



Network Quality and Reliability of Supply Code

2012/2013 Performance Report

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Horizon Power Service Areas



1. INTRODUCTION

This report has been produced to meet the requirements of the Electricity Industry (Network Quality and Reliability of Supply) Code 2005, Schedule 1 – Information to be published.

To assist in meeting reporting requirements the Economic Regulation Authority Western Australia (ERAWA) publishes the Electricity Distribution Licence Performance Reporting Handbook which specifies measures to be reported. This report is compiled in accordance with ERAWA Electricity Distribution Licence Performance Reporting Handbook – June 2013 however as Horizon Power is a vertically integrated business (responsible for generation, transmission and distribution) reliability data includes generation and transmission outages.

2. AUDIT BY INDEPENDENT EXPERT

Division 3 of the Electricity Industry (Network Quality and Reliability of Supply) Code 2005 requires that Horizon Power arrange for an independent expert to audit, and report on the operation of the systems that Horizon Power has in place for monitoring its compliance with the code.

Horizon Power has appointed Qualeng to perform the audit of its systems for compliance with the code. Qualeng is a locally based engineering consulting group with over 15 years engineering, regulatory and quality assurance expertise throughout various industries. Qualeng has a long and successful trading history and comprises a team of highly experienced consultants with recent, relevant and international expertise in the energy sector.

3. SCHEDULE 1 - INFORMATION TO BE PUBLISHED:

Clause 4 and 10

Clause 4(a) Number of breaches of each provision of the Code:

<i>Quality of Supply</i>	<i>2011/12</i>	<i>2012/13</i>
Voltage fluctuations	0	0
Harmonics	0	0

Clause 4(b) Remedial action taken for each provision:

Voltage Fluctuations

<i>Location</i>	<i>Action Taken</i>
	N/A

Harmonics

<i>Location</i>	<i>Action Taken</i>
	N/A

N/A = Not Applicable.

Continuous monitoring of voltage and frequency fluctuations is done at the substation busbar. Temporary power quality monitoring equipment is installed on the network for specific problem monitoring in response to a customer power quality complaint.

Clause 5 - Significant interruptions to small use customers.

	<i>Clause Description</i>	<i>Total</i>
DB 1	Clause 5(a) Number of premises that experienced interruptions greater than 12 hours continuous.	587
DB 2	Clause 5(b) Number of premises that experienced more than 16 interruptions.	3,327

Detailed analysis of interruptions where duration is greater than 12 hours.

<i>Discrete Area</i>	<i>Duration (minutes)</i>	<i>Premises</i>	<i>Cause Description</i>	<i>Incident Category</i>
Kununurra	1360	1	Equipment Failure (Includes Pole Top Fire)	Warm Meter Fuse
Kununurra	1,376	4	Generation Failure	Protective Device Trip
Marble Bar	900	1	Unnecessary Attendance	No Power
Port Hedland	2,103	1	Wind or Wind Bourne Debris	Intermittent Power
Port Hedland	2,104	1	Wind or Wind Bourne Debris	Intermittent Power
Port Hedland	3,024	1	Wind or Wind Bourne Debris	Service Wire Down
Port Hedland	3,014	1	Wind or Wind Bourne Debris	Street Wire Down
Port Hedland	2,993	1	Wind or Wind Bourne Debris	Service Wire Down
Port Hedland	1,782	25	Emergency Outage For Hazard	Feeder Trip
Port Hedland	1,681	140	Wind or Wind Bourne Debris	Feeder Trip
Port Hedland	1,710	27	Wind or Wind Bourne Debris	Feeder Trip
Port Hedland	2,804	18	Wind or Wind Bourne Debris	Feeder Trip
Port Hedland	4,188	1	Water Infiltration or Flooded Equipment	No Power
Port Hedland	1,445	1	Wind or Wind Bourne Debris	Pole Broken/Damaged
Port Hedland	2,315	1	Equipment Failure (Includes Pole Top Fire)	No Power
Port Hedland	1,816	1	Wind or Wind Bourne Debris	Part Power
Port Hedland	1,551	1	Customer Installation or Appliance	No Power
Port Hedland	1,219	1	Equipment Failure (Includes Pole Top Fire)	Part Power
Port Hedland	1,131	1	Wind or Wind Bourne Debris	Service Wire Down

