



Electricity Distribution Services

2021 Annual Compliance Statement

For the assessment period
1 April 2020 - 31 March 2021

30 August 2021

Pursuant to:

Electricity Distribution Services Default Price-Quality Path
Determination 2020 (20 May 2020)

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1. INTRODUCTION

1.1 Background

Vector Limited (“Vector”) owns and operates the electricity distribution network in the greater Auckland region. Vector manages more than 19,000 kms of overhead lines and underground cables, delivering power to over 500,000 homes and 60,000 businesses throughout the wider Auckland region from Wellsford to Papakura.

Vector is subject to price-quality regulation under Part 4 of the Commerce Act 1986. The Commerce Commission (the Commission) has set a new Default Price-Quality Path (DPP) which applies to Vector from 1 April 2020.

The assessment period 2021 is therefore the first assessment period of the Electricity Distribution Services Default Price-Quality Path Determination 2020 (“the Determination”)¹ and covers the 12 months to 31 March 2021.

1.2 Statement of compliance

Vector’s annual compliance statement (“the Statement”) is prepared in accordance with the requirements of clause 11.4 of the Determination.

As required by clause 11.5(a) of the Determination, the Statement provides Vector’s wash-up amount and quality incentive adjustment calculation in respect of clause 8.6 and Schedule 4 of the Determination, and also confirms Vector’s compliance with the quality standards in clause 9 of the Determination for the assessment period 2021.

As required by clause 11.5(c) of the Determination, the Statement confirms that Vector has not entered into any agreement with another Electricity Distribution Business (“EDB”) or Transpower for an amalgamation, merger, major transaction or transfer in the assessment period 2021.

The Statement has been approved for issue on 23 August 2021 and published on 30 August 2021. In the Statement, references to Vector relate only to Vector’s electricity distribution business.

1.3 Disclaimer

The pricing information contained in the Statement is accurate at the time of preparation, 04 May 2021.

The information contained in the Statement has been prepared for the express purpose of complying with the requirements of clause 11.4 of the Determination. The Statement has not been prepared for

¹ Available at [Electricity-distribution-services-default-price-quality-path-determination-2020-consolidated-20-May-2020-20-May-2020.pdf](#).

any other purpose. Vector expressly disclaims any liability to any party who may rely on the Statement for any other purpose.

For presentation purposes, some numbers in the Statement have been rounded. 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 the Statement. These discrepancies do not affect the overall compliance calculations which are based on the more detailed information.

2. WASH-UP AMOUNT

2.1 Wash-up amount calculation

As required by clauses 11.4 and 8.6 of the Determination, Vector must calculate the wash-up amount for each assessment period using the methodology specified in Schedule 1.6 of the Determination. For the assessment period 2021 the wash-up amount is \$18m and its calculation is detailed below in Table 1 and the different components of the calculation are further detailed in sections 2.2 to 2.4.

Table 1: Wash-up amount (WAU) 2021		
Formula: $WAU_{2021} = AAR_{2021} - AR_{2021} - RV_{2021}$		
Component	Description	Value (\$000)
AAR ₂₀₂₁	Actual allowable revenue 2021 ²	568,394
- AR ₂₀₂₁	Actual revenue 2021 ³	(550,355)
- RV ₂₀₂₁	Revenue foregone 2021 ⁴	-
WUA₂₀₂₁	Wash-up amount 2021	18,039

2.2 Actual allowable revenue

Vector's actual allowable revenue for the first assessment period (detailed below in Table 2) has been determined in line with the formula from paragraph 2 (a) of Schedule 1.6 of the Determination where WACC is the 67th percentile estimate of post-tax Weighted Average Cost of Capital.

Table 2: Actual allowable revenue (AAR) 2021		
Formula: $AAR_{2021} = ANAR_{2021} + APRC_{2021} - (PTB_{2020} \times (1 + WACC))$		
Component	Description	Value (\$000)
ANAR ₂₀₂₁	Actual net allowable revenue 2021 ⁵	388,707
APRC ₂₀₂₁	Actual pass-through costs and recoverable costs 2021 ⁶	188,599
- PTB ₂₀₂₀	Pass-through balance (from period ending March 2020) ⁷	(8,550)
- PTB ₂₀₂₀ × WACC	Time value of money, (WACC = 4.23%) ⁸	(362)
AAR₂₀₂₁	Actual allowable revenue 2021	568,394

² Details of actual allowable revenue is set out in section 2.2.

³ Details of actual revenue is set out in section 2.3.

⁴ Details of forgone revenue is set out in section 2.4.

⁵ Actual net allowable revenue for the assessment period 2021 is set out in schedule 1.1 of the Determination.

⁶ Details of actual pass-through costs and recoverable costs are included in section 2.2.1.

⁷ Details of pass-through balance are included in section 2.2.2.

⁸ WACC is set out under clause 4.2 of the Determination.

2.2.1 Actual pass-through and recoverable costs

Actual allowable revenue includes actual pass-through and recoverable costs excluding any recoverable cost that is a revenue wash-up draw down amount.⁹ The pass-through and recoverable costs have been determined in accordance with the Electricity Distribution Services Input Methodologies Determination 2012, (“Input Methodologies”).¹⁰ Table 3 summarises the pass-through and recoverable costs used to set prices for the assessment period 2021, all other pass-through and recoverable costs not included are not applicable to Vector.

Table 3: Actual pass-through costs and recoverable costs (APRC) 2021		
Cost type	Description	Value (\$000)
Pass-through costs	Local Authority rates	8,093
	Commerce Act levy	1,203
	Electricity Authority levy	1,692
	Utility Disputes levy	368
	Total pass-through costs	11,356
Recoverable costs	Incremental rolling incentive scheme incentive adjustment ¹¹	1,725
	Transpower electricity lines service charges	170,812
	Transpower new investment charges	7,632
	Distributed generation allowance	966
	Quality incentive adjustment ¹²	(4,449)
	Fire and Emergency New Zealand levy ¹³	557
	Total recoverable costs	177,243
Actual pass-through costs and recoverable costs excluding revenue wash-up drawn down amount 2021		188,599

⁹ The revenue wash-up drawn down amount is the opening wash-up account balance which is nil for the first and second assessment periods, as set out schedule 1.7 of the Determination.

¹⁰ Current version when preparing the Statement was consolidated 20 May 2020, available at <https://comcom.govt.nz/regulated-industries/input-methodologies/electricity-distribution-ims>, Appendix part 4, clauses 3.1.2 and 3.1.3.

¹¹ The incremental rolling incentive adjustments are specified in Schedule 2.2 of the Determination,

¹² The quality incentive adjustment is the amount calculated in Vector’s 2020 Electricity Compliance Statement which can be found here on Vector’s website <https://blob-static.vector.co.nz/blob/vector/media/documents/vector-s-2020-epq-compliance-statement.pdf>

¹³ The Fire and Emergency New Zealand levy any levy payable to Fire and Emergency New Zealand under the Fire and Emergency New Zealand Act 2017.

2.2.2 Pass-through balance

The actual allowable revenue includes the recovery pass-through balance from the assessment period 2020¹⁴. Now the additional information for quantity data, $Q_{i,2020}$ is available, Vector has recalculated the pass-through balance for the assessment period 2020 and discloses it below in Table 4.

Table 4: Pass-through balance 2020		
Formula: $PTB_{2020} = \sum PTP_{i,2020} \times Q_{i,2020} - K_{2020} - V_{2020} + PTB_{2019} (1 + r)$		
Component	Description	Value (\$000)
$\sum PTP_{i,2020} \times Q_{i,2020}$	Pass-through revenue 2020 from pass-through prices 2020 ¹⁵	210,550
- K_{2020}	Pass-through costs 2020 ¹⁶	(11,188)
- V_{2020}	Recoverable costs 2020 ¹⁵	(200,823)
PTB_{2019}	Pass-through balance 2019 ¹⁷	9,437
$PTB_{2019} \times r$	Time value of money, cost of debt ($r = 6.09\%$)	575
PTB_{2020}:	Pass-through balance 2020	8,550

A reconciliation for the pass-through balance for the assessment period 2020 is shown in Table 5 below.

Table 5: Reconciliation for pass-through balance 2020		
Formula: Updated $PTB_{2020} = \text{Orig. } PTB_{2020} + \Delta \sum PTP_{i,2020} \times Q_{i,2020} - \Delta(K_{2020} + V_{2020}) + \Delta PTB_{2019} (1 + r)$		
Component	Description	Value (\$000)
Orig. PTB_{2020}	Pass-through balance 2020 at 2020 compliance ¹⁸	8,732
$\Delta \sum PTP_{i,2020} \times Q_{i,2020}$	Change in pass-through revenue 2020	(182)
- $\Delta(K_{2020} + V_{2020})$	Change in pass-through and recoverable costs 2020	-
$\Delta PTB_{2019} (1 + r)$	Change in pass-through balance 2019 and time value of money	-
Updated PTB_{2020}	Pass-through balance 2020 at 2021 compliance	8,550

¹⁴ The assessment period 2020 is the last year of the previous regulatory period (2015 – 2020) for Electricity Distribution Price-Path.

