Price plan	Code	Description	Units	$DPi,2017$	$Qi,2016$	$DPi,2017\ Qi,2016$
	WN1		$/year	$ 204,420	1	$ 204,420
	WN2		$/year	$ 52,124	1	$ 52,124
	WN3		$/year	$ 240,755	1	$ 240,755
	WN4		$/year	$ -	1	$ -
	WN5		$/year	$ -	1	$ -
	WN6		$/year	$ 37,569	1	$ 37,569
	WN7		$/year	$ 15,247	1	$ 15,247
	WN8		$/year	$ 429,928	1	$ 429,928
	AN1		$/year	$ -	1	$ -
	AN2		$/year	$ 474,086	1	$ 474,086
	AN3		$/year	$ -	1	$ -
	AN4		$/year	$ 674,764	1	$ 674,764
	AN5		$/year	$ 879,792	1	$ 879,792
	AN6		$/year	$ -	1	$ -
	AN7		$/year	$ 44,001	1	$ 44,001
	AN8		$/year	$ 99,166	1	$ 99,166
	AN9		$/year	$ 369,365	1	$ 369,365
	AN10		$/year	$ 593,034	1	$ 593,034
	AN11		$/year	$ 87,042	1	$ 87,042
	AN12		$/year	$ 668,896	1	$ 668,896
	AN13		$/year	$ -	1	$ -
	AN14		$/year	$ -	1	$ -
	AN15		$/year	$ -	1	$ -
	AN16		$/year	$ -	1	$ -
	AN17		$/year	$ 29,045	1	$ 29,045
	AN18		$/year	$ 222,276	1	$ 222,276
	AN19		$/year	$ 181,866	1	$ 181,866
	AN20		$/year	$ 216,315	1	$ 216,315
	AN21		$/year	$ 1,196,770	1	$ 1,196,770
	AN22		$/year	$ -	1	$ -
	AN23		$/year	$ 500,988	1	$ 500,988
	AN24		$/year	$ -	1	$ -
	AN25		$/year	$ 163,808	1	$ 163,808
	AN26		$/year	$ 361,206	1	$ 361,206
	AN27		$/year	$ 390,017	1	$ 390,017
	AN28		$/year	$ 23,362	1	$ 23,362
	AN29		$/year	$ -	1	$ -
	AN30		$/year	$ -	1	$ -
	AN31		$/year	$ 478,569	1	$ 478,569
	AN32		$/year	$ 189,507	1	$ 189,507
	AN33		$/year	$ 464,464	1	$ 464,464
	AN34		$/year	$ -	1	$ -
	AN35		$/year	$ 163,658	1	$ 163,658
	AN36		$/year	$ -	1	$ -
	AN37		$/year	$ -	1	$ -
	AN38		$/year	$ 536,440	1	$ 536,440
	AN39		$/year	$ 690,465	1	$ 690,465
	AN40		$/year	$ -	1	$ -
	AN41		$/year	$ 440,573	1	$ 440,573
	AN42		$/year	$ 57,021	1	$ 57,021
	AN43		$/year	$ 81,300	1	$ 81,300
	AN44		$/year	$ 16,638	1	$ 16,638
	AN45		$/year	$ -	1	$ -
	AN46		$/year	$ 284,556	1	$ 284,556
	WP1		$/year	$ -	1	$ -
	AP1		$/year	$ -	1	$ -

APPENDIX 6: DETAILS OF CPI

Statistics NZ: http://www.stats.govt.nz/infoshare/
Economic Indicators / Consumers Price Index - CPI / CPI All Groups for New Zealand (Qrtly-Mar/Jun/Sep/Dec)

CPI All Groups for New Zealand (Qrtly-Mar/Jun/Sep/Dec)

	All groups
2014Q1	972.3
2014Q2	974.7
2014Q3	978.0
2014Q4	976.3
2015Q1	974.7
2015Q2	978.8
2015Q3	982.1
2015Q4	977.2
2016Q1	978.8
2016Q2	982.9
2016Q3	986.1
2016Q4	990.2
2017Q1	1000.0
2017Q2	1000.0
2017Q3	1004.9
2017Q4	1006.0

Table information:
Units:
Index, Magnitude = Units

Footnotes:
From the September 1999 quarter residential sections and interest are excluded.
Percentage changes are calculated from index numbers which are unrounded prior to the June 2017 quarter.
Base: June 2017 quarter (=1000).
From the September 2006 quarter, prices for fresh fruit and vegetables are seasonally unadjusted. They were seasonally adjusted until the June 2006 quarter.

$$\Delta CPI_{2018} = \frac{CPI_{Dec,2015} + CPI_{Mar,2016} + CPI_{Jun,2016} + CPI_{Sep,2016}}{CPI_{Dec,2014} + CPI_{Mar,2015} + CPI_{Jun,2015} + CPI_{Sep,2015}} - 1$$

$$\Delta CPI_{2018} = \frac{977.2 + 978.8 + 982.9 + 986.1}{976.3 + 974.7 + 978.8 + 982.1} - 1$$

$$\Delta CPI_{2018} = 0.0033\ (0.33\%)$$

APPENDIX 7: CALCULATION OF QUALITY INCENTIVE ADJUSTMENT

The Quality Incentive Adjustment = $S_{SAIDI} + S_{SAIFI}$

$S_{SAIDI} = SAIDI_{IR} \times (SAIDI_{target} - SAIDI_{assess})$
$S_{SAIFI} = SAIFI_{IR} \times (SAIFI_{target} - SAIFI_{assess})$

