



DS5002

Centralines'

Default Price Quality Path

Annual Compliance Statement

2016-2017

For the assessment period ending 31 March 2017

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

Data Classification: Public
Published Date: 08/06/2017

DS5002 Centralines' Default Price Quality-Path Annual Compliance Statement 2016-2017

Overview

Document status
Draft ☐**In Service** ☒Under Review ☐Archived ☐
Document purpose

Regulatory disclosure demonstrating Centralines' compliance with the Default Price-Quality Path for the 2016-17 disclosure year.

Intended audience

Publically disclosed.

Document contributors

Contributors	Name and Position Title	Approval Date
Creator	Amanda Watson Regulatory Affairs Analyst	01/05/2017
Authoriser	Nathan Strong General Manager – Business Assurance	07/06/2017
Approver	Nathan Strong General Manager – Business Assurance	07/06/2017

Disclaimer

The information presented in this Annual Compliance Statement has been prepared solely for the purpose of complying with the requirements of the Electricity Distribution Services Default Price-Quality Path Determination 2015. This statement has not been prepared for any other purpose and Centralines Limited expressly disclaims any liability to any other party who may rely on this statement for any other purpose.

Continued on next page

Overview, Continued

Certification of Annual Compliance Statement



DIRECTORS' CERTIFICATE ON ANNUAL COMPLIANCE STATEMENT

We, Jon Edmond Nichols and Ian Howard Walker, being directors of Centralines Limited certify that, having made all reasonable enquiry, to the best of our knowledge and belief, the attached Annual Compliance Statement of Centralines Limited, and related information, prepared for the purposes of the *Electricity Distribution Services Default Price Quality Path Determination 2015* are true and accurate.

Director

Date: 31st May 2017

Director

Date: 31st May 2017

Continued on next page

Overview, Continued

Key dates	Published Date	08/06/2017
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Related references	Legislation
	Electricity Distribution Services Default Price-Quality Path Determination 2015 (the Determination)

Clarification	Clarification of any matter referred to in this document should be directed to:
	General Manager Business Assurance Unison Networks Ltd PO Box 555 1101 Omaha Rd Hastings Ph. (06) 873 9300 Fax (06) 873 9311

Content	This document contains the following topics:
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Topic	See Page
1. Statement of Compliance	5
2. Compliance with the Price Path	6
3. Compliance with the Quality Standards	8
Appendix A – Independent Auditor's Report	10
Appendix B – Price Path Compliance Calculations (Clauses 11.4(c), (g) and (k))	13
Appendix C – Price and Quantity Schedules (Clause 11.4(c))	16
Appendix D – Price Apportionment to Distribution Prices and Pass-through Prices (Clause 11.4(d))	19
Appendix E – Methodology used to Calculate Distribution Prices and Pass-through Prices (Clause 11.4(e))	23
Appendix F – Pass-through Prices and Quantities for 2017 Assessment Period (Clause 11.4(f))	24
Appendix G – Pass-through Costs and Recoverable Costs – Actual and Forecast (Clauses 8.6(b) and 11.4(g), (h), (i) and (j))	27
Appendix H – Quality Standard Compliance Calculations (Clause 11.5(c))	29
Appendix I – Quality Incentive Adjustment 11.5(c) and Schedule 5B	33
Appendix J – Policies and Procedures for Recording SAIDI and SAIFI (Clause 11.5(e))	34
Appendix K – Cause of Each Major Event Day (Clause 11.5(f))	40

1. Statement of Compliance

1.1 Compliance with 11.2(a)

As required by 11.2(a) of the Determination, this statement confirms Centralines' compliance with the price path in clause 8 and quality standards in clause 9 in respect of the assessment period ending 31 March 2017.

1.2 Compliance with 11.2(d)

As required by clause 11.2(d) of the Determination, this statement confirms that the following clauses did not apply in respect of the assessment period ending 31 March 2017:

- 8.8 – Restructuring of prices during an assessment period
 - 10.1-10.4 – Qualifying amalgamation, merger, or major transaction for notification to Commission
 - 10.6 – Purchase of transmission assets from (or to) Transpower that become System Fixed Assets
-

2. Compliance with the Price Path

2.1 Compliance with price path (clause 8.3)

Under clause 8.3 of the Determination an EDB's notional revenue must not exceed the allowable notional revenue during the current assessment period. In this section Centralines demonstrates that it has complied with the price path requirements of the Determination.

$$NR \leq ANR$$

$$\text{\$ } 11,040,477 \leq \text{\$ } 11,064,901$$

2.2 Allowable notional revenue (clause 8.4)

Allowable notional revenue for the 2017 assessment period:

$$ANR_t = \left(\sum_i DP_{i,t-1} Q_{i,t-2} + (ANR_{t-1} - NR_{t-1}) \right) (1 + \Delta CPI_t) (1 - X)$$

$$ANR_{2017} = \text{\$ } 11,064,901$$

2.3 Notional revenue (clause 8.5)

Notional revenue for the 2017 assessment period:

$$\sum_i DP_{i,t} Q_{i,t-2}$$

$$\sum DP_{2017} Q_{2015} = \text{\$ } 11,040,477$$

2.4 Pass-through balance for the 2017 assessment period (clause 8.6)

The pass-through balance is the difference between the pass-through price, which is the portion of the price set to recover forecast pass-through costs and recoverable costs, multiplied by actual quantities, less the amount of actual pass-through and recoverable costs incurred.

$$PTB_t = \sum PTP_{i,t} Q_{i,t} - K_t - V_t + PTB_{t-1} (1 + r)$$

$$PTB_t = \text{\$ } -2,037,098$$

Continued on next page

Compliance with Price Path, Continued

2.5 Supporting evidence

- Appendix B – Price Path Compliance Calculations
 - Appendix C – Price and Quantity Schedules
 - Appendix D – Price Apportionment to Distribution Prices and Pass-through Prices
 - Appendix E – Methodology Used to Calculate Distribution Prices and Pass-through Prices
 - Appendix F – Pass-through Prices and Quantities for 2017 Assessment Period
 - Appendix G – Pass-through Costs and Recoverable Costs – Actual and Forecast
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3. Compliance with the Quality Standards

3.1 Compliance with quality standards (clause 9)

Under clause 9 of the Determination an EDBs assessed reliability values must either:

- not exceed the reliability limits for the current assessment period, or
- not have exceeded the reliability limit for either of the two immediately preceding extant assessment periods.

In this section Centralines demonstrates that it has complied with the quality standards of the Determination.

3.2 Reliability assessment (9.1(a))

Clause 9.1(a) requires compliance with clause 9.2: A non-exempt EDBs assessed values for an assessment period must not exceed its reliability limits for that assessment period.

Compliance is demonstrated in the following tables. The first table demonstrates compliance with the SAIDI limit and the second table demonstrates compliance with the SAIFI limit.

Test:	$\frac{SAIDI_{Assess\ 2017}}{SAIDI_{Limit}} \leq 1$	
SAIDI _{Assess 2017}	92.070	
SAIDI _{Limit}	139.348	
Result:	0.66 < 1	
Result:	Does not Exceed Limit	

Test:	$\frac{SAIFI_{Assess\ 2017}}{SAIFI_{Limit}} \leq 1$	
SAIFI _{Assess 2017}	1.668	
SAIFI _{Limit}	4.203	
Result:	0.40 < 1	
Result:	Does not Exceed Limit	

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Compliance with the Quality Standards, Continued

3.3 Prior period reliability assessment (9.1(b))

Clause 9.1(b) requires compliance with annual reliability assessments for the two immediately preceding assessment periods.

SAIDI Assess 2016	72.67	SAIFI Assess 2016	1.410
SAIDI Limit	139.35	SAIFI Limit	4.203
0.52	< 1	0.34	< 1
Does not Exceed Limit		Does not Exceed Limit	

SAIDI Assess 2015	141.37	SAIFI Assess 2015	2.401
SAIDI Limit	197.55	SAIFI Limit	4.254
0.72	< 1	0.56	< 1
Does not Exceed Limit		Does not Exceed Limit	

3.4 Compliance summary

Clause 9.1 - A non-exempt EDB, in respect of each assessment period, must either:

- comply with the annual reliability assessment specified in clause 9.2, or
- have complied with those annual reliability assessments for the two immediately preceding assessments periods.

