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**Annual Reliability and Power Quality Report
(1 July 2012 - 30 June 2013)**

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Asset Performance Function

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-	Electricity Industry (Network Quality and Reliability of Supply) Code 2005

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Executive summary

This Annual Reliability and Power Quality Report (this Report) allows the Government, customers and other stakeholders to see how the Western Power Network (Network) has performed against the reporting obligations under Schedule 1 of the *Electricity Industry (Network Quality and Reliability of Supply) Code 2005* (the Code) for the reporting period 1 July 2012 to 30 June 2013 (the 2012/13 period).

The Code sets out performance standards and reporting requirements expected of Western Power for all electricity supply interruptions and the quality of the electricity supply to its customers. The Code also prescribes requirements for monitoring, investigating and managing customer complaints associated with their supply performance. This Report presents Western Power's performance against the Code. The Code's reliability performance measures have no specific exclusions and include all interruptions greater than 1 minute in duration, irrespective of location, cause or circumstance, as seen by the customer.

Overview of Performance

In general, the reliability performance improved across the Network, except for the Perth CBD network. The drop in performance in the Perth CBD was primarily due to the number of planned interruptions undertaken to carry out maintenance works on the CBD network.

In addition, there was an increase in lightning activity in rural areas of the Network, which resulted in an increase in the number of interruptions to customers in rural areas, compared to the reporting period 1 July 2011 to 30 June 2012 (the 2011/12 period). All other areas of the Network improved in performance, compared to the 2011/12 period, due to the reduction in the severity of storms and the effect of ongoing works programs during the 2012/13 period.

Western Power understands the imperative of meeting customer expectations for a reliable and safe electricity supply. To this end, Western Power is striving to attain a Network that is more capable of withstanding the effects of strong winds and fires and to restore supply to customers who have lost supply as quickly as possible. In addition to the asset work programs, such as pole replacement and asset maintenance activities, key improvement programs include:

- increased deployment of remote control devices to reduce outage times;
- targeted investment in the worst performing parts of the Network; and
- continued retrospective undergrounding of the Network.

Interruptions Exceeding 12 hours

In the 2011/12 period there were 201,555 customers without power for more than 12 hours. This decreased to 38,820 in the 2012/13 period.

Multiple Interruptions

In the 2011/12 period there were 10,302 urban customers who experienced more than 9 supply interruptions. This decreased to 8,702 in the 2012/13 period.

In the 2011/12 period there were 936 rural customers who experienced more than 16 supply interruptions. This increased to 2,341 in the 2012/13 period.

Customer Complaints

In the 2011/12 period there were 712 complaints received. This decreased to 643 complaints in the 2012/13 period.

The majority of these customer complaints were related to reliability of supply, voltage fluctuations, and planned outage notifications.

Payments to Customers

In the 2011/12 period payments for failure to give the required notice of a planned interruption totalled \$48,400. This decreased to \$13,660 in the 2012/13 period.

In the 2011/12 period payments for supply interruptions exceeding 12 hours totalled \$2.433 million. This increased to \$4.113 million in the 2012/13 period due to payments for the June 2012 storm being made in 2012/13.

Reliability

Perth CBD reliability performance was generally lower in the 2012/13 period compared to the 2011/12 period.

Non Perth CBD reliability performance generally improved in the 2012/13 period compared to the 2011/12 period.

Customers in rural areas experienced a higher number of interruptions in the 2012/13 period compared to the 2011/12 period.

Power Quality

All power quality incidents reported by customers during the 2012/13 period have been investigated and addressed to the customer's satisfaction.

At the customer's premises¹ (customer site), Total Harmonic Distortion (THD) compliance levels were met 100% of the time.

At the distribution transformer sites², Total Harmonic Distortion (THD) compliance levels were met 99.3% of the time.

The current generation of PQ meters do not have the capability for measuring voltage fluctuations (flicker³) (section 6(2) of the Code) or individual harmonic components (section 7 of the Code).

¹ Power quality performance is measured at the metering point of the customer's installation

² Power quality performance is measured at the LV terminals of the distribution transformers

³ Part 2 Section 6 of the Code refers to AS/NZS 61000:2001 which describes voltage fluctuations as "flicker"

Contents

1	Purpose	6
1.1	Context.....	6
1.2	Definitions.....	6
2	How to read this report	7
3	Network topology	8
4	Overview	9
4.1	Influence of environmental factors.....	9
4.2	Strategies during 2012/13 to improve reliability of the Network.....	9
4.2.1	Increased operating / switching flexibility of the Network.....	10
4.2.2	Routine targeted maintenance and asset intervention.....	10
4.2.3	Continued rollout of the State Underground Power Program.....	10
5	Power Quality standards	11
5.1	Power Quality Meters.....	11
5.2	Performance - Part 2 Section 6(2) of the Code.....	11
5.3	Performance - Part 2 Section 7 of the Code.....	12
5.4	Performance - Part 2 Section 14(3) of the Code.....	14
5.5	Performance - Part 4 Section 24 of the Code.....	14
6	Interruptions exceeding 12 hours	15
6.1	Performance - Interruptions exceeding 12 hours.....	15
6.2	Performance - Interruptions exceeding the permitted number of times.....	15
7	Customer Complaints	17
7.1	Performance - Customer complaints.....	17
8	Payments to Customers	18
8.1	Performance - Planned interruptions.....	18
8.2	Performance - Extended outage payment scheme.....	18
9	Supply reliability	19
9.1	Performance - Perth CBD.....	20
9.2	Performance - Urban areas.....	20
9.3	Performance - Isolated networks.....	21
9.4	Performance - Rural areas.....	22
10	Percentile values	23
10.1	Performance - Average length of interruption.....	23
10.2	Performance - Number of interruptions.....	24
10.3	Performance - Total length of all interruptions.....	25
Appendix A.	List of Customer Interruptions Greater than 12 Hours	27

1 Purpose

The purpose of the Annual Reliability and Power Quality Report (this Report) is to present the performance of the Western Power Network (Network) in accordance with Schedule 1 of the *Electricity Industry (Network Quality and Reliability of Supply) Code 2005* (the Code), for the reporting period 1 July 2012 to 30 June 2013 (2012/13 period).

1.1 Context

The Code, established by the Minister for Energy under the *Electricity Industry Act 2004* sets out quality standards for electricity network operators in relation to voltage fluctuations, harmonics and unplanned or planned interruptions. Section 27 of the Code states that a transmitter and distributor of electricity must publish a report setting out the information described in Schedule 1 of the Code (Schedule 1).

1.2 Definitions

The terminology used in this Report is in accordance with the definitions presented in item 1 to item 3 of Schedule 1 of the Code. Item 2 of Schedule 1 requires the reliability performance measures to include all planned and all unplanned interruptions, with no exclusions, greater than 1 minute in duration irrespective of location, cause or circumstance, as seen by the customer.

For the purposes of this Report, the discrete area “*all other areas of the State*” as stated in items 2(c) and 3(c) of Schedule 1, will be referred to as “rural” areas and will be specific to the Network.

For clarity, the terminology used in this report and item 11 of Schedule 1 of the Code have the same meaning as set out below:

- Customer Average Interruption Duration Index (CAIDI) refers to item 11(a) of Schedule 1 of the Code, i.e. “*the average length of interruption of supply to customer premises in minutes*”;
- System Average Frequency Interruption Duration Index (SAIFI) refers to item 11(b) of Schedule 1 of the Code, i.e. “*the average number of interruptions of supply to customer premises*”;
- Average Service Availability Index (ASAI) refers to item 11(c) of Schedule 1 of the Code, i.e. “*the average percentage of time that electricity has been supplied to customer premises*”; and
- System Average Interruption Duration Index (SAIDI) refers to item 11(d) of Schedule 1 of the Code, i.e. “*the average total length of all interruptions of supply to customer premises expressed in minutes*”.

2 How to read this report

This Report is structured as follows for contextual purposes:

- Section 3 provides geographic details of the Network.
- Section 4 provides an overview of the influencing factors that have impacted the reliability performance of the Network. This section also provides an overview of the strategies and activities being implemented to improve the reliability of the Network.

For responses to the Code purposes:

- Section 5 (addresses item 4 of Schedule 1); outlines the power quality standard performance of the Network with respect to Part 2, Division 1 Quality Standards of the Code.
- Section 6 (addresses item 5 of Schedule 1); reports on the number of customers that experienced power interruptions exceeding 12 hours at least once during the 2012/13 period.
- Section 7 (addresses items 6, 7 and 8 of Schedule 1); summarises the complaints which have been received, logged and subsequently actioned.
- Section 8 (addresses item 9 of Schedule 1); reports the payments made for failure to give the required notice for planned interruptions and for supply interruptions that exceed 12 hours (as required under sections 18 and 19 of the Code, respectively).
- Section 9 (addresses items 11, 12 and 13 of Schedule 1); provides discrete area performance data which is inclusive of interruptions on the network greater than or equal to one minute that resulted in loss of power to customers.
- Section 10 (addresses items 14 and 15 of Schedule 1); articulates the customer percentiles of average length of interruption, total length of interruption and number of interruptions for the 2012/13 period.

Appendix A provides a list of interruptions that exceeded 12 hours, the length and number of customers affected.

3 Network topology

Western Power operates and maintains the transmission and distribution electricity network within the South West Interconnected System (SWIS) known as the Western Power Network (Network).

The Network covers a geographic area from Kalbarri down to Albany, and from Perth through to Kalgoorlie (**Figure 1**) of approximately 254,920 square kilometres, much of which is isolated and unpopulated. It has a diverse asset base which includes more than 800,000 poles and almost 100,000 circuit kilometres of power lines.

The distribution network consists of 748 feeders, connected to the transmission network at 154 terminal and zone substations, with approximately 66,000 distribution substations providing an electricity supply to over one million customers and approximately 237,670 streetlights.



Figure 1: Map of the Western Power Network

4 Overview

This section provides an overview of the:

- influence of environmental factors during the 2012/13 period that impacted the actual reliability performance of the Network; and
- strategies and activities being implemented by Western Power to improve the reliability of the Network.

4.1 Influence of environmental factors

In terms of the Code's reporting requirements, the overall reliability performance of the Network during the 2012/13 period improved compared to the 2011/12 period.

This improvement in reliability was primarily driven by a decrease in interruptions caused by environmental factors, such as inclement weather and bushfires. However, significant weather events were still the main cause of customer supply interruptions during the 2012/13 period. These included:

- two storm fronts passed through Perth and the South West region on 28 November 2012 resulting in damage to overhead network assets and more than 130,000 customers with supply interruptions;
- storm activity including high rainfall occurred across the southern parts of the Network on 12 December 2012 causing flooding and resulting in multiple faults and damage to the distribution network. Approximately 32,000 customers experienced supply interruptions; and
- major lightning activity on 15 January 2013 resulting in multiple faults and damage to the distribution network. Approximately 17,000 customers experienced supply interruptions.

In addition to these storms, there was a fourth major event on 22 February 2013 when pole top fire activity occurred across the Perth Metropolitan area. This event occurred as a result of the combination of sustained pollution from smoke from a significant bushfire and light rainfalls. Approximately 47,000 customers experienced supply interruptions.

4.2 Strategies during 2012/13 to improve reliability of the Network

A number of key strategies and activities have continued to be implemented during the 2012/13 period delivering improvements in the reliability of supply to customers. This section describes these in further detail.