$SAIDI_{IR} = (0.5 \times REV_{RISK}) / (SAIDI_{cap} - SAIDI_{target})$
$SAIFI_{IR} = (0.5 \times REV_{RISK}) / (SAIFI_{cap} - SAIFI_{target})$

REV_{RISK} = 1% × Maximum Allowable Revenue (MAR) = 1% × $395,245,000 = $3,952,450

The assess values are from the Assessment Period two years prior to when the Quality Incentive Adjustment is applied as a Recoverable Cost. The assess value is limited to where it is;

- greater than the cap, assess value equals the cap;
- less than the collar, assess value equals the collar.

SAIDI and SAIFI Targets, Caps and Collars			
Quality Measure	**Target**	**Cap**	**Collar**
SAIDI	96.0364	104.1728	87.8999
SAIFI	1.2914	1.3954	1.1874

Calculation of Quality Incentive Adjustment				
Quality Measure	**2016 Assess (limit)**	**2018 Incentive Adjustment ($000s)**	**2017 Assess (limit)**	**2019 Incentive Adjustment ($000s)**
SAIDI	117 (104.1728)	-$1,976	174 (104.1728)	-$1,976
SAIFI	1.11 (1.1874)	$1,976	1.85 (1.3954)	-$1,976
Total		$0		-$3,952

APPENDIX 8: MAJOR EVENT DAY EXPLANATIONS

In accordance with the definition in the Electricity Distribution Default Price Quality Path Determination, a Major Event Day means any day where the daily SAIDI Value for Class C Interruptions or daily SAIFI Value for Class C Interruptions exceeds the applicable SAIDI Unplanned Boundary Value or SAIFI Unplanned Boundary Value. The following events qualify as Major Event Days. Table 1 details the Unplanned SAIDI and SAIFI Assessed Boundary Values applied to Major Event Days. Table 2 below lists the Major Event Days within the Assessment Period, describing the cause and detailing the non-normalised total impact of the day.

Table 1 SAIDI and SAIFI Assessed Boundary Values

SAIDI	SAIFI
3.374	0.039

Table 2 Major Event Days with Assessment Period

Date: 04/01/2018	**MED Type:** SAIDI and SAIFI	**SAIDI:** 15.721	**SAIFI:** 0.079
Date: 05/01/2018	**MED Type:** SAIDI and SAIFI	**SAIDI:** 22.060	**SAIFI:** 0.091
On 4 January 2018, a low-pressure system approached Auckland, forecast to deliver gales of 65 km/hr with gusts up to 120 km/hr and accumulation of rain up to 90mm. Initially the wind started from the North East, moving to North, then East, then finally South West before the storm moved southwards down the North Island on the during the afternoon of Friday 5th January. The storm resulted in a significant rise in overhead asset faults, most of which were caused by tree contact and vegetation debris as a result of the extreme wind speeds. At its peak, around 57 circuits were affected by the storm, impacting 29,742 customers, with the highest sustained wind speed reaching 64.8 km/hr.			
Date: 17/01/2018	**MED Type:** SAIDI only	**SAIDI:** 3.549	**SAIFI:** 0.028
On 17 January 2018, a zone substation vacuum circuit breaker failed to clear a feeder fault caused by vegetation debris making contact with the overhead network. Although not significant enough to trigger storm warning processes, the wind speed had been around 40 km/hr sustained for the 24 hours or so leading up to this event and reached gale threshold not long after the event, with the highest sustained wind speed reaching 63.0 km/hr. The backup protection operated as intended, causing an outage to the zone substation. On site investigation revealed the failure had caused damage to the busbar compartment, requiring the zone substation to be restored from the adjacent network. The event impacted nearly 7,000 customers and took 3.5 hours to resolve.			

APPENDIX 9: EXPLANATION FOR NOT COMPLYING WITH ANNUAL RELIABILITY ASSESSMENT & ACTIONS TO MITIGATE FUTURE NON-COMPLIANCE

During RY2018, Vector's SAIDI and SAIFI Assessed Values exceeded the limits specified in Schedule 4A of the Determination. This constitutes a breach of clause 9.1 of the Determination. Under Clause 11.5 of the Determination where the non-exempt EDB has not complied with the Annual Reliability Assessment it must:

- Explain the reasons for not complying; and
- Describe actions taken to mitigate any non-compliance and to prevent similar non-compliance in future Assessment Periods.

In this section, we explain the reasons for the breach of the Quality Standard and the actions undertaken to mitigate the non-compliance and prevent similar non-compliance for future Assessment Periods.

The Quality Standard is set using two metrics measuring system reliability: system average interruption duration index (SAIDI) and system average interruption frequency index (SAIFI). The Reliability Limit is set above a zero tolerance for SAIDI and SAIFI. This is because eliminating all incidents causing SAIDI and SAIFI is not contemplated by the Price Limit established by the Default Price Quality Path.