Discrete Area	Duration (minutes)	Premises	Cause Description	Incident Category
Port Hedland	987	1	Customer Installation or Appliance	Part Power
Port Hedland	1,511	1	Wind or Wind Bourne Debris	Low Hanging Street Wire
Port Hedland	824	1	Lightning	No Power
Port Hedland	946	1	Equipment Failure (Includes Pole Top Fire)	Part Power
Port Hedland	936	25	Customer Installation or Appliance	Drop Out Fuse Trip
Port Hedland	2,772	1	Plan Outage or Disconnection	Planned SP Incident
Port Hedland	1,390	51	Plan Outage or Disconnection	LV Fuse Trip
Port Hedland	899	1	Vehicle	Feeder Trip
Nullagine	1,551	1	Equipment Failure (Includes Pole Top Fire)	No Power
Port Hedland	6,934	1	Vehicle	Street Wire Down
Port Hedland	1,178	13	Equipment Failure (Includes Pole Top Fire)	Underground Cable Damaged
Esperance	1,094	3	Equipment Failure (Includes Pole Top Fire)	Sectionalizer Trip
Esperance	1,070	1	Equipment Failure (Includes Pole Top Fire)	Part Power
Esperance	1,338	1	Vehicle	Switch Isolation
Esperance	884	1	Vegetation	Service Wire Down
Esperance	979	1	Lightning	No Power
Esperance	1,089	1	Vehicle	No Power
Norseman	804	1	Vandalism or Wilful Damage	No Power
Esperance	860	9	Lightning	Drop Out Fuse Trip
Esperance	1,058	1	Lightning	No Power
Esperance	1,155	9	Lightning	LV Fuse Trip
Esperance	1,155	33	Lightning	LV Fuse Trip
Esperance	1,097	1	Lightning	No Power
Esperance	988	1	Lightning	No Power
Esperance	1,440	1	Lightning	No Power
Esperance	1,585	9	Lightning	Switch Isolation
Esperance	1,824	1	Lightning	No Power
Esperance	1,008	1	Lightning	No Power
Esperance	1,316	11	Lightning	Drop Out Fuse Trip
Esperance	781	1	Wind or Wind Bourne Debris	No Power
Esperance	970	1	Lightning	Switch Isolation
Esperance	1,604	45	Vegetation	Recloser Trip
Esperance	992	6	Fire (Not Pole Top Fire)	Drop Out Fuse Trip
Esperance	1,497	8	Fire (Not Pole Top Fire)	Drop Out Fuse Trip
Exmouth	1,321	1	Equipment Failure (Includes Pole Top Fire)	SFW High Volts
Leonora	1,516	1	Customer Installation or Appliance	Warm Meter Fuse

<i>Discrete Area</i>	<i>Duration (minutes)</i>	<i>Premises</i>	<i>Cause Description</i>	<i>Incident Category</i>
Meekatharra	2,762	7	Wind or Wind Bourne Debris	Recloser Trip
Karratha	880	81	Equipment Failure (Includes Pole Top Fire)	LV Fuse Trip
Onslow	1,041	23	Lightning	Switch Isolation
Port Hedland	2,411	1	Wind or Wind Bourne Debris	No Power
Karratha	4,245	1	Plan Outage or Disconnection	Planned HV Incident
		587		

Customer interruptions greater than 12 hours were largely due to extreme weather events (cyclones, severe storms & floods) that Horizon Power systems experienced in 2012/13.

Notable weather events for 2012/13 were:

- Extremely hot weather was observed in the Pilbara from 20 to 25 December, numerous sites observed over 47 °C. The December maximum temperature record was broken on 3 consecutive days, with Roebourne (49.4 °C- 21st), Roebourne Airport (49.0 °C- 21st), Onslow (49.2 °C- 22nd) and Learmonth (48.9 °C- 23rd). The 49.4 °C at Roebourne was also the 2nd hottest December day in Australia, as well as the 5th hottest day on record in WA.
- Three tropical cyclones occurred in the WA region during 2012/13:
 - TC Narelle (Jan) remained off well to the east of WA and did not make landfall.
 - TC Peta (Feb) made landfall near Point Samson, where its intensity dropped to a weak Category 1 system. There were heavy rains and some flooding.
 - TC Rusty (Feb) crossed the coast early on the 12th just to the east of Port Hedland causing minor damage and flooding in the east Pilbara.
- On 4 January 2013, a surface trough produced thunderstorms over the southern Gascoyne, with reports of large hail and damaging wind gusts.
- A surface trough combined with a mid-level disturbance to the west of the state to cause significant thunderstorm activity in the Gascoyne on the 20th January with heavy rainfall.
- Port Hedland Floods 24 June 2013.

