Joseph J. Syta
Vice President – Controller & Treasurer

April 1, 2019

VIA ELECTRONIC DELIVERY

Honorable Kathleen H. Burgess
Secretary
State of New York
Public Service Commission
Three Empire State Plaza
Albany, New York 12223-1350

Re: Case 19-E-0169 – In the Matter of 2018 Electric Reliability Performance in New York State.

Dear Secretary Burgess:

New York State Electric & Gas Corporation and Rochester Gas and Electric Corporation hereby submit for filing their Annual Electric Reliability Report and Power Quality Report pursuant to the New York State Public Service Commission's Order in the above referenced proceeding.

If you have any questions concerning this filing, please contact Steve Church at (607) 762-7071.

Respectfully submitted,

Joseph J. Syta

Attachment

cc: Christian Bonvin, Chief of Electric Distribution

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NEW YORK STATE ELECTRIC & GAS

CORPORATION

2018 Annual Reliability Report

March 31, 2019

Submitted in compliance with:
Case 02-E-1240 – Standards on Reliability of Electric Service – Annual Report
As Amended in Electric Service Standards Annual Reliability Report Guidelines – 12/19/2008

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DEFINITIONS

CAIDI (Customer Average Interruption Duration Index) – the average time needed to restore service to the average customer per sustained interruption. It is the sum of customer interruption durations divided by the total number of customer interruptions

CAIDI = Sum total of customer hours of interruption / Sum total of customers Interrupted

Customer Hours of Interruption - the duration of an interruption (hours) multiplied by the number of customers affected (interrupted) for a given interruption.

Customer - actively metered electric customer.

Distortion (Harmonics) - non-fundamental frequency components of a distorted 60 Hz power wave. Harmonic frequencies are integral multiples of the 60 Hz fundamental frequency. The odd-multiple harmonics are usually most troublesome. Harmonics are usually produced by the customer's equipment.

DLI – Distribution line inspection

Failed Division - any division that did not meet the PSC level of CAIDI and/or SAIFI as established in PSC case 02-E-1240.

Flicker (Voltage) - a variation of input voltage sufficient in duration to allow visual observation of a change in electric light source intensity.

Interruption - loss of electric service for more than five minutes to one or more customers.

Major Storm - a weather event that causes at least 10% of the metered customers in an operating area to be without service and/or that result in any metered customers to be without service for 24 hours or more.

Momentary Interruption - a loss of electric service to one or more customers with a duration lasting less than five minutes.

Outage Duration - measured from time reported until service is restored (in minutes).

Overvoltage - a steady state (0.5 seconds or longer) voltage delivered to the customer's service in excess of the ANSI upper service voltage limit (126 volts on a 120 volt service).

Power Quality – The characteristics of electric power received by the customer, with the exception of interruptions.

RI/TVI - radio or TV interference; see Electrical Noise.

Reliability - the degree to which electric service is supplied without interruption.

SAIFI (System Average Interruption Frequency Index) – is the average frequency of sustained interruptions per customer over a predefined area. It is the total number of customer interruptions divided by the total number of customers served.

SAIFI = Number of Customers Interrupted / Number of Customers Served

Sag (Voltage) - a momentary drop in voltage (more than 5% below the nominal voltage) for a time duration of 0.015 to 0.5 seconds. Voltage sags can be caused by faults or switching on the utility transmission and distribution system or by switching of customer loads that have large initial inrush/starting currents (e.g. motors, transformers, large DC power supplies).

Stray Voltage - a voltage usually less than 10 volts between two points that can be contacted simultaneously by a human or an animal.

Swell (Voltage) - a momentary rise in voltage (more than 5% above nominal) for a time duration of 0.015 to 0.5 seconds. This rise is caused by a fault on one phase of the system. The voltage rise is not experienced on the faulted phase.

TLI – Transmission line inspection

Transient - a sub-cycle voltage wave in an electric circuit, which is evidenced by a sharp, brief disturbance of the input-power voltage waveform. The duration is less than half-cycle of the normal voltage waveform and often less than one millisecond. (Switching transients may be caused by the utility breakers, capacitors, etc., or by the customer on/off equipment switching, load cycling, etc.).

Undervoltage - a steady state (0.5 seconds or longer) voltage delivered to the customer's service below the lower service voltage limit (114 volts on a 120 volts system).

PSC Interruption Classes

1. Major Storm
2. Tree Contacts
3. Overloads
4. Operating or Working Errors
5. Apparatus or Equipment Failures
6. Accidents or Events Not Under the Utility's Control
7. Prearranged
8. Customer's Equipment Failure
9. Lightning
10. Unknown or Unclassified

Section 1. Assessment of Reliability Performance - Corporate

Corporate Overview

The New York State Electric and Gas Corporation (NYSEG) electric franchise territory covers 18,359 square miles in New York State. NYSEG serves a population of approximately 2,200,000 people in 42 counties, with an average of 891,168 electric customers as of December 2018. NYSEG serves a primarily rural area comprised of 149 small cities and villages with 4,515 circuit miles of transmission lines, 35,103 circuit miles of primary distribution lines, served from 430 substations.

NYSEG's electric service territory covers approximately 40% of New York State. NYSEG's Corporate Office is located in Kirkwood, New York. The Company is organized with 13 distinct operating divisions spread across the state – Auburn, Binghamton, Brewster, Elmira, Geneva, Hornell, Ithaca, Lancaster, Liberty, Lockport, Mechanicville, Oneonta and Plattsburgh. For reliability reporting purposes, the Lockport Division is combined with Lancaster.

The following table shows the Corporate five-year history of performance, excluding major storms:

CORPORATE PERFORMANCE WITHOUT MAJOR STORMS

	2014	2015	2016	2017	2018
CAIDI	1.97	1.97	2.02	2.06	2.17
SAIFI	1.03	1.15	1.19	1.18	1.19
Interruptions	9,925	10,628	10,375	10,456	11,349
Customer Hours	1,738,959	1,992,937	2,108,878	2,144,082	2,310,303
Customers Interrupted	884,683	1,012,506	1,042,453	1,039,026	1,063,122
Customers Connected	861,672	877,062	878,777	884,136	891,168

NYSEG met the SAIFI target but exceeded the CAIDI target in 2018. The target levels for 2018 were – CAIDI (2.08) and SAIFI (1.20)

Corporate Performance: CAIDI & SAIFI by PSC cause codes –

NEW YORK STATE ELECTRIC AND GAS CORPORATE						
PSC CODE	PSC CAUSE CODE DESCRIPTION	CAIDI				
		2014	2015	2016	2017	2018
1	Major Storms	6.39	3.97	5.63	7.51	16.82
2	Tree Contacts	2.37	2.34	2.27	2.62	2.37
3	Overloads	2.83	2.57	2.37	1.50	3.17
4	Operational Errors	1.09	1.64	2.06	0.43	1.05
5	Equipment Failures	1.66	1.64	1.84	1.87	1.87
6	Accidents/Non-Utility	1.68	1.72	1.85	1.78	2.19
7	Prearranged	0.92	0.86	0.55	0.60	1.60
8	Customer Equipment	0.86	1.37	1.92	0.40	2.22
9	Lightning	2.25	2.52	2.11	2.38	2.16
10	Unknown	1.76	1.61	1.92	1.32	2.45

NEW YORK STATE ELECTRIC AND GAS CORPORATE						
PSC CODE	PSC CAUSE CODE DESCRIPTION	SAIFI				
		2014	2015	2016	2017	2018
1	Major Storms	0.30	0.11	0.38	0.64	1.09
2	Tree Contacts	0.34	0.38	0.39	0.44	0.48
3	Overloads	0.01	0.00	0.01	0.01	0.01
4	Operational Errors	0.04	0.03	0.11	0.02	0.01
5	Equipment Failures	0.22	0.32	0.27	0.30	0.27
6	Accidents/Non-Utility	0.18	0.16	0.21	0.19	0.25
7	Prearranged	0.01	0.02	0.02	0.05	0.01
8	Customer Equipment	0.00	0.00	0.00	0.00	0.01
9	Lightning	0.16	0.13	0.12	0.10	0.10
10	Unknown	0.07	0.11	0.06	0.07	0.05

2018 Major Storm Exclusions – Summary Table –

Storm Event #	Event Start	Event Stop	Division	Start Date	End Date	Ints	CstAff	CstHrs
1	2/2/2018	2/2/2018	Liberty	2/2/2018	2/2/2018	6	6,691	9,025
2	3/1/2018	3/13/2018	Binghamton	3/2/2018	3/5/2018	125	11,449	127,660
			Brewster	3/2/2018	3/13/2018	1,635	171,006	6,533,977
			Elmira	3/1/2018	3/6/2018	240	16,872	261,661
			Geneva	3/1/2018	3/6/2018	66	9,053	140,712
			Hornell	3/1/2018	3/8/2018	454	17,269	449,282
			Ithaca	3/1/2018	3/4/2018	137	5,439	121,778
			Lancaster	3/1/2018	3/5/2018	249	17,462	288,274
			Liberty	3/2/2018	3/12/2018	853	38,741	1,700,603
			Mechanicville	3/2/2018	3/8/2018	337	27,278	379,477
			Oneonta	3/2/2018	3/7/2018	233	19,753	406,725
3	4/4/2018	4/7/2018	Auburn	4/4/2018	4/6/2018	33	2,992	21,294
			Binghamton	4/4/2018	4/6/2018	62	3,959	19,707
			Elmira	4/4/2018	4/6/2018	79	6,847	47,925
			Geneva	4/4/2018	4/7/2018	89	8,089	69,162
			Hornell	4/4/2018	4/7/2018	92	5,460	49,162
			Ithaca	4/4/2018	4/5/2018	31	6,972	31,676
			Lancaster	4/4/2018	4/7/2018	380	46,773	545,487
			Liberty	4/4/2018	4/6/2018	66	2,212	18,748
			Oneonta	4/4/2018	4/7/2018	179	7,317	82,376
			Plattsburgh	4/4/2018	4/7/2018	113	16,496	94,577
4	4/15/2018	4/18/2018	Brewster	4/16/2018	4/17/2018	47	5,492	32,546
			Lancaster	4/15/2018	4/17/2018	42	26,513	47,569
			Liberty	4/16/2018	4/17/2018	54	1,732	14,157
			Mechanicville	4/16/2018	4/18/2018	146	10,255	113,623
5	5/4/2018	5/7/2018	Binghamton	5/4/2018	5/6/2018	27	3,582	38,231
			Geneva	5/4/2018	5/6/2018	40	2,367	21,773
			Mechanicville	5/4/2018	5/6/2018	72	6,483	40,695
			Oneonta	5/4/2018	5/6/2018	68	11,068	82,442
			Plattsburgh	5/4/2018	5/7/2018	314	48,179	827,164
6	5/15/2018	5/21/2018	Brewster	5/15/2018	5/21/2018	853	105,729	2,214,365
			Liberty	5/15/2018	5/21/2018	759	40,989	818,746
7	6/3/2018	6/5/2018	Brewster	6/3/2018	6/5/2018	28	14,199	11,302
8	6/13/2018	6/16/2018	Binghamton	6/13/2018	6/15/2018	78	3,228	15,184
			Ithaca	6/13/2018	6/15/2018	65	10,133	37,544
			Oneonta	6/13/2018	6/16/2018	71	4,476	11,860
9	6/18/2018	6/20/2018	Brewster	6/18/2018	6/21/2018	61	12,524	30,726
			Mechanicville	6/18/2018	6/19/2018	35	1,940	6,832
10	7/1/2018	7/4/2018	Elmira	7/2/2018	7/4/2018	49	4,213	12,575
			Geneva	7/1/2018	7/3/2018	51	9,018	41,192
			Ithaca	7/2/2018	7/3/2018	47	2,626	16,394
11	7/17/2018	7/18/2018	Mechanicville	7/17/2018	7/18/2018	22	5,361	4,526
12	7/22/2018	7/24/2018	Binghamton	7/23/2018	7/27/2018	36	12,756	21,866
			Brewster	7/22/2018	7/25/2018	66	13,422	29,734
			Elmira	7/23/2018	7/26/2018	55	6,890	12,934
			Ithaca	7/24/2018	7/27/2018	30	7,003	10,411
			Liberty	7/22/2018	7/25/2018	58	2,408	20,321
13	7/27/2018	7/29/2018	Oneonta	7/27/2018	7/29/2018	25	3,278	21,750
14	8/2/2018	8/5/2018	Brewster	8/2/2018	8/5/2018	59	10,499	27,705
			Mechanicville	8/3/2018	8/5/2018	41	5,807	12,703
15	8/7/2018	8/7/2018	Mechanicville	8/7/2018	8/8/2018	17	5,871	2,970
16	8/17/2018	8/18/2017	Brewster	8/17/2018	8/19/2018	63	6,493	28,323
17	8/28/2018	8/29/2018	Lancaster	8/28/2018	8/30/2018	57	29,157	48,250
18	9/6/2018	9/7/2018	Oneonta	9/6/2018	9/7/2018	12	12,804	19,249
19	9/21/2018	9/22/2018	Auburn	9/21/2018	9/22/2018	10	6,830	10,080
			Lancaster	9/21/2018	9/22/2018	47	4,636	13,399
			Plattsburgh	9/21/2018	9/22/2018	26	4,171	7,676
20	10/2/2018	10/3/2018	Brewster	10/2/2018	10/4/2018	86	20,450	67,797
21	10/27/2018	10/29/2018	Mechanicville	10/27/2018	10/29/2018	75	4,389	24,048
22	11/9/2018	11/11/2018	Plattsburgh	11/9/2018	11/11/2018	42	5,853	22,927
23	11/27/2018	11/29/2018	Oneonta	11/27/2018	11/29/2018	138	4,732	40,439
			Plattsburgh	11/27/2018	11/29/2018	150	16,513	75,678
24	12/17/2018	12/18/2018	Liberty	12/17/2018	12/18/2018	100	13,164	49,176
25	12/31/2018	12/31/2018	Hornell	12/31/2018	1/1/2019	3	19	153
			Lancaster	12/31/2018	1/1/2019	4	71	96

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Corporate corrective actions due to not meeting reliability indices and/or due to adverse trends in specific categories –

NYSEG continued to provide high levels of electric service reliability to its customers in 2018. NYSEG met the SAIFI target but exceeded the CAIDI target. Challenging trends with increased weather related activity and increased tree caused interruptions lead to the failure of NYSEG's CAIDI performance.

In 2018, there was a distinct separation in the reliability performance for the first half of the year and the second half. NYSEG's reliability performance on June 30th was –

CAIDI	1.98 (goal = 2.08)
SAIFI	0.45 (prorated goal = 0.58)

At the end of June, NYSEG's performance was comfortably under both measures.

When reviewing the second half of 2018 for reliability trends and drivers, the following can be seen –

- Minor storm activity increase significantly from July through December. As shown in the Division minor storm table on page 14, the customers affected by minor storms in the second half of the year was 70% of the year's total.
- The four worst days, based on the highest impact to NYSEG's CAIDI performance were:
    - 7/1, 7/4 and 9/10- All due to statewide minor storm activity. These days had a combined impact of 42.6K customers affected and 145.2K customer hours.
    - 11/18- a transmission event in Lancaster due to animal contact affected 12.8K customers and caused 37.9K customer hours.
    - These four days had a combined CAIDI of 3.23.
- Tree related interruptions increased significantly in the second half of the year. There was an increase of 1,263 interruptions (+62%) and an increase of 122,000 customer affected (+82%) in the second half of 2018. It is important to note that the average restoration time for tree related interruptions is 3.4 hours, so the overall impact to NYSEG's CAIDI was significant due to these interruptions.

Considering the previous information and additional analysis of the other PSC interruption classes, the following corrective actions have been identified-

- Implement 24x7 Trouble Shooter program in three Divisions (Lancaster, Brewster, and Binghamton).
- Leverage to the maximum extent possible single scheduled worker units to cover off hour responses.
- Deployment of automation devices to limit impact of outages and allow remote restoration of unaffected sections.
- Deployment of pilot program to implement trip saver devices on lateral taps that were previously fused.
- Evaluate and propose the implementation of a five-year tree trimming cycle.

As noted in previous reports, certain anomalies adversely affect the Companies reliability performance and ability to meet the CAIDI and SAIFI measures. These events can be classified into two main categories –

- Weather impacts
- Uncontrollable events

Adverse Weather

Weather Impacts – Multiple large impacting weather events have significant negative impacts on the reliability indices. Mechanisms are in place to allow the exclusion of the reliability impacts due to the most severe events but not for those "shoulder" or minor storm events.

NYSEG has developed a process to identify and track minor storms days by Division. This information will be used to study the relationship between the hardening of the electric delivery system and how that affects major storm events and minor storm events.

The table below lists the minor storm events from 2018 –

Division	Date	Interruptions	Customers Affected	Customer Hours	Percent Customers Out
Brewster	1/4/2018	25	7,376	11,175	8.5%
Plattsburgh	1/5/2018	6	1,714	1,800	4.1%
Mechanicville	1/7/2018	4	4,534	8,211	9.1%
Mechanicville	1/12/2018	9	3,644	4,549	7.3%
Brewster	1/13/2018	19	7,113	6,512	8.2%
Lancaster	1/23/2018	14	10,795	18,647	5.9%
Brewster	5/26/2018	7	5,918	3,402	6.8%
Elmira	6/14/2018	28	5,125	9,262	7.2%
Plattsburgh	7/1/2018	10	4,111	14,548	9.9%
Brewster	7/4/2018	38	6,652	26,794	7.7%
Lancaster	7/4/2018	52	16,429	45,814	8.9%
Mechanicville	7/6/2018	9	3,840	7,589	7.7%
Brewster	7/14/2018	12	3,621	8,374	4.2%
Mechanicville	7/27/2018	23	2,246	6,793	4.5%
Brewster	7/28/2018	25	3,805	12,602	4.4%
Brewster	8/7/2018	14	5,021	5,790	5.8%
Elmira	8/14/2018	22	3,231	13,237	4.5%
Plattsburgh	8/14/2018	6	1,772	3,881	4.3%
Binghamton	8/15/2018	12	7,592	13,048	6.7%
Mechanicville	8/17/2018	20	2,106	7,106	4.2%
Brewster	8/22/2018	7	4,018	2,619	4.6%
Geneva	8/29/2018	10	3,205	5,751	5.4%
Brewster	9/6/2018	29	3,756	32,644	4.3%
Liberty	9/11/2018	8	3,811	2,445	7.1%
Brewster	9/26/2018	20	4,483	7,576	5.2%
Ithaca	10/2/2018	5	4,964	6,738	8.0%
Oneonta	10/15/2018	11	5,316	5,091	5.8%
Plattsburgh	10/16/2018	31	2,453	10,242	5.9%
Mechanicville	10/23/2018	6	3,409	8,506	6.8%
Mechanicville	11/3/2018	9	2,919	6,332	5.8%
Brewster	11/5/2018	12	4,247	5,604	4.9%
Mechanicville	11/10/2018	12	4,036	14,731	8.1%
Elmira	11/13/2018	19	2,912	8,654	4.1%
Geneva	11/13/2018	4	2,452	5,155	4.1%
	TOTALS	**538**	**158,626**	**351,222**	

The information above is presented for reliability trending and comparison purposes only.

Uncontrollable Events

NYSEG experienced a number of large uncontrollable, non-weather related events in 2018. The largest of these events are listed in the table below.

Division	Event Start Date	Customers Impacted	Customer Hours	Cause Description
Brewster	1/12/2018	2,317	3,904	Motor Vehicle Accident
Lancaster	2/15/2018	1,657	1,243	Motor Vehicle Accident
Elmira	2/16/2018	1,316	4,711	Motor Vehicle Accident
Plattsburgh	3/22/2018	1,830	1,169	Loss of Foreign Supply
Mechanicville	5/9/2018	2,116	2,469	Motor Vehicle Accident
Plattsburgh	6/18/2018	1,386	11,181	Motor Vehicle Accident
Brewster	6/25/2018	3,718	1,141	Motor Vehicle Accident
Lancaster	6/30/2018	2,567	4,834	Foreign Object
Brewster	7/15/2018	1,607	214	Motor Vehicle Accident
Mechanicville	7/15/2018	4,612	9,361	Emergency = Public Authority Requested
Binghamton	8/11/2018	2,783	5,407	Foreign Object
Binghamton	9/29/2018	1,923	1,684	Motor Vehicle Accident
Mechanicville	10/2/2018	4,553	11,161	Motor Vehicle Accident
Lancaster	10/15/2018	10,270	12,549	Loss of Foreign Supply
Elmira	11/4/2018	1,494	10,736	Motor Vehicle Accident
Plattsburgh	11/16/2018	3,897	12,612	Loss of Foreign Supply
Mechanicville	12/19/2018	4,562	2,787	Motor Vehicle Accident
Liberty	12/23/2018	1,447	5,891	Motor Vehicle Accident
Lancaster	12/28/2018	3,786	23,537	Loss of Foreign Supply
	totals:	57,841	126,591	

NYSEG is reviewing and monitoring all uncontrollable interruptions to identify any emerging trends due to motor vehicle accidents, loss of foreign supply, and vandalism and/or foreign objects.

NYSEG will continue to identify and track events of this nature in future years for potential exclusion from reliability metrics' calculations as allowed per the process noted in the current Rate Plan.

Major Transmission and Distribution Capital Investments in 2018 –

2018 Major Capital Project Investments

Project Title	2017 Act	2018 Act	Total
Afton Sub - Add new 34.5kV Circuit	$45,942	$30,959	$76,901
Auburn Transmission Project	$59,713,013	$6,304,825	$66,017,838
Binghamton Area Cap Banks	$1,608,381	$1,592,600	$3,200,981
Cargill Salt Mine Shaft #4	$39,678	$197,958	$237,636
Circuit 512 (Vestal-Goudey)-Upgrade	$5,128,818	$675,167	$5,803,985
Coopers Corners New 3rd 345/115 kV Trans	$53,425	$1,284,895	$1,338,319
Dingle Ridge - 2nd Bank and 13.2kV Conv	$569,812	$1,260,882	$1,830,694
Flat Street Substation New Transformer	$1,058,259	$4,094,941	$5,153,201
Gardenville Substation Rebuild	$513,991	$611,745	$1,125,736
Glenwood - Replace Transformers	$2,202,871	$3,045,801	$5,248,672
Goudey S/S - Separation from AES Plant	$1,540,607	$1,298,899	$2,839,507
Harris Lake Diesel Generator Rpl (DS-C)	$4,515,672	$428,862	$4,944,535
Jennison S/S - Separation from AES Plan	$324,811	$1,531,697	$1,856,508
Klinekill-Valkin-Construct New 115kV TL	$5,340,978	$20,115,734	$25,456,712
Line 601 Raylinski Tap - 35kv Line Relocation	$605,862	$1,675	$607,536
L595 Seneca Cable Rebuild	$77,225	$4,229,278	$4,306,504
Line 807 Conversion to 115kV	$2,903,847	$2,373,641	$5,277,488
Line 813 structure replacement in Brewster	$1,418,879	$12,015	$1,430,894
Line 871-872 46kV Transmission Line Rbld	$1,238,271	$6,441,138	$7,679,409
Line 879 Rebuild to Rainbow Falls	$372,535	$865,762	$1,238,297
Metcar 1 phase to 3 phase conversion	$289,204	$4,045	$293,249
Meyer Substation New Transformer	$797,605	$1,418,768	$2,216,373
MTA - Install Three New Circuits	$262,510	$191,740	$454,250
NYSEG BES Program - FERC Compliance	$4,824,693	$21,780,434	$26,605,127
Old Fallsburg New 2nd LTC Transformer	$47,848	$69,958	$117,806
RTU Installation Project	$73,964	$49,842	$123,806
Sackett Lake Replace Transformer	$88,464	$408,756	$497,220
Silver Creek Sub New Transformer	$3,072,874	$6,268,569	$9,341,443
South Perry New Sub & Trans Line Upgrade	$8,134,650	$3,748,457	$11,883,107
Stephentown Substation New Transformer	$1,215,421	$2,722,856	$3,938,277
Stillwater Transformer	$187,151	$16,327	$203,478
Willet Substation New Transformer	$481,471	$901,883	$1,383,355
Windham Substation 115kV Capacitor Addition	$54,338	$36,617	$90,956

Reliability indices for individual regions and overall company will reflect the impacts of these projects.

Specific Distribution Reliability Projects/Investments in 2018 –

Name	Description	Actual
Re-conductor Park Ave 120 Circuit - Total of 3 jobs	The main reason for this project is to eliminate the #4/0CU primary and #2/0CU Neutral on Park Ave 120 circuit installed in 1929. Repairs are too difficult, so the new conductor will be 477AL primary conductor with 4/0AL neutral. Significant outage times in year 2017 is the driving factor for this project to improve reliability. Some poles will be changed out for age. A couple poles will be changed out with 50' poles for future SCADA devices planned in yr 2018. The Automation project will handle the SCADA devices. L-61 P-20, L-190 P-37, L-61 P28 to P37, L-190 P15 to P21, L-190 P-21 thru L-190 P-37. Removed cutouts from Records on L-196 P-1. Old cutouts were porcelain and they were physically on L-61 P-22. New cutouts will be placed on L-61 P-22.	$ 313,952
RE-CONDUCTOR PLEASANTVIEW DR	Reconductor Cemetery Rd 491 circuit along Pleasant View Dr from L269 / P 52 to L269 / P 99 in Town of Lancaster. Reconductoring to replace existing 1/0 primary conductor and 1/0 neutral with 477 mcm al poly primary conductor and 4/0 al poly neutral to increase capacity.	$ 290,516
Jamison 518 to Springbrook 495 in Lancaster.	Install 1-5MVA 34.5kv/12.47kv step padmount transformer tapped on the Jamison 518 (highside) to act as a backup to the Springbrook 495 substation. Install 1-55ft sole owned pole offline for all 5MVA protective 34.5KV equipment. Install 12.47KV recloser and 12.47KV 3Ph riser for the 12.47KV side of the 5MVA step transformer to feed Springbrook 495 during a fault trip at the sub. New pole 15B: End Springbrook circuit and install 3Ph riser (50ft). New pole 15A: 15KV recloser N.O. (60ft). Replace transformer on pole 16 with 19.9KV transformer and install duplex back to pole 15A for source side voltage.	$ 171,106
Voltage Conversion Job on Java 281	Java to West Varysburg Conversion. Multiple poles on job. Conversion will be from 4.8KV Delta to 12.47Y. On a branch circuit off Perry road, there will be a 167kva step bank installed on L-3604 P1. There will be a 3-phase 3-250kva step bank installed on Rte 98 L-1020 / P-166 . There will be a single phase 1-250kva step bank installed at L-1084 / P153. There will eventually be a step bank removed on a future work order at L-1084 / P-147-1, when the circuit becomes 12.47kv. Install new 40ft pole 128S on line 1020. Near 5118 Youngers Rd. In The Town Of Java Line 1741 Replace Pole 32 With A 55 Ft Pole Install 3 500 Kva Step Transformers.	$ 107,002
TDIRP 603 Replace aged primary and old poles along Vienna Rd. in the Town of Arcadia	Replace 3,135' of #2 acsr installed in 1931 with new 1/0 aaac which will improve the capacity of the line. Tree trimming will also be performed with the installation of the new wire which will eliminate a potential source of outage in this section of line. In total, the reliability of 156 customers will be improved.	$ 64,273
Install 35KV. Line Extension on Willow Hill Rd L#1300 in the Town of Spafford	Many of NYSEG's electric customers, located at the end of the Marietta 511 circuit, have been experiencing low voltage at certain times of the year. This is a result of the large seasonal loads along the Skaneateles and Otisco Lakes. These area's are currently served thru large, overloaded, paralleled, step transformers that cannot be increased further in size. This work order is written to extend overhead, three phase, 35KV. primary facilities, approximately 1700' along the Willow Hill Road, which will allow for the installation of two new step transformers. This will eliminate the existing low voltage issues as well as provide a back up feed. This 35KV. line will be extended in the near future to the Willowdale Road intersection where it will provide a 35KV. loop. This will allow for sectionalizing, keeping outages in this area at a minimum. The Marietta 511 circuit is one of the Auburn Division's worst performing circuits. Install 9 poles and 5 anchors along the Willow Hill Road and Becker Road.	$ 62,500
Relocate backlot line along MeKeel Rd, Trumansburg	This work will improve reliability for 8 Customers on this circuit. This section of line is a presistent problem for the line dept. Remove the backlot line and poles at L618, Poles 3, 4, 5 and 6. Install new poles: 1A, 2,3,4,5,6 and 7 and reinstall the line along the road.	$ 59,663
RPL GROUP-OP WITH SCADA- N BRDWAY 544 CHEEKTOWAGA T	Replace 45 Ft Pole With 50 Ft Pole/ Class 2. Replace Defective Group Op Switch (Which Occured On 2/27/18 During Switching Would Not Open- Drive Shaft Broken. It Is Yellow Tagged For Line In The Closed Position) With A 35Kv Scada Switch- Behind Ellicott Sub This Work Is Necessary To Improve/Restore Relibality And Allow Switching Between No Broadway 535 And 544 Feeders.	$ 57,600
Re-establish circuit Dick 391 feeder in the Town of Cheektowaga	The Dick Road 392 circuit supplies the town of Cheektowaga and will be split in the field. A double circuit will need to be created on these poles to bring the 391 circuit to Dick Rd to tie in and replace a portion of the Dick 392 at line 435 Pole 61 (Tie in to take place with phase 2 and phase 3 work).	$ 46,340
Primary Install of Distribution Tie Line on Vine Rd. in the Town of Jerusalem	Construct a primary Distribution Tie Line along Vine Road which will allow for the removal of 1946 inaccessible, cross lot(hillside), defective primary distribution facilities. This will provide a more reliable Distribution feed to 7 customers in area and locate facilities along road side where they can be easily maintained. Installing 5 new Dist poles and 918' of 2C-1/0aaac 7Str bare primary wire, along with framing and guying. 2 of the 5 new poles will be granted Joint Ownership(40'Base) to the Telephone Company. Replacing/upgrading 2 1937&1946 Joint Distribution Poles, which are currently undersized for the facilities attached. Remove 3 1946 Sole Owned Dist Poles along with 1311' of 2C-#2acsr 7/1 Str Bare primary wire.	$ 35,091
Distribution upgrade on Linden Ave. in the City of Ithaca	This is to harden our existing overhead facilities behind 238, 234, 232, and 230 Linden. This will involve changing out the existing poles for all new class 3 poles, prior to the building going in. NYSEG already has existing easements for these facilities, so the work can be done without involving the adjacent property owners. On L56 / P224 Change out existing P 224 and push brace for new Class 3 pole and push brace. Change out existing riser pole for new class 3 pole at Pole 225 Remove existing pole at Pole 295 Change out existing pole and Pclass anchor for new class 3 pole and anchor at Pole 235 Transfer all overhead services & underground service onto new poles	$ 25,643
Relocate electric line #2316 on County Route 119 (Catatunk Rd.) from off road/cliff to road in the Town of Canisteo.	Line 2316: Line relocation to remove broken poles on cliff and have no access to and Install 9 - 40' poles, Install 1 - 35' pole, Install a pole to pole guy 56', Install 6 anchors, Install framing and 5000'(2000X2) 1/0 AAAC delta primary. Line 274: Remove 6 - 40' poles Remove 4 - 35' poles, Remove 1 - 45' pole and 7220' (3610X2) CWLD primary, Remove 157' 1/0 triplex secondary Remove 1 triplex service, Remove 2 - 10 kva xfmrs, Install new anchor remove old anchor pole 84 Remove cutouts pole 83.	$ 18,831
TDIRP Greenidge 596 Upgrade step bank fusing coordination North Feed, Torrey	The Step Bank on Pole #15 of Line #P84 (Rice Hill Rd, North Feed) is being replaced, fusing changes will need to be made so that the line will be properly coordinated with the new step bank. Add a number of fusing locations to the existing line and upgrade the fusing that is existing. Any incidental outages will have a better chance of affecting fewer customers since there will be more places that the line is protected.	$ 16,809
Step Bank to be installed on a H-frame on Strickler Rd on circuit Cemetery Rd 492	This job is written to install (3) 500kva step bank (12.48kv to 4.8kv delta) on Strickler Rd L-3028, P-15. This work is being done to provide load relief for Roll Rd. #545.	$ 13,663
Replace poles on Canandaigua Rd in the Town of Macedon. Macedon 602 circuit	Replace two poles, install new framing, and transfer all NYSEG attachments to new poles. Pole #1B-2 will be offered joint to Telephone on a 35' basis with no excess. NYSEG to frame and set pole, Telephone to transfer and remove remaining pole butt as last party off.	$ 7,712
Replace defective pole on Dick Rd 537 circuit	Replace a 40 foot joint owned pole (#19) found defective on Line 1974 in the town of Cheektowaga. Perform additional work to facilities along this circuit.	$ 4,797

Reliability indices for individual regions and overall company will reflect the impacts of these projects.

Specific distribution reliability projects/investments to be taken based on the results from the annual distribution facility inspection reports provided in each year –

Equipment inspection is one method for identifying work necessary to maintain reliability. The Company performs a visual inspection of its overhead distribution system based on a 5-year cycle. Each discrepancy found during the distribution system inspection is identified and prioritized during the inspection. Each discrepancy is classified as a Level I, Level II, Level III, or Level IV condition. The Operations Department plans, schedules, and performs corrective actions. Discrepancies are resolved (repaired or replaced) based upon these inspection results. The results of this inspection program are explained in the annual Stray Voltage Test and Inspection report that is submitted each February.

Stray voltage testing and Distribution Line Inspection/Transmission Line Inspection (DLI/TLI) work is mandated by New York State Public Service Commission Order - Case 04-M-0159. NYSEG perform inspections on approximately (20%) of their owned assets annually (100% every 5 years). This equates to about 194,000 inspections for NYSEG. NYSEG also performs stray voltage testing on these same (20%) assets and also (100%) of their streetlights, traffic signal equipment and underground manholes and handholes.

Section 2. Assessment of Reliability Performance – Divisions

Auburn Division

The following table shows the Auburn five-year history of performance, excluding major storms:

AUBURN PERFORMANCE WITHOUT MAJOR STORMS

	2014	2015	2016	2017	2018
CAIDI (goal - 1.75)	2.67	2.57	2.22	1.71	2.12
SAIFI (goal - 1.00)	0.44	0.51	1.17	1.37	0.94
Interruptions	312	350	345	386	304
Customer Hours	43,259	48,413	94,550	85,294	73,456
Customers Interrupted	16,198	18,802	42,657	49,820	34,574
Customers Connected	36,527	36,585	36,471	36,449	36,958

Auburn met the SAIFI target but exceeded the CAIDI target in 2018.

Auburn Performance: CAIDI & SAIFI by PSC cause codes –

AUBURN DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	CAIDI				
		2014	2015	2016	2017	2018
1	Major Storms	0.00	0.00	4.02	3.82	3.19
2	Tree Contacts	4.51	2.79	3.92	3.90	2.51
3	Overloads	4.96	1.84	4.36	2.09	3.90
4	Operational Errors	0.95	0.00	0.00	0.00	0.00
5	Equipment Failures	2.58	4.55	2.05	0.93	1.85
6	Accidents/Non-Utility	1.34	1.62	1.99	1.99	2.15
7	Prearranged	1.48	0.69	1.17	0.25	1.48
8	Customer Equipment	3.08	1.53	0.80	2.00	1.50
9	Lightning	1.70	3.95	2.02	2.89	2.52
10	Unknown	1.53	2.13	2.09	1.54	1.59

AUBURN DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	SAIFI				
		2014	2015	2016	2017	2018
1	Major Storms	0.00	0.00	0.15	0.14	0.27
2	Tree Contacts	0.14	0.14	0.12	0.20	0.11
3	Overloads	0.00	0.00	0.00	0.00	0.00
4	Operational Errors	0.02	0.00	0.00	0.00	0.00
5	Equipment Failures	0.09	0.06	0.38	0.52	0.25
6	Accidents/Non-Utility	0.08	0.17	0.62	0.39	0.50
7	Prearranged	0.01	0.04	0.01	0.17	0.00
8	Customer Equipment	0.00	0.00	0.00	0.00	0.00
9	Lightning	0.09	0.07	0.03	0.08	0.05
10	Unknown	0.00	0.03	0.01	0.01	0.03

Auburn Failed Division Review – exceeded 2018 CAIDI target

Interruption Breakdown by PSC Cause Code

CAUSE DESCRIPTION	*Interruptions*		*Customers Interrupted*		*Customer Hours of Interruption*	
Tree In ROW	36	11.8%	1,257	3.6%	4,645	6.3%
Tree Out ROW	67	22.0%	2,867	8.3%	5,714	7.8%
Overloads	15	4.9%	145	0.4%	565	0.8%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	34	11.2%	8,909	25.8%	16,483	22.4%
Accidents/Non-Utility	89	29.3%	18,517	53.6%	39,853	54.2%
Prearranged	3	1.0%	152	0.4%	225	0.3%
Customer Equipment	3	1.0%	4	0.0%	6	0.0%
Lightning	31	10.2%	1,765	5.1%	4,447	6.1%
Unknown	26	8.6%	958	2.8%	1,519	2.1%
TOTALS	**304**	**100%**	**34,574**	**100%**	**73,458**	**100%**

Summary for 2018–

The Auburn Division in 2018 met its SAIFI target but exceeded its CAIDI target. The major contributing causes of this failure were tree contacts, accidents or non-utility incidents, and equipment failures.