¹⁵ Details of pass-through revenue 2020 are included in Appendix 1, tables 18-21.

¹⁶ Pass-through and recoverable costs 2020 are from the 2020 Compliance Statement, available at <https://blob-static.vector.co.nz/blob/vector/media/documents/vector-s-2020-epq-compliance-statement.pdf>.

¹⁷ Pass-through balance 2019 is from the 2020 Compliance Statement.

¹⁸ Original pass-through balance 2020 is from the 2020 Compliance Statement.

2.3 Actual revenue

The actual revenue for the assessment period 2021 has been calculated in line with the definition within the Determination and is provided in Table 6 below.

Table 6: Actual revenue 2021		
Formula: $AR_{2021} = ARFP_{2021} + ORI_{2021}$		
Component	Description	Value (\$000)
ARFP ₂₀₂₁	Actual revenue from prices 2021 ¹⁹	562,306
ORI ₂₀₂₁	Other regulated income 2021 ²⁰	(11,951)
AR₂₀₂₁	Actual revenue 2021	550,355

2.4 Revenue foregone

The revenue foregone for the assessment period 2021 is the actual net allowable revenue multiplied by the revenue reduction percentage less 20%. As specified in the Determination if the revenue reduction percentage is not greater than 20%, then the revenue foregone is nil. Table 7 below discloses Vector's revenue reduction percentage is 0.57%, which is less than 20%, therefore Vector's revenue foregone is nil for the assessment period 2021.

Table 7: Revenue reduction percentage			
Formula: $RRP_{2021} = 1 - ARFP_{2021}/FRFP_{2021}$			
Component	Description	Value (\$000)	Result
ARFP ₂₀₂₁	Actual revenue from prices	562,306	
FRFP ₂₀₂₁	Forecast revenue from prices ²¹	565,552	
RRP ₂₀₂₁	Revenue reduction percentage		0.57%
Revenue reduction percentage > 20%?			NO

¹⁹ Details of actual revenue from prices 2021, calculated as $\sum P_{i,2021} Q_{i,2021}$ (prices 2021 x actual quantities 2021) is included in Appendix 1, tables 17 to 21.

²⁰ Other regulated income has the meaning given in the Input Methodologies, "forecast income associated with the supply of electricity distribution services, including gains and losses on disposed assets but excluding income through prices; investment-related income; capital contributions; or vested assets". The only other regulated income for the 2021 assessment period is the loss on asset disposals, which is from the Electricity Information Disclosure 2021, available at <https://www.vector.co.nz/about-us/regulatory/disclosures-electricity/financial-and-network-information>

²¹ Forecast revenue from prices is from the 2021 Price Setting Compliance Statement, available at <https://blob-static.vector.co.nz/blob/vector/media/vector/electricity-distribution-price-setting-compliance-statement-2021.pdf>.

3. QUALITY STANDARDS

3.1 Quality standards - planned interruptions

As required by clause 9.1 of the Determination, to demonstrate compliance with the quality standards, the sum of Vector’s planned SAIDI (SAIFI) assessed values for all five assessment periods of the DPP regulatory period²² must not exceed the planned accumulated SAIDI (SAIFI) limit set out in the Determination at the end of the fifth assessment period of the DPP regulatory period.

Planned SAIDI assessment:

The assessment period 2021 is the first assessment period of the Determination, therefore for the purpose of the Statement, Vector has compared its planned SAIDI assessed value against both the planned accumulated SAIDI five-year limit for the DPP regulatory period and the average annual planned SAIDI limit.

Vector has complied with clause 9.1 of the Determination as its planned SAIDI assessed value for the assessment period 2021 was below both the planned accumulated SAIDI limit and the average annual planned SAIDI limit as detailed in Table 8.

Table 8: Planned SAIDI standard				
Type	SAIDI assessed value (period to date)	Accumulated limit ²³ (5-year)	Average annual limit ²⁴	Compliance (Clause 9.1)
Planned interruptions	46.54	585.38	117.08	Compliant

²² It is for the regulatory period 1 April 2020 to 31 March 2025.

²³ The planned accumulated SAIDI limit for the DPP regulatory period is set out in the table 3.1.1 of Schedule 3.1 of the determination.

²⁴ The average annual planned SAIDI limit is the planned accumulated SAIDI limit divided by five in order to assess against the first year of the DPP regulatory period.

Table 9 specifies how Vector has derived the planned SAIDI assessed value for the assessment period 2021.

Table 9: Planned SAIDI assessed value		
Formula: $SAIDI_{planned,assessed} = SAIDI_B + \frac{SAIDI_N}{2}$		
Component	Description	Value
$SAIDI_B$	Sum of SAIDI values: (a) Class B interruptions excluding the Class B notified interruptions + (b) Class B notified interruptions occurred partially or wholly outside of their specified notified interruption window or alternate day	8.75
$SAIDI_N$	(a) the SAIDI values of any Class B notified interruptions where the SAIDI value is the greater of that calculated based on: (i) the duration of minutes accumulated for each ICP that the Class B notified interruption occurred for; and (ii) the period of the notified interruption window minus two hours;	71.23
	(b) the 'intended SAIDI values' of any intended interruption cancelled without notice is the greater of that calculated based on: (i) the duration of minutes accumulated for each ICP that the intended interruption occurred for, which will be nil; and (ii) the period of the notified interruption window minus two hours; and	4.34
	(c) the 'intended SAIDI values' of any intended interruption cancelled with notice, where the 'intended SAIDI value' for each of those intended interruptions cancelled with notice is nil.	0.00
	Total	75.57
$\frac{SAIDI_N}{2}$		37.79
$SAIDI_{planned,assessed}$		46.54

Planned SAIFI assessment:

The assessment period 2021 is the first assessment period of the Determination; therefore, for the purpose of the Statement, Vector has compared its planned SAIFI assessed value against both the planned accumulated SAIFI five-year limit and the average annual planned SAIFI limit.

Vector has complied with clause 9.1 of the Determination as its planned SAIFI assessed value for the assessment period 2021 was below both the planned accumulated SAIFI limit and the average annual planned SAIFI limit, as detailed in Table 10.

Table 10: Planned SAIFI standard

Type	SAIFI assessed value (period to date)	Accumulated limit ²⁵ (5-year)	Average annual limit ²⁶	Compliance (Clause 9.1)
Planned interruptions	0.342	2.878	0.576	Compliant

Vector is not required to provide the ‘planned interruptions reporting’ specified by clause 12.1 of the Determination as Vector has not exceeded the planned SAIDI and SAIFI limits and therefore has complied with clauses 9.2(a) and 9.2(b) of the Determination.

3.2 Quality standards - unplanned interruptions

As required by clause 9.7 of the Determination, to demonstrate compliance with the quality standards in respect of each assessment period, Vector must comply with the unplanned interruptions reliability assessment specified in clause 9.8 for that assessment period.

Unplanned SAIDI assessment:

Vector’s annual unplanned SAIDI limit and boundary data are set by the Commission and disclosed in Schedule 3.2 of the Determination.

As detailed below in Table 11, Vector’s unplanned SAIDI assessed value did not exceed the unplanned SAIDI limit for the assessment period 2021.

Table 11: Unplanned SAIDI standard

Type	Annual SAIDI assessed value	Annual SAIDI limit	SAIDI Boundary	Compliance (Clause 9.7)
Unplanned interruptions	86.30	104.83	4.83	Compliant

The methodology for deriving the unplanned SAIDI assessed value for the assessment period is detailed below in Table 12.

Table 12: Unplanned SAIDI assessment

Component	Description	Value
<i>SAIDI_{unplanned,assessed}</i>	Sum of the SAIDI values for Class C interruptions commencing within the assessment period, where the SAIDI value for each 30 minute period that starts on the hour or half past the hour within a SAIDI major event that exceeds 1/48 th of the SAIDI unplanned boundary value for that assessment period is replaced with 1/48 th of the SAIDI unplanned boundary value for that assessment period	86.30

²⁵ The planned accumulated SAIFI limit for the DPP regulatory period is set out in the table 3.1.1 of Schedule 3.1 of the determination.

²⁶ The average planned SAIFI limit is the planned accumulated SAIFI limit divided by five in order to assess against the first year of the DPP regulatory period.

Unplanned SAIFI assessment:

Vector's annual unplanned SAIFI limit and boundary data are set by the Commission and disclosed in Schedule 3.2 of the Determination.

As detailed below in Table 13, Vector's unplanned SAIFI assessed value did not exceed the unplanned SAIFI limit for the assessment period 2021.

Table 13: Unplanned SAIFI standard				
Type	Annual SAIFI assessed value	Annual SAIFI limit	SAIFI Boundary	Compliance (Clause 9.7)
Unplanned interruptions	1.070	1.337	0.037	Compliant

Vector is not required to provide the 'unplanned interruptions reporting' specified by clause 12.3 of the Determination as Vector has not exceeded the unplanned SAIDI and SAIFI limits and therefore has complied with clauses 9.7 and 9.8 of the Determination.

The methodology for deriving the unplanned SAIFI assessed value for the assessment period is detailed below in Table 14 and the supporting data which informed the replacing of SAIFI values during Vector's SAIFI major event have been included in Appendix 4.