	SAIDI	SAIFI	Compliance
Compliance with 9.1(a)	Does not Exceed Limit	Does not Exceed Limit	<i>Complies</i>
or			
Compliance with 9.1(b)	Does not Exceed Limit	Does not Exceed Limit	<i>Complies</i>
Clause 9.1 Result:	Complies with Quality Standard		

3.5 Supporting evidence

- Appendix H – Quality Standard Compliance Calculations
- Appendix I – Quality Incentive Adjustment
- Appendix J – Policies and Procedures for Recording SAIDI and SAIFI
- Appendix K – Cause of Each Major Event Day

Appendix A – Independent Auditor's Report

AUDIT NEW ZEALAND
Mana Arotake Aotearoa

Independent Assurance Report

To the Directors of Centralines Limited and the Commerce Commission for the year ended 31 March 2017

The Auditor-General is the auditor of Centralines Limited (the company). The Auditor-General has appointed me Julian Tan, using the staff and resources of Audit new Zealand, to provide an opinion, on his behalf, on whether the Annual Compliance Statement for the year ended on 31 March 2017 on pages 5 to 40 has been prepared, in all material respects, with the Electricity Distribution Services Default Price-Quality Path Determination 2015 (the Determination).

Directors' responsibilities for the Annual Compliance Statement

The directors of the company are responsible for the preparation of the Annual Compliance Statement in accordance with the Determination, and for such internal control as the directors determine is necessary to enable the preparation of an Annual Compliance Statement that is free from material misstatement.

Our responsibility for the Annual Compliance Statement

Our responsibility is to express an opinion on whether the Annual Compliance Statement has been prepared, in all material respects, in accordance with the Determination.

Basis of opinion

We conducted our engagement in accordance with the International Standard on Assurance Engagements (New Zealand) 3000 (Revised): *Assurance Engagements Other Than Audits or Reviews of Historical Financial Information* and the Standard on Assurance Engagements 3100: *Compliance Engagements* issued by the External Reporting Board. Copies of these standards are available on the External Reporting Board's website.

These standards require that we comply with ethical requirements and plan and perform our assurance engagement to provide reasonable assurance about whether the Annual Compliance Statement has been prepared in all material respects in accordance with the Determination.

We have performed procedures to obtain evidence about the amounts and disclosures in the Annual Compliance Statement. The procedures selected depend on our judgement, including the assessment of the risks of material misstatement of the Annual Compliance Statement, whether due to fraud or error or non-compliance with the Determination. In making those risk assessments, we considered internal control relevant to the company's preparation of the Annual Compliance Statement in order to design procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the company's internal control.

In assessing the disclosures about compliance with the price path in clause 8 of the Determination for the assessment period ended on 31 March 2017, our assurance engagement included examination, on a test basis, of evidence relevant to the amounts and disclosures contained on page 6 and pages 13 to 28 of the Annual Compliance Statement.

Continued on next page

Appendix A – Independent Auditor's Report, Continued

In assessing the disclosures about compliance with the quality standards in clause 9 of the Determination for the assessment period ended on 31 March 2017, our assurance engagement included examination, on a test basis, of evidence relevant to the amounts and disclosures contained on pages 8 to 9 and pages 29 to 40 of the Annual Compliance Statement.

Our assurance engagement also included assessment of the significant estimates and judgements, if any, made by the company in the preparation of the Annual Compliance Statement.

We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Use of this report

This independent assurance report has been prepared solely for the directors of the company and for the Commerce Commission for the purpose of providing those parties with reasonable assurance about whether the Annual Compliance Statement has been prepared, in all material respects, in accordance with the Determination. We disclaim any assumption of responsibility for any reliance on this report to any person other than the directors of the company or the Commerce Commission, or for any other purpose than that for which it was prepared.

Scope and inherent limitations

Because of the inherent limitations of a reasonable assurance engagement, and the test basis of the procedures performed, it is possible that fraud, error or non-compliance may occur and not be detected.

We did not examine every transaction, adjustment or event underlying the Annual Compliance Statement nor do we guarantee complete accuracy of the Annual Compliance Statement. Also we did not evaluate the security and controls over the electronic publication of the Annual Compliance Statement.

The opinion expressed in this independent assurance report has been formed on the above basis.

Independence and quality control

When carrying out the engagement, we complied with the Auditor-General's:

- independence and other ethical requirements, which incorporate the independence and ethical requirements of Professional and Ethical Standard 1 (Revised) issued by the New Zealand Auditing and Assurance Standards Board; and
- quality control requirements, which incorporate the quality control requirements of Professional and Ethical Standard 3 (Amended) issued by the New Zealand Auditing and Assurance Standards Board.

We also complied with the independent auditor requirements specified in the Determination.

The Auditor-General, and his employees, and Audit New Zealand and its employees may deal with the company on normal terms within the ordinary course of trading activities of the company. Other than any dealings on normal terms within the ordinary course of business, in

Appendix A – Independent Auditor's Report, Continued

addition to this engagement, we have carried out the following engagements for the company which are compatible with those independence requirements:

- the audit of the company's annual financial statements;
- an assurance engagement in connection with the company's compliance with the Electricity Distribution (Information Disclosure) Requirements 2012 for the regulatory year ended 31 March 2016; and
- an agreed upon procedures engagement in connection with the Price ^{2017/2018} and Quantity ^{2015/16} disclosure schedule for the assessment year ending 31 March 2018.

Opinion

In our opinion:

- as far as appears from an examination, the information used in the preparation of the Annual Compliance Statement has been properly extracted from the company's accounting and other records, and has been sourced, where appropriate, from its financial and non-financial systems; and
- the Annual Compliance Statement of company for the year ended on 31 March 2017, has been prepared, in all material respects, in accordance with the Determination.

In forming our opinion, we have obtained sufficient recorded evidence and all the information and explanations we have required.



Audit New Zealand
On behalf of the Auditor-General
Palmerston North, New Zealand
31 May 2017

Appendix B – Price Path Compliance Calculations (Clauses 11.4(c), (g) and (k))

Allowable Notional Revenue 2017		
$ANR_t = \left(\sum_i DP_{i,t-1} Q_{i,t-2} + (ANR_{t-1} - NR_{t-1}) \right) (1 + \Delta CPI_t) (1 - X)$		
Term	Description	Value
ANR_{2017}	Allowable Notional Revenue	\$11,064,901
$DP_{2016} Q_{2015}$	2016 Distribution Prices x 2015 Quantities	\$10,207,685
ANR_{2016}	Allowable Notional Revenue 2016	\$10,110,391
NR_{2016}	Notional Revenue 2016	\$10,024,483
CPI_{2017}	Consumer Price Index 2017	0.46%
X	Annual Rate of Change	-7.0%

Notional Revenue for the year ending March 2017		
$\sum_i DP_{i,t} Q_{i,t-2}$		
Term	Description	Value \$
$DP_{2017} * Q_{2015}$	Prices at 31 March 2017 multiplied by 31 March 2015 Base Quantities	\$11,040,477

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Appendix B – Price Path Compliance Calculations (Clauses 11.4(c), (g) and (k)), Continued

Pass-through Costs and Recoverable Costs for the year ending March 2017		
$PTB_t = \sum PTP_{i,t} Q_{i,t} - K_t - V_t + PTB_{t-1} (1 + r)$		
Term	Description	Value \$
PTB_{2017}	Pass-through Balance for the year ending 31 March 2017	-2,037,098
$PTP_{i, 2017} Q_{i, 2017}$	Denotes 2017 Pass-through Prices multiplied by 2017 Quantities	2,421,493
K_{2017}	Rates for year ending 31 March 2017	39,622
	Electricity Authority Levies for year ending 31 March 2017	21,895
	Commerce Act Levies for year ending 31 March 2017	22,941
	Utilities Disputes (formerly Electricity and Gas Complaints Commissioner) Levies for year ending 31 March 2017	4,136
V_{2017}	Transmission Charges for year ending 31 March 2017	2,913,268
	Avoided Transmission Charges	0
	Transpower New Investment Contract Charges for year ending 31 March 2017	0
	Distributed Generation Allowance	0
	Claw-back	422,000
	2013-15 NPV Wash-up Allowance	245,000
	Quality Incentive Adjustment	0
	Capex Wash-up	-69,000
PTB_{2016}	2016 Pass-through Balance	-808,574
r	Cost of Debt	6.09 %

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Price Path Compliance Calculations (Clauses 11.4(c) and (g)), Continued

Pass-through Balance Reconciliation				
Assessment Year One (2016)		Assessment Year Two (2017)		Difference
	$P_{2016} Q_{2016}$		$P_{2017} Q_{2017}$	
$\sum PTP_{t-1} Q_{t-1}$	2,678,675	$\sum PTP_t Q_t$	2,421,493	-257,182
K_{t-1}	85,944	K_t	88,594	2,650
V_{t-1}	3,401,305	V_t	3,511,268	109,963
$PTB(2015)$ <i>1st assessment = 0</i>	0	$PTB_{t-1}(2016)$	-808,574	-808,574
$R = \text{cost of debt}$	6.09%	$R = \text{cost of debt}$	6.09%	
$PTP_{t-1}(2016)$	-808,574	$PTP_t(2017)$	-2,037,098	-1,228,524

