

# Gas Distribution Services 2019 Compliance Statement

For the assessment period  
1 October 2018 - 30 September 2019

2 December 2019



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## **1. INTRODUCTION**

### **1.1 Background**

The 2019 assessment period is the second assessment period of the Gas Distribution Services Default Price-Quality Path Determination 2017 (“the Determination”) and covers the 12 months to 30 September 2019.

This Compliance Statement (“Statement”) is submitted by Vector Limited (“Vector”) pursuant to clause 11 of the Determination.

The Determination is issued pursuant to Part 4 of the Commerce Act 1986 and requires Gas Distribution Businesses (“GDBs”) to provide information to the Commerce Commission (“Commission”) relevant to the assessment of their performance against the price path and quality standards.

Under clause 8 of the Determination a GDB’s notional revenue must not exceed the allowable notional revenue for the 2019 assessment period.

Under clause 9 of the Determination a GDB must comply with the annual quality assessment formula for Response Time to Emergencies (“RTE”) over the 2019 assessment period.

The Statement has been completed on 2 December 2019 and is published on 10 December 2019.

### **1.2 Statement of compliance**

As required by clause 11.2(a) of the Determination, this Statement confirms Vector’s compliance with the price path in clause 8 set for Vector and the quality standards in clause 9 in respect of the 2019 assessment period.

With reference to clause 11.4 of the Determination, this Statement confirms that Vector has not undertaken a Restructure of Prices during the 2019 assessment period or the preceding assessment period.

With reference to clause 11.5 of the Determination, this Statement confirms that no Amalgamation, Merger, Transfer or Major Transaction has occurred in the 2019 assessment period.

### 1.3 Disclaimer

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 the Statement for any other purpose.

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

## 2. PRICE PATH

### 2.1 Introduction

In this section Vector demonstrates that it has complied with the price path requirements in clause 8 of the Determination and provides the information to support the statement of compliance.

Interested parties may refer to Vector's Pricing Methodology where we have set out in detail our methodology used to calculate our prices.<sup>1</sup>

### 2.2 Price path compliance (clause 8 of the Determination)

As required by clause 8 of the Determination, in order to demonstrate compliance with the price path, Vector must demonstrate that the notional revenue is less than the allowable notional revenue for the 2019 assessment period.

As outlined in Table 1 below, Vector complies with the price path, in accordance with clause 8.3 of the Determination.

Table 1: Vector price path compliance 2019		
<b>Formula:</b> $NR_{2019} \leq ANR_{2019}$		
Component	Description	Value (\$000)
NR <sub>2019</sub>	2019 notional revenue <sup>2</sup>	44,061
ANR <sub>2019</sub>	2019 allowable notional revenue <sup>3</sup>	44,062
<b>Result (\$000):</b>		<b>\$44,061 ≤ \$44,062</b>

The calculation of notional revenue for the 2019 assessment period is set out in clause 8.4(a) of the Determination and presented with Vector values in Table 2 below.

<sup>1</sup> <https://www.vector.co.nz/about-us/regulatory/disclosures-gas/pricing-methodology>

<sup>2</sup> Details of NR<sub>2019</sub> are included in Table 2.

<sup>3</sup> Details of ANR<sub>2019</sub> are included in Table 3.

Table 2: Notional revenue 2019		
<b>Formula:</b> $NR_{2019} = \sum P_{i,2019} Q_{i,2017} - (K_{2019} + V_{2019})$		
Component	Description	Value (\$000)
$\sum P_{i,2019} Q_{i,2017}$	Prices 2019 x lagged quantities 2017 <sup>4</sup>	45,801
- $K_{2019}$	Pass-through costs 2019 <sup>5</sup>	(1,740)
- $V_{2019}$	Recoverable costs 2019 <sup>5</sup>	-
<b>NR<sub>2019</sub>:</b>	<b>Notional revenue 2019</b>	<b>44,061</b>

The calculation of allowable notional revenue for the 2019 assessment period is set out in Schedule 4 (Equation 2) of the Determination and presented with Vector values in Table 3 below.

Table 3: Allowable notional revenue 2019		
<b>Formula:</b> $ANR_{2019} = \{\sum P_{i,2018} Q_{i,2017} - (K_{2018} + V_{2018}) + (ANR_{2018} - NR_{2018})\}(1 + \Delta CPI_{2019})(1 - X)$		
Component	Description	Value (\$000)
$\sum P_{i,2018} Q_{i,2017}$	Prices 2018 x lagged quantities 2017 <sup>6</sup>	46,317
- $K_{2018}$	Pass-through costs 2018 <sup>7</sup>	(2,990)
- $V_{2018}$	Recoverable costs 2018 <sup>7</sup>	-
$ANR_{2018}$	Allowable Notional Revenue 2018 <sup>7</sup>	42,224
- $NR_{2018}$	Notional Revenue 2018 <sup>7</sup>	(42,175)
$\Delta CPI_{2019}$	2018 base inflated by CPI 2019 ( $\Delta CPI_{2019} = 0.0158$ ) <sup>8</sup>	686
X	Rate of change ( $X = 0\%$ ) <sup>9</sup>	-
<b>ANR<sub>2019</sub>:</b>	<b>Allowable notional revenue 2019</b>	<b>44,062</b>

<sup>4</sup> Details of  $\sum P_{i,2019} Q_{i,2017}$  are included in Appendix 1.

<sup>5</sup> Details of  $K_{2019}$  and  $V_{2019}$  are included in Table 5.

<sup>6</sup> Details of  $\sum P_{i,2018} Q_{i,2017}$  are included in Appendix 1.

<sup>7</sup> Details of  $K_{2018}$ ,  $V_{2018}$ ,  $ANR_{2018}$  and  $NR_{2018}$  are from the 2018 Compliance Statement available at <https://www.vector.co.nz/about-us/regulatory/disclosures-gas/price-quality>.