Clause 6 and 10 - Total number of complaints received

	2011/12	2012/13
DC 15	23	30

Clause 7 and 10 - Number of customer complaints in each discrete area:

Discrete Area	2011/12	2012/13
NWIS	12	12
Ardyaloon		
Beagle Bay		
Bidyadanga		
Broome		2
Carnarvon	1	3
Coral Bay		
Cue		
Denham		
Derby		
Djarindjin		
Esperance	4	6
Exmouth	1	1
Fitzroy Crossing		
Gascoyne Junction		
Halls Creek	1	1
Hopetoun	1	1
Kununurra	3	3
Lake Argyle		
Laverton		
Leonora		
Looma		
Marble Bar		
Meekatharra		
Menzies		
Mount Magnet		1
Norseman		
Nullagine		
Onslow		
Sandstone		
Warmun		
Wiluna		
Wyndham		
Yalgoo		
Horizon Power	23	30

Clause 8 and 10 - Total amount spent addressing complaints.

	2011/12	2012/13
DC 17	\$377,678	\$313,186

Clause 9 and 10 - Payments to customers for failure to meet certain standards

The number and total payments made to customers for failure to give required notice of planned interruption.

	2011/12		2012/13	
	Number	Cost	Number	Cost
DD 3	9	\$180	1	\$ 20

The number and total payments made to customers for supply interruptions exceeding 12 hours.

	2011/12		2012/13	
	Number	Cost	Number	Cost
DD 4	32	\$2,560	34	\$2,720

Clause 11, 12 and 13(a) - Average Length of Interruption of Supply to Customer Premises in Minutes (CAIDI)

<i>Discrete Area</i>	<i>2009/10</i>	<i>2010/11</i>	<i>2011/12</i>	<i>2012/13</i>	<i>Average</i>
NWIS	49.50	77.32	131.59	90.56	87.24
Ardayaloon	0.00	0.00	376.34	80.90	114.31
Beagle Bay	0.00	141.09	0.00	0.00	35.27
Bidyadanga	0.00	29.00	23.44	92.06	36.12
Broome	55.36	44.97	88.98	70.71	65.01
Carnarvon	80.61	210.54	62.72	74.87	107.19
Coral Bay	0.00	0.00	208.00	0.00	52.00
Cue	145.05	185.00	76.20	183.17	147.36
Denham	0.00	64.27	12.47	41.40	29.53
Derby	42.68	54.39	68.31	146.39	77.94
Djarindjin	0.00	0.00	0.00	110.81	27.70
Esperance	121.28	81.29	163.86	149.22	128.92
Exmouth	41.50	68.46	28.19	74.71	53.22
Fitzroy Crossing	59.68	104.83	91.82	55.14	77.87
Gascoyne Junction	0.00	264.00	0.00	0.00	66.00
Halls Creek	114.37	77.63	43.36	78.31	78.42
Hopetoun	80.14	165.46	71.32	94.70	102.91
Kalumburu	N/A	N/A	N/A	0.00	0.00
Kununurra	42.07	68.19	45.95	38.61	48.71
Lake Argyle	22.21	89.17	91.68	50.59	63.42
Laverton	59.80	74.13	185.11	201.42	130.12
Leonora	26.20	199.85	83.10	99.84	102.25
Looma	225.00	47.20	156.78	159.33	147.08
Marble Bar	10.03	8.46	54.93	92.42	41.46
Meekatharra	0.00	92.87	257.61	139.61	122.52
Menzies	0.00	135.52	46.87	0.00	45.60
Mount Magnet	28.32	36.41	34.98	15.75	28.86
Norseman	81.65	85.00	51.40	152.53	92.65
Nullagine	249.19	0.00	21.80	62.10	83.27
Onslow	67.38	74.96	67.19	96.03	76.39
Sandstone	0.00	60.85	78.57	268.00	101.85
Warmun	0.00	61.50	74.13	101.62	59.31
Wiluna	0.00	76.38	213.95	184.90	118.81
Wyndham	41.93	52.33	70.37	48.70	53.33
Yalgoo	0.00	0.00	254.00	27.83	70.46
Yungngora	N/A	N/A	N/A	225.00	225.00
Horizon Power	73.43	87.35	90.99	77.74	82.38