ΔCPI_{2017}			
Numerator		Denominator	
$CPI_{Dec2014}$	1197	$CPI_{Dec2013}$	1188
$CPI_{Mar2015}$	1195	$CPI_{Mar2014}$	1192
$CPI_{Jun2015}$	1200	$CPI_{Jun2014}$	1195
$CPI_{Sep2015}$	1204	$CPI_{Sep2014}$	1199
Total	4796	Total	4774
$\Delta CPI_{2017} \quad 0.46\%$			

Appendix C – Price and Quantity Schedules (Clause 11.4(c))

Price Codes	2014-15 Qty Q ₂₀₁₅	2016-17 Dist Price DP ₂₀₁₇	Distribution Revenue DP ₂₀₁₇ x Q ₂₀₁₅	Unit of Measure
E-C-CH11-DMND	14,671.60	3.3500	49,149.86	\$/kW/month
E-C-CH11-KVAR	119.10	0.000	0.00	\$/kVAr/month
E-C-CH11-SOPD	14,072.30	8.5000	119,614.55	\$/kW/month
E-C-CH11-TAIC	6,869,369.00	0.000	0.00	\$/kWh
E-C-CH1-24UC	3,104,291.97	0.1350	419,079.42	\$/kWh
E-C-CH12-DMND	45,857.20	3.3500	153,621.62	\$/kW/month
E-C-CH12-KVAR	15,381.73	0.000	0.00	\$/kVAr/month
E-C-CH12-SOPD	44,368.40	8.5000	377,131.40	\$/kW/month
E-C-CH12-TAIC	20,618,316.00	0.000	0.00	\$/kWh
E-C-CH1-AICO	7,098,769.00	0.1100	780,864.59	\$/kWh
E-C-CH1-CTRL	442,236.00	0.0730	32,283.23	\$/kWh
E-C-CH1-CTUD	277,441.00	0.1700	47,164.97	\$/kWh
E-C-CH1-NITE	135,899.00	0.0640	8,697.54	\$/kWh
E-C-CH2H-24UC	8,809,306.27	0.1150	1,013,070.22	\$/kWh
E-C-CH2H-AICO	0.00	0.000	0.00	\$/kWh
E-C-CH2H-CTRL	124,303.49	0.0500	6,215.17	\$/kWh
E-C-CH2H-CTUD	720,066.00	0.1100	79,207.26	\$/kWh
E-C-CH2H-NITE	363,175.00	0.0450	16,342.88	\$/kWh
E-C-CH2H-PROJ	0.00	0.1150	0.00	\$/kWh
E-C-CH2I-24UC	2,566,446.00	0.0960	246,378.82	\$/kWh
E-C-CH2I-CTRL	130,540.00	0.0410	5,352.14	\$/kWh
E-C-CH2I-CTUD	2,030,396.00	0.1240	251,769.10	\$/kWh
E-C-CH2I-NITE	1,126,131.00	0.0300	33,783.93	\$/kWh
E-C-CH2L-24UC	3,089,448.18	0.0950	293,497.58	\$/kWh
E-C-CH2L-AICO	0.00	0.000	0.00	\$/kWh
E-C-CH2L-CTRL	96,265.40	0.0400	3,850.62	\$/kWh
E-C-CH2L-CTUD	62,230.00	0.1000	6,223.00	\$/kWh
E-C-CH2L-NITE	19,344.00	0.0350	677.04	\$/kWh
E-C-CH2L-PROJ	1,083.00	0.0950	102.89	\$/kWh
E-C-CH2R-24UC	11,296,174.37	0.1240	1,400,725.62	\$/kWh
E-C-CH2R-AICO	14,580,045.32	0.0980	1,428,844.44	\$/kWh
E-C-CH2R-CTRL	1,321,131.00	0.0590	77,946.73	\$/kWh
E-C-CH2R-CTUD	704,108.00	0.1560	109,840.85	\$/kWh
E-C-CH2R-NITE	421,300.00	0.0500	21,065.00	\$/kWh
E-C-CH2R-PROJ	0.00	0.1240	0.00	\$/kWh
E-C-CH3-24UC	3,449,619.08	0.0970	334,613.05	\$/kWh
E-C-CH3-CTRL	14,458.00	0.0720	1,040.98	\$/kWh
E-C-CH3-CTUD	1,146,480.85	0.1180	135,284.74	\$/kWh

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Appendix C – Price and Quantity Schedules (Clause 11.4(c)), Continued

Price Codes	2014-15 Qty Q ₂₀₁₅	2016-17 Dist Price DP ₂₀₁₇	Distribution Revenue DP ₂₀₁₇ X Q ₂₀₁₅	Unit of Measure
E-C-CH3-DMND	1,503.72	5.9500	8,947.13	\$/kW/month
E-C-CH3-KVAR	422.45	0.000	0.00	\$/kVAr/month
E-C-CH3-NITE	130,154.49	0.0390	5,076.03	\$/kWh
E-C-CH3-SOPD	1,450.00	8.5000	12,325.00	\$/kW/month
E-C-CH3-TAIC	404,179.00	0.000	0.00	\$/kWh
E-C-CH4-24UC	2,314,301.00	0.0640	148,115.26	\$/kWh
E-C-CH4-CTUD	1,253,449.00	0.0710	88,994.88	\$/kWh
E-C-CH4-DMND	4,980.60	4.7500	23,657.85	\$/kW/month
E-C-CH4-KVAR	866.73	0.000	0.00	\$/kVAr/month
E-C-CH4-NITE	484,333.00	0.0240	11,623.99	\$/kWh
E-C-CH4-SOPD	4,810.66	8.5000	40,890.61	\$/kW/month
E-C-CH4-TAIC	1,765,392.00	0.000	0.00	\$/kWh
E-C-CH5-DMND	17,276.42	4.0500	69,969.50	\$/kW/month
E-C-CH5-KVAR	2,138.40	0.000	0.00	\$/kVAr/month
E-C-CH5-SOPD	16,725.14	8.5000	142,163.69	\$/kW/month
E-C-CH5-TAIC	5,095,143.00	0.000	0.00	\$/kWh
E-C-CH6-DMND	3,956.64	4.0500	16,024.39	\$/kW/month
E-C-CH6-KVAR	455.50	0.000	0.00	\$/kVAr/month
E-C-CH6-SOPD	3,914.44	8.5000	33,272.74	\$/kW/month
E-C-CH6-TAIC	1,351,285.00	0.000	0.00	\$/kWh
E-C-CH8-DMND	1,865.76	3.3500	6,250.30	\$/kW/month
E-C-CH8-KVAR	37.80	0.000	0.00	\$/kVAr/month
E-C-CH8-TAIC	650,304.00	0.000	0.00	\$/kWh
E-C-CH8-WOPD	1,822.16	8.5000	15,488.36	\$/kW/month
E-C-T1P-24UC	380.00	0.1100	41.80	\$/kWh
E-C-U01	303,571.31	0.1150	34,910.70	\$/kWh
E-C-U02	420,968.78	0.1150	48,411.41	\$/kWh
E-C-U03	0.00	0.1150	0.00	\$/kWh
F-C-CH1	810,511.00	0.1500	121,576.65	\$/day
F-C-CH11	365.00	89.5000	32,667.50	\$/day
F-C-CH12	365.00	495.0000	180,675.00	\$/day
F-C-CH2H	181,832.00	1.4000	254,564.80	\$/day
F-C-CH2I	25,983.00	5.0000	129,915.00	\$/day
F-C-CH2L	538,445.00	1.6500	888,434.25	\$/day
F-C-CH2R	1,318,271.00	0.5000	659,135.50	\$/day
F-C-CH3	22,195.00	5.0000	110,975.00	\$/day
F-C-CH4	9,125.00	29.0000	264,625.00	\$/day

Continued on next page

Appendix C – Price and Quantity Schedules (Clause 11.4(c)), Continued

Price Codes	2014-15 Qty Q ₂₀₁₅	2016-17 Dist Price DP ₂₀₁₇	Distribution Revenue DP ₂₀₁₇ x Q ₂₀₁₅	Unit of Measure
F-C-CH5	3,285.00	45.0000	147,825.00	\$/day
F-C-CH6	730.00	60.0000	43,800.00	\$/day
F-C-CH8	365.00	79.5000	29,017.50	\$/day
F-C-T1P	879.00	1.5750	1,384.43	\$/day
F-C-U02	325,580.00	0.0500	16,279.00	\$/day
E-C-CH1-DGEN	8,694.00	0.000	0.00	\$/kWh
E-C-CH2R-DGEN	10,247.00	0.000	0.00	\$/kWh
E-C-CH4-DGEN	-400.00	0.000	0.00	\$/kWh
	DP ₂₀₁₇ x Q ₂₀₁₅		\$11,040,477.48	