After careful analysis, the 2019 planned efforts to improve reliability performance per causes are the following:

- Tree – 168 miles of circuit trim is planned for the following circuits:
  - Cayuga 632
  - King Ferry 528
  - Marcellus 626
  - Port Byron 633
  - Swift Ave 315
  - Weedsport 628/629
  - Wright Ave 703/704
- Accidents/Non-Utility – All accidents and/or nonutility outages are responded to and corrected. Auburn will continue timely responses and corrective actions as needed. NYSEG will continue to look at car/pole accidents and try to isolate and pick up as many customers as possible during review. Feedback will also be obtained from line personnel of additional protection that can be installed in areas to alleviate customer counts.
- Equipment Failures – Install animal guards where possible and circuit patrols to find and fix any bad insulators or hot spots along with our DLI pole replacement program. Review of additional circuits to be installed out of the Stryker Sub. Will continue to evaluate any tie points that can potentially pick up additional customers or create loop feeds.

The following circuits have been identified as worst performing circuits in 2018 [see section 5 on page 187] –

- Marietta 511
- Stryker Ave 702
- Stryker Ave 721

The 2019 Action Plans for these circuits are –

Marietta 511–

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	8	40.0%	1,217	35.3%	733	22.2%
Tree Out ROW	3	15.0%	218	6.3%	924	28.0%
Overloads	1	5.0%	2	0.1%	14	0.4%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	3	15.0%	1,966	57.1%	1,290	39.0%
Accidents/Non-Utility	2	10.0%	12	0.3%	29	0.9%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	2	10.0%	27	0.8%	313	9.5%
Unknown	1	5.0%	1	0.0%	1	0.0%
TOTALS	**20**	100.0%	**3,443**	100.0%	**3,304**	100.0%

Based on the data provided in the table above, the following plan has been created-

- Replace approximately 40 poles to upgrade existing facilities on Willowdale Road.
- Convert Nunnery Road from 7.2 Delta to 7.2 Wye to improve system reliability.
- Replace a step transformer with a new 333 KVA step on Nunnery Road.
- Complete red circuit patrol – find and fix.
- Infrared inspection of the circuit.
- Post storm circuit sweeps – find and fix.
- Continue to respond to accident/non-utility issues in a timely manner and replace and/or relocate poles if design will allow. Also install reflective tape where feasible.
- Evaluate and do hot spot trimming where necessary. Work with customers during outages to possibly obtain additional trimming rights if needed for tree issues outside of ROW.

Stryker Ave 702–

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	1	5.6%	1	0.0%	1	0.0%
Tree Out ROW	1	5.6%	3	0.0%	18	0.2%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	5	27.7%	838	10.8%	403	5.4%
Accidents/Non-Utility	5	27.8%	4,084	53.0%	6,166	83.3%
Prearranged	2	11.1%	2,758	35.8%	785	10.6%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	2	11.1%	5	0.1%	10	0.2%
Unknown	2	11.1%	22	0.3%	23	0.3%
TOTALS	**18**	100.0%	**7,711**	100.0%	**7,406**	100.0%

Based on the data provided in the table above, the following plan has been created-

- Infrared inspection of circuit.
- Post storm circuit sweeps – find and fix.
- Evaluate for additional tree trimming and/or sections for hot spot trimming. Work with customers, when possible, to obtain additional trimming rights when outages occur due to trees being outside of our ROW. This will help reduce outages and times.
- Continue to respond to accident/non-utility issues in a timely manner and replace and/or relocate poles if design will allow. Also install reflective tape where feasible.

Stryker Ave 721 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	1	6.7%	64	1.4%	62	1.6%
Tree Out ROW	4	26.7%	322	7.0%	567	14.4%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	0	0.0%	842	18.2%	1,025	26.0%
Accidents/Non-Utility	7	46.7%	1,201	26.0%	566	14.3%
Prearranged	1	6.7%	1,893	40.9%	505	12.7%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	2	13.2%	302	6.5%	1,223	31.0%
Unknown	0	0.0%	0	0.0%	0	0.0%
TOTALS	**15**	100.0%	**4,624**	100.0%	**3,948**	100.0%

Based on the data provided in the table above, the following plan has been created-

- Replace feed out of the Stryker Sub and install a new tie switch for improved reliability.
- Infrared inspection of circuit.
- Post storm circuit sweeps – find and fix.
- Evaluate for additional tree trimming and/or sections for hot spot trimming. Work with customers, when possible, to obtain additional trimming rights when outages occur due to trees being outside of our ROW. This will help reduce outages and times.
- Continue to respond to accident/non-utility issues in a timely manner and replace and/or relocate poles if design will allow. Also install reflective tape where feasible.

Update for 2017 –

In 2017, the Auburn Division met its CAIDI target but exceeded the SAIFI target. The major contributing causes of this failure were tree contacts, accidents or non-utility incidents, and equipment failures.

Corrective Actions undertaken in 2018 to improve the Auburn Division's reliability performance and to address the failure of SAIFI include:

- Wood Pole Inspect and Treat by Alamon.
- C-Trussing of wood poles by Alamon.
- Completed all DLI pole replacements of reject poles and also any defective cross arms, insulators, transformers, etc.
- Completed 265 DLI maintenance work orders within Auburn territory.
- Approximately 40 DLI maintenance work orders completed on the Stryker Ave 702 and 721 circuits.

Additional Capital and O&M initiatives tracked in 2018 to enhance reliability include—

- Auburn Prison Feed upgrade
- Wood Pole Maintenance done for the Pole Inspection/Treatment and Reinforcement program for C-Truss installations on transmission and distribution poles. Many of which were treated or C-Trussed and many completed in 2018 and to be continued into 2019 of those slated.
- Wright 706 circuit –rebuilt aged line and replaced approximately 24 poles along Oakridge Road.
- Union Springs 609 circuit – Replaced defective regulators along Backus Road in the Town of Springport.
- Wright 520 circuit – Upgraded step bank at Nichols Corners to split load for increased reliability.
- Stryker Ave 702 –
    - Rebuilt large portion of backlot line (approximately 20 poles) along Silver Street Road and moved new line to the road for access and reliability.
    - Additional circuit at Stryker Substation to reduce customer counts on the Stryker 702 circuit along with full circuit trim of 702.
    - Completed aluminum and steel insulator replacement programs done by Northline contractors.
    - Aluminum and steel insulator replacement program done by Northline.
- Stryker Ave 721 –
    - Oak Ridge Road rebuilt/replaced multiple poles along the line.
- Marietta 511 –
    - Installed approximately 2 miles of 35KV tie line on Willowhill Road from Route 41 to Willowdale Road. This will improve reliability by improving the voltage at the Southern end of Spafford.
    - Installed 2 Group op switches on Willowhill Road for sectionalizing to improve reliability and/or outage time.
    - Did a complete rebuild on Backus Road and increased wire size approximately 18 poles.
    - DLI – work to replace aged poles and deficiencies reported.

Jobs planned for 2019 or beyond:

- Resiliency Project - Rose Hill Road in Marietta to 7.2 Wye circuit rather than 7.2 Delta.
- DLI pole replacements for all red circuits and others.
- Green 330 and 323- Upgrading feed at State Street Bridge (cable older than 75 years old).
- Five defective underground network transformers are being replaced with newer equipment. (various locations within the city of Auburn)
- Stryker 702 and Wright 706 are in the planning stages of replacing over 50 poles.

Binghamton Division

The following table shows the Binghamton five-year history of performance, excluding major storms:

BINGHAMTON PERFORMANCE WITHOUT MAJOR STORMS

	2014	2015	2016	2017	2018
CAIDI (goal - 2.00)	1.98	1.82	1.61	2.14	2.00
SAIFI (goal - 1.00)	0.85	0.83	0.93	0.89	0.82
Interruptions	1,005	923	991	1,079	1,094
Customer Hours	185,608	171,535	167,490	213,952	187,065
Customers Interrupted	93,772	93,993	104,272	99,874	93,581
Customers Connected	109,896	113,010	111,688	112,509	113,661

Binghamton met both the CAIDI and SAIFI targets in 2018.

Binghamton Performance: CAIDI & SAIFI by PSC cause codes –

BINGHAMTON DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	CAIDI				
		2014	2015	2016	2017	2018
1	Major Storms	0.00	5.83	4.73	8.65	6.37
2	Tree Contacts	2.84	2.35	1.99	3.04	2.00
3	Overloads	1.71	1.85	1.53	2.72	3.23
4	Operational Errors	0.59	0.27	0.86	0.31	0.88
5	Equipment Failures	1.68	1.64	1.16	1.83	1.96
6	Accidents/Non-Utility	1.68	2.29	1.85	1.62	1.44
7	Prearranged	2.11	0.66	0.87	0.19	1.04
8	Customer Equipment	2.12	2.02	1.95	0.16	3.28
9	Lightning	1.86	2.06	1.56	2.72	2.76
10	Unknown	1.64	1.90	0.98	2.13	2.78

BINGHAMTON DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	SAIFI				
		2014	2015	2016	2017	2018
1	Major Storms	0.00	0.01	0.20	0.67	0.31
2	Tree Contacts	0.26	0.19	0.37	0.37	0.34
3	Overloads	0.01	0.01	0.01	0.00	0.00
4	Operational Errors	0.08	0.07	0.00	0.11	0.00
5	Equipment Failures	0.19	0.30	0.27	0.20	0.18
6	Accidents/Non-Utility	0.06	0.14	0.10	0.07	0.17
7	Prearranged	0.01	0.02	0.00	0.02	0.00
8	Customer Equipment	0.00	0.00	0.00	0.01	0.01
9	Lightning	0.21	0.07	0.13	0.07	0.10
10	Unknown	0.04	0.03	0.05	0.04	0.02

Binghamton Division Review –

Interruption Breakdown by PSC Cause Code

CAUSE DESCRIPTION	*Interruptions*		*Customers Interrupted*		*Customer Hours of Interruption*	
Tree In ROW	289	26.4%	10,651	11.4%	28,932	15.5%
Tree Out ROW	274	25.1%	28,506	30.5%	49,451	26.4%
Overloads	41	3.7%	388	0.4%	1,256	0.7%
Operational Errors	4	0.4%	41	0.0%	36	0.0%
Equipment Failures	177	16.2%	20,416	21.8%	40,036	21.4%
Accidents/Non-Utility	178	16.3%	19,219	20.5%	27,709	14.8%
Prearranged	7	0.6%	378	0.4%	392	0.2%
Customer Equipment	10	0.9%	1,177	1.3%	3,863	2.1%
Lightning	76	6.9%	10,435	11.2%	28,811	15.4%
Unknown	38	3.5%	2,370	2.5%	6,585	3.5%
TOTALS	**1,094**	**100%**	**93,581**	**100%**	**187,072**	**100%**

Summary for 2018 -

The Binghamton Division in 2018 met both its CAIDI and SAIFI target.

The major contributing causes of the outages in 2018 were tree contacts, accidents or non-utility incidents, and equipment failures. After careful analysis, the 2019 planned efforts to improve reliability performance per causes are the following:

- Tree – Planned circuit trim to include 17 circuits for a total number of 372.2 circuit miles. Hotspot trimming will be done on a as need basis.
- Accidents/Non-Utility – Continue to respond to all accidents/non-utility within a timely manner and look to relocate poles and/or install reflective tape when feasible.
- Equipment Failures – Review equipment to see if animal guards can be installed.

The following circuits have been identified as worst performing circuits in 2018 [see section 5 on page 187] –

- Berkshire 746
- Castle Garden 622
- Chenango Bridge 428
- Genegantslet Corners 422
- Kattleville 422
- Lounsberry 178
- Lounsberry 179
- Willet 423

The 2019 Action Plans for these circuits are –

Berkshire 746 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	6	46.2%	115	5.7%	293	7.6%
Tree Out ROW	2	15.3%	202	10.0%	548	14.3%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	4	30.8%	1,690	83.9%	2,981	77.8%
Accidents/Non-Utility	1	7.7%	8	0.4%	11	0.3%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	0	0.0%	0	0.0%	0	0.0%
Unknown	0	0.0%	0	0.0%	0	0.0%
TOTALS	**13**	100.0%	**2,015**	100.0%	**3,833**	100.0%

Based on the data provided in the table above, the following plan has been created-

- Perform detailed line inspection of Zone 1 – from breaker to first protection device.
- Review high customer count sections to reduce the number of affected customers when an outage does take place.
- Post storm circuit sweeps – find and fix.
- Hot spot tree trimming on 3 phase sections.
- Replace 7 DLI poles and 23 DLI cross arms.

Castle Garden 622 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	4	19.0%	743	19.7%	2,118	28.0%
Tree Out ROW	3	14.3%	74	2.0%	242	3.2%
Overloads	1	4.8%	11	0.3%	12	0.2%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	2	9.5%	41	1.1%	195	2.6%
Accidents/Non-Utility	6	28.6%	344	9.1%	481	6.4%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	3	14.3%	2,489	65.8%	4,392	58.1%
Unknown	2	9.5%	75	2.0%	117	1.5%
TOTALS	**21**	100.0%	**3,777**	100.0%	**7,557**	100.0%

Based on the data provided in the table above, the following plan has been created-

- Perform detailed line inspection of Zone 1 – from breaker to first protection device.
- Review high customer count sections to reduce the number of affected customers when an outage does take place.
- Post storm circuit sweeps – find and fix.
- Line relocation on Jones Road to remove back lot build.
- Hot spot tree trimming on 3 phase sections.
- Replace 4 DLI poles.

Chenango Bridge 428 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	3	13.6%	26	0.4%	130	0.9%
Tree Out ROW	3	13.6%	2,183	33.6%	4,460	29.5%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	6	27.3%	1,423	21.9%	4,023	26.6%
Accidents/Non-Utility	2	9.2%	12	0.2%	28	0.2%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	5	22.7%	2,384	36.7%	3,833	25.4%
Lightning	3	13.6%	467	7.2%	2,625	17.4%
Unknown	0	0.0%	0	0.0%	0	0.0%
TOTALS	**22**	100.0%	**6,495**	100.0%	**15,099**	100.0%

Based on the data provided in the table above, the following plan has been created-

- Perform detailed line inspection of Zone 1 – from breaker to first protection device.
- Review high customer count sections to reduce the number of affected customers when an outage does take place.
- Post storm circuit sweeps – find and fix.
- Replace 5 DLI poles and 12 DLI cross arms.
- Install motor ops to replace manual group operated switches to allow for automated restoration of approximately 2/3rd of the total customers.
- Additional hot spotting work will be undertaken beyond the first protective device to the second, primarily on the 3 phase out toward Coventry.

Genegantslet Corners 422–

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	5	19.2%	63	1.1%	52	0.6%
Tree Out ROW	7	26.9%	1,873	33.0%	3,096	37.2%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	2	7.7%	1,976	34.7%	2,523	30.3%
Accidents/Non-Utility	8	30.8%	259	4.6%	485	5.8%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	2	7.7%	3	0.1%	15	0.2%
Unknown	2	7.7%	1,508	26.5%	2,161	25.9%
TOTALS	**26**	100.0%	**5,682**	100.0%	**8,332**	100.0%

Based on the data provided in the table above, the following plan has been created-

- Perform detailed line inspection of Zone 1 – from breaker to first protection device.
- Review high customer count sections to reduce the number of affected customers when an outage does take place.
- Post storm circuit sweeps – find and fix.
- Entire circuit is being trimmed as routine maintenance work.

Kattelville 422 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	3	10.0%	68	1.2%	256	3.8%
Tree Out ROW	16	53.3%	4,350	69.9%	5,102	76.1%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	3	10.2%	28	0.4%	115	1.7%
Accidents/Non-Utility	4	13.3%	1,503	24.1%	607	9.1%
Prearranged	1	3.3%	71	1.2%	71	1.1%
Customer Equipment	1	3.3%	2	0.0%	11	0.2%
Lightning	1	3.3%	177	2.8%	463	6.8%
Unknown	1	3.3%	26	0.4%	78	1.2%
TOTALS	**30**	100.0%	**6,225**	100.0%	**6,703**	100.0%

Based on the data provided in the table above, the following plan has been created-

- Perform detailed line inspection of Zone 1 – from breaker to first protection device.
- Review high customer count sections to reduce the number of affected customers when an outage does take place.
- Post storm circuit sweeps – find and fix.
- Replace 9 DLI poles and 15 DLI cross arms.
- Hot spot tree trimming on off road sections along Route 12.

Lounsberry 178 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	5	21.7%	128	6.5%	419	7.5%
Tree Out ROW	11	47.8%	208	10.6%	535	9.6%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	4	17.4%	1,420	72.5%	4,282	77.2%
Accidents/Non-Utility	2	8.8%	168	8.6%	164	3.0%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	1	4.3%	35	1.8%	150	2.7%
Unknown	0	0.0%	0	0.0%	0	0.0%
TOTALS	**23**	100.0%	**1,959**	100.0%	**5,550**	100.0%

Based on the data provided in the table above, the following plan has been created-

- Perform detailed line inspection of Zone 1 – from breaker to first protection device.
- Review high customer count sections to reduce the number of affected customers when an outage does take place.
- Post storm circuit sweeps – find and fix.
- Replace 23 DLI poles and 19 DLI cross arms.
- Hot spot tree trimming on 3 phase sections.

Lounsberry 179 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	7	36.8%	133	5.4%	242	3.6%
Tree Out ROW	7	36.8%	1,171	47.5%	3,053	45.5%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	1	5.3%	985	40.0%	3,201	47.7%
Accidents/Non-Utility	3	15.8%	173	7.1%	219	3.2%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	0	0.0%	0	0.0%	0	0.0%
Unknown	1	5.3%	1	0.0%	1	0.0%
TOTALS	**19**	100.0%	**2,463**	100.0%	**6,716**	100.0%

Based on the data provided in the table above, the following plan has been created-

- Perform detailed line inspection of Zone 1 – from breaker to first protection device.
- Review high customer count sections to reduce the number of affected customers when an outage does take place.
- Post storm circuit sweeps – find and fix.
- Replace 7 DLI poles and 2 DLI cross arms.
- Hot spot tree trimming on 3 phase sections.

Willet 423 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	8	18.2%	53	2.4%	193	4.0%
Tree Out ROW	19	43.2%	1,003	45.0%	2,272	47.4%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	6	13.6%	85	3.8%	252	5.2%
Accidents/Non-Utility	3	6.8%	840	37.7%	1,557	32.5%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	1	2.3%	1	0.0%	4	0.1%
Lightning	4	9.1%	240	10.8%	502	10.5%
Unknown	3	6.8%	6	0.3%	12	0.3%
TOTALS	**44**	100.0%	**2,228**	100.0%	**4,792**	100.0%

Based on the data provided in the table above, the following plan has been created-

- Perform detailed line inspection of Zone 1 – from breaker to first protection device.
- Review high customer count sections to reduce the number of affected customers when an outage does take place.
- Post storm circuit sweeps – find and fix.
- Replace 16 DLI poles and 5 DLI cross arms.
- Review circuit for possible side post insulator replacement program.
- Hot spot tree trimming on 3 phase sections.

Update for 2017 –

In 2017, the Binghamton Division met SAIFI target but exceeded its CAIDI target. The major contributing causes of this failure were tree contacts, equipment failures, and accident or non-utility incidents.

Corrective Actions undertaken in 2018 to improve the Binghamton Division's reliability performance and to address the failure of CAIDI include:

- Tree trimming completed on the following circuits:
  - Chenango Bridge 428
  - Hoadley Hill 430
  - North Endicott 361
  - West Union 661
  - Windsor 758
- Built a tie switch with Castle Gardens 621.
- Installed a recloser on Ross Hill Road in Vestal (583 customers beyond).
- Replaced the 524 switch outside Berkshire sub (alternate feed from Ithaca).
- Hot spot tree trimming on 3 phase sections on Castle Garden 622.
- Replaced the 513 Line sectionalizer and recloser (Flemingville, Ballou Rd, Candor).

Additional Capital and O&M initiatives tracked in 2018 to enhance reliability include:

- Substation capacitor bank installation projects- Completed all 34.5 substations.
- 2017 Substation Breaker (transmission & distribution) Replacement Project – Completed at the Center Village and Flemingville substations.
- Installed 3 new reclosers on the Genegantslet Corners 422 circuit.
- Motor operated manual switches installed at Tarbell on Genegantslet Corners 422.
- New recloser installed on the Martin Hill Tap.
- Glass replacements completed on several lines with polymer.
- At the following circuits, C-Trussing took place on 791 wooden poles and 8,196 wood poles were inspected and treated by Alamon:

8100101	Morris Street 657	8101601	Whitney Ave 651
8100102	Morris Street 658	8101603	Whitney Ave 653
8100304	Harpur 671	8101605	Whitney Ave 655
8100405	Noyes Island 111	8101606	Whitney Ave 656
8100407	Noyes Island 121		
8100408	Noyes Island 107		
8100502	Goudey 722		
8100503	Goudey 723		
8100602	Glenwood 681		
8100605	Glenwood 684		
8100701	Jarvis Street 687		
8100703	Jarvis Street 689		
8100704	Jarvis Street 690		
8100706	Jarvis Street 692		
8100801	Hooper Road 701		
8100803	Hooper Road 703		
8101001	Endicott Railway 187		
8101003	Endicott Railway 190		
8101102	Endicott Hill 183		

Jobs planned for 2019 or beyond:

- Tree trimming planned for the following circuits:
  - Candor 529
  - Genegantslet Corners 422
  - Kattleville 426
  - Afton 429
  - Endicott Railway 188
  - Glenwood 682
  - Jarvis Street 687/689/690/691
  - Kingsman Rd 422
  - Langdon 608/609
  - Noyes Island 111
  - Oakdale 628
  - Ouaquaga East 430
  - Whitney Ave 654
- Perform circuit inspections on 52 distribution circuits and 9 transmission circuits.
- Review feasibility study for a new substation near Beers Road (off Line 919) to serve 34.5Kv load.
- Install new 3-phase 34.5 extension on Route 11 in Castle Creek to serve Bowman Lumber.
- Oakdale substation upgrade project in 2019-2020 (TBD)
- Install 4 new reclosers/sectionalizers on the Genegantslet Corners 422 circuit.
- Determine if it is possible to separate circuit at Triangle to decrease outage counts.
- 3-phase extension to tie Lounsberry 178 and Lounsberry 179 at Bridge St. in Barton (at L246 / P65 (Lounsberry 178) and L251 / P101 (Lounsberry 179). Involves an estimated 900 foot river crossing.
- On Kattelville 422, add reclosing (trip saver) at L559 / P154A (~700 customers).
- Line relocation on Route 23 in Pharsalia to remove back lot build (Willet 423).
- Route 38 and West Creek Taps scheduled for replacement.
- Substation capital breaker replacement projects at the following:
  - Clark Street (CLARK ST-63142) (2019)
  - Conklin (CONKLIN-26322) (TBD)
  - Harpur (HARPUR-67012) (2019)
  - Harpur (HARPUR-67112) (2019)
  - Nowlan Road (NOWLAN ROAD-43042) (2019)
  - West Union (W.UNION-66132) (2019)

- Miscellaneous substation battery upgrade installations.
- Glenwood substation upgrade project.
- Substation capacitor bank installation projects - starting at 4,800 substations.
- Substation breaker (transmission & distribution) replacement project at the following substations:
  - North Endicott - 2B only
  - Goudey - Various overhauls, change 271 & 723 circuits to overhead

Brewster Division

The following table shows the Brewster five-year history of performance, excluding major storms:

BREWSTER PERFORMANCE WITHOUT MAJOR STORMS

	2014	2015	2016	2017	2018
CAIDI (goal - 2.25)	1.54	1.93	1.92	1.86	2.06
SAIFI (goal - 1.70)	1.64	1.45	2.39	1.80	1.94
Interruptions	1,244	1,303	1,427	1,291	1,537
Customer Hours	213,135	240,657	394,118	289,337	348,900
Customers Interrupted	138,642	124,415	205,405	155,886	169,602
Customers Connected	84,684	85,868	86,053	86,379	87,313

Brewster met the CAIDI target but exceeded the SAIFI target in 2018.

Brewster Performance: CAIDI & SAIFI by PSC cause codes –

BREWSTER DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	CAIDI				
		2014	2015	2016	2017	2018
1	Major Storms	5.98	6.06	4.22	8.00	24.95
2	Tree Contacts	1.73	2.28	1.77	2.22	2.24
3	Overloads	2.49	2.44	2.15	2.59	3.79
4	Operational Errors	0.82	0.47	2.17	0.55	2.17
5	Equipment Failures	1.04	1.49	1.62	1.11	1.46
6	Accidents/Non-Utility	1.48	1.62	1.89	1.76	1.68
7	Prearranged	0.40	2.70	1.32	0.67	1.71
8	Customer Equipment	1.77	3.62	2.94	0.47	1.95
9	Lightning	1.89	1.63	1.87	2.00	3.11
10	Unknown	0.96	1.42	1.99	1.17	1.92

BREWSTER DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	SAIFI				
		2014	2015	2016	2017	2018
1	Major Storms	0.74	0.09	1.38	1.40	4.12
2	Tree Contacts	0.86	0.76	0.98	0.95	1.18
3	Overloads	0.00	0.01	0.01	0.00	0.00
4	Operational Errors	0.07	0.02	0.78	0.02	0.00
5	Equipment Failures	0.18	0.20	0.16	0.29	0.31
6	Accidents/Non-Utility	0.27	0.20	0.26	0.33	0.30
7	Prearranged	0.00	0.02	0.01	0.01	0.01
8	Customer Equipment	0.00	0.00	0.00	0.01	0.00
9	Lightning	0.15	0.09	0.10	0.09	0.09
10	Unknown	0.10	0.16	0.09	0.10	0.05

Brewster Failed Division Review – exceeded 2018 SAIFI target

Interruption Breakdown by PSC Cause Code

CAUSE DESCRIPTION	*Interruptions*		*Customers Interrupted*		*Customer Hours of Interruption*	
Tree In ROW	140	9.1%	18,650	11.0%	37,360	10.7%
Tree Out ROW	656	42.7%	84,451	49.8%	193,658	55.5%
Overloads	42	2.7%	236	0.1%	895	0.3%
Operational Errors	2	0.1%	6	0.0%	13	0.0%
Equipment Failures	221	14.4%	27,356	16.1%	39,806	11.4%
Accidents/Non-Utility	304	19.8%	26,584	15.7%	44,773	12.8%
Prearranged	8	0.5%	801	0.5%	1,368	0.4%
Customer Equipment	9	0.6%	42	0.0%	82	0.0%
Lightning	67	4.4%	7,461	4.4%	23,225	6.7%
Unknown	88	5.7%	4,015	2.4%	7,727	2.2%
TOTALS	**1,537**	**100%**	**169,602**	**100%**	**348,908**	**100%**

Summary for 2018 –

The Brewster Division in 2018 met its CAIDI target but exceeded its SAIFI target. The major contributing causes of this failure were tree contacts, accidents or non-utility incidents, and equipment failures.

After careful analysis, the 2019 planned efforts to improve reliability performance per cause are the following:

- Tree – Complete full circuit trim on the following circuits:
    - Adams Corner 412
    - Amenia 154
    - Bedford Hills 225/463
    - Dingle Ridge 277
    - Goldens Bridge 418
    - Haviland Hollow 426
    - Mohansic 404/405/406
    - Peach Lake 250
    - Sylvan Lake 478/480
    - Ten Mile River 443/444
    - West Patterson 474
- Accidents/Non-Utility – Working with the D.O.T. to find an approved method of installing reflectors on poles. Following the Central Hudson model to improve visibility on poles in an effort to reduce the amount of poles being hit. We are also working on moving the poles back from the road. This is not an easy process due to the lack of land between a home and the roadway.
- Equipment – These failures are more substation related. The Substation department is executing a plan on breaker replacements and making sure Doble Testing is completed on or ahead of schedule.

The following circuits have been identified as worst performing circuits in 2018 [see section 5 on page 187] –

- Adams Corners 412
- Crafts 424
- Croton Falls 515
- Union Valley 433

The 2019 Action Plans for these circuits are –

Adams Corners 412 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	6	13.6%	433	6.7%	351	2.0%
Tree Out ROW	17	38.6%	2,909	45.1%	10,415	60.3%
Overloads	1	2.3%	6	0.1%	13	0.1%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	4	9.1%	1,524	23.6%	3,396	19.7%
Accidents/Non-Utility	12	27.3%	1,577	24.4%	3,069	17.8%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	0	0.0%	0	0.0%	0	0.0%
Unknown	4	9.1%	5	0.1%	14	0.1%
TOTALS	**44**	100.0%	**6,454**	100.0%	**17,258**	100.0%

Based on the data provided in the table above, the following plan has been created-

- Complete circuit trim based on 5 year cycle.
- Install 3 reclosers.
- Install 2 SCADA switches.
- Install 2 switched capacitors.
- Complete the aluminum bell replacement program.
- Complete IR inspection of Zone 1.
- Relocate poles on Oscawana Road/Church Lane away from roadway.

Crafts 424 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	8	19.5%	1,917	19.7%	5,603	27.4%
Tree Out ROW	16	39.0%	6,969	71.5%	14,335	70.3%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	4	9.8%	336	3.4%	123	0.6%
Accidents/Non-Utility	8	19.5%	462	4.7%	263	1.3%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	0	0.0%	0	0.0%	0	0.0%
Unknown	5	12.2%	69	0.7%	88	0.4%
TOTALS	**41**	100.0%	**9,753**	100.0%	**20,412**	100.0%

Based on the data provided in the table above, the following plan has been created-

- Hot Spot Tree Trimming.
- Complete the aluminum bell replacement program.
- Complete IR inspection of Zone 1.
- Relocate first section of poles outside substation from off road/woods to roadway for access and reduction in tree exposure.
- Install 4 SCADA switches.
- Replace 8 DLI poles.

Croton Falls 515 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	0	0.0%	0	0.0%	0	0.0%
Tree Out ROW	6	30.0%	4,907	66.9%	10,531	74.4%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	5	25.0%	1,523	20.8%	1,744	12.3%
Accidents/Non-Utility	4	20.0%	60	0.8%	150	1.2%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	2	10.0%	678	9.3%	1,280	9.0%
Unknown	3	15.0%	162	2.2%	442	3.1%
TOTALS	**20**	100.0%	**7,330**	100.0%	**14,147**	100.0%

Based on the data provided in the table above, the following plan has been created-

- Complete the aluminum bell replacement program.
- Complete IR inspection of Zone 1.
- Complete Cross Arm Replacements on double circuits outside of substation.
- Replace 5 DLI poles.
- Install 4 SCADA switches.

Union Valley 433 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	6	15.4%	75	1.0%	139	1.5%
Tree Out ROW	12	30.8%	695	9.1%	1,152	12.1%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	9	23.1%	4,253	55.8%	3,822	40.2%
Accidents/Non-Utility	8	20.5%	2,582	33.9%	4,377	46.1%
Prearranged	1	2.6%	11	0.1%	3	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	0	0.0%	0	0.0%	0	0.0%
Unknown	3	7.6%	4	0.1%	6	0.1%
TOTALS	**39**	100.0%	**7,620**	100.0%	**9,499**	100.0%

Based on the data provided in the table above, the following plan has been created-

- Complete the aluminum bell replacement program.
- Complete IR inspection of Zone 1.
- Replace 5 DLI poles.
- Replace 11 lighting arrestors.
- Replace 4 insulators.

Update for 2017–

In 2017, the Brewster Division met its CAIDI target but exceeded its SAIFI target. The major contributing causes of this failure were trees and accidents or non-utility incidents.

Corrective Actions undertaken in 2018 to improve the Brewster Division's reliability performance and to address the failure of SAIFI include:

- Distribution Automation –Installed 98 reclosers/SCADA switches.
- Completed entire backlog of Distribution Line Inspections:
    - Repaired 22 Conductors
    - Replaced 9 Cutouts
    - Repaired/Replaced 142 pole grounds
    - Repaired/Replaced 99 guy wires
    - Repaired/Replaced 6 handholes
    - Repaired/Replaced 13 insulators
    - Repaired/Replaced 114 lightening arrestors
    - Repaired/Replaced 198 poles
    - Repaired/Replaced 24 transformers
    - Repaired/Replaced 46 cross arms

Additional Capital and O&M initiatives tracked in 2018 to enhance reliability include—

- Completed backlog of 2016 and older Transmission Line Inspections.
- Installation of 46Kv breakers at Kent Cliffs.
- Replaced Distribution Substation Breakers on:
    - Sylvan Lake
    - Kent Cliffs
    - Croton Falls

- Installed Capacitor Banks at Dover Plains Substation.
- Transmission Repairs:
    - Replaced 63 new cross arms
    - Replaced 22 transmission pole
    - Replaced 28 transmission insulators

Jobs planned for 2019 or beyond:

- Complete 2019 Automation Goals:
    - Install 19 new reclosers/SCADA switches
    - Install 18 new regulators
    - Install 24 new switched capacitors
- Installation of redundant feed for Putnam County Hospital.
- Complete line extensions and conversions to create circuit ties for:
    - Peach Lake 249 and Peach Lake 250
    - Croton Falls 515 and Golden Bridge 421
    - Golden Bridge 414 and Peach Lake 250
- Installation of 15kv transformers in Amenia and Dingle Ridge Substations.
- Convert Amenia 153/154 from 4.8Kv to Delta to 13.2Kv Wye.
- Convert Dingle Ridge 277/278 4.8Kv to Delta to 13.2Kv Wye.
- Rebuild 803 Transmission Line from Kent to Tilly Foster.
- Extend 3-phase on Dover 494 to Sinpatch Road in Amenia (future circuit tie).
- Complete backlog of 2018 and older Transmission Line Inspections.
- Replace the following substation breakers:

Amenia	9301-SS1153-011	AMENIA-15432
Bedford Hills	9301-SS1154-007	BEDFORD HILLS-22532
Bedford Hills	9301-SS1154-009	BEDFORD HILLS-22732
Bedford Hills	9301-SS1154-016	BEDFORD HILLS-46232
Bedford Hills	9301-SS1154-017	BEDFORD HILLS-46332
Bedford Hills	9301-SS1154-019	BEDFORD HILLS-80632
Bedford Hills	9301-SS1154-022	BEDFORD HILLS-80732
Croton Falls	9301-SS1150-009	CROTON FALLS-44652
Croton Falls	9301-SS1150-059	CROTON FALLS-T6-52
Goldens Bridge	9301-SS1161-004	GOLDEN BRIDGE-1B-42
Goldens Bridge	9301-SS1161-005	GOLDEN BRIDGE-2B-42
Goldens Bridge	9301-SS1161-009	GOLDEN BRIDGE-41442
Goldens Bridge	9301-SS1161-014	GOLDEN BRIDGE-41642
Goldens Bridge	9301-SS1161-017	GOLDEN BRIDGE-41742
Goldens Bridge	9301-SS1161-020	GOLDEN BRIDGE-41842
Goldens Bridge	9301-SS1161-022	GOLDEN BRIDGE-41942
Goldens Bridge	9301-SS1161-024	GOLDEN BRIDGE-42042
Goldens Bridge	9301-SS1161-027	GOLDEN BRIDGE-42142
Goldens Bridge	9301-SS1161-044	GOLDEN BRIDGE-T2-42
Putnam Lake	9301-SS1169-010	PUTNAM LAKE-48622

Elmira Division

The following table shows the Elmira five-year history of performance, excluding major storms:

ELMIRA PERFORMANCE WITHOUT MAJOR STORMS

	2014	2015	2016	2017	2018
CAIDI (goal - 2.50)	2.39	2.47	2.46	2.46	2.38
SAIFI (goal - 1.00)	1.19	1.23	0.92	1.33	1.27
Interruptions	912	977	924	906	1,117
Customer Hours	197,566	215,799	160,193	232,233	215,811
Customers Interrupted	82,605	87,367	65,206	94,492	90,613
Customers Connected	69,358	71,105	71,028	71,242	71,251

Elmira met the CAIDI target but exceeded the SAIFI target in 2018.