Reasons for non-compliance

The Commission's Reliability Limit for the Default Price Quality Path is derived from a 10-year historic Reference Period of Vector's SAIDI and SAIFI results. Accordingly, Vector has identified the causes for non-compliance for RY2018 to be those that have varied most from the Reference Period.

For RY2018 Vector exceeded the SAIDI limit of 104.2 minutes with a recorded SAIDI of 227 minutes and the SAIFI limit of 1.4 interruptions with a recorded SAIFI of 2.1 interruptions.

As will become evident in the discussion below on specific causes, the chief reason for breaching the Quality Standard relates to Vector's operational changes reflecting new community expectations on work-place health and safety. Vector made these changes following the enactment of the *Health and Safety at Work Act 2015* (the HSWA), a significant reform to workplace health and safety legislation.

Below we compare the major causes for exceeding the Reliability Limit in RY2018 and the 10-year historic Reference Period average for the cause.

Remote Safety Isolations

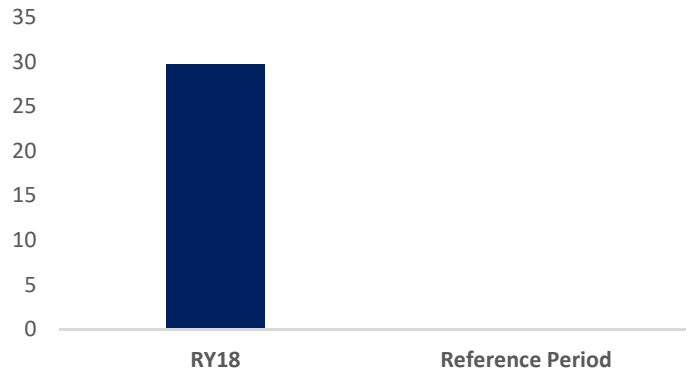
The most significant cause for Vector exceeding the SAIDI and SAIFI limits in RY2018 was from the application of Vector's new Remote Safety Isolation policy for public reporting of low or downed lines. Previously isolation would occur only after a field crew went to site and confirmed the need for de-energising a circuit for public safety risks. This change was undertaken to meet the heightened expectations of the community for health and safety. It is also a practice that was undertaken in response to the enactment of the HSWA.

Vector's policy change for Remote Safety Isolation was undertaken after the prosecution of UK Power Networks by the Health and Safety Executive (HSE) in the United Kingdom.[18] HSE found UK Power Networks at fault for not remotely isolating a circuit after it had been notified of downed lines even though it had dispatched a field technician to the reported site to investigate the claim.

At the HV network level, for many parts of the network, Vector's ability to remotely isolate can only be done at the feeder level. Each feeder isolation impacts between 500-1000 customers depending on the size of the feeder. This can be mitigated on feeders with more advanced remote-control capability. Unfortunately, most public reported downed lines relate to non-Vector assets which results in spurious isolations relating to Chorus or Auckland Transport assets. However, this can only be confirmed post on-site inspection.

For RY2018 remote safety isolations contributed approximately 30 SAIDI minutes. Of the different causes for SAIDI this cause is the most significant when compared to the Reference Period. Graph 1 below shows the relative impact of remote safety isolations for RY2018 versus the Reference Period.

Graph 1: Vector SAIDI for Remote Safety Isolations for RY2018 versus Reference Period

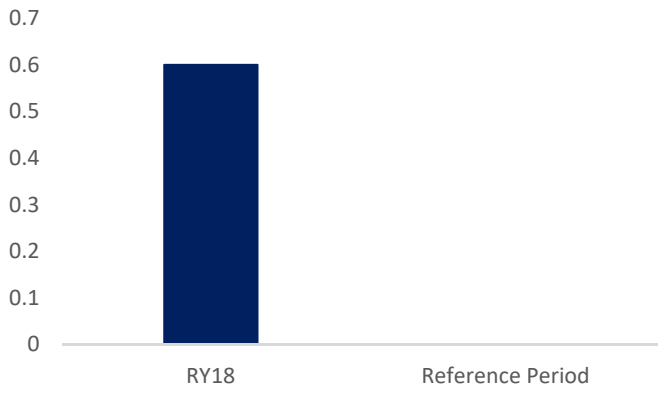


[18] Health and Safety Executive UK Media Release, *Power Company Fined 1 million After Runner Electrocuted*, 26 January 2016: http://press.hse.gov.uk/2016/power-company-fined-1m-after-runner-electrocuted/

As shown above in graph 1, the impact of Remote Safety Isolations for RY2018 was the largest variance from the Reference Period, as there is no historical allowance for this cause.

The SAIFI associated with Vector's Remote Safety Isolation policy was the largest single cause for Vector's SAIFI for RY2018. Graph 2 below shows the impact of the Remote Safety Isolation policy for RY2018 relative to the Reference Period.