Appendix D – Price Apportionment to Distribution Prices and Pass-through Prices (Clause 11.4(d))

Price Summary 2016-17			
Price Code	Distribution Price \$	Pass-through Price \$	Total Price \$
F-C-CH1	0.1500	0.0000	0.1500
E-C-CH1-24UC	0.1350	0.0460	0.1810
E-C-CH1-AICO	0.1100	0.0450	0.1550
E-C-CH1-CTRL	0.0730	0.0430	0.1160
E-C-CH1-CTUD	0.1700	0.0580	0.2280
E-C-CH1-NITE	0.0640	0.0080	0.0720
E-C-CH1-PROJ	0.1350	0.0460	0.1810
F-C-CH1G	0.1500	0.0000	0.1500
E-C-CH1G-24UC	0.1660	0.0460	0.2120
E-C-CH1G-AICO	0.1410	0.0450	0.1860
E-C-CH1G-DGEN	0.0000	0.0000	0.0000
F-C-CH2G	1.1800	0.9000	2.0800
E-C-CH2G-24UC	0.1240	0.0000	0.1240
E-C-CH2G-AICO	0.0980	0.0000	0.0980
E-C-CH2G-DGEN	0.0000	0.0000	0.0000
F-C-CH2R	0.5000	0.9000	1.4000
E-C-CH2R-24UC	0.1240	0.0000	0.1240
E-C-CH2R-AICO	0.0980	0.0000	0.0980
E-C-CH2R-CTRL	0.0590	0.0000	0.0590
E-C-CH2R-CTUD	0.1560	0.0000	0.1560
E-C-CH2R-NITE	0.0500	0.0000	0.0500
E-C-CH2R-PROJ	0.1240	0.0000	0.1240
F-C-CH2L	1.6500	0.0000	1.6500
E-C-CH2L-24UC	0.0950	0.0080	0.1030
E-C-CH2L-AICO	0.0000	0.0000	0.0000
E-C-CH2L-CTRL	0.0400	0.0120	0.0520
E-C-CH2L-CTUD	0.1000	0.0300	0.1300
E-C-CH2L-NITE	0.0350	0.0060	0.0410
E-C-CH2L-PROJ	0.0950	0.0080	0.1030
E-C-CH2L-TAIC	0.0950	0.0080	0.1030
F-C-CH2H	1.4000	0.0000	1.4000
E-C-CH2H-24UC	0.1150	0.0035	0.1185
E-C-CH2H-AICO	0.0000	0.0000	0.0000
E-C-CH2H-CTRL	0.0500	0.0180	0.0680
E-C-CH2H-CTUD	0.1100	0.0390	0.1490
E-C-CH2H-NITE	0.0450	0.0020	0.0470
E-C-CH2H-PROJ	0.1150	0.0035	0.1185
E-C-CH2H-TAIC	0.1150	0.0035	0.1185

Continued on next page

Appendix D – Price Apportionment to Distribution Prices and Pass-through Prices (Clause 11.4(d)), Continued

Price Summary 2016-17			
Price Code	Distribution Price \$	Pass-through Price \$	Total Price \$
F-C-CH2I	5.0000	0.0000	5.0000
E-C-CH2I-24UC	0.0960	0.0080	0.1040
E-C-CH2I-CTRL	0.0410	0.0290	0.0700
E-C-CH2I-CTUD	0.1240	0.0180	0.1420
E-C-CH2I-NITE	0.0300	0.0040	0.0340
E-C-CH2I-PROJ	0.0960	0.0080	0.1040
E-C-CH2I-TAIC	0.0960	0.0080	0.1040
E-C-CH2I-KVAR	0.0000	7.7500	7.7500
E-C-CH2I-SOPD	8.5000	2.0000	10.5000
E-C-CH2I-WOPD	8.5000	2.0000	10.5000
E-C-CH2I-DMND	5.9500	0.8000	6.7500
F-C-CH3	5.0000	0.0000	5.0000
E-C-CH3-24UC	0.0970	0.0190	0.1160
E-C-CH3-CTRL	0.0720	0.0090	0.0810
E-C-CH3-CTUD	0.1180	0.0330	0.1510
E-C-CH3-NITE	0.0390	0.0070	0.0460
E-C-CH3-PROJ	0.0970	0.0190	0.1160
E-C-CH3-TAIC	0.0000	0.0000	0.0000
E-C-CH3-KVAR	0.0000	7.7500	7.7500
E-C-CH3-SOPD	8.5000	2.0000	10.5000
E-C-CH3-WOPD	8.5000	2.0000	10.5000
E-C-CH3-DMND	5.9500	0.8000	6.7500
F-C-CH4	29.0000	0.0000	29.0000
E-C-CH4-24UC	0.0640	0.0040	0.0680
E-C-CH4-CTRL	0.0300	0.0060	0.0360
E-C-CH4-CTUD	0.0710	0.0150	0.0860
E-C-CH4-NITE	0.0240	0.0030	0.0270
E-C-CH4-PROJ	0.0640	0.0040	0.0680
E-C-CH4-TAIC	0.0000	0.0000	0.0000
E-C-CH4-KVAR	0.0000	7.7500	7.7500
E-C-CH4-SOPD	8.5000	2.0000	10.5000
E-C-CH4-WOPD	8.5000	2.0000	10.5000
E-C-CH4-DMND	4.7500	2.0000	6.7500
F-C-CH5	45.0000	0.0000	45.0000
E-C-CH5-TAIC	0.0000	0.0000	0.0000
E-C-CH5-KVAR	0.0000	7.7500	7.7500
E-C-CH5-SOPD	8.5000	2.0000	10.5000

Continued on next page

Appendix D – Price Apportionment to Distribution Prices and Pass-through Prices (Clause 11.4(d)), Continued

Price Summary 2016-17			
Price Code	Distribution Price \$	Pass-through Price \$	Total Price \$
E-C-CH5-WOPD	8.5000	2.0000	10.5000
E-C-CH5-DMND	4.0500	0.7500	4.8000
E-C-CH5-DEFT	0.0750	0.0100	0.0850
F-C-CH6	60.0000	0.0000	60.0000
E-C-CH6-TAIC	0.0000	0.0000	0.0000
E-C-CH6-KVAR	0.0000	7.7500	7.7500
E-C-CH6-SOPD	8.5000	2.0000	10.5000
E-C-CH6-WOPD	8.5000	2.0000	10.5000
E-C-CH6-DMND	4.0500	0.7500	4.8000
E-C-CH6-DEFT	0.0750	0.0100	0.0850
F-C-CH7	62.5000	0.0000	62.5000
E-C-CH7-TAIC	0.0000	0.0000	0.0000
E-C-CH7-KVAR	0.0000	7.7500	7.7500
E-C-CH7-SOPD	8.5000	2.0000	10.5000
E-C-CH7-WOPD	8.5000	2.0000	10.5000
E-C-CH7-DMND	3.3500	0.9000	4.2500
E-C-CH7-DEFT	0.0750	0.0100	0.0850
F-C-CH8	79.5000	0.0000	79.5000
E-C-CH8-TAIC	0.0000	0.0000	0.0000
E-C-CH8-KVAR	0.0000	7.7500	7.7500
E-C-CH8-SOPD	8.5000	2.0000	10.5000
E-C-CH8-WOPD	8.5000	2.0000	10.5000
E-C-CH8-DMND	3.3500	0.9000	4.2500
E-C-CH8-DEFT	0.0750	0.0100	0.0850
F-C-CH9	89.5000	0.0000	89.5000
E-C-CH9-TAIC	0.0000	0.0000	0.0000
E-C-CH9-KVAR	0.0000	7.7500	7.7500
E-C-CH9-SOPD	8.5000	2.0000	10.5000
E-C-CH9-WOPD	8.5000	2.0000	10.5000
E-C-CH9-DMND	3.3500	0.9000	4.2500
E-C-CH9-DEFT	0.0750	0.0100	0.0850
F-C-CH10	89.5000	0.0000	89.5000
E-C-CH10-TAIC	0.0000	0.0000	0.0000
E-C-CH10-KVAR	0.0000	7.7500	7.7500
E-C-CH10-SOPD	8.5000	2.0000	10.5000
E-C-CH10-WOPD	8.5000	2.0000	10.5000
E-C-CH10-DMND	3.3500	0.9000	4.2500

Continued on next page

Appendix D – Price Apportionment to Distribution Prices and Pass-through Prices (Clause 11.4(d)), Continued