Elmira Performance: CAIDI & SAIFI by PSC cause codes –

ELMIRA DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	CAIDI				
		2014	2015	2016	2017	2018
1	Major Storms	0.00	0.00	4.80	4.83	9.62
2	Tree Contacts	3.41	2.76	2.65	2.96	2.39
3	Overloads	2.88	1.71	2.59	1.11	3.65
4	Operational Errors	0.00	3.33	0.77	2.34	2.44
5	Equipment Failures	1.29	1.68	2.07	3.27	1.78
6	Accidents/Non-Utility	1.87	1.45	2.37	1.60	2.96
7	Prearranged	0.84	0.72	1.15	0.95	0.97
8	Customer Equipment	1.82	3.55	2.88	1.21	0.40
9	Lightning	2.45	3.40	2.77	2.89	2.31
10	Unknown	2.90	2.44	2.34	1.98	2.79

ELMIRA DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	SAIFI				
		2014	2015	2016	2017	2018
1	Major Storms	0.00	0.00	0.30	0.38	0.49
2	Tree Contacts	0.34	0.39	0.36	0.49	0.52
3	Overloads	0.00	0.01	0.00	0.02	0.00
4	Operational Errors	0.00	0.01	0.00	0.01	0.04
5	Equipment Failures	0.21	0.18	0.13	0.24	0.22
6	Accidents/Non-Utility	0.20	0.20	0.14	0.21	0.20
7	Prearranged	0.06	0.01	0.04	0.16	0.01
8	Customer Equipment	0.00	0.00	0.00	0.00	0.00
9	Lightning	0.25	0.28	0.18	0.11	0.19
10	Unknown	0.12	0.14	0.07	0.09	0.09

Elmira Failed Division Review – exceeded 2018 SAIFI target

Interruption Breakdown by PSC Cause Code

CAUSE DESCRIPTION	*Interruptions*		*Customers Interrupted*		*Customer Hours of Interruption*	
Tree In ROW	139	12.4%	9,861	10.9%	23,379	10.8%
Tree Out ROW	334	29.9%	26,955	29.7%	64,674	30.0%
Overloads	20	1.8%	185	0.2%	675	0.3%
Operational Errors	2	0.2%	2,602	2.9%	6,336	2.9%
Equipment Failures	159	14.2%	15,135	16.7%	26,922	12.5%
Accidents/Non-Utility	212	19.0%	14,498	16.0%	42,870	19.9%
Prearranged	12	1.1%	922	1.0%	898	0.4%
Customer Equipment	2	0.2%	176	0.2%	71	0.0%
Lightning	110	9.8%	13,571	15.0%	31,286	14.5%
Unknown	127	11.4%	6,708	7.4%	18,706	8.7%
TOTALS	**1,117**	**100%**	**90,613**	**100%**	**215,816**	**100%**

Summary for 2018–

The Elmira Division in 2018 met its CAIDI target but exceeded its SAIFI target. The major contributing causes of this failure were tree contacts, accidents or non-utility incidents, and equipment failures.

After careful analysis, the 2019 planned efforts to improve reliability performance per causes are the following:

- Tree – Patrol worst performing circuits and trim where needed. Complete maintenance trimming of fourteen circuits.
- Accident/Non-Utility – Relocate poles and/or install reflective tape where feasible.
- Equipment – Review DLI data and identify highest potential areas for corrections.

The following circuits have been identified as worst performing circuits in 2018 [see section 5 on page 187] –

- Bulkhead 321
- Montour Falls 233
- South Addison 346
- South Addison 347
- Yawger Rd 362

The 2019 Action Plans for these circuits are –

Bulkhead 321 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	9	19.6%	198	5.0%	554	10.0%
Tree Out ROW	14	30.4%	1,310	33.4%	3,333	60.3%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	2	4.3%	93	2.4%	288	5.2%
Accidents/Non-Utility	14	30.4%	360	9.2%	534	9.7%
Prearranged	1	2.3%	1,742	44.4%	291	5.3%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	0	0.0%	0	0.0%	0	0.0%
Unknown	6	13.0%	221	5.6%	526	9.5%
TOTALS	**46**	100.0%	**3,924**	100.0%	**5,526**	100.0%

Based on the data provided in the table above, the following plan has been created-

- Evaluate for additional tree trimming and/or sections for hot spot trimming.

Montour Falls 233–

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	6	17.6%	402	10.4%	853	10.2%
Tree Out ROW	12	35.3%	1,400	36.2%	4,991	59.5%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	2	5.9%	219	5.7%	278	3.3%
Accidents/Non-Utility	5	14.7%	266	6.9%	1,045	12.5%
Prearranged	2	5.9%	1,373	35.5%	704	8.4%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	5	14.7%	116	3.0%	277	3.2%
Unknown	2	5.9%	88	2.3%	242	2.9%
TOTALS	**34**	100.0%	**3,864**	100.0%	**8,390**	100.0%

Based on the data provided in the table above, the following plan has been created-

- Evaluate for additional tree trimming and/or sections for hot spot trimming.

South Addison 346–

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	1	5.0%	69	1.5%	100	0.8%
Tree Out ROW	7	35.0%	2,752	59.8%	6,997	53.8%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	1	5.0%	87	1.9%	25	0.2%
Accidents/Non-Utility	6	30.0%	1,460	31.7%	5,167	39.7%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	2	10.0%	3	0.1%	13	0.1%
Unknown	3	15.0%	231	5.0%	707	5.4%
TOTALS	**20**	100.0%	**4,602**	100.0%	**13,009**	100.0%

Based on the data provided in the table above, the following plan has been created-

- Evaluate for additional tree trimming and/or sections for hot spot trimming
- Relocate poles and/or install reflective tape where feasible.

South Addison 347 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	0	0.0%	0	0.0%	0	0.0%
Tree Out ROW	12	50.0%	2,591	92.8%	7,127	95.4%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	1	4.2%	115	4.1%	213	2.9%
Accidents/Non-Utility	8	33.3%	84	3.0%	124	1.6%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	2	8.3%	2	0.1%	5	0.1%
Unknown	1	4.2%	1	0.0%	2	0.0%
TOTALS	**24**	100.0%	**2,793**	100.0%	**7,471**	100.0%

Based on the data provided in the table above, the following plan has been created-

- Evaluate for additional tree trimming and/or sections for hot spot trimming
- Patrol circuit for lightning protection.
- Replace defective arresters if found.

Yawger Rd 362 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	1	2.1%	1	0.0%	1	0.0%
Tree Out ROW	10	21.3%	391	5.1%	733	5.5%
Overloads	1	2.1%	1	0.0%	3	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	5	10.6%	846	11.1%	972	7.4%
Accidents/Non-Utility	17	36.2%	3,528	46.1%	3,008	22.7%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	9	19.2%	2,265	29.6%	5,489	41.6%
Unknown	4	8.5%	617	8.1%	3,020	22.8%
TOTALS	**47**	100.0%	**7,649**	100.0%	**13,226**	100.0%

Based on the data provided in the table above, the following plan has been created-

- Patrol circuit for lightning protection.
- Replace defective arresters if found.

Update for 2017 –

In 2017, the Elmira Division met its CAIDI target but exceeded its SAIFI target. The major contributing causes of this failure were tree contacts, accidents or non-utility incidents, and equipment failures.

Corrective Actions undertaken in 2018 to improve the Elmira Division's reliability performance and to address the failure of SAIFI include:

- Bulkhead 321 –
  - Replaced 19 aging distribution poles.
  - Corrected DLI deficiencies as required.
- Montour Falls 512 –
  - Replaced 9 aging distribution poles.
  - Corrected DLI deficiencies as required.
- South Addison 346 –
  - Replaced 13 aging distribution poles.
  - Corrected DLI deficiencies as required.
- North Urbana 535 –
  - Replaced 23 aging distribution poles.
  - Corrected DLI deficiencies as required.
- Ridge Rd 501 –
  - Replaced 9 aging distribution poles.
  - Corrected DLI deficiencies as required.
- Completed maintenance tree trimming on the following circuits:
  - Montour Falls 511
  - Montour Falls 512
  - Fulton St 223
  - Whiskey Creek 345
- North Urbana 535 (partial, to be finished in 2019)

Additional Capital and O&M initiatives tracked in 2018 to enhance reliability include–

- Distribution Line Inspection (DLI) Program
- Wood Pole Inspection and Treat (WPIT) Program

Jobs planned for 2019 or beyond:

- Distribution Line Inspection (DLI) Program
- Complete full maintenance tree trimming on the following circuits:
    - Hampton Rd 325
    - Ridge Rd 306
    - Cayuta 239
    - Fulton St 222
    - Prattsburg 240
    - South Addison 347
    - Kanona 337
    - Hickling 381
    - Dineharts 535
    - New Corning 391
    - Philo Rd 330
    - Prattsburg Tap 598
    - Yawger Rd 362
    - North Urbana 535 (remainder not completed in 2018)
- North Urbana 535 Backup Feed Project
    - Build a new 3-phase distribution line between North Urbana 535 and Canada Rd 562 to allow additional contingencies for those circuits.

Geneva Division

The following table shows the Geneva five-year history of performance, excluding major storms:

GENEVA PERFORMANCE WITHOUT MAJOR STORMS

	2014	2015	2016	2017	2018
CAIDI (goal - 2.00)	2.16	1.90	2.09	2.20	1.85
SAIFI (goal - 1.20)	1.05	1.17	1.02	1.13	0.69
Interruptions	744	696	660	618	626
Customer Hours	129,333	130,808	128,694	147,668	75,987
Customers Interrupted	59,907	68,711	60,144	67,100	41,036
Customers Connected	56,812	58,648	58,844	59,202	59,436

Geneva met both the CAIDI and SAIFI targets in 2018.

Geneva Performance: CAIDI & SAIFI by PSC cause codes –

GENEVA DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	CAIDI				
		2014	2015	2016	2017	2018
1	Major Storms	1.70	0.00	0.00	4.83	9.56
2	Tree Contacts	2.87	2.50	2.32	3.01	2.60
3	Overloads	2.71	3.41	5.50	3.01	3.44
4	Operational Errors	2.09	0.25	1.61	0.60	0.70
5	Equipment Failures	1.80	2.23	1.12	2.18	1.40
6	Accidents/Non-Utility	1.57	1.38	2.18	1.60	1.62
7	Prearranged	1.43	0.59	1.14	1.79	1.74
8	Customer Equipment	2.16	4.75	2.00	1.00	2.08
9	Lightning	2.14	2.15	2.53	1.93	1.39
10	Unknown	1.88	0.54	2.52	1.26	1.86

GENEVA DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	SAIFI				
		2014	2015	2016	2017	2018
1	Major Storms	0.10	0.00	0.00	0.24	0.48
2	Tree Contacts	0.31	0.29	0.36	0.30	0.19
3	Overloads	0.00	0.00	0.01	0.00	0.02
4	Operational Errors	0.00	0.04	0.07	0.01	0.00
5	Equipment Failures	0.22	0.18	0.17	0.37	0.14
6	Accidents/Non-Utility	0.21	0.24	0.22	0.12	0.15
7	Prearranged	0.00	0.00	0.01	0.00	0.02
8	Customer Equipment	0.00	0.00	0.00	0.00	0.00
9	Lightning	0.27	0.31	0.15	0.23	0.15
10	Unknown	0.04	0.10	0.03	0.10	0.02

Geneva Division Review –

Interruption Breakdown by PSC Cause

CAUSE DESCRIPTION	*Interruptions*		*Customers Interrupted*		*Customer Hours of Interruption*	
Tree In ROW	93	14.9%	2,659	6.5%	9,067	11.9%
Tree Out ROW	95	15.2%	8,528	20.8%	20,021	26.4%
Overloads	33	5.3%	1,068	2.6%	3,675	4.8%
Operational Errors	3	0.5%	69	0.2%	48	0.1%
Equipment Failures	86	13.7%	8,134	19.8%	11,421	15.0%
Accidents/Non-Utility	187	29.9%	9,137	22.3%	14,813	19.6%
Prearranged	7	1.1%	1,244	3.0%	2,159	2.8%
Customer Equipment	7	1.1%	13	0.0%	27	0.0%
Lightning	86	13.7%	8,868	21.6%	12,317	16.2%
Unknown	29	4.6%	1,316	3.2%	2,442	3.2%
TOTALS	**626**	**100%**	**41,036**	**100%**	**75,991**	**100%**

Summary for 2018 –

The Geneva Division in 2018 met both its CAIDI and SAIFI targets.

The major contributing causes of the outages in 2018 were tree contacts and accident or non-utility incidents. After careful analysis, the 2019 planned efforts to improve reliability performance per cause are the following:

- Tree – 411 miles of circuit trim is planned for the following circuits:
    - Greenidge 596
    - Keuka 201
    - Lehigh 602
    - Lyons 603
    - Macedon 602
    - Palmyra 202
    - Seneca Falls 603
    - Sleight 547
    - St Johns 201
    - West Geneva 601
- Accident/Non-Utility – Continue to respond to these in a timely manner and relocate poles if possible and/or install reflective tape.
- Lightning – Review and patrol targeted circuits for additional lightning arrester protection and replace any defective arresters if found.

The following circuits have been identified as worst performing circuits in 2018 [see section 5 on page 187] –

- Flat St 597
- Keuka 201
- Macedon 601
- West Geneva 603

The 2019 Action Plans for these circuits are –

Flat St 597—

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	3	9.1%	49	0.7%	50	0.5%
Tree Out ROW	13	39.4%	3,088	47.2%	6,253	64.8%
Overloads	1	3.0%	8	0.1%	9	0.1%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	0	0.0%	2,878	44.0%	2,495	25.8%
Accidents/Non-Utility	5	15.2%	400	6.1%	576	6.0%
Prearranged	2	6.1%	31	0.5%	110	1.1%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	8	24.2%	91	1.4%	152	1.6%
Unknown	1	3.0%	3	0.0%	9	0.1%
TOTALS	**33**	100.0%	**6,548**	100.0%	**9,654**	100.0%

Based on the data provided in the table above, the following plan has been created-

- Assign and complete all open DLI notifications focusing on pole replacements of reject poles and any defective cross arms, insulators, transformers, etc. Currently there are 297 DLI open notifications.
- Evaluate for additional tree trimming and/or sections for hot spot trimming. Work with customers, when possible, to obtain additional trimming rights when outages occur due to trees being outside of our ROW. This will help reduce outages and times.
- Post storm circuit sweeps – find and fix.
- Distribution Automation Project - Replumb pole repair pole's backfill. Change out oil recloser at Pole 161. Reuse existing switches and existing communications kit.

Keuka 201 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	0	0.0%	0	0.0%	0	0.0%
Tree Out ROW	3	50.0%	1,031	39.8%	3,145	72.8%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	0	0.0%	0	0.0%	0	0.0%
Accidents/Non-Utility	0	0.0%	0	0.0%	0	0.0%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	1	16.7%	1	0.0%	5	0.2%
Unknown	2	33.3%	1,558	60.2%	1,168	27.0%
TOTALS	**6**	100.0%	**2,590**	100.0%	**4,318**	100.0%

Based on the data provided in the table above, the following plan has been created-

- Assign and complete all open DLI notifications focusing on pole replacements of reject poles and any defective cross arms, insulators, transformers, etc. Currently there are 84 DLI open notifications.
- Evaluate for additional tree trimming and/or sections for hot spot trimming. Work with customers when possible to obtain additional trimming rights when outages occur due to trees outside of our ROW. This will help reduce outages and times.
- Complete maintenance trimming on the entire circuit.
- Post storm circuit sweeps – find and fix.

Macedon 601 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	1	4.8%	4	0.1%	6	0.1%
Tree Out ROW	0	0.0%	0	0.0%	0	0.0%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	4	19.0%	1,778	34.6%	1,706	32.6%
Accidents/Non-Utility	11	52.4%	318	6.2%	796	15.2%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	4	19.0%	3,037	59.1%	2,724	52.1%
Unknown	1	4.8%	1	0.0%	1	0.0%
TOTALS	**21**	100.0%	**5,138**	100.0%	**5,233**	100.0%

Based on the data provided in the table above, the following plan has been created-

- Assign and complete all open DLI notifications focusing on pole replacements of reject poles and any defective cross arms, insulators, transformers, etc. Currently there are 13 DLI open notifications.
- Evaluate for additional tree trimming and/or sections for hot spot trimming. Work with customers, when possible, to obtain additional trimming rights when outages occur due to trees being outside of our ROW. This will help reduce outages and times.
- Post storm circuit sweeps – find and fix.

West Geneva 603—

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	1	20.0%	133	5.4%	151	20.5%
Tree Out ROW	0	0.0%	0	0.0%	0	0.0%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	0	0.0%	0	0.0%	0	0.0%
Accidents/Non-Utility	3	60.0%	246	10.0%	376	51.2%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	1	20.0%	2,078	84.6%	208	28.3%
Unknown	0	0.0%	0	0.0%	0	0.0%
TOTALS	**5**	100.0%	**2,457**	100.0%	**735**	100.0%

Based on the data provided in the table above, the following plan has been created-

- Assign and complete all open DLI notifications focusing on pole replacements of reject poles and any defective cross arms, insulators, transformers, etc. Currently there is 1 DLI open notification.
- Evaluate for additional tree trimming and/or sections for hot spot trimming. Work with customers, when possible, to obtain additional trimming rights when outages occur due to trees being outside of our ROW. This will help reduce outages and times.
- Post storm circuit sweeps – find and fix.

Update for 2017 –
In 2017, the Geneva Division met its SAIFI target but exceeded its CAIDI target. The major contributing causes of this failure were tree contacts, accidents or non-utility incidents, and lightning.

Corrective Actions undertaken in 2018 to improve the Geneva Division's reliability performance and to address the failure of CAIDI include:

- Step transformer upgrades from a 167KVA to a 333KVA step on Line D102/Pole 1.
- Fuse coordination to go hand in hand with step transformer upgrade.
- Find and fix Level 1 problems immediately that are turned in to replace poles, arms insulators, etc.
- By utilizing internal and contract crews, additional poles, arms, insulators, and any needed maintenance were replaced when possible.
- Post Storm sweeps executed.
- Patrol for additional lightning protection and replace any defective arresters as found.
- Additional hot spot trimming performed when needed in areas or during storm sweeps within our ROW rights.
- Responded to accidents and non-utility incidents as needed and repaired on site to restore in a timely fashion. Relocated poles if possible.
- Inspected, treated, and C-Trussed several poles within criteria.
- Single and three phase circuit trim.
- Distribution Recloser control replacement program.

Additional Capital and O&M initiatives tracked in 2018 to enhance reliability include:

- Distribution Line Inspection Program (DLI) – Approximately 219 DLI work orders completed in 2018.
- Wood Pole Inspection and Treat (WPIT) Program
- Group Ops switch was installed near Keuka College on the Flat St 597 circuit
- Infrared Inspections (Hot Spots)
- Milo 201 Substation – Cooling fan installed
- Milo 201- Regulator bank installed at the North branch of the circuit.
- A complete circuit trim was done on the following circuits for a total of 243 miles:
    - Voak Rd 589
    - Haley Rd 586
    - Macedon 603
    - Lehigh St 601
    - West Geneva 602
    - West Geneva 603
    - West Geneva 604
    - Clyde 203

Jobs planned for 2019 or beyond:

- Milo 201 - Substation upgrade and over 5 miles of reconductoring to be completed as part of the Resiliency Project.
- Middlesex 201- Three Regulators have been designed and being installed in 2019.
- Reconductoring approximately 10 miles on the Middlesex 201 is in planning.
- Flat Street Substation – Continue to rebuild in 2019 and beyond.

Hornell Division

The following table shows the Hornell five-year history of performance, excluding major storms:

HORNELL PERFORMANCE WITHOUT MAJOR STORMS

	2014	2015	2016	2017	2018
CAIDI (goal - 2.00)	2.15	2.21	2.65	2.91	2.39
SAIFI (goal - 1.00)	0.97	1.03	1.07	0.99	0.93
Interruptions	573	579	599	576	538
Customer Hours	76,719	85,060	105,862	107,583	83,298
Customers Interrupted	35,632	38,439	39,897	36,948	34,787
Customers Connected	36,647	37,201	37,224	37,324	37,531

Hornell met the SAIFI target but exceeded the CAIDI target in 2018.

Hornell Performance: CAIDI & SAIFI by PSC cause codes –

HORNELL DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	CAIDI				
		2014	2015	2016	2017	2018
1	Major Storms	0.00	9.59	6.37	6.67	21.92
2	Tree Contacts	2.41	2.60	3.01	2.73	2.33
3	Overloads	2.68	2.00	4.30	1.32	1.75
4	Operational Errors	2.11	0.00	1.00	1.12	1.00
5	Equipment Failures	1.45	1.69	3.28	3.48	3.20
6	Accidents/Non-Utility	1.92	2.23	2.27	2.22	2.31
7	Prearranged	0.31	0.70	1.29	1.09	0.38
8	Customer Equipment	2.20	1.11	2.00	2.22	1.33
9	Lightning	3.23	2.00	1.64	3.79	2.03
10	Unknown	1.10	1.80	2.44	2.37	2.60

HORNELL DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	SAIFI				
		2014	2015	2016	2017	2018
1	Major Storms	0.00	0.02	0.31	0.52	0.61
2	Tree Contacts	0.38	0.50	0.36	0.24	0.35
3	Overloads	0.00	0.00	0.00	0.00	0.00
4	Operational Errors	0.02	0.00	0.00	0.02	0.00
5	Equipment Failures	0.22	0.32	0.29	0.43	0.20
6	Accidents/Non-Utility	0.11	0.11	0.19	0.16	0.11
7	Prearranged	0.00	0.00	0.02	0.05	0.03
8	Customer Equipment	0.00	0.00	0.00	0.00	0.00
9	Lightning	0.16	0.08	0.19	0.06	0.20
10	Unknown	0.07	0.01	0.02	0.03	0.04

Hornell Failed Division Review – exceeded 2018 CAIDI target

Interruption Breakdown by PSC Cause

CAUSE DESCRIPTION	*Interruptions*		*Customers Interrupted*		*Customer Hours of Interruption*	
Tree In ROW	60	11.2%	2,543	7.3%	6,971	8.4%
Tree Out ROW	171	31.8%	10,477	30.1%	23,406	28.2%
Overloads	19	3.5%	71	0.2%	125	0.1%
Operational Errors	1	0.2%	1	0.0%	1	0.0%
Equipment Failures	103	19.1%	7,530	21.6%	24,121	29.0%
Accidents/Non-Utility	87	16.2%	4,142	11.9%	9,560	11.5%
Prearranged	7	1.3%	1,207	3.5%	455	0.5%
Customer Equipment	6	1.1%	18	0.1%	24	0.0%
Lightning	44	8.2%	7,409	21.3%	15,024	18.0%
Unknown	40	7.4%	1,389	4.0%	3,614	4.3%
TOTALS	**538**	**100%**	**34,787**	**100%**	**83,300**	**100%**

Summary for 2018 –

The Hornell Division in 2018 met its SAIFI target but exceeded its CAIDI target. The major contributing causes of this failure were tree contacts, equipment failures, and accidents or non-utility incidents.

After careful analysis, the 2019 planned efforts to improve reliability performance per cause are the following:

- Tree – Patrol worst performing circuits and trim where needed. Complete maintenance trimming on the following circuits:
    - Howard 310
    - Leicester 320
    - Moraine Rd 580
    - Stanton Ave 367/368
    - Troupsburg 563
    - Warsaw 260
    - Wayland 230
- Equipment – Review DLI data and identify highest potential areas for corrections.
- Accidents/Non-utility – Relocate poles and/or install reflective tape where feasible.

The following circuits have been identified as worst performing circuits in 2018 [see section 5 on page 187] –

- Bennett 541
- Leicester 320
- Meyer 350
- Moraine Rd 543

The 2019 Action Plans for these circuits are –

Bennett 541–

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	3	16.7%	72	3.3%	313	6.5%
Tree Out ROW	9	50.0%	2,027	91.6%	4,196	87.4%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	5	27.7%	56	2.5%	167	3.5%
Accidents/Non-Utility	0	0.0%	0	0.0%	0	0.0%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	1	5.6%	58	2.6%	123	2.6%
Unknown	0	0.0%	0	0.0%	0	0.0%
TOTALS	**18**	100.0%	**2,213**	100.0%	**4,799**	100.0%

Based on the data provided in the table above, the following plan has been created-

- Evaluate for additional tree trimming and/or sections for hot spot trimming.

Leicester 320–

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	0	0.0%	0	0.0%	0	0.0%
Tree Out ROW	3	27.3%	26	1.1%	39	0.7%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	3	27.2%	1,584	65.3%	5,173	94.2%
Accidents/Non-Utility	2	18.2%	15	0.6%	33	0.6%
Prearranged	1	9.1%	796	32.8%	248	4.5%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	1	9.1%	1	0.0%	1	0.0%
Unknown	1	9.1%	2	0.2%	2	0.0%
TOTALS	**11**	100.0%	**2,424**	100.0%	**5,496**	100.0%

Based on the data provided in the table above, the following plan has been created-

- Review DLI data and identify highest potential areas for corrections.
- Complete maintenance trimming on the entire circuit.

Meyer 350–

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	7	15.9%	125	5.7%	391	9.5%
Tree Out ROW	12	27.2%	908	41.4%	1,849	44.8%
Overloads	1	2.3%	34	1.6%	4	0.1%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	8	18.2%	206	9.4%	737	17.9%
Accidents/Non-Utility	9	20.5%	104	4.7%	205	5.0%
Prearranged	1	2.3%	372	17.0%	137	3.3%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	3	6.8%	272	12.4%	508	12.3%
Unknown	3	6.8%	170	7.8%	294	7.1%
TOTALS	**44**	100.0%	**2,191**	100.0%	**4,125**	100.0%

Based on the data provided in the table above, the following plan has been created-

- Review DLI data and identify highest potential areas for corrections.
- Evaluate for additional tree trimming and/or sections for hot spot trimming.

Moraine Rd 543 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	4	12.5%	58	2.0%	136	2.9%
Tree Out ROW	10	31.3%	229	7.9%	383	8.2%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	1	3.1%	778	26.8%	869	18.7%
Equipment Failures	4	12.5%	55	1.9%	150	3.2%
Accidents/Non-Utility	4	12.5%	97	3.3%	325	7.0%
Prearranged	1	3.1%	777	26.8%	1,451	31.2%
Customer Equipment	2	6.3%	2	0.2%	3	0.2%
Lightning	5	15.6%	885	30.5%	1,277	27.5%
Unknown	1	3.1%	18	0.6%	51	1.1%
TOTALS	**32**	100.0%	**2,899**	100.0%	**4,645**	100.0%

Based on the data provided in the table above, the following plan has been created-

- Patrol circuit for lightning protection. Replace defective arresters if found.

Update for 2017 –

In 2017, the Hornell Division met its SAIFI target but exceeded its CAIDI target. The major contributing causes of this failure were tree contacts, equipment failures, and accidents or non-utility incidents.

Corrective actions undertaken in 2018 to improve the Hornell Division's reliability performance and to address the 2017 failure of CAIDI include –

- Complete trimming of the following circuits:
  - Meyer 243/351
  - Coffee Hill 351
  - Bennett 541
  - Jasper 539
  - Gainesville 594
- Bennett 541:
  - Replaced 14 aging distribution poles.
  - Corrected DLI deficiencies as required.
  - Tree trimmed the entire circuit.
- Meyer 350:
  - Replaced 21 aging distribution poles.
  - Corrected DLI deficiencies as required.
- Naples 566:
  - Replaced 9 aging distribution poles.
  - Corrected DLI deficiencies as required.
- Warsaw 381:
  - Replaced 10 aging distribution poles.
  - Replaced the station breaker and RTU.
  - Corrected DLI deficiencies as required.
- Canisteo 217:
  - Constructed a new 10 pole tie line and removed an inaccessible backlot line.
- Leicester 320:
  - Upgraded 3860 feet of #2 ACSR three phase primary wire with 1/0 AAAC

Additional capital and O&M projects completed in 2018 include—

- Distribution Line Inspection (DLI) Program
- Wood Pole Inspection and Treat (WPIT) Program

Jobs planned for 2019 or beyond:

- Distribution Automation Project
  - Install a total of over 50 new reclosers and SCADA switches across the Hornell Division.
- Distribution Line Inspection (DLI) Program

Ithaca Division

The following table shows the Ithaca five-year history of performance, excluding major storms:

ITHACA PERFORMANCE WITHOUT MAJOR STORMS

	2014	2015	2016	2017	2018
CAIDI (goal - 2.25)	1.66	1.62	1.94	2.30	1.78
SAIFI (goal - 1.20)	1.04	0.94	0.84	1.25	0.77
Interruptions	618	591	563	678	581
Customer Hours	102,443	91,024	98,589	176,037	85,061
Customers Interrupted	61,689	56,192	50,925	76,395	47,855
Customers Connected	59,550	59,488	60,340	60,934	61,903

Ithaca met both the CAIDI and SAIFI targets in 2018.

Ithaca Performance: CAIDI & SAIFI by PSC cause codes –

ITHACA DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	CAIDI				
		2014	2015	2016	2017	2018
1	Major Storms	12.11	4.52	9.65	4.37	6.77
2	Tree Contacts	1.98	1.83	2.27	2.76	1.98
3	Overloads	3.16	1.32	3.16	1.90	2.28
4	Operational Errors	0.00	0.18	0.00	0.00	0.08
5	Equipment Failures	1.22	0.97	1.38	2.17	1.48
6	Accidents/Non-Utility	1.56	2.40	2.53	1.50	1.68
7	Prearranged	0.30	2.44	0.00	1.63	0.27
8	Customer Equipment	0.67	1.15	1.96	2.00	1.64
9	Lightning	1.97	2.41	1.76	2.11	1.70
10	Unknown	0.88	1.72	1.50	1.20	1.68

ITHACA DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	SAIFI				
		2014	2015	2016	2017	2018
1	Major Storms	0.36	0.08	0.06	0.12	0.52
2	Tree Contacts	0.37	0.42	0.33	0.53	0.43
3	Overloads	0.01	0.00	0.00	0.00	0.01
4	Operational Errors	0.00	0.02	0.00	0.00	0.01
5	Equipment Failures	0.20	0.25	0.23	0.35	0.13
6	Accidents/Non-Utility	0.07	0.15	0.09	0.10	0.07
7	Prearranged	0.06	0.00	0.00	0.05	0.01
8	Customer Equipment	0.04	0.06	0.00	0.00	0.00
9	Lightning	0.27	0.03	0.17	0.18	0.10
10	Unknown	0.01	0.00	0.02	0.04	0.01

Ithaca Division Review –

Interruption Breakdown by PSC Cause

CAUSE DESCRIPTION	*Interruptions*		*Customers Interrupted*		*Customer Hours of Interruption*	
Tree In ROW	220	37.9%	14,559	30.5%	30,001	35.2%
Tree Out ROW	90	15.5%	12,267	25.6%	23,193	27.2%
Overloads	43	7.4%	380	0.8%	866	1.0%
Operational Errors	1	0.2%	691	1.4%	57	0.1%
Equipment Failures	70	12.0%	7,680	16.0%	11,397	13.4%
Accidents/Non-Utility	81	13.9%	4,561	9.5%	7,685	9.0%
Prearranged	4	0.7%	870	1.8%	234	0.3%
Customer Equipment	16	2.8%	78	0.2%	128	0.2%
Lightning	47	8.1%	6,390	13.4%	10,864	12.8%
Unknown	9	1.5%	379	0.8%	638	0.8%
TOTALS	**581**	**100%**	**47,855**	**100%**	**85,064**	**100%**

Summary for 2018 –

The Ithaca Division in 2018 met both its CAIDI and SAIFI targets.

The major contributing causes of the outages in 2018 were tree contacts, equipment failures, and accidents or non-utility incidents. After careful analysis, the 2019 planned efforts to improve reliability performance per cause are the following:

- Tree – Planned circuit trim to include 5 circuits for a total number of 214.4 circuit miles. Hotspot trimming on an as needed basis.
- Equipment – Review equipment to see if animal guards can be installed.
- Accidents/Non-utility – Continue to respond to accident/non-utility issues in a timely manner and replace and/or relocate poles if design will allow. Also install reflective tape where feasible.

The following circuits have been identified as worst performing circuits in 2018 [see section 5 on page 187] –

- Cayuga Heights 601
- Interlaken 705
- Trumansburg 747
- West Danby 530

The 2019 Action Plans for these circuits are **–**

Cayuga Heights 601 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	2	25.0%	2,067	48.0%	347	11.6%
Tree Out ROW	0	0.0%	2,068	48.1%	2,446	81.8%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	0	0.0%	0	0.0%	0	0.0%
Accidents/Non-Utility	6	75.0%	169	3.9%	197	6.6%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	0	0.0%	0	0.0%	0	0.0%
Unknown	0	0.0%	0	0.0%	0	0.0%
TOTALS	**8**	100.0%	**4,304**	100.0%	**2,990**	100.0%

Based on the data provided in the table above, the following plan has been created-

- Perform detailed line inspection of Zone 1 – from breaker to first protection device.
- Review high customer count sections to reduce the number of affected customers
- Post storm circuit sweeps – find and fix.
- Replace 1 DLI pole and 1 DLI cross arm.
- Some hot spot trimming done in 2018; will continue to hot spot sections in 2019.
- Review longer spans and install additional reclosers/sectionalizers to minimize outage count.

Interlaken 705–

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	10	55.6%	3,097	62.4%	7,800	61.9%
Tree Out ROW	4	22.1%	112	2.2%	1,850	14.7%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	1	5.6%	1	0.0%	2	0.0%
Accidents/Non-Utility	1	5.6%	3	0.1%	3	0.0%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	2	11.1%	1,752	35.3%	2,951	23.4%
Unknown	0	0.0%	0	0.0%	0	0.0%
TOTALS	**18**	100.0%	**4,965**	100.0%	**12,606**	100.0%

Based on the data provided in the table above, the following plan has been created-

- Perform detailed line inspection of Zone 1 – from breaker to first protection device.
- Review high customer count sections to reduce the number of affected customers when an outage does take place.
- The entire circuit will be trimmed as part of routine maintenance.
- Post storm circuit sweeps – find and fix.
- Install new animal guards.
- Replace 18 DLI poles and 28 DLI cross arms.
- Install 6 reclosers as part of the Distribution Automation Project.

Trumansburg 747–

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	14	77.8%	3,775	67.1%	6,454	66.1%
Tree Out ROW	3	16.6%	162	2.9%	1,021	10.5%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	0	0.0%	0	0.0%	0	0.0%
Accidents/Non-Utility	0	0.0%	0	0.0%	0	0.0%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	1	5.6%	1,691	30.0%	2,283	23.4%
Unknown	0	0.0%	0	0.0%	0	0.0%
TOTALS	**18**	100.0%	**5,628**	100.0%	**9,758**	100.0%

Based on the data provided in the table above, the following plan has been created-

- Perform detailed line inspection of Zone 1 – from breaker to first protection device.
- Review high customer count sections to reduce the number of affected customers.
- Some hot spot trimming done in 2018; will continue to hot spot sections in 2019.
- Post storm circuit sweeps – find and fix.
- Replace 7 DLI poles and 24 DLI cross arms.
- Install new animal guards.
- Install 9 reclosers as part of the Distribution Automation Project.

West Danby 530 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	8	29.7%	2,355	50.0%	10,153	69.3%
Tree Out ROW	9	33.3%	384	8.1%	1,365	9.3%
Overloads	2	7.4%	3	0.1%	10	0.1%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	2	7.4%	22	0.5%	60	0.4%
Accidents/Non-Utility	5	18.5%	1,945	41.2%	3,051	20.8%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	1	3.7%	3	0.1%	18	0.1%
Unknown	0	0.0%	0	0.0%	0	0.0%
TOTALS	**27**	100.0%	**4,712**	100.0%	**14,657**	100.0%

Based on the data provided in the table above, the following plan has been created-

- Perform detailed line inspection of Zone 1 – from breaker to first protection device.
- Review high customer count sections to reduce the number of affected customers when an outage does take place.
- Some hot spot trimming done in 2018; will continue to hot spot sections in 2019.
- Post storm circuit sweeps – find and fix.
- Replace 3 DLI cross arms.
- Install new animal guards.
- Install 5 reclosers as part of the Distribution Automation Project.

Update for 2017 –

In 2017, the Ithaca Division exceeded its CAIDI and SAIFI targets. The major contributing causes of these failures were tree contacts, accidents or non-utility incidents, lightning, and equipment failures.

Corrective actions undertaken in 2018 to improve the Ithaca Division's reliability performance and to address the 2017 failure of CAIDI and SAIFI include –

- Replaced 2 sectionalizing switches to help on customer count when outages occur (pending programming) on Brooktondale 531.
- Replaced a sectionalizer on Valley Road (Brooktondale 531).
- Installed a new relay and relay settings at the Etna Substation (Peruville Tap 522).
- Completed maintenance tree trimming on circuits.
- Changed breakers at Cayuga Heights 601.

Additional capital and O&M projects completed in 2018 include—

- Completed East Ithaca 404/405 load transfer.
- Perform circuit inspections on 15 distribution circuits and 6 transmission circuits.
- Replace all oil circuit breakers at Etna Substation- Seven are 115kV and five are 34.5kV.
- Replacement of all 4 distribution breakers and relays at South Hill Sub.
- Replacement of 115kV breakers 981 and 998 at Coddington Sub.
- South Hill substation 34.5kV glass replacement.
- 5 new distribution breakers and relays installed at Fourth Street Sub.
- 5 new distribution breakers and relays installed at Cayuga Heights Sub.
- 2 new distribution breakers and relays installed at Etna Sub.
- 1 new breaker and relay installed at Harford Mills Sub.
- 5 new Distribution breakers and relays were installed at the Fourth St Sub.
- 5 new Distribution breakers and relays where installed at the Cayuga Heights Sub.
- 2 new breakers and relays installed at the Etna Sub.
- 1 new breaker and relay was installed at the Hartford Mills Sub.
- Millard Hill PV Farm — installed new regulators, upgraded existing regulator bank, and updated reclosers.
- Replaced all oil 34.5kv oil circuit breakers at Etna Sub.
- South Hill Substation 34.5kv glass replacement.
- Installed a battery storage site on Brentwood Dr., future back feed possible for Cayuga Heights 602.