<sup>8</sup> Details of the Consumer Price Index (CPI) are sourced from Statistics NZ, <http://www.stats.govt.nz/infoshare/>,  $\Delta CPI_{2019}$  are included in Table 4.

<sup>9</sup> X is set out in Schedule 2 of the Determination.

**Table 4:  $\Delta\text{CPI}_{2019}$**

<b>Formula:</b> $\Delta\text{CPI}_{2019} = \left( \frac{\text{CPI}_{\text{Jun},2017} + \text{CPI}_{\text{Sep},2017} + \text{CPI}_{\text{Dec},2017} + \text{CPI}_{\text{Mar},2018}}{\text{CPI}_{\text{Jun},2016} + \text{CPI}_{\text{Sep},2016} + \text{CPI}_{\text{Dec},2016} + \text{CPI}_{\text{Mar},2017}} \right) - 1$			
$\text{CPI}_{\text{Jun},2017}$	1,000.0	$\text{CPI}_{\text{Jun},2016}$	982.9
$\text{CPI}_{\text{Sep},2017}$	1,004.9	$\text{CPI}_{\text{Sep},2016}$	986.1
$\text{CPI}_{\text{Dec},2017}$	1,006.0	$\text{CPI}_{\text{Dec},2016}$	990.2
$\text{CPI}_{\text{Mar},2018}$	1,011.0	$\text{CPI}_{\text{Mar},2017}$	1,000.0
<b>Total</b>	<b>4,021.9</b>	<b>Total</b>	<b>3,959.2</b>
<b><math>\Delta\text{CPI}_{2019}</math></b>	<b><math>(4,021.9 / 3,959.2) - 1</math></b>		<b>0.0158</b>

### 2.3 Pass-through costs and recoverable costs

Notional revenue includes the recovery of pass-through costs paid during the 2018 and 2019 assessment periods. These costs have been determined in accordance with Schedule 5 of the Determination which sets out the process for determining the amount of pass-through costs and recoverable costs for an assessment period.

There were no recoverable costs applicable to Vector therefore none were recovered in the 2019 assessment period.

All costs include the time value of money adjustments, which has been calculated in accordance with Clause 4.1 and Equation 3 in Schedule 5 of the Determination and uses a discount rate of 4.76%.

The pass-through costs for Vector for the 2019 assessment period, along with the period they were paid and when they relate to, are presented in Table 5 below.

**Table 5: Pass-through costs K<sub>2019</sub>**

Component (\$000s)	Paid in assessment period 2018	Paid in assessment period 2019	Time value of money adjustment	K <sub>2019</sub>
Local Authority Rates (y/e Jun-19)	354	1,063	17	1,434
Commerce Act Levy – wash-up refund (y/e Jun-17)	(85)	-	(4)	(89)
Commerce Act Levy (y/e Jun-18)	319	-	15	334
Utility Disputes Levy (y/e Mar-19)	58	-	3	61
<b>Pass-through costs K<sub>2019</sub></b>	<b>646</b>	<b>1,063</b>	<b>31</b>	<b>1,740</b>

### 3. QUALITY STANDARDS

#### 3.1 Introduction

In this section Vector demonstrates that the quality standards in clause 9 of the Determination have been complied with. Vector has provided information to support the statement of compliance including: relevant incident data (Appendix 2) and calculations, a description of the policies and procedures used for recording 'response time to emergencies' ('RTE') statistics and a statement confirming that there were no excluded RTE values over the assessment period.

#### 3.2 RTE results for the assessment period

To comply with the quality standards Vector must respond to at least 80% of emergencies within 60 minutes (RTE 60) and all emergencies within 180 minutes (RTE 180).

Emergencies are defined as an unplanned escape or ignition of gas that requires the active involvement of any emergency service such as fire service or ambulance; an unplanned disruption in the supply of gas that affects more than five ICP's; or an evacuation of premises as the result of escape or ignition of gas.

Emergencies may be excluded from the database if the Commission has granted an exclusion in writing. Vector has not requested any emergencies be excluded for the 2019 assessment period.

Vector has complied with the quality standards requirements for RTE 60 and RTE 180 for the 2019 assessment period and the results are presented in Tables 6 and 7 below.

Table 6: RTE <sub>60</sub> results 2019		
<b>Formula:</b> $RTE_{2019} = RTE_{60} / RTE_t$		
Component	Description	Value
RTE <sub>60</sub>	Total number of emergencies in the assessment period where Vector's RTE was less than or equal to 60 minutes	93
RTE <sub>t</sub>	Total number of emergencies in the assessment period	96
<b>Result (2019):</b>		<b>RTE<sub>2019</sub> = 97%</b>



Table 7: RTE <sub>180</sub> results 2019		
<b>Formula:</b> $RTE_{2019} = RTE_{180} / RTE_t$		
Component	Description	Value
RTE <sub>180</sub>	Total number of emergencies in the assessment period where Vector's RTE was less than or equal to 180 minutes	96
RTE <sub>t</sub>	Total number of emergencies in the assessment period	96
<b>Result (2019):</b>		<b>RTE<sub>2019</sub> = 100%</b>

### 3.3 Policies and procedures for recording the RTE statistics

Vector employs contracted service providers to undertake data capture activities on the gas distribution network. The service providers manage data in accordance with Vector's requirements as defined in the Vector standard GSD004 (standard for Gas Distribution Network Reliability, Integrity and Consumer Service).

Gas distribution network performance and consumer service data is captured by the service providers using three methods:

1. Remotely, entered into Vector's Customer Management System (CMS);
2. Electronically via hand-held tablets in the field. Data from the hand-held tablets is automatically uploaded into Vector's CMS; and
3. If the electronic data capture systems are not available, data is recorded on paper logs and reports, scanned and entered as an attachment into Vector's CMS.