4.2.1 Increased operating / switching flexibility of the Network

This strategy seeks to minimise the duration of an interruption as well as reduce the number of customers affected. This is achieved through the deployment of 3-phase telemetered auto-reclosers⁴ and load break switches⁵.

4.2.2 Routine targeted maintenance and asset intervention

This strategy seeks to improve reliability of supply within specific locations and sections of the Network through the reduction of faults caused by equipment failure and wildlife and vegetation interacting with the Network. This is achieved through the installation of interconnections, replacing overhead powerlines with covered conductors or underground cables and the augmentation/upgrading of distribution feeders. This strategy focuses on the infrastructure that contributes largely to the system SAIDI.

This also includes Western Power's routine and targeted asset inspection and maintenance programs, as well as inspections and monitoring of assets in conjunction with vegetation management plans. This includes the replacement of under performing assets, deteriorating assets and defective assets, such as poles and conductors.

4.2.3 Continued rollout of the State Underground Power Program

The State Underground Power Program (SUPP) selects areas for the replacement of the overhead distribution network with underground cables.

This program seeks to increase the security of the Network in severe weather conditions, while also reducing:

- safety hazards caused by fallen powerlines;
- vegetation risk around overhead powerlines; and
- car accidents involving network infrastructure

The SUPP is a State Government initiative administered by the Public Utilities Office. The cost of each residential project is shared between the State Government, Western Power and Local Government. Further information on the current SUPP delivery program is available on Western Power's website⁶.

⁴ An auto-recloser is a fault interrupting device used to restore supply, limit the impact the duration of an interruption. This device is installed on the network to attempt to reduce the area and number of customers affected by an interruption.

⁵ A load break switch installed within the network provides greater flexibility / interconnection between feeders to facilitate restoration and thus minimise the duration of an interruption.

⁶ See Western Power website, State Underground Power Program web page, <http://www.westernpower.com.au/networkprojects/undergroundPower/upp/UPP.html>

5 Power Quality standards

This section is Western Power's response to Item 4 of Schedule 1, with respect to Part 2, Division 1 Quality Standards.

Code extract:

Item 4:

"In respect of each failure by the transmitter or distributor to comply with a provision of this Code or an instrument under Section 14(3) (as identified by monitoring records or under section 24 or following a complaint) –

- a) the total number of breaches of each provision; and*
- b) the remedial action taken in each case."*

5.1 Power Quality Meters

Permanent Power Quality (PQ) monitoring devices (PQ meters) have been deployed in different parts of the low voltage distribution network (LV network) to monitor the PQ performance⁷. The LV network is monitored at a customer site⁸ and a distribution transformer site⁹ on a sample basis to identify the presence of any systemic PQ issues that may exist.

The current generation of permanently installed PQ meters have the capability for measuring voltage THD however they do not have the capability for measuring voltage fluctuations (flicker¹⁰) or individual harmonic components. Other specialised PQ measuring equipment is deployed to investigate specific harmonic and flicker issues on the Network as they arise.

5.2 Performance - Part 2 Section 6(2) of the Code

Part 2 Section 6(2) of the Code sets out the quality standards for voltage fluctuations and requires that:

Code extract:

"The standard for the voltage fluctuation of electricity supplied is a level of fluctuation that is less than the compatibility levels set out in the Table to this subsection."

Performance

Western Power ensures, so far as is reasonably practicable¹¹, that electricity supplied to a customer's electrical installations complies with the standards prescribed by Part 2 Section 6(2) of the Code. For this purpose, Western Power:

⁷ This section of the report is in relation to the compliance of the LV network, which in turn reflects the performance of the high voltage (HV) distribution network. It is also noted that, on the transmission network, no non-compliances with the Code have been identified, in regards to 'harmonic' distortion or 'flicker' disturbances.

⁸ Power quality performance is measured at the metering point of the customer's installation

⁹ Power quality performance is measured at the LV terminals of the distribution transformers

¹⁰ Part 2 Section 6 of the Code refers to AS/NZS 61000:2001 which describes voltage fluctuations as "flicker"

¹¹ Part 2 Section 5(1) Obligation to observe standards.

- specifies and allocates flicker limits as part of the design process for assessing the flicker compatibility of a proposed new load;
- has developed the tool for allocating flicker limits, based on requirements specified in TR IEC 61000.3.7 (supersedes AS61000.3.7) and the draft Energy Networks Association of Australia (ENA) guideline;
- has developed the tool for estimating the flicker emissions attributable to the disturbing loads in an installation; and
- conducts field measurements to confirm whether flicker non-compliance exists when a customer reports a suspected non-compliance.

There were no compliance breaches relating to section 6(2) of the Code during the 2012/13 period.

5.3 Performance - Part 2 Section 7 of the Code

Part 2 Section 6(2) of the Code sets out the quality standards for harmonic voltage distortion levels and requires that:

Code extract:

“The standard for the harmonic voltage distortion level of electricity supplied is a distortion level that is less than the compatibility levels set out in the Table to this section.”

Performance

Western Power ensures, so far as is reasonably practicable, that electricity supplied to a customer’s electrical installations complies with the standards prescribed by Part 2 Section 7 of the Code. For this purpose, Western Power:

- measures THD providing an indication the distortion level on the Network, recognising the THD is an aggregation of all the individual harmonic components; and
- have the capability of measuring individual harmonics with specialised measuring equipment.

Figures 6 and 7 are a representation of the THD present at the customer and distribution transformer sites, respectively.

The median THD recorded by the permanent PQ meters is approximately 2.7% for the customer sites and 2% for the distribution transformer sites.

The THD compliance level of 8% was met for customer sites 100% of the time and for distribution transformer sites 99.3% of the time.

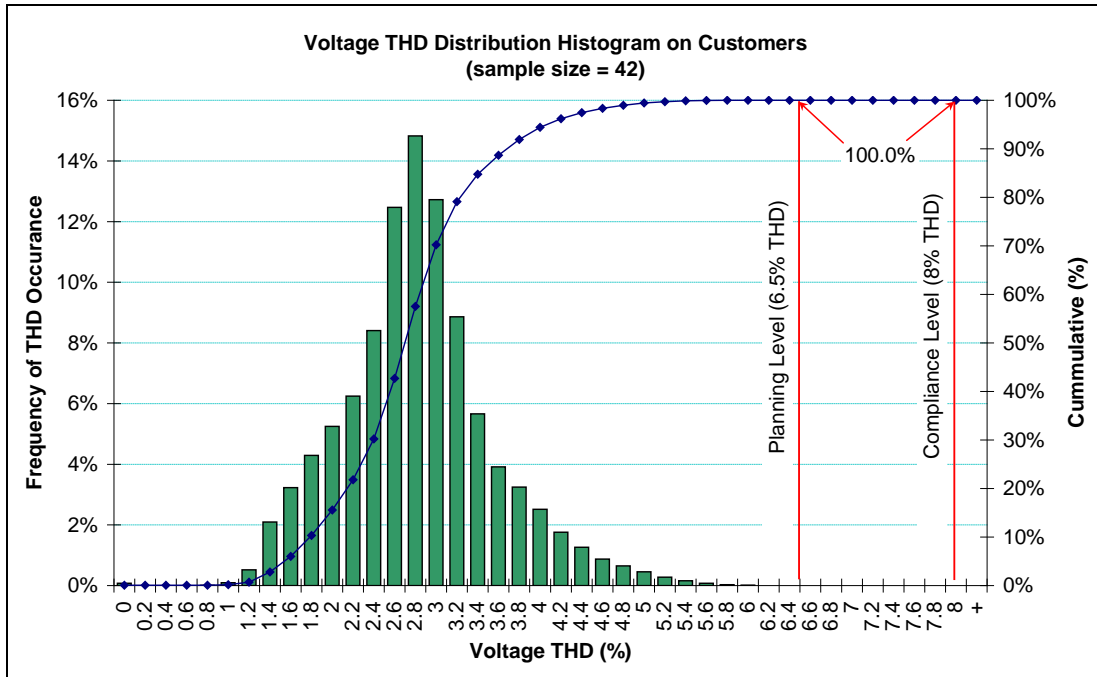


Figure 2: Percentage of THD for the aggregate of 42 permanent PQ meters at customer sites

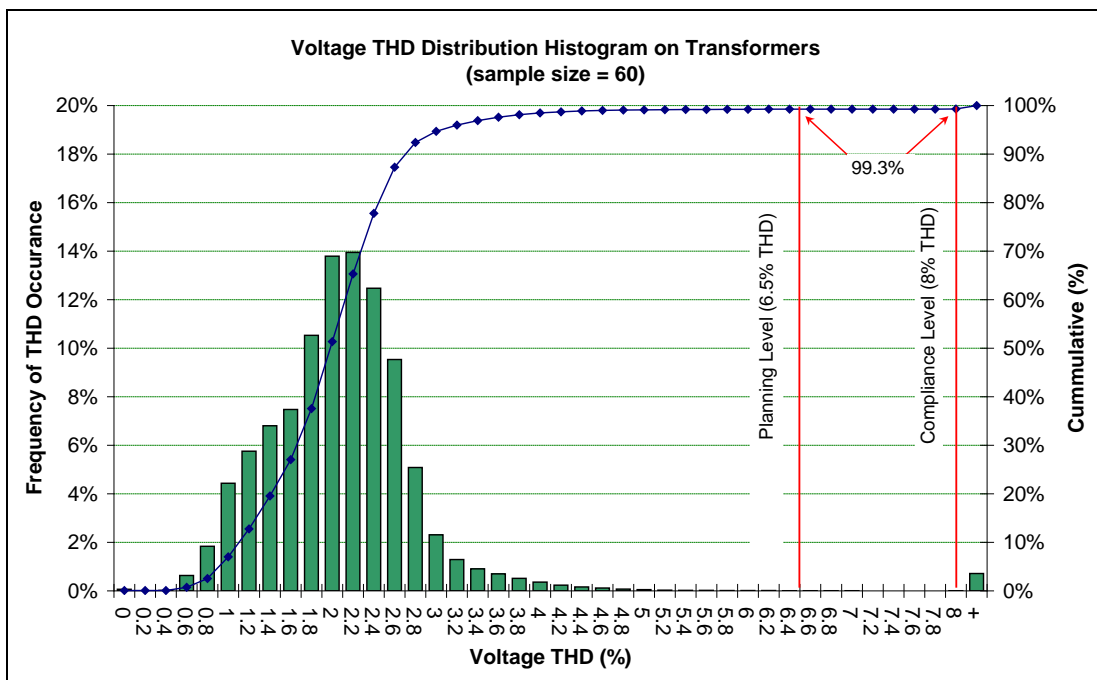


Figure 3: Percentage of THD for the aggregate of 60 permanent PQ meters at distribution transformer sites

In the 2012/13 period, the median THD for customer sites was approximately 2.7% and 2% for the distribution transformer sites.

In the 2012/13 period, THD compliance levels were met for customer sites 100% of the time and for distribution transformer sites 99.3% of the time.

There were no compliance breaches relating to section 7 of the Code during the 2012/13 period.