Table 14: Unplanned SAIFI assessed values		
Component	Description	Value
$SAIFI_{unplanned,assessed}$	Sum of the SAIFI values for Class C interruptions commencing within the assessment period, where the SAIFI value for each 30 minute period that starts on the hour or half past the hour within a SAIFI major event that exceeds 1/48th of the SAIFI unplanned boundary value for that assessment period is replaced with 1/48th of the SAIFI unplanned boundary value for that assessment period.	1.070

3.3 Quality incentive adjustment

Vector's target, collar and cap for SAIDI planned and unplanned and Vector's Incentive rate for the DPP regulatory period are set out in the Determination respectively. We have brought them together in Table 15 below.

Table 15: Vector's SAIDI quality measures				
Measure	Incentive rate (IR)	Target	Collar	Cap
Unplanned	84,519	89.28	-	104.83
Planned		39.03	-	117.08

The quality incentive adjustment must be calculated by Vector within 5 months after the expiration of the assessment period in accordance with schedule 4 of the Determination and is a recoverable cost in the assessment period following that in which it was calculated. The Statement includes the calculation for the quality incentive adjustment for assessment period 2023 in Appendix 2, in accordance with clause 11.6 in the Determination.

3.4 Major events within the assessment period

A SAIDI/SAIFI major event is defined in clause 4.2 of the Determination as any period of 24 hours that starts on the hour or half past the hour where the sum of SAIDI/SAIFI values over that period for unplanned interruptions exceeds the applicable SAIDI/SAIFI unplanned boundary value.

Vector had no SAIDI major events but did have an extended major SAIFI event during the assessment period 2021. We have defined the event as an 'extended major event' as major events can last longer than 24 hours as long as the major event criteria is met, in accordance with the Commission's final decision in the Determination's reasons paper²⁷. The SAIFI major event covers a 33.5-hour period from 6th November 2020 to the 8th November 2020.

Overall, around 27,000 Installation Control Points (ICP) lost power following a sustained period of high winds with wind gusts reaching over 90 km/h. Vector promptly responded by allocating a high level of resources during this period to help restore power to customers. Clear communication was maintained between Vector and affected customers during the period.

Table 16 below includes details relating to the extended major SAIFI event in accordance with clause 11.6(h) of the Determination. All the supporting information around the half-hourly normalised SAIFI during the major event which have informed Vector's unplanned SAIFI assessed value has been disclosed in Appendix 4.

²⁷ Section K69-K72 p391 - https://comcom.govt.nz/_data/assets/pdf_file/0020/191810/Default-price-quality-paths-for-electricity-distribution-businesses-from-1-April-2020-Final-decision-Reasons-paper-27-November-2019.PDF

Table 16: SAIFI Major Event

Start time & date	End time & date	Location(s)	Equipment involved	SAIFI Value before any replacements (see Appendix 4)	SAIFI Value after any replacements (see Appendix 4)
6/11/2020 22:30	8/11/2020 8:00	Various (see Appendix 4)	Various (see Appendix 4)	0.047	0.005
		<p>Cause</p> <p>There had been severe weather in the preceding two days, which continued into the period in question causing a variety of incidents affecting power across our regions. The main ones being:</p> <p>Vector was undertaking planned works on one circuit during a small window of calmer weather when an animal caused a fault on the other circuit impacting the network.</p> <p>Elsewhere on the network a tree fell on overhead equipment. The tree itself was located outside the regulatory cutting zones.</p>			
		<p>How Vector responded</p> <p>Vector was able to restore power to all ICPs by progressively making sure power reached as many people as possible by switching between feeders. This activity was carried out from the control room while our field services provider fixed the issues on site.</p>			
		<p>Prevention and future improvements</p> <p>In order to mitigate this type of occurrence, Vector no longer carries out planned work that reduces security when adverse weather has occurred on the day prior or is expected on the day of the planned outage.</p> <p>Vector has also reviewed its protection settings with Transpower to ensure that fewer customers would be affected if a similar event was to re-occur.</p>			

3.5 Extreme events within the assessment period

For the purpose of clause 9.9 of the Determination, to comply with the extreme event standard, Vector must not have an extreme event in the assessment period.

An extreme event is defined in Schedule 3.3 of the Determination as any period of 24 hours that starts on the hour or half past the hour where either:

1. **SAIDI value of 120 minutes:** The SAIDI value of all unplanned interruptions that start during that 24-hour period, in aggregate, is above 120 minutes; or
2. **Total of six million customer interruption minutes:** The total duration of customer interruption minutes resulting from all unplanned interruptions²⁸ that start during that 24-hour period, in aggregate, is more than six million customer interruption minutes.

During the assessment period 2021, Vector did not have an extreme event and therefore complies with clause 9.9 of the Determination.

3.6 Policies and procedures for recording SAIDI and SAIFI

Vector's Electricity Operations Centre ("EOC") is responsible for operating the electricity network. Resolution of planned and unplanned events is under direction of the duty Electricity Operations

²⁸ Unplanned interruptions exclude any unplanned interruption that is the result of major external factors i.e. natural disaster, third party interference, a fire that does not originate on the EDB's network, or wildfire.

Controller. The EOC also operates the network in accordance with two internal company standards. These standards define the end-to-end process for capturing and reporting reliability performance data in accordance with the Determination.

Recording interruptions

Most 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 Electricity Operations Controller both in hard copy (electricity fault switching log) and electronically (HVSPEC database described below).

All interruptions are also logged and tracked separately in Vector's Customer Management System by Vector's customer services team.

Vector maintains a bespoke system for recording interruptions, HVSPEC. HVSPEC holds all the data in relation to customer numbers for each part of the HV network. The EOC controllers record details of all network interruptions, in accordance with the Determination for unplanned interruptions and for planned interruptions.

Vector has made the relevant changes to its policies and procedures in accordance with the Determination for the new DPP regulatory period (from 2020–2025), including the separate assessment of planned and unplanned interruptions and the way that SAIDI is calculated for planned outages.

For each interruption, the event type, location, duration and number of customers affected is identified. Appendix 3 illustrates both the HVSPEC planned and unplanned data capture processes and the quality assurance carried out on outage information.

SAIDI and SAIFI calculating

SAIDI and SAIFI are calculated in HVSPEC for each interruption, and the data is retained in a database for reporting and analysis. 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 (calculated using average customer count).

Explanations for non-compliance

For the assessment period 2021, Vector did not exceed its reliability limits and is compliant with the Determination and therefore has no obligation under clause 12 to explain reasons for non-compliance and actions to mitigate future non-compliance.

3.7 Transactions

In order to comply with clause 11.6(i) Vector confirms that it has not entered into an agreement with another EDB or Transpower for an amalgamation, merger, major transaction or transfer during the assessment period 2021; and therefore no further information was provided to the Commission as specified in clause 10.1 of the Determination.

Appendix 1: PY21 total line charge & PY20 pass-through revenues

Table 17: Summary of PY21 total line charge revenues & PY20 pass-through revenues

Consumer group	Auckland		Northern		Total	
	Pi, 2021 × Qi, 2021	PTPi, 2020 × Qi, 2020	Pi, 2021 × Qi, 2021	PTPi, 2020 × Qi, 2020	Pi, 2021 × Qi, 2021	PTPi, 2020 × Qi, 2020
Residential	\$ 184,471,573	\$ 58,203,260	\$ 137,332,927	\$ 43,794,338	\$ 321,804,500	\$ 101,997,598
General	\$ 51,090,173	\$ 26,986,024	\$ 28,867,800	\$ 14,354,131	\$ 79,957,973	\$ 41,340,155
Low voltage	\$ 45,229,550	\$ 15,995,526	\$ 12,769,455	\$ 4,922,327	\$ 57,999,005	\$ 20,917,853
Transformer	\$ 50,558,674	\$ 21,344,316	\$ 14,426,006	\$ 7,364,677	\$ 64,984,681	\$ 28,708,992
High voltage	\$ 15,697,025	\$ 7,444,974	\$ 3,115,917	\$ 1,993,936	\$ 18,812,942	\$ 9,438,910
Non-standard	\$ 17,617,023	\$ 7,694,623	\$ 1,130,173	\$ 451,428	\$ 18,747,196	\$ 8,146,051
Total	\$ 364,664,019	\$ 137,668,723	\$ 197,642,278	\$ 72,880,838	\$ 562,306,297	\$ 210,549,560

Table 18: Non-standard consumers' PY21 total line charge & PY20 pass-through revenues