Data entered in Vector's CMS system by one of the above methods is quality checked by the service provider for accuracy, before undergoing additional quality assurance checks by Vector personnel.

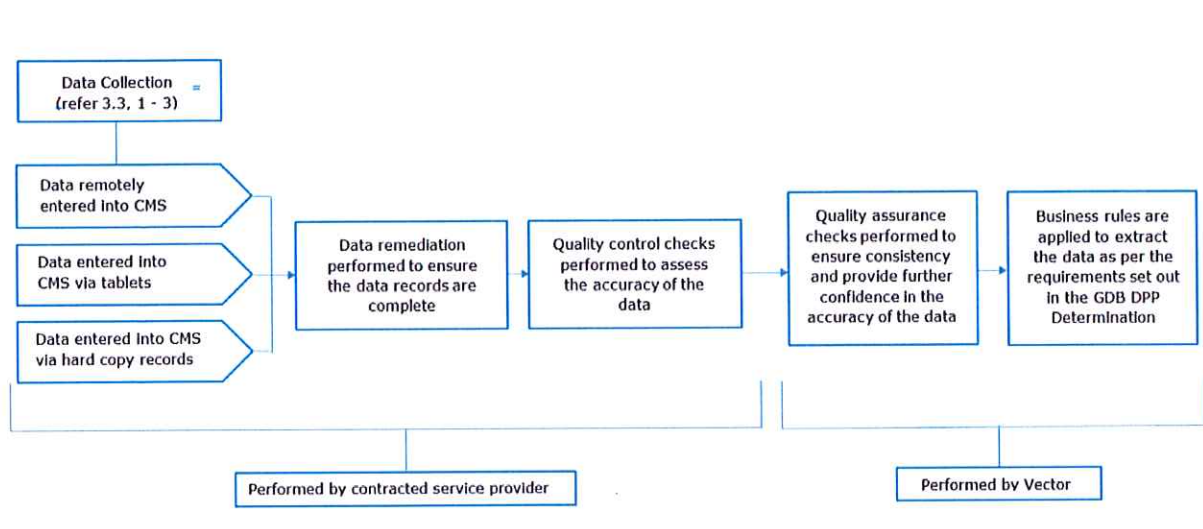
RTE statistics are calculated (in line with the definition of RTE in the Determination) for each event and the data is retained in the database for ongoing reporting and analysis.

RTE performance is monitored monthly. All RTE events exceeding a 60 minutes response time are investigated with the service providers.



Figure 1 details the data collection, quality control / assurance and information development stages completed to generate the required information for disclosure.

**Figure 1: Data collection and information development process for Vector**



## Appendix 1: Published charges and details of $P_{i,2018}$ $Q_{i,2017}$ & $P_{i,2019}$ $Q_{i,2017}$

### Summary of $P_{i,2018}$ $Q_{i,2017}$ and $P_{i,2019}$ $Q_{i,2017}$ for the 2019 assessment period

Charges for the 2018 and 2019 assessment periods	$P_{i,2018}$ $Q_{i,2017}$	$P_{i,2019}$ $Q_{i,2017}$
Standard charges	\$ 42,156,131	\$ 41,754,420
Scaling charges	\$ 381,289	\$ 374,225
Non-standard charges	\$ 3,779,275	\$ 3,672,632
Total charges	\$ 46,316,695	\$ 45,801,277

### Standard charges

There are six gas distribution price plans, one each for residential and general and two each for commercial and industrial consumers. The choice of price plan depends on the consumer's maximum flow rate of their connection (and their annual consumption for industrial consumers).

Each price category has two price components: a fixed daily price (\$/day) and a variable volumetric price (\$/kWh). The majority of consumers' meters are simple and record consumers' total use over monthly or two-monthly meter-reading cycles. These meters do not record the time of use or maximum demand. Having consumer consumption information limited to monthly intervals (at best) limits our pricing structures to simple daily and volume components.

#### Residential

Price plan	Code	Description	Units	$Q_{i,2017}$	$P_{i,2018}$	$P_{i,2019}$	$P_{i,2018}$ $Q_{i,2017}$	$P_{i,2019}$ $Q_{i,2017}$
GA0R	GA0R-FIXD	Fixed	\$/day	36,411,100	\$ 0.35	\$ 0.35	\$ 12,743,885	\$ 12,743,885
GA0R	GA0R-24UC	Variable	\$/kWh	642,803,721	\$ 0.0199	\$ 0.0195	\$ 12,791,794	\$ 12,534,673

#### General

Price plan	Code	Description	Units	$Q_{i,2017}$	$P_{i,2018}$	$P_{i,2019}$	$P_{i,2018}$ $Q_{i,2017}$	$P_{i,2019}$ $Q_{i,2017}$
GA01	GA01-FIXD	Fixed	\$/day	865,845	\$ 0.63	\$ 0.63	\$ 545,482	\$ 545,482
GA01	GA01-24UC	Variable	\$/kWh	77,848,663	\$ 0.0125	\$ 0.0123	\$ 973,108	\$ 957,539

#### Commercial

Price plan	Code	Description	Units	$Q_{i,2017}$	$P_{i,2018}$	$P_{i,2019}$	$P_{i,2018}$ $Q_{i,2017}$	$P_{i,2019}$ $Q_{i,2017}$
GA02	GA02-FIXD	Fixed	\$/day	1,011,577	\$ 1.12	\$ 1.12	\$ 1,132,966	\$ 1,132,966
GA02	GA02-24UC	Variable	\$/kWh	269,623,117	\$ 0.0101	\$ 0.0100	\$ 2,723,193	\$ 2,696,231
GA03	GA03-FIXD	Fixed	\$/day	339,802	\$ 4.79	\$ 4.79	\$ 1,627,652	\$ 1,627,652
GA03	GA03-24UC	Variable	\$/kWh	558,990,623	\$ 0.0078	\$ 0.0077	\$ 4,360,127	\$ 4,304,228