5.4 Performance - Part 2 Section 14(3) of the Code

Part 2 Section 14(3) states that:

Code extract:

“(3) If, having regard to the advice of the Authority, the Minister is satisfied that it is appropriate to do so, the Minister may by instrument —

(a) exempt the transmitter or distributor from compliance with the provision concerned; and

(b) attach to the exemption a condition that another provision, in place of the provision for which an exemption is granted, is to be complied with by the transmitter or distributor in the supply of electricity.”

Performance

There were no exemptions granted or additional conditions placed on Western Power by the Minister during the 2012/13 period.

5.5 Performance - Part 4 Section 24 of the Code

Part 4 Section 24 makes provision for quality investigation to be conducted by a transmitter or distributor. Section 24 states that:

Code extract:

“(2) A customer who considers that the supply of electricity to the customer’s electrical installations by a transmitter or distributor does not, or did not at a particular time or on a particular occasion, comply with -

(a) section 6(2) or 7; or

(b) an instrument made under section 14(3),

may in writing request the transmitter or distributor to investigate whether the supply of electricity complies with, or at a particular time or on a particular occasion complied with, that section or that instrument.”

“(3) If request is so made, the transmitter or distributor must within 20 working days complete the investigation, and must take such field measurements as may be required for that purpose.”

Performance

Western Power did not receive any written request from a customer, in regards to Section 6(2) or 7 of the Code, during the 2012/13 period. Consequently there were no compliance breaches of Section 24 of the Code during the 2012/13 period.

6 Interruptions exceeding 12 hours

This section sets out Western Power’s response to item 5 of Schedule 1 of the Code.

Code extract:

Item 5:

“The number of premises of small use customers the supply of electricity to which has been interrupted –

- c) for more than 12 hours continuously; or*
- d) more than the permitted number of times, as that expression is defined in section 12(1),*

and in the case of interruptions referred to in paragraph (a), the number of interruptions and the length of each interruption.

6.1 Performance - Interruptions exceeding 12 hours

Item 5(c):

During the 2012/13 period, there were 1,343 incidents resulting in 38,820 customers experiencing one interruption that exceeded 12 hours continuously.

Refer to Appendix B for a complete list of customer interruptions.

The customer interruptions exceeding 12 hours for the 2012/13 period were predominately due to events beyond Western Power’s control - specifically storm activity (see section 4). In comparison to the 2011/12 period, there was a slight decrease in the number of customers interrupted as a result of equipment failures. These interruptions are addressed through targeted maintenance and asset interventions.

6.2 Performance - Interruptions exceeding the permitted number of times

Item 5(d):

Table 1 shows the number of customers interrupted more than the number of times expressed in section 12(1) of the Code.

Table 1: Customers that have been interrupted more than the number of times expressed in section 12(1) of the Code

	2011/12	2012/13
Urban area (including Perth CBD) customers that have been interrupted more than 9 times	10,302	8,702
Rural area customers that have been interrupted more than 16 times	936	2,341

Customers in urban and CBD areas that experienced more than 9 interruptions for the 2012/13 period were predominantly within the Perth Metropolitan and Peel regions. The higher number of customer impacted more than 9 times in the 2011/12 period was as a result of the impact of a severe storm in that period. That magnitude of storm did not occur in the urban area during the 2012/13 period.

Customers in rural areas that experienced more than 16 interruptions during the 2012/13 period were predominantly in the Mid West region, where there has been a significant increase in the wide spread volume of lightning activity.

Western Power constantly monitors areas where customers experience recurring interruptions and undertakes remedial action where required.

7 Customer Complaints

This section sets out Western Power’s response to items 6, 7 and 8 of Schedule 1.

Code extract:

Item 6: *“The total number of complaints received”*

Item 7: *“The number of complaints received from customers in each of the discrete areas”*

Item 8: *“The total amount spent by the transmitter or distributor in addressing complaints, other than by way of payment under sections 18 and 19”*

Noting: Item 10:

“The information published for items 4(a), 6, 7, 8 and 9 in respect of the year ending 30 June preceding the year to which the report relates.”

7.1 Performance - Customer complaints

A total of 643 complaints were received in relation to the following clause requirements of Code:

- Clause 6(2) Voltage fluctuations (‘flicker’ complaints only)
- Clause 7 Harmonics (harmonic problems not recognised by customers)
- Clauses (9 – 13) Reliability of Supply

Table 2 also provides a breakdown of the 643 complaints by each of the discrete areas.

Table 2: Complaints received in 2011/12 and 2012/13 - total and by discrete area as per items 6 and 7 of Schedule 1.

	# Complaints	
	2011/12	2012/13
Perth CBD	2	3
Urban areas other than Perth CBD	529	393
Rural areas	181	247
Isolated systems	0	0
Total	712	643

Following investigations of each customer complaint, the findings were communicated to the customers. The total amount spent during the 2012/13 period for investigation of complaints was \$107,752, compared to \$141,888 during the 2011/12 period.

8 Payments to Customers

This section sets out Western Power's response to item 9 of Schedule 1.

Code extract:

Item 9:

"The number and total amount of payments made by the transmitter or distributor under each of sections 18 and 19"

Noting: Item 10:

"The information published for items 4(a), 6, 7, 8 and 9 in respect of the year ending 30 June preceding the year to which the report relates."

8.1 Performance - Planned interruptions

Table 3 below shows a decrease of 29 per cent for the 2012/13 period, compared to the 2011/12 period, in service payments to customers for lack of or insufficient notification of a planned interruption. The decrease was a result of an improved customer notification process.

Planned interruptions continue to be an area of focus for the business, with attention being paid to additional customer contact during the notification process.

8.2 Performance - Extended outage payment scheme

Table 3 shows the extended outage payments made for the 2011/12 and 2012/13 periods. The payment volumes for the 2012/13 period include payments relating to the June 2012 storm, which we processed and paid in the 2012/13 period.

Interruptions lasting longer than 48 hours were increased to \$160 by the *Electricity Corporations June Storms Supply Payment Direction 2012*, issued by the Minister for Energy under section 111 of the *Electricity Corporations Act*.

Table 3: Payments in 2011/12 and 2012/13 as per items 9 of Schedule 1

	2011/12		2012/13	
	Number	Value	Number	Value
Payments for failure to give required notice of a planned interruption	968	\$48,400	683	\$13,660 ¹²
Payments for supply interruptions exceeding 12 hours	28,593	\$2,433,120	47,523 ¹³	\$4,112,728 ¹⁴

¹² In addition to the \$13,660 pursuant to clause 18 of the Code Western Power made \$20,490 ex-gratia payments.

¹³ Includes 38,659 payments associated with the June 2012 storm which were processed during the 2012/13 period.

¹⁴ Includes \$3,399,760 in payments associated with the June 2012 storm which were processed during the 2012/13 period.

9 Supply reliability

This section sets out Western Power's response to items 11, 12 and 13 of Schedule 1.

Code extract:

Item 11

"For each discrete area –

- a) the average length of interruption of supply to customer premises expressed in minutes [SAIDI] ;*
- b) the average number of interruptions of supply to customer premises [SAIFI] ;*
- c) the average percentage of time that electricity has been supplied to customer premises [ASAI]; and*
- d) the average length of all interruptions of supply to customer premises expressed in minutes [CAIDI]."*

Item 12

"The information published for each paragraph of item 11 in respect of each of the 3 years ending 30 June preceding the year to which the report relates."

Item 13

"For each paragraph of item 11, the average of the 4 amounts under that paragraph in respect of the years comprising –

- a) the year to which the report relates; and*
- b) the 3 years referred to in item 12."*

Part 2, Division 3, Sections 13(2) and 13(3) set out the prescribed standards for the average total length of interruptions of supply in particular areas.

Code extract:

"(2) A transmitter or distributor must, so far as is reasonably practicable, ensure that for customer premises in an areas referred to in the first column of the Table to this subsection the average total length of interruptions of supply, as calculated under subsection (3), does not exceed the number of minutes specified in the second column opposite the reference to that area.

<i>Area</i>	<i>Table</i>
	<i>Standard for average total length of interruptions</i>
<i>the Perth CBD</i>	<i>30</i>
<i>the urban areas other than the Perth CBD</i>	<i>160</i>
<i>any other area of the State</i>	<i>290</i>

(3) For the purposes of subsection (2), the average total length of interruptions of supply is to be calculated as at 30 June in each year –

- a) by taking the average total length, in minutes, of interruptions of supply to customer premises in an area during each year of the period of 4 years ending on that day; and
- b) by then taking the average of the 4 annual figures determined under paragraph (a).”

Tables 4, 5, 6 and 7 show the SAIDI, SAIFI, CAIDI and ASAI performance over the past 4 years ending 30 June each year, including the 2012/13 period, for the discrete areas of Perth CBD, urban, isolated networks and rural areas.

9.1 Performance - Perth CBD

The Perth CBD reliability performance as shown in Table 4 was lower during the 2012/13 period. This was due to an increase in the number of planned interruptions undertaken to carry out maintenance work on the Network.

Table 4: Perth CBD area reliability

KPI	Units	Financial year ending 30 June				4 year average
		2009/10	2010/11	2011/12	2012/13	
SAIDI	minutes per year	11	42	25	35	28
SAIFI	interruptions per year	0.29	0.37	0.23	0.29	0.30
CAIDI	minutes per interruption	36	112	108	118	94
ASAI	% availability per year	99.998	99.992	99.995	99.993	99.995

9.2 Performance - Urban areas

Table 5 shows an improvement in the reliability performance in urban areas during the 2012/13 period. This was predominantly due to a reduction in the following factors in comparison to the 2011/12 period:

- the severity of storm events; and
- car versus pole incidents.

In addition, power line upgrades have contributed to a reduction in the impact of unplanned interruptions caused by equipment failure.

Table 5: Urban areas (other than the Perth CBD) reliability

KPI	Units	Financial year ending 30 June				4 year average
		2009/10	2010/11	2011/12	2012/13	
SAIDI	minutes per year	471	296	522	272	390
SAIFI	interruptions per year	2.72	2.31	2.46	2.10	2.40
CAIDI	minutes per interruption	173	128	212	130	161
ASAI	% availability per year	99.910	99.944	99.901	99.948	99.926

9.3 Performance - Isolated networks

Table 6 shows reliability performance for customers in the townships of Ravensthorpe and Bremer Bay that were “islanded” from the Network during the 2012/13 period. These two areas were considered ‘isolated’ networks during the time they were islanded from the Network.

Network investment activities associated with the reinforcing of the Gnowangerup feeder, which supplies Ravensthorpe, continued in the 2012/13 period. This work included retention and automation of the local generation to island Ravensthorpe at times when the Gnowangerup feeder capacity is exceeded. The 2nd stage of this project was completed in the 2012/13 period.

Table 6: Isolated Networks (Ravensthorpe and Bremer Bay)

KPI	Units	Financial year ending 30 June				4 year average
		2009/10	2010/11	2011/12	2012/13	
SAIDI	minutes per year	888	404	608	246	N/A
SAIFI	interruptions per year	2.47	3.90	23	17	
CAIDI	minutes per interruption	360	104	27	15	
ASAI	% availability per year	99.831	99.923	99.884	99.953	

9.4 Performance - Rural areas

The reliability performance of the rural areas is shown in Table 7 where an improvement in SAIDI occurred. However, there was an increase in the frequency of interruptions (SAIFI) in rural areas during the 2012/13 period. Of note there has been a significant wide spread increase in lightning activity recorded¹⁵ across rural areas of the state during the 2012/13 period compared to that experienced in previous years. Consequently, lightning strikes have been a significant contributor to the increase in customer interruptions in rural areas. Other contributors or causes, while much less prevalent than lightning activity, include overhead asset failures and planned outages.