Jobs planned for 2019

- Perform circuit inspections on 26 distribution circuits and 18 transmission circuits.
- Install 48 reclosers as part of the Ithaca Distribution Automation Project.
- Install 16 switched capacitor banks as part of the Energy Smart Community.
- Create work order to replace ~5 to 6 miles of small conductor and replace with three 336AL or 477AL.
- Replace remaining oil circuit breakers at Etna Sub.
- Replacement of all 4 distribution beakers and relays at South Hill Sub.

- Replacement of 115kv breakers 981 and 998 at Coddington sub.
- Review transformer loading and replace overloaded transformers.
- At the following circuits, C-Trussing is projected for 96 Transmission wood poles and 264 Distribution wood poles while 3,213 transmission wood poles and 3,773 distribution wood poles are projected to be done by Alamon at the following circuits and functional locations listed below:

CAYUGA HEIGHTS 602	9301-ET0451-5420
EAST ITHACA 404	9301-ET0451-5421
MORAVIA 746	9301-ET0451-5519
PERUVILLE 733	9301-ET0624-5406
SPENCER 712	9301-ET0624-5420
SOUTH HILL 614	9301-ET0624-5421
WILSEYVILLE 751	9301-ET0650-5503
9301-ET0641-5514	9301-ET0650-5514
9301-ET0621-0022	9301-ET0650-5519
9301-ET0621-5514	9301-ET0625-5406
9301-ET0616-0653	9301-ET0625-5501
9301-ET0635-5505	9301-ET0625-5503
9301-ET0635-5517	9301-ET0625-5514
9301-ET0636-5505	9301-ET0626-5501
9301-ET0637-5505	9301-ET0626-5503
9301-ET0644-4910	9301-ET0632-5514
9301-ET0616-0630	9301-ET0632-0022
9301-ET0616-0631	9301-ET0633-0022
9301-ET0637-5511	9301-ET0633-5514
9301-ET0638-5511	9301-ET0634-5514
9301-ET0638-5512	9301-ET0620-0022
9301-ET0639-0623	9301-ET0623-0022
9301-ET0639-5511	9301-ET0623-5514
9301-ET0639-5512	9301-ET0623-5519
9301-ET0640-0623	9301-ET0450-0022
9301-ET0640-0630	9301-ET0450-5514
9301-ET0640-0631	9301-ET0627-5514
9301-ET0645-5517	9301-ET0628-5514
9301-ET0646-5517	9301-ET0628-5521
9301-ET0647-5517	9301-ET0628-5522
9301-ET0648-1211	9301-ET0629-5001
9301-ET0648-5505	9301-ET0629-5002
9301-ET0649-1211	9301-ET0629-5522
9301-ET0622-0022	9301-ET0630-5001
9301-ET0622-5514	9301-ET0630-5002
9301-ET0617-5505	9301-ET0630-5012
9301-ET0617-5515	9301-ET0631-5012
9301-ET0617-5518	9301-ET0631-5014
9301-ET0618-5514	9301-ET0642-5012
9301-ET0618-5515	9301-ET0642-5013
9301-ET0619-0022	9301-ET0643-5012
9301-ET0619-5514	9301-ET0643-5014
9301-ET0451-0823	

Lancaster Division

The following table shows the Lancaster five-year history of performance, excluding major storms:

LANCASTER PERFORMANCE WITHOUT MAJOR STORMS

	2014	2015	2016	2017	2018
CAIDI (goal - 1.75)	1.74	1.83	1.87	1.63	2.08
SAIFI (goal - 1.20)	0.89	1.29	1.09	0.91	1.16
Interruptions	1,233	1,494	1,249	1,254	1,410
Customer Hours	278,139	427,435	373,630	272,796	447,561
Customers Interrupted	159,976	233,880	199,358	167,740	215,692
Customers Connected	180,014	181,903	182,825	184,014	185,757

Lancaster met the SAIFI target but failed the CAIDI target in 2018.

Lancaster Performance: CAIDI & SAIFI by PSC cause codes –

LANCASTER DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	CAIDI				
		2014	2015	2016	2017	2018
1	Major Storms	3.82	2.30	3.99	8.21	7.57
2	Tree Contacts	1.83	2.07	2.31	2.26	2.38
3	Overloads	3.13	4.82	2.45	2.06	3.54
4	Operational Errors	1.50	2.78	1.86	0.27	0.64
5	Equipment Failures	1.66	1.56	2.08	1.51	1.67
6	Accidents/Non-Utility	1.61	1.57	1.53	1.44	2.21
7	Prearranged	1.31	0.50	0.18	0.29	2.90
8	Customer Equipment	1.81	2.16	2.14	0.51	4.74
9	Lightning	1.88	2.98	2.30	2.61	2.89
10	Unknown	2.13	1.42	1.54	0.65	2.50

LANCASTER DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	SAIFI				
		2014	2015	2016	2017	2018
1	Major Storms	0.15	0.13	0.08	0.94	0.67
2	Tree Contacts	0.18	0.25	0.18	0.27	0.34
3	Overloads	0.01	0.00	0.01	0.00	0.02
4	Operational Errors	0.08	0.08	0.11	0.00	0.05
5	Equipment Failures	0.27	0.46	0.30	0.22	0.38
6	Accidents/Non-Utility	0.19	0.12	0.24	0.17	0.30
7	Prearranged	0.01	0.03	0.06	0.07	0.01
8	Customer Equipment	0.00	0.00	0.00	0.00	0.00
9	Lightning	0.10	0.12	0.11	0.08	0.01
10	Unknown	0.06	0.23	0.08	0.10	0.05

Lancaster Failed Division Review – exceeded 2018 CAIDI target

Interruption Breakdown by PSC Cause

CAUSE DESCRIPTION	*Interruptions*		*Customers Interrupted*		*Customer Hours of Interruption*	
Tree In ROW	265	18.8%	30,622	14.2%	77,730	17.4%
Tree Out ROW	182	12.9%	32,077	14.9%	71,656	16.0%
Overloads	103	7.3%	4,483	2.1%	15,883	3.5%
Operational Errors	3	0.2%	8,398	3.8%	5,416	1.3%
Equipment Failures	465	33.0%	71,211	33.0%	119,039	26.6%
Accidents/Non-Utility	270	19.2%	56,210	26.1%	124,470	27.8%
Prearranged	16	1.1%	2,350	1.1%	6,822	1.5%
Customer Equipment	4	0.3%	23	0.0%	109	0.0%
Lightning	33	2.3%	1,534	0.7%	4,438	1.0%
Unknown	69	4.9%	8,784	4.1%	21,988	4.9%
TOTALS	**1,410**	**100%**	**215,692**	**100%**	**447,564**	**100%**

Summary for 2018 –

The Lancaster Division in 2018 met its SAIFI target but exceeded its CAIDI target. The major contributing causes of this failure were equipment failures, tree contacts, and accidents or non-utility incidents.

After careful analysis, the 2019 planned efforts to improve reliability performance per cause are the following:

- Equipment – In 2018, there was a hot summer and long period of heat wave during the week of July 4th. Overloaded transformers were analyzed afterward and will be replaced with larger size tanks. To improve CAIDI on 3-phase lines, SCADA sectionalizing devices with antenna communication back to the ECC will be installed. In 2018, 80 locations were able to be configured back to the ECC. Another 80 locations are scheduled in 2019 to be installed. These devices will help identify where the fault has occurred quickly. It will also allow sectionalizing and back feeding to restore customers.
- Tree –There is planned 3 phase trimming. CAIDI will also be improved by the SCADA sectionalizing devices.
- Accident/Non-utility – There are a high amount of MVA accidents during off hours. A large selection of contractors will be called out during the off hours even if internal line crews are not available. ECC will also have more info from the field with the 160+ SCADA devices installed and communicating. Time is spent in sectionalizing and back feeding as many customers as possible before repairs are done to the NYSEG equipment as a result of the accident.

The following circuits have been identified as worst performing circuits in 2018 [see section 5 on page 187] –

- Cobblehill 530
- Dick Rd 537
- Holland 520
- Langer Rd 432
- Roll Rd 524
- Roll Rd 529
- South Park 471
- Locust St 150 (Lockport)
- Locust St 153 (Lockport)

The 2019 Action Plans for these circuits are –

Cobblehill 530–

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	8	22.2%	239	3.7%	693	7.4%
Tree Out ROW	10	27.8%	161	2.5%	357	3.8%
Overloads	1	2.8%	2	0.0%	5	0.2%
Operational Errors	1	2.8%	2,390	37.3%	598	6.4%
Equipment Failures	9	25.0%	3,109	48.5%	6,261	67.1%
Accidents/Non-Utility	3	8.3%	499	7.8%	1,402	15.0%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	1	2.7%	1	0.0%	1	0.0%
Lightning	2	5.6%	4	0.2%	10	0.1%
Unknown	1	2.8%	2	0.0%	3	0.0%
TOTALS	**36**	100.0%	**6,407**	100.0%	**9,330**	100.0%

Based on the information above, the following plan has been created –

- Full circuit patrol and infrared scan.
- Correct all deficiencies found on DLI inspections from previous years.
- Finish installing four SCADA sectionalizing devices.
- Install five SCADA sectionalizing devices.
- Voltage conversion to relieve load on step banks on Boston Cross Road.

Dick Rd 537 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	3	15.8%	78	1.2%	136	1.5%
Tree Out ROW	2	10.5%	12	0.3%	87	1.0%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	10	52.6%	4,634	71.7%	7,226	82.2%
Accidents/Non-Utility	1	5.3%	1,657	25.6%	1,243	14.1%
Prearranged	2	10.5%	22	0.3%	47	0.5%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	0	0.0%	0	0.0%	0	0.0%
Unknown	1	5.3%	58	0.9%	65	0.7%
TOTALS	**19**	100.0%	**6,461**	100.0%	**8,804**	100.0%

Based on the information above, the following plan has been created –

- Full circuit patrol and infrared scan.
- Correct all deficiencies found on DLI inspections from previous years.
- Finish installing four SCADA sectionalizing devices.

Holland 520 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	14	37.8%	653	15.0%	951	8.6%
Tree Out ROW	7	18.9%	2,991	68.7%	9,150	82.4%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	10	27.0%	546	12.6%	671	6.0%
Accidents/Non-Utility	3	8.2%	5	0.1%	22	0.1%
Prearranged	2	5.4%	34	0.8%	40	0.4%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	0	0.0%	0	0.0%	0	0.0%
Unknown	1	2.7%	120	2.8%	274	2.5%
TOTALS	**37**	100.0%	**4,349**	100.0%	**11,108**	100.0%

Based on the information above, the following plan has been created –

- Full circuit patrol and infrared scan.
- Correct all deficiencies found on DLI inspections from previous years.
- Communications will be installed to the SCADA device at circuit break with Cobble Hill 548, Line 1095 / Pole 195.
- Antenna communications to existing SCADA device will be added.

Langer Rd 432 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	2	14.3%	43	0.8%	152	1.6%
Tree Out ROW	1	7.1%	7	0.1%	12	0.1%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	6	42.9%	1,599	29.1%	1,556	15.8%
Accidents/Non-Utility	4	28.6%	1,929	35.2%	7,882	80.5%
Prearranged	1	7.1%	1,909	34.8%	191	2.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	0	0.0%	0	0.0%	0	0.0%
Unknown	0	0.0%	0	0.0%	0	0.0%
TOTALS	**14**	100.0%	**5,487**	100.0%	**9,793**	100.0%

Based on the information above, the following plan has been created –

- Full circuit patrol and infrared scan.
- Correct all deficiencies found on DLI inspections from previous years.
- Finish installing eight automated sectionalizing devices (reclosers) on the distribution side. Antennas and communications will be added to provide the status back to ECC.
- New circuit breaker in the substation to be installed by August.

Roll Rd 524 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	1	14.3%	78	1.8%	112	2.4%
Tree Out ROW	1	14.3%	2,584	58.9%	3,532	76.2%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	4	57.1%	1,727	39.3%	994	21.4%
Accidents/Non-Utility	0	0.0%	0	0.0%	0	0.0%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	0	0.0%	0	0.0%	0	0.0%
Unknown	1	14.3%	1	0.0%	1	0.0%
TOTALS	**7**	100.0%	**4,390**	100.0%	**4,639**	100.0%

Based on the information above, the following plan has been created –

- Full circuit patrol and infrared scan.
- Correct all deficiencies found on DLI inspections from previous years.
- Install three SCADA sectionalizing devices.

Roll Rd 529 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	1	6.7%	110	1.7%	324	3.0%
Tree Out ROW	4	26.7%	2,651	41.8%	4,095	37.2%
Overloads	1	6.7%	1	0.0%	14	0.1%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	1	6.6%	3	0.0%	8	0.1%
Accidents/Non-Utility	3	20.0%	510	8.0%	361	3.3%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	3	20.0%	2,801	44.2%	5,816	53.0%
Unknown	2	13.3%	273	4.3%	359	3.3%
TOTALS	**15**	100.0%	**6,349**	100.0%	**10,977**	100.0%

Based on the information above, the following plan has been created –

- Full circuit patrol and infrared scan.
- Install a recloser with communications located on Shimerville Rd.
- Replace a yellow tagged group-op with a SCADA switch on Line 352 / Pole 53.
- Install a SCADA device with communications on Roll Rd 524, Line 352 / Pole 24.
- Install nine SCADA sectionalizing devices.

South Park 471 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	7	30.4%	192	1.8%	298	2.3%
Tree Out ROW	5	21.7%	2,156	20.4%	3,664	28.3%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	3	13.0%	538	5.2%	2,492	19.3%
Accidents/Non-Utility	6	26.2%	7,613	72.1%	6,425	49.6%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	0	0.0%	0	0.0%	0	0.0%
Unknown	2	8.7%	54	0.5%	64	0.5%
TOTALS	**23**	100.0%	**10,553**	100.0%	**12,943**	100.0%

Based on the information above, the following plan has been created –

- Full circuit patrol and infrared scan.
- Correct all deficiencies found on DLI inspections from previous years.
- Voltage conversion along Boston State Road to relieve load on step bank.
- Install two SCADA sectionalizing devices.

Locust St 150 (Lockport) –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	0	0.0%	0	0.0%	0	0.0%
Tree Out ROW	1	8.3%	667	30.7%	2,156	47.5%
Overloads	1	8.3%	1	0.0%	2	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	3	25.0%	20	0.9%	46	1.1%
Accidents/Non-Utility	7	58.4%	1,487	68.4%	2,334	51.4%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	0	0.0%	0	0.0%	0	0.0%
Unknown	0	0.0%	0	0.0%	0	0.0%
TOTALS	**12**	100.0%	**2,175**	100.0%	**4,538**	100.0%

Based on the data provided in the table above, the following plan has been created-

- Full circuit patrol and infrared scan.
- Correct all deficiencies found on DLI inspections from previous years.
- Install eight SCADA sectionalizing devices.

Locust St 153 (Lockport) –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	1	16.7%	1,556	94.6%	3,103	97.6%
Tree Out ROW	0	0.0%	0	0.0%	0	0.0%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	1	16.6%	9	0.5%	15	0.5%
Accidents/Non-Utility	4	66.7%	80	4.9%	62	1.9%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	0	0.0%	0	0.0%	0	0.0%
Unknown	0	0.0%	0	0.0%	0	0.0%
TOTALS	**6**	100.0%	**1,645**	100.0%	**3,180**	100.0%

Based on the data provided in the table above, the following plan has been created-

- Full circuit patrol and infrared scan.
- Correct all deficiencies found on DLI inspections from previous years.
- Install five SCADA sectionalizing devices.

Update for 2017-

In 2017, the Lancaster Division met both its CAIDI and SAIFI targets.

Additional capital and O&M initiatives tracked in 2018 to enhance reliability include—

- Established antenna communications from ECC with 70 existing SCADA devices on distribution.
- Installed 80 new SCADA devices with antenna communications.
- Silver Creek 178, 179, 180 circuits changed to 12.47kv Wye.
- Established SCADA monitoring on the Losson Rd Sub.
- Received spare submersible transformers for Lockport 12kV delta network.
- Established new standard and received 500kva padmount transformer for 12kV delta network.
- Primary voltage monitoring installed on the Wende Rd 443 circuit.
- Interconnection of 2MW of Solar PV Array on Wende Rd 443 on Walden Ave.
- Tollgrade sensors installed on the Wehrle, Rein Rd, and Tyler circuits.
- Park Ave 120 – Reconductored the circuit from 4/0CU to 477AL on Park Ave. and Prospect St.
- Goodrich Road Highway project of upgrading poles in town of Clarence.
- Removed group-op on Holland 520 to install SCADA device.

<u>Jobs planned for 2019 or beyond:</u>

- L-500 Transmission Line relocation in town of Leon from creek washout.
- Cemetery 491 circuit— reconductoring to 477AL along Pleasantview Drive.
- Wehrle 335 circuit – reconductoring to 477AL along Harris Hill Drive.
- Antenna and communications to be added to select regulator installations.
- Extend the 12.47kv WYE on Silver Creek 180 and eliminate 7.2kv delta.
- Eliminate the 2.4KV primary voltage along Stebbins Road in town of Hanover.
- Commission the new Silver Creek Substation.
- Abbott Road voltage conversion which will convert approximately 440 customers to a 12.47kV and swap circuits to Lake 484 from Lake 482.
- Perform a load swap of 342 customers from Davis 531 to Davis 382.
- Phase 2 of load reduction on Java 281 (600 kw) to West Varysburg 355.
- Phase 3 of load reduction on Java 280 (400 kw).
- New circuit created – Dick Rd 391 (split customers with Dick Rd 392)
- Reduce Customer counts below 2,500 customers on the following circuits:
    - Roll Road 545
    - Cemetery 492
    - Lake 482
    - Losson Rd 403
    - Dick Rd 537
- Establish SCADA communication with devices on the 552 transmission line.
- Interconnection of 2MW of Solar PV Array on Wales 326 on Big Tree Rd.
- 2020 – Establish emergency switching procedures for the Losson Rd circuit.
- 2020 – Storm hardening for Transmission Line for Davis 531 distribution.
- 2021 – Establish a fourth circuit for the Cemetery Sub.
- 2021 – Establish interconnection between Wehrle 331 and Cemetery 491 on Harris Hill Road.

Liberty Division

The following table shows the Liberty five-year history of performance, excluding major storms:

LIBERTY PERFORMANCE WITHOUT MAJOR STORMS

	2014	2015	2016	2017	2018
CAIDI (goal - 2.50)	2.55	2.07	2.42	1.79	2.47
SAIFI (goal - 1.70)	0.90	1.95	0.95	1.43	1.23
Interruptions	714	915	762	759	984
Customer Hours	117,480	209,081	120,598	135,645	160,343
Customers Interrupted	45,985	100,964	49,912	75,804	64,904
Customers Connected	51,279	51,863	52,532	53,113	52,898

Liberty met both the CAIDI and SAIFI targets in 2018.

Liberty Performance: CAIDI & SAIFI by PSC cause codes –

LIBERTY DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	CAIDI				
		2014	2015	2016	2017	2018
1	Major Storms	3.91	2.00	5.55	8.41	24.83
2	Tree Contacts	2.26	2.88	2.78	3.08	3.12
3	Overloads	3.10	2.59	3.13	1.38	0.89
4	Operational Errors	0.48	0.99	0.40	0.71	5.43
5	Equipment Failures	2.74	1.72	1.88	1.19	1.56
6	Accidents/Non-Utility	3.05	1.37	1.83	1.40	2.58
7	Prearranged	1.61	1.00	2.50	0.26	1.96
8	Customer Equipment	1.63	2.92	2.88	2.89	2.34
9	Lightning	2.95	3.33	3.99	2.09	1.82
10	Unknown	2.36	2.20	2.70	1.96	3.38

LIBERTY DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	SAIFI				
		2014	2015	2016	2017	2018
1	Major Storms	0.64	0.91	0.74	0.65	2.00
2	Tree Contacts	0.32	0.55	0.38	0.39	0.44
3	Overloads	0.01	0.01	0.00	0.07	0.04
4	Operational Errors	0.02	0.02	0.02	0.00	0.00
5	Equipment Failures	0.18	1.09	0.25	0.36	0.28
6	Accidents/Non-Utility	0.18	0.17	0.16	0.29	0.21
7	Prearranged	0.01	0.00	0.00	0.12	0.00
8	Customer Equipment	0.00	0.00	0.00	0.00	0.04
9	Lightning	0.11	0.05	0.06	0.10	0.12
10	Unknown	0.07	0.06	0.08	0.10	0.10

Liberty Division Review –

Interruption Breakdown by PSC Cause

CAUSE DESCRIPTION	*Interruptions*		*Customers Interrupted*		*Customer Hours of Interruption*	
Tree In ROW	44	4.5%	1,343	2.1%	6,191	3.9%
Tree Out ROW	484	49.2%	21,814	33.6%	65,719	41.0%
Overloads	23	2.3%	2,215	3.3%	1,961	1.2%
Operational Errors	4	0.4%	126	0.2%	684	0.4%
Equipment Failures	138	14.0%	14,430	22.2%	22,527	14.0%
Accidents/Non-Utility	135	13.7%	11,107	17.1%	28,680	17.9%
Prearranged	8	0.8%	230	0.4%	451	0.3%
Customer Equipment	20	2.0%	1,922	3.0%	4,504	2.8%
Lightning	43	4.4%	6,404	9.9%	11,676	7.3%
Unknown	86	8.7%	5,313	8.2%	17,957	11.2%
TOTALS	**985**	**100%**	**64,904**	**100%**	**160,349**	**100%**

Summary for 2018 –

The Liberty Division in 2018 met both its CAIDI and SAIFI targets.

The major contributing causes of 2018 outages were tree contacts, equipment failures, and accidents or non-utility incidents. After careful analysis, the 2019 planned efforts to improve reliability performance per causes are the following:

- Tree – Perform full circuit trim on the following:
    - Callicoon 285
    - Concord 198
    - Fosterdale 108
    - Kiamesha 263
    - Mountaindale 208
    - Old Falls 284
    - Walden 358/359
    - Line 344 Cooper's Corners to Kiamesha
    - Line 346 Hazel to Liberty
    - Line 349 Ferndale to Jeffersonville
    - Line 350 Cooper's Corners to Beaver Brook
- Equipment – Relocation of distribution lines from remote locations to roadside and build tie lines where applicable. Also will work with Substations to control improvements.
- Accidents/Non-utility – Assign first responders to outage calls. Relocate poles and/or install reflective tape where feasible.

The following circuits have been identified as worst performing circuits in 2018 [see section 5 on page 187] –

- Callicoon 285
- Mountaindale 207
- Walden 705
- Yulan 204

The 2019 Action Plans for these circuits are –

Callicoon 285

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	2	2.9%	2	0.0%	3	0.0%
Tree Out ROW	31	44.9%	3,042	33.1%	8,610	43.8%
Overloads	3	4.3%	1,497	16.3%	872	4.4%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	12	17.4%	4,052	44.1%	8,454	43.0%
Accidents/Non-Utility	6	8.7%	199	2.2%	640	3.3%
Prearranged	3	4.3%	134	1.5%	473	2.4%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	5	7.3%	73	0.8%	203	1.0%
Unknown	7	10.2%	186	2.0%	417	2.1%
TOTALS	**69**	100.0%	**9,185**	100.0%	**19,672**	100.0%

Based on the data in the table above, the following plan has been created -

- 100% patrol of entire circuit and make repairs of any deficiencies found.
- Review animal guard and lightning arresters.
- Perform hot spot trimming by line resources for smaller jobs or by tree contractors for larger jobs.
- Review potential recloser settings to improve reliability.
- Repair any line equipment categorized as a type 1 or a type 2 deficiency.
- Review high customer count sections in order to reduce the number impacted.

Mountaindale 207

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	0	0.0%	0	0.0%	0	0.0%
Tree Out ROW	3	23.1%	55	1.6%	134	4.0%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	4	30.7%	1,640	48.9%	323	9.6%
Accidents/Non-Utility	1	7.7%	5	0.2%	8	0.2%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	3	23.1%	1,652	49.3%	2,888	86.1%
Lightning	1	7.7%	1	0.0%	2	0.1%
Unknown	1	7.7%	1	0.0%	1	0.0%
TOTALS	**13**	100.0%	**3,354**	100.0%	**3,356**	100.0%

Based on the data in the table above, the following plan has been created –

- 100% patrol of entire circuit and make repairs of any deficiencies found.
- Review animal guard and lightning arresters.
- Perform hot spot trimming by line resources for smaller jobs or by tree contractors for larger jobs.
- Review potential recloser settings to improve reliability.
- Repair any line equipment categorized as a type 1 or a type 2 deficiency.
- Review high customer count sections to reduce the number of affected customers when an outage occurs.

Walden 705

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	1	6.7%	1	0.0%	4	0.1%
Tree Out ROW	2	13.3%	464	6.1%	1,054	17.5%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	0	0.0%	0	0.0%	0	0.0%
Accidents/Non-Utility	5	33.3%	97	1.3%	146	2.4%
Prearranged	2	13.3%	4,512	59.8%	413	6.8%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	4	26.7%	2,468	32.7%	4,409	73.0%
Unknown	1	6.7%	4	0.1%	10	0.2%
TOTALS	**15**	100.0%	**7,546**	100.0%	**6,036**	100.0%

Based on the data in the table above, the following plan has been created –

- 100% patrol of entire circuit and make repairs of any deficiencies found.
- Review animal guard and lightning arresters.
- Perform hot spot trimming by line resources for smaller jobs or by tree contractors for larger jobs.
- Review potential recloser settings to improve reliability.
- Repair any line equipment categorized as a type 1 or a type 2 deficiency.
- Review high customer count sections in order to reduce the number impacted.

Yulan 204

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	1	2.9%	1	0.0%	6	0.1%
Tree Out ROW	11	31.4%	237	6.3%	874	11.8%
Overloads	2	5.7%	1,904	50.8%	3,431	46.7%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	3	8.6%	123	3.3%	305	4.2%
Accidents/Non-Utility	7	20.0%	288	7.7%	632	8.6%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	1	2.9%	8	0.2%	22	0.3%
Lightning	2	5.7%	6	0.2%	36	0.5%
Unknown	8	22.8%	1,179	31.5%	2,039	27.8%
TOTALS	**35**	100.0%	**3,746**	100.0%	**7,345**	100.0%

Based on the data in the table above, the following plan has been created –

- 100% patrol of entire circuit and make repairs of any deficiencies found.
- Review animal guard and lightning arresters.
- Perform hot spot trimming by line resources for smaller jobs or by tree contractors for larger jobs.
- Review potential recloser settings to improve reliability.
- Repair any line equipment categorized as a type 1 or a type 2 deficiency.
- Review high customer count sections to reduce the number of affected customers when an outage occurs.

Update for 2017 –

In 2017, the Liberty Division met both its CAIDI and SAIFI targets.

Additional capital and O&M projects completed in 2018 include —

- 3 transmission breaker replacements projects.
- 9 distribution breaker replacements projects.
- Miscellaneous substation battery replacement projects.
- Several poles were replaced with 'Make Ready' initiative.
- Line Extensions moving lines to road to improve reliability.
- 4-Mile line rebuild/extension voltage conversion for Yulan 204.
- Performed full circuit trim on 3 phase and 1 phase for the following circuits:
    - White Lake 290
    - Walden 705
    - Swan Lake 158
    - Grossingers 210 & 211
    - Roscoe 286 & 287

Jobs planned for 2019 or beyond:

- Coopers Corners Substation Upgrade Project to take place 2019-2020.
- Substation upgrades for glass replacement.
- Additional 14 miles trimming for capital projects.
- Additional 10 miles of hot spot trimming on Yulan 204, Willowemoc 030
- Miscellaneous breaker replacements and update of equipment for Concord, White Lake, and Walden Substations.
- Trip Savers will be installed (3 sets) reclosing devices.
- Installing GOAB switches to replace inline switches on the Fremont Acidilia Tap / Callicoon 285.
- Breaker replacement in Yulan 204.
- Rebuild of the Yulan Tap Switch (35006).
- Miscellaneous substation battery replacement projects.
- Reconducter gap closing Mountaindale 207 for load balancing with Concord 197.

Mechanicville Division

The following table shows the Mechanicville five-year history of performance, excluding major storms:

MECHANICVILLE PERFORMANCE WITHOUT MAJOR STORMS

	2014	2015	2016	2017	2018
CAIDI (goal - 2.00)	2.15	1.98	2.20	2.03	2.28
SAIFI (goal - 1.40)	1.34	1.43	0.82	0.99	1.96
Interruptions	714	847	722	760	907
Customer Hours	127,852	137,662	88,831	99,695	224,925
Customers Interrupted	59,481	69,429	40,343	49,087	98,695
Customers Connected	44,334	48,637	49,015	49,579	50,409

Mechanicville exceeded both the CAIDI and SAIFI targets in 2018.

Mechanicville Performance: CAIDI & SAIFI by PSC cause codes –

MECHANICVILLE DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	CAIDI				
		2014	2015	2016	2017	2018
1	Major Storms	4.68	4.74	7.92	5.54	8.68
2	Tree Contacts	2.79	2.11	2.50	2.83	2.52
3	Overloads	2.78	1.89	2.26	2.04	5.67
4	Operational Errors	1.66	0.00	0.00	1.22	2.15
5	Equipment Failures	1.75	1.76	2.00	1.52	1.94
6	Accidents/Non-Utility	1.80	1.94	1.84	1.67	2.08
7	Prearranged	0.97	1.16	1.13	1.27	2.78
8	Customer Equipment	2.55	3.00	2.92	2.69	1.81
9	Lightning	2.79	2.14	1.86	1.74	2.36
10	Unknown	1.99	2.16	2.51	1.91	1.93

MECHANICVILLE DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	SAIFI				
		2014	2015	2016	2017	2018
1	Major Storms	0.78	0.04	0.80	0.79	1.34
2	Tree Contacts	0.32	0.59	0.28	0.34	0.68
3	Overloads	0.00	0.00	0.00	0.00	0.03
4	Operational Errors	0.02	0.00	0.00	0.00	0.00
5	Equipment Failures	0.35	0.33	0.23	0.32	0.38
6	Accidents/Non-Utility	0.43	0.23	0.11	0.21	0.54
7	Prearranged	0.02	0.03	0.00	0.01	0.00
8	Customer Equipment	0.00	0.00	0.00	0.00	0.02
9	Lightning	0.18	0.17	0.09	0.10	0.20
10	Unknown	0.02	0.06	0.11	0.01	0.11

Mechanicville Failed Division Review – exceeded 2018 CAIDI & SAIFI

Interruption Breakdown by PSC Cause Code

CAUSE DESCRIPTION	*Interruptions*		*Customers Interrupted*		*Customer Hours of Interruption*	
Tree In ROW	172	18.9%	5,270	5.3%	12,067	5.4%
Tree Out ROW	305	33.6%	29,145	29.5%	74,628	33.2%
Overloads	14	1.5%	1,538	1.6%	8,723	3.9%
Operational Errors	1	0.1%	33	0.0%	71	0.0%
Equipment Failures	137	15.2%	19,204	19.5%	37,197	16.5%
Accidents/Non-Utility	156	17.2%	26,625	27.1%	55,479	24.7%
Prearranged	1	0.1%	9	0.0%	25	0.0%
Customer Equipment	13	1.4%	1,023	1.0%	1,848	0.8%
Lightning	80	8.8%	10,087	10.2%	23,763	10.6%
Unknown	29	3.2%	5,761	5.8%	11,131	4.9%
TOTALS	**908**	**100%**	**98,695**	**100%**	**224,930**	**100%**

Summary for 2018 –

The Mechanicville Division in 2018 has exceeded both its CAIDI and SAIFI targets. The major contributing causes of these failures were tree contacts, accidents or non-utility incidents, and equipment failures.

After careful analysis, the 2019 planned efforts to improve reliability performance per cause are the following:

- Tree – Complete full circuit trim on the following circuits:
  - Canaan 145
  - Coons Crossing 607
  - Craryville 610
  - Luther Forest 607
  - Mellenville 150
  - Salem 175
  - Stephentown 136/622
  - Vaness Rd Tap 604
- Accident/Non-utility – Working with DOT to find an approved method of installing reflectors on poles. Following the Central Hudson Model to improve visibility on poles in an effort to reduce the amount of poles hit. We are also working on moving the poles back from the road. This is not an easy process due to the lack of land between a home and the road way.
- Equipment – Substation upgrades:
  - Old Salem 17682 breaker replacement
  - Halfmoon 41202 breaker replacement
  - New 115-34.5kV Falls Park Substation commissioning
  - Craryville battery bank replacement
  - Granville battery bank replacement
  - Crooked Lake battery bank replacement
  - West Lebanon RTU installation

The following circuits have been identified as worst performing circuits in 2018 [see section 5 on page 187] –

- Craryville 610
- Luther Forest 607
- Raylinkski Tap 606
- Stephentown 622

The 2019 Action Plans for these circuits are –

Craryville 610

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	13	16.5%	67	1.5%	125	1.9%
Tree Out ROW	19	24.1%	362	8.1%	897	13.2%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	6	7.6%	231	5.2%	357	5.3%
Accidents/Non-Utility	34	43.0%	3,525	79.3%	4,256	63.0%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	1	1.2%	2	0.0%	6	0.1%
Lightning	4	5.1%	247	5.6%	1,072	15.9%
Unknown	2	2.5%	12	0.3%	40	0.6%
TOTALS	**79**	100.0%	**4,446**	100.0%	**6,753**	100.0%

Based on the data in the table above, the following plan has been created –

- Review lightning protection and take appropriate actions to improve reliability
- Review and replace defective equipment problems at time of occurrence.
- Perform hot spot trimming by line resources for smaller jobs or by tree contractors for larger jobs.
- Convert/rebuild ~2.0 miles from Overlook Road to Mountain View Road in the town Copake from 12.5kv to 34.5kv
- Complete circuit inspection work:
    - Replace 15 defective poles
    - Replace 14 lightning arrestors
    - Replace 15 defective grounds.

Luther Forest 607

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	5	17.3%	32	0.3%	45	0.2%
Tree Out ROW	3	10.4%	537	4.5%	1,005	5.4%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	13	44.8%	10,538	88.1%	15,900	84.7%
Accidents/Non-Utility	6	20.7%	664	5.6%	1,771	9.4%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	1	3.4%	132	1.1%	42	0.2%
Unknown	1	3.4%	53	0.4%	14	0.1%
TOTALS	**29**	100.0%	**11,956**	100.0%	**18,777**	100.0%

Based on the data in the table above, the following plan has been created –

- Review lightning protection and take appropriate actions to improve reliability.
- Review and replace defective equipment problems at time of occurrence.
- Install three 200A / 400KVA 19.9KV Regulators to support voltage during normal and contingency situations.
- Install 4000ft of 3 phase 34.5kV primary OH line extension and eliminate a 3 phase delta 4.8kV back lot feed.
- Replace DLI and 75 year old poles.
- Install new load transfer.

Stephentown 622

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	6	12.2%	59	1.7%	105	1.6%
Tree Out ROW	25	51.0%	1,377	40.3%	3,906	59.9%
Overloads	3	6.1%	4	0.1%	20	0.3%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	6	12.2%	1,767	51.7%	1,998	30.6%
Accidents/Non-Utility	4	8.3%	88	2.6%	65	1.0%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	1	2.0%	9	0.3%	77	1.2%
Unknown	4	8.2%	113	3.3%	354	5.4%
TOTALS	**49**	100.0%	**3,417**	100.0%	**6,525**	100.0%

Based on the data in the table above, the following plan has been created –

- Review lightning protection and take appropriate actions to improve reliability.
- Review and replace defective equipment problems at time of occurrence.
- Perform hot spot trimming by line resources for smaller jobs or by tree contractors for larger jobs.
- Replace conductor rubber ties with wire conductor ties.
- Improve reliability on Stephentown 136 by:

- Reconductor existing 1/0AAAC phase conductor with 336AL (0.14 Miles).
- Reconductor existing 2ACSR phase conductor with 336AL (1 Mile).
- Install 3-50kVAR switched Cap Bank.
- Install new 100A regulators at L-209, P-9158.

Raylinski Tap 606

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	4	11.8%	37	0.3%	54	0.2%
Tree Out ROW	6	17.6%	198	1.6%	366	1.5%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	5	14.7%	1,710	14.0%	1,659	7.0%
Accidents/Non-Utility	11	32.4%	5,216	42.6%	12,791	53.6%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	1	2.9%	2	0.0%	3	0.0%
Lightning	5	14.7%	5,024	41.1%	8,882	37.3%
Unknown	2	5.9%	53	0.4%	104	0.4%
TOTALS	**34**	100.0%	**12,240**	100.0%	**23,859**	100.0%

Based on the data in the table above, the following plan has been created –

- Install new load transfer.
- Review lightning protection and take appropriate actions to improve reliability.
- Replace DLI Poles.
- Install new SCADA Recloser.
- Install new SCADA switches.

Update for 2017-

In 2017, the Mechanicville Division met its SAIFI target and exceeded its CAIDI target. The major contributing causes of this failure were tree contacts, accidents or non-utility incidences, and equipment failures.