#### Industrial

Price plan	Code	Description	Units	$Q_{i,2017}$	$P_{i,2018}$	$P_{i,2019}$	$P_{i,2018}$ $Q_{i,2017}$	$P_{i,2019}$ $Q_{i,2017}$
GA04	GA04-FIXD	Fixed	\$/day	50,949	\$ 14.70	\$ 14.70	\$ 748,950	\$ 748,950
GA04	GA04-24UC	Variable	\$/kWh	461,584,292	\$ 0.0052	\$ 0.0051	\$ 2,400,238	\$ 2,354,080
GA05	GA05-FIXD	Fixed	\$/day	6,935	\$ 203.00	\$ 203.00	\$ 1,407,805	\$ 1,407,805
GA05	GA05-24UC	Variable	\$/kWh	637,208,306	\$ 0.0011	\$ 0.0011	\$ 700,929	\$ 700,929

## Network scaling

Gas volumes are scaled to match the system's actual gas gate meter reads and those of the retailer provided ICP level data.

Price plan	Code	Description	Units	$Q_i, 2017$	$P_i, 2018$	$P_i, 2019$	$P_i, 2018 Q_i, 2017$	$P_i, 2019 Q_i, 2017$
GA0R	GA0R-24UC	Variable	\$/kWh	15,228,370	\$ 0.0199	\$ 0.0195	\$ 303,045	\$ 296,953
GA01	GA01-24UC	Variable	\$/kWh	258,868	\$ 0.0125	\$ 0.0123	\$ 3,236	\$ 3,184
GA02	GA02-24UC	Variable	\$/kWh	2,939,208	\$ 0.0101	\$ 0.0100	\$ 29,686	\$ 29,392
GA03	GA03-24UC	Variable	\$/kWh	5,490,515	\$ 0.0078	\$ 0.0077	\$ 42,826	\$ 42,277
GA04	GA04-24UC	Variable	\$/kWh	784,347	\$ 0.0052	\$ 0.0051	\$ 4,079	\$ 4,000
GA05	GA05-24UC	Variable	\$/kWh	(1,438,060)	\$ 0.0011	\$ 0.0011	(\$ 1,582)	(\$ 1,582)

## Non-standard charges

Like the standard charges, each non-standard consumer has a fixed daily and variable volumetric price.

Code	Description	Units	Qi, 2017	Pi, 2018	Pi, 2019	Pi, 2018 Qi, 2017	Pi, 2019 Qi, 2017
VTA19001	Fixed	\$/day	365	\$ 688.49	\$ 699.39	\$ 251,299	\$ 255,277
VTA19002	Fixed	\$/day	365	\$ 132.82	\$ 134.93	\$ 48,479	\$ 49,249
VTA19003	Fixed	\$/day	365	\$ 104.03	\$ 114.44	\$ 37,971	\$ 41,771
VTA19004	Fixed	\$/day	365	\$ 111.65	\$ 14.70	\$ 40,752	\$ 5,366
VTA19005	Fixed	\$/day	365	\$ 14.70	\$ 14.70	\$ 5,366	\$ 5,366
VTA19006	Fixed	\$/day	365	\$ 203.00	\$ 203.00	\$ 74,095	\$ 74,095
VTA19007	Fixed	\$/day	365	\$ 203.00	\$ 203.00	\$ 74,095	\$ 74,095
VTA19008	Fixed	\$/day	365	\$ 14.70	\$ 14.70	\$ 5,366	\$ 5,366
VTA19009	Fixed	\$/day	365	\$ 65.73	\$ 14.70	\$ 23,991	\$ 5,366
VTA19010	Fixed	\$/day	365	\$ 203.00	\$ 203.00	\$ 74,095	\$ 74,095
VTA19011	Fixed	\$/day	365	\$ 32.45	\$ 35.70	\$ 11,844	\$ 13,031
VTA19012	Fixed	\$/day	365	\$ 153.69	\$ 156.13	\$ 56,097	\$ 56,987
VTA19013	Fixed	\$/day	365	\$ 58.65	\$ 64.52	\$ 21,407	\$ 23,550
VTA19014	Fixed	\$/day	365	\$ 14.70	\$ 14.70	\$ 5,366	\$ 5,366
VTA19015	Fixed	\$/day	365	\$ 103.77	\$ 105.58	\$ 37,876	\$ 38,537
VTA19016	Fixed	\$/day	365	\$ 1,572.00	\$ 1,572.00	\$ 573,780	\$ 573,780
VTA19017	Fixed	\$/day	365	\$ 14.70	\$ 14.70	\$ 5,366	\$ 5,366
VTA19018	Fixed	\$/day	31	\$ 48.40	\$ -	\$ 1,500	\$ -
VTA19019	Fixed	\$/day	319	\$ -	\$ -	\$ -	\$ -
VTA19020	Fixed	\$/day	15	\$ -	\$ 1.12	\$ -	\$ 17
VTA19021	Fixed	\$/day	365	\$ 196.81	\$ 203.00	\$ 71,836	\$ 74,095
VTA19022	Fixed	\$/day	23	\$ 203.00	\$ 203.00	\$ 4,669	\$ 4,669
VTA19023	Fixed	\$/day	342	\$ 203.00	\$ -	\$ 69,426	\$ -
VTA19024	Fixed	\$/day	261	\$ 74.32	\$ -	\$ 19,398	\$ -
VTA19025	Fixed	\$/day	104	\$ -	\$ -	\$ -	\$ -
VTA19026	Fixed	\$/day	365	\$ 179.39	\$ 197.33	\$ 65,477	\$ 72,025
VTA19027	Fixed	\$/day	365	\$ 14.70	\$ 14.70	\$ 5,366	\$ 5,366
VTA19028	Fixed	\$/day	365	\$ 103.77	\$ 105.58	\$ 37,876	\$ 38,537
VTA19029	Fixed	\$/day	150	\$ -	\$ -	\$ -	\$ -
VTA19030	Fixed	\$/day	365	\$ 103.77	\$ 105.58	\$ 37,876	\$ 38,537
VTA19031	Fixed	\$/day	365	\$ 111.34	\$ 113.11	\$ 40,639	\$ 41,285
VTA19032	Fixed	\$/day	365	\$ 14.70	\$ 14.70	\$ 5,366	\$ 5,366
VTA19033	Fixed	\$/day	365	\$ 103.77	\$ 105.58	\$ 37,876	\$ 38,537
VTA19034	Fixed	\$/day	365	\$ 16.24	\$ 14.70	\$ 5,928	\$ 5,366
VTA19035	Fixed	\$/day	365	\$ 181.24	\$ 184.11	\$ 66,153	\$ 67,200
VTA19036	Fixed	\$/day	365	\$ 175.91	\$ 178.70	\$ 64,207	\$ 65,226
VTA19037	Fixed	\$/day	183	\$ -	\$ -	\$ -	\$ -
VTA19038	Fixed	\$/day	365	\$ 104.71	\$ 106.37	\$ 38,219	\$ 38,825
VTA19039	Fixed	\$/day	365	\$ 66.04	\$ 67.09	\$ 24,105	\$ 24,488
VTA19040	Fixed	\$/day	365	\$ 14.70	\$ 14.70	\$ 5,366	\$ 5,366
VTA19041	Fixed	\$/day	365	\$ 27.47	\$ 27.91	\$ 10,027	\$ 10,187
VTA19042	Fixed	\$/day	365	\$ 1,787.86	\$ 1,739.88	\$ 652,569	\$ 635,056
VTA19043	Fixed	\$/day	365	\$ 914.40	\$ 882.13	\$ 333,756	\$ 321,977
VTA19044	Fixed	\$/day	365	\$ 420.42	\$ 427.08	\$ 153,453	\$ 155,884
VTA19045	Fixed	\$/day	38,686,208	\$ -	\$ -	\$ -	\$ -