Western Power carried out, and continues to undertake, specific analysis and field investigation activities on the Network to determine the areas in the rural network that require remedial action to improve reliability. Detailed investigations, overhead line patrols and field analysis targeting some of the poor performing areas of the rural networks have been undertaken. Based on this analysis, a range of remedial activities have been undertaken in those specific areas, including maintenance repairs/alteration work on overhead lines, and repair work on reclosers, switching and protection devices.

Table 7: Rural areas reliability

KPI	Units	Financial year ending 30 June				4 year average
		2009/10	2010/11	2011/12	2012/13	
SAIDI	minutes per year	818	956	1279	863	979
SAIFI	interruptions per year	5.43	4.43	5.60	5.67	5.28
CAIDI	minutes per interruption	151	216	228	152	187
ASAI	% availability per year	99.844	98.818	99.757	99.836	100

¹⁵ Source: Lightning detection system produced by the Australian company Global Position and Tracking Systems [GPATS] Pty Ltd.

10 Percentile values

This section sets out Western Power’s response to items 14 and 15 of Schedule 1.

Code extract:

Item 14

“For customer premises in each discrete area, an estimate of the 25th, 50th, 75th, 90th, 95th, 98th and 100th percentile values of –

- a) The average length of interruption referred to in item 11(a)*
- b) The number of interruptions; and*
- c) The total length of interruptions.”*

Item 15

“For each category of information in item 14 (a), (b) and (c), a graph showing the distribution of customer premises across the range of that category.”

Percentiles are selected over the customer premise count for each discrete area.

For an example on how to interpret the tables and figures below, see Table 9 and Figure 4. For the 2012/13 period 50 percent of customers in urban areas had no more than 2 interruptions.

10.1 Performance - Average length of interruption

Table 8 and Figure 3 show the average length of interruptions to customers based on the prescribed percentiles for the 2012/13 period:

The 100th percentile figure for urban areas is due to a planned interruption.

The 100th percentile figure for rural areas is predominantly due to asset damage from storm activity.

The 100th percentile figure for the CBD area is predominantly due to a damaged meter box supplying one customer.

Table 8: Average length of interruption (minutes) percentile figures as per item 14(a) of Schedule 1

	25 th	50 th	75 th	90 th	95 th	98 th	100 th
Perth CBD	0	0	37	116	328	543	1887
Urban	5	61	140	265	346	470	4198
Rural	69	120	198	296	397	520	2720

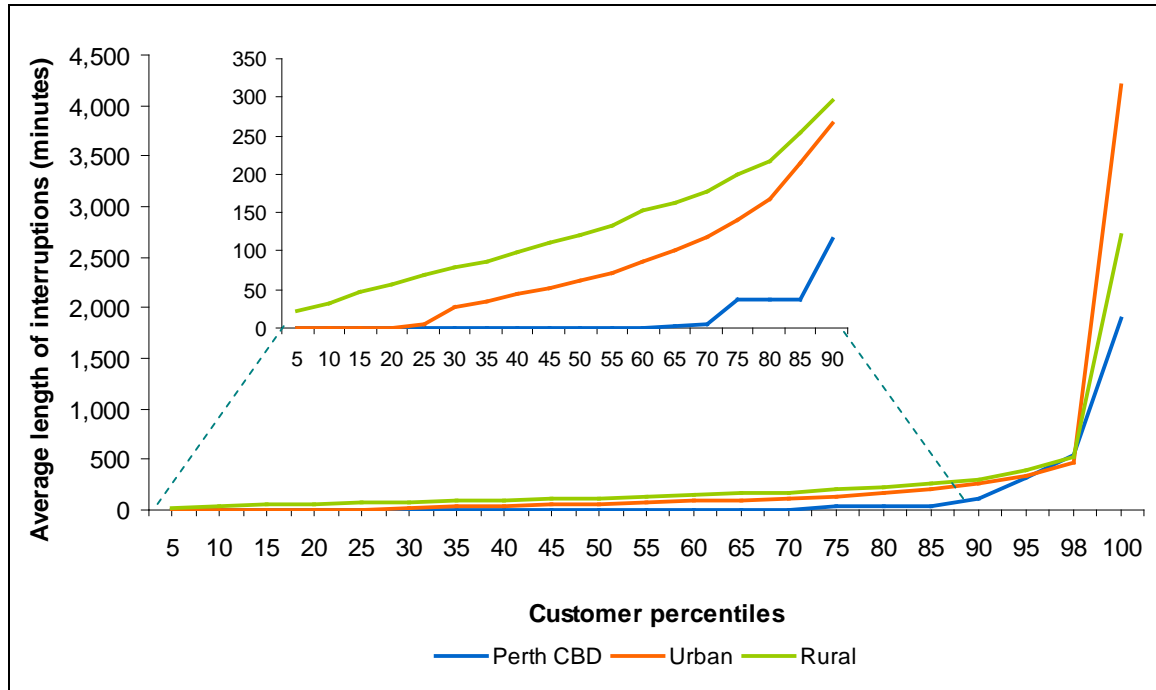


Figure 4: Average length of interruption percentile distribution as per item 15 of Schedule 1

10.2 Performance - Number of interruptions

Table 9 and Figure 4 show the number of interruptions to customers based on the prescribed percentiles.

For the 2012/13 period approximately:

- 60% of CBD customers experienced no interruptions;
- 99% of urban area customers experienced 9 or fewer interruptions; and
- 99% of rural area customers experienced 16 or fewer interruptions.

Areas of Network which have a high frequency of interruptions are monitored and targeted for applicable remedial activities.

Table 9: Number of interruptions percentile figures as per item 14(b) of Schedule 1

	25 th	50 th	75 th	90 th	95 th	98 th	100 th
Perth CBD	0	0	1	1	1	1	3
Urban	1	1	3	4	6	8	22
Rural	2	4	6	9	11	13	31

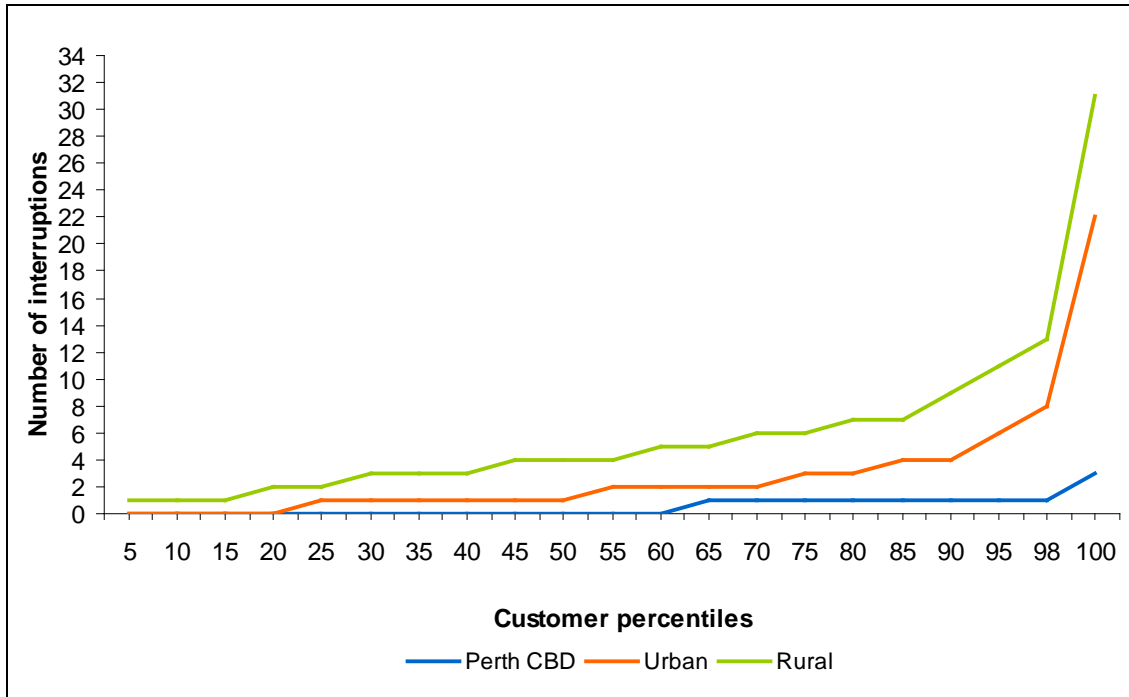


Figure 5: Number of interruptions percentile distribution as per item 15 of Schedule 1

10.3 Performance - Total length of all interruptions

Table 10 and Figure 5 show the total length of interruptions to customers based on the prescribed percentiles.

For the 2012/13 period:

- the 100th percentile figure for urban areas is predominantly due to storm activity on 28 November 2012 (see section 4);
- the 100th percentile figure for rural areas is predominantly due to the lighting activity impact (see section 4);
- the 100th percentile figure for the CBD area is predominantly due to a damaged meter box supplying one customer;
- approximately 70% of customers in the CBD area experienced total interruption minutes of less than 30¹⁶ minutes;
- approximately 55% of customers in urban areas experienced total interruption minutes of less than 160¹⁷ minutes; and
- approximately 30% of customers in rural areas experienced total interruption minutes of less than 290¹⁸ minutes.

¹⁶ Part 2 section 13(2) prescribed value

¹⁷ Part 2 section 13(2) prescribed value

¹⁸ Part 2 section 13(2) prescribed value

Table 10: Total length of interruptions (minutes) percentile figures as per item 14(c) of Schedule 1

	25 th	50 th	75 th	90 th	95 th	98 th	100 th
Perth CBD	0	0	37	116	328	543	1887
Urban	6	103	362	724	1015	1408	6869
Rural	202	519	1037	1935	2656	3901	12631

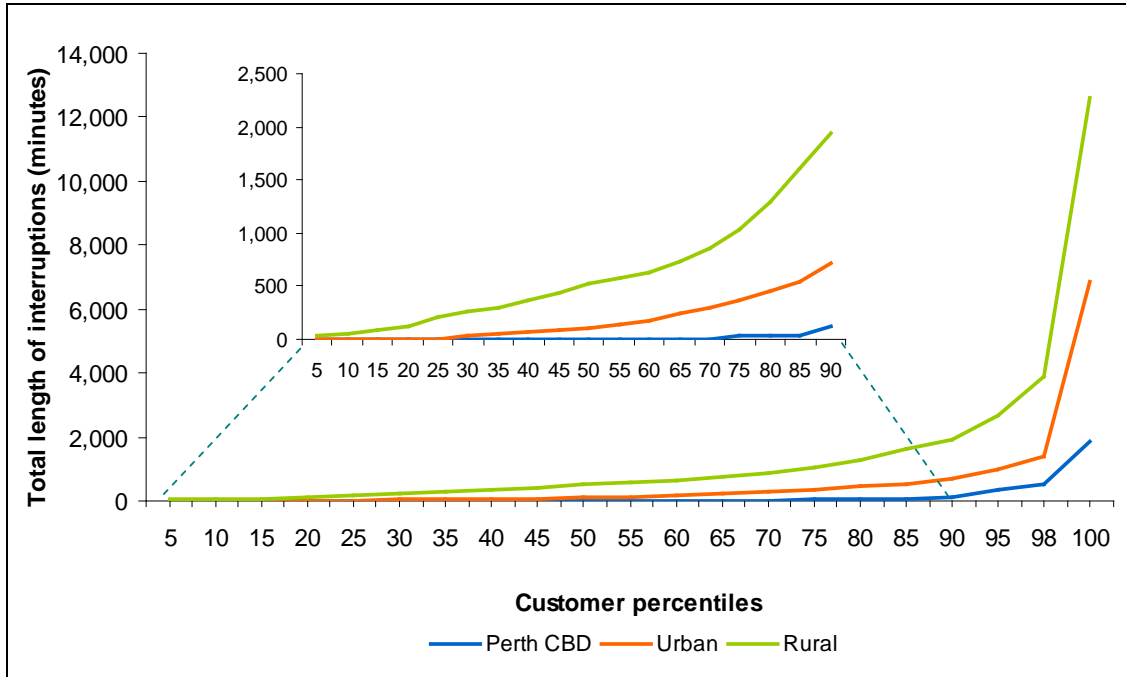


Figure 6: Total length of interruptions percentile distribution as per item 15 of Schedule 1

Appendix A. List of Customer Interruptions Greater than 12 Hours

As per section 6.1 the list below provides those interruptions exceeding 12 hours including the length and the number of customers affected. Western Power endeavours to minimise the duration of all interruptions and the list below highlights (*) those interruptions where progressive restoration of customer supplies has been possible through switching and reconfiguration of the Network prior to full restoration.