Graph 2: Vector SAIFI for Remote Safety Isolations for RY2018 versus Reference Period



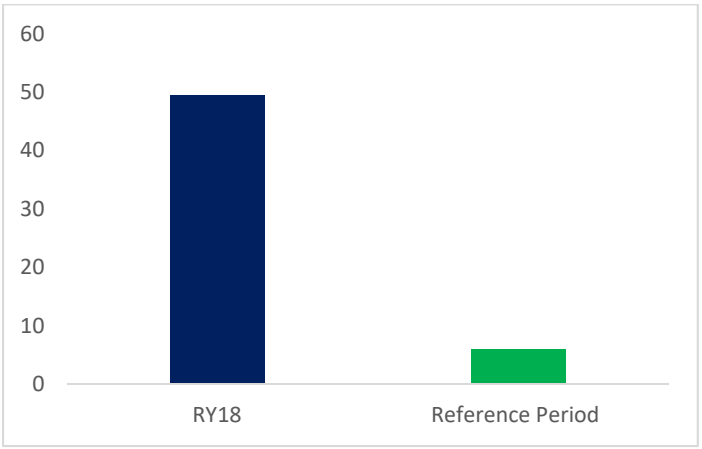
Graph 2 shows 0.6 interruptions for the year were caused by Remote Safety Isolations in RY2018. The interruption frequency for Remote Safety Isolations has no allowance in the Reference Period.

The Remote Safety Isolation policy had the single largest impact for Vector exceeding the Reliability Limit for RY2018. The reason why this cause is the most significant, is due to there being no allowance for the policy in the historically derived Reliability Limit.

Planned Works

The other significant cause for Vector exceeding the Reliability Limit in RY2018 was the impact of Planned Works for the period. For RY2018 planned SAIDI contributed approximately 50 minutes of total SAIDI. This cause is the largest contributor to Vector's accumulated SAIDI for RY2018. Graph 3 below compares the impact of planned SAIDI for RY2018 and its accounted for impact in the Commission's Reference Period.

Graph 3: Vector SAIDI for Planned Works for RY2018 versus the Reference Period

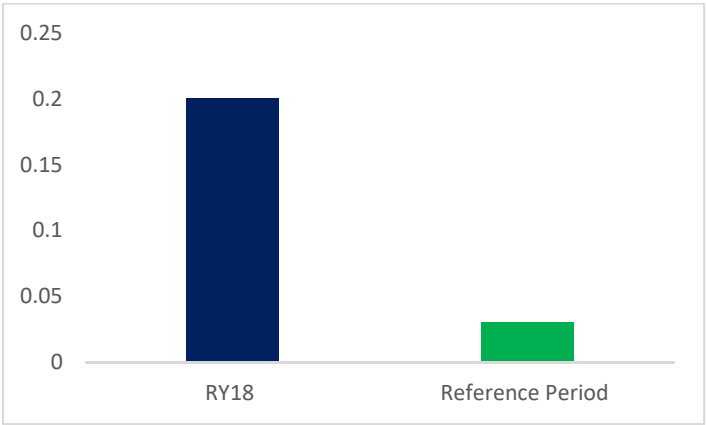


Graph 3 shows the impact of Planned Works for the Reference Period of 6 minutes of SAIDI versus the contribution of this cause for RY2018 of 50 minutes. Planned Works in RY2018 was more than eight times the impact to that allowed for in the Reference Period. The reason for the significant increase in Planned Works is due to Vector's changing policy for contractors and staff working with or near electrified assets.

The revisions to Vector's Live-Line Policy were put in place to meet the expectations of the recently enacted HSWA. The new Live-Line Policy limits the risk of working on or near assets in a livened electrified state to only occur in exceptional circumstances.

The new policy for limited Live-Line work also had a significant impact on Vector's planned SAIFI in RY2018. Graph 4 below compares Vector's planned SAIFI for RY2018 with the allowance provided for in the Reference Period.

Graph 4: Vector SAIFI for Planned Works for RY2018 versus the Reference Period



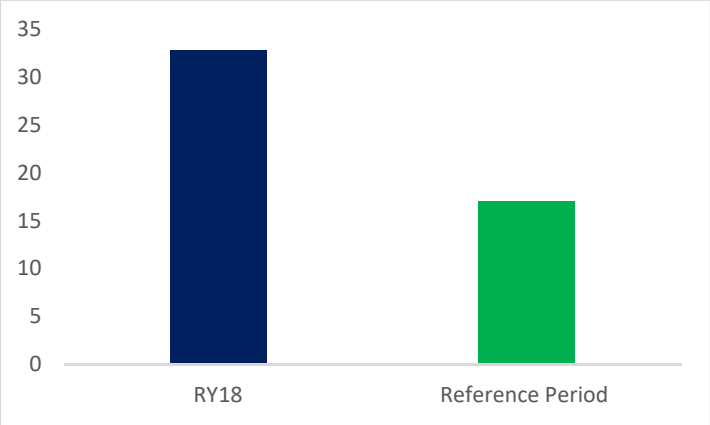
The above graph 4 shows the magnitude of the new limited Live-Line Policy of SAIFI for RY2018. This impact is more than 6 times greater than the Reference Period. Undertaking more of our

Planned Works program in a de-energised state is a significant operational change to the conditions for Planned Works incurred during the Reference Period.

Third-Party Damage

In RY2018 the impact of Third-Party Damage was significant. Graph 5 shows the SAIDI for Third-Party Damage for RY2018 versus the level allowed for in the Reference Period.