Code	Description	Units	Qi, 2017	Pi, 2018	Pi, 2019	Pi, 2018 Qi, 2017	Pi, 2019 Qi, 2017
VTA19001	Variable	\$/kWh	340,679,760	\$ 0.0002	\$ 0.0002	\$ 68,136	\$ 68,136
VTA19002	Variable	\$/kWh	25,924,559	\$ 0.0004	\$ 0.0004	\$ 10,370	\$ 10,370
VTA19003	Variable	\$/kWh	12,693,598	\$ 0.0009	\$ 0.0010	\$ 11,424	\$ 12,694
VTA19004	Variable	\$/kWh	6,436,561	\$ -	\$ 0.0051	\$ -	\$ 32,826
VTA19005	Variable	\$/kWh	10,991,258	\$ 0.0052	\$ 0.0051	\$ 57,155	\$ 56,055
VTA19006	Variable	\$/kWh	22,104,009	\$ 0.0011	\$ 0.0011	\$ 24,314	\$ 24,314
VTA19007	Variable	\$/kWh	19,619,687	\$ 0.0011	\$ 0.0011	\$ 21,582	\$ 21,582
VTA19008	Variable	\$/kWh	1,902,397	\$ 0.0052	\$ 0.0051	\$ 9,892	\$ 9,702
VTA19009	Variable	\$/kWh	5,353,565	\$ 0.0011	\$ 0.0051	\$ 5,889	\$ 27,303
VTA19010	Variable	\$/kWh	72,126,094	\$ 0.0011	\$ 0.0011	\$ 79,339	\$ 79,339
VTA19011	Variable	\$/kWh	5,015,918	\$ 0.0004	\$ 0.0004	\$ 2,006	\$ 2,006
VTA19012	Variable	\$/kWh	34,586,061	\$ 0.0004	\$ 0.0004	\$ 13,834	\$ 13,834
VTA19013	Variable	\$/kWh	5,189,973	\$ 0.0010	\$ 0.0011	\$ 5,190	\$ 5,709
VTA19014	Variable	\$/kWh	10,815,278	\$ 0.0052	\$ 0.0051	\$ 56,239	\$ 55,158
VTA19015	Variable	\$/kWh	87,801	\$ 0.001008	\$ 0.001026	\$ 89	\$ 90
VTA19016	Variable	\$/kWh	150,206,524	\$ -	\$ -	\$ -	\$ -
VTA19017	Variable	\$/kWh	6,817,952	\$ 0.0052	\$ 0.0051	\$ 35,453	\$ 34,772
VTA19018	Variable	\$/kWh	408,356	\$ 0.0012	\$ -	\$ 490	\$ -
VTA19019	Variable	\$/kWh	4,081,265	\$ -	\$ -	\$ -	\$ -
VTA19020	Variable	\$/kWh	167,293	\$ -	\$ 0.0100	\$ -	\$ 1,673
VTA19021	Variable	\$/kWh	22,886,314	\$ 0.0009	\$ 0.0011	\$ 20,598	\$ 25,175
VTA19022	Variable	\$/kWh	238,113	\$ 0.0011	\$ 0.0011	\$ 262	\$ 262
VTA19023	Variable	\$/kWh	3,401,561	\$ 0.0011	\$ -	\$ 3,742	\$ -
VTA19024	Variable	\$/kWh	4,349,950	\$ 0.0010	\$ -	\$ 4,350	\$ -
VTA19025	Variable	\$/kWh	1,778,951	\$ -	\$ -	\$ -	\$ -
VTA19026	Variable	\$/kWh	18,801,629	\$ 0.0009	\$ 0.0010	\$ 16,921	\$ 18,802
VTA19027	Variable	\$/kWh	10,124,711	\$ 0.0052	\$ 0.0051	\$ 52,648	\$ 51,636
VTA19028	Variable	\$/kWh	38,515,911	\$ 0.001008	\$ 0.001026	\$ 38,824	\$ 39,517
VTA19029	Variable	\$/kWh	1,069,398	\$ -	\$ -	\$ -	\$ -
VTA19030	Variable	\$/kWh	15,184,816	\$ 0.001008	\$ 0.001026	\$ 15,306	\$ 15,580
VTA19031	Variable	\$/kWh	74,481,407	\$ 0.0002	\$ 0.0002	\$ 14,896	\$ 14,896
VTA19032	Variable	\$/kWh	10,853,141	\$ 0.0052	\$ 0.0051	\$ 56,436	\$ 55,351
VTA19033	Variable	\$/kWh	12,952,644	\$ 0.001008	\$ 0.001026	\$ 13,056	\$ 13,289
VTA19034	Variable	\$/kWh	240,036	\$ 0.0028	\$ 0.0051	\$ 672	\$ 1,224
VTA19035	Variable	\$/kWh	18,931,782	\$ 0.0010	\$ 0.0010	\$ 18,932	\$ 18,932
VTA19036	Variable	\$/kWh	14,887,164	\$ -	\$ -	\$ -	\$ -
VTA19037	Variable	\$/kWh	-	\$ -	\$ -	\$ -	\$ -
VTA19038	Variable	\$/kWh	30,145,876	\$ 0.0003	\$ 0.0003	\$ 9,044	\$ 9,044
VTA19039	Variable	\$/kWh	6,887,502	\$ 0.0008	\$ 0.0008	\$ 5,510	\$ 5,510
VTA19040	Variable	\$/kWh	1,604,667	\$ 0.0052	\$ 0.0051	\$ 8,344	\$ 8,184
VTA19041	Variable	\$/kWh	13,596,112	\$ -	\$ -	\$ -	\$ -
VTA19042	Variable	\$/kWh	42,332,007	\$ -	\$ -	\$ -	\$ -
VTA19043	Variable	\$/kWh	129,747,250	\$ -	\$ -	\$ -	\$ -
VTA19044	Variable	\$/kWh	80,771,016	\$ -	\$ -	\$ -	\$ -
VTA19045	Variable	\$/kWh	2,648,058,721	\$ -	(\$ 0.000006)	\$ -	(\$ 15,000)