Interruption	First Restoration (hours) after 12 hours	Final Restoration (hours) after 12 hours	Customers Affected
1	13.18	13.18	139
2	24.19	24.19	1
3	25.38	25.38	17
4	30.11	30.11	8
5	23.46	23.46	8
6	21.23	21.23	4
7	18.10	18.10	1
8	14.07	14.07	2
9	24.08	24.08	2
10	12.27	12.27	1
11	30.48	30.48	6
12	15.38	15.38	1
13	15.53	17.62	26
14	14.99	14.99	1
15	21.53	21.53	1
16	21.63	21.63	3
17	16.33	16.33	1
18	19.03	19.03	2
19	15.79	15.79	3
20	24.38	24.38	1
21	17.09	17.09	2
22	22.47	22.47	1
23	76.77	76.77	1
24	69.96	69.96	1
25	18.30	18.30	1
26	12.74	12.74	1
27	12.47	12.47	64
28	12.70	12.70	1
29	97.39	97.39	1
30	20.44	20.44	1
31	15.27	15.27	1
32	14.05	14.05	16
33	16.30	16.30	1
34	16.04	16.04	5
35	50.28	50.28	1
36	16.31	16.31	1
37	16.70	16.70	1
38	13.63	13.63	1
39	14.90	14.90	5
40	13.02	13.02	12
41	23.68	23.68	1
42	18.31	18.31	51

Interruption	First Restoration (hours) after 12 hours	Final Restoration (hours) after 12 hours	Customers Affected
43	65.66	65.66	1
44 *	12.10	13.50	133
45	21.48	21.48	16
46	17.56	17.56	1
47	26.83	26.83	1474
48	16.67	16.67	32
49	15.03	15.03	1
50	100.31	100.31	1
51	36.79	36.79	1
52	23.83	23.83	1
53	16.02	16.02	36
54	15.60	15.60	1
55	21.01	21.01	6
56 *	15.47	18.65	6
57	12.20	12.20	185
58	111.12	111.12	1
59	18.39	18.39	11
60	19.48	19.48	1
61	20.47	20.47	14
62	14.58	14.58	2
63	14.87	14.87	1
64	65.08	65.08	1
65	12.68	12.68	1
66	64.66	64.66	1
67	18.29	18.29	1
68	19.25	19.25	1
69	17.88	17.88	13
70	12.36	12.36	1
71 *	12.77	13.54	55
72	15.14	15.14	262
73	17.68	17.68	1
74	108.87	108.87	1
75	30.88	30.88	1
76	19.68	19.68	1
77	15.56	15.56	1
78	67.20	67.20	1
79	49.43	49.43	1
80	23.18	23.18	133
81	13.79	13.79	1
82	36.29	36.29	72
83	14.73	14.73	16
84	15.52	15.52	1
85	23.81	23.81	1
86	20.57	20.57	1
87	15.35	15.35	1
88	14.89	14.89	1
89	13.37	13.37	1
90	22.33	22.33	1
91	16.74	16.74	1
92	15.87	15.87	1
93	23.04	23.04	1
94	19.40	19.40	1
95	12.33	12.33	9
96	19.27	19.27	8
97	12.37	12.37	82
98	20.20	20.20	58
99	14.53	14.53	17

Interruption	First Restoration (hours) after 12 hours	Final Restoration (hours) after 12 hours	Customers Affected
100	14.22	14.22	1
101	16.82	16.82	1
102	22.03	22.03	22
103	16.02	16.02	2
104	14.36	14.36	1
105	18.77	18.77	22
106	12.17	12.17	1
107	13.27	13.27	26
108	22.65	22.65	1
109	18.57	18.57	1
110	20.72	20.72	13
111	12.13	12.13	302
112 *	12.20	12.58	4
113	18.85	18.85	1
114	12.12	12.12	1
115 *	13.77	18.99	5
116	28.31	28.31	1
117	49.22	49.22	1
118	19.86	19.86	7
119	13.27	13.27	1
120	13.18	13.18	1
121	22.27	22.27	1
122	19.23	19.23	1
123 *	26.29	28.61	21
124	21.82	21.82	10
125	30.76	30.76	4
126	32.51	32.51	8
127	31.03	31.03	14
128	119.83	119.83	4
129	21.95	21.95	26
130	19.86	19.86	1
131	14.64	14.64	3
132	36.40	36.40	36
133	16.03	16.03	1
134	16.27	16.27	12
135	24.20	24.20	1
136	24.03	24.03	1
137	21.41	21.41	1
138	19.37	19.37	1
139	43.25	43.25	1
140	12.97	12.97	43
141	18.08	18.08	35
142	19.34	19.34	1
143	12.98	12.98	35
144	21.57	21.57	1
145	17.82	17.82	29
146	13.22	13.22	1
147	15.74	15.74	1
148	15.45	15.45	29
149	19.17	26.77	7
150	18.99	18.99	1
151	49.35	49.35	1
152 *	13.24	13.28	46
153	21.24	21.24	1
154	13.12	13.12	7
155	12.98	12.98	4
156	13.51	13.51	1

Interruption	First Restoration (hours) after 12 hours	Final Restoration (hours) after 12 hours	Customers Affected
157	18.24	18.24	1
158	17.08	17.08	106
159	21.10	21.10	8
160	14.65	14.65	1
161	12.21	12.21	48
162	13.73	13.73	183
163	13.35	13.35	1
164	22.80	22.80	1
165	20.28	20.28	1
166	23.70	23.70	1
167 *	14.90	15.82	47
168	22.53	22.53	8
169	15.10	15.10	6
170	21.17	21.17	1
171	14.68	14.68	72
172	14.28	14.28	72
173	16.72	16.72	1
174	14.52	14.52	1
175	23.85	23.85	1
176 *	12.91	15.09	31
177	15.54	15.54	5
178	44.82	44.82	1
179	26.43	26.43	1
180	15.83	15.83	1
181	15.60	15.60	1
182	13.99	13.99	22
183	23.32	23.32	1
184 *	12.54	12.61	36
185	14.26	14.26	1
186	14.33	14.33	5
187	15.85	15.85	1
188	17.55	17.55	3
189	15.59	15.59	13
190	16.74	16.74	7
191	15.99	15.99	113
192	12.72	12.72	75
193	12.93	12.93	5
194	23.96	23.96	1
195	18.04	18.04	1
196	33.24	33.24	6
197	50.83	50.83	10
198	17.69	17.69	4
199	16.38	16.38	1
200	14.74	14.74	1
201	18.61	18.61	1
202	18.76	18.76	1
203	13.00	13.00	1
204	18.49	18.49	2
205	15.12	15.12	1
206	13.36	13.36	1
207	25.62	25.62	1
208	32.64	32.64	1
209	26.69	26.69	1
210	32.49	32.49	1
211	26.28	26.28	1
212	32.02	32.02	1
213	17.11	17.11	1

Interruption	First Restoration (hours) after 12 hours	Final Restoration (hours) after 12 hours	Customers Affected
214	29.30	29.30	1
215	23.68	23.68	1
216	30.01	30.01	1
217	20.89	20.89	1
218	20.78	20.78	1
219	25.54	25.54	1
220	21.28	21.28	1
221	25.67	25.67	131
222	18.05	18.05	1
223	30.23	30.23	7
224	29.07	29.07	1
225	29.00	29.00	1
226	23.97	23.97	1
227	23.19	23.19	38
228	21.37	21.37	1
229 *	24.36	29.48	1148
230	65.41	65.41	9
231	23.26	23.26	1
232	20.67	20.67	1
233	23.12	23.12	1
234 *	17.07	28.50	22
235	16.07	16.07	1
236	16.74	16.74	1
237	15.49	15.49	10
238	16.34	16.34	1
239	24.24	24.24	9
240	14.59	14.59	1
241	18.65	18.65	6
242	18.80	18.80	13
243	22.85	22.85	6
244	62.59	62.59	11
245	47.81	47.81	8
246	21.15	21.15	1
247	16.47	16.47	1
248	20.60	20.60	1
249	16.61	16.61	3
250	20.33	20.33	1
251	13.67	13.67	6
252	19.51	19.51	33
253	20.03	20.03	1
254	14.83	14.83	1
255	17.83	17.83	1
256	19.70	19.70	27
257	16.01	16.01	1
258	13.94	13.94	1
259	22.05	22.05	1
260	14.94	14.94	1
261	13.09	13.09	1
262	13.07	13.07	6
263	19.86	19.86	45
264	72.05	72.05	2
265	14.52	14.52	4
266	23.91	23.91	1
267	15.28	15.28	1
268	13.29	13.29	1
269 *	15.70	18.11	25
270	35.36	35.36	1

Interruption	First Restoration (hours) after 12 hours	Final Restoration (hours) after 12 hours	Customers Affected
271	31.62	31.62	2
272	21.05	21.05	1
273	23.98	23.98	6
274	16.73	16.73	1
275	22.13	22.13	554
276	25.05	25.05	65
277	22.44	22.44	4
278	19.64	19.64	1
279	52.11	52.11	1
280	21.54	21.54	1
281	21.61	21.61	22
282	24.29	24.29	1
283	15.04	15.04	1
284 *	44.53	64.53	27
285	24.03	24.03	1
286	21.43	21.43	1
287	15.14	15.14	1
288	14.72	14.72	1
289	15.63	15.63	1
290	16.56	16.56	1
291	14.54	14.54	50
292	14.87	14.87	1
293	16.12	16.12	1
294	37.40	37.40	1
295	16.15	16.15	12
296	38.62	38.62	1
297	46.86	46.86	1
298	19.70	19.70	1
299	17.32	17.32	1
300	37.52	37.52	9
301 *	12.30	15.99	52
302	14.49	14.49	106
303	32.67	32.67	1
304	15.86	15.86	1
305	31.52	31.52	1
306	58.68	58.68	10
307	32.85	32.85	1
308	15.38	15.38	23
309	29.42	29.42	1
310	14.96	14.96	1
311	29.45	29.45	1
312	30.51	30.51	1
313	27.44	27.44	1
314	28.35	28.35	1
315	12.15	12.28	46
316	12.59	12.59	1
317	29.70	29.70	1
318	32.82	32.82	7
319	25.60	25.60	1
320	25.80	25.80	1
321	23.66	23.66	1
322	45.17	45.17	1
323	20.29	20.29	4
324	30.75	30.75	1
325	19.68	19.68	1
326	17.44	17.44	1
327	17.58	17.58	6