Clause 11, 12 and 13(b) - Average Number of Interruptions of Supply to Customer Premises (SAIFI)

<i>Discrete Area</i>	<i>2009/10</i>	<i>2010/11</i>	<i>2011/12</i>	<i>2012/13</i>	<i>Average</i>
NWIS	2.31	2.41	1.98	3.24	2.49
Ardyaloon	0.00	0.00	1.53	2.93	1.12
Beagle Bay	0.00	0.50	0.00	0.00	0.12
Bidyadanga	0.00	0.09	0.91	1.08	0.52
Broome	1.09	3.80	4.08	0.82	2.45
Carnarvon	3.11	6.88	3.77	5.05	4.70
Coral Bay	0.00	0.00	0.11	0.00	0.03
Cue	1.19	0.96	1.70	1.45	1.32
Denham	0.00	3.81	4.54	2.02	2.59
Derby	2.20	5.99	3.96	1.15	3.32
Djarindjin	0.00	0.00	0.00	0.89	0.22
Esperance	5.04	5.25	3.03	2.40	3.93
Exmouth	1.14	3.60	0.84	3.30	2.22
Fitzroy Crossing	1.28	3.35	2.77	1.22	2.16
Gascoyne Junction	0.00	0.50	0.00	0.00	0.13
Halls Creek	0.28	1.22	3.07	3.30	1.97
Hopetoun	2.60	2.22	4.81	5.25	3.72
Kalumburu	N/A	N/A	N/A	0.00	0.00
Kununurra	6.32	6.14	15.73	20.18	12.09
Lake Argyle	1.73	4.00	12.47	1.88	5.02
Laverton	1.71	2.54	5.11	0.49	2.46
Leonora	1.48	1.16	3.78	7.94	3.59
Looma	0.12	1.13	2.22	0.28	0.94
Marble Bar	3.77	1.00	1.28	3.42	2.37
Meekatharra	0.00	1.19	0.34	1.96	0.87
Menzies	0.00	1.68	1.37	0.00	0.76
Mount Magnet	3.53	4.46	3.25	7.03	4.57
Norseman	4.00	4.71	4.14	1.09	3.48
Nullagine	0.44	0.00	0.47	0.52	0.36
Onslow	3.22	5.23	6.33	20.54	8.83
Sandstone	0.00	1.65	4.43	0.06	1.54
Warmun	0.00	1.52	2.88	2.61	1.75
Wiluna	0.00	1.33	1.09	3.35	1.44
Wyndham	7.79	7.41	18.44	20.39	13.51
Yalgoo	0.00	0.00	0.38	1.93	0.58
Yungngora	N/A	N/A	N/A	0.19	0.19
Horizon Power	2.78	3.77	3.72	4.09	3.59

Clause 11, 12 and 13(c) - Average Percentage Of Time That Electricity Has Been Supplied To Customer Premises.