Price Summary 2016-17			
Price Code	Distribution Price \$	Pass-through Price \$	Total Price \$
E-C-CH10-DEFT	0.0750	0.0100	0.0850
F-C-CH11	89.5000	0.0000	89.5000
E-C-CH11-TAIC	0.0000	0.0000	0.0000
E-C-CH11-KVAR	0.0000	7.7500	7.7500
E-C-CH11-SOPD	8.5000	2.0000	10.5000
E-C-CH11-WOPD	8.5000	2.0000	10.5000
E-C-CH11-DMND	3.3500	0.9000	4.2500
E-C-CH11-DEFT	0.0750	0.0100	0.0850
F-C-CH12	495.0000	0.0000	495.0000
E-C-CH12-TAIC	0.0000	0.0000	0.0000
E-C-CH12-KVAR	0.0000	7.7500	7.7500
E-C-CH12-SOPD	8.5000	2.0000	10.5000
E-C-CH12-WOPD	8.5000	2.0000	10.5000
E-C-CH12-DMND	3.3500	0.9000	4.2500
E-C-CH12-DEFT	0.0750	0.0100	0.0850
F-C-CH13	89.5000	0.0000	89.5000
E-C-CH13-TAIC	0.0000	0.0000	0.0000
E-C-CH13-KVAR	0.0000	7.7500	7.7500
E-C-CH13-SOPD	8.5000	2.0000	10.5000
E-C-CH13-WOPD	8.5000	2.0000	10.5000
E-C-CH13-DMND	3.3500	0.9000	4.2500
F-C-U02	0.0500	0.0000	0.0500
E-C-U01	0.1150	0.0200	0.1350
E-C-U02	0.1150	0.0200	0.1350
E-C-U03	0.1150	0.0200	0.1350
E-C-T1P-24UC	0.1100	0.0240	0.1340
F-C-T1P	1.5750	0.0000	1.5750
E-C-CH1-DGEN	0.0000	0.0000	0.0000
E-C-CH2R-DGEN	0.0000	0.0000	0.0000
E-C-CH2L-DGEN	0.0000	0.0000	0.0000
E-C-CH2H-DGEN	0.0000	0.0000	0.0000
E-C-CH2I-DGEN	0.0000	0.0000	0.0000
E-C-CH3-DGEN	0.0000	0.0000	0.0000
E-C-CH4-DGEN	0.0000	0.0000	0.0000

Appendix E – Methodology used to Calculate Distribution Prices and Pass-through Prices (Clause 11.4(e))

Prices were set to achieve the Allowable Notional Revenue available to Centralines with a small buffer built in to allow for unforeseen calculation inaccuracies. Centralines' Board of Directors established a desired level of overall price increase for the network of 5% due to concerns about rate shock and a desire to smooth price increases to consumers over time. To achieve this in relation to the proportion of prices to be allocated to distribution and pass-through prices, the Distribution components were set to achieve the maximum available Distribution revenue less a nominal compliance buffer. A calculation was performed to define the amount of Pass-through revenue that would need to be obtained to achieve the 5% overall price change limit. Pass-through prices were then set to achieve this level of revenue.

The setting of the distribution/pass-through components was established with those price codes that delivered more predictable revenue flows, with less opportunity for fluctuation due to outside influences, having a higher proportion allocated to the distribution component. This serves to:

- protect Centralines from excessive fluctuation of revenue from one year to the next in order to be able to cover distribution costs, and
- reduce individual price fluctuations for consumers from one year to the next for the same reason.

With Centralines electing not to take the full allowance of revenue and this under-recovery of costs being allocated to pass-through pricing, this has resulted in a pass-through balance showing costs exceeding revenue.

Appendix F – Pass-through Prices and Quantities for 2017 Assessment Period (Clause 11.4(f))

Price Code	Quantity Q ₂₀₁₇	Pass-through Price \$ PTP ₂₀₁₇	Total Pass-through Revenue \$ PTP ₂₀₁₇ X Q ₂₀₁₇
E-C-CH11-DMND	14,428.80	0.9000	12,985.92
E-C-CH11-KVAR	438.60	7.7500	3,399.15
E-C-CH11-SOPD	13,959.60	2.0000	27,919.20
E-C-CH11-TAIC	6,892,900.00	0.0000	0.00
E-C-CH1-24UC	3,980,278.79	0.0460	183,092.82
E-C-CH12-DMND	47,554.58	0.9000	42,799.12
E-C-CH12-KVAR	16,444.34	7.7500	127,443.63
E-C-CH12-SOPD	47,014.40	2.0000	94,028.80
E-C-CH12-TAIC	21,616,164.00	0.0000	0.00
E-C-CH1-AICO	7,825,767.71	0.0450	352,159.55
E-C-CH1-CTRL	523,917.11	0.0430	22,528.44
E-C-CH1-CTUD	291,963.00	0.0580	16,933.85
E-C-CH1-DGEN	75,852.00	0.0000	0.00
E-C-CH1-DGNS	-379.00	0.0000	0.00
E-C-CH1G-24UC	2,322.00	0.0460	106.81
E-C-CH1G-AICO	766.00	0.0450	34.47
E-C-CH1G-DGEN	1,212.00	0.0000	0.00
E-C-CH1-NITE	134,199.50	0.0080	1,073.60
E-C-CH1-PROJ	2,020.00	0.0460	92.92
E-C-CH2G-24UC	14,136.00	0.0000	0.00
E-C-CH2G-AICO	10,100.00	0.0000	0.00
E-C-CH2G-DGEN	4,864.00	0.0000	0.00
E-C-CH2G-PROJ	1,644.00	0.0000	0.00
E-C-CH2H-24UC	7,591,458.32	0.0035	26,570.10
E-C-CH2H-AICO	791,019.60	0.0035	2,768.57
E-C-CH2H-CTRL	107,258.00	0.0180	1,930.64
E-C-CH2H-CTUD	759,849.41	0.0390	29,634.13
E-C-CH2H-NITE	368,389.00	0.0020	736.78
E-C-CH2H-PROJ	794.00	0.0035	2.78
E-C-CH2I-24UC	3,330,016.00	0.0080	26,640.13
E-C-CH2I-CTRL	-123,250.00	0.0290	-3,574.25
E-C-CH2I-CTUD	2,813,266.00	0.0180	50,638.79
E-C-CH2I-NITE	1,496,138.00	0.0040	5,984.55
E-C-CH2L-24UC	2,335,742.09	0.0080	18,685.94
E-C-CH2L-AICO	252,186.00	0.0080	2,017.49
E-C-CH2L-CTRL	28,522.00	0.0120	342.26

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Appendix F – Pass-through Prices and Quantities for 2017 Assessment Period (Clause 11.4(f)), Continued

Price Code	Quantity Q ₂₀₁₇	Pass-through Price \$ PTP ₂₀₁₇	Total Pass-through Revenue \$ PTP ₂₀₁₇ X Q ₂₀₁₇
E-C-CH2L-CTUD	90,129.00	0.0300	2,703.87
E-C-CH2L-NITE	45,971.00	0.0060	275.83
E-C-CH2L-PROJ	425.00	0.0080	3.40
E-C-CH2R-24UC	10,128,935.41	0.0000	0.00
E-C-CH2R-AICO	13,023,663.65	0.0000	0.00
E-C-CH2R-CTRL	1,124,036.64	0.0000	0.00
E-C-CH2R-CTUD	698,073.00	0.0000	0.00
E-C-CH2R-DGEN	95,321.00	0.0000	0.00
E-C-CH2R-NITE	324,187.12	0.0000	0.00
E-C-CH2R-PROJ	7,600.00	0.0000	0.00
E-C-CH3-24UC	3,730,385.58	0.0190	70,877.33
E-C-CH3-CTRL	31,999.00	0.0090	287.99
E-C-CH3-CTUD	918,975.64	0.0330	30,326.20
E-C-CH3-DGEN	1,936.00	0.0000	0.00
E-C-CH3-DMND	1,840.16	0.8000	1,472.13
E-C-CH3-KVAR	545.09	7.7500	4,224.47
E-C-CH3-NITE	389,278.33	0.0070	2,724.95
E-C-CH3-PROJ	4,701.00	0.0190	89.32
E-C-CH3-SOPD	1,772.02	2.0000	3,544.04
E-C-CH3-TAIC	599,247.00	0.0000	0.00
E-C-CH4-24UC	2,129,107.83	0.0040	8,516.43
E-C-CH4-CTUD	1,176,360.85	0.0150	17,645.41
E-C-CH4-DGEN	1,900.00	0.0000	0.00
E-C-CH4-DMND	5,341.80	2.0000	10,683.60
E-C-CH4-KVAR	963.79	7.7500	7,469.40
E-C-CH4-NITE	360,579.14	0.0030	1,081.74
E-C-CH4-SOPD	5,210.80	2.0000	10,421.60
E-C-CH4-TAIC	2,039,493.00	0.0000	0.00
E-C-CH5-DMND	15,374.86	0.7500	11,531.15
E-C-CH5-KVAR	2,286.89	7.7500	17,723.42
E-C-CH5-SOPD	14,851.00	2.0000	29,702.00
E-C-CH5-TAIC	4,802,608.00	0.0000	0.00
E-C-CH6-DMND	4,315.70	0.7500	3,236.78
E-C-CH6-KVAR	744.83	7.7500	5,772.46
E-C-CH6-SOPD	4,201.96	2.0000	8,403.92
E-C-CH6-TAIC	909,173.00	0.0000	0.00