Interruption	First Restoration (hours) after 12 hours	Final Restoration (hours) after 12 hours	Customers Affected
328	23.59	23.59	1
329	19.18	19.18	1
330	15.42	15.42	1
331	16.89	16.89	1
332	21.64	21.64	1
333	14.93	14.93	1
334	24.05	24.05	1
335	20.41	20.41	1
336	49.72	49.72	1
337	22.08	22.08	1
338	38.15	38.15	1
339	13.63	13.63	1
340	22.50	22.50	9
341	12.85	12.85	34
342	105.17	105.17	1
343	44.55	44.55	1
344	20.70	20.70	4
345	17.65	17.65	1
346	15.39	15.39	1
347	12.56	12.56	1
348	13.72	13.72	65
349	23.61	23.61	1
350	19.26	19.26	83
351	55.10	55.10	1
352	13.44	13.44	1
353	52.65	52.65	1
354	13.27	13.27	1
355	13.06	13.06	120
356	33.19	33.19	1
357	26.4	26.4	1
358	54.37	54.37	1
359	30.96	30.96	1
360	24.73	24.73	1
361	21.08	21.08	1
362	14.56	14.56	1
363	20.93	20.93	1
364	26.17	26.17	1
365	12.18	12.18	1
366	30.82	30.82	1
367	25.80	25.80	50
368	25.42	25.42	10
369	27.17	27.17	19
370	30.16	30.16	112
371	22.87	22.87	1
372	29.42	29.42	76
373 *	12.75	29.36	1436
374	24.35	24.35	1
375	25.09	25.09	1
376	12.16	12.16	1805
377	32.79	32.79	1
378	22.47	22.47	43
379	24.29	24.29	1
380 *	22.92	26.32	23
381	13.08	13.08	158
382	31.82	31.82	28
383	23.86	23.86	11
384	27.60	27.60	1

Interruption	First Restoration (hours) after 12 hours	Final Restoration (hours) after 12 hours	Customers Affected
385	12.20	12.20	1217
386	27.36	27.36	75
387	27.83	27.83	31
388	30.12	30.12	59
389	26.12	26.12	1
390	20.62	20.62	92
391	20.67	20.67	1
392	26.42	26.42	114
393	20.66	20.66	1
394	20.62	20.62	1
395	20.57	20.57	133
396	20.58	20.58	1
397	31.63	31.63	1
398	20.48	20.48	99
399	22.71	22.71	107
400	22.25	22.25	72
401	29.15	29.15	1
402	12.55	23.09	1355
403	26.17	26.17	1
404	24.59	24.59	26
405	22.54	22.54	1
406	28.38	28.38	71
407	22.68	22.68	64
408	23.86	23.86	22
409	22.97	22.97	1
410	25.69	25.69	165
411	41.87	41.87	1
412	24.36	24.36	1
413	21.18	21.18	32
414	21.51	21.51	1
415	23.59	23.59	9
416	22.58	22.58	10
417	24.83	24.83	1
418	18.97	18.97	3
419	20.53	20.53	26
420	21.68	21.68	50
421	20.54	20.54	39
422	26.01	26.01	1
423	20.45	20.45	1
424	19.10	19.10	1
425	20.16	20.16	217
426	24.23	24.23	22
427	26.40	26.40	1
428	22.58	22.58	50
429	18.52	18.52	39
430	20.41	20.41	19
431	15.72	15.72	1
432	20.17	20.17	9
433	17.06	17.06	1
434	51.35	51.35	1
435	20.50	20.50	23
436	27.68	27.68	19
437	25.53	25.53	40
438	18.94	18.94	1
439	27.74	27.74	1
440	18.52	18.52	30
441	26.15	26.15	1

Interruption	First Restoration (hours) after 12 hours	Final Restoration (hours) after 12 hours	Customers Affected
442	23.03	23.03	51
443	20.20	20.20	1
444	18.98	18.98	1
445	19.54	19.54	108
446	24.52	24.52	1
447	20.14	20.14	79
448	20.09	20.09	22
449	18.47	18.47	1
450 *	12.48	22.63	241
451	20.66	20.66	1
452	18.18	18.18	1
453	22.86	22.88	16
454	43.57	43.57	1
455	16.05	16.05	1
456	16.47	16.47	1
457	23.23	23.23	87
458	17.03	17.03	1
459	22.20	22.20	1
460	17.60	17.60	1
461	24.21	24.21	151
462	16.02	16.02	5
463	15.81	15.81	1
464	20.89	20.89	1
465	60.93	60.93	1
466	15.99	15.99	1
467	14.53	14.53	105
468	21.21	21.21	1
469	22.45	22.45	1
470	19.05	19.05	60
471	16.62	16.62	1
472	38.87	38.87	1
473	67.33	67.33	1
474	16.50	16.50	1
475	18.20	18.20	1
476	23.54	23.54	1
477	17.08	17.08	182
478	20.55	20.55	89
479	18.92	18.92	134
480	14.41	14.41	1
481	26.93	26.93	57
482	20.50	20.50	1
483	13.79	13.79	1
484	16.00	16.00	1
485	13.94	19.37	30
486	16.85	16.85	1
487	18.78	18.83	268
488	17.03	17.03	3
489	17.80	17.80	74
490	16.66	16.66	1
491	19.58	19.58	11
492	14.28	14.28	62
493	18.68	18.68	1
494	36.3	36.3	1
495	13.85	13.85	1
496	18.56	18.56	1
497	12.11	12.11	109
498	18.43	18.43	1

Interruption	First Restoration (hours) after 12 hours	Final Restoration (hours) after 12 hours	Customers Affected
499	18.45	18.45	2
500	25.49	26.39	18
501	19.27	19.27	1
502	12.01	12.01	1
503	34.89	34.89	1
504	13.92	13.92	1
505	12.55	12.55	1
506	27.63	27.63	1
507	26.01	26.01	68
508	25.82	25.82	75
509	26.18	26.18	78
510	14.10	14.10	37
511	22.23	22.23	67
512	16.22	16.22	41
513	13.13	13.13	1
514	18.31	18.31	8
515	28.13	28.13	16
516	15.29	15.29	68
517	16.55	16.55	40
518	30.63	30.63	1
519	23.08	23.08	2
520	33.14	33.14	16
521	15.23	15.23	11
522	20.32	20.32	103
523	19.92	19.92	34
524	20.15	20.15	43
525	18.89	18.89	62
526	15.80	15.80	29
527	24.08	24.08	6
528	30.80	30.80	1
529	22.85	22.85	24
530	19.12	19.12	57
531	22.44	22.44	10
532	13.47	13.47	7
533	37.64	37.64	1
534	21.88	21.88	10
535	20.05	20.05	1482
536	25.63	25.63	1
537	23.94	23.94	1
538	21.25	21.25	4
539	32.80	32.80	8
540	17.86	18.33	24
541	23.57	23.57	1
542	22.85	22.85	1
543	17.51	17.51	1
544	16.34	16.34	3
545	23.66	23.66	1
546	26.33	26.33	23
547	22.26	22.26	877
548	29.01	29.01	7
549	20.47	20.47	5
550	31.52	31.52	12
551	28.24	28.24	1
552	20.66	20.66	7
553	25.16	25.16	39
554	22.96	22.96	1
555	22.69	22.69	81

Interruption	First Restoration (hours) after 12 hours	Final Restoration (hours) after 12 hours	Customers Affected
556 *	15.13	15.36	33
557	26.60	26.60	1
558	52.40	52.40	1
559	14.91	14.91	1
560	14.01	14.01	8
561	47.18	47.18	93
562	12.19	12.19	1
563	20.00	20.00	1
564	18.96	18.96	1
565	22.60	22.60	99
566	28.09	28.09	25
567	48.66	48.66	6
568	18.10	18.10	1
569	17.87	17.87	1
570	14.86	14.86	1
571	14.01	14.01	1
572	16.78	16.78	1
573	20.60	20.60	26
574	36.39	36.39	1
575	12.58	12.58	1
576	12.38	12.38	1
577	15.80	15.80	5
578	41.53	41.53	15
579	42.65	42.65	26
580	14.46	14.46	1
581	16.15	16.15	1
582	57.74	57.74	3
583	20.55	20.55	1
584	21.45	21.45	9
585	16.50	16.50	73
586	32.39	32.39	1
587	22.57	22.57	3
588	24.07	24.07	27
589	18.55	24.42	95
590	30.44	30.44	30
591	19.71	19.71	8
592	19.52	19.52	1
593 *	25.06	44.95	34
594	18.00	18.00	1
595	26.47	26.47	1
596 *	13.30	13.52	40
597	17.67	17.67	36
598	16.14	16.14	1
599	16.83	16.83	1
600	16.05	16.05	1
601	15.49	15.49	63
602	13.68	13.68	1
603 *	16.30	18.32	136
604	20.98	20.98	29
605	22.82	22.82	1
606	18.06	18.06	1
607	13.51	13.51	1
608	14.92	14.92	1
609	13.01	13.01	1
610	29.73	29.73	1
611	12.25	12.25	16
612	13.48	13.48	1

Interruption	First Restoration (hours) after 12 hours	Final Restoration (hours) after 12 hours	Customers Affected
613	19.16	19.16	1
614	20.53	20.53	1
615	23.12	23.12	20
616	19.99	19.99	1
617	20.01	20.01	1
618	19.87	19.87	8
619	19.37	19.37	1
620	20.79	20.79	1
621	18.23	18.23	1
622	193.98	193.98	1
623	22.61	22.61	1
624	13.96	13.96	13
625	13.85	13.85	1
626	12.54	12.54	48
627	29.15	29.15	1
628	29.65	29.65	2
629	16.47	16.47	1
630	13.94	14.58	86
631	21.93	21.93	1
632	17.93	17.93	1
633	17.43	17.43	6
634	118.07	118.07	1
635	18.24	18.24	1
636	18.06	18.06	1
637 *	19.04	22.53	16
638	24.03	24.03	1
639	20.31	20.31	1
640	24.02	24.02	4
641	13.90	13.90	1
642	13.26	13.26	5
643	40.55	40.55	1
644	15.57	15.57	1
645	14.53	14.53	1
646	13.15	13.15	1
647	13.31	13.31	16
648	32.84	32.84	10
649	29.22	29.22	1
650	34.17	34.17	12
651	34.43	34.43	26
652	28.29	28.29	1
653	31.78	31.78	1
654	30.46	30.46	1
655	44.49	44.49	1
656	23.49	23.49	1
657	19.38	19.38	1
658	16.99	16.99	1
659	18.76	18.76	1
660	18.02	18.02	1
661	21.97	21.97	22
662	21.27	21.27	1
663	21.69	21.69	1
664	21.62	21.62	9
665	18.19	18.19	1
666	43.68	43.68	1
667	16.97	16.97	10
668	24.34	24.34	1
669	22.16	22.16	1