Anonymised Code		Qi, 2020, & Qi, 2021	Pi, 2021	PTPi, 2020	Pi, 2021 × Qi, 2021	PTPi, 2020 × Qi, 2020	
Auckland	AN21-1	AN20-1	1	-	\$ -	\$ -	
	AN21-2	AN20-2	1	1,221,332	156,051	\$ 1,221,332	\$ 156,051
	AN21-3	AN20-3	1	2,431,878	1,811,501	\$ 2,431,878	\$ 1,811,501
	AN21-4	AN20-4	1	-	-	\$ -	\$ -
		AN20-5	1	-	-	\$ -	\$ -
	AN21-5	AN20-6	1	1,132,130	553,857	\$ 1,132,130	\$ 553,857
	AN21-6	AN20-7	1	866,187	320,604	\$ 866,187	\$ 320,604
	AN21-7	AN20-8	1	91,519	140,991	\$ 91,519	\$ 140,991
	AN21-8	AN20-9	1	610,086	442,783	\$ 610,086	\$ 442,783
	AN21-9	AN20-10	1	1,673,390	456,939	\$ 1,673,390	\$ 456,939
	AN21-10	AN20-11	1	354,550	259,056	\$ 354,550	\$ 259,056
	AN21-11	AN20-12	1	1,164,212	-	\$ 1,164,212	\$ -
	AN21-12	AN20-13	1	1,273,454	1,027,591	\$ 1,273,454	\$ 1,027,591
		AN20-14	1	-	-	\$ -	\$ -
	AN21-13	AN20-15	1	478,979	134,669	\$ 478,979	\$ 134,669
	AN21-14	AN20-16	1	503,482	214,154	\$ 503,482	\$ 214,154
	AN21-15	AN20-17	1	788,488	360,967	\$ 788,488	\$ 360,967
	AN21-16	AN20-18	1	1,282,530	635,013	\$ 1,282,530	\$ 635,013
	AN21-17	AN20-19	1	852,130	147,768	\$ 852,130	\$ 147,768
	AN21-18	AN20-20	1	570,963	113,247	\$ 570,963	\$ 113,247
	AN21-19	AN20-21	1	73,036	13,879	\$ 73,036	\$ 13,879
	AN21-20	AN20-22	1	770,780	525,355	\$ 770,780	\$ 525,355
	AN21-21	AN20-23	1	175,128	93,970	\$ 175,128	\$ 93,970
	AN21-22	AN20-24	1	374,806	217,796	\$ 374,806	\$ 217,796
	AN21-23	AN20-25	1	65,094	15,651	\$ 65,094	\$ 15,651
	AN21-24	AN20-26	1	-	-	\$ -	\$ -
	AN21-25	AN20-27	1	-	-	\$ -	\$ -
	AN21-26	AN20-28	1	-	-	\$ -	\$ -
AN21-27	AN20-29	1	526,972	21,573	\$ 526,972	\$ 21,573	
AN21-28	AN20-30	1	335,901	31,208	\$ 335,901	\$ 31,208	
Northern	WN21-1	WN20-1	1	478,705	243,996	\$ 478,705	\$ 243,996
	WN21-2	WN20-2	1	651,468	207,432	\$ 651,468	\$ 207,432
	WN21-3	WN20-3	1	-	-	\$ -	\$ -
		WN20-4	1	-	-	\$ -	\$ -

Table 19: Residential and general consumers' PY21 total line charge & PY20 pass-through revenues

			Auckland				Northern					
Consumer group, price category & code		Pi, 2021	PTPi, 2020	Qi, 2021	Qi, 2020	Pi, 2021 × Qi, 2021	PTPi, 2020 × Qi, 2020	Qi, 2021	Qi, 2020	Pi, 2021 × Qi, 2021	PTPi, 2020 × Qi, 2020	
Residential	ARUL WRUL	...-FIXD	0.1500	-	4,338,725	10,906,704	\$ 650,809	\$ -	2,461,624	5,921,283	\$ 369,244	\$ -
		...-24UC	0.0925	0.0356	42,698,065	116,253,968	\$ 3,949,571	\$ 4,138,641	34,320,985	80,803,159	\$ 3,174,691	\$ 2,876,592
		...-INJT	-	-	227,104	456,351	\$ -	\$ -	614,032	775,863	\$ -	\$ -
	ARCL WRCL	...-FIXD	0.1500	-	17,461,127	47,220,699	\$ 2,619,169	\$ -	12,468,196	32,189,489	\$ 1,870,229	\$ -
		...-AICO	0.0863	0.0284	263,152,728	687,715,396	\$ 22,710,080	\$ 19,531,117	190,750,601	479,541,536	\$ 16,461,777	\$ 13,618,980
		...-INJT	-	-	736,848	1,176,060	\$ -	\$ -	1,179,345	1,415,983	\$ -	\$ -
	ARGL WRGL	...-FIXD	N/A	-	-	10,268,884	\$ -	\$ -	-	5,107,173	\$ -	\$ -
		...-24UC	N/A	0.0284	-	136,588,574	\$ -	\$ 3,879,116	-	68,188,067	\$ -	\$ 1,936,541
		...-INJT	N/A	-	-	404,694	\$ -	\$ -	-	250,011	\$ -	\$ -
	ARHL WRHL	...-FIXD	0.1500	-	6,606,676	935,912	\$ 991,001	\$ -	4,886,726	796,481	\$ 733,009	\$ -
		...-OFFPK	0.0621	-	50,517,432	9,001,477	\$ 3,137,133	\$ -	45,929,665	8,640,429	\$ 2,852,232	\$ -
		...-PEAK	0.1542	0.0907	22,412,496	3,892,985	\$ 3,456,007	\$ 353,094	20,778,055	3,604,552	\$ 3,203,976	\$ 326,933
		...-INJT	-	-	312,407	150,601	\$ -	\$ -	389,223	261,641	\$ -	\$ -
	ARHLC WRHLC	...-FIXD	0.1500	N/A	42,013,538	-	\$ 6,302,031	\$ -	25,934,747	-	\$ 3,890,212	\$ -
		...-OFFPK	0.0621	N/A	414,155,210	-	\$ 25,719,039	\$ -	261,954,710	-	\$ 16,267,388	\$ -
		...-PEAK	0.1354	N/A	183,228,337	-	\$ 24,809,117	\$ -	117,122,765	-	\$ 15,858,422	\$ -
		...-INJT	-	N/A	1,334,967	-	\$ -	\$ -	958,340	-	\$ -	\$ -
	ARUS WRUS	...-FIXD	1.0100	-	3,637,078	6,666,690	\$ 3,673,449	\$ -	3,021,854	6,153,489	\$ 3,052,073	\$ -
		...-24UC	0.0533	0.0356	53,184,340	128,048,222	\$ 2,834,725	\$ 4,558,517	61,217,384	132,159,407	\$ 3,262,887	\$ 4,704,875
		...-INJT	-	-	213,378	475,988	\$ -	\$ -	595,492	842,724	\$ -	\$ -
ARCS WRCS	...-FIXD	1.0100	-	11,982,321	27,479,517	\$ 12,102,144	\$ -	9,852,089	22,868,182	\$ 9,950,610	\$ -	
	...-AICO	0.0471	0.0284	313,689,887	743,321,931	\$ 14,774,794	\$ 21,110,343	264,424,887	631,749,963	\$ 12,454,412	\$ 17,941,699	
	...-INJT	-	-	571,678	867,572	\$ -	\$ -	718,823	1,050,371	\$ -	\$ -	
ARGS WRGS	...-FIXD	N/A	-	-	5,284,670	\$ -	\$ -	-	2,544,886	\$ -	\$ -	
	...-24UC	N/A	0.0284	-	151,343,554	\$ -	\$ 4,298,157	-	68,199,764	\$ -	\$ 1,936,873	
	...-INJT	N/A	-	-	254,780	\$ -	\$ -	-	172,871	\$ -	\$ -	
ARHS WRHS	...-FIXD	1.0100	-	2,965,710	448,983	\$ 2,995,367	\$ -	3,182,497	579,669	\$ 3,214,322	\$ -	
	...-OFFPK	0.0229	-	47,623,767	8,701,544	\$ 1,090,584	\$ -	59,901,528	11,817,753	\$ 1,371,745	\$ -	
	...-PEAK	0.1150	0.0907	20,713,673	3,685,511	\$ 2,382,072	\$ 334,276	26,458,795	4,981,754	\$ 3,042,761	\$ 451,845	
	...-INJT	-	-	248,268	67,091	\$ -	\$ -	362,685	65,428	\$ -	\$ -	
ARHSC WRHSC	...-FIXD	1.0100	N/A	21,736,170	-	\$ 21,953,532	\$ -	15,535,327	-	\$ 15,690,680	\$ -	
	...-OFFPK	0.0229	N/A	440,055,160	-	\$ 10,077,263	\$ -	318,310,445	-	\$ 7,289,309	\$ -	
	...-PEAK	0.0962	N/A	189,643,307	-	\$ 18,243,686	\$ -	138,492,180	-	\$ 13,322,948	\$ -	
	...-INJT	-	N/A	741,369	-	\$ -	\$ -	814,153	-	\$ -	\$ -	
General	ABSU WBSU	...-FIXD	0.0800	-	26,078,972	25,792,553	\$ 2,086,318	\$ -	16,432,967	15,994,370	\$ 1,314,637	\$ -
		...-24UC	0.0257	0.0356	26,021,031	29,317,310	\$ 668,740	\$ 1,043,696	15,754,340	17,425,538	\$ 404,887	\$ 620,349
	ABSN WBSN	...-FIXD	1.0100	-	10,443,431	13,146,983	\$ 10,547,865	\$ -	5,405,779	8,058,208	\$ 5,459,837	\$ -
		...-24UC	0.0533	0.0356	497,878,559	706,681,133	\$ 26,536,927	\$ 25,157,848	231,230,715	372,761,227	\$ 12,324,597	\$ 13,270,300
	ABSH WBSH	...-INJT	-	-	440,903	310,320	\$ -	\$ -	371,460	313,085	\$ -	\$ -
		...-FIXD	1.0100	-	2,939,847	170,214	\$ 2,969,245	\$ -	2,861,159	93,942	\$ 2,889,771	\$ -
		...-OFFPK	0.0229	-	118,309,804	18,144,295	\$ 2,709,295	\$ -	91,833,398	10,668,106	\$ 2,102,985	\$ -
		...-PEAK	0.1150	0.0907	48,450,281	8,649,170	\$ 5,571,782	\$ 784,480	38,009,454	5,110,056	\$ 4,371,087	\$ 463,482
...-INJT	-	-	89,161	12,401	\$ -	\$ -	62,089	1	\$ -	\$ -		