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Appendix F – Pass-through Prices and Quantities for 2017 Assessment Period (Clause 11.4(f)), Continued

Price Code	Quantity Q ₂₀₁₇	Pass-through Price \$ PTP ₂₀₁₇	Total Pass-through Revenue \$ PTP ₂₀₁₇ X Q ₂₀₁₇
E-C-CH8-DMND	2,217.16	0.9000	1,995.44
E-C-CH8-KVAR	85.88	7.7500	665.57
E-C-CH8-TAIC	780,526.00	0.0000	0.00
E-C-CH8-WOPD	2,133.96	2.0000	4,267.92
E-C-T1P-24UC	114.00	0.0240	2.74
E-C-U01-UNMT	312,303.91	0.0200	6,246.08
E-C-U02-1	394,623.86	0.0200	7,892.48
E-C-U02-2	33,521.24	0.0200	670.42
E-C-U02-3	80,039.51	0.0200	1,600.79
E-C-U02-4	2,122.15	0.0200	42.44
F-C-CH1	937,612.00	0.0000	0.00
F-C-CH11	365.00	0.0000	0.00
F-C-CH12	365.00	0.0000	0.00
F-C-CH1G	256.00	0.0000	0.00
F-C-CH2G	1,392.00	0.9000	1,252.80
F-C-CH2H	194,816.00	0.0000	0.00
F-C-CH2I	26,888.00	0.0000	0.00
F-C-CH2L	504,264.00	0.0000	0.00
F-C-CH2R	1,223,514.00	0.9000	1,101,162.60
F-C-CH3	24,738.00	0.0000	0.00
F-C-CH4	9,155.00	0.0000	0.00
F-C-CH5	3,011.00	0.0000	0.00
F-C-CH6	639.00	0.0000	0.00
F-C-CH8	365.00	0.0000	0.00
F-C-T1P	524.00	0.0000	0.00
F-C-U02-1	322,660.00	0.0000	0.00
F-C-U02-3	37,844.00	0.0000	0.00
F-C-U02-4	2,190.00	0.0000	0.00
		PTP₂₀₁₇ X Q₂₀₁₇	\$2,421,492.90

The methodology for calculating Distribution and Pass-through Prices uses the disclosure year prices and quantities. The Centralines' Pricing Policy, consistent with Part 15 of the Electricity Participation Code 2010, however allows for revision of metering data back 14 months. Centralines' billing system therefore applies the rate prevailing for that time-period for any revision of electricity consumption. Due to any revisions, a minor variation can occur when comparing the total line revenue to a calculation of the current price rate and the submitted electricity consumption during the relevant disclosure year.

Appendix G – Pass-through Costs and Recoverable Costs – Actual and Forecast (Clauses 8.6(b) and 11.4(g), (h), (i) and (j))

Table The table below shows the pass-through costs and recoverable costs for the year ending March 2017.

Pass-through and Recoverable Costs for year ending March 2017				
V ₂₀₁₆	Actual (\$)	Forecast (\$)	Variance (\$)	Variance (%)
Transmission	2,913,268	2,913,268	0	0.0
Avoided Transmission	0	0	0	0.0
Transpower New Investment Contract Charges	0	0	0	0.0
Distributed Generation Allowance	0	0	0	0.0
Claw-back	422,000	422,000	0	0.0
NPV Wash-up Allowance	245,000	245,000	0	0.0
Quality Incentive Allowance	0	0	0	0.0
Capex Wash-up Adjustment	-69,000	-69,000	0	0.0
K ₂₀₁₆	Actual (\$)	Forecast (\$)	Variance (\$)	Variance (%)
Local Authority Rates	39,622	41,121	-1,499	-3.6
Electricity Authority Levies	21,895	21,160	735	3.5
Commerce Act Levies	22,941	18,125	4,816	26.6
Utilities Disputes (formerly Electricity and Gas Complaints Commissioner) Levies	4,136	5,000	-864	-17.3
Total Pass-through and Recoverable Costs	3,599,862	3,596,674	3,188	0.1

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Pass-through Costs and Recoverable Pass-through Costs – Actual and Forecast (Clauses 8.6(b) and 11.4(g), (h), (i) and (j)), Continued

Explanations for variances

None of these costs are fully fixed and variances will naturally occur. Listed below are explanations for variances.

- Transmission – Transmission as forecast.
 - Avoided Transmission – No avoided transmission.
 - Rates – Minimal variation from rates forecasts.
 - Electricity Authority Levies – Minimal variation from forecast.
 - Commerce Act Levies – A 2015-16 levy wash-up was invoiced in December 2016, increasing the annual levy by \$7,059.
 - Utilities Disputes' (formerly Electricity and Gas Complaints Commission) Levies – The forecast was based on the previous year's levies.
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Appendix H – Quality Standard Compliance Calculations (Clause 11.5(c))

Reliability Data (before Normalisation)

Year	SAIDI (Interruption Duration)			SAIFI (Interruption Frequency)		
	Class B	Class C	Total	Class B	Class C	Total
2017	74.830	54.655	92.070	0.298	1.519	1.668

SAIDI and SAIFI Limits, Unplanned Boundary Values, Caps, Collars, and the Targets for the Regulatory Period 1 April 2015 – 31 March 2020

SAIDI Quality Measures		
<i>SAIDI_{Boundary}</i>	8.517	SAIDI Unplanned Boundary value: 23 rd highest daily unplanned SAIDI value in the reference dataset.
<i>Daily_{planned}</i>	560.897	The sum of all daily planned SAIDI values in the Reference Dataset. The sum of all daily unplanned SAIDI values in the Reference Dataset, where any daily unplanned SAIDI Values greater than the SAIDI Unplanned Boundary Value equals that value.
<i>Daily_{unplanned}</i>	910.270	
<i>SAIDI_{Target}</i>	119.072	$(\text{Daily}_{\text{planned}} * 0.5) + \text{Daily}_{\text{unplanned}} / 10$
<i>SAIDI_{deviation}</i>	1.061	The standard deviation of the daily SAIDI assessed values (daily planned value * 0.5 + normalised daily unplanned value).
<i>SAIDI_{Limit} / SAIDI_{Cap}</i>	139.348	$\text{SAIDI}_{\text{target}} + (\text{SAIDI}_{\text{deviation}} \times \sqrt{365})$
<i>SAIDI_{Collar}</i>	98.796	$\text{SAIDI}_{\text{target}} - (\text{SAIDI}_{\text{deviation}} \times \sqrt{365})$

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Appendix H – Quality Standard Compliance Calculations (Clause 11.5(c)), Continued

SAIFI Quality Measures

<i>SAIFI_{Boundary}</i>	0.294	SAIFI Unplanned Boundary value: 23 rd highest daily unplanned SAIDI value in the reference dataset.
<i>Daily_{planned}</i>	2.549	The sum of all daily planned SAIDI values in the Reference Dataset.
<i>Daily_{unplanned}</i>	33.939	The sum of all daily unplanned SAIDI values in the Reference Dataset, where any daily unplanned SAIDI Values greater than the SAIDI Unplanned Boundary Value equals that value.
<i>SAIFI_{Target}</i>	3.521	$(\text{Daily}_{\text{planned}} * 0.5) + \text{Daily}_{\text{unplanned}} / 10$
<i>SAIFI_{deviation}</i>	0.036	The standard deviation of the daily SAIFI assessed values (daily planned value * 0.5 + normalised daily unplanned value).
<i>SAIFI_{Limit} / SAIFI_{Cap}</i>	4.203	$\text{SAIFI}_{\text{target}} + (\text{SAIFI}_{\text{deviation}} * \sqrt{365})$
<i>SAIFI_{Collar}</i>	2.840	$\text{SAIFI}_{\text{target}} - (\text{SAIFI}_{\text{deviation}} * \sqrt{365})$

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Appendix H – Quality Standard Compliance Calculations (Clause 11.5(c)), Continued

Reliability Assessment Calculations (2016/17 Assessment Period)

Major Event Days, where the Daily SAIDI Value for Class C Interruptions Exceeds the SAIDI Unplanned Boundary Value

Date	Pre-Normalised Class C SAIDI	Normalised Class C SAIDI
		-

Major Event Days, where the Daily SAIFI Value for Class C Interruptions Exceeds the SAIFI Unplanned Boundary Value

Date	Pre-Normalised Class C SAIFI	Normalised Class C SAIFI
		-

Assessed SAIDI Value 2017

SAIDI ₂₀₁₇	92.070	The sum of daily SAIDI Values in the 1 April 2016 - 31 March 2017 Normalised Assessment Dataset.
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Assessed SAIFI Value 2017

SAIFI ₂₀₁₇	1.668	The sum of daily SAIFI Values in the 1 April 2016 - 31 March 2017 Normalised Assessment Dataset.
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Appendix H – Quality Standard Compliance Calculations (Clause 11.5(c)), Continued

Prior Period Assessed Values

Assessed SAIDI Value

SAIDI₂₀₁₆

72.67

The sum of daily SAIDI Values in the 1 April 2015 - 31 March 2016 Normalised Assessment Dataset.