Interruption	First Restoration (hours) after 12 hours	Final Restoration (hours) after 12 hours	Customers Affected
670	22.15	22.15	1
671	19.22	19.22	1
672	18.92	18.92	14
673	21.74	21.74	1
674	17.47	17.47	1
675	18.20	18.20	3
676	27.49	27.49	3
677	13.32	13.32	33
678	14.79	14.79	1
679	13.35	13.35	1
680 *	14.67	18.03	342
681	16.92	16.92	1
682	12.25	12.25	1
683	17.15	17.15	7
684	16.09	16.09	135
685	13.19	13.19	1
686	15.07	15.07	115
687	29.68	29.68	1
688	12.15	12.15	39
689	14.31	29.84	11
690	14.00	14.00	1
691	15.92	15.92	1
692	24.82	24.82	1
693	24.81	24.81	1
694	26.22	26.22	1
695	19.30	19.30	1
696	22.70	22.70	1
697	20.02	20.02	1
698	16.73	16.73	1
699	18.85	18.85	1
700 *	19.25	20.54	6
701	19.10	19.10	11
702	20.47	20.47	1
703	20.79	20.79	1
704	20.04	20.04	1
705 *	14.24	14.93	23
706	22.82	22.82	2
707	21.22	21.22	21
708	14.42	14.42	1
709	19.28	19.28	1
710	13.98	13.98	13
711	18.40	18.40	5
712	16.93	16.93	6
713	15.20	15.20	15
714	18.15	18.15	1
715	18.97	18.97	1
716	16.63	16.63	8
717	12.99	12.99	3
718	20.99	20.99	1
719	15.63	15.63	1
720	12.27	12.27	1
721	14.54	44.08	17
722	12.42	12.42	1
723	16.27	16.27	1
724	12.38	12.38	1
725	13.42	13.42	1
726	19.70	19.70	1

Interruption	First Restoration (hours) after 12 hours	Final Restoration (hours) after 12 hours	Customers Affected
727	18.79	18.79	1
728 *	35.38	40.16	13
729	18.25	18.25	1
730	21.85	21.85	4
731	20.15	20.15	1
732 *	17.25	17.55	202
733	17.37	17.37	1
734	17.89	17.89	4
735	16.52	16.52	2
736	16.88	16.88	11
737	12.96	12.96	1
738	15.83	15.83	1
739	23.62	23.62	3
740	46.68	46.68	1
741	23.58	23.58	1
742	25.63	25.63	1
743	27.09	27.09	1
744	18.52	18.52	1
745	17.37	17.37	6
746	63.61	63.61	1
747 *	16.27	19.62	30
748	26.22	26.22	1
749	13.96	13.96	1
750	22.13	22.13	2
751	15.24	15.24	3
752	23.38	23.38	1
753	22.53	22.53	1
754	18.65	18.65	1
755	18.00	18.00	5
756	12.73	12.73	8
757	24.12	24.12	1
758	18.73	18.73	1
759	18.52	18.52	1
760	21.30	21.30	1
761	18.32	18.32	5
762	20.74	20.74	13
763	12.54	12.54	1
764	13.70	13.70	47
765	16.85	16.85	74
766	16.95	16.95	19
767	39.30	39.30	1
768	16.29	16.29	1
769	21.02	21.02	48
770	19.01	19.01	22
771 *	22.97	23.06	35
772	24.67	24.67	1
773	18.75	18.75	1
774	13.49	13.49	4
775	15.86	15.86	25
776	12.95	12.95	1
777	14.40	14.40	12
778 *	12.31	12.75	107
779	14.28	14.28	5
780	22.58	22.58	1
781	13.56	13.56	1
782	13.69	13.69	14
783	16.40	16.40	1

Interruption	First Restoration (hours) after 12 hours	Final Restoration (hours) after 12 hours	Customers Affected
784	22.79	22.79	1
785	14.43	14.43	10
786	12.30	12.30	45
787	13.80	13.80	1
788	15.22	15.22	1
789	15.81	15.81	1
790	16.50	16.50	1
791 *	40.33	43.84	31
792	13.21	13.21	1
793	12.07	12.07	101
794	13.95	13.95	11
795	14.82	14.82	5
796	25.01	25.01	1
797	18.24	18.24	3
798	13.20	13.20	6
799	12.11	12.11	1
800	15.38	15.38	1
801	23.23	23.23	1
802	20.85	20.85	49
803	19.89	19.89	6
804 *	14.98	16.69	123
805	19.86	19.86	1
806	46.96	46.96	2
807	28.94	28.94	1
808	23.66	23.66	1
809	49.06	49.06	1
810	13.22	13.22	1
811	22.48	22.48	3
812	15.84	15.84	1
813	38.41	38.41	1
814 *	13.23	37.08	26
815	12.92	12.92	1
816 *	14.17	26.22	163
817 *	19.94	25.62	651
818 *	23.46	23.93	14
819	13.38	13.38	1
820	32.07	32.07	1
821	21.44	21.44	1
822	15.30	15.30	24
823	32.25	32.25	1
824	18.05	18.05	1
825	30.28	30.28	1
826	29.32	29.32	1
827	52.68	52.68	1
828	24.56	24.56	1
829	22.41	22.41	1
830	21.79	21.79	1
831	21.90	21.90	5
832	18.69	18.69	33
833	12.02	12.02	14
834	41.40	41.40	10
835	23.33	23.33	1
836	18.86	18.86	7
837	24.87	24.87	1
838	25.82	25.82	9
839	15.48	15.48	3
840	12.80	12.80	8

Interruption	First Restoration (hours) after 12 hours	Final Restoration (hours) after 12 hours	Customers Affected
841	12.01	12.01	1
842	19.55	19.55	10
843	14.09	14.09	1
844	13.61	13.61	1
845	32.69	32.69	1
846	31.91	31.91	1
847	22.68	22.68	1
848	27.32	27.32	6
849	28.05	28.05	1
850	16.69	16.69	1
851	13.43	13.43	1
852	23.62	23.62	10
853	20.23	20.23	1
854	18.08	18.08	1
855	19.49	19.49	16
856	14.81	14.81	1
857	13.04	13.04	1
858	24.78	24.78	1
859	20.43	20.43	1
860	12.25	12.25	1
861	14.89	14.89	79
862 *	12.88	14.58	26
863 *	14.96	38.75	68
864	16.23	16.23	1
865	24.53	24.53	1
866	24.10	24.10	10
867	19.61	19.61	1
868	19.56	19.56	3
869	21.13	21.13	1
870	14.85	14.85	27
871	17.98	17.98	73
872	13.68	13.68	1
873	18.96	18.96	39
874 *	13.47	14.33	10
875	23.87	23.87	1
876	14.55	14.55	1
877	92.76	92.76	1
878	23.06	23.06	54
879	43.18	43.18	1
880	16.88	16.88	1
881	17.96	17.96	1
882	13.99	13.99	1
883	13.34	13.34	1
884	17.12	17.12	1
885	14.81	14.81	1
886 *	14.16	14.21	208
887	31.45	31.45	1
888 *	22.40	47.94	18
889	26.55	26.55	1
890	51.81	51.81	4
891	45.34	45.34	9
892 *	21.44	47.26	33
893	16.37	16.37	63
894	17.09	17.09	1
895	17.11	17.11	1
896 *	18.18	43.33	518
897 *	22.18	44.31	350

Interruption	First Restoration (hours) after 12 hours	Final Restoration (hours) after 12 hours	Customers Affected
898	21.54	21.54	14
899	23.65	23.65	1
900	21.97	21.97	1
901 *	15.14	15.17	3
902	22.71	22.71	1
903	21.27	21.27	24
904	48.40	48.40	1
905	23.49	23.49	12
906	20.65	20.65	5
907	18.54	18.54	1
908	14.97	14.97	1
909	48.30	48.30	9
910	49.13	49.13	19
911	14.95	14.95	6
912	21.04	21.04	1
913	14.47	14.47	1
914	12.90	12.90	153
915	12.11	12.11	6
916	19.83	19.83	1
917	20.51	20.51	1
918	20.52	20.52	1
919	66.00	66.00	1
920	17.34	17.34	1
921	61.78	61.78	1
922	40.06	40.06	52
923	19.21	19.21	1
924	22.04	22.04	17
925	13.34	13.34	20
926	19.04	19.04	9
927	14.31	14.31	1
928	36.24	36.24	14
929	29.13	29.13	1
930	38.44	38.44	1
931	19.51	19.51	7
932	28.05	28.05	1
933	12.11	12.11	1
934 *	12.59	12.85	243
935	32.04	32.04	1
936	29.56	29.56	1
937	25.95	25.95	1
938	19.14	19.14	5
939	13.02	13.02	1
940	27.74	27.74	2
941	77.22	77.22	1
942	28.18	28.18	1
943	24.64	24.64	1
944	18.65	18.65	1
945	20.43	20.43	1
946	63.87	63.87	4
947	13.01	13.01	4
948	26.97	26.97	1
949	18.41	18.41	65
950	27.63	27.63	1
951	17.79	17.79	1
952	24.92	24.92	13
953	25.50	25.50	1
954	26.26	26.26	1

Interruption	First Restoration (hours) after 12 hours	Final Restoration (hours) after 12 hours	Customers Affected
955	17.67	17.67	1
956	25.97	37.97	192
957	37.35	37.58	16
958 *	30.29	31.36	19
959	22.00	22.00	1
960	22.53	22.53	1
961	12.18	12.18	1
962	22.26	22.26	1
963	14.71	14.71	1
964	17.85	17.85	27
965	16.39	16.39	1
966	41.16	41.16	1
967	16.12	16.12	21
968	14.85	14.85	1
969	97.33	97.33	1
970	26.91	26.91	1
971	26.25	26.25	30
972	16.20	16.20	12
973	22.61	22.61	6
974	22.28	22.28	12
975	14.22	14.22	1
976	40.72	40.72	1
977	21.53	21.53	1
978	67.16	67.16	5
979	63.45	63.45	9
980	37.28	37.28	12
981	16.85	16.85	6
982	25.12	25.12	7
983	21.19	21.19	1
984	17.59	17.59	1
985	19.71	19.71	1
986	16.52	16.52	1
987	14.58	14.58	1
988	16.24	16.24	11
989	23.81	23.81	1
990	19.97	19.97	1
991	17.11	17.11	1
992	15.58	15.58	35
993	51.27	51.27	1
994	15.25	15.25	1
995	17.17	17.17	1
996	12.07	12.07	1
997	20.83	20.83	74
998	44.32	44.32	1
999 *	12.73	16.48	39
1000	14.85	14.85	1
1001	18.61	18.61	1
1002	16.12	16.12	1
1003	21.78	21.78	1
1004	17.75	17.75	1
1005	18.04	18.04	1
1006	53.10	53.10	73
1007	18.44	18.44	3
1008	14.19	14.19	74
1009	19.88	19.88	33
1010	13.18	13.18	1
1011	15.51	15.51	1