Table 20: Commercial consumers' PY21 total line charge & PY20 pass-through revenues

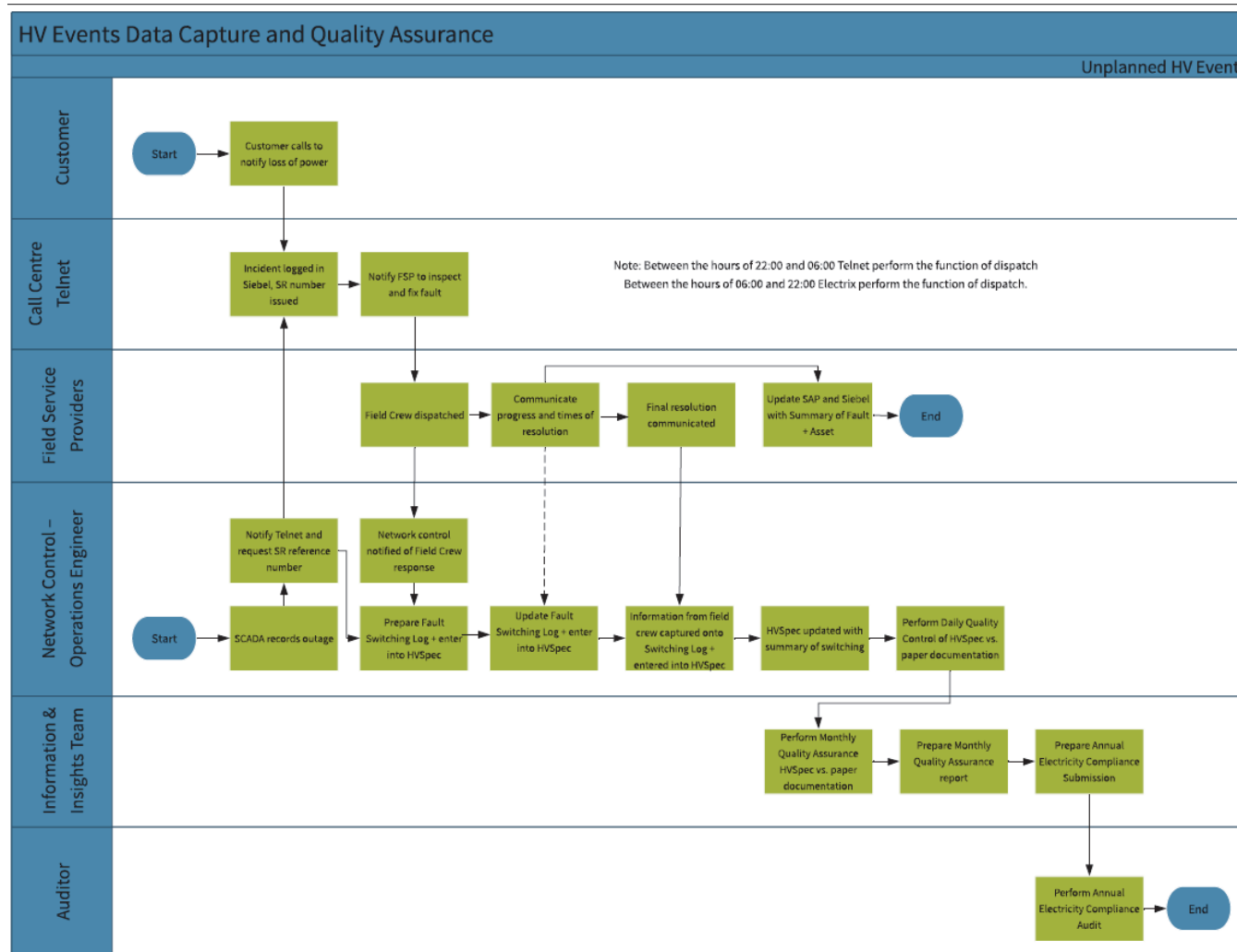
Consumer group, price category & code		Auckland						Northern							
		Pi, 2021	PTPi, 2020	Qi, 2021	Qi, 2020	Pi, 2021 × Qi, 2021	PTPi, 2020 × Qi, 2020	Pi, 2021	PTPi, 2020	Qi, 2021	Qi, 2020	Pi, 2021 × Qi, 2021	PTPi, 2020 × Qi, 2020		
Low voltage	ALVN WLVN	...-FIXD	1.78	-	849,304	825,944	\$ 1,511,761	\$ -	5.74	-	331,752	322,629	\$ 1,904,256	\$ -	
		...-24UC	0.0541	0.0219	229,860,564	240,587,998	\$ 12,435,456	\$ 5,268,877	0.0335	0.0219	115,073,730	120,715,458	\$ 3,854,970	\$ 2,643,669	
		...-CAPY	0.0421	-	126,680,919	122,936,345	\$ 5,333,267	\$ -	0.0339	-	48,916,985	47,335,914	\$ 1,658,286	\$ -	
		...-PWRF	0.2917	-	320,135	365,194	\$ 93,383	\$ -	0.2917	-	283,628	309,990	\$ 82,734	\$ -	
	...-INJT	-	-	256,992	125,419	\$ -	\$ -	-	-	125,926	48,726	\$ -	\$ -		
	ALVT WLVH	...-FIXD	-	-	-	-	\$ -	\$ -	10.8200	-	94,132	94,557	\$ 1,018,508	\$ -	
		...-24UC	0.0120	-	516,242,640	554,824,481	\$ 6,194,912	\$ -	0.0050	-	124,786,701	129,772,444	\$ 623,934	\$ -	
		...-CAPY	0.0421	-	138,539,806	138,075,064	\$ 5,832,526	\$ -	0.0339	-	24,970,945	24,356,409	\$ 846,515	\$ -	
		...-DAMD	0.2917	0.2285	43,717,347	46,943,758	\$ 12,752,350	\$ 10,726,649	0.2628	0.2285	9,808,260	9,972,248	\$ 2,577,611	\$ 2,278,659	
		...-PWRF	0.2917	-	3,688,361	4,050,402	\$ 1,075,895	\$ -	0.2917	-	694,689	674,259	\$ 202,641	\$ -	
		...-INJT	-	-	204,491	404,958	\$ -	\$ -	-	-	2,203	2,214	\$ -	\$ -	
	Transformer	ATXN WTXN	...-FIXD	1.74	-	59,182	57,434	\$ 102,977	\$ -	5.63	-	48,299	46,450	\$ 271,923	\$ -
			...-24UC	0.0530	0.0219	20,515,005	22,174,214	\$ 1,087,295	\$ 485,615	0.0328	0.0219	33,393,176	35,725,607	\$ 1,095,296	\$ 782,391
			...-CAPY	0.0412	-	13,418,908	12,979,638	\$ 552,859	\$ -	0.0332	-	11,780,426	11,228,412	\$ 391,110	\$ -
...-PWRF			0.2917	-	14,860	30,391	\$ 4,335	\$ -	0.2917	-	159,999	164,947	\$ 46,672	\$ -	
...-INJT		-	-	29,885	67,490	\$ -	\$ -	-	-	628	-	\$ -	\$ -		
ATXT WTXH		...-FIXD	-	-	-	-	\$ -	\$ -	10.6100	-	102,001	101,643	\$ 1,082,231	\$ -	
		...-24UC	0.0117	-	1,078,755,242	1,144,248,703	\$ 12,621,436	\$ -	0.0049	-	342,408,724	361,751,010	\$ 1,677,803	\$ -	
		...-CAPY	0.0412	-	252,907,685	243,775,232	\$ 10,419,797	\$ -	0.0332	-	76,488,925	76,362,608	\$ 2,539,432	\$ -	
		...-DAMD	0.2858	0.2285	86,254,638	91,285,340	\$ 24,651,576	\$ 20,858,700	0.2575	0.2285	27,099,056	28,806,503	\$ 6,978,007	\$ 6,582,286	
		...-PWRF	0.2917	-	3,834,076	4,044,337	\$ 1,118,400	\$ -	0.2917	-	1,177,690	1,393,994	\$ 343,532	\$ -	
		...-INJT	-	-	51,269	28,723	\$ -	\$ -	-	-	1,020,668	540,421	\$ -	\$ -	
High voltage		AHVN WVHN	...-FIXD	1.68	-	2,555	2,652	\$ 4,292	\$ -	5.46	-	-	-	\$ -	\$ -
			...-24UC	0.0514	0.0219	571,653	648,753	\$ 29,383	\$ 14,208	0.0318	0.0219	-	-	\$ -	\$ -
			...-CAPY	0.0399	-	517,935	532,854	\$ 20,666	\$ -	0.0322	-	-	-	\$ -	\$ -
	...-PWRF		0.2917	-	6,377	8,642	\$ 1,860	\$ -	0.2917	-	-	-	\$ -	\$ -	
	...-INJT	-	-	-	-	\$ -	\$ -	-	-	-	-	\$ -	\$ -		
	AHVT WVH	...-FIXD	-	-	-	-	\$ -	\$ -	10.3000	-	8,964	8,768	\$ 92,329	\$ -	
		...-24UC	0.0113	-	400,695,729	433,035,525	\$ 4,527,862	\$ -	0.0048	-	112,643,824	121,524,537	\$ 540,690	\$ -	
		...-CAPY	0.0399	-	60,672,920	59,348,024	\$ 2,420,850	\$ -	0.0322	-	14,953,890	14,501,498	\$ 481,515	\$ -	
		...-DAMD	0.2772	0.2285	29,932,667	32,519,765	\$ 8,297,335	\$ 7,430,766	0.2498	0.2285	7,775,778	8,726,198	\$ 1,942,389	\$ 1,993,936	
		...-DEXA	0.8778	-	36,468	129,457	\$ 32,012	\$ -	0.7084	-	13,706	113,288	\$ 9,709	\$ -	
		...-PWRF	0.2917	-	1,243,625	1,342,577	\$ 362,766	\$ -	0.2917	-	168,953	426,829	\$ 49,284	\$ -	
		...-INJT	-	-	2,756,843	3,146,212	\$ -	\$ -	-	-	-	-	\$ -	\$ -	