Discrete Area %	2009/10	2010/11	2011/12	2012/13	Average
NWIS	99.99	99.99	99.97	99.98	99.98
Ardayaloon	100.00	100.00	99.93	99.98	99.98
Beagle Bay	100.00	99.97	100.00	100.00	99.99
Bidyadanga	100.00	99.99	100.00	99.98	99.99
Broome	99.99	99.99	99.98	99.99	99.99
Carnarvon	99.98	99.96	99.99	99.99	99.98
Coral Bay	100.00	100.00	99.96	100.00	99.99
Cue	99.97	99.96	99.99	99.97	99.97
Denham	100.00	99.99	100.00	99.99	99.99
Derby	99.99	99.99	99.99	99.97	99.99
Djarindjin	100.00	100.00	100.00	99.98	99.99
Esperance	99.98	99.98	99.97	99.97	99.98
Exmouth	99.99	99.99	99.99	99.99	99.99
Fitzroy Crossing	99.99	99.98	99.98	99.99	99.99
Gascoyne Junction	100.00	99.95	100.00	100.00	99.99
Halls Creek	99.98	99.99	99.99	99.99	99.99
Hopetoun	99.98	99.97	99.99	99.98	99.98
Kalumburu	N/A	N/A	N/A	100.00	100.00
Kununurra	99.99	99.99	99.99	99.99	99.99
Lake Argyle	100.00	99.98	99.98	99.99	99.99
Laverton	99.99	99.99	99.96	99.96	99.98
Leonora	100.00	99.96	99.98	99.98	99.98
Looma	99.96	99.99	99.97	99.97	99.97
Marble Bar	100.00	100.00	99.99	99.98	99.99
Meekatharra	100.00	99.98	99.95	99.97	99.98
Menzies	100.00	99.97	99.99	100.00	99.99
Mount Magnet	99.99	99.99	99.99	100.00	99.99
Norseman	99.98	99.98	99.99	99.97	99.98
Nullagine	99.95	100.00	100.00	99.99	99.98
Onslow	99.99	99.99	99.99	99.98	99.99
Sandstone	100.00	99.99	99.99	99.95	99.98
Warmun	100.00	99.99	99.99	99.98	99.99
Wiluna	100.00	99.99	99.96	99.96	99.98
Wyndham	99.99	99.99	99.99	99.99	99.99
Yalgoo	100.00	100.00	99.95	99.99	99.99
Yungngora	N/A	N/A	N/A	99.96	99.96
Horizon Power	99.94	99.99	99.98	99.99	99.97

Clause 11, 12 and 13(d) - Average Total Length of All Interruptions of Supply to Customer Premises in Minutes (SAIDI)

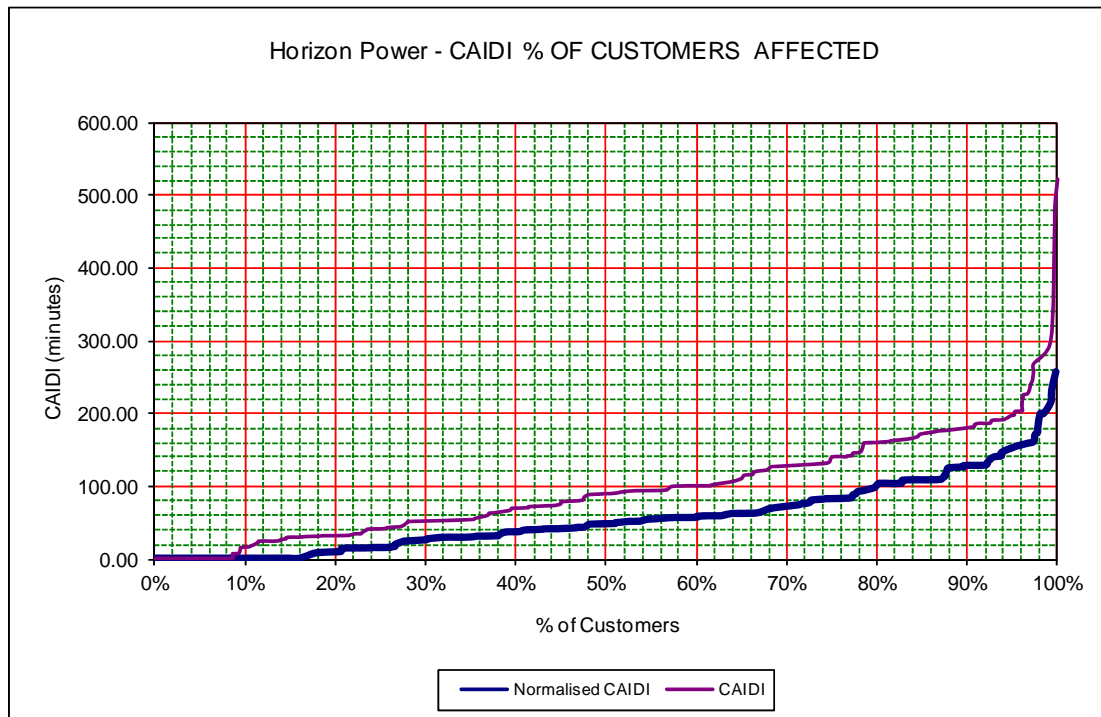
DISCRETE AREA	2009/10	2010/11	2011/12	2012/13	Average
NWIS	114	186	261	293	214
Ardyaloon	0	0	577	237	204
Beagle Bay	0	70	0	0	17
Bidyadanga	0	3	21	99	31
Broome	61	171	363	58	163
Carnarvon	250	1448	236	378	578
Coral Bay	0	0	24	0	6
Cue	173	178	129	265	186
Denham	0	245	57	84	96
Derby	94	326	270	168	214
Djarindjin	0	0	0	99	25
Esperance	611	427	496	358	473
Exmouth	47	246	24	246	141
Fitzroy Crossing	76	351	255	67	187
Gascoyne Junction	0	133	0	0	33
Halls Creek	32	95	133	258	130
Hopetoun	209	368	343	497	354
Kalumburu	N/A	N/A	N/A	0	0
Kununurra	266	419	723	779	547
Lake Argyle	38	357	1143	95	408
Laverton	103	188	946	98	334
Leonora	39	232	314	793	344
Looma	27	53	348	44	118
Marble Bar	38	8	70	316	108
Meekatharra	0	110	88	274	118
Menzies	0	228	64	0	73
Mount Magnet	100	162	113	111	122
Norseman	326	400	213	166	276
Nullagine	110	0	10	32	38
Onslow	217	392	425	1973	752
Sandstone	0	101	348	17	116
Warmun	0	94	214	265	143
Wiluna	0	102	233	619	239
Wyndham	327	388	1298	993	751
Yalgoo	0	0	98	54	38
Yungngora	N/A	N/A	N/A	42	42
Horizon Power	204	329	339	318	297