Corrective Actions undertaken in 2018 to improve the Mechanicville Division's reliability performance and to address the 2017 failure of CAIDI include:

- Replace 30 defective transmission poles.
- Conversion upgrade from 1-phase 4.8kVA to 3-phase 12kVA on the Stillwater 215 circuit.
- Install 3 new 200A/34.5KV regulators to address low voltage/reliability concerns in the Town of Sand Lake.
- Replace defective 1,200AMP transmission group-op switch off Pershing Avenue, in the Town of North Greenbush.
- Replace defective 1,200AMP transmission group-op switch off Cobb Hill Road, in the Town of Sand Lake.
- Replace 2078' of single phase, 35kv primary with new three phase. 35kv primary to support new subdivision on Farm to Market Road in the Town of Halfmoon.

- Replace 8 defective backlot poles and added one midspan pole on Dean Hill Road in the Town of Canaan to improve on reliability.
- Convert 3-phase 4.8kV main line feed across the Hudson River from Mechanicville to Schaghticoke to 3-phase 12.47kV.
- Substation issues address by:
    - Energizing 115Kv to 34.5Kv Bank 4
    - Installed vacuum SF6 breaker on 622
    - 34.5Kv capacitors all returned to service
    - Replaced substation batteries at Comstock and Salem locations

Additional Capital and O&M initiatives tracked in 2018 to enhance reliability include—

- Luther Forest 607 / Raylinski Tap 606:
    - Installed RL Switch at Farm to Market Road in Town of Halfmoon.
    - Installed RL switch at Pruyn Hill Rd in Town of Halfmoon.
    - Installed RL switch at Smith Road in Town of Halfmoon.
- Installed SCADA switches on Line 17/P72 and Line 97/P62 on the Raylinski Tap 606 circuit.

Jobs planned for 2019 or beyond:

- Automation Project
    - Install SCADA switches
    - Install SCADA reclosures
    - Replace DLI Poles
    - Replace 75 year old poles

- Luther Forest 607 and Raylinski Tap 606 reliability improvements are to install N-Series recloser 38kV, 800 amps at:
    - Market Road
    - Route 9 north of Kinns Road
    - Cary Road near Rolling Hill
    - Fellows Rd near Route 146
- Ongoing tree trimming

Oneonta Division

The following table shows the Oneonta five-year history of performance, excluding major storms:

ONEONTA PERFORMANCE WITHOUT MAJOR STORMS

	2014	2015	2016	2017	2018
CAIDI (goal - 2.50)	2.27	2.15	2.16	2.70	2.67
SAIFI (goal - 1.00)	0.87	0.76	1.30	1.08	1.04
Interruptions	1,230	1,218	1,387	1,475	1,499
Customer Hours	180,959	149,261	257,877	269,496	256,965
Customers Interrupted	79,728	69,456	119,400	99,824	96,213
Customers Connected	91,473	91,724	91,720	92,128	92,429

Oneonta exceeded both the CAIDI and SAIFI targets in 2018.

Oneonta Performance: CAIDI & SAIFI by PSC cause codes –

ONEONTA DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	CAIDI				
		2014	2015	2016	2017	2018
1	Major Storms	9.23	12.75	7.86	7.41	10.48
2	Tree Contacts	2.70	2.51	2.66	2.67	2.68
3	Overloads	3.51	1.34	1.83	2.00	1.50
4	Operational Errors	1.09	0.00	0.00	1.00	0.00
5	Equipment Failures	1.79	1.81	2.02	2.65	2.54
6	Accidents/Non-Utility	1.67	2.34	1.77	3.88	3.50
7	Prearranged	1.10	0.51	1.65	0.83	1.60
8	Customer Equipment	2.14	2.56	1.89	0.80	2.14
9	Lightning	3.61	1.65	1.57	2.85	1.84
10	Unknown	1.24	2.23	1.86	1.71	2.54

ONEONTA DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	SAIFI				
		2014	2015	2016	2017	2018
1	Major Storms	0.37	0.13	0.62	0.41	0.69
2	Tree Contacts	0.34	0.37	0.46	0.58	0.48
3	Overloads	0.00	0.00	0.00	0.00	0.00
4	Operational Errors	0.01	0.00	0.00	0.00	0.00
5	Equipment Failures	0.22	0.16	0.46	0.23	0.36
6	Accidents/Non-Utility	0.08	0.05	0.13	0.09	0.13
7	Prearranged	0.01	0.02	0.00	0.03	0.00
8	Customer Equipment	0.00	0.00	0.03	0.00	0.00
9	Lightning	0.10	0.12	0.16	0.11	0.04
10	Unknown	0.11	0.04	0.06	0.04	0.03

Oneonta Failed Division Review – exceeded 2018 CAIDI and SAIFI targets

Interruption Breakdown by PSC Cause

CAUSE DESCRIPTION	*Interruptions*		*Customers Interrupted*		*Customer Hours of Interruption*	
Tree In ROW	569	38.0%	22,916	23.8%	64,329	25.0%
Tree Out ROW	323	21.5%	21,559	22.4%	53,622	20.8%
Overloads	30	2.0%	151	0.2%	226	0.1%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	255	17.0%	33,529	34.8%	85,204	33.2%
Accidents/Non-Utility	168	11.2%	11,317	11.8%	39,560	15.4%
Prearranged	7	0.5%	308	0.3%	493	0.2%
Customer Equipment	6	0.4%	7	0.0%	15	0.0%
Lightning	65	4.3%	4,007	4.2%	7,381	2.9%
Unknown	76	5.1%	2,419	2.5%	6,144	2.4%
TOTALS	**1,499**	**100%**	**96,213**	**100%**	**256,974**	**100%**

Summary for 2018 –

The Oneonta Division in 2018 exceeded both its CAIDI and SAIFI targets. The major contributing causes of these failures were tree contacts, equipment failures, and accidents or non-utility incidents.

After careful analysis, the 2019 planned efforts to improve reliability performance per cause are the following:

- Tree – Conducting tree trimming and hot spot trimming on Transmission and Distribution as scheduled.
- Equipment –Relocation of distribution lines from remote locations to roadside and build tie lines where applicable. This will improve reliability, reduce response times and outage durations. Also will work with Substations to control improvements.
- Accidents/Non-utility – Assign first responders to outage calls. Relocate poles and/or install reflective tape (different then DOT marker) where feasible.

The following circuits have been identified as worst performing circuits in 2018 [see section 5 on page 187] –

- Arkville 230
- East Norwich 516
- Guildford Center 012
- Milford 227
- Oxford 012
- Shandaken 501
- West Winfield 260

The 2019 Action Plans for these circuits are –

Arkville 230 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	18	41.9%	143	3.8%	472	8.0%
Tree Out ROW	12	27.9%	292	7.7%	1,109	18.7%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	6	14.0%	3,161	83.9%	4,163	70.5%
Accidents/Non-Utility	4	9.3%	155	4.2%	133	2.3%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	1	2.2%	1	0.0%	1	0.0%
Unknown	2	4.7%	16	0.4%	27	0.5%
TOTALS	**43**	100.0%	**3,768**	100.0%	**5,905**	100.0%

Based on the data in the table above, the following plan has been created -

- Patrol entire circuit and make repairs of any deficiencies found.
- Review animal guard and lightning arresters.
- Perform hot spot trimming by line resources for smaller jobs or by tree contractors for larger jobs.
- Review potential recloser relocations to improve reliability.
- Repair any line equipment categorized as a type 1 or a type 2 deficiency.
- Review high customer count sections to reduce the number of affected customers.

East Norwich 516 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	20	44.4%	3,910	74.4%	6,225	67.3%
Tree Out ROW	6	13.3%	69	1.3%	320	3.5%
Overloads	2	4.4%	4	0.1%	4	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	3	6.7%	173	3.3%	424	4.6%
Accidents/Non-Utility	7	15.6%	341	6.5%	987	10.7%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	4	8.9%	744	14.1%	1,272	13.7%
Unknown	3	6.7%	14	0.3%	24	0.2%
TOTALS	**45**	100.0%	**5,255**	100.0%	**9,256**	100.0%

Based on the data in the table above, the following plan has been created -

- Patrol entire circuit and make repairs of any deficiencies found.
- Review animal guard and lightning arresters.
- Perform hot spot trimming by line resources for smaller jobs or by tree contractors for larger jobs.
- Review potential recloser relocations to improve reliability.
- Repair any line equipment categorized as a type 1 or a type 2 deficiency.
- Review high customer count sections to reduce the number of affected customers when an outage occurs.

Guildford Center 012 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	15	51.7%	987	37.6%	1,148	27.7%
Tree Out ROW	6	20.7%	955	36.4%	1,835	44.3%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	0	0.0%	0	0.0%	0	0.0%
Accidents/Non-Utility	4	13.8%	234	8.8%	383	9.2%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	2	6.9%	446	17.0%	756	18.3%
Unknown	2	6.9%	5	0.2%	19	0.5%
TOTALS	**29**	100.0%	**2,627**	100.0%	**4,141**	100.0%

Based on the data in the table above, the following plan has been created -

- Patrol entire circuit and make repairs of any deficiencies found.
- Review animal guard and lightning arresters.
- Perform hot spot trimming by line resources for smaller jobs or by tree contractors for larger jobs.
- Review potential recloser relocations to improve reliability.
- Repair any line equipment categorized as a type 1 or a type 2 deficiency.
- Review high customer count sections to reduce the number of affected customers when an outage occurs.

Milford 227—

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	5	15.2%	248	6.2%	644	4.1%
Tree Out ROW	11	33.3%	740	18.5%	3,670	23.2%
Overloads	1	3.0%	5	0.1%	5	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	5	15.2%	616	15.4%	1,320	8.4%
Accidents/Non-Utility	2	6.1%	1,187	29.7%	7,831	49.6%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	1	3.0%	7	0.2%	35	0.2%
Unknown	8	24.2%	1,197	29.9%	2,297	14.5%
TOTALS	**33**	100.0%	**4,000**	100.0%	**15,802**	100.0%

Based on the data in the table above, the following plan has been created -

- Patrol entire circuit and make repairs of any deficiencies found.
- Review animal guard and lightning arresters.
- Perform hot spot trimming by line resources for smaller jobs or by tree contractors for larger jobs.
- Review potential recloser relocations to improve reliability.
- Repair any line equipment categorized as a type 1 or a type 2 deficiency.
- Review high customer count sections to reduce the number of affected customers.

Oxford 012 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	12	57.1%	1,811	66.6%	3,609	65.6%
Tree Out ROW	3	14.3%	553	20.3%	1,346	24.5%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	0	0.0%	0	0.0%	0	0.0%
Accidents/Non-Utility	1	4.8%	13	0.5%	38	0.7%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	4	19.0%	343	12.6%	509	9.1%
Unknown	1	4.8%	1	0.0%	3	0.1%
TOTALS	**21**	100.0%	**2,721**	100.0%	**5,505**	100.0%

Based on the data in the table above, the following plan has been created -

- Patrol entire circuit and make repairs of any deficiencies found.
- Review animal guard and lightning arresters.
- Perform hot spot trimming by line resources for smaller jobs or by tree contractors for larger jobs.
- Review potential recloser relocations to improve reliability.
- Repair any line equipment categorized as a type 1 or a type 2 deficiency.
- Review high customer count sections to reduce the number of affected customers.

Shandaken 501 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	10	33.3%	193	5.0%	681	7.0%
Tree Out ROW	11	36.7%	1,968	50.9%	7,662	78.3%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	6	20.0%	108	2.8%	153	1.6%
Accidents/Non-Utility	0	0.0%	0	0.0%	0	0.0%
Prearranged	1	3.3%	1,597	41.3%	1,278	13.1%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	1	3.4%	1	0.0%	3	0.0%
Unknown	1	3.3%	1	0.0%	2	0.0%
TOTALS	**30**	100.0%	**3,868**	100.0%	**9,779**	100.0%

Based on the data in the table above, the following plan has been created -

- Patrol entire circuit and make repairs of any deficiencies found.
- Review animal guard and lightning arresters.
- Perform hot spot trimming by line resources for smaller jobs or by tree contractors for larger jobs.
- Review potential recloser relocations to improve reliability.
- Repair any line equipment categorized as a type 1 or a type 2 deficiency.
- Review high customer count sections to reduce the number of affected customers when an outage occurs.

West Winfield 260 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	6	37.5%	1,613	48.2%	869	8.4%
Tree Out ROW	7	43.8%	1,369	40.9%	7,826	76.0%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	1	6.2%	358	10.7%	1,587	15.4%
Accidents/Non-Utility	0	0.0%	0	0.0%	0	0.0%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	2	12.5%	4	0.2%	11	0.2%
Unknown	0	0.0%	0	0.0%	0	0.0%
TOTALS	**16**	100.0%	**3,344**	100.0%	**10,293**	100.0%

Based on the data in the table above, the following plan has been created -

- Patrol entire circuit and make repairs of any deficiencies found.
- Review animal guard and lightning arresters.
- Perform hot spot trimming by line resources for smaller jobs or by tree contractors for larger jobs.
- Review potential recloser relocations to improve reliability.
- Repair any line equipment categorized as a type 1 or a type 2 deficiency.
- Review high customer count sections to reduce the number of affected customers when an outage occurs.

Update for 2017 –

In 2017, the Oneonta Division exceeded both its CAIDI and SAIFI targets. The major contributing causes of these failures were tree contacts, equipment failures, and accidents or non-utility incidents.

Corrective Actions undertaken in 2018 to improve the Oneonta Division's reliability performance and to address the 2017 failure of SAIFI include:

- Completed 2018 DLI type 1 or type 2 deficiency poles on the 2017 WPC's:
  - Downsville 012
  - East Norwich 515/516
  - Grand Gorge 247
  - River Rd 104/105
  - West Winfield 260

Additional capital and O&M initiatives tracked in 2018 to enhance reliability include—

- Breaker replacements on the Earlville 227 and Edmeston 220 circuits.
- Brothertowne LTC was replaced after failure.
- CCVT upgrades on the 949 and 943 Lines.
- Relay upgrades at the Jennison, Sidney, Delhi Substations.
- Miscellaneous substation battery replacement projects were completed.
- Several poles were replaced with the Make Ready initiative.
- Line Extensions moved lines to roadway to improve reliability.
- Hung 3 SCADA switches on the Shandaken 501 circuit.
- Sidney Railroad circuit 22 conversion.

Jobs planned for 2019 or beyond:

- Substation upgrades for glass replacement.
- Breaker replacements on the Earlville 225 and 226 circuits.
- Upgrade the Fraser Substation.
- Replacing Cap Bank switches in Arkville & Downsville.
- Group Op Switch replacement on the Shandaken 501 circuit.
- 3-Phase Upgrade/Conversion on the South Cooperstown 275 and Shandaken 12 circuits.
- Adding reclosure to West Winfield 260 circuit.
- Adding solids to help sectionalize for reliability.
- 11 sets of Trip Savers will be installed reclosing devices.
- The below Distribution circuits will be trimmed for maintenance totaling 302.4 miles:
    - Bainbridge 012 – 49.4 overhead maintenance scheduled
    - Brothertowne 504 – 57.24 overhead maintenance scheduled
    - Finch Hollow 012 – 54.2 overhead maintenance scheduled
    - Morrisville 265 – 56.2 overhead maintenance scheduled
    - Oriskany Falls 141 – 23.7 overhead maintenance scheduled
    - South New Berlin 012 – 42.8 overhead maintenance scheduled
    - Waterville 012 – 19 overhead maintenance scheduled
- The below Transmission circuits will be trimmed:
    - Line 803 County Line to Edmeston
    - Line 820 Latham's Corners to East Norwich
    - Line 822 Colliers to Pierce Avenue
    - Line 918 East Norwich to Brothertown
    - Line 945 East Norwich to Willet
    - Line 954 Jennison to Hancock

Plattsburgh Division

The following table shows the Plattsburgh five-year history of performance, excluding major storms:

PLATTSBURGH PERFORMANCE WITHOUT MAJOR STORMS

	2014	2015	2016	2017	2018
CAIDI (goal - 1.75)	1.69	1.69	1.87	1.73	2.00
SAIFI (goal - 1.70)	1.24	1.24	1.58	1.60	1.82
Interruptions	626	735	746	674	752
Customer Hours	86,466	86,202	121,446	114,346	150,931
Customers Interrupted	51,068	50,858	64,934	66,056	75,570
Customers Connected	41,098	41,030	41,037	41,400	41,622

Plattsburgh exceeded both the CAIDI and SAIFI targets in 2018.

Plattsburgh Performance: CAIDI & SAIFI by PSC cause codes –

PLATTSBURGH DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	CAIDI				
		2014	2015	2016	2017	2018
1	Major Storms	7.61	0.00	0.00	3.60	11.27
2	Tree Contacts	2.37	1.96	2.09	1.93	2.30
3	Overloads	1.34	2.35	1.28	1.89	2.49
4	Operational Errors	0.63	0.00	0.00	0.00	0.31
5	Equipment Failures	1.84	1.22	1.21	1.46	2.05
6	Accidents/Non-Utility	1.27	1.36	1.57	1.86	2.53
7	Prearranged	0.00	3.33	0.99	1.62	0.00
8	Customer Equipment	1.50	2.50	2.27	1.47	0.27
9	Lightning	1.28	2.25	2.74	1.63	1.62
10	Unknown	1.48	1.74	2.18	1.55	2.02

PLATTSBURGH DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	SAIFI				
		2014	2015	2016	2017	2018
1	Major Storms	0.94	0.00	0.00	0.29	2.19
2	Tree Contacts	0.31	0.39	0.65	0.59	0.64
3	Overloads	0.01	0.00	0.02	0.00	0.02
4	Operational Errors	0.00	0.00	0.00	0.00	0.00
5	Equipment Failures	0.29	0.20	0.25	0.52	0.43
6	Accidents/Non-Utility	0.52	0.32	0.41	0.34	0.40
7	Prearranged	0.00	0.00	0.00	0.00	0.00
8	Customer Equipment	0.00	0.00	0.00	0.00	0.01
9	Lightning	0.04	0.16	0.14	0.07	0.21
10	Unknown	0.08	0.18	0.11	0.08	0.11

Plattsburgh Failed Division Review – exceeded 2018 CAIDI & SAIFI

Interruption Breakdown by PSC Cause Code

CAUSE DESCRIPTION	*Interruptions*		*Customers Interrupted*		*Customer Hours of Interruption*	
Tree In ROW	163	21.7%	17,077	22.6%	26,287	17.4%
Tree Out ROW	154	20.5%	9,108	12.1%	19,679	13.0%
Overloads	15	2.0%	682	0.9%	1,695	1.1%
Operational Errors	2	0.3%	61	0.1%	19	0.0%
Equipment Failures	100	13.3%	17,941	23.6%	36,859	24.4%
Accidents/Non-Utility	172	22.8%	16,785	22.2%	42,532	28.3%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	10	1.3%	361	0.5%	96	0.1%
Lightning	36	4.8%	8,902	11.8%	14,390	9.5%
Unknown	100	13.3%	4,653	6.2%	9,379	6.2%
TOTALS	**752**	**100%**	**75,570**	**100%**	**150,935**	**100%**

Summary for 2018 –

The Plattsburgh Division in 2018 exceeded both its CAIDI and SAIFI targets. The major contributing causes of these failures were tree contacts, equipment failures, and accidents or non-utility incidents.

The major contributing causes of the outages in 2018 were. After careful analysis, the 2019 planned efforts to improve reliability performance per causes are the following:

- Tree – Complete full circuit trim on the following circuits:
  - Chateaugay 513
  - Sciota-Flatrock 517
  - West Chazy 136
  - Hyde 417
  - Mill C 125
  - Keeseville 447
  - Mason Corners 450
- Equipment – Replacing distribution equipment such as reclosers, sectionalizers, regulators, poles and conductors identified based on age and condition.
- Accident/Non-utility – Working with DOT to find an approved method of installing reflectors on poles. Following the Central Hudson Model to improve visibility on poles in an effort to reduce the amount of poles hit. We are also working on moving the poles back from the road. This is not an easy process to do due to the lack of land between a home and the road way.

The following circuits have been identified as worst performing circuits in 2018 [see section 5 on page 187] –

- Blue Mountain Lake 504
- Harris Lake 424
- Jay 411

The 2019 Action Plans for these circuits are –

Blue Mountain Lake 504:

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	17	51.5%	309	6.1%	656	4.7%
Tree Out ROW	4	12.2%	1,232	24.3%	8,313	59.7%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	4	12.1%	792	15.6%	819	5.9%
Accidents/Non-Utility	3	9.1%	2,567	50.7%	3,922	28.1%
Prearranged	1	3.0%	106	2.1%	175	1.3%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	0	0.0%	0	0.0%	0	0.0%
Unknown	4	12.1%	56	1.2%	48	0.3%
TOTALS	**33**	100.0%	**5,062**	100.0%	**13,933**	100.0%

Based on the information above, the following plan has been created -

- A majority of customer hours with interruptions were from a failed foreign supply feed from National Grid.
- Review and replace defective equipment problems at time of occurrence.
- Perform hot spot trimming by line resources for smaller jobs or by tree contractors for larger jobs.
- Replace conductor rubber ties with wire conductor ties.

Harris Lake 424:

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	9	36.0%	708	14.5%	1,235	16.5%
Tree Out ROW	4	16.0%	69	1.4%	251	3.3%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	4	16.0%	1,325	27.1%	940	12.6%
Accidents/Non-Utility	1	4.0%	1,255	25.7%	1,905	25.5%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	1	4.0%	1	0.0%	1	0.0%
Lightning	0	0.0%	0	0.0%	0	0.0%
Unknown	6	24.0%	1,533	31.3%	3,149	42.1%
TOTALS	**25**	100.0%	**4,891**	100.0%	**7,481**	100.0%

Based on the information above, the following plan has been created -

- A majority of customer hours with interruptions were from a failed foreign supply feed from National Grid.
- Perform hot spot trimming by line resources for smaller jobs or by tree contractors for larger jobs.
- Review and replace defective equipment problems at time of occurrence.
- Review lightning protection and take appropriate actions to improve reliability.
- Replace conductor rubber ties with wire conductor ties.

Jay 411:

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	8	17.4%	178	4.0%	313	4.4%
Tree Out ROW	10	21.7%	192	4.3%	595	8.3%
Overloads	1	2.2%	4	0.1%	5	0.1%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	5	10.8%	3,494	78.8%	5,149	72.1%
Accidents/Non-Utility	9	19.6%	174	3.9%	236	3.3%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	1	2.2%	1	0.0%	3	0.0%
Unknown	12	26.1%	393	8.9%	841	11.8%
TOTALS	**46**	100.0%	**4,436**	100.0%	**7,142**	100.0%

Based on the information above, the following plan has been created -

- Perform hot spot trimming by line resources for smaller jobs or by tree contractors for larger jobs
- Review and replace defective equipment problems at time of occurrence
- Schedule infrared inspections for any circuits that have identified unknown causes for outages

Update for 2017 -

In 2017, the Plattsburgh Division met both its CAIDI and SAIFI targets.

Additional Capital and O&M initiatives tracked in 2018 to enhance reliability include —

- Annual infrared testing completed in March 2018.
- Maintenance notifications 100% completed.
- Non-Bulk Relay testing completed 100% completed.
- NPCC Bulk Power Relay 100% completed.
- NPCC BES Bulk Relay 100% completed.
- Bi-Monthly Substation inspections 100% completed.
- Annual binocular substation inspection 100% completed.
- Bi-Annual oil samples on oil circuit breakers 100% completed.
- Required Doble testing 100% completed .
- Substation Brush control 100% completed.
- Replaced Lightning Arrestors on the Jay 411 circuit.
- Replaced 6 interrupters at the Jay B3-55 switch.
- Harris Lake – Replaced the 424 Regulator.
- Lubricated Harris Lake and Mason Corners breakers.
- Fuse coordination is up to date to minimize the number of customers affected during an interruption on the Blue Mountain Lake circuit.

Jobs planned for 2019 or beyond:

- Long Lake install generator.
- Blue Mountain Lake install generator.
- Ongoing capital infrastructure hardening.
- Ongoing tree trimming.
- Addition of new and improve SCADA units.

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Section 3. Reliability Programs

Historical O&M efforts and expenditures for each of the past five years –

Reliability Program Actuals	2014	2015	2016	2017	2018 *
Oper Superv & Eng	$ 3,887,774	$ 514,936	$ 1,611,359	$ 1,975,783	$ 1,935,689
Load Dispatching	$ -	$ -			
Station Expenses	$ 5,382,825	$ 7,019,322	$ 7,013,279	$ 5,699,018	$ 4,356,613
Overhead Line Expense	$ 581,211	$ 511,747	$ 605,555	$ 188,595	$ 3,460,059
Transmission of Elec	$ 9,650,010	$ 9,412,910	$ 9,432,495	$ 9,680,552	$ 9,698,663
Misc. Transmission Expenses	$ 3,528,405	$ 6,751,671	$ 3,330,646	$ 2,892,658	$ 4,067,190
Oper Superv & Eng	$ 5,789,358	$ 5,240,093	$ 9,029,071	$ 4,173,413	$ 4,228,099
Station Expenses	$ 4,716,363	$ 4,154,010	$ 9,590,710	$ 7,611,420	$ 5,219,247
Overhead Line Expense	$ 6,085,478	$ 15,263,710	$ 11,477,131	$ 14,314,175	$ 15,688,105
Underground Line Expenses	$ 2,346,229	$ 276,435	$ 265,995	$ 547,942	$ 1,268,522
Street Light & Sign	$ 34,761	$ 155,730	$ 113,350	$ 98,401	$ 77,438
Meter Expense	$ 8,579,122	$ 7,873,580	$ 12,990,892	$ 10,061,738	$ 9,508,282
Customer Installation Expenses	$ 494,295	$ 1,172,736	$ 533,262	$ 430,234	$ 277,730
Misc. Distribution Expenses	$ 12,190,700	$ 11,101,605	$ 11,821,128	$ 11,369,651	$ 11,711,794
Maint Superv & Eng	$ 490,453	$ 633,186	$ 681,917	$ 404,996	$ 315,257
Maintenance of Structures	$ 512,771	$ 44,773	$ 324,567	$ 397,866	$ 320,613
Maintenance Station Expenses	$ 2,200,812	$ 2,027,725	$ 5,063,354	$ 4,706,738	$ 4,799,115
Maint. Overhead Line Expense	$ 9,176,756	$ 12,191,550	$ 13,394,607	$ 11,492,316	$ 14,139,931
Maint Underground	$ 2,249	$ 64,342	$ 104,600	$ 59,545	$ 90,901
Maint Superv & Eng	$ 15,219,029	$ 1,225,811	$ 2,345,469	$ 15,471,729	$ 24,567,849
Maintenance of Structures	$ 152,105	$ 65,089	$ 6,516	$ 20,043	$ 6,301
Maintenance Station Equipment	$ 3,750,802	$ 4,889,225	$ 5,233,538	$ 5,686,657	$ 6,301,854
Maint Overhead Line	$ 84,464,677	$ 61,706,929	$ 86,965,449	$ 135,962,567	$ 190,897,345
Maint of Underground	$ 1,179,002	$ 1,136,311	$ 1,058,355	$ 1,175,828	$ 708,328
Maint of Line Transformers	$ 668,149	$ -	$ 75,832	$ 256	$ -
Maint Street Light	$ 1,765,322	$ 2,314,762	$ 1,992,886	$ 1,464,155	$ 1,758,960
Maint of Meters	$ -	$ -	$ 1,008	$ 9,634	$ 300

* The annual audit of the corporate books and records is not yet complete, therefore the 2018 amounts shown on the above table(s) should be considered unaudited.

Program Overviews and Summaries –

NYSEG is dedicated to preserving the integrity of the energy delivery system and minimizing the consequence of equipment failure through the development and implementation of comprehensive, reliability-centered, cost-effective, maintenance programs.

The Process & Technology Department play a key role in this program. Maintenance engineers plan, develop, implement, and monitor maintenance programs associated with the energy delivery system. One of the primary functions of these engineers is managing maintenance programs for individual components of the energy delivery system. Measurement of the effectiveness of preventative maintenance programs provides the necessary feedback to adjust maintenance activities. Establishing preventative maintenance intervals for energy delivery equipment based upon sound reliability centered maintenance philosophy results in the optimized use of available resources. The Company assesses the serviceability of energy delivery equipment on a continuous basis and applies equipment life extension practices where appropriate. Cost-benefit analyses are performed to evaluate repair versus replace options.

NYSEG establishes and updates maintenance practices and procedures consistent with equipment requirements and industry standards. The intent of this is to assure the safety of maintenance personnel and the general public and provide a means of quality assurance. The development of maintenance practices and procedures promotes the application of maintenance in a consistent and effective manner.

Company engineers perform equipment operating assessments through the use of on-line monitoring and on-site inspections. Acquisition and evaluation of operating data is performed to determine equipment status. Recommendations are then made regarding equipment utilization and overload conditions based upon operating safety and loss of life considerations. Technical support for field operations including on-site resolution of maintenance concerns is also provided. These engineers serve as subject matter experts for developing lesson plans for training and are called upon to perform root cause analysis associated with equipment failures.

NYSEG's dedication to improved systems reliability is demonstrated by the development of a number of new maintenance programs in addition to the improvement of existing programs. The following pages contain maintenance program summaries for each highlighted maintenance program.

On January 5, 2005, in Case 04-M-0159, the Public Service Commission (PSC) adopted a set of statewide safety standards (Safety Order) that apply to the electric utilities subject to the Commission's jurisdiction. The safety standards include inspections of utility electric facilities on a minimum of a five-year cycle. In accordance with the Safety Order, NYSEG has developed and implemented a program for inspection and repair of all electric transmission and distribution facilities. The Program is summarized as follows:

Electric Safety Standards Inspection Program

The objective of all inspections is to conduct a careful and critical examination of an electric facility by a qualified individual to determine the condition of the facility and the potential to cause or lead to safety hazards or adverse effects on reliability. NYSEG's inspection program was designed to visually inspect every facility at least once over a period of five years as required by the Safety Order.

Inspections conducted during routine maintenance and other work not directly related to the inspection program count as an inspection visit, provided that the inspection is performed using the same safety and reliability criteria and to the same extent as would otherwise be required under the Electric Safety Standards.

Categories or Facility Groups

Street Lighting

The streetlight inspection program is a comprehensive external visual only inspection of metal streetlight poles, pole hand holes, pole bases, and fixtures. NYSEG inspects approximately 20% of their streetlights annually.

Underground

The underground inspection program provides an inspection of NYSEG manholes, handholes, vaults, sub-holes, padmount transformers, padmount switchgear and all equipment, devices and cables present within these structures. This includes inspection of structural integrity, drainage, electrical integrity of all equipment and cables (as permissible by visual inspection), and mechanical integrity of all equipment and cables (as permissible by visual inspection). Dangerous conditions and potential threats to electric system reliability are identified. NYSEG inspects approximately 20% of their underground assets annually.

Overhead Distribution

The overhead distribution inspection and maintenance program identifies and corrects electric overhead distribution circuit deficiencies on all poles, equipment, and devices present on all distribution structures including guy wires/anchors, crossarms, switches, conductors and other accessory equipment. NYSEG is required to visually inspect approximately 20% of all distribution assets annually.

NYSEG also conducts bi-monthly inspections of all substations. This effort is a comprehensive inspection of all equipment located within the facility by field personnel. Numerous inspections of substation equipment occur during the year as a result of ongoing maintenance work.

Transmission

The objective of all transmission inspections is to identify and correct circuit deficiencies on all transmission circuits and structures.

NYSEG is required to visually inspect approximately 20% of all transmission circuits annually within their respective division.

The transmission inspection program is divided into two categories based on voltage class:

- 115KV and above – Comprehensive Helicopter Inspection and Foot Patrol
- Below 115KV – Comprehensive Foot Patrol

The comprehensive helicopter inspection involves performing low level (pole top), slow speed (stop & hover), comprehensive inspection of transmission circuits to identify structure, conductor and equipment damage, defects and deficiencies. Helicopter maintenance capabilities are used where appropriate to perform maintenance functions.

Transmission inspections are accomplished through a comprehensive foot patrol, performed by an inspector competent in line inspection procedures. Inspections include a visual examination of all transmission towers, poles, guy wires, risers, overhead conductors, switches, and other aboveground equipment and facilities.

Inspection Procedure

The annual performance target for inspections includes all existing Maintenance Engineering and Operations inspection programs if the inspection and collected data satisfies the Electric Safety Standards.

The number of facilities to be inspected in each cyclic inspection program is determined by examining the total number of assets to be inspected by asset type (streetlight, distribution pole, transmission pole, underground structure…etc…) in each division and applying a 20% levelization factor to each to ensure equal amount of inspections are taking place annually throughout the company for the 5 year cycle. Once established, the plan will remain unchanged with only small modifications to include any added or removed assets that take place.

Electric facility inspections are performed by trained and qualified personnel. Inspection personnel comply with all appropriate safety procedures and practices specified by the Company (e.g. manhole entry, manhole rescue and work zone protection) when performing inspections.

Repair Prioritization

Inspection discrepancies have been classified into Level I, Level II and Level III and Level IV conditions based on the severity of each discrepancy as it relates to public safety and electric system reliability. Level I discrepancies are the most critical, requiring immediate attention. Level II, Level III, and Level IV conditions, as determined by the inspector, are addressed as specified by the following descriptions:

Level I Condition

A Level I is a condition of any electrical equipment, device or structure that poses a serious and immediate threat to either the safety of the public or the reliability of the electric transmission or distribution system. Such conditions shall be repaired as soon as possible

but not longer than one week. Critical safety hazards present at the time of the inspection shall be guarded until the hazard is mitigated.

Level II Condition

A Level II is a condition of any electrical equipment, device or structure that, if not corrected could develop into a Level I Condition. Such conditions shall be repaired within a one year period based on the evaluation of the inspector.

Level III Condition

A Level III is a condition of any electrical equipment, device or structure that has deficiencies, but those deficiencies do not pose any risk to public safety or the reliability of the electric transmission or distribution system. These conditions shall be repaired within a three a year period based on the evaluation of the inspector.

Level IV Condition

Level IV is a condition of any electrical equipment, device or structure that has deficiencies, but repairs are not needed at this time. This condition level is used to track atypical deficiencies that do not require repair within a five year period and will be revaluated in the next cycle.

In addition to the equipment inspection and maintenance associated with the PSC Safety Order, NYSEG has implemented the following maintenance programs as system conditions warrant:

Maintenance Program Information

Dynamic O&M/Capital programs are implemented on an ongoing or as needed basis dependent upon reliability and safety requirements.

Underground Manhole and Handhole Inspection Program

Underground switches, transmission cables, distribution cables, secondary cables, cable splices, cable hangers, fuse devices, and transformers are visually inspected for physical condition. Manhole walls, roof and frame & cover are inspected for structural integrity. Equipment is repaired or replaced as appropriate. Manhole detail sheets are updated and duct location parameters are documented.

Program Benefits: A reduction in equipment failure related outages can be achieved through a comprehensive inspection program for underground equipment. Customer reliability is improved. Workers and public safety is improved.

Program Cycle: 5 Years

Overhead Distribution Inspection Program

The objective of this program is to perform proactive and predictive maintenance on NYSEG distribution assets. This program provides a comprehensive evaluation of distribution system structures, conductors and equipment. It focuses maintenance activities on correcting all damage, defects and deficiencies.

Program Benefits: The program enhances distribution circuit integrity and reliability. Enhanced safety is achieved by identifying deficiencies that can lead to equipment failures.

Program Cycle: 5 Years

Transmission/Distribution Switch Inspection and Maintenance Program

Lubricate, adjust, exercise and repair as needed on the transmission, sub-transmission and distribution system disconnect switches and isolation devices.

Program Benefits: Maintaining disconnect switches on the transmission, sub-transmission and distribution system improves system reliability and allows for flexible operation of the electric system as it was originally designed. Properly maintained disconnect devices provide for a safer environment for operating personnel.

Program Cycle: Replaced as needed with Capital

Distribution Switchgear Inspection and Maintenance Program

This program provides a comprehensive inspection of PME and PMH type padmount switchgear. It identifies maintenance actions necessary to correct any damage, defects and deficiencies of this equipment.

Program Benefits: Inspection of distribution switchgear provides a means of identifying potential equipment failures and therefore, improves reliability and customer satisfaction.

Program Cycle: 5 Years

Wood Pole Inspection and Maintenance Program

Inspection of wood transmission poles for decay, insect infestation and damage. Treatment with preservatives as required. Identification of danger poles for immediate replacement/reinforcement and reject poles for future replacement/reinforcement.

Program benefits: Wood pole inspection and maintenance program enhances the safety and reliability of the electric energy delivery system by identifying and eliminating defective wood poles before failure and before causing injury, damage, or unscheduled outages. The supplemental preservative extends the average life of poles approximately 30 years.

Program Cycle: As needed

Overhead Aluminum Base Bell Insulator Replacement Program

This program will replace 4-1/4” aluminum base bell 15kV Class insulators on NYSEG’s high priority overhead distribution circuits. Aluminum base insulators have a high defect rate due to inherent material issues/degradation. Existing insulators will be replaced using a new polymer style insulator.