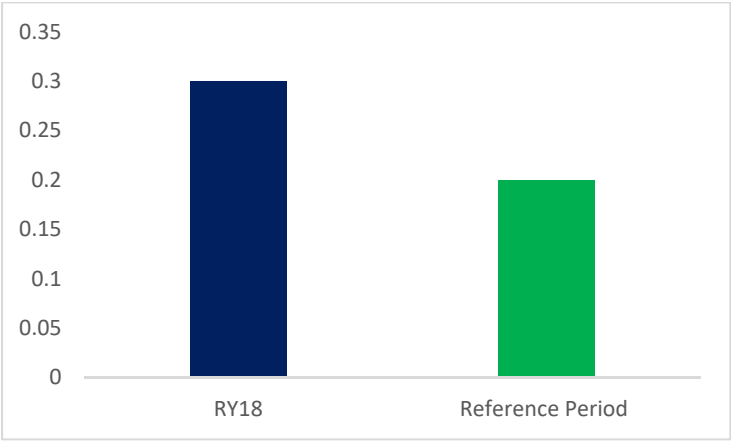
Graph 5: Vector SAIDI for third-party damage for RY2018 versus the Reference Period



Graph 5 shows the significant impact the 33 minutes of SAIDI related to third-party incidents had on RY2018 when compared to the Reference Period tolerance of 17 minutes. The SAIDI impact of Third-Party Damage is almost double the impact assumed in the Reference Period data set. In RY2018 Vector experienced 28 minutes of SAIDI because of vehicle damage to Vector's network assets, generally referred to as car v pole incidents. The SAIDI from car v pole incidents in RY2018 eclipse the tolerance provided for in the Reference Period for Third-Party Damage which captures other causes such as "dig-ins".

The impact of Third-Party Damage was also a significant contributor to SAIFI for RY2018. Graph 6 shows the SAIFI for Third-Party Damage for RY2018 compared to the Reference Period.

Graph 6: Vector SAIFI for third-party damage for RY2018 versus the Reference Period



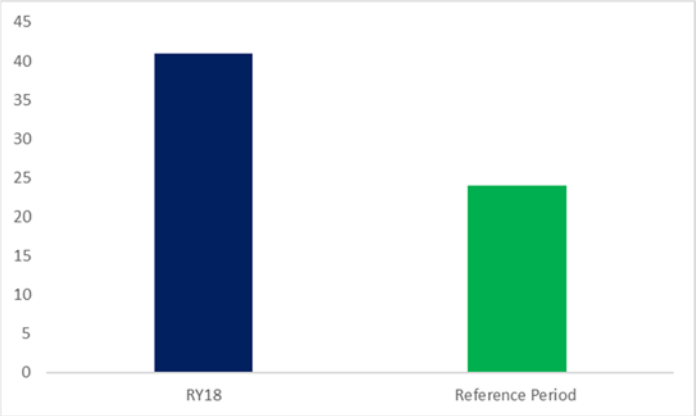
Graph 6 shows the uplift in Third-Party Damage on SAIFI for RY2018 compared to the Reference Period. For RY2018 0.22 of the SAIFI for Third-Party Damage SAIFI can be attributed to vehicle damage.

The higher car v pole incidents reflect the larger traffic fleet in Auckland. These types of incidents possess a stochastic nature to their impact on the network and therefore cannot be controlled within a reasonably defined price constraint for asset management.

Overhead asset incidents

In RY2018 overhead (OH) asset incidents was a major cause of SAIDI. Vector has a large and extensive OH network with long routes through remote and bush vegetated areas which means that OH asset incidents are a significant contributor of faults for the distribution network. The SAIDI and SAIFI due to OH asset incidents is thus a reasonably large contributor to the Reference Period defined Reliability Limit. Graph 7 shows the contrast between the OH asset failure SAIDI for RY2018 versus the Reference Period.

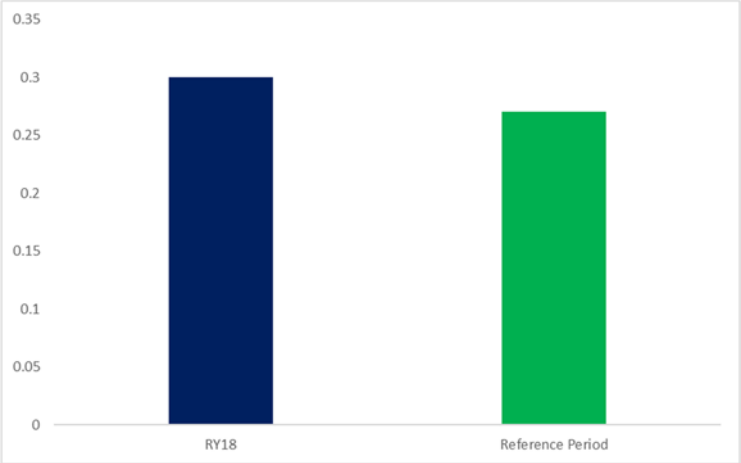
Graph 7: Vector SAIDI for OH asset incident for RY2018 versus the Reference Period



The above graph shows the impact of OH asset SAIDI is approximately 16 minutes higher for RY2018 when compared to the Reference Period. The largest contributing cause in RY2018 to the OH asset related SAIDI was conductor incidents.