For the period 01/07/2012 to 30/06/2013 SAIDI using the Normalised data sets was **202** minutes.

Clause 14(a) - Horizon Power - Average Length of Interruption - Frequency Distribution

<i>Percentile</i>	<i>Minutes</i>
25 th	40.55
50 th	89.10
75 th	138.66
90 th	179.85
95 th	196.80
98 th	278.74
100 th	522.00

Clause 15(a) - CAIDI Frequency Graph.

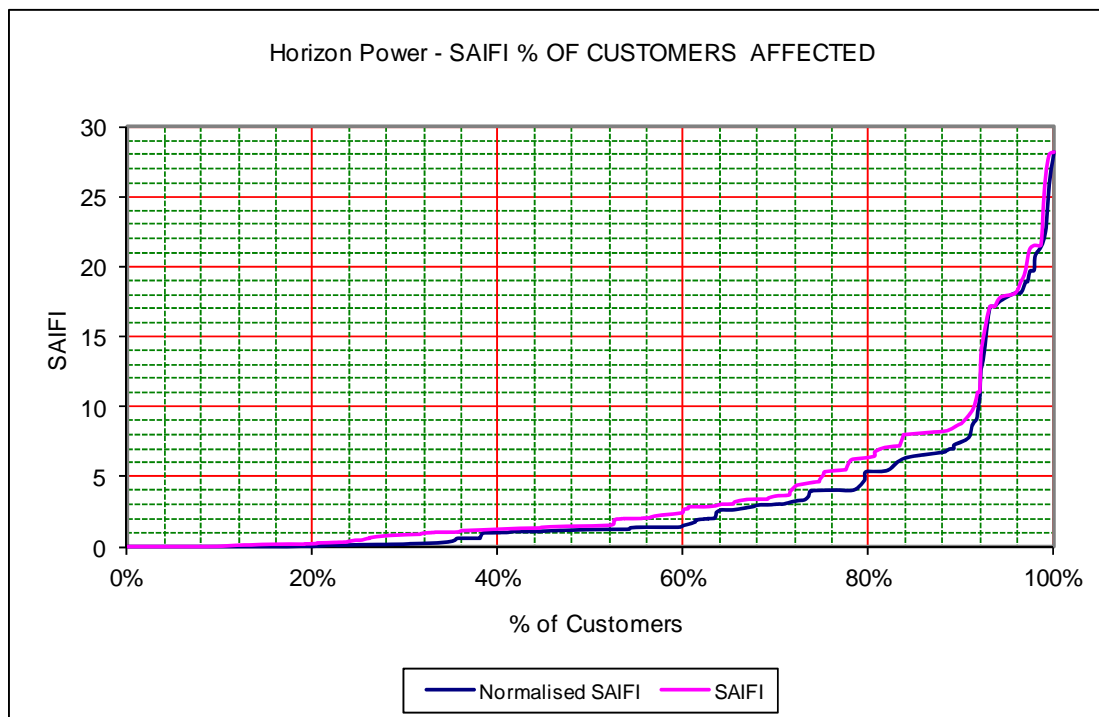


During the period 01/07/2012 to 30/06/2013 of those customers who experienced an interruption, approximately 37% had an interruption of less than 60 minutes.