Program Benefits: The program will replace overhead 4-1/4” aluminum base type insulators using a polymer insulator. Replacement is the only effective solution to eliminate future

failures. The replacement program will also minimize customer outages and will improve system reliability.

Program Cycle: Replaced as needed

Thermographic Inspection Program

A comprehensive scan of transmission circuits, subtransmission circuits, electric substations, customer transformers 500kva and above, high priority distribution circuits is conducted on an as needed basis, to identify heating conditions on energy delivery equipment.

Program Benefits: Thermography is a proactive maintenance tool to identify abnormal heating of energy delivery equipment to avert equipment failures resulting in customer outages.

Program Cycle: As needed.

Corona Detection Program

A comprehensive scan of transmission circuits, subtransmission circuits, electric substations, customer transformers 500kva and above, high priority distribution circuits is conducted on an as needed basis, to identify self-sustained localized ionization of gas surrounding an energized electrode condition on energy delivery equipment.

Program Benefits: Corona detection is a proactive maintenance tool to assure power system reliability by detecting defective components at early stages of degradation. This program easily locates RF interference and audio noise sources.

Program Cycle: As needed

Steel Pole and Tower Inspection and Maintenance Program

Inspect steel transmission poles and towers and perform repairs as needed. Tower foundations will be inspected for structural integrity and repairs will be conducted on a priority basis. Steel components will be examined for degradation and the necessary cleaning and painting will be conducted.

Program Benefits: The maintenance program for steel towers and poles will prevent major transmission outages by maintaining the structural integrity of the transmission system. The goal of this program is to completely eliminate outages attributed to the degradation of steel poles and towers and their associated foundations.

Program Cycle: As needed

Overhead Transmission Aerial Inspection and Maintenance Program

The objective of this program is to perform proactive and predictive maintenance on transmission assets. Helicopter inspection and maintenance capabilities will be used where appropriate to perform procedures.

Program Benefits: This program provides a comprehensive evaluation of transmission system structures, conductors and equipment. It focuses maintenance activities on correcting all damage, defects and deficiencies. Ultimately the program enhances transmission and subtransmission circuit integrity and reliability.

Program Cycle: 5 years for Transmission 115kV and above.

Electric Substation Battery Maintenance Program

The maintenance of substation batteries includes routine inspections, battery resistance testing and battery replacements where required. All substation batteries are inspected periodically. Discharge tests are performed on bulk electric system station batteries as per NERC intervals.

Program benefits: Substation batteries provide the necessary power required for system protection. A lack of proper battery maintenance can result in catastrophic failure. A comprehensive battery maintenance program ensures a reliable source of energy for system protection equipment.

Program Cycle: Annual

Network Maintenance Program

Perform the required maintenance on network transformers/switches and secondary protectors. Internal and external inspections are performed as well as vault inspection, cleaning, and painting.

Program benefits: A comprehensive network maintenance program ensures continuous uninterrupted service to a portion of NYSEG's commercial and industrial customers.

Program Cycle: 5 Years

Distribution Pad Mount Transformer Maintenance Program

All single and 3-phase distribution transformers are inspected on a 5 year cycle to ensure customer safety and maintain system reliability. Distribution transformers for "High Priority" customers are inspected annually along with fluid sampling and analysis.
Program benefits: The increase in customer safety and reliability that this program provides supports the achievement of mandated performance metrics.

Program Cycle: 5 Years

Voltage Regulator Maintenance Program

Replace obsolete and defective station and pole top voltage regulators with new or reconditioned units system wide. Control calibration to be performed approximately every 2 years. Thermovision performed as needed on regulator installations.

Program benefits: Replacing obsolete regulators provides improved voltage regulation and assures appropriate fault duty. This in turn improves reliability and increases personnel safety. Control calibration improves power quality for the customer.

Program Cycle: 2 Years Inspections; replace as needed with Capital

Distribution Line Clearance

The objective of the distribution forestry program is to clear lines and rights-of-ways of vegetation in a cost effective, preventative manner and identify/correct unsafe conditions.

Program benefits: Improve customer service and reliability by reducing tree contact related outages. Circuit restoration labor costs are reduced as a result of this program. Safety related concerns are addressed.

Program Cycle: Varies

Gas and Electric Transmission ROW Management Program

Maintain the integrity of the gas and electric transmission right-of-way utilizing integrated vegetation management techniques. Eliminate tree contacts that occur from vegetation growth on the electric transmission right-of-way (ROW). Maintain the gas transmission ROW to facilitate access for inspections and maintenance.

Program benefits: Minimize preventable outages related to vegetation growth on the electric right-of-way and facilitate access to, and visibility of, the gas ROW for inspection and maintenance.

Program Cycle: Varies

Electric Transmission Aerial Line Patrol

The objective of this program is to fly the transmission and subtransmission system approximately two times per year to detect thermal, structural, and tree related problems. The gas transmission and distribution right-of-way (ROW) is patrolled each fall to identify safety and access concerns.

Program benefits: Reduce outages by identifying conditions that have the potential to interrupt electric energy delivery.
Program Cycle: 2 times per year

Line Recloser/Sectionalizer Maintenance Program

Reclosers are replaced with a new or reconditioned unit as required. Modifications to the original design are performed as required at this time. Recloser and sectionalizer controls are inspected and / or tested annually.

Program benefits: Rotating reconditioned/upgraded reclosers into the system ensures the proper system protection coordination. Reconditioning reclosers improves the dielectric

integrity of the associated insulation system. Relocation of the control box improves safety for the operator. This program increases the reliability of the energy delivery system.

Program Cycle: Replaced as needed on Capital

Substation Transformer Maintenance Program

Perform all aspects of transformer maintenance on substation transformers. This includes LTC internal maintenance and control calibration. LTC controls are upgraded as needed to microprocessor based controls. Transformer maintenance includes a full battery of testing (insulation/winding/accessories). Elimination of PCB contaminated transformer oil is also an objective of this program. Insulating fluid is tested and processed as needed (dehydration/degassing/refining).

Program benefits: A comprehensive transformer maintenance program is vital to maintaining the integrity of the Electric Energy Delivery System.

Program Cycle: Varies by voltage class, equipment type and testing criteria

Electric Substation Circuit Breaker Maintenance Program

Perform the required maintenance on all circuit breakers in Electric Substations. Various levels of maintenance are performed including on line external inspections, off line internal inspections, and oil sampling and testing for dielectric quality.

Program benefits: The maintenance program for circuit breakers ensures the mechanical and electrical integrity of a critical component of the energy delivery system. Circuit breaker functionality is critical to the protection of substation equipment and to the safety of operating personnel.

Program Cycle: Varies by voltage class, equipment type and testing criteria

Electrical System Protection Maintenance Program

Maintain the integrity of the electric energy delivery system protective relaying. Comply with NERC and NPCC testing requirements for transmission relays.

Program benefits: A comprehensive relay maintenance program ensures the proper equipment protection, ensures the integrity of the protection system, reduces the likelihood of mis-operations, and ensures personnel safety.
Program Cycle: Varies by voltage class, equipment type and testing criteria

Stray Voltage Testing Program

Provide a comprehensive approach and schedule to address the Commission's objectives to test publicly accessible electric facilities capable of conducting electricity. These facilities include; streetlights, distribution poles, underground network and transmission.

Program benefits: This program identifies locations in the electric delivery system where potential shock conditions exist. Remediation of these conditions will ensure a safe and reliable network to the public and company personnel.

Program Cycle: Annually test 100% Streetlight/Traffic Signal and Underground network and 20% of Distribution, URD and Transmission assets (coinciding with annual inspection scope).

System Fault Indicators

The Installation and periodic replacement of fault indicators are to support the restoration of customers during outages. New fault indicators are installed in locations that can assist crews in determining the location of faults. Installed indicators are tested or replaced as necessary based upon operability.

Program benefits: The use of fault indicators assists field crews with the restoration of lines during outages. A quicker location of faults significantly improves the overall restoration time of customers.

Program Cycle: As needed

Capacitor Maintenance and Repair Program

Periodic testing is conducted on pole mounted capacitors and switches. Replacement of defective capacitors, oil switches and control transformers is conducted as necessary.

Program benefits: Proper operation of switched capacitors maintains voltages within the mandated bandwidth. This reduces power quality issues and maintains customer satisfaction.

Program Cycle: As needed

Operations and Maintenance (O&M) actuals associated with reliability programs for each of previous five years –

Reliability Program Actuals	2014	2015	2016	2017	2018 *
Oper Superv & Eng	$ 3,887,774	$ 514,936	$ 1,611,359	$ 1,975,783	$ 1,935,689
Load Dispatching	$ -	$ -			
Station Expenses	$ 5,382,825	$ 7,019,322	$ 7,013,279	$ 5,699,018	$ 4,356,613
Overhead Line Expense	$ 581,211	$ 511,747	$ 605,555	$ 188,595	$ 3,460,059
Transmission of Elec	$ 9,650,010	$ 9,412,910	$ 9,432,495	$ 9,680,552	$ 9,698,663
Misc. Transmission Expenses	$ 3,528,405	$ 6,751,671	$ 3,330,646	$ 2,892,658	$ 4,067,190
Oper Superv & Eng	$ 5,789,358	$ 5,240,093	$ 9,029,071	$ 4,173,413	$ 4,228,099
Station Expenses	$ 4,716,363	$ 4,154,010	$ 9,590,710	$ 7,611,420	$ 5,219,247
Overhead Line Expense	$ 6,085,478	$ 15,263,710	$ 11,477,131	$ 14,314,175	$ 15,688,105
Underground Line Expenses	$ 2,346,229	$ 276,435	$ 265,995	$ 547,942	$ 1,268,522
Street Light & Sign	$ 34,761	$ 155,730	$ 113,350	$ 98,401	$ 77,438
Meter Expense	$ 8,579,122	$ 7,873,580	$ 12,990,892	$ 10,061,738	$ 9,508,282
Customer Installation Expenses	$ 494,295	$ 1,172,736	$ 533,262	$ 430,234	$ 277,730
Misc. Distribution Expenses	$ 12,190,700	$ 11,101,605	$ 11,821,128	$ 11,369,651	$ 11,711,794

* The annual audit of the corporate books and records is not yet complete, therefore the 2018 amounts shown on the above table(s) should be considered unaudited

Workforce Number by Job Title for Each of Previous 5 Years –

NYSEG Job Title	2014	2015	2016	2017	2018
Chief Line Mechanic	184	166	167	167	149
Line Mechanic 1/C	188	164	166	154	158
Line Mechanic 2/C	19	25	19	10	4
Line Apprentice	0	10	0	7	9
Chief UC&M Mech - Maint	32	30	31	29	27
UC&M Mechanic 1/C	46	41	38	36	33
UC&M Mechanic 2/C	0	2	12	13	13
UC&M Apprentice	0	11	1	1	8
SP&C Tech A	28	27	14	15	18
SP&C Tech B	6	3	4	7	4
SP&C Tech C	2	0	5	0	5
SP&C Tech Trainee	1	6	0	6	1
Totals	516	506	485	457	429

Contractor Crew Services Used for Each of Previous 5 Years –

NYSEG utilizes contractor crew services in a variety of areas to augment internal work forces. Specific contractor crew detail has not been captured for the past 5 years.

Distribution Vegetation Line Clearance Budgets and Actual Expenditures for Each of Previous 5 Years –

Year	Rate Plan Level	Actual
2014	**$20,000,000**	**$23,765,897**
2015	**$20,000,000**	**$24,322,015**
2016	**$20,000,000**	**$23,175,339**
2017	**$28,330,000**	**$25,361,753**
2018	**$33,615,696**	**$29,510,545**

Division	Distribution Miles Completed, 2018	34.5 kV	15 kV	5 kV
Auburn	162.0	0.0	115.1	46.8
Binghamton	334.4	228.7	57.4	48.3
Brewster	336.4	0.0	285.3	51.1
Elmira	288.8	196.6	69.3	22.8
Geneva	242.6	68.9	124.0	49.8
Hornell	315.2	181.9	128.6	4.7
Ithaca	303.6	218.7	80.1	4.9
Lancaster	275.1	63.2	149.0	62.9
Liberty	325.5	0.0	291.6	33.9
Mechanicville	231.0	145.2	0.0	85.7
Oneonta	353.8	210.0	24.9	118.9
Plattsburgh	325.6	169.0	98.9	57.7
NYSEG	3,494.0	1,482.2	1,424.2	587.6

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Section 4. Power Quality

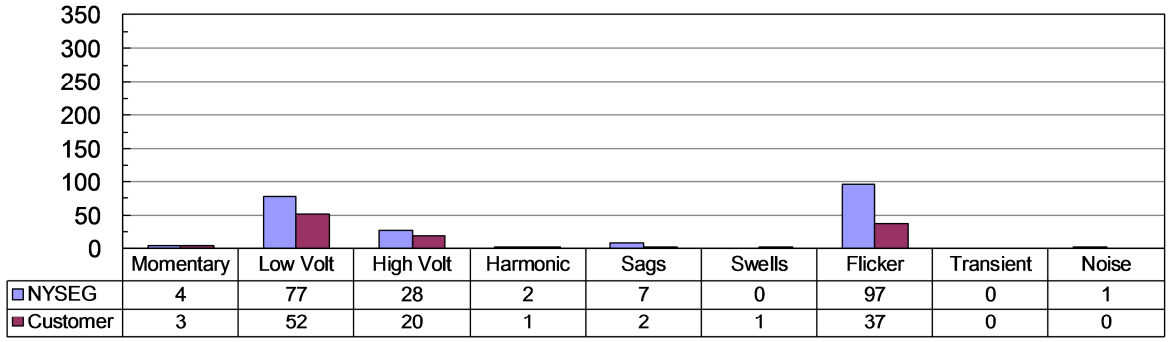
New York State Electric & Gas Corporation (NYSEG) strives to provide to its customers electric service that is very reliable with a high degree of power quality. This section of the reliability report contains a description of NYSEG's power quality program along with a presentation of the power quality data that was obtained through this program in 2018.

NYSEG's power quality program is designed to address customer needs and requests dealing with a variety of power quality issues. NYSEG has a team of specialists that are capable of investigating and resolving power quality requests as needed. These team members are located throughout the state in various NYSEG operating Divisions.

The process that NYSEG utilizes to resolve a PQ request can vary greatly depending on the type of problem that the customer is contacting the company about. For example, flickering lights is a short intermittent event that can be caused by a number of things. A request of this type may be resolved over the phone or during a field check when voltage measurements are taken. Low voltage, high voltage and some of the other PQ issues are more complicated and may require field monitoring of the electric service along with data analysis to determine the cause of the problem and to develop potential system corrections. This type of detailed PQ investigation is especially important to commercial and industrial class customers that may operate very sensitive equipment. NYSEG always works with its customers to first determine the cause (whenever practical) and then find a solution that addresses the customers concerns and needs.

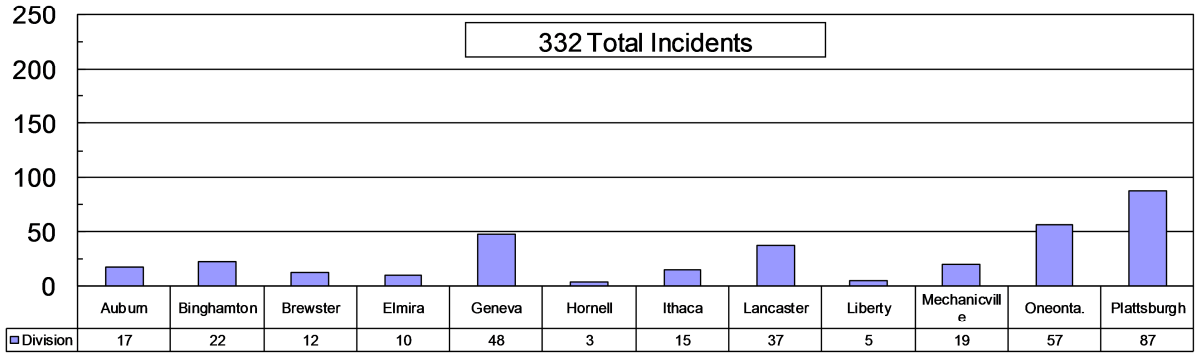
The following pages contain the data that was collected throughout 2018 regarding the PQ calls NYSEG received and the resulting investigations that were conducted.

2018 Reported Power Quality Incidents by Problem Type and Party



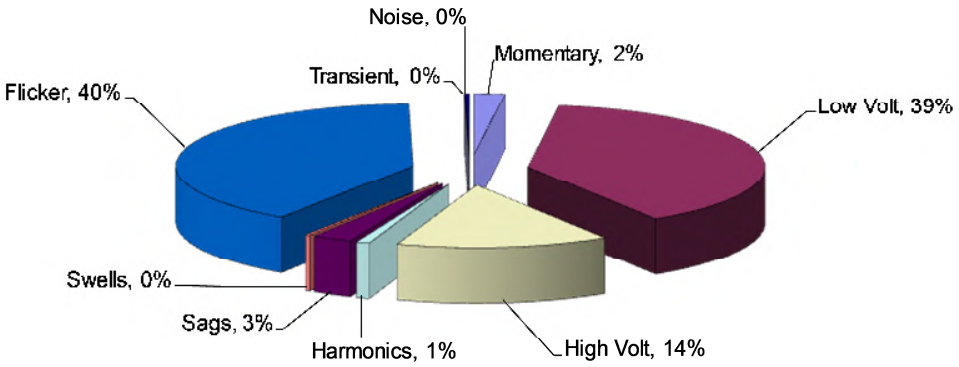
	Momentary	Low Volt	High Volt	Harmonic	Sags	Swells	Flicker	Transient	Noise
NYSEG	4	77	28	2	7	0	97	0	1
Customer	3	52	20	1	2	1	37	0	0

2018 Reported Power Quality Incidents by Division



	Auburn	Binghamton	Brewster	Elmira	Geneva	Hornell	Ithaca	Lancaster	Liberty	Mechanicville	Oneonta	Plattsburgh
Division	17	22	12	10	48	3	15	37	5	19	57	87

2018 Reported Power Quality Incidents by Problem Type



Momentary interruptions by Division by voltage level – 5 year history

(NYSEG does not calculate MAIFI due to the fact that all circuits do not have SCADA capabilities)

	System Recorded Momentary Interruptions* by Division and Circuit Voltage					
	Voltage	**2014**	**2015**	**2016**	**2017**	**2018**
Auburn	**0-5**	4	6	31	1	1
	5-15	0	1	75	15	9
	35	0	0	65	42	22
	Total	4	7	171	58	32
Binghamton	**0-5**	2	5	79	38	20
	5-15	19	24	17	2	2
	35	19	15	403	26	13
	Total	40	44	499	66	35
Brewster	**0-5**	13	22	40	6	5
	5-15	69	139	271	183	90
	35	0	0	0	0	0
	Total	82	161	311	189	95
Elmira	**0-5**	3	5	105	120	65
	5-15	12	34	191	231	116
	35	7	12	247	313	180
	Total	22	51	543	664	361
Geneva	**0-5**	0	1	29	78	40
	5-15	26	18	83	6	3
	35	0	6	234	58	30
	Total	26	25	346	142	73
Hornell	**0-5**	4	19	83	20	12
	5-15	27	21	101	40	25
	35	6	8	216	84	36
	Total	37	48	400	144	73
Ithaca	**0-5**	4	2	7	233	125
	5-15	10	20	20	193	99
	35	1	3	103	236	130
	Total	15	25	130	662	354
Lancaster	**0-5**	15	12	75	8	4
	5-15	6	3	53	6	3
	35	14	16	384	140	75
	Total	35	31	512	154	82
Liberty	**0-5**	24	27	36	49	28
	5-15	6	8	61	51	26
	35	12	9	67	165	85
	Total	42	44	164	265	139
Mechanicville	**0-5**	0	0	4	5	3
	5-15	0	0	1	0	0
	35	12	16	62	318	165
	Total	12	16	67	323	168
Oneonta	**0-5**	0	2	51	45	36
	5-15	2	6	42	173	118
	35	16	9	74	239	128
	Total	18	17	167	457	282
Plattsburgh	**0-5**	3	5	6	340	175
	5-15	28	90	33	129	68
	35	13	22	10	426	225
	Total	44	117	49	895	468
Corporate	**0-5**	101	106	546	943	514
	5-15	417	364	948	1029	559
	35	112	116	1865	2047	1089
	Total	511	586	3359	4019	2162

*This data represents momentary interruption events as recorded by NYSEG's Energy Control System (SCADA System). These events are limited to momentary interruption events to those substations circuit breakers or switches monitored by the Energy Control System on distribution redail circuits.

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Section 5. Circuit Performance

The following pages contain lists of circuits, by operating area, based on SAIFI and CAIDI performance for the calendar year.

NEW YORK STATE ELECTRIC AND GAS CORPORATION
CAIDI/SAIFI Circuit Report - Descending CAIDI Order
January 1, 2018 to December 31, 2018

AUBURN						
Circuit	Circuit Description	Interruptions	Customers Affected	Customer Hours Interrupted	CAIDI	SAIFI
4400701	AURORA 707	3	11	68	6.18	0.03
4401501	OTISCO 701	7	654	4,006	6.12	1.16
4409672	NM-COUNTY LINE RD 072	3	5	28	5.62	0.38
4405001	WHITING RD 526	13	424	2,271	5.36	0.37
4401701	GENOA 603	5	29	139	4.82	0.05
4401503	OTISCO 703	14	1,317	6,274	4.76	1.93
4401301	JORDAN 613	9	50	226	4.48	0.05
4409028	HOWLETT HILL NE TLR 028	2	54	233	4.31	2.00
4400204	STATE ST 711	1	1	4	4.18	0.00
4401602	MARIETTA 511	17	2,374	9,297	3.92	2.44
4401102	PORT BYRON 633	3	1,149	3,583	3.12	1.09
4403201	KING FERRY 528	8	150	446	2.97	0.29
4400102	CAYUGA 632	5	15	42	2.84	0.03
4401101	PORT BYRON 611	12	747	2,104	2.81	1.29
4401801	SCIPIO 605	10	276	770	2.80	0.68
4408501	SAVANNAH 630	2	302	810	2.68	1.08
4401001	WILLET-BELLTOWN TAP 521	1	3	8	2.58	1.00
4400302	WRIGHT AVE 705	2	1,708	4,234	2.48	2.12
4401702	GENOA 604	5	20	50	2.46	0.17
4400203	STATE ST 710	19	1,454	3,472	2.39	1.05
4400305	WRIGHT AVE 703	2	724	1,672	2.31	1.82
4400303	WRIGHT AVE 706	10	1,679	3,825	2.28	2.28
4400702	AURORA 708	24	426	965	2.27	0.59
4401401	MARCELLUS 626	2	22	49	2.24	0.02
4401201	WEEDSPORT 628	3	956	2,068	2.16	1.06
4401202	WEEDSPORT 629	3	640	1,360	2.12	1.06
4409229	NM-GLENHAVEN RD 029	2	78	164	2.10	2.00
4401302	JORDAN 714	2	444	901	2.03	0.44
4401802	SCIPIO 606	3	30	58	1.95	0.08
4400301	WRIGHT AVE 704	6	2,398	4,271	1.78	2.14
4403401	BRUTON RD 521	2	166	292	1.76	2.00
4400503	GRANT AVE 720	11	1,289	2,205	1.71	1.63
4400101	CAYUGA 631	9	809	1,385	1.71	1.53
4401402	MARCELLUS 627	4	177	298	1.68	0.19
4400901	GREEN ST 322	1	40	67	1.68	0.06
4400304	WRIGHT AVE 520	9	426	653	1.53	0.95
4400202	STATE ST 709	12	227	347	1.53	0.10
4402101	STRYKER AVE 702	16	4,665	6,869	1.47	1.73
4400502	GRANT AVE 719	4	1,289	1,889	1.47	1.21
4403301	MORAVIA-AUBURN 704	6	269	393	1.46	2.10
4400401	UNION SPRINGS 609	5	57	75	1.33	0.06
4402901	HAMILTON RD 530	8	1,138	1,479	1.30	1.32
4403801	NORTH LANSING - AUBURN 603	2	6	7	1.23	1.20
4400501	GRANT AVE 718	2	810	988	1.22	1.01
4403101	MILLER BOTTLING PVT	1	1	1	1.22	1.00

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AUBURN						
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4402102	STRYKER AVE 721	10	2,152	2,050	0.95	1.14
4400603	SWIFT AVE 316	1	1,575	583	0.37	1.02
4400602	SWIFT AVE 315	2	934	336	0.36	1.10
4400306	WRIGHT AVE 502	1	8	3	0.33	1.33
4400601	SWIFT AVE 314	1	396	132	0.33	1.00

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BINGHAMTON						
Circuit	Circuit Description	Interruptions	Customers Affected	Customer Hours Interrupted	CAIDI	SAIFI
8104301	OAKDALE 625	1	2	28	13.97	0.01
8109001	NM-BINGHAMTON 001	1	1	9	8.78	0.33
8101102	ENDICOTT HILL 183	6	587	3,053	5.20	0.82
8100606	GLENWOOD 685	1	13	67	5.17	0.04
8105301	LOURDES 665	2	4	20	4.88	1.00
8100901	ENDICOTT CLARK ST 735	2	25	102	4.09	0.04
8103002	CENTER VILLAGE 248	14	512	1,950	3.81	0.51
8101705	CHENANGO BRIDGE 428	27	2,972	10,857	3.65	1.56
8102603	WHITNEY POINT 781	6	171	615	3.60	0.31
8102401	FLEMINGVILLE 173	13	1,098	3,913	3.56	1.55
8103803	WINDSOR 758	31	1,244	4,377	3.52	2.08
4301201	CANDOR 529	16	418	1,463	3.50	0.38
8103301	GREENE 425	30	1,668	5,654	3.39	2.17
8101603	WHITNEY AVE 653	4	37	125	3.38	0.08
8101501	NOWLAN RD 226	1	8	27	3.35	0.01
8109201	CLAVERACK-BING 001	11	62	201	3.24	2.95
8100802	HOOPER RD 702	1	7	23	3.23	0.01
8105701	MARTIN HILL 430	3	4	13	3.22	0.01
8103203	CINCINNATUS 761	26	3,552	11,178	3.15	4.72
8100103	MORRIS ST 659	7	64	199	3.13	0.05
8104901	SANATARIA SPRINGS 211	3	5	15	3.11	0.01
8102704	LANGDON 609	14	556	1,693	3.04	0.81
8104304	OAKDALE 628	5	76	228	2.99	0.14
8103501	SOUTH OTSELIC 427	20	2,571	7,620	2.96	5.46
8101401	VESTAL 623	19	1,212	3,517	2.90	0.71
8108001	INGRAHAM HILL 433	8	166	468	2.81	0.34
8109101	PENN ELEC-BING 001	6	56	155	2.78	4.31
8103702	VINCENT CORNERS 269	12	368	1,023	2.78	0.63
8101701	CHENANGO BRIDGE 741	5	325	904	2.78	0.32
8100101	MORRIS ST 657	3	223	617	2.77	0.11
8102802	LOUNSBERRY 179	22	2,474	6,831	2.76	2.51
8105501	HOADLEY HILL 430	7	364	996	2.74	0.55
8100602	GLENWOOD 681	2	24	66	2.73	0.02
8102801	LOUNSBERRY 178	19	1,972	5,361	2.72	2.05
8107701	WEST CREEK RD 513	5	934	2,530	2.71	2.02
8102502	MAINE 267	8	185	497	2.69	0.48
8104404	WILLET 418	13	538	1,436	2.67	0.83
8103801	WINDSOR 757	16	1,712	4,549	2.66	1.81
8100902	ENDICOTT CLARK ST 734	2	345	908	2.63	0.48
8101801	CONKLIN 229	10	472	1,222	2.59	0.45
8100407	NOYES ISLAND 121	1	24	62	2.58	0.02
4302501	HALSEY VALLEY 530	18	950	2,410	2.54	1.95
8100201	BURR AVE 708	2	25	62	2.47	0.03
8101002	ENDICOTT RAILWAY 188	2	94	227	2.42	0.10
8104102	CASTLE GARDEN 622	30	3,011	7,256	2.41	1.21

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BINGHAMTON						
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8103302	GREENE 607	19	380	887	2.33	0.80
8101803	CONKLIN 263	10	497	1,138	2.29	0.80
8101502	NOWLAN RD 227	5	263	588	2.23	0.74
8104303	OAKDALE 627	15	680	1,490	2.19	0.67
8102703	LANGDON 608	5	296	641	2.16	1.15
8100418	NOYES ISLAND 278	4	5	10	2.14	0.01
8105901	CHERRY HILL 417	7	22	47	2.11	0.10
8100203	BURR AVE 710	2	17	36	2.11	0.04
8102201	WHIG ST 783	7	1,098	2,283	2.08	1.07
8108201	ROUTE 38 513	1	198	409	2.07	1.02
8102101	OWEGO 144	1	830	1,716	2.07	1.01
8104902	SANATARIA SPRINGS 212	9	386	792	2.05	0.65
8105601	OUAQUAGA WEST 430	5	325	660	2.03	1.47
8109806	NORTH ENDICOTT 361	11	2,015	4,075	2.02	1.02
8105001	FULLER HOLLOW 615	8	778	1,572	2.02	0.57
8107402	SOUTH OWEGO 540	23	1,681	3,346	1.99	2.34
8102701	LANGDON 610	7	499	987	1.98	0.35
8102604	WHITNEY POINT 782	10	431	830	1.93	1.07
8101602	WHITNEY AVE 652	2	7	13	1.93	0.44
8101703	CHENANGO BRIDGE 743	1	3	6	1.93	0.04
8107901	LISLE 417	22	1,726	3,286	1.90	3.51
8102001	BODLE HILL 645	3	89	168	1.89	0.27
8100206	BURR AVE 612	5	136	258	1.88	0.14
8104302	OAKDALE 626	5	99	184	1.85	0.05
8102501	MAINE 266	3	334	608	1.82	0.59
8107601	OUAQUAGA EAST 430	6	128	232	1.82	0.54
8104201	MORNINGSIDE HEIGHTS	3	10	18	1.80	0.02
8100703	JARVIS ST 689	4	77	136	1.76	0.04
8105201	KINGSMAN RD 422	1	242	417	1.72	2.20
8103901	BERKSHIRE 746	14	1,042	1,771	1.70	1.29
8104402	WILLET 421	12	1,929	3,261	1.69	4.67
8105003	FULLER HOLLOW 617	10	268	453	1.69	0.17
8102002	BODLE HILL 646	5	41	68	1.67	0.04
8101901	APALACHIN 176	17	2,024	3,327	1.64	2.48
8104202	MORNINGSIDE HEIGHTS	4	636	1,044	1.64	1.07
8102503	MAINE 268	3	194	315	1.63	0.84
8101702	CHENANGO BRIDGE 742	3	33	54	1.63	0.03
8102903	AFTON 460	29	2,271	3,662	1.61	3.21
8100903	ENDICOTT CLARK ST 629	17	1,641	2,629	1.60	0.60
8109601	CANAL ST TAP 513	22	3,058	4,853	1.59	1.61
8102901	AFTON 429	27	2,205	3,507	1.59	1.60
8106501	RICHFORD 524	2	208	323	1.55	1.01
8103101	CHENANGO FORKS 206	13	968	1,478	1.53	3.92
8100406	NOYES ISLAND 118	2	65	99	1.52	1.91
8101902	APALACHIN TAP 512	9	1,480	2,244	1.52	1.47

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4304201	HARFORD 524	1	151	229	1.52	0.98
8101403	VESTAL 624	2	29	44	1.51	0.06
8102301	GENEGANTSLET	32	5,829	8,606	1.48	3.91
8100405	NOYES ISLAND 111	4	261	383	1.47	0.21
8104602	KATTLEVILLE 426	28	4,094	5,853	1.43	4.77
8104401	WILLET 423	35	2,908	4,070	1.40	2.58
8101202	RANO 694	5	285	389	1.37	0.24
8104001	GLEN AUBREY 417	1	40	55	1.37	0.21
8101201	RANO 693	2	46	61	1.33	0.22
8100704	JARVIS ST 690	1	1	1	1.32	0.00
8104601	KATTLEVILLE 422	23	4,852	6,378	1.31	1.71
8100801	HOOPER RD 701	4	315	414	1.31	0.31
8101606	WHITNEY AVE 656	1	30	38	1.25	0.02
8100417	NOYES ISLAND 277	7	559	681	1.22	2.97
8100304	HARPUR 671	2	69	84	1.22	0.06
8100607	GLENWOOD 686	3	101	122	1.20	0.05
8108301	BEVIER ST 664	6	686	804	1.17	1.25
8103602	TARBELL 602	10	1,259	1,452	1.15	2.16
8100803	HOOPER RD 703	4	78	88	1.14	0.11
8102702	LANGDON 427	11	1,303	1,478	1.13	1.25
8100408	NOYES ISLAND 107	1	64	73	1.13	0.07
8100301	HARPUR 668	2	49	55	1.12	0.18
8100706	JARVIS ST 692	2	48	54	1.12	0.03
8105801	BODLE HILL TAP 515	10	1,103	1,144	1.04	1.27
8100303	HARPUR 670	1	1	1	1.03	0.00
8103401	MARATHON 434	5	84	85	1.01	0.14
8101503	NOWLAN RD 228	1	8	7	0.92	0.01
8100204	BURR AVE 711	3	75	68	0.91	0.09
8101101	ENDICOTT HILL 181	3	42	39	0.90	0.03
8102602	WHITNEY POINT 780	1	19	17	0.88	0.04
8105002	FULLER HOLLOW 616	4	55	46	0.84	0.10
4304001	HARFORD MILLS 749	1	297	223	0.75	1.00
8101302	WEST UNION 661	8	2,373	1,749	0.74	2.11
4301202	CANDOR 722	2	5	4	0.67	0.01
8101601	WHITNEY AVE 651	1	1	1	0.55	0.00
8100502	GOUDEY 722	2	1,737	917	0.53	0.95
8104101	CASTLE GARDEN 621	12	945	495	0.53	0.80
8100501	GOUDEY 721	2	102	52	0.51	0.41
8100701	JARVIS ST 687	1	57	28	0.50	0.05
8100102	MORRIS ST 658	1	33	10	0.32	0.04
8101301	WEST UNION 660	4	1,141	319	0.28	0.80

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BREWSTER						
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1106276	KENT 176	4	43	321	7.47	0.05
1106858	POUND RIDGE 458	28	1,410	9,848	6.99	2.48
1108701	CHU-TOWER HILL RD	5	85	438	5.15	3.70
1109001	CHU-CHAPMAN RD	1	1	5	5.10	0.14
1105111	ADAMS CORNERS 411	40	6,094	29,119	4.78	3.13
1105427	BEDFORD HILLS 227	4	80	381	4.75	0.12
1105582	CANTITOE 282	14	213	833	3.91	0.37
1105002	CROTON FALLS 514	1	9	35	3.90	0.01
1109101	CHU-LONG MTN RD	2	7	27	3.79	1.17
1105868	CROSS RIVER 468	12	545	2,049	3.76	0.71
1105598	CANTITOE 498	7	86	314	3.65	0.61
1105583	CANTITOE 283	37	1,058	3,654	3.45	2.34
1108601	CHU-PLEASANT RIDGE	2	3	10	3.40	1.00
1105597	CANTITOE 497	40	3,877	12,729	3.28	3.15
1105251	AMAWALK 451	33	2,946	9,610	3.26	2.76
1105870	CROSS RIVER 470	41	3,580	11,563	3.23	3.54
1105249	AMAWALK 449	9	1,514	4,892	3.23	1.19
1106343	MOHANSIC 405	6	728	2,304	3.16	0.70
1108401	CHU-TURKEY RUN CHU	1	3	9	3.13	1.00
1106855	POUND RIDGE 455	54	8,866	27,628	3.12	5.56
1106104	GOLDEN BRIDGE 414	28	1,772	5,443	3.07	1.49
1106856	POUND RIDGE 456	32	2,055	6,169	3.00	2.12
1105115	ADAMS CORNERS 412	38	4,632	13,503	2.92	3.32
1105462	BEDFORD HILLS 462	18	346	992	2.87	0.34
1106857	POUND RIDGE 457	33	991	2,826	2.85	1.67
1105425	BEDFORD HILLS 225	14	982	2,800	2.85	0.91
1106342	MOHANSIC 404	5	79	217	2.75	0.12
1106749	PEACH LAKE 249	7	191	503	2.63	0.23
1107237	TILLY FOSTER 437	12	256	625	2.44	0.26
1105113	ADAMS CORNERS 413	18	678	1,628	2.40	0.98
1107844	TEN MILE RIVER 444	30	5,164	12,333	2.39	2.97
1107189	TEAKETTLE SPOUT 489	23	1,275	3,043	2.39	1.17
1105095	CROTON FALLS 516	21	3,081	7,269	2.36	2.35
1105724	CRAFTS 424	38	6,407	14,822	2.31	5.12
1106340	MOHANSIC 403	11	491	1,130	2.30	0.80
1106667	PAWLING 509	25	1,366	3,080	2.26	0.76
1105253	AMAWALK 453	26	2,641	5,947	2.25	2.44
1107731	UNION VALLEY 431	11	1,648	3,653	2.22	1.10
1107080	SYLVAN LAKE 480	19	260	576	2.22	0.26
1107434	HAVILAND HOLLOW	20	3,357	7,280	2.17	3.90
1107081	SYLVAN LAKE 481	38	4,600	9,971	2.17	2.89
1105977	DINGLE RIDGE 277	10	564	1,186	2.10	1.62
1109703	CARMEL 503	22	184	381	2.08	0.19
1106108	GOLDEN BRIDGE 418	23	2,161	4,444	2.06	2.10
1107190	TEAKETTLE SPOUT 490	1	237	486	2.05	0.28