## Appendix 2: RTE incident data

Service Request Number	Service Request Opened Date	Emergency Services On-Site	Building Evacuated	Fault Found	Confirmed Escape	No Customers Affected	Emergency	Equipment Involved	Fault Detection	Response Time (minutes)	Responded to within 60 minutes
1-3119862199	2018-10-04 16:41:49	Y	N	Y	Y	1	Y	Riser Pipe	Emergency Services	38	Y
1-3127123449	2018-10-10 10:45:06	Y	N	Y	Y	0	Y	Service Pipe	Third Party Contractor	39	Y
1-3131774691	2018-10-12 16:25:45	Y	N	Y	Y	1	Y	Service Pipe	Emergency Services	45	Y
1-3131757136	2018-10-13 09:58:33	Y	N	Y	Y	0	Y	Riser Pipe	Emergency Services	41	Y
1-3132734450	2018-10-15 08:51:03	Y	N	Y	Y	0	Y	Mains Pipe	Third Party Contractor	38	Y
1-3138812752	2018-10-18 14:47:22	Y	N	Y	Y	0	Y	Riser Pipe	Emergency Services	36	Y
1-3148158151	2018-10-25 16:41:55	Y	N	Y	Y	1	Y	Riser Pipe	On Site (Vector Contractor)	63	N
1-3154445864	2018-10-30 08:55:14	Y	N	Y	Y	1	Y	Mains Pipe	Emergency Services	39	Y
1-3155472821	2018-10-30 18:34:57	Y	N	Y	Y	0	Y	Service Fitting	Emergency Services	27	Y
1-3163258709	2018-11-02 15:01:11	Y	N	Y	Y	0	Y	Service Pipe	Emergency Services	58	Y
1-3166417978	2018-11-06 11:52:01	Y	Y	Y	Y	1	Y	Service Pipe	Emergency Services	16	Y
1-3168609881	2018-11-07 09:21:43	Y	N	Y	Y	1	Y	Service Pipe	Third Party Contractor	44	Y
1-3172890373	2018-11-10 10:39:52	Y	N	Y	Y	0	Y	Service Fitting	Third Party Contractor	22	Y
1-3181116351	2018-11-16 10:14:39	Y	N	Y	Y	1	Y	Service Pipe	Emergency Services	27	Y
1-3198437814	2018-11-28 11:46:02	Y	N	Y	Y	0	Y	Service Pipe	Customer/General Public	40	Y
1-3199492324	2018-11-28 15:54:47	Y	N	Y	Y	1	Y	Service Pipe	Retailer	60	Y
1-3208462731	2018-12-04 14:02:02	Y	N	Y	Y	0	Y	Service Pipe	Emergency Services	36	Y
1-3208462715	2018-12-04 14:28:51	N	Y	Y	Y	0	Y	Mains Pipe	Customer/General Public	44	Y