The SAIFI for OH asset incidents for RY2018 versus the Reference Period was not as significant as the SAIDI attributed to this cause for the year. Graph 8 compares the SAIFI for OH asset incidents for RY2018 versus the Reference Period.

Graph 8: Vector SAIFI for OH asset incidents RY2018 compared to the Reference Period



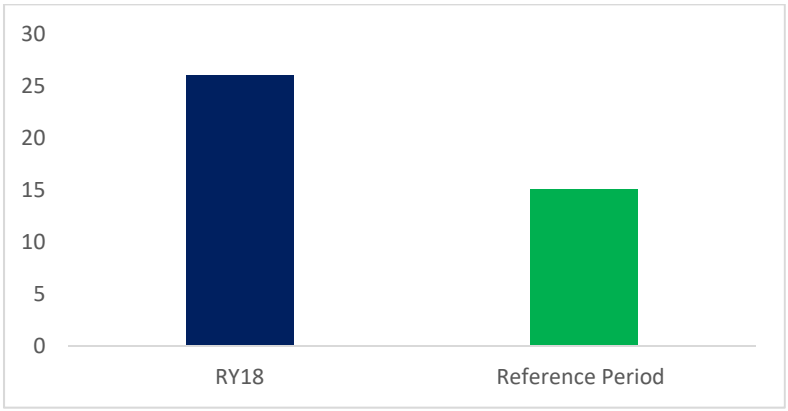
The above Graph 8 shows the difference in the SAIFI associated with OH asset incidents was not as significant as the SAIDI associated with this cause. The overall faults associated with OH assets was not unusual when compared to other Assessment Periods, which suggests the type of fault and other environmental factors were contributing to the higher SAIDI compared to the Reference Period.

As discussed above, the largest contributing cause to OH SAIDI was conductor related incidents. Conductor faults are non-trivial faults to address. A conductor fault may result in a prolonged outage to address an incident especially when remediation may involve the replacement of multiple spans of conductor. This is even more challenging when field crews are also required to operate in a more complicated environment in Auckland dealing with the higher volumes of traffic and congestion in the region, along with more onerous health and safety obligations when initiating their remediation activities. For instance, crews performing switching on oil-infused switch gear to initiate restoration of customers must now perform this function in a de-energised state. This safety procedure was initiated following a fatality reported overseas in 2015 on this type of equipment. As discussed below, Vector is implementing a comprehensive conductor replacement program of $103 million over 10 years replacing over 550 kilometres of OH conductor. This program is described in further detail in Vector's 2018 Asset Management Plan.

Underground asset incidents

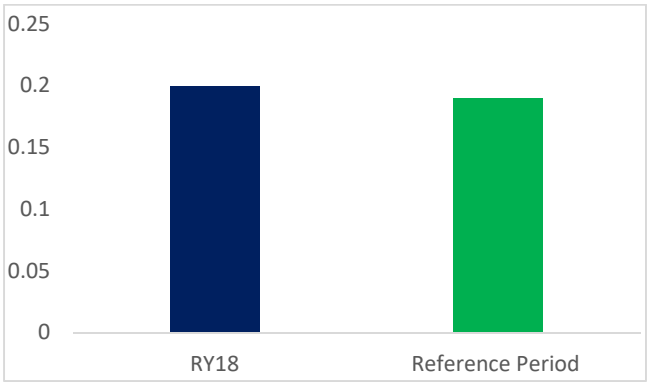
In RY2018 underground (UG) asset incidents also had a higher SAIDI than the Reference Period. Like OH asset incidents, the Reference Period contemplates a certain volume of UG asset incidents per year. Graph 9 shows the SAIDI for UG asset incidents for RY2018 versus the Reference Period.

Graph 9: Vector SAIDI for UG asset incidents for RY2018 versus the Reference Period



The UG asset SAIDI for RY2018 was approximately 11 minutes higher than the Reference Period. A higher volume of cable faults was the reason for this increase. This cause contributed 26 minutes of SAIDI for RY2018. Determining the location of cables faults and their repair are quite time consuming especially in highly built up areas. Graph 10 shows the SAIFI UG incidents for RY2018 compared to the Reference Period.

Graph 10: UG asset incidents for RY2018 compared to the Reference Period



The SAIFI associated with UG asset incidents was not significantly different to the SAIFI attributed to this cause in the Reference Period. As discussed above, the leading fault for UG asset incidents was underground cable faults. The nature of such faults does create an extended outage period given the complications involved with sourcing the precise location of the faulted cable. As discussed above, this work has become challenging in Auckland given the challenges with navigating around the city with the higher volumes of traffic congestion. The challenges with traffic congestion have also restricted the times crews are able to work in the road corridor to minimise the impact on traffic flows. For example, crews working on cables in a school precinct will have to ensure their traffic management controls do not limit the flow of traffic for the end of school period. Accordingly, for reactive jobs such as cable faults field crews must deal with these additional challenges that are underrepresented in the Reference Period reporting.

However, we are actively monitoring our underground cables to determine whether there is a need for a targeted program to address any problematic assets. Given the significant expenditure involved with underground asset replacements, which are many multiples of the costs involved with overhead asset replacement, our investigations into faults and root cause analysis will be thorough. We will determine the cause of any failure mode (if any is found) and asset related need before undertaking a proactive replacement program given the expenditure and risk of an ill-defined intervention could significantly increase costs without delivering any reliability improvement.