Interruption	First Restoration (hours) after 12 hours	Final Restoration (hours) after 12 hours	Customers Affected
1012 *	12.76	16.39	9
1013	14.68	14.68	15
1014	13.68	13.68	8
1015	17.19	17.19	19
1016	12.08	12.08	177
1017	13.95	13.95	1
1018	17.47	17.47	1
1019 *	48.03	138.10	25
1020	21.40	21.40	1
1021	21.24	21.24	1
1022	21.46	21.46	16
1023	12.09	12.09	397
1024	19.40	19.40	1
1025	15.58	15.58	4
1026	16.55	16.55	1
1027	13.07	13.07	3
1028	12.06	12.06	15
1029	15.23	15.23	1
1030	23.8	23.8	7
1031 *	18.64	18.67	6
1032	14.57	14.57	1
1033	21.47	21.47	1
1034	69.45	69.45	1
1035	16.47	16.47	1
1036	50.52	50.52	1
1037	21.44	21.44	1
1038	21.07	21.07	1
1039	17.56	17.56	1
1040	16.23	16.23	1
1041	18.75	18.75	1
1042	13.47	13.47	1
1043	26.66	26.66	1
1044	27.29	27.29	1
1045	24.42	24.42	1
1046	23.42	23.42	1
1047	21.62	21.62	103
1048	12.23	12.23	25
1049	17.92	17.92	1
1050	15.01	15.01	12
1051	16.88	16.88	1
1052	16.60	16.6	1
1053	39.18	39.18	89
1054 *	21.55	24.15	348
1055 *	13.8	15.75	910
1056	18.32	18.32	179
1057	12.32	12.32	1
1058 *	21.07	22.03	96
1059	23.62	23.62	1
1060	18.20	18.20	222
1061 *	20.04	23.79	415
1062 *	22.70	22.98	26
1063	22.07	22.07	3
1064	30.65	30.65	15
1065 *	15.67	18.58	639
1066 *	27.20	27.32	16
1067 *	26.34	26.52	7
1068	14.18	14.18	66

Interruption	First Restoration (hours) after 12 hours	Final Restoration (hours) after 12 hours	Customers Affected
1069 *	20.30	20.46	113
1070	18.35	18.35	72
1071	15.38	15.38	78
1072	25.37	25.37	84
1073	14.53	14.53	160
1074	20.61	20.61	125
1075	19.95	19.95	70
1076	24.47	24.47	78
1077	19.52	19.52	14
1078	16.06	16.06	201
1079	19.63	19.63	133
1080	17.68	17.68	228
1081	16.72	16.72	121
1082	17.07	17.07	250
1083	18.84	18.84	75
1084	16.90	16.90	340
1085	18.35	18.35	97
1086	13.60	13.60	10
1087	20.83	20.83	1
1088	19.30	19.30	1
1089	18.03	18.03	78
1090 *	20.00	20.35	69
1091	22.12	22.12	2
1092	13.22	13.22	15
1093	19.48	19.48	46
1094	19.40	19.40	89
1095 *	19.40	38.95	241
1096	13.35	13.35	1
1097	21.97	21.97	48
1098	13.58	13.58	45
1099	12.90	12.90	41
1100	12.43	12.43	7
1101	14.78	14.78	63
1102	19.27	19.27	123
1103	28.62	28.62	92
1104	12.74	12.74	16
1105	13.19	13.19	1
1106	12.38	12.38	1
1107	37.74	37.74	42
1108	24.19	24.19	32
1109	12.56	12.56	95
1110 *	20.09	20.37	4
1111	20.37	20.37	4
1112	20.62	20.62	4
1113	76.65	76.65	5
1114 *	19.93	22.20	13
1115	20.12	20.12	1
1116	16.93	16.93	2
1117	14.66	14.66	1
1118	15.92	15.92	4
1119	17.10	17.10	1
1120	12.12	12.12	233
1121	17.43	17.43	2
1122	15.57	15.57	49
1123	12.98	12.98	1
1124	21.84	21.84	1
1125	17.17	17.17	1

Interruption	First Restoration (hours) after 12 hours	Final Restoration (hours) after 12 hours	Customers Affected
1126	17.76	17.76	7
1127	31.88	31.88	1
1128	18.58	18.58	1
1129	20.95	20.95	1
1130	17.97	17.97	12
1131	18.30	18.30	6
1132	21.79	21.79	1
1133	12.87	12.87	1
1134	19.06	19.06	1
1135	19.18	19.18	1
1136	20.93	20.93	1
1137 *	16.48	17.70	22
1138	18.44	18.44	1
1139	14.06	14.06	1
1140	15.00	15.00	45
1141	36.18	36.18	1
1142	35.65	35.65	1
1143 *	29.89	31.88	10
1144	30.87	30.87	1
1145	30.95	30.95	1
1146	34.39	34.39	1
1147	28.06	28.06	1
1148 *	22.90	25.34	85
1149	20.01	20.01	1
1150	25.80	25.80	10
1151	23.55	23.55	1
1152	20.27	20.27	19
1153	22.69	22.69	1
1154	26.47	26.47	1
1155	20.98	20.98	1
1156	17.27	17.27	1
1157	17.93	17.93	1
1158	22.37	22.37	1
1159	18.36	18.36	1
1160	18.36	18.36	16
1161	14.16	14.16	1
1162	23.05	23.05	1
1163	22.97	22.97	1
1164	13.81	13.81	1
1165	13.83	13.83	1
1166	23.05	23.05	33
1167	17.48	17.48	298
1168	27.41	27.41	630
1169	21.80	21.80	6
1170	13.58	13.58	3
1171	20.77	20.77	1
1172 *	14.96	16.63	59
1173	20.21	20.21	1
1174	14.44	14.44	8
1175	13.72	13.72	8
1176	14.48	14.48	1
1177	16.80	16.80	2
1178	14.86	14.86	1
1179	15.40	15.40	1
1180	16.84	16.84	4
1181	13.86	13.86	1
1182	18.50	18.50	1

Interruption	First Restoration (hours) after 12 hours	Final Restoration (hours) after 12 hours	Customers Affected
1183	13.38	13.38	16
1184	12.67	12.67	1
1185	13.90	13.90	1
1186	18.27	18.27	1
1187	13.43	13.43	1
1188	14.47	14.47	1
1189	12.90	12.90	1
1190	17.03	17.03	1
1191	20.89	20.89	1
1192 *	13.08	19.34	271
1193	18.93	18.93	26
1194	13.52	13.52	1
1195	18.68	18.68	1
1196	15.27	15.27	1
1197	17.81	17.81	1
1198 *	16.40	19.99	54
1199	15.07	15.07	1
1200 *	13.20	15.20	144
1201	15.22	15.22	1
1202	12.68	12.68	12
1203	29.98	29.98	1
1204	18.40	18.40	1
1205	20.56	20.56	1
1206	14.34	14.34	5
1207	18.81	18.81	1
1208	16.19	16.19	1
1209	16.93	16.93	4
1210	14.86	14.86	11
1211	13.97	13.97	1
1212	12.94	12.94	1
1213	12.10	12.10	1
1214	18.19	18.19	1
1215	98.02	98.02	1
1216	48.05	48.05	1
1217	23.48	23.48	81
1218	21.77	21.77	1
1219	16.96	16.96	1
1220	25.47	25.47	1
1221	20.72	20.72	1
1222	16.48	16.48	15
1223	26.88	26.88	1
1224	13.14	13.14	1
1225	12.14	12.14	765
1226	14.95	14.95	105
1227	13.56	13.56	11
1228	17.15	17.15	9
1229	20.67	20.67	1
1230	114.18	114.18	1
1231	20.90	20.90	1
1232	13.82	13.82	1
1233	13.26	13.26	1
1234	12.47	12.47	82
1235	13.02	13.02	5
1236	13.88	13.88	1
1237	12.31	12.31	6
1238	15.04	15.04	1
1239	28.28	28.28	1

Interruption	First Restoration (hours) after 12 hours	Final Restoration (hours) after 12 hours	Customers Affected
1240	47.66	47.66	1
1241	13.96	13.96	1
1242	14.14	14.14	1
1243	26.57	26.57	24
1244	18.93	18.93	1
1245	15.43	15.43	4
1246	20.88	20.88	1
1247	19.56	19.56	1
1248	18.60	18.60	1
1249	22.27	22.27	26
1250	107.96	107.96	1
1251	21.37	21.37	1
1252	14.98	14.98	1
1253	12.07	12.07	1
1254	15.56	15.56	1
1255	15.46	15.46	1
1256	20.93	20.93	2
1257	13.63	13.63	1
1258	13.55	13.55	10
1259	14.36	14.36	1
1260	15.96	15.96	1
1261	13.23	13.23	20
1262	57.08	57.08	1
1263 *	12.50	12.54	4
1264	28.18	28.18	23
1265	12.03	12.03	1
1266	28.82	28.82	1
1267	13.71	13.71	1
1268 *	12.12	12.45	4
1269	12.33	12.33	1
1270	17.62	17.62	1
1271	12.29	12.29	1
1272	14.99	14.99	19
1273	12.76	12.76	1
1274	14.94	14.94	7
1275	14.08	14.08	620
1276	12.19	12.19	1
1277	18.80	18.80	1
1278	22.31	22.31	50
1279	27.98	27.98	39
1280	24.92	24.92	12
1281	15.43	15.43	63
1282	21.81	21.81	29
1283	19.23	19.23	1
1284	14.45	14.45	1
1285	19.02	19.02	1
1286	17.00	17.00	1
1287	14.47	14.47	65
1288	14.44	14.44	16
1289	20.56	20.56	1
1290	15.25	15.42	64
1291	12.46	12.46	3
1292	13.78	13.78	1
1293	13.60	13.60	1
1294	20.99	20.99	302
1295	12.32	12.32	94
1296	12.59	12.59	18

Interruption	First Restoration (hours) after 12 hours	Final Restoration (hours) after 12 hours	Customers Affected
1297	12.03	12.03	1
1298	21.64	21.64	1
1299	23.57	23.57	1
1300	16.45	16.45	1
1301	15.87	15.87	1
1302	17.35	17.35	1
1303	14.24	14.24	1
1304 *	13.57	18.03	201
1305	21.68	21.68	1
1306	23.82	23.82	1
1307	17.38	17.38	1
1308	12.29	12.29	50
1309	18.64	18.64	1
1310	24.82	24.82	2
1311	15.86	15.86	1
1312	13.13	13.13	6
1313	69.97	69.97	1
1312 *	13.08	15.70	4
1315 *	13.42	13.77	14
1316	21.54	21.54	5
1317	59.90	59.90	1
1318	12.92	12.92	1
1319	12.05	12.05	48
1320 *	16.10	44.14	29
1321	13.96	13.96	4
1322	16.65	16.65	1
1323	21.75	21.75	1
1324	12.34	12.34	1
1325	21.97	21.97	1
1326	15.30	15.30	1
1327	14.51	14.51	1
1328	22.99	22.99	1
1329	15.47	15.47	1
1330	15.27	15.27	1
1331	12.17	12.17	14
1332 *	12.32	14.56	27
1333	13.94	13.94	19
1334	12.47	12.47	1
1335	13.01	13.01	1
1336	20.47	20.47	1
1337	68.35	68.35	1
1338	22.83	22.83	1
1339 *	14.43	62.20	25
1340	20.11	20.11	10
1341 *	13.74	13.76	89
1342	21.17	21.17	1
1343 *	12.23	12.24	200