Service Request Number	Service Request Opened Date	Emergency Services On-Site	Building Evacuated	Fault Found	Confirmed Escape	No Customers Affected	Emergency	Equipment Involved	Fault Detection	Response Time (minutes)	Responded to within 60 minutes
1-3212922904	2018-12-06 11:43:04	Y	N	Y	Y	0	Y	Mains Pipe	Third Party Contractor	21	Y
1-3217082106	2018-12-10 14:36:56	Y	N	Y	Y	0	Y	Mains Pipe	Emergency Services	36	Y
1-3219301300	2018-12-12 05:37:10	Y	Y	Y	Y	1	Y	Service Pipe	Emergency Services	56	Y
1-3226147585	2018-12-17 14:07:54	Y	N	Y	Y	1	Y	Service Pipe	Third Party Contractor	26	Y
1-3227284981	2018-12-18 09:19:08	Y	N	Y	Y	1	Y	Riser Pipe	Third Party Contractor	32	Y
1-3245802154	2019-01-04 09:38:20	Y	N	Y	Y	1	Y	Service Pipe	Emergency Services	48	Y
1-3248609241	2019-01-07 15:09:19	Y	N	Y	Y	0	Y	Service Fitting	Emergency Services	43	Y
1-3252672052	2019-01-10 08:48:58	Y	N	Y	Y	1	Y	Service Pipe	Customer/General Public	40	Y
1-3261146134	2019-01-17 10:23:13	Y	N	Y	Y	2	Y	Service Pipe	Third Party Contractor	21	Y
1-3263963426	2019-01-21 14:25:47	Y	N	Y	Y	1	Y	Service Pipe	Third Party Contractor	52	Y
1-3266102407	2019-01-22 08:40:25	Y	N	Y	Y	0	Y	Mains Pipe	Third Party Contractor	34	Y
1-3269092156	2019-01-23 13:15:20	Y	N	Y	Y	3	Y	Service Pipe	Third Party Contractor	46	Y
1-3271852544	2019-01-25 14:58:28	Y	N	Y	Y	1	Y	Riser Pipe	Emergency Services	26	Y
1-3276920848	2019-01-29 14:05:09	Y	N	Y	Y	1	Y	Service Pipe	Customer/General Public	31	Y
1-3280100651	2019-01-31 13:57:43	Y	N	Y	Y	1	Y	Riser Crimp	Emergency Services	28	Y
1-3285002042	2019-02-04 13:02:41	Y	N	Y	Y	2	Y	Mains Pipe	Emergency Services	35	Y
1-3285279771	2019-02-04 14:29:12	Y	N	Y	Y	1	Y	Service Pipe	Customer/General Public	35	Y
1-3289121003	2019-02-07 18:03:06	Y	N	Y	Y	1	Y	Service Pipe	Customer/General Public	38	Y
1-3289142906	2019-02-08 10:43:14	Y	N	Y	Y	1	Y	Riser Pipe	Emergency Services	18	Y
1-3293180908	2019-02-12 08:28:19	Y	N	Y	Y	0	Y	Mains Pipe	Third Party Contractor	30	Y

Service Request Number	Service Request Opened Date	Emergency Services On-Site	Building Evacuated	Fault Found	Confirmed Escape	No Customers Affected	Emergency	Equipment Involved	Fault Detection	Response Time (minutes)	Responded to within 60 minutes
1-3299136148	2019-02-15 16:02:59	Y	N	Y	Y	0	Y	Service Pipe	Customer/General Public	55	Y
1-3299061054	2019-02-16 03:56:00	Y	N	Y	Y	0	Y	Mains Pipe	Emergency Services	32	Y
1-3317150029	2019-02-28 22:23:30	Y	N	Y	Y	75	Y	Mains Pipe	Emergency Services	51	Y
1-3320803668	2019-03-02 11:30:17	Y	N	Y	Y	2	Y	Service Pipe	Customer/General Public	27	Y
1-3332475351	2019-03-12 16:32:06	Y	N	Y	Y	0	Y	Service Fitting	Emergency Services	52	Y
1-3344646106	2019-03-18 10:17:13	Y	N	Y	Y	0	Y	Service Pipe	Emergency Services	41	Y
1-3346281006	2019-03-19 11:18:45	Y	N	Y	Y	24	Y	Service Pipe	Customer/General Public	30	Y
1-3346752968	2019-03-19 12:26:10	Y	N	Y	Y	1	Y	Service Pipe	Emergency Services	43	Y
1-3362480160	2019-03-25 15:54:42	Y	N	Y	Y	1	Y	Service Pipe	Customer/General Public	65	N
1-3368772396	2019-03-26 16:04:48	Y	N	Y	Y	1	Y	Service Pipe	Emergency Services	33	Y
1-3369755655	2019-03-27 21:32:26	Y	Y	Y	Y	1	Y	Riser Valve	Emergency Services	42	Y
1-3373087297	2019-03-28 12:01:08	Y	N	Y	Y	0	Y	Service Pipe	Third Party Contractor	22	Y
1-3376601474	2019-04-01 09:47:09	Y	N	Y	Y	0	Y	Mains Pipe	Emergency Services	47	Y
1-3380900030	2019-04-02 12:45:12	Y	N	Y	Y	1	Y	Riser Pipe	Third Party Contractor	39	Y
1-3384740153	2019-04-05 09:47:33	Y	N	Y	Y	0	Y	Mains Pipe	Emergency Services	48	Y
1-3411292863	2019-04-08 14:35:26	Y	N	Y	Y	0	Y	Mains Pipe	Emergency Services	48	Y
1-3415627318	2019-04-11 03:35:50	Y	N	Y	Y	0	Y	Riser Valve	Emergency Services	29	Y
1-3420170686	2019-04-15 11:05:07	Y	N	Y	Y	1	Y	Service Pipe	Customer/General Public	59	Y
1-3424129217	2019-04-17 12:35:56	Y	N	Y	Y	1	Y	Service Pipe	Emergency Services	26	Y
1-3464850381	2019-05-16 10:57:18	N	N	Y	N	6	Y	Service Pipe	Customer/General Public	40	Y