Appendix 2: Quality incentive adjustment

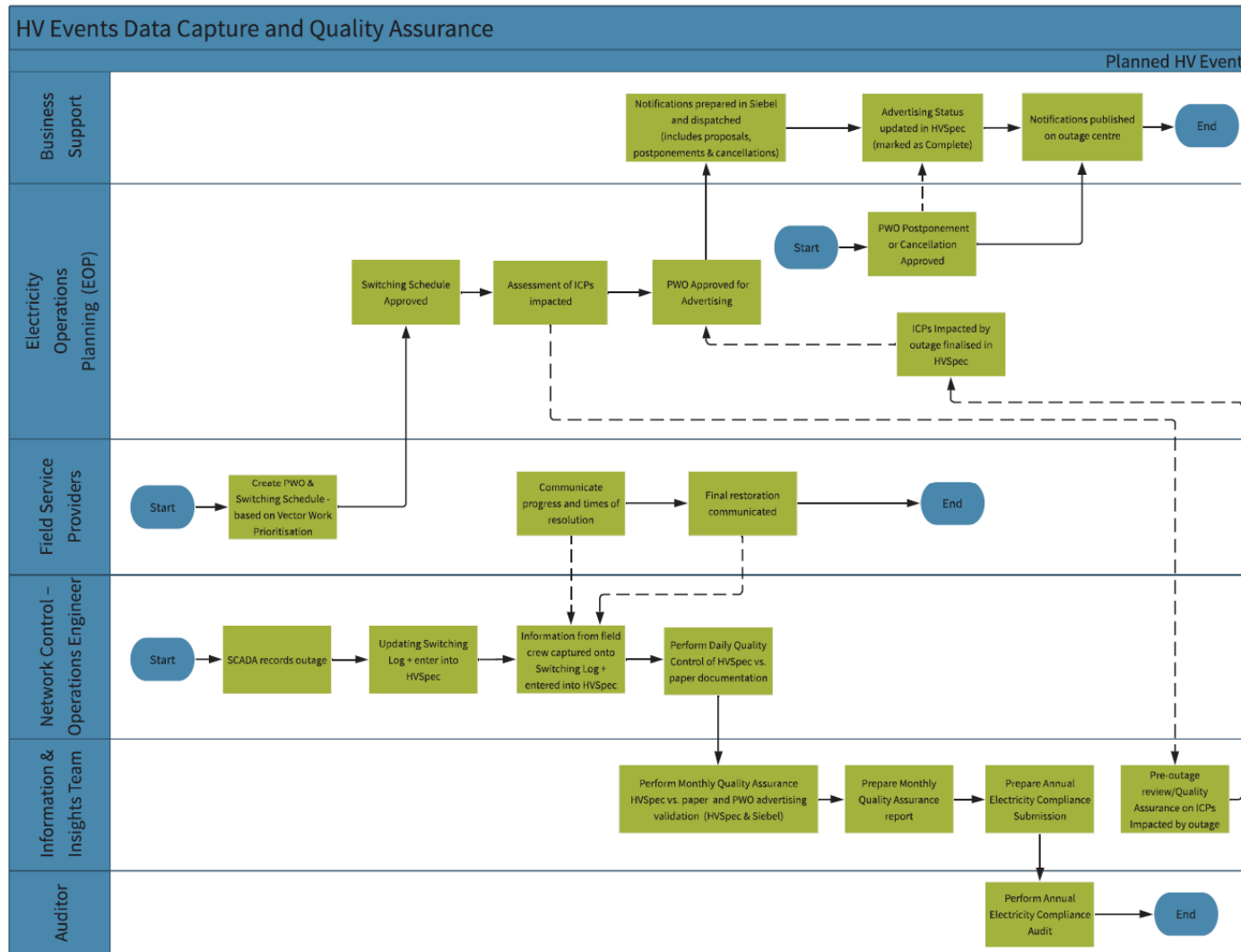
Table 21: Quality Incentive Adjustment				
Formula: $REV_{RISK} = 0.02 \times ANAR_{2021}$				
ANAR ₂₀₂₁				\$388,707,000
REV _{RISK}				\$7,774,140
Formulae: $A = (SAIDI_{unplanned,target} - SAIDI_{unplanned,assessed}) * IR;$ $B = (SAIDI_{planned,target} - SAIDI_{planned,assessed}) * 0.5 * IR$				
Component	A (SAIDI_{unplanned})		B (SAIDI_{planned})	
cap ²⁹	104.83		117.08	
target - assess	89.28 - 86.30	2.98	39.03 - 46.54	-7.51
Multiplier	1	2.98	0.5	-3.76
Incentive rate (IR)	84,519	A = \$251,867	84,519	B = (\$317,369)
Formula: Quality incentive adjustment = $\min (REV_{RISK} \text{ or } A + B) \times (1 + 67\text{th percentile estimate of post-tax WACC})^2$				
min (REV _{RISK} or A + B)	min (\$7,774,140 or (\$251,867 - \$317,369)		min (\$7,774,140 or -\$65,502)	
Time value of money (WACC = 4.23%)			(\$5,659)	
Quality Incentive Adjustment for the assessment period 2023			(\$71,161)	

²⁹ Where SAIDI_{unplanned/planned, assessed} is greater than the SAIDI unplanned/planned interruption cap specified for the non-exempt EDB for the assessment period set out in Tables 4.1 and 4.2 of Schedule 4 of the Determination, SAIDI_{unplanned/planned, assessed} equals the SAIDI unplanned/planned interruption cap.