Actions to prevent non-compliance and mitigations

The most significant causes contributing to Vector's non-compliance for RY2018 relate to actions undertaken by Vector to comply with obligations under the HSWA, namely the cessation of live Planned Works and the implementation of the Remote Safety Isolation policy. The change in workplace health and safety legislation anticipated workplaces to review and modify practices that increased the risk of harm to workers, contractors and the community. Consistent with these expectations Vector reviewed and changed its workplace practices which did not reflect current community expectations for safety.

Reflecting the heightened community standard for safety in the Quality Standard

Vector has discussed with the Commission the option of having our Quality Standard recalibrated under the Default Price Quality Path re-opener provisions as allowed for in clause 4.5.2 of the Input Methodology (IM) Determination. This provision of the IMs considers the impact of changing laws that impact on a non-exempt EDBs ability to operate within the bounds specified by a Default Price-Quality Path Determination.

Vector's approach to Planned Works and Remote Safety Isolations are significant departures to delivering the Electricity Lines Service from that in the Reference Period.

Overhead conductor renewal

In Vector's 2018 AMP we are committed to a comprehensive renewal of our OH conductor assets. The $103 million program will replace approximately 550 kilometres of OH conductor over the 10-year AMP period. The program will target small diameter OH conductors, the type that is appearing to cause the most failures, on the 11kV network with the replacement program ramping up over the 10 years. Our CBARM (condition based asset risk model) will assist us to prioritize and plan the program of works. The SAIDI benefit of this program of works will only become evident once substantial tracts of network have been completed.

Increasing remote functionality

Vector notes the impact of the Remote Safety Isolation program not being included in the Reference Period does make the mitigation for this cause difficult to manage to the tolerance provided for by the Reliability Limit.

However, Vector is committed to mitigating the impact of the application of the Remote Safety Isolation policy. Accordingly, Vector has installed 12 new remote-control devices in the 2018 financial year on feeders to reduce the impact of the isolation of reported downed or low lines. We also have a committed program for remote functionality over the next 10 years in our Asset Management Plan. Given the stochastic nature of public reporting of downed or low lines, the immediate benefits of remote functionality are limited.

Underground cable renewal

Vector has an extensive program in the Auckland CBD to replace UG 11kV cables with 22kV UG cables. Many of Vector's older 11kV UG cables exist in the Auckland CBD area. This program has been on-going for a number of years with vast tracts of the 11kV network replaced. However, to complete this program in the CBD will take a good number of years if not at least two decades. Apart from replacing 11kV cables and joints the added advantage of employing a 22kV network is the increased energy capacity that suits the load demand of the rapidly developing Auckland CBD.

The 6.6kV UG cable network in Ponsonby and Point Chevalier were tested extensively for operation at 11kV and where required was replaced with 11kV UG cables (all distribution transformers were of course replaced in the areas).

In the Northern network we have undertaken cable replacement of XLPE cables that had faulty sheaths. Faulty sheaths caused water to ingress into the 11kV cables in certain parts of the Northern network. Reinstatement by means of replacement sections and joints was not worthwhile and the frequency of faults increased. The situation improved when this batch of cables were replaced.

We have also found that our subtransmission PILC cables are reaching end of life and the impact on reliability indexes and cost to repair makes replacement the best option.

At present apart from the program in the CBD we do not have a driver for an active 11kV cable replacement program in our AMP. UG 11kV cables have lengthy asset lives and can provide reliable service for many decades and cable failures per se is not a reason to simply replace a cable or section of cable – in many cases cable joints fail due to poor workmanship which may only be discovered many years later. Undertaking blanket UG 11kV cable replacement is hugely capital intensive and until such time that the cost of repairing a section of cable becomes untenable from a reliability index point of view, it will be repaired and retained in service. Before we undertake any blanketed 11kV cable replacement program we first need to understand what is failing and why

before we undertake a targeted replacement program. We need more evaluation into the failures of 11kV cables before we undertake any further active replacement program. We have commenced with a study into the performance of this asset.

APPENDIX 10: PRICING METHODOLOGY SUMMARY

Vector has a range of price components that apply to different price categories, please see Vector's Pricing Methodology[19] or Price Schedule[20] for a breakdown.

How the distribution component of prices is derived

Proportion of distribution target revenue by price component for the mass market consumer group

Description	Price categories	Fixed prices	Variable prices
		Daily	Volume
Residential, low user	ARCL, ARUL, ARGL, ARHL, WRCL, WRUL, WRGL, WRHL	15%	85%
Residential, standard	ARCS, ARUS, ARGS, ARHS, WRCS, WRUS, WRGS, WRHS	61%	39%
General[21]	ABSN, ABSH, WBSN, WBSH	42%	58%

Vector's mass market price categories predominantly have a two-part charge comprising of a daily fixed price and a volume consumption price. This is largely a result of the historic availability of consumption information. As smart meters have become common, a time-of-use category has been introduced with prices that differentiate between peak and off-peak consumption in an attempt to reflect the costs to Vector of consumers' consumption during those time periods.