Assessed SAIFI Value

SAIFI₂₀₁₆

1.410

The sum of daily SAIFI Values in the 1 April 2015 - 31 March 2016 Normalised Assessment Dataset.

Assessed SAIDI Value

SAIDI₂₀₁₅

141.37

The sum of daily SAIDI Values in the 1 April 2014 - 31 March 2015 Normalised Assessment Dataset.

Assessed SAIFI Value

SAIFI₂₀₁₅

2.401

The sum of daily SAIFI Values in the 1 April 2014 - 31 March 2015 Normalised Assessment Dataset.

Appendix I – Quality Incentive Adjustment 11.5(c) and Schedule 5B

SAIDI Quality Incentive Measures for the Regulatory Period 1 April 2015 – 31 March 2020

	SAIDI Target	SAIDI Collar	SAIDI Cap
1 April 2015 – 31 March 2020	119.0718	98.7960	139.3477

SAIFI Quality Incentive Measures for the Regulatory Period 1 April 2015 – 31 March 2020

	SAIFI Target	SAIFI Collar	SAIFI Cap
1 April 2015 – 31 March 2020	3.5214	2.8397	4.2030

Calculation of the Quality Incentive Adjustment

$$S_{TOTAL} = S_{SAIDI} + S_{SAIFI}$$

$$99.83708 = 49.91475 + 49.92232$$

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

$$49.91475 = 2.46179 \times (119.0718 - 98.796)$$

Where $SAIDI_{assess}$ is:

- (i) greater than the $SAIDI_{cap}$, $SAIDI_{assess}$ equals the $SAIDI_{cap}$;
- (ii) less than the $SAIDI_{collar}$, $SAIDI_{assess}$ equals the $SAIDI_{collar}$.

$$SAIDI_{IR} = \frac{0.5 \times REV_{RISK}}{SAIDI_{cap} - SAIDI_{target}}$$

$$2.46179 = \frac{0.5 \times 99.83}{139.3477 - 119.0718}$$

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

$$49.92232 = 73.2321 \times (3.5214 - 2.8397)$$

Where $SAIFI_{assess}$ is:

- (i) greater than the $SAIFI_{cap}$, $SAIFI_{assess}$ equals the $SAIFI_{cap}$;
- (ii) less than the $SAIFI_{collar}$, $SAIFI_{assess}$ equals the $SAIFI_{collar}$.

$$SAIFI_{IR} = \frac{0.5 \times REV_{RISK}}{SAIFI_{cap} - SAIFI_{target}}$$

$$73.2321 = \frac{0.5 \times 99.83}{4.203 - 3.5214}$$

Appendix J – Policies and Procedures for Recording SAIDI and SAIFI (Clause 11.5(e))

Centralines Systems for recording SAIDI and SAIFI

During the assessment period 1/4/2016 to 31/3/2017, Centralines had a staged transition to a new SCADA system. As a result, Centralines has operated the network with different SCADA systems (Realflex and ADMS) for different periods of the year. Due to operating the network with two management systems, two systems for recording SAIDI and SAIFI have been used, the Access Fault database and the ADMS database. Realflex and the Access Faults database were retired from 1/4/2017.

The Realflex Management System and the associated Access Faults Database relied on extensive manual processes and controls for processing outage information, and ultimately calculation of SAIDI and SAIFI. The ADMS System automatically calculates SAIDI and SAIFI.

SCADA timing

Automatically recorded SCADA data is time stamped at the RTU which are time corrected to the master station each half hour.

RealFlex SCADA

Centralines' SCADA is part of Unison's Taupo-Rotorua SCADA system, with all zone substation 33kV and 11kV circuit breakers linked by RTUs. This system reports automatically and time stamps all changes of state devices directly to the SCADA Daily log file.

Each zone substation and 11kV feeder is represented by a schematic picture, a SCADA tile or series of SCADA tiles if the feeder is extensive in the real world.

The SCADA Event Search tool is used to search and print a report for each unplanned outage.

The resulting report is used with GIS data to compile a report, in preparation for entry into the Faults database.

Outage Data Capture process

The capture of outage data uses the following data sources and utilities.

Data	Source
(1) Number of ICPs attached to 11kV/400v transformers	GIS
(2) Transformers connected between Isolation Points	GIS
(3) Real time data	RealFlex Scada/ ADMS SCADA

The data from SCADA is accurate within the abilities of operators and field staff to report and record each manual event. The logging of SCADA connected devices is automatic.

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Appendix J – Policies and Procedures for Recording SAIDI and SAIFI (Clause 11.5(e)), Continued

Access Faults Database – SCADA events (SCADA search)

The SCADA Event Search tool is used to search and print a report for each unplanned outage.

By using the SCADA Events search tool, with appropriate text strings, an extract of all events relating to an unplanned outage can be printed for analysis, and for compilation of an Outage Report.

The resulting report is used to compile data from the Excel feeder spreadsheets, in preparation for entry into the Faults database.

Access Faults Database – Unplanned Interruptions

All unplanned and planned outages are processed from their initiation to completion using the Faults database, which is a bespoke application developed using MS Access with MS SQL Server backend.

Each unplanned or planned outage has a unique identifier, the Sheet Number/Record number.

A summary of general details for each unplanned and planned outage is recorded by the operator.

For unplanned outages, the Network Update form is used to collate all relevant data.

The details of ICPs restored, are taken from the Excel spreadsheets.

The times of restoration or interruption, are taken from an extract of the SCADA Daily Log file.

The operator enters the total number of ICPs affected, calculated from the Excel spreadsheets, time of supply fail, and time of total restoration of supply.

In the case of faults where sequential restorations and further interruptions to supply occur, the elapsed times, interruption times, ICPs restored or interrupted at each step, are entered in a customised calculator.

At the end of the process the calculator checks that the total number of ICPs restored is correct before final calculations are made.

The record cannot be saved until both values are equal.

Only the final, calculated data is held in the table 'Datafile'.

All the incremental step values are held in a common table, 'Outage Calculator'.

Both tables are linked using the Sheet Number field of the Datafile record.

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Appendix J – Policies and Procedures for Recording SAIDI and SAIFI (Clause 11.5(e)), Continued

Access Faults Database – Planned Interruptions For planned outages, the Switching Update form is used to collate all relevant data entered on the Switching Instruction.

Times of power off, power restored and ICPs affected, are entered in the database from the data entered on the Switching Instruction.

All ICP data comes from the excel spreadsheets referred to previously.

Supply Off and Supply Restored times are annotated on the Switching Instruction in real time.

At the end of the process the calculator checks that the total number of ICPs restored is correct before final calculations are made.

The record cannot be saved until both values are equal.

Only the final, calculated data is held in the table 'Datafile'.

All the incremental step values are held in a common table, 'Outage Calculator'.

Both tables are linked using the Sheet Number field of the Datafile record.

ADMS – All Interruptions ADMS is updated with customer numbers and connectivity from GIS daily. Zone (33kV/11kV) substation connectivity is maintained manually by the SCADA team.

The SCADA tile is updated by either an operation of a device that is linked via SCADA or by a manual update a switch status by the Control Room Operator. This updates the real-time physical state of the network, including energisation of customers.

If the switching operation de-energises customers, ADMS will create an 'incident' and 'SDP interruptions'.¹ The 'incident' has a unique identifier for the interruption and contains operational information, for example the cause of the interruption. The 'SDP interruptions' are created in ADMS for each supply disruption to each customer affected and record the start and end times of the interruption, as well as containing a link to the parent 'incident'.

When all customers are restored, the Control Room Operator updates the relevant, general details on the incident and 'archives' it – removing it from the list of current interruptions in ADMS and allowing it to be viewed by other systems at Unison.

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¹ SDP – Service Delivery Point, the ADMS equivalent of an ICP.