Appendix 3a: HVSPEC data capture and quality assurance – unplanned



Appendix 3b: HVSPEC data capture and quality assurance – planned



Appendix 4: Major SAIFI event

Table 22: SAIFI major event replaced values³⁰

Date and time	SAIFI	SAIFI	SAIFI	Major SAIFI Event	Boundary Value	Normalised SAIFI	Normalised or not	1/48th Boundary Value	Location	Main Equipment & Fault Cause
(half-hour commencing)	(half-hour)	(previous 24-hour)	(max rolling 24-hour)							
5/11/2020 22:30	0	0.0216	0.0247	No	0.0371	0	No	0.000773		
5/11/2020 23:00	0	0.0216	0.0247	No	0.0371	0	No	0.000773		
5/11/2020 23:30	0.00005	0.0217	0.0247	No	0.0371	0.00005	No	0.000773		
6/11/2020 0:00	0	0.0217	0.0247	No	0.0371	0	No	0.000773		
6/11/2020 0:30	0	0.0217	0.0247	No	0.0371	0	No	0.000773		
6/11/2020 1:00	0	0.0217	0.0247	No	0.0371	0	No	0.000773		
6/11/2020 1:30	0	0.0217	0.0247	No	0.0371	0	No	0.000773		
6/11/2020 2:00	0	0.0217	0.0247	No	0.0371	0	No	0.000773		
6/11/2020 2:30	0	0.0217	0.0247	No	0.0371	0	No	0.000773		
6/11/2020 3:00	0	0.0217	0.0247	No	0.0371	0	No	0.000773		
6/11/2020 3:30	0	0.0217	0.0247	No	0.0371	0	No	0.000773		
6/11/2020 4:00	0	0.0217	0.0247	No	0.0371	0	No	0.000773		
6/11/2020 4:30	0	0.0217	0.0247	No	0.0371	0	No	0.000773		
6/11/2020 5:00	0	0.0217	0.0247	No	0.0371	0	No	0.000773		
6/11/2020 5:30	0	0.0217	0.0247	No	0.0371	0	No	0.000773		
6/11/2020 6:00	0	0.0217	0.0247	No	0.0371	0	No	0.000773		
6/11/2020 6:30	0.00135	0.0230	0.0247	No	0.0371	0.00135	No	0.000773		
6/11/2020 7:00	0	0.0230	0.0247	No	0.0371	0	No	0.000773		
6/11/2020 7:30	0	0.0230	0.0247	No	0.0371	0	No	0.000773		
6/11/2020 8:00	0.00004	0.0231	0.0247	No	0.0371	0.00004	No	0.000773		
6/11/2020 8:30	0.00001	0.0231	0.0247	No	0.0371	0.00001	No	0.000773		
6/11/2020 9:00	0	0.0231	0.0247	No	0.0371	0	No	0.000773		
6/11/2020 9:30	0	0.0231	0.0247	No	0.0371	0	No	0.000773		
6/11/2020 10:00	0.00002	0.0231	0.0247	No	0.0371	0.00002	No	0.000773		
6/11/2020 10:30	0.00183	0.0247	0.0247	No	0.0371	0.00183	No	0.000773		
6/11/2020 11:00	0	0.0247	0.0247	No	0.0371	0	No	0.000773		
6/11/2020 11:30	0	0.0234	0.0234	No	0.0371	0	No	0.000773		
6/11/2020 12:00	0	0.0188	0.0188	No	0.0371	0	No	0.000773		
6/11/2020 12:30	0	0.0174	0.0174	No	0.0371	0	No	0.000773		
6/11/2020 13:00	0	0.0152	0.0152	No	0.0371	0	No	0.000773		
6/11/2020 13:30	0	0.0148	0.0148	No	0.0371	0	No	0.000773		
6/11/2020 14:00	0	0.0142	0.0145	No	0.0371	0	No	0.000773		
6/11/2020 14:30	0	0.0113	0.0145	No	0.0371	0	No	0.000773		

³⁰ In red are the 67 half hours of the extended SAIFI major event where the max rolling 24-hour value exceeds the boundary value; highlighted in light blue are the half-hours where the SAIFI half-hour values have been normalised with 1/48th of the boundary value.

Table 22: SAIFI major event replaced values³⁰

Date and time	SAIFI	SAIFI	SAIFI	Major SAIFI Event	Boundary Value	Normalised SAIFI	Normalised or not	1/48th Boundary Value	Location	Main Equipment & Fault Cause
(half-hour commencing)	(half-hour)	(previous 24-hour)	(max rolling 24-hour)							
6/11/2020 15:00	0	0.0080	0.0145	No	0.0371	0	No	0.000773		
6/11/2020 15:30	0.00110	0.0074	0.0145	No	0.0371	0.00110	No	0.000773		
6/11/2020 16:00	0.00131	0.0080	0.0145	No	0.0371	0.00131	No	0.000773		
6/11/2020 16:30	0	0.0065	0.0145	No	0.0371	0	No	0.000773		
6/11/2020 17:00	0.00001	0.0065	0.0145	No	0.0371	0.00001	No	0.000773		
6/11/2020 17:30	0	0.0065	0.0145	No	0.0371	0	No	0.000773		
6/11/2020 18:00	0	0.0065	0.0145	No	0.0371	0	No	0.000773		
6/11/2020 18:30	0	0.0060	0.0145	No	0.0371	0	No	0.000773		
6/11/2020 19:00	0.00012	0.0061	0.0145	No	0.0371	0.00012	No	0.000773		
6/11/2020 19:30	0	0.0060	0.0145	No	0.0371	0	No	0.000773		
6/11/2020 20:00	0	0.0060	0.0145	No	0.0371	0	No	0.000773		
6/11/2020 20:30	0	0.0059	0.0145	No	0.0371	0	No	0.000773		
6/11/2020 21:00	0	0.0059	0.0145	No	0.0371	0	No	0.000773		
6/11/2020 21:30	0	0.0058	0.0145	No	0.0371	0	No	0.000773		
6/11/2020 22:00	0	0.0058	0.0148	No	0.0371	0	No	0.000773		
6/11/2020 22:30	0	0.0058	0.0389	Yes	0.0371	0	No	0.000773		
6/11/2020 23:00	0	0.0058	0.0452	Yes	0.0371	0	No	0.000773		
6/11/2020 23:30	0	0.0058	0.0455	Yes	0.0371	0	No	0.000773		
7/11/2020 0:00	0	0.0058	0.0456	Yes	0.0371	0	No	0.000773		
7/11/2020 0:30	0	0.0058	0.0457	Yes	0.0371	0	No	0.000773		
7/11/2020 1:00	0.00016	0.0059	0.0457	Yes	0.0371	0.00016	No	0.000773	VICT K14, GINN K13	Distribution cable (cause: switch unit)
7/11/2020 1:30	0	0.0059	0.0464	Yes	0.0371	0	No	0.000773		
7/11/2020 2:00	0	0.0059	0.0464	Yes	0.0371	0	No	0.000773		
7/11/2020 2:30	0	0.0059	0.0464	Yes	0.0371	0	No	0.000773		
7/11/2020 3:00	0	0.0059	0.0464	Yes	0.0371	0	No	0.000773		
7/11/2020 3:30	0	0.0059	0.0464	Yes	0.0371	0	No	0.000773		
7/11/2020 4:00	0	0.0059	0.0464	Yes	0.0371	0	No	0.000773		
7/11/2020 4:30	0	0.0059	0.0464	Yes	0.0371	0	No	0.000773		
7/11/2020 5:00	0	0.0059	0.0464	Yes	0.0371	0	No	0.000773		
7/11/2020 5:30	0	0.0059	0.0464	Yes	0.0371	0	No	0.000773		
7/11/2020 6:00	0	0.0059	0.0464	Yes	0.0371	0	No	0.000773		
7/11/2020 6:30	0	0.0046	0.0464	Yes	0.0371	0	No	0.000773		
7/11/2020 7:00	0	0.0046	0.0464	Yes	0.0371	0	No	0.000773		
7/11/2020 7:30	0	0.0046	0.0464	Yes	0.0371	0	No	0.000773		
7/11/2020 8:00	0.00974	0.0143	0.0464	Yes	0.0371	0.000773	Yes	0.000773	TSVL 2882 - SPUR P12 - HORS P823 (21A)	Distribution line (cause: animal)
7/11/2020 8:30	0	0.0143	0.0464	Yes	0.0371	0	No	0.000773		
7/11/2020 9:00	0.00021	0.0145	0.0464	Yes	0.0371	0.00021	No	0.000773	CHEV K30, PAP K09, WSWA K10	Distribution cable and line (cause: crossarm & transformer)
7/11/2020 9:30	0	0.0145	0.0464	Yes	0.0371	0	No	0.000773		
7/11/2020 10:00	0	0.0145	0.0464	Yes	0.0371	0	No	0.000773		