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BREWSTER						
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1106277	KENT 526	10	1,432	2,865	2.00	1.38
1105978	DINGLE RIDGE 278	4	209	407	1.95	0.57
1105254	AMAWALK 454	9	2,805	5,439	1.94	3.50
1108501	CHU-SEPARATE RD	1	6	11	1.88	0.75
1105679	KENT CLIFFS 292	18	1,030	1,902	1.85	1.97
1105691	KENT CLIFFS 291	9	1,148	2,087	1.82	1.54
1106107	GOLDEN BRIDGE 417	17	966	1,740	1.80	2.02
1105004	CROTON FALLS 515	15	1,814	3,268	1.80	1.24
1107843	TEN MILE RIVER 443	22	2,786	4,972	1.78	3.73
1107239	TILLY FOSTER 439	12	1,625	2,839	1.75	1.76
1107078	SYLVAN LAKE 478	28	3,467	5,998	1.73	1.45
1106574	WEST PATTERSON 474	37	3,304	5,677	1.72	3.52
1107433	HAVILAND HOLLOW	15	1,472	2,349	1.60	1.99
1106120	GOLDEN BRIDGE 420	5	2,146	3,404	1.59	1.92
1106985	PUTNAM LAKE 485	9	1,948	3,074	1.58	1.88
1106750	PEACH LAKE 250	5	97	154	1.58	0.18
1106986	PUTNAM LAKE 486	48	10,631	16,328	1.54	6.56
1106666	PAWLING 166	5	55	84	1.53	0.08
1107732	UNION VALLEY 432	21	2,204	3,359	1.52	1.05
1107733	UNION VALLEY 433	43	4,160	6,121	1.47	1.80
1105352	AMENIA 153	10	1,422	2,082	1.46	2.67
1106121	GOLDEN BRIDGE 421	19	1,609	2,305	1.43	1.43
1106575	WEST PATTERSON 475	42	6,293	8,640	1.37	4.18
1106346	MOHANSIC 406	10	884	1,180	1.34	1.39
1106668	PAWLING 508	21	2,565	3,196	1.25	2.07
1107242	TILLY FOSTER 442	5	549	657	1.19	0.47
1107238	TILLY FOSTER 438	15	3,813	4,443	1.17	2.10
1105722	CRAFTS 422	21	2,161	2,520	1.17	1.46
1105463	BEDFORD HILLS 463	11	2,879	3,316	1.15	2.27
1105723	CRAFTS 423	35	5,509	6,074	1.10	2.18
1109706	CARMEL 502	18	2,456	2,578	1.05	1.63
1106984	PUTNAM LAKE 484	14	1,497	1,461	0.98	1.36
1105869	CROSS RIVER 469	18	2,491	2,105	0.85	3.25
1107505	HARLEM VALLEY 105	2	12	10	0.79	2.00
1107191	TEAKETTLE SPOUT 491	14	1,416	1,111	0.78	1.31
1107241	TILLY FOSTER 441	13	3,171	2,239	0.71	2.22
1106094	DOVER PLAINS 494	25	4,717	3,091	0.66	2.29
1109701	CARMEL 501	18	2,711	1,754	0.65	1.23
1106275	KENT 175	11	2,204	1,287	0.58	1.86
1105354	AMENIA 154	18	1,372	683	0.50	1.20

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ELMIRA						
Circuit	Circuit Description	Interruptions	Customers Affected	Customer Hours Interrupted	CAIDI	SAIFI
5200415	HILLCREST RD 315	7	237	1,976	8.34	0.89
5202031	MONTOUR FALLS 231	1	253	1,737	6.87	0.99
5200104	WEST ELMIRA 104	2	107	719	6.72	0.26
5208161	YAWGER RD 361	5	176	1,119	6.36	3.32
5201143	TUTTLE PLACE 143	3	97	508	5.23	0.11
5201203	BROAD ST 303	2	2	10	5.22	0.01
5201601	RIDGE RD 501	38	3,799	19,254	5.07	2.53
5200926	HAMPTON RD 326	3	23	113	4.89	0.02
5207301	PENN ELEC-ELMIRA PE1	2	2	10	4.76	1.00
5204636	KANONA 336	4	6	26	4.38	0.05
5200383	FIRST ST 283	2	44	190	4.32	2.00
5201419	CHEMUNG 319	23	450	1,868	4.15	1.26
5204003	KEUKA-ELMIRA 203	4	30	122	4.04	0.03
5204447	SOUTH ADDISON 347	28	2,130	8,179	3.84	4.43
5203721	FULTON ST 221	6	555	2,070	3.73	0.44
5204637	KANONA 337	2	241	880	3.65	0.94
5202033	MONTOUR FALLS 233	19	796	2,867	3.60	0.71
5200370	FIRST ST 370	4	252	815	3.23	2.38
5202201	COASTAL LUMBER CO PVT	1	2	6	3.17	0.00
5203462	CANADA RD 562	16	1,085	3,425	3.16	0.67
5204446	SOUTH ADDISON 346	32	6,684	20,584	3.08	5.08
5204141	PRATTSBURG 241	5	702	2,156	3.07	1.18
5205435	DINEHARTS 535	6	197	602	3.06	1.12
5201712	GOSS RD 212	3	58	176	3.04	0.13
5201022	BULKHEAD 322	21	688	2,044	2.97	0.77
5205591	NEW CORNING 391	4	251	722	2.88	0.29
5206335	NORTH URBANA 535	21	2,232	6,384	2.86	1.54
5202012	MONTOUR FALLS 512	29	6,403	18,013	2.81	4.94
5200286	MADISON AVE 386	12	967	2,723	2.81	2.29
5206530	PHILO RD 330	8	1,441	4,040	2.80	2.06
5201200	BROAD ST 300	6	3,123	8,629	2.76	3.01
5202139	CAYUTA 239	12	519	1,434	2.76	1.46
5203139	BATH 339	19	759	2,089	2.75	0.82
5204140	PRATTSBURG 240	5	495	1,355	2.74	1.09
5203908	KANE ST 208	13	258	706	2.74	0.27
5200617	14TH ST 117	2	26	68	2.61	0.02
5206631	BATH TAP 531	4	57	148	2.59	0.38
5200618	14TH ST 118	8	258	665	2.58	0.41
5200105	WEST ELMIRA 105	1	10	26	2.58	0.01
5200111	WEST ELMIRA 111	9	1,220	3,127	2.56	0.97
5201028	BULKHEAD 128	3	198	503	2.54	0.24
5203352	CAMPBELL 352	15	761	1,822	2.40	1.35
5202528	WOODHULL - ELMIRA 228	6	109	259	2.39	1.42
5204241	PRESHO 341	63	2,604	6,162	2.37	3.27
5200371	FIRST ST 371	4	876	2,061	2.35	2.08

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ELMIRA						
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5201021	BULKHEAD 321	46	1,220	2,859	2.34	0.70
5204545	WHISKEY CREEK 345	37	2,707	6,157	2.28	3.35
5201607	RIDGE RD 307	25	432	978	2.26	0.66
5203722	FULTON ST 222	3	1,646	3,698	2.25	1.58
5203723	FULTON ST 223	6	249	559	2.25	0.48
5200927	HAMPTON RD 327	3	217	486	2.24	1.08
5200619	14TH ST 119	4	32	71	2.23	0.03
5200285	MADISON AVE 385	4	1,070	2,362	2.21	1.01
5208162	YAWGER RD 362	42	4,429	9,640	2.18	2.23
5204398	PULTENEY TAP 598	7	1,335	2,905	2.18	2.08
5203351	CAMPBELL 351	12	152	328	2.16	0.27
5206898	PRATTSBURG TAP 598	11	500	1,059	2.12	2.73
5202011	MONTOUR FALLS 511	30	4,965	10,445	2.10	3.88
5203834	HAMMONDSPORT 334	9	1,138	2,371	2.08	1.45
5200812	RIVERSIDE 312	4	40	84	2.08	0.28
5204544	WHISKEY CREEK 344	35	1,679	3,446	2.05	2.04
5200364	FIRST ST 264	4	243	493	2.03	2.76
5208163	YAWGER RD 363	29	639	1,264	1.98	0.42
5206901	MONTOUR ODESSA TAP 501	29	2,300	4,534	1.97	2.55
4302701	VAN ETTEN 570	24	1,429	2,650	1.85	1.83
5203662	FALLBROOK 362	5	70	122	1.74	0.21
5204242	PRESHO 342	1	145	249	1.72	1.06
5204782	HICKLING 382	19	940	1,620	1.72	0.99
5200290	MADISON AVE 090	2	421	705	1.67	1.01
5203833	HAMMONDSPORT 333	15	610	1,003	1.65	1.12
5200811	RIVERSIDE 311	2	25	41	1.63	0.03
5200583	WOODLAWN AVE 183	8	1,234	2,002	1.62	1.14
5200102	WEST ELMIRA 102	1	12	19	1.60	0.06
5203659	FALLBROOK 359	3	77	120	1.57	2.41
5201606	RIDGE RD 306	9	263	411	1.57	0.26
5201418	CHEMUNG 318	38	1,776	2,744	1.55	1.86
5200266	MADISON AVE 066	4	134	204	1.53	1.18
5201605	RIDGE RD 305	29	2,098	3,052	1.45	1.42
5203907	KANE ST 207	12	1,103	1,605	1.45	1.11
5200814	RIVERSIDE 314	5	787	1,088	1.38	1.39
5200549	WOODLAWN AVE 349	1	1	1	1.35	0.00
5201798	GOSS RD 398	1	1	1	1.28	0.03
5200416	HILLCREST RD 316	17	823	1,031	1.25	0.36
5302163	TROUPSBURG 563	1	403	497	1.23	1.00
5302528	WOODHULL 228	1	549	677	1.23	0.95
5203843	HAMMONDSPORT 243	23	454	547	1.20	0.54
5200925	HAMPTON RD 325	22	986	1,123	1.14	1.72
5204002	KEUKA-ELMIRA 202	6	388	441	1.14	1.08
5201711	GOSS RD 211	6	491	525	1.07	1.70
5203464	CANADA RD 564	16	2,992	2,976	0.99	1.51

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ELMIRA						
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5203658	FALLBROOK 358	2	8	8	0.95	2.00
5200989	HAMPTON RD 089	1	1	1	0.88	0.00
5206529	PHILO RD 329	1	1,072	928	0.87	1.13
5203660	FALLBROOK 360	3	2,051	1,792	0.87	1.04
5201079	BULKHEAD 079	2	49	42	0.87	0.12
5205590	NEW CORNING 390	1	1	1	0.72	0.00
5206528	PHILO RD 328	2	264	170	0.64	1.96
5201023	BULKHEAD 323	10	1,666	714	0.43	1.09
5201201	BROAD ST 301	4	740	91	0.12	1.01

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GENEVA						
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4200902	OAK CORNERS 202	5	187	1,022	5.46	0.80
4202901	MILO 201	8	819	3,585	4.38	1.10
4201802	MAC DOUGALL 702	16	708	3,054	4.31	0.73
4203501	SENECA ORDNANCE PVT	1	6	23	3.85	0.05
4200603	CLYDE 203	9	79	302	3.82	0.12
4202601	DRESDEN 201	3	19	70	3.70	0.03
4208001	OVID-GENEVA 001	4	96	344	3.59	3.20
4207946	SLEIGHT RD 546	24	632	2,156	3.41	0.39
4202501	BELLONA 201	7	37	123	3.36	0.09
4200102	MACEDON 602	9	316	1,058	3.35	0.21
4204001	KEUKA 201	5	14	48	3.32	0.02
4200103	MACEDON 603	11	653	2,154	3.30	0.63
4200202	PALMYRA 202	3	5	17	3.21	0.00
4203989	VOAK RD 589	3	141	436	3.09	0.53
4202401	MIDDLESEX 201	13	920	2,782	3.03	0.84
4201501	WATERLOO 201	10	161	481	2.99	0.10
4203401	GARLOCKS PVT	1	1	3	2.93	0.00
4203550	SENECA ORDNANCE 650	3	30	86	2.86	2.00
4203096	GREENIDGE 596	43	1,084	3,091	2.85	0.54
4204789	RUSHVILLE TAP 589	9	702	1,907	2.72	1.46
4205501	DC-GWLISK	1	2	5	2.64	0.00
4204389	BLODGETT RD 589	10	1,939	4,983	2.57	1.51
4204686	HALEY RD 586	9	105	268	2.57	0.17
4202201	HALL 201	2	2	5	2.55	0.01
4201801	MAC DOUGALL 601	19	462	1,158	2.51	0.65
4200403	VAN BUREN ST 603	13	451	1,131	2.51	0.21
4203899	FLAT ST 599	9	802	1,986	2.48	2.40
4200406	VAN BUREN ST 606	14	1,244	3,051	2.45	0.64
4200801	PHELPS 201	8	253	621	2.45	0.25
4208401	RGE-SAVANNAH 001	6	180	428	2.38	3.67
4201703	SENECA FALLS 603	20	625	1,458	2.33	0.34
4200602	CLYDE 202	4	156	361	2.31	0.16
4203507	SENECA ORDNANCE 207	3	4	8	2.22	0.01
4201002	WEST GENEVA 602	23	1,307	2,892	2.21	1.89
4203105	DUNDEE 205	11	193	424	2.19	0.16
4200201	PALMYRA 201	1	3	6	2.10	0.00
4203301	BANKERT RD 601	8	915	1,913	2.09	1.56
4201001	WEST GENEVA 601	11	873	1,725	1.98	0.82
4207947	SLEIGHT RD 547	8	247	483	1.96	0.44
4203303	BANKERT RD 600	19	1,898	3,650	1.92	1.51
4201701	SENECA FALLS 601	11	1,428	2,741	1.92	1.24
4202101	GORHAM 201	4	469	893	1.90	1.27
4200501	LYONS 601	1	2	4	1.80	0.01
4200502	LYONS 602	3	27	47	1.74	0.13
4203897	FLAT ST 597	47	2,282	3,895	1.71	0.80

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GENEVA						
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4202302	RUSHVILLE 202	6	227	381	1.68	0.29
4202102	GORHAM 202	4	35	54	1.55	0.10
4208601	RGE-LYONS 001	1	1	2	1.50	0.00
4200503	LYONS 603	12	140	205	1.47	0.09
4201101	LEHIGH ST 601	19	519	750	1.44	1.00
4200404	VAN BUREN ST 604	15	2,447	3,404	1.39	1.20
4201003	WEST GENEVA 603	5	143	199	1.39	0.07
4201702	SENECA FALLS 602	16	3,826	4,904	1.28	2.62
4201103	LEHIGH ST 603	15	810	1,034	1.28	0.53
4201502	WATERLOO 202	1	31	39	1.25	0.04
4203302	BANKERT RD 602	1	1,125	1,323	1.18	2.01
4201004	WEST GENEVA 604	13	523	571	1.09	0.28
4201102	LEHIGH ST 602	2	54	48	0.89	0.04
4207769	HYATT RD 569	20	2,192	1,895	0.86	1.34
4202701	ST JOHNS 201	4	629	535	0.85	2.15
4200101	MACEDON 601	14	3,515	2,726	0.78	2.34
4201503	WATERLOO 203	15	857	470	0.55	1.17
4200405	VAN BUREN ST 605	9	1,128	520	0.46	1.30
4201602	GOULDS 202	1	56	12	0.22	0.16
4200901	OAK CORNERS 201	1	299	35	0.12	0.97

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HORNELL						
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5301867	SILVER SPRINGS 267	1	1	5	5.10	1.00
5303894	ROBESON 594	4	131	607	4.64	1.90
5300280	WEBB CROSSING 280	2	28	121	4.32	0.24
5303639	JASPER 539	10	1,188	4,831	4.07	3.18
5307801	NM-ROUTE 21 NIM	3	4	15	3.90	0.00
5301570	PALMITER RD 370	16	959	3,725	3.88	1.27
5300816	CANISTEO 216	1	1	4	3.82	0.00
5308501	RGE-DALTON RD RGE	2	25	95	3.80	1.67
5300817	CANISTEO 217	6	437	1,600	3.66	1.00
5301571	PALMITER RD 371	1	383	1,372	3.58	0.97
5301573	PALMITER RD 373	13	1,012	3,588	3.55	1.11
5301615	PERRY CENTER 215	3	18	62	3.42	0.08
5300170	HILL ST 270	1	11	36	3.25	0.01
5301614	PERRY CENTER 214	9	220	713	3.24	0.55
5307501	NM-LA GRANGE RD NIM	1	3	10	3.18	0.50
5301466	NAPLES 566	21	1,026	3,144	3.06	1.09
5301110	HOWARD 310	5	139	415	3.00	0.90
5301955	SPRING WATER 255	23	515	1,543	3.00	0.50
5302381	WARSAW 381	1	438	1,300	2.97	0.34
5301111	HOWARD 311	10	637	1,854	2.91	1.71
5302431	WAYLAND 231	13	1,187	3,407	2.87	1.14
5308201	RGE-HOCHANDLE RD	6	9	26	2.86	2.25
5302380	WARSAW 380	13	79	219	2.75	0.05
5301572	PALMITER RD 372	28	1,453	3,916	2.69	2.14
5300173	HILL ST 273	1	30	79	2.62	0.05
5300320	ARKPORT 220	6	333	852	2.56	0.32
5300641	BENNETT 541	20	2,387	5,803	2.43	1.83
5302430	WAYLAND 230	3	448	1,083	2.42	0.56
5302240	WALLACE 340	44	1,810	4,300	2.38	1.64
5300458	ATLANTA 258	12	107	252	2.35	0.22
5300468	ATLANTA 568	29	2,067	4,713	2.28	2.39
5301266	LEICESTER 266	5	479	1,092	2.28	2.03
5300719	CANASERAGA 219	9	1,071	2,423	2.26	2.33
5304351	COFFEE HILL RD	23	1,683	3,807	2.26	2.28
5301350	MEYER 350	45	1,745	3,773	2.16	1.00
5301752	PORTAGEVILLE 252	4	254	540	2.13	1.10
5302068	STANTON AVE 368	5	71	149	2.10	0.11
5300601	BENNETT 301	4	68	142	2.10	0.06
5301430	NAPLES 330	6	84	173	2.06	0.20
5302067	STANTON AVE 367	14	1,553	3,178	2.05	0.87
5307043	MORAINE RD 543	18	1,986	4,051	2.04	2.56
5303794	GAINESVILLE 594	7	635	1,275	2.01	1.52
5301861	SILVER SPRINGS 261	10	642	1,202	1.87	0.73
5301352	MEYER 352	9	337	612	1.82	0.31
5300946	COHOCTON 246	1	541	978	1.81	1.03

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5301220	LEICESTER 320	8	2,405	4,181	1.74	3.02
5307601	NM-VERNAL RD NIM	2	52	90	1.73	1.93
5300281	WEBB CROSSING 281	2	181	314	1.73	0.28
5302163	TROUPSBURG 563	7	786	1,337	1.70	1.96
5308101	RGE-TOWNLINE RD RGE	1	14	23	1.62	1.00
5302528	WOODHULL 228	10	783	1,195	1.53	1.36
5301351	MEYER 351	18	753	1,108	1.47	1.13
5301343	MEYER 243	2	22	32	1.47	0.03
5301431	NAPLES 331	11	1,285	1,618	1.26	2.37
5307080	MORAINE RD 580	8	264	314	1.19	0.38
5300600	BENNETT 300	1	7	7	1.00	0.01

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ITHACA						
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4306201	CRUM TOWN 530	1	2	21	10.73	0.01
4308801	NM-BABCOCK	1	1	9	9.23	0.00
4306301	POZZO 522	3	4	32	7.98	4.00
4300802	PERUVILLE 733	5	24	146	6.08	0.04
4302801	CORNELL LAKE	1	1	6	5.90	0.00
4304001	HARFORD MILLS 749	5	255	1,220	4.79	0.86
4301001	DRYDEN 734	15	236	1,058	4.48	0.27
4305801	ETNA TAP 523	1	3	13	4.48	0.01
4300701	LOCKE 718	12	135	570	4.21	0.19
4301301	SPENCER 712	8	108	447	4.15	0.09
4302001	VALOIS 508	17	1,622	6,045	3.73	2.03
4302102	BURDETT 702	11	147	541	3.69	0.21
4305301	COUNTY HOSP -	28	625	2,268	3.63	0.27
4302206	SOUTH HILL 608	5	373	1,242	3.33	0.58
4309001	NM-GLEN HAVEN RD	1	1	3	3.28	0.02
4302002	VALOIS 719	11	773	2,431	3.15	1.04
4301002	DRYDEN 735	2	33	98	2.97	0.05
4301201	CANDOR 529	1	1,100	3,192	2.90	1.00
4304901	WILSEYVILLE 751	6	67	192	2.87	0.14
4302203	SOUTH HILL 613	4	107	291	2.72	0.06
4303001	DANBY RD 571	20	422	1,116	2.64	0.32
4302601	WALPOLE RD 741	3	121	315	2.61	0.53
4301601	COUNTY HOSPITAL 736	8	220	553	2.51	0.27
4300402	CAYUGA ROCK SALT	1	24	60	2.49	2.00
4300603	MORAVIA 606	28	721	1,760	2.45	0.70
4300902	ETNA 709	15	267	650	2.44	0.18
4303601	SOUTH LANSING TAP	6	1,108	2,664	2.40	1.04
4301901	OVID 715	21	2,208	5,259	2.38	1.55
4303701	PERUVILLE TAP 522	29	859	2,029	2.36	0.63
4303401	BURDETT MECK 508	35	1,520	3,487	2.29	1.20
4300205	EAST ITHACA 404	14	764	1,645	2.15	0.28
4302901	BENJAMIN HILL 748	19	1,253	2,654	2.12	0.81
4300601	MORAVIA 704	10	381	809	2.12	0.53
4300602	MORAVIA 746	7	408	837	2.05	0.88
4305101	CASS HILL-ITHACA 743	1	11	22	2.00	0.06
4306601	BEER TAP 534	2	2	4	1.98	0.01
4300202	EAST ITHACA 405	19	1,498	2,889	1.93	1.08
4301403	WEST DANBY 530	21	2,422	4,598	1.90	1.60
4305901	ROUTE 79 746	6	440	827	1.88	3.93
4302303	FOURTH ST 783	3	74	136	1.83	0.22
4300101	CAYUGA HEIGHTS 604	15	1,941	3,511	1.81	1.30
4303101	NORTH LANSING 522	13	2,502	4,391	1.76	2.62
4300203	EAST ITHACA 401	4	843	1,420	1.68	1.58
4301501	WEST HILL 609	9	610	936	1.53	1.06
4301101	BROOKTONDALE 531	14	389	591	1.52	0.21

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4306001	BLACKMAN HILL 746	1	31	44	1.43	1.00
4301702	TRUMANSBURG 747	17	2,402	3,295	1.37	1.42
4301801	INTERLAKEN 705	16	1,782	2,348	1.32	1.22
4300105	CAYUGA HEIGHTS 605	4	941	1,246	1.32	1.13
4302301	FOURTH ST 781	3	694	915	1.32	1.05
4302204	SOUTH HILL 607	5	375	494	1.32	0.27
4303801	DRYDEN TAP 524	13	478	625	1.31	0.26
4300302	SOUTH LANSING 720	8	883	1,042	1.18	1.25
4300103	CAYUGA HEIGHTS 602	1	595	704	1.18	1.06
4300102	CAYUGA HEIGHTS 603	1	34	40	1.18	1.00
4306501	SALT PAD 521	1	1	1	1.15	1.00
4304201	HARFORD 524	4	153	168	1.10	0.99
4300104	CAYUGA HEIGHTS 601	8	6,319	6,464	1.02	3.05
4301802	INTERLAKEN SVC	1	1	1	1.00	0.00
4301502	WEST HILL 610	13	2,070	1,749	0.85	1.04
4300502	LUDLOWVILLE 727	3	1,089	787	0.72	2.05
4300303	SOUTH LANSING 721	4	1,443	1,030	0.71	2.09
4300501	LUDLOWVILLE 726	2	355	249	0.70	2.04
4202006	SAMPSON 206	1	9	6	0.70	1.00
4301701	TRUMANSBURG 723	6	726	489	0.67	1.09
4300201	EAST ITHACA 406	5	208	130	0.63	0.08
4302205	SOUTH HILL 614	2	541	214	0.39	0.85
4302304	FOURTH ST 784	2	30	11	0.38	0.04
4302305	FOURTH ST 785	2	70	14	0.20	0.12

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3106301	JAMISON RD 518	1	1	9	9.10	0.01
3101003	INDIAN CHURCH RD 225	1	25	200	7.98	0.05
3103104	DICK RD 393	7	163	1,254	7.70	0.10
3101001	INDIAN CHURCH RD 223	2	20	147	7.35	0.02
3100601	SILVER CREEK 178	7	1,097	6,758	6.16	1.02
3100602	SILVER CREEK 179	8	2,952	16,050	5.44	2.17
3101901	ORCHARD PARK 285	3	120	612	5.10	0.14
3101902	ORCHARD PARK 286	6	111	464	4.19	0.12
3100603	SILVER CREEK 180	14	4,148	17,136	4.13	3.12
3101204	ELLICOTT RD 238	2	303	1,228	4.05	2.09
3104001	LOSSON RD 404	9	136	516	3.80	0.06
3102501	WEHRLE DR 330	4	390	1,433	3.67	1.36
3101702	REIN RD 272	17	1,170	3,993	3.41	0.98
3100502	RANDOLPH 175	2	11	36	3.31	0.02
3102302	HOLLAND 321	10	1,532	5,048	3.29	1.29
3105201	ROLL RD 512	14	886	2,869	3.24	0.41
3101801	JAVA 280	15	2,937	9,441	3.21	3.25
3102603	EAST AURORA 343	7	184	585	3.19	0.19
3102606	EAST AURORA 346	13	212	672	3.17	0.21
3104202	BENNINGTON CTR 446	24	2,883	8,951	3.10	3.97
3102902	ARMOR 372	14	4,886	14,899	3.05	2.38
3105001	BIG TREE 528	17	2,713	8,165	3.01	1.22
3104002	LOSSON RD 401	13	745	2,213	2.97	0.34
3103003	DAVIS 382	20	1,071	3,160	2.95	0.65
3100501	RANDOLPH 174	17	389	1,143	2.94	0.64
3103803	TYLER ST 462	17	678	1,988	2.93	0.37
3100801	ERIE ST 202	3	1,012	2,947	2.91	1.00
3103002	DAVIS 381	24	1,690	4,899	2.90	1.35
3100806	ERIE ST 207	1	288	835	2.90	1.00
3100807	ERIE ST 208	1	859	2,491	2.90	0.99
3100808	ERIE ST 209	2	871	2,515	2.89	1.02
3100802	ERIE ST 203	6	1,269	3,560	2.81	1.09
3102802	EBENEZER 361	2	36	100	2.79	0.03
3103701	CEMETERY RD 491	5	2,188	6,010	2.75	1.01
3100104	LEGION DR 510	11	585	1,576	2.70	3.13
3100809	ERIE ST 515	7	2,407	6,428	2.67	1.58
3103801	TYLER ST 460	8	482	1,249	2.59	0.32
3102903	ARMOR 373	7	4,420	11,301	2.56	2.08
3102303	HOLLAND 520	36	1,874	4,612	2.46	1.67
3103605	LAKE AVE 484	12	374	903	2.42	0.22
3102201	BLOSSOM 312	7	311	749	2.41	0.12
3100301	ELLINGTON 164	21	1,280	3,072	2.40	1.80
3104101	STOLLE RD 551	13	3,260	7,785	2.39	2.25
3102301	HOLLAND 320	14	1,333	3,187	2.39	1.25
3102901	ARMOR 371	5	8,010	19,083	2.38	3.03

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3103001	DAVIS 380	16	699	1,664	2.38	0.73
3105302	COBBLEHILL 548	44	5,482	12,980	2.37	4.19
3103207	LANGER RD 436	2	228	529	2.32	1.01
3102402	WALES CENTER 326	16	2,937	6,800	2.31	4.27
3103205	LANGER RD 434	16	5,321	12,237	2.30	2.46
3103204	LANGER RD 433	10	2,457	5,656	2.30	1.21
3103005	DAVIS 383	16	2,552	5,847	2.29	1.90
3101603	ALDEN 264	8	1,332	3,046	2.29	0.95
3101601	ALDEN 262	3	571	1,298	2.27	1.02
3200901	YAHOO	1	1	2	2.27	0.00
3103202	LANGER RD 431	6	953	2,138	2.24	1.18
3103201	LANGER RD 430	5	1,880	4,221	2.24	1.08
3102107	WALDEN AVE 307	3	476	1,061	2.23	1.77
3103304	WENDE RD 443	1	3	7	2.23	1.50
3107101	WENDE PRISON 525	1	1	2	2.23	1.00
3103303	WENDE RD 442	10	1,585	3,453	2.18	1.21
3101802	JAVA 281	14	2,841	6,178	2.17	3.59
3100401	NEW ALBION 168	7	58	124	2.14	0.16
3101203	ELLICOTT RD 237	7	3,834	8,176	2.13	4.27
3100102	LEGION DR 153	1	3	6	2.12	0.00
3101602	ALDEN 263	8	1,376	2,907	2.11	1.22
3100302	ELLINGTON 165	7	248	519	2.09	1.34
3103401	COWLESVILLE 450	13	900	1,867	2.08	2.56
3103402	COWLESVILLE 451	10	1,777	3,672	2.07	2.28
3103302	WENDE RD 441	5	705	1,461	2.07	1.29
3104802	NORTH BROADWAY	7	1,283	2,653	2.07	0.99
3103703	CEMETERY RD 492	18	835	1,706	2.04	0.32
3102701	CHERRY CREEK 501	10	663	1,329	2.01	1.66
3102605	EAST AURORA 345	6	1,070	2,147	2.01	0.84
3100804	ERIE ST 205	9	4,068	8,141	2.00	2.09
3102401	WALES CENTER 325	20	2,829	5,634	1.99	2.61
3103501	SOUTH COLDEN 455	6	27	54	1.99	0.06
3107501	West Varysburg 355	23	1,227	2,424	1.98	2.78
3103802	TYLER ST 461	3	71	141	1.98	0.06
3105203	ROLL RD 545	22	1,261	2,395	1.90	0.47
3107301	SPRINGBROOK 495	13	2,474	4,620	1.87	1.81
3102503	WEHRLE DR 335	2	55	103	1.87	0.15
3102205	BLOSSOM 517	11	3,085	5,659	1.83	1.20
3103105	DICK RD 537	21	6,658	12,153	1.82	2.38
3102001	HAMBURG 292	4	1,574	2,855	1.81	1.17
3100701	FROG VALLEY 184	25	2,232	4,013	1.80	3.31
3100901	GIRDLE RD 554	13	607	1,091	1.80	0.53
3101002	INDIAN CHURCH RD 224	2	220	390	1.78	0.43
3103603	LAKE AVE 482	10	2,039	3,619	1.77	0.77
3103203	LANGER RD 432	12	3,671	6,474	1.76	1.92

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3104004	LOSSON RD 402	32	2,812	4,929	1.75	0.82
3102506	WEHRLE DR 332	11	343	601	1.75	0.38
3102502	WEHRLE DR 331	4	1,324	2,297	1.73	1.00
3104801	NORTH BROADWAY	5	313	542	1.73	0.12
3104902	NEW GARDENVILLE	14	4,756	8,099	1.70	3.85
3100201	DAYTON 160	18	743	1,251	1.68	1.75
3102003	HAMBURG 294	3	929	1,550	1.67	1.02
3103502	SOUTH COLDEN 456	2	18	30	1.67	0.08
3102004	HAMBURG 295	3	478	773	1.62	1.45
3102002	HAMBURG 293	6	1,555	2,490	1.60	1.31
3100702	FROG VALLEY 185	8	434	682	1.57	1.56
3104201	BENNINGTON CTR 445	21	1,989	3,094	1.56	3.98
3102801	EBENEZER 360	2	63	98	1.56	0.07
3100103	LEGION DR 154	6	80	123	1.54	0.07
3102005	HAMBURG 296	1	251	385	1.53	1.00
3103804	TYLER ST 463	4	54	81	1.50	0.05
3101703	REIN RD 270	1	40	59	1.48	0.74
3101101	SLOAN 229	5	1,454	2,044	1.41	1.06
3102602	EAST AURORA 342	10	145	203	1.40	0.13
3105202	ROLL RD 529	12	3,744	5,182	1.38	1.48
3101102	SLOAN 230	1	1,028	1,405	1.37	1.00
3103107	DICK RD 396	7	492	666	1.36	0.30
3102604	EAST AURORA 340	2	11	15	1.36	0.02
3102102	WALDEN AVE 301	16	2,397	3,214	1.34	1.13
3102202	BLOSSOM 313	8	328	436	1.33	0.30
3105301	COBBLEHILL 530	35	6,292	8,312	1.32	2.64
3103103	DICK RD 392	4	58	75	1.29	0.04
3105002	BIG TREE 523	2	5	6	1.25	0.01
3102104	WALDEN AVE 303	1	399	486	1.22	1.00
3102105	WALDEN AVE 304	1	311	378	1.22	1.00
3102106	WALDEN AVE 305	1	961	1,170	1.22	1.00
3102103	WALDEN AVE 302	2	322	384	1.19	1.00
3102101	WALDEN AVE 300	1	486	575	1.18	1.00
3103601	LAKE AVE 480	11	629	744	1.18	0.32
3104005	LOSSON RD 405	5	349	407	1.16	0.51
3103901	SOUTH PARK 471	28	8,885	10,030	1.13	4.57
3102505	WEHRLE DR 334	8	589	648	1.10	0.54
3101701	REIN RD 271	3	3	3	1.06	0.03
3105003	BIG TREE 539	3	142	148	1.04	0.16
3105204	ROLL RD 524	13	5,221	5,259	1.01	2.02
3103004	DAVIS 531	17	4,898	4,885	1.00	2.17
3104003	LOSSON RD 403	15	1,531	1,427	0.93	0.54
3200602	CHESTNUT RIDGE 190	1	32	28	0.88	0.04
3103101	DICK RD 390	2	384	322	0.84	0.88
3101103	SLOAN 231	8	4,098	3,416	0.83	2.07

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3103702	CEMETERY RD 490	3	2,862	2,339	0.82	1.03
3102203	BLOSSOM 314	2	15	12	0.78	0.02
3101903	ORCHARD PARK 287	5	801	427	0.53	1.16
3103902	SOUTH PARK 472	12	1,580	723	0.46	1.07
3102607	EAST AURORA 347	1	206	86	0.42	0.61
3109860	RGE-YOUNGERS RD	1	1	0	0.35	1.00

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LIBERTY						
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2403195	SWAN LAKE 157	6	54	924	17.13	0.11
2402322	MONTICELLO 137	7	634	5,528	8.72	0.94
2401275	FOSTERDALE 107	7	257	1,945	7.57	0.47
2402821	SACKETT LAKE 121	4	4	27	6.67	0.01
2404301	SHORTCUT RD 349	2	175	990	5.65	2.01
2402820	SACKETT LAKE 020	9	221	1,131	5.12	0.29
2407716	ROCK VALLEY 216	10	325	1,617	4.98	2.56
2401310	GROSSINGER 210	19	238	1,062	4.47	0.22
2401514	HAZEL 353	18	647	2,832	4.38	1.78
2401761	KIAMESHA 261	1	1	4	4.10	0.00
2402324	MONTICELLO 139	3	29	118	4.06	0.11
2402624	Rock Hill 224	10	2,325	9,173	3.95	2.50
2402584	OLD FALLS 284	12	1,351	5,189	3.84	1.35
2402623	Rock Hill 223	5	1,364	5,212	3.82	3.09
2402622	Rock Hill 222	2	28	107	3.80	2.00
2402786	ROSCOE 286	37	2,406	9,107	3.79	3.16
2408501	CHU-BLUE HILL RD CHU	2	5	19	3.65	1.67
2401612	JEFFERSONVILLE 112	14	1,164	4,073	3.50	1.69
2402787	ROSCOE 287	9	420	1,467	3.49	0.73
2404401	FREMONT-ACIDALIA	11	534	1,729	3.24	2.48
2402625	ROCK HILL 125	13	1,662	5,381	3.24	2.24
2401842	LIBERTY 142	3	100	323	3.23	0.19
2401311	GROSSINGER 211	23	659	2,095	3.18	0.47
2401971	LIVINGSTON MANOR	15	241	746	3.09	0.75
2402627	ROCK HILL 220	5	197	601	3.05	1.56
2407617	FRENCH WOODS 217	19	809	2,421	2.99	4.28
2404201	WHITE SULPHER	8	238	703	2.96	0.45
2402480	NEVERSINK 080	19	501	1,467	2.93	0.50
2403885	CALLICOON 285	54	4,009	11,696	2.92	2.48
2408901	ORG-BARKER RD ORG	6	77	223	2.89	5.92
2403605	WALDEN 705	8	115	331	2.88	0.05
2401197	CONCORD 197	12	126	357	2.83	0.47
2402588	OLD FALLS 288	5	79	222	2.80	0.06
2403734	MOUNTAINDALE 207	15	3,450	9,417	2.73	2.35
2403658	WALDEN 358	49	2,801	7,531	2.69	1.91
2409101	ORG-ROWLEY RD ORG	7	54	144	2.65	7.71
2402583	OLD FALLS 283	40	1,397	3,701	2.65	0.95
2401611	JEFFERSONVILLE 111	38	1,638	4,184	2.55	1.83
2401610	JEFFERSONVILLE 110	48	1,566	4,002	2.55	0.92
2402227	MAPLEWOOD 127	9	837	2,075	2.48	1.53
2401970	LIVINGSTON MANOR	14	610	1,468	2.41	0.49
2401276	FOSTERDALE 108	5	107	256	2.39	0.28
2403999	HILLDALE 225	14	403	876	2.18	0.21
2401198	CONCORD 198	1	16	35	2.17	0.04
2403607	WALDEN 707	4	46	97	2.12	0.05