Appendix J – Policies and Procedures for Recording SAIDI and SAIFI (Clause 11.5(e)), Continued

ADMS – All Interruptions (cont)

Customer Minutes Lost (CML) is calculated for each incident by adding all the minutes from the 'SDP interruptions' associated with that incident. CML is then divided by the number of connected customers to calculate SAIDI for the incident. This task is performed by a Unison database script.

SAIFI is calculated for the incident by dividing the number of customers affected by the number of connected customers (the average customers for the disclosure year).

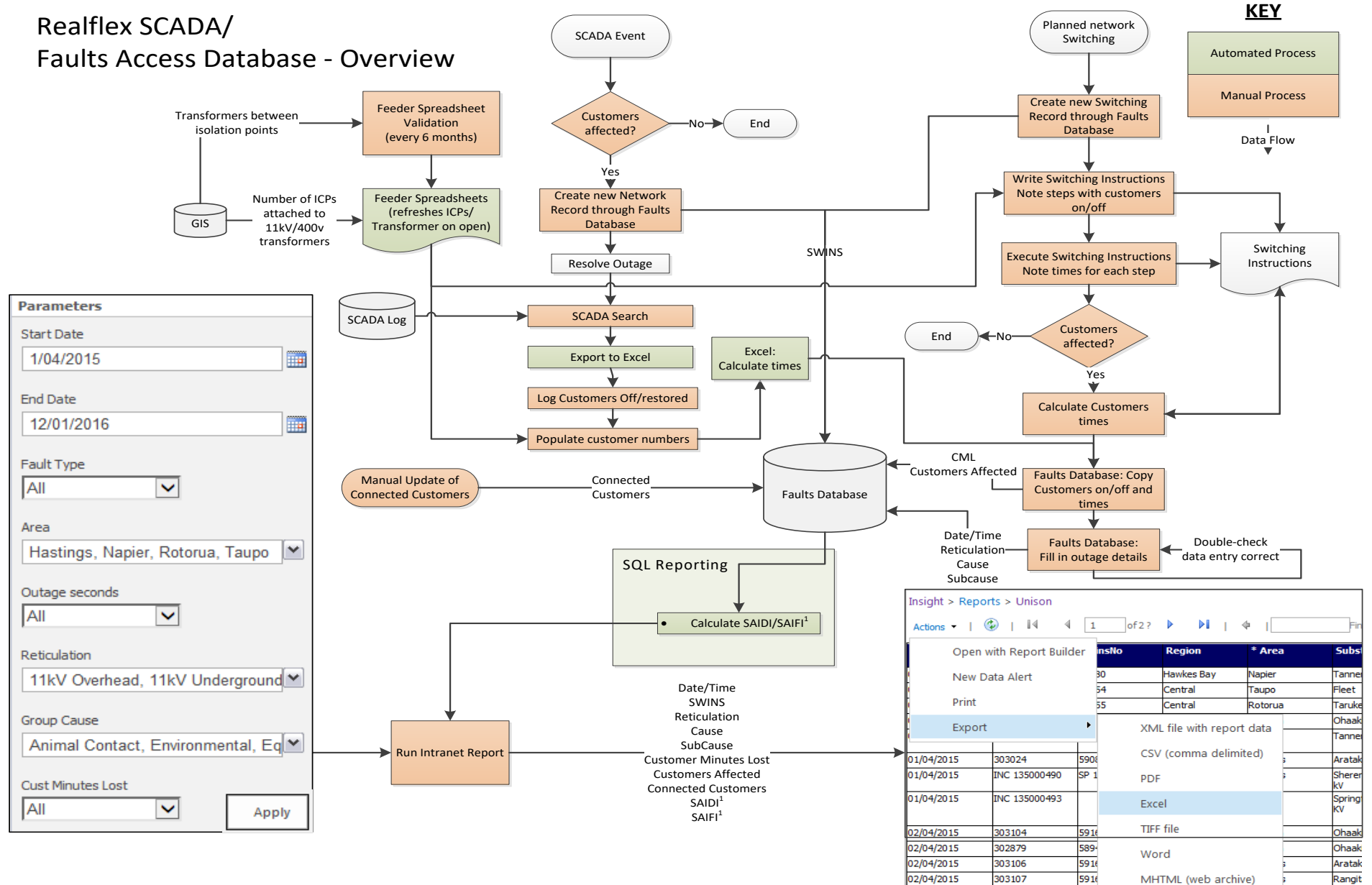
TOAD™

ADMS does not allow manual editing of SAIDI and SAIFI. If there is an error that results in incorrect SAIDI or SAIFI, they must be calculated manually and entered into TOAD, which is then used for reporting SAIDI and SAIFI.

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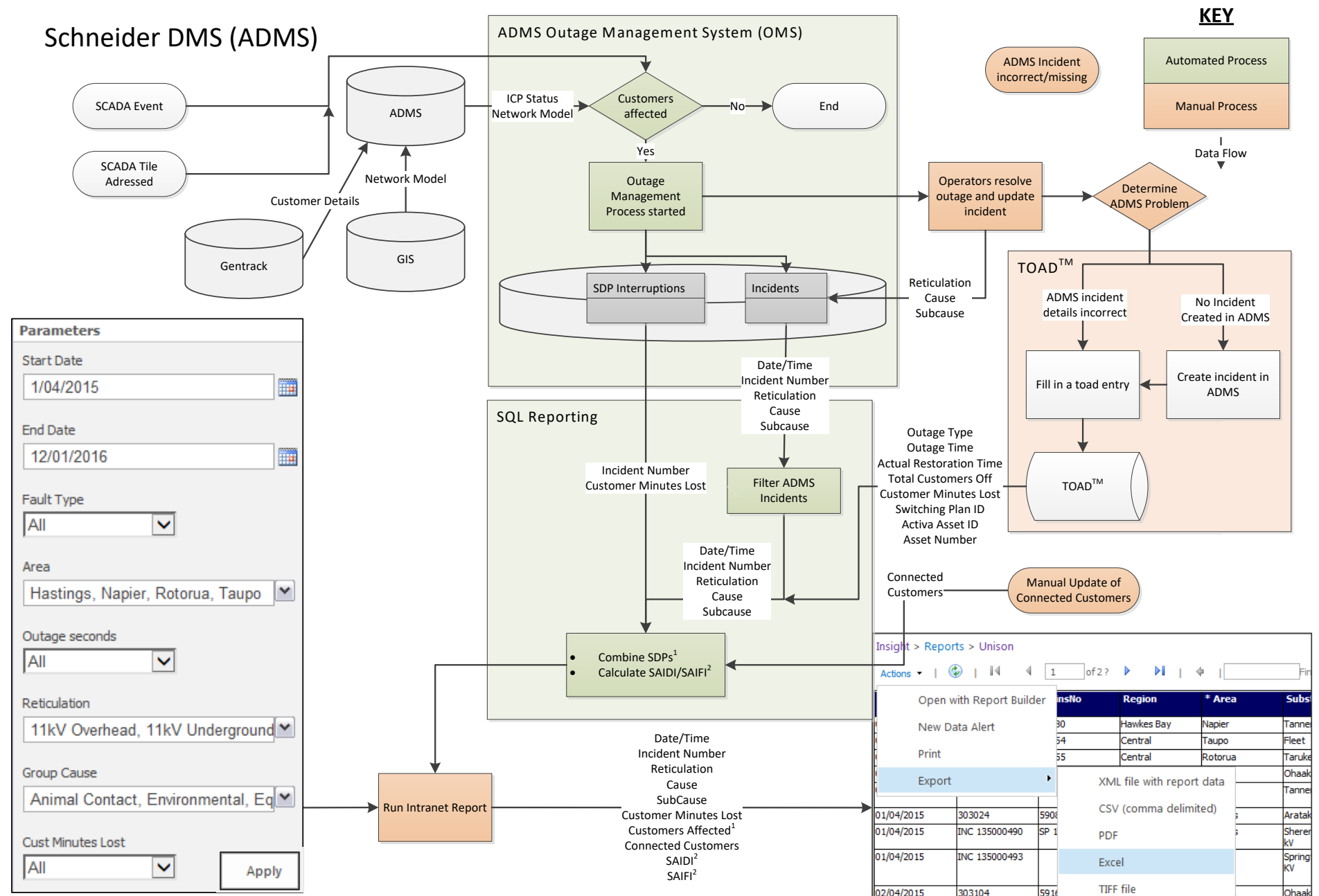
Policies and Procedures for Recording SAIDI and SAIFI (Clause 11.5(e)), Continued

Realflex SCADA/ Faults Access Database - Overview



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Policies and Procedures for Recording SAIDI and SAIFI (Clause 11.5(e)), Continued



Appendix K – Cause of Each Major Event Day (Clause 11.5(f))

No major event days

There were no major event days for the assessment period 1 April 2016 to 31 March 2017.