Table 22: SAIFI major event replaced values³⁰

Date and time	SAIFI	SAIFI	SAIFI	Major SAIFI Event	Boundary Value	Normalised SAIFI	Normalised or not	1/48th Boundary Value	Location	Main Equipment & Fault Cause
(half-hour commencing)	(half-hour)	(previous 24-hour)	(max rolling 24-hour)							
7/11/2020 10:30	0	0.0126	0.0464	Yes	0.0371	0	No	0.000773		
7/11/2020 11:00	0	0.0126	0.0464	Yes	0.0371	0	No	0.000773		
7/11/2020 11:30	0	0.0126	0.0464	Yes	0.0371	0	No	0.000773		
7/11/2020 12:00	0	0.0126	0.0464	Yes	0.0371	0	No	0.000773		
7/11/2020 12:30	0	0.0126	0.0464	Yes	0.0371	0	No	0.000773		
7/11/2020 13:00	0	0.0126	0.0464	Yes	0.0371	0	No	0.000773		
7/11/2020 13:30	0	0.0126	0.0464	Yes	0.0371	0	No	0.000773		
7/11/2020 14:00	0	0.0126	0.0464	Yes	0.0371	0	No	0.000773		
7/11/2020 14:30	0	0.0126	0.0464	Yes	0.0371	0	No	0.000773		
7/11/2020 15:00	0	0.0126	0.0464	Yes	0.0371	0	No	0.000773		
7/11/2020 15:30	0	0.0115	0.0464	Yes	0.0371	0	No	0.000773		
7/11/2020 16:00	0	0.0102	0.0464	Yes	0.0371	0	No	0.000773		
7/11/2020 16:30	0	0.0102	0.0464	Yes	0.0371	0	No	0.000773		
7/11/2020 17:00	0	0.0102	0.0464	Yes	0.0371	0	No	0.000773		
7/11/2020 17:30	0	0.0102	0.0464	Yes	0.0371	0	No	0.000773		
7/11/2020 18:00	0	0.0102	0.0464	Yes	0.0371	0	No	0.000773		
7/11/2020 18:30	0	0.0102	0.0464	Yes	0.0371	0	No	0.000773		
7/11/2020 19:00	0	0.0101	0.0464	Yes	0.0371	0	No	0.000773		
7/11/2020 19:30	0	0.0101	0.0464	Yes	0.0371	0	No	0.000773		
7/11/2020 20:00	0	0.0101	0.0464	Yes	0.0371	0	No	0.000773		
7/11/2020 20:30	0	0.0101	0.0464	Yes	0.0371	0	No	0.000773		
7/11/2020 21:00	0	0.0101	0.0464	Yes	0.0371	0	No	0.000773		
7/11/2020 21:30	0.00473	0.0148	0.0464	Yes	0.0371	0.000773	Yes	0.000773	WARK K09	Distribution line (cause: insulator)
7/11/2020 22:00	0.02409	0.0389	0.0464	Yes	0.0371	0.000773	Yes	0.000773	TSVL 2742 - MANL P262 (15) & TSVL 2742 - MANL P262 (15)	Distribution line (cause: vegetation)
7/11/2020 22:30	0.006229	0.0452	0.0464	Yes	0.0371	0.000773	Yes	0.000773	BROW K03, ECOA K04, HVAL K13, SPUR K11	Distribution line (cause: lightning)
7/11/2020 23:00	0.00038	0.0455	0.0464	Yes	0.0371	0.00038	No	0.000773	HVAL K13	Distribution line (cause: connector)
7/11/2020 23:30	0.00002	0.0456	0.0464	Yes	0.0371	0.00002	No	0.000773	SPUR K11	Distribution line (cause: conductor)
8/11/2020 0:00	0.00019	0.0457	0.0464	Yes	0.0371	0.00019	No	0.000773	LAIN K09	Distribution line (cause: vegetation)
8/11/2020 0:30	0	0.0457	0.0464	Yes	0.0371	0	No	0.000773		
8/11/2020 1:00	0.00077	0.0464	0.0464	Yes	0.0371	0.00077	No	0.000773	WAIH K06	Distribution line (cause: vegetation)
8/11/2020 1:30	0	0.0464	0.0464	Yes	0.0371	0	No	0.000773		
8/11/2020 2:00	0	0.0464	0.0464	Yes	0.0371	0	No	0.000773		
8/11/2020 2:30	0	0.0464	0.0464	Yes	0.0371	0	No	0.000773		
8/11/2020 3:00	0	0.0464	0.0464	Yes	0.0371	0	No	0.000773		
8/11/2020 3:30	0	0.0464	0.0464	Yes	0.0371	0	No	0.000773		
8/11/2020 4:00	0	0.0464	0.0464	Yes	0.0371	0	No	0.000773		
8/11/2020 4:30	0	0.0464	0.0464	Yes	0.0371	0	No	0.000773		
8/11/2020 5:00	0	0.0464	0.0464	Yes	0.0371	0	No	0.000773		

Table 22: SAIFI major event replaced values³⁰

Date and time	SAIFI	SAIFI	SAIFI	Major SAIFI Event	Boundary Value	Normalised SAIFI	Normalised or not	1/48th Boundary Value	Location	Main Equipment & Fault Cause
(half-hour commencing)	(half-hour)	(previous 24-hour)	(max rolling 24-hour)							
8/11/2020 5:30	0	0.0464	0.0464	Yes	0.0371	0	No	0.000773		
8/11/2020 6:00	0	0.0464	0.0464	Yes	0.0371	0	No	0.000773		
8/11/2020 6:30	0.00001	0.0464	0.0464	Yes	0.0371	0.00001	No	0.000773	OREW K99	Distribution line (cause: vegetation)
8/11/2020 7:00	0	0.0464	0.0464	Yes	0.0371	0	No	0.000773		
8/11/2020 7:30	0.000003	0.0464	0.0464	Yes	0.0371	0.000003	No	0.000773	TAKA K12	Distribution line (cause: vegetation)
8/11/2020 8:00	0	0.0366	0.0370	No	0.0371	0	No	0.000773		
8/11/2020 8:30	0	0.0366	0.0370	No	0.0371	0	No	0.000773		
8/11/2020 9:00	0.00002	0.0364	0.0370	No	0.0371	0.00002	No	0.000773		
8/11/2020 9:30	0	0.0364	0.0370	No	0.0371	0	No	0.000773		
8/11/2020 10:00	0	0.0364	0.0370	No	0.0371	0	No	0.000773		
8/11/2020 10:30	0.00058	0.0370	0.0370	No	0.0371	0.00058	No	0.000773		
8/11/2020 11:00	0	0.0370	0.0370	No	0.0371	0	No	0.000773		
8/11/2020 11:30	0.00000	0.0370	0.0370	No	0.0371	0.00000	No	0.000773		
8/11/2020 12:00	0	0.0370	0.0370	No	0.0371	0	No	0.000773		
8/11/2020 12:30	0	0.0370	0.0370	No	0.0371	0	No	0.000773		
8/11/2020 13:00	0	0.0370	0.0370	No	0.0371	0	No	0.000773		
8/11/2020 13:30	0	0.0370	0.0370	No	0.0371	0	No	0.000773		
8/11/2020 14:00	0	0.0370	0.0370	No	0.0371	0	No	0.000773		
8/11/2020 14:30	0	0.0370	0.0370	No	0.0371	0	No	0.000773		
8/11/2020 15:00	0	0.0370	0.0370	No	0.0371	0	No	0.000773		
8/11/2020 15:30	0	0.0370	0.0370	No	0.0371	0	No	0.000773		
8/11/2020 16:00	0	0.0370	0.0370	No	0.0371	0	No	0.000773		
8/11/2020 16:30	0	0.0370	0.0370	No	0.0371	0	No	0.000773		
8/11/2020 17:00	0.000002	0.0370	0.0370	No	0.0371	0.000002	No	0.000773		
8/11/2020 17:30	0	0.0370	0.0370	No	0.0371	0	No	0.000773		
8/11/2020 18:00	0	0.0370	0.0370	No	0.0371	0	No	0.000773		
8/11/2020 18:30	0	0.0370	0.0370	No	0.0371	0	No	0.000773		
8/11/2020 19:00	0	0.0370	0.0370	No	0.0371	0	No	0.000773		
8/11/2020 19:30	0	0.0370	0.0370	No	0.0371	0	No	0.000773		
8/11/2020 20:00	0	0.0370	0.0370	No	0.0371	0	No	0.000773		
8/11/2020 20:30	0	0.0370	0.0370	No	0.0371	0	No	0.000773		
8/11/2020 21:00	0	0.0370	0.0370	No	0.0371	0	No	0.000773		
8/11/2020 21:30	0	0.0323	0.0323	No	0.0371	0	No	0.000773		
8/11/2020 22:00	0	0.0082	0.0082	No	0.0371	0	No	0.000773		
8/11/2020 22:30	0	0.0020	0.0035	No	0.0371	0	No	0.000773		
8/11/2020 23:00	0.00004	0.0016	0.0035	No	0.0371	0.00004	No	0.000773		
8/11/2020 23:30	0	0.0016	0.0035	No	0.0371	0	No	0.000773		
9/11/2020 0:00	0.00086	0.0023	0.0035	No	0.0371	0.00086	No	0.000773		
9/11/2020 0:30	0	0.0023	0.0035	No	0.0371	0	No	0.000773		
9/11/2020 1:00	0	0.0015	0.0035	No	0.0371	0	No	0.000773		

Table 22: SAIFI major event replaced values³⁰

Date and time	SAIFI	SAIFI	SAIFI	Major SAIFI Event	Boundary Value	Normalised SAIFI	Normalised or not	1/48th Boundary Value	Location	Main Equipment & Fault Cause
(half-hour commencing)	(half-hour)	(previous 24-hour)	(max rolling 24-hour)							
9/11/2020 1:30	0	0.0015	0.0035	No	0.0371	0	No	0.000773		
9/11/2020 2:00	0	0.0015	0.0035	No	0.0371	0	No	0.000773		
9/11/2020 2:30	0	0.0015	0.0035	No	0.0371	0	No	0.000773		
9/11/2020 3:00	0	0.0015	0.0035	No	0.0371	0	No	0.000773		
9/11/2020 3:30	0	0.0015	0.0035	No	0.0371	0	No	0.000773		
9/11/2020 4:00	0	0.0015	0.0035	No	0.0371	0	No	0.000773		
9/11/2020 4:30	0	0.0015	0.0035	No	0.0371	0	No	0.000773		
9/11/2020 5:00	0	0.0015	0.0035	No	0.0371	0	No	0.000773		
9/11/2020 5:30	0	0.0015	0.0035	No	0.0371	0	No	0.000773		
9/11/2020 6:00	0	0.0015	0.0035	No	0.0371	0	No	0.000773		
9/11/2020 6:30	0	0.0015	0.0035	No	0.0371	0	No	0.000773		
9/11/2020 7:00	0.00009	0.0016	0.0035	No	0.0371	0.00009	No	0.000773		
9/11/2020 7:30	0	0.0016	0.0035	No	0.0371	0	No	0.000773		
Totals for Major Event from 06/11 22:30 to 8/11 8:00	0.047					0.005				