Clause 14(b) - Horizon Power - Number of Interruptions - Frequency Distribution

<i>Percentile</i>	<i>Interruptions</i>
25 th	0.46
50 th	1.47
75 th	5.03
90 th	8.82
95 th	17.97
98 th	21.53
100 th	28.21

Clause 15(b) - SAIFI Frequency Graph.

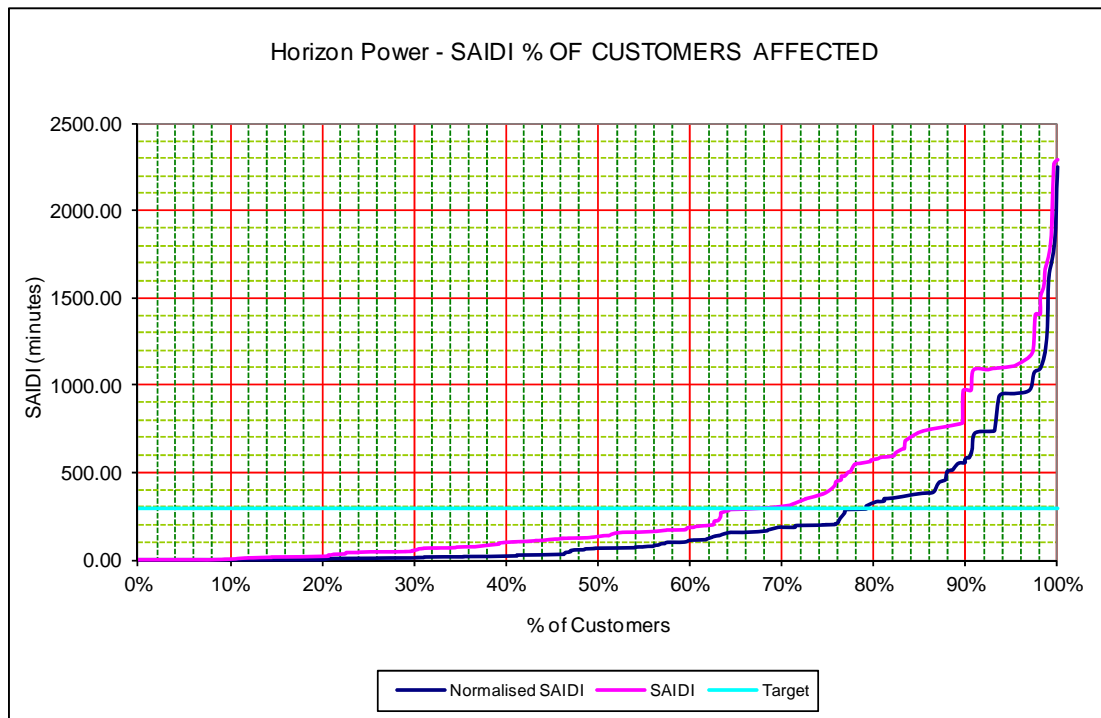


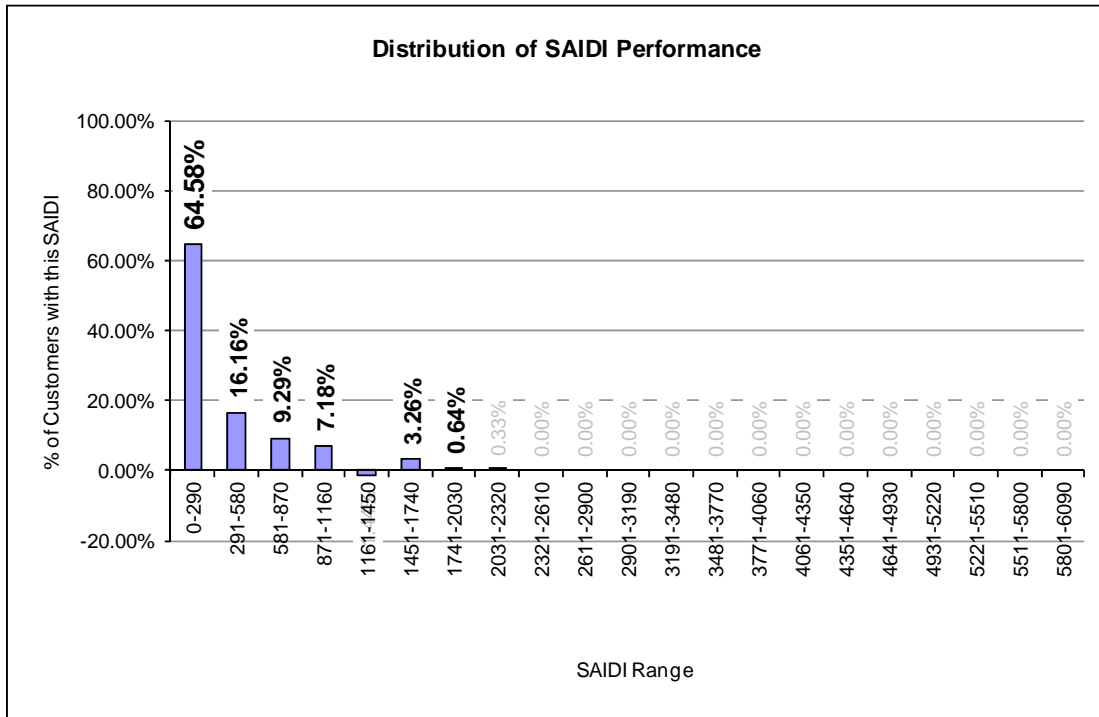
During the period 01/07/2012 to 30/06/2013 approximately 93% of customers experienced an average of less than 16 outages.

Clause 14(c) - Horizon Power - Total Length of all Interruptions - Frequency Distribution

<i>Percentile</i>	<i>Minutes</i>
25 th	44.62
50 th	133.11
75 th	393.49
90 th	971.65
95 th	1108.83
98 th	1407.58
100 th	2293.82

Clause 15(c) - SAIDI Frequency Graph





During the period 01/07/2011 to 30/06/2012, 65% of customers experienced outages with durations of less than 290 minutes. Using a normalised data set this is increased to 79%.

4. MAJOR EVENT DAYS

In the period 01/07/2012 to 30/06/2013 there were three Major Event Days recorded for Cyclone (Rusty).

Power System	Major Event Day Date	Event
NWIS	26-28/2/2013	Cyclone Rusty

5. APPENDIX

Major Event Days

Major event days are days in which interruptions affect the delivery of supply in a system and are not reasonably practicable to control such as extreme weather events (cyclones and floods). These days are excluded from Sustained Interruptions used for reliability measurement and reporting.

This report makes reference to the impact of major event days where they have had a significant impact on the statistics.

Major Event Day Classification

The classification of Major Event Days is to allow major events to be studied separately from daily operation, and in the process, to better reveal trends in daily operation that would be hidden by the large statistical effect of major events.

A Major Event Day is a day in which interruptions affect the delivery of supply in a system that is not reasonably practicable to control. All indices are calculated based on removal of the identified Major Event Days.

Interruptions that span multiple days are accrued to the day on which the interruption begins.

Normalised Data Sets - Unplanned

Horizon Power uses Normalised data sets to measure the management of incidents that are within the business' control.

Sustained Interruptions in Horizon Powers systems are those interruptions that result in a loss of electricity to customers for more than one minute in duration.

Horizon Power excludes interruptions from its Normalised data set where the interruption is not reasonably practicable to control such as:

- Customer installations/ appliances
- Planned outages/ disconnections
- Vehicle, machine or tool damage
- Wilful damage
- Damage due to events that Horizon Power cannot, so far as is reasonably practicable, control such as cyclones and floods.

As Horizon Power is a vertically integrated business (responsible for generation, transmission and distribution) reliability data includes generation and transmission outages.

Normalised data sets exclude incidents that aren't reasonably practicable to control by Horizon Power.

Left blank intentionally