The majority of Vector's costs are fixed and sunk, so Vector has been seeking to increase the fixed portion of revenues to align the recovery of revenues with the manner in which costs are incurred.

General prices remain aligned with residential standard price categories as in practice these consumers have similar sized connections and Vector provides the same services to these consumers as to residential consumers on standard prices.

Proportion of distribution target revenue by price component for the unmetered consumer group

Description	Price categories	Fixed prices	Variable prices
		Daily	Volume
Unmetered	ABSU, WBSU	75%	25%

In line with metered general prices, Vector has a two-part charge for unmetered price categories with a daily fixed price and allocated volume price.[22]

The rationale for Vector's price structure for its low voltage, transformer and high voltage price categories is largely historical. There were (and to a lesser extent still are) a variety of price categories with different combinations of price components and price levels.

[19] https://vectorwebstoreprd.blob.core.windows.net/blob/vector/media/documents/pricing-methodology-disclosure-2017-certified.pdf
[20] https://vectorwebstoreprd.blob.core.windows.net/blob/vector/media/vector-regulatory-disclosures/170703-annual-price-review-from-1-april-2017-v5.pdf
[21] Prices between standard residential categories and the equivalent general categories are the same, however volume makes up a larger portion of revenue in the general price categories.
[22] As consumers in this consumer group are not metered, they are charged primarily based on volume calculated on the basis of non-daylight hours and fitting wattages.

Proportion of distribution target revenue by price component for LV, TX and HV consumer groups

Description	Price categories	Fixed prices		Variable prices		
		Daily	Capacity	Volume	Demand	Power factor
Auckland TOU	ALVT, ATXT, AHVT	-	26%	45%	22%	7%
Northern TOU	WLVH, WTXH, WHVH	17%	29%	28%	21%	6%
Auckland non-TOU	ALVN, ATXN, AHVN	9%	31%	59%	-	1%
Northern non-TOU	WLVN, WTXN, WHVN	28%	24%	45%	-	3%

Current TOU price categories on the Auckland network consist of volume, capacity, demand, power factor, and (in the case of AHVT) excess demand prices. On the Northern network TOU plans also include a daily fixed price. Non-TOU plans on both networks include daily fixed, volume, capacity and power factor prices.

Vector maintains a relationship between low voltage, transformer and high voltage price categories where, with the exception of power factor prices, high voltage prices are 97% of transformer prices which are 98% of low voltage prices. This approach reflects the underlying costs and removes the incentive for consumers to move between consumer groups to arbitrage Vector's prices.

Vector continues to align the prices for low voltage, transformer and high voltage consumer groups between the Auckland and Northern networks. In addition, Vector continues to increase the fixed portion of revenues to align the recovery of revenues with the manner in which costs are incurred.

Vector includes a power factor price to incentivise end-consumers to maintain a power factor of 0.95 or higher in accordance with Vector's distribution code. Vector has reviewed consumer responses to the current level of power factor prices and are satisfied the existing prices are sufficient to incentivise consumers to correct poor power factor (if any).

How the pass-through and recoverable component of prices is derived

Vector has determined the pass-through and recoverable component of prices so that the revenue from those prices recovers the pass-through and recoverable costs allocated to each consumer group through the COSM.

The main component of pass-through and recoverable revenue is transmission charges. Transmission charges are allocated to Vector predominantly based on demand during Regional Coincident Peak Demand (RCPD) periods. Vector mirrors this as closely as possible by recovering through demand prices, where available, or volume prices otherwise.

As mass market price categories do not have a demand price, the pass-through and recoverable revenue is recovered through volume prices as these are the closest proxy for demand prices.

For non-TOU mass market price categories, the pass-through and recoverable revenue required from the COSM for the mass market consumer group is divided by the forecast consumption (kWh) for the 2018 Assessment Period to obtain a pass-through price. Vector then implements a differential between the controlled and uncontrolled price categories to reflect the benefits arising from consumers allowing Vector to control their hot water load.

For TOU mass market price categories Vector recovers the pass-through and recoverable revenue from consumption in the peak period only. Transmission charges form the bulk of pass-through and recoverable costs and recovering these during peak periods aligns with when these costs are incurred by Vector.

As unmetered price categories do not have a demand price, the pass-through and recoverable revenue is recovered through volume prices.

The calculation used for the unmetered consumer group is the same as the non-TOU mass market consumer group, that is the pass-through and recoverable revenue required from the COSM for the mass market consumer group is divided by the forecast consumption (kWh) for the 2018 Assessment Period to obtain a pass-through price.

Non-TOU consumers do not have demand prices so pass-through and recoverable costs are recovered through volume prices. Vector has derived a pass-through and recoverable price by summing the total pass-through and recoverable revenue allocated to these consumer groups and then dividing this total by the total forecast consumption (kWh) for the 2018 Assessment Period for these consumer groups periods to obtain a pass-through and recoverable price.

As TOU consumers have demand prices, Vector applies a pass-through and recoverable price to the demand component of prices. Vector has derived a pass-through and recoverable price by dividing the total revenue forecast to be recovered from TOU consumers by the forecast demand (kVA) for TOU consumers for the 2018 Assessment Period.