Service Request Number	Service Request Opened Date	Emergency Services On-Site	Building Evacuated	Fault Found	Confirmed Escape	No Customers Affected	Emergency	Equipment Involved	Fault Detection	Response Time (minutes)	Responded to within 60 minutes
1-3466043713	2019-05-17 09:52:49	Y	N	Y	Y	1	Y	Service Pipe	Emergency Services	23	Y
1-3473199530	2019-05-22 15:14:06	Y	N	Y	Y	0	Y	Service Pipe	Third Party Contractor	48	Y
1-3474387945	2019-05-22 15:35:09	Y	N	Y	Y	1	Y	Service Pipe	Emergency Services	40	Y
1-3482579881	2019-05-28 09:02:48	Y	N	Y	Y	0	Y	Service Pipe	Emergency Services	28	Y
1-3485412996	2019-05-28 13:45:00	Y	N	Y	Y	1	Y	Service Pipe	Emergency Services	32	Y
1-3487317715	2019-05-29 13:15:53	Y	N	Y	Y	1	Y	Service Pipe	Emergency Services	16	Y
1-3489438598	2019-05-30 14:36:52	Y	N	Y	Y	0	Y	Service Pipe	Emergency Services	34	Y
1-3494292235	2019-06-02 17:46:38	Y	N	Y	Y	1	Y	Riser Valve	Emergency Services	43	Y
1-3499836241	2019-06-06 11:13:26	Y	N	Y	Y	1	Y	Service Pipe	Emergency Services	51	Y
1-3504312298	2019-06-10 08:44:24	Y	N	Y	Y	1	Y	Service Pipe	Customer/General Public	28	Y
1-3505992827	2019-06-10 17:58:03	Y	N	Y	Y	0	Y	Service Pipe	Emergency Services	30	Y
1-3529028546	2019-06-25 10:59:52	Y	N	Y	Y	0	Y	Mains Pipe	Customer/General Public	15	Y
1-3545785676	2019-07-03 11:23:47	Y	N	Y	Y	1	Y	Service Pipe	Third Party Contractor	40	Y
1-3550431751	2019-07-06 11:35:00	Y	N	Y	Y	1	Y	Service Pipe	Emergency Services	64	N
1-3550606167	2019-07-07 14:54:19	Y	N	Y	Y	0	Y	Service Valve	Emergency Services	26	Y
1-3551672415	2019-07-08 15:13:49	Y	N	Y	Y	1	Y	Mains Pipe	Third Party Contractor	45	Y
1-3554914027	2019-07-10 14:51:55	Y	N	Y	Y	0	Y	Service Fitting	Customer/General Public	18	Y
1-3566628921	2019-07-18 09:44:51	Y	N	Y	Y	0	Y	Service Pipe	Third Party Contractor	27	Y
1-3577331939	2019-07-24 13:38:52	Y	Y	Y	Y	1	Y	Service Pipe	Emergency Services	31	Y
1-3581798025	2019-07-27 11:05:07	Y	N	Y	Y	1	Y	Service Pipe	Emergency Services	25	Y

Service Request Number	Service Request Opened Date	Emergency Services On-Site	Building Evacuated	Fault Found	Confirmed Escape	No Customers Affected	Emergency	Equipment Involved	Fault Detection	Response Time (minutes)	Responded to within 60 minutes
1-3582233848	2019-07-27 16:29:36	Y	N	Y	Y	0	Y	Riser Pipe	On Site (Vector Contractor)	40	Y
1-3589104641	2019-07-31 08:25:50	Y	N	Y	Y	1	Y	Service Pipe	Emergency Services	55	Y
1-3589105533	2019-07-31 14:27:18	Y	N	Y	Y	1	Y	Service Pipe	Customer/General Public	29	Y
1-3593378857	2019-08-01 12:23:02	Y	N	Y	Y	0	Y	Service Pipe	Emergency Services	57	Y
1-3612209557	2019-08-13 16:21:40	Y	Y	Y	Y	1	Y	Service Pipe	Emergency Services	52	Y
1-3622879025	2019-08-20 10:35:00	Y	N	Y	Y	0	Y	Service Pipe	Emergency Services	32	Y
1-3630974730	2019-08-24 17:29:20	Y	N	Y	Y	1	Y	Service Pipe	Emergency Services	27	Y
1-3634816696	2019-08-27 17:57:53	Y	N	Y	Y	1	Y	Service Pipe	Emergency Services	35	Y
1-3641812384	2019-08-30 11:27:14	Y	N	Y	Y	1	Y	Riser Pipe	On Site (Vector Contractor)	52	Y
1-3642591491	2019-09-02 12:04:41	Y	N	Y	Y	0	Y	Service Pipe	Third Party Contractor	48	Y
1-3648319931	2019-09-03 13:27:35	N	Y	Y	Y	1	Y	Service Pipe	Customer/General Public	32	Y
1-3658413807	2019-09-10 13:39:06	Y	N	Y	Y	1	Y	Riser Pipe	Emergency Services	25	Y
1-3663071444	2019-09-12 13:48:43	Y	N	Y	Y	0	Y	Service Fitting	Emergency Services	31	Y
1-3665610101	2019-09-14 09:14:37	Y	Y	Y	Y	1	Y	Riser Pipe	Emergency Services	39	Y
1-3666115341	2019-09-16 07:08:28	Y	N	Y	Y	1	Y	Service Pipe	Emergency Services	39	Y
1-3669722898	2019-09-18 10:00:34	Y	N	Y	Y	0	Y	Service Pipe	Third Party Contractor	24	Y
1-3685488237	2019-09-25 14:02:11	Y	N	Y	Y	0	Y	Riser Crimp	Emergency Services	27	Y
1-3687491383	2019-09-26 09:34:49	Y	N	Y	Y	4	Y	Mains Pipe	Third Party Contractor	26	Y