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LIBERTY						
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2400202	SHIELDS RD 002	3	221	463	2.10	0.74
2403251	WHITE LAKE 151	23	1,792	3,740	2.09	1.10
2403252	WHITE LAKE 290	49	3,145	6,526	2.08	1.72
2401011	BEAVER BROOK 011	6	227	465	2.05	1.14
2401763	KIAMESHA 263	13	1,449	2,944	2.03	1.76
2403404	YULAN 204	39	2,662	5,317	2.00	1.40
2404030	WILLOWEMOC 030	20	783	1,472	1.88	1.94
2402228	MAPLEWOOD 128	1	1	2	1.83	1.00
2400435	COCHECTON CENTER	13	462	782	1.69	2.08
2403659	WALDEN 359	83	7,773	11,033	1.42	2.30
2402182	LUXTON LAKE 182	38	2,552	3,603	1.41	2.56
2403736	MOUNTAINDALE 206	16	897	1,255	1.40	1.43
2402323	MONTICELLO 138	3	103	143	1.39	0.17
2402229	MAPLEWOOD 229	10	4,339	5,808	1.34	2.17
2403194	SWAN LAKE 158	8	62	81	1.31	0.08
2402321	MONTICELLO 136	8	1,145	1,319	1.15	1.17
2401844	LIBERTY 144	10	1,432	1,481	1.03	1.18
2401589	HAZEL 189	12	1,223	922	0.75	2.24
2403738	MOUNTAINDALE 208	7	709	370	0.52	1.26
2404101	VILLA ROMA 001	1	7	3	0.48	1.00

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LOCKPORT						
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3200203	TRANSIT 110	1	49	292	5.97	0.24
3200302	PARK AVE 121	3	581	1,642	2.83	1.07
3200208	TRANSIT 413	1	63	152	2.42	1.00
3200502	LOCUST ST 153	11	1,890	4,289	2.27	1.21
3200301	PARK AVE 120	3	570	1,189	2.09	0.54
3200204	TRANSIT 111	1	376	733	1.95	0.78
3200103	VINE ST 103	5	569	1,095	1.92	1.03
3200504	LOCUST ST 150	11	1,918	3,500	1.83	0.62
3200207	TRANSIT 114	1	3	5	1.80	0.01
3200402	MILL ST 131	7	65	110	1.68	0.16
3200601	CHESTNUT RIDGE 191	13	636	1,065	1.67	0.47
3200602	CHESTNUT RIDGE 190	18	1,187	1,866	1.57	1.41
3200401	MILL ST 130	4	122	191	1.57	0.21
3200505	LOCUST ST 151	3	1,157	1,796	1.55	0.88
3200102	VINE ST 102	2	114	174	1.53	0.12
3201701	SOUTH NIAGARA ST 201	5	210	294	1.40	0.27
3200205	TRANSIT 112	2	39	51	1.33	0.05
3200206	TRANSIT 113	5	68	83	1.23	0.08
3200501	LOCUST ST 152	4	155	151	0.97	0.07
3200101	VINE ST 101	2	15	15	0.96	0.03
3200502	LOCUST ST 153	1	1,555	311	0.20	1.00

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MECHANICVILLE						
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1201102	GRANVILLE 302	3	872	4,837	5.55	1.07
1203301	WYNANTSKILL 140	8	144	798	5.55	0.14
1202312	HALFMOON 412	8	2,096	10,804	5.16	1.12
1201101	GRANVILLE 301	2	437	2,139	4.89	1.23
1209137	NM-GRANVILLE 370	1	1	4	4.40	0.20
1201801	TIPLADY RD TAP 628	17	354	1,540	4.35	2.53
1201301	COMSTOCK-GRANVILLE	59	1,802	6,484	3.60	1.31
1201701	SALEM TAP 627	45	3,302	11,449	3.47	2.42
1201201	SALEM 175	25	807	2,760	3.42	1.45
1201202	SALEM 176	3	19	62	3.27	0.05
1201401	GRANVILLE-SALEM TAP	30	2,538	7,186	2.83	2.72
1204201	WEST SAND LAKE TAP	5	240	678	2.82	0.32
1206301	LUTHER FOREST 607	26	8,383	23,251	2.77	2.13
1203606	CHATHAM 156	7	241	625	2.60	1.14
1203605	CHATHAM 155	5	123	319	2.58	0.14
1203401	CANAAN 145	28	1,309	3,355	2.56	1.51
1204004	CRARYVILLE 610	80	7,470	19,070	2.55	3.53
1209029	NM-MECHANICVILLE 929	6	11	27	2.52	3.67
1203302	WYNANTSKILL 141	8	1,271	3,170	2.49	1.25
1208901	SLATEVILLE 620	2	15	37	2.46	0.07
1203101	RUTLAND 130	10	1,198	2,890	2.41	2.50
1203206	STEPHENTOWN 136	33	1,768	4,207	2.38	1.68
1203902	CROOKED LAKE 613	25	2,389	5,430	2.27	2.44
1203102	RUTLAND 131	19	2,218	4,863	2.19	3.63
1204301	SNOWS CORNERS 608	7	101	215	2.13	0.24
1205402	KLINE KILL 630	62	7,486	15,886	2.12	3.06
1205403	KLINE KILL 631	64	6,769	13,857	2.05	3.68
1201601	VANESS RD TAP 604	3	4	8	2.04	0.01
1203805	WEST LEBANON 165	17	1,396	2,829	2.03	1.40
1203901	CROOKED LAKE 170	4	24	49	2.03	0.02
1203806	WEST LEBANON 166	20	1,903	3,849	2.02	2.88
1204001	CRARYVILLE 400	61	3,146	6,258	1.99	1.74
1206302	LUTHER FOREST 635	4	147	293	1.99	1.23
1203207	STEPHENTOWN 622	62	5,037	9,682	1.92	2.66
1209017	NM-MECHANICVILLE 917	1	22	42	1.90	1.00
1203502	MELLONVILLE 151	10	2,335	4,262	1.83	2.14
1206115	CRELLIN 615	10	11	19	1.77	0.32
1204003	CRARYVILLE 611	26	3,080	5,369	1.74	4.78
1203501	MELLONVILLE 150	11	1,119	1,941	1.74	2.00
1201501	FLIKE RD TAP 605	13	436	759	1.74	1.04
1209251	NM-CHATHAM 951	1	5	8	1.70	0.83
1205901	RAYLINSKI TAP 606	32	23,705	39,811	1.68	5.23
1206002	MULBERRY 602	15	1,488	2,166	1.46	0.45
1202215	STILLWATER 215	10	152	216	1.41	0.15
1204401	Cobb Hill Tap 609	2	56	70	1.24	0.07

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MECHANICVILLE						
Circuit	Circuit Description	Interruptions	Customers Affected	Customer Hours Interrupted	CAIDI	SAIFI
1209263	NM-CHATHAM 963	1	8	9	1.15	1.00
1202310	HALFMOON 410	11	1,100	1,260	1.15	0.47
1209028	NM-MECHANICVILLE 928	1	7	6	0.85	1.00
1204101	WYNANTSKILL TAP 416	1	1	1	0.52	0.00
1203702	WEST SAND LAKE 161	3	149	75	0.50	0.33

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ONEONTA						
Circuit	Circuit Description	Interruptions	Customers Affected	Customer Hours Interrupted	CAIDI	SAIFI
2309665	PENN ELEC-WALTON 065	6	18	189	10.50	2.57
2302704	BROTHERTOWNE 504	15	1,205	9,932	8.24	1.92
2309480	CHU-WALTON1 080	2	4	31	7.69	1.33
2307647	GRAND GORGE 247	28	1,689	11,226	6.65	1.92
2300332	PIERCE AVE 032	2	151	933	6.18	0.24
2309404	CHU-WALTON1 104	1	2	11	5.37	1.00
2309857	NM-CRUMHORN LAKE 057	2	70	375	5.36	2.00
2305112	NORTH NORWICH 012	8	171	877	5.13	0.39
2309350	NM-ONEONTA 050	1	1	5	5.00	0.12
2304725	EARLVILLE 225	27	1,403	6,986	4.98	2.07
2305412	SOUTH NEW BERLIN 012	9	2,075	10,113	4.87	3.55
2308239	WINDHAM 239	37	1,053	4,969	4.72	0.65
2307645	GRAND GORGE 245	41	1,424	6,701	4.71	1.01
2306961	WEST WINFIELD 261	6	583	2,696	4.62	0.42
2309364	NM-ONEONTA 064	4	32	147	4.58	4.57
2300821	COOPERSTOWN 121	23	777	3,540	4.55	0.93
2304042	BIRDSALL 042	1	19	86	4.55	0.14
2307011	AXTELL RD 511	26	2,479	10,685	4.31	1.95
2304726	EARLVILLE 226	26	2,124	9,055	4.26	2.53
2306435	ANDES 235	34	970	4,080	4.21	0.57
2305065	MORRISVILLE 265	11	1,161	4,693	4.04	1.94
2307010	AXTELL RD 510	17	1,608	6,443	4.01	1.52
2307032	AXTELL RD 032	15	361	1,444	3.99	0.41
2304322	OXFORD 022	14	345	1,367	3.96	0.38
2303345	AFTON-ONEONTA 245	3	133	512	3.85	1.04
2305212	WATERVILLE 012	4	21	80	3.81	0.03
2303503	COLUMBUS 219	3	29	108	3.76	0.25
2301612	MORRIS 012	4	38	143	3.75	0.08
2304312	OXFORD 012	27	527	1,938	3.68	0.52
2304112	NEW BERLIN 012	9	207	740	3.58	0.27
2304942	EDMESTON 220	18	1,384	4,801	3.47	1.73
2307390	DEPOSIT 290	20	979	3,358	3.43	0.90
2305515	EAST NORWICH 515	33	3,358	11,485	3.42	1.16
2301212	GILBERTSVILLE 012	18	1,430	4,777	3.34	2.17
2302112	WEST DAVENPORT 012	13	273	911	3.34	0.26
2307309	DEPOSIT 109	24	2,444	8,149	3.33	1.76
2300152	SAND ST 052	3	128	420	3.28	0.11
2301822	RICHFIELD SPRINGS 022	4	36	118	3.27	0.08
2303012	GUILDFORD CENTER 012	25	618	1,999	3.23	0.70
2307412	DOWNSVILLE 012	24	766	2,474	3.23	0.64
2306960	WEST WINFIELD 260	12	201	644	3.20	0.15
2300722	BAINBRIDGE 022	6	31	99	3.20	0.06
2306330	ARKVILLE 230	57	1,388	4,404	3.18	0.49
2309925	NM-NORWICH 025	1	1	3	3.17	0.06
2304727	EARLVILLE 227	23	2,564	8,047	3.14	2.33

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2307912	SHANDAKEN 012	23	551	1,727	3.13	0.93
2301412	MOUNT UPTON 012	18	561	1,744	3.11	0.81
2304232	ORISKANY FALLS 142	18	423	1,294	3.06	0.41
2302076	SOUTH COOPERSTOWN	1	5	15	3.03	0.01
2305222	WATERVILLE 022	13	332	997	3.00	0.81
2301614	MORRIS 214	24	932	2,782	2.99	1.41
2308417	SANDS CREEK 217	8	315	935	2.97	3.18
2302124	WEST DAVENPORT 022	1	538	1,587	2.95	1.01
2304512	BOUCKVILLE 012	16	289	843	2.93	0.29
2308240	WINDHAM 240	50	919	2,657	2.89	0.63
2309558	CHU-WALTON2 058	2	22	63	2.86	2.00
2301032	SIDNEY-RAILROAD 032	9	218	614	2.82	0.16
2301712	WEST ST 012	2	156	438	2.81	1.01
2300712	BAINBRIDGE 012	13	409	1,151	2.81	0.39
2306218	BELL AYRE 218	13	494	1,379	2.79	1.29
2308105	RIVER RD 105	20	151	410	2.71	0.14
2308104	RIVER RD 104	4	122	328	2.69	0.11
2303504	COLUMBUS 220	4	128	343	2.68	0.48
2306217	BELL AYRE 217	1	43	115	2.67	1.00
2307310	DEPOSIT 110	6	116	309	2.66	0.23
2304812	EATON 012	16	604	1,592	2.64	0.88
2301970	SPRINGFIELD CENTER	22	907	2,385	2.63	0.90
2309751	NM-WALTON 051	4	44	114	2.61	2.10
2300304	PIERCE AVE 204	6	85	221	2.58	0.15
2301812	RICHFIELD SPRINGS 012	12	42	107	2.56	0.03
2307210	DELHI 210	9	2,158	5,456	2.53	1.69
2305006	MORRISVILLE 106	1	1	3	2.53	0.01
2307716	HANCOCK 216	60	1,828	4,558	2.49	1.18
2301327	MILFORD 227	36	2,947	7,051	2.39	2.52
2307901	SHANDAKEN 501	36	4,034	9,560	2.37	2.21
2309921	NM-NORWICH 021	1	14	33	2.35	1.00
2309774	NM-WALTON 074	3	5	11	2.31	0.71
2301123	JORDANVILLE 023	3	44	98	2.24	0.18
2302075	SOUTH COOPERSTOWN	30	4,807	10,520	2.19	4.48
2306212	BELL AYRE 212	23	232	499	2.16	0.21
2304612	BRIDGEWATER 012	4	651	1,385	2.13	1.18
2305312	WOODS CORNERS 012	16	790	1,678	2.12	1.05
2304222	ORISKANY FALLS 141	1	1	2	2.12	0.00
2300212	HENRY ST 150	2	94	195	2.07	0.09
2309470	CHU-WALTON1 070	1	1	2	2.03	0.14
2304401	WILLET-ONEONTA 423	6	637	1,222	1.92	5.95
2301512	EMMONS 012	1	225	416	1.85	1.00
2300162	SAND ST 062	6	92	169	1.83	0.15
2307715	HANCOCK 215	5	151	274	1.81	1.37
2305516	EAST NORWICH 516	34	3,759	6,747	1.80	2.08

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2307211	DELHI 211	20	1,597	2,882	1.80	1.75
2308102	RIVER RD 102	8	346	619	1.79	0.33
2307646	GRAND GORGE 246	23	1,646	2,897	1.76	1.62
2301022	SIDNEY-RAILROAD 022	4	23	40	1.71	0.06
2308312	FINCH HOLLOW 012	8	975	1,647	1.69	2.19
2301012	SIDNEY-RAILROAD 012	6	48	81	1.67	0.03
2304072	BIRDSALL 072	1	16	24	1.52	0.03
2300303	PIERCE AVE 203	5	213	315	1.48	0.23
2300922	UNADILLA 022	24	3,788	5,499	1.45	3.30
2300612	COLLIERS 012	21	3,678	5,196	1.41	3.20
2307712	HANCOCK 012	2	9	12	1.36	0.02
2304122	NEW BERLIN 022	13	803	1,063	1.32	1.47
2304032	BIRDSALL 032	1	29	37	1.28	0.09
2300312	PIERCE AVE 012	2	132	156	1.18	0.32
2301358	MILFORD 258	16	787	765	0.97	0.70
2308241	WINDHAM 241	1	731	694	0.95	1.00
2300912	UNADILLA 012	12	3,848	3,545	0.92	3.16
2305066	MORRISVILLE 266	9	847	724	0.85	1.03
2300512	OTEGO 012	11	2,269	1,624	0.72	3.79
2300520	OTEGO 200	27	3,976	2,434	0.61	3.49
2300122	SAND ST 022	1	20	8	0.38	0.03
2301522	EMMONS 022	1	64	23	0.37	0.28
2300823	COOPERSTOWN 123	1	1	0	0.32	0.00
2300522	OTEGO 022	10	3,208	866	0.27	3.08
2309581	CHU-WALTON2 081	1	1	0	0.23	0.50

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PLATTSBURGH						
Circuit	Circuit Description	Interruptions	Customers Affected	Customer Hours Interrupted	CAIDI	SAIFI
1508801	NM-MEGSVILLE RD NIM	8	15	123	8.24	5.00
1503301	STEAMBOAT LANDING	2	8	46	5.76	2.00
1509101	NM-JUDSON RD NIM	1	2	11	5.27	0.29
1509201	NM-RAQUETTE SHORES	6	98	509	5.19	3.63
1502701	STICKNEY BRIDGE 210	12	806	3,912	4.85	1.53
1502245	DANNEMORA 445	1	5	21	4.32	2.50
1505001	TOM MILLER RD 477	1	2	8	3.95	0.01
1502244	DANNEMORA 444	16	4,701	18,048	3.84	3.47
1508701	NM-COONROD RD NIM	3	3	11	3.84	1.50
1502032	HAMMOND LANE 432	2	49	156	3.19	0.25
1501601	BLUE MTN LAKE 504	45	11,356	34,150	3.01	9.42
1503047	KEESESVILLE 447	46	2,675	7,296	2.73	1.33
1502602	JAY 411	51	3,029	7,145	2.36	1.88
1503401	HARRIS LAKE 424	27	4,351	9,878	2.27	7.02
1500113	CHATEAUGAY 513	21	2,923	6,196	2.12	3.11
1502101	CLINTONVILLE 456	11	730	1,551	2.12	2.45
1508601	NM-CARGIN RD NIM	1	13	27	2.10	1.18
1500114	CHATEAUGAY 514	30	4,475	8,830	1.97	2.17
1502574	HIGH FALLS 474	23	1,986	3,904	1.97	1.56
1503101	NORTON 420	40	3,126	6,038	1.93	2.76
1501401	BEEKMANTOWN 133	6	54	104	1.93	0.06
1502601	JAY 502	21	1,764	3,294	1.87	4.44
1501766	SOUTH JUNCTION 466	6	60	109	1.84	0.09
1503901	MASON CORNERS 450	22	746	1,302	1.75	0.57
1505002	TOM MILLER RD 478	4	240	416	1.73	0.30
1502030	HAMMOND LANE 430	4	264	423	1.60	0.27
1503701	BARTON BROOK 403	27	1,251	1,975	1.58	1.42
1500517	SCIOTA-FLATROCK 517	45	4,585	7,168	1.56	1.45
1501802	CABOT MINE 414	17	1,353	2,102	1.55	1.44
1501801	CABOT MINE 413	14	562	854	1.52	0.46
1501901	MILL C 125	8	154	232	1.51	0.15
1501001	WEST CHAZY 136	15	2,881	4,335	1.50	2.57
1501501	WOODRUFF POND 460	22	941	1,362	1.45	1.04
1503002	KEESESVILLE 153	1	99	128	1.29	0.20
1509301	NM-TAYLOR RD NIM	2	48	59	1.23	2.00
1501502	WOODRUFF POND 461	15	1,327	1,596	1.20	1.31
1500817	HYDE 417	10	610	709	1.16	0.71
1503902	MASON CORNERS 451	16	2,048	2,334	1.14	2.55
1500901	LYON MTN 510	18	1,785	2,019	1.13	1.32
1503202	PERU 427	19	2,078	2,245	1.08	1.66
1504507	ARIZONA AVE 407	2	2	2	1.08	0.03
1503702	BARTON BROOK 404	17	1,001	990	0.99	1.43
1501767	SOUTH JUNCTION 467	20	2,381	2,287	0.96	1.41
1501138	BANKER RD 438	27	2,754	2,563	0.93	2.11
1504508	ARIZONA AVE 408	4	28	26	0.91	0.30

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PLATTSBURGH						
Circuit	Circuit Description	Interruptions	Customers Affected	Customer Hours Interrupted	CAIDI	SAIFI
1501137	BANKER RD 437	18	3,650	2,986	0.82	2.52
1501370	LIMESTONE 470	7	943	698	0.74	1.01
1503201	PERU 426	18	1,608	745	0.46	1.32

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AUBURN						
Circuit	Circuit Description	Interruptions	Customers Affected	Customer Hours Interrupted	CAIDI	SAIFI
4401602	MARIETTA 511	17	2,374	9,297	3.92	2.44
4400303	WRIGHT AVE 706	10	1,679	3,825	2.28	2.28
4400301	WRIGHT AVE 704	6	2,398	4,271	1.78	2.14
4400302	WRIGHT AVE 705	2	1,708	4,234	2.48	2.12
4403301	MORAVIA-AUBURN 704	6	269	393	1.46	2.10
4409028	HOWLETT HILL NE TLR	2	54	233	4.31	2.00
4409229	NM-GLENHAVEN RD	2	78	164	2.10	2.00
4403401	BRUTON RD 521	2	166	292	1.76	2.00
4401503	OTISCO 703	14	1,317	6,274	4.76	1.93
4400305	WRIGHT AVE 703	2	724	1,672	2.31	1.82
4402101	STRYKER AVE 702	16	4,665	6,869	1.47	1.73
4400503	GRANT AVE 720	11	1,289	2,205	1.71	1.63
4400101	CAYUGA 631	9	809	1,385	1.71	1.53
4400306	WRIGHT AVE 502	1	8	3	0.33	1.33
4402901	HAMILTON RD 530	8	1,138	1,479	1.30	1.32
4401101	PORT BYRON 611	12	747	2,104	2.81	1.29
4400502	GRANT AVE 719	4	1,289	1,889	1.47	1.21
4403801	NORTH LANSING -	2	6	7	1.23	1.20
4401501	OTISCO 701	7	654	4,006	6.12	1.16
4402102	STRYKER AVE 721	10	2,152	2,050	0.95	1.14
4400602	SWIFT AVE 315	2	934	336	0.36	1.10
4401102	PORT BYRON 633	3	1,149	3,583	3.12	1.09
4408501	SAVANNAH 630	2	302	810	2.68	1.08
4401201	WEEDSPORT 628	3	956	2,068	2.16	1.06
4401202	WEEDSPORT 629	3	640	1,360	2.12	1.06
4400203	STATE ST 710	19	1,454	3,472	2.39	1.05
4400603	SWIFT AVE 316	1	1,575	583	0.37	1.02
4400501	GRANT AVE 718	2	810	988	1.22	1.01
4401001	WILLET-BELLTOWN	1	3	8	2.58	1.00
4403101	MILLER BOTTLING PVT	1	1	1	1.22	1.00
4400601	SWIFT AVE 314	1	396	132	0.33	1.00
4400304	WRIGHT AVE 520	9	426	653	1.53	0.95
4401801	SCIPIO 605	10	276	770	2.80	0.68
4400702	AURORA 708	24	426	965	2.27	0.59
4401302	JORDAN 714	2	444	901	2.03	0.44
4409672	NM-COUNTY LINE RD	3	5	28	5.62	0.38
4405001	WHITING RD 526	13	424	2,271	5.36	0.37
4403201	KING FERRY 528	8	150	446	2.97	0.29
4401402	MARCELLUS 627	4	177	298	1.68	0.19
4401702	GENOA 604	5	20	50	2.46	0.17
4400202	STATE ST 709	12	227	347	1.53	0.10
4401802	SCIPIO 606	3	30	58	1.95	0.08
4400901	GREEN ST 322	1	40	67	1.68	0.06
4400401	UNION SPRINGS 609	5	57	75	1.33	0.06
4401701	GENOA 603	5	29	139	4.82	0.05

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AUBURN						
Circuit	Circuit Description	Interruptions	Customers Affected	Customer Hours Interrupted	CAIDI	SAIFI
4401301	JORDAN 613	9	50	226	4.48	0.05
4400701	AURORA 707	3	11	68	6.18	0.03
4400102	CAYUGA 632	5	15	42	2.84	0.03
4401401	MARCELLUS 626	2	22	49	2.24	0.02
4400204	STATE ST 711	1	1	4	4.18	0.00

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BINGHAMTON						
Circuit	Circuit Description	Interruptions	Customers Affected	Customer Hours Interrupted	CAIDI	SAIFI
8103501	SOUTH OTSELIC 427	20	2,571	7,620	2.96	5.46
8104602	KATTLEVILLE 426	28	4,094	5,853	1.43	4.77
8103203	CINCINNATUS 761	26	3,552	11,178	3.15	4.72
8104402	WILLET 421	12	1,929	3,261	1.69	4.67
8109101	PENN ELEC-BING 001	6	56	155	2.78	4.31
8103101	CHENANGO FORKS 206	13	968	1,478	1.53	3.92
8102301	GENEGANTSLET CORNERS	32	5,829	8,606	1.48	3.91
8107901	LISLE 417	22	1,726	3,286	1.90	3.51
8102903	AFTON 460	29	2,271	3,662	1.61	3.21
8100417	NOYES ISLAND 277	7	559	681	1.22	2.97
8109201	CLAVERACK-BING 001	11	62	201	3.24	2.95
8104401	WILLET 423	35	2,908	4,070	1.40	2.58
8102802	LOUNSBERRY 179	22	2,474	6,831	2.76	2.51
8101901	APALACHIN 176	17	2,024	3,327	1.64	2.48
8107402	SOUTH OWEGO 540	23	1,681	3,346	1.99	2.34
8105201	KINGSMAN RD 422	1	242	417	1.72	2.20
8103301	GREENE 425	30	1,668	5,654	3.39	2.17
8103602	TARBELL 602	10	1,259	1,452	1.15	2.16
8101302	WEST UNION 661	8	2,373	1,749	0.74	2.11
8103803	WINDSOR 758	31	1,244	4,377	3.52	2.08
8102801	LOUNSBERRY 178	19	1,972	5,361	2.72	2.05
8107701	WEST CREEK RD 513	5	934	2,530	2.71	2.02
4302501	HALSEY VALLEY 530	18	950	2,410	2.54	1.95
8100406	NOYES ISLAND 118	2	65	99	1.52	1.91
8103801	WINDSOR 757	16	1,712	4,549	2.66	1.81
8104601	KATTLEVILLE 422	23	4,852	6,378	1.31	1.71
8109601	CANAL ST TAP 513	22	3,058	4,853	1.59	1.61
8102901	AFTON 429	27	2,205	3,507	1.59	1.60
8101705	CHENANGO BRIDGE 428	27	2,972	10,857	3.65	1.56
8102401	FLEMINGVILLE 173	13	1,098	3,913	3.56	1.55
8105601	OUAQUAGA WEST 430	5	325	660	2.03	1.47
8101902	APALACHIN TAP 512	9	1,480	2,244	1.52	1.47
8103901	BERKSHIRE 746	14	1,042	1,771	1.70	1.29
8105801	BODLE HILL TAP 515	10	1,103	1,144	1.04	1.27
8108301	BEVIER ST 664	6	686	804	1.17	1.25
8102702	LANGDON 427	11	1,303	1,478	1.13	1.25
8104102	CASTLE GARDEN 622	30	3,011	7,256	2.41	1.21
8102703	LANGDON 608	5	296	641	2.16	1.15
8102201	WHIG ST 783	7	1,098	2,283	2.08	1.07
8102604	WHITNEY POINT 782	10	431	830	1.93	1.07
8104202	MORNINGSIDE HEIGHTS	4	636	1,044	1.64	1.07
8108201	ROUTE 38 513	1	198	409	2.07	1.02
8109806	NORTH ENDICOTT 361	11	2,015	4,075	2.02	1.02
8102101	OWEGO 144	1	830	1,716	2.07	1.01
8106501	RICHFORD 524	2	208	323	1.55	1.01

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BINGHAMTON						
Circuit	Circuit Description	Interruptions	Customers Affected	Customer Hours Interrupted	CAIDI	SAIFI
8105301	LOURDES 665	2	4	20	4.88	1.00
4304001	HARFORD MILLS 749	1	297	223	0.75	1.00
4304201	HARFORD 524	1	151	229	1.52	0.98
8100502	GOUDEY 722	2	1,737	917	0.53	0.95
8102503	MAINE 268	3	194	315	1.63	0.84
8104404	WILLET 418	13	538	1,436	2.67	0.83
8101102	ENDICOTT HILL 183	6	587	3,053	5.20	0.82
8102704	LANGDON 609	14	556	1,693	3.04	0.81
8103302	GREENE 607	19	380	887	2.33	0.80
8101803	CONKLIN 263	10	497	1,138	2.29	0.80
8104101	CASTLE GARDEN 621	12	945	495	0.53	0.80
8101301	WEST UNION 660	4	1,141	319	0.28	0.80
8101502	NOWLAN RD 227	5	263	588	2.23	0.74
8101401	VESTAL 623	19	1,212	3,517	2.90	0.71
8104303	OAKDALE 627	15	680	1,490	2.19	0.67
8104902	SANATARIA SPRINGS 212	9	386	792	2.05	0.65
8103702	VINCENT CORNERS 269	12	368	1,023	2.78	0.63
8100903	ENDICOTT CLARK ST 629	17	1,641	2,629	1.60	0.60
8102501	MAINE 266	3	334	608	1.82	0.59
8105001	FULLER HOLLOW 615	8	778	1,572	2.02	0.57
8105501	HOADLEY HILL 430	7	364	996	2.74	0.55
8107601	OUAQUAGA EAST 430	6	128	232	1.82	0.54
8103002	CENTER VILLAGE 248	14	512	1,950	3.81	0.51
8102502	MAINE 267	8	185	497	2.69	0.48
8100902	ENDICOTT CLARK ST 734	2	345	908	2.63	0.48
8101801	CONKLIN 229	10	472	1,222	2.59	0.45
8101602	WHITNEY AVE 652	2	7	13	1.93	0.44
8100501	GOUDEY 721	2	102	52	0.51	0.41
4301201	CANDOR 529	16	418	1,463	3.50	0.38
8102701	LANGDON 610	7	499	987	1.98	0.35
8108001	INGRAHAM HILL 433	8	166	468	2.81	0.34
8109001	NM-BINGHAMTON 001	1	1	9	8.78	0.33
8101701	CHENANGO BRIDGE 741	5	325	904	2.78	0.32
8102603	WHITNEY POINT 781	6	171	615	3.60	0.31
8100801	HOOPER RD 701	4	315	414	1.31	0.31
8102001	BODLE HILL 645	3	89	168	1.89	0.27
8101202	RANO 694	5	285	389	1.37	0.24
8101201	RANO 693	2	46	61	1.33	0.22
8100405	NOYES ISLAND 111	4	261	383	1.47	0.21
8104001	GLEN AUBREY 417	1	40	55	1.37	0.21
8100301	HARPUR 668	2	49	55	1.12	0.18
8105003	FULLER HOLLOW 617	10	268	453	1.69	0.17
8104304	OAKDALE 628	5	76	228	2.99	0.14
8100206	BURR AVE 612	5	136	258	1.88	0.14
8103401	MARATHON 434	5	84	85	1.01	0.14

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BINGHAMTON						
Circuit	Circuit Description	Interruptions	Customers Affected	Customer Hours Interrupted	CAIDI	SAIFI
8100101	MORRIS ST 657	3	223	617	2.77	0.11
8100803	HOOPER RD 703	4	78	88	1.14	0.11
8101002	ENDICOTT RAILWAY 188	2	94	227	2.42	0.10
8105901	CHERRY HILL 417	7	22	47	2.11	0.10
8105002	FULLER HOLLOW 616	4	55	46	0.84	0.10
8100204	BURR AVE 711	3	75	68	0.91	0.09
8101603	WHITNEY AVE 653	4	37	125	3.38	0.08
8100408	NOYES ISLAND 107	1	64	73	1.13	0.07
8101403	VESTAL 624	2	29	44	1.51	0.06
8100304	HARPUR 671	2	69	84	1.22	0.06
8100103	MORRIS ST 659	7	64	199	3.13	0.05
8104302	OAKDALE 626	5	99	184	1.85	0.05
8100607	GLENWOOD 686	3	101	122	1.20	0.05
8100701	JARVIS ST 687	1	57	28	0.50	0.05
8100606	GLENWOOD 685	1	13	67	5.17	0.04
8100901	ENDICOTT CLARK ST 735	2	25	102	4.09	0.04
8100203	BURR AVE 710	2	17	36	2.11	0.04
8101703	CHENANGO BRIDGE 743	1	3	6	1.93	0.04
8100703	JARVIS ST 689	4	77	136	1.76	0.04
8102002	BODLE HILL 646	5	41	68	1.67	0.04
8102602	WHITNEY POINT 780	1	19	17	0.88	0.04
8100102	MORRIS ST 658	1	33	10	0.32	0.04
8100201	BURR AVE 708	2	25	62	2.47	0.03
8101702	CHENANGO BRIDGE 742	3	33	54	1.63	0.03
8100706	JARVIS ST 692	2	48	54	1.12	0.03
8101101	ENDICOTT HILL 181	3	42	39	0.90	0.03
8100602	GLENWOOD 681	2	24	66	2.73	0.02
8100407	NOYES ISLAND 121	1	24	62	2.58	0.02
8104201	MORNINGSIDE HEIGHTS	3	10	18	1.80	0.02
8101606	WHITNEY AVE 656	1	30	38	1.25	0.02
8104301	OAKDALE 625	1	2	28	13.97	0.01
8101501	NOWLAN RD 226	1	8	27	3.35	0.01
8100802	HOOPER RD 702	1	7	23	3.23	0.01
8105701	MARTIN HILL 430	3	4	13	3.22	0.01
8104901	SANATARIA SPRINGS 211	3	5	15	3.11	0.01
8100418	NOYES ISLAND 278	4	5	10	2.14	0.01
8101503	NOWLAN RD 228	1	8	7	0.92	0.01
4301202	CANDOR 722	2	5	4	0.67	0.01
8100704	JARVIS ST 690	1	1	1	1.32	0.00
8100303	HARPUR 670	1	1	1	1.03	0.00
8101601	WHITNEY AVE 651	1	1	1	0.55	0.00

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BREWSTER						
Circuit	Circuit Description	Interruptions	Customers Affected	Customer Hours Interrupted	CAIDI	SAIFI
1106986	PUTNAM LAKE 486	48	10,631	16,328	1.54	6.56
1106855	POUND RIDGE 455	54	8,866	27,628	3.12	5.56
1105724	CRAFTS 424	38	6,407	14,822	2.31	5.12
1106575	WEST PATTERSON 475	42	6,293	8,640	1.37	4.18
1107434	HAVILAND HOLLOW	20	3,357	7,280	2.17	3.90
1107843	TEN MILE RIVER 443	22	2,786	4,972	1.78	3.73
1108701	CHU-TOWER HILL RD	5	85	438	5.15	3.70
1105870	CROSS RIVER 470	41	3,580	11,563	3.23	3.54
1106574	WEST PATTERSON 474	37	3,304	5,677	1.72	3.52
1105254	AMAWALK 454	9	2,805	5,439	1.94	3.50
1105115	ADAMS CORNERS 412	38	4,632	13,503	2.92	3.32
1105869	CROSS RIVER 469	18	2,491	2,105	0.85	3.25
1105597	CANTITOE 497	40	3,877	12,729	3.28	3.15
1105111	ADAMS CORNERS 411	40	6,094	29,119	4.78	3.13
1107844	TEN MILE RIVER 444	30	5,164	12,333	2.39	2.97
1107081	SYLVAN LAKE 481	38	4,600	9,971	2.17	2.89
1105251	AMAWALK 451	33	2,946	9,610	3.26	2.76
1105352	AMENIA 153	10	1,422	2,082	1.46	2.67
1106858	POUND RIDGE 458	28	1,410	9,848	6.99	2.48
1105253	AMAWALK 453	26	2,641	5,947	2.25	2.44
1105095	CROTON FALLS 516	21	3,081	7,269	2.36	2.35
1105583	CANTITOE 283	37	1,058	3,654	3.45	2.34
1106094	DOVER PLAINS 494	25	4,717	3,091	0.66	2.29
1105463	BEDFORD HILLS 463	11	2,879	3,316	1.15	2.27
1107241	TILLY FOSTER 441	13	3,171	2,239	0.71	2.22
1105723	CRAFTS 423	35	5,509	6,074	1.10	2.18
1106856	POUND RIDGE 456	32	2,055	6,169	3.00	2.12
1106108	GOLDEN BRIDGE 418	23	2,161	4,444	2.06	2.10
1107238	TILLY FOSTER 438	15	3,813	4,443	1.17	2.10
1106668	PAWLING 508	21	2,565	3,196	1.25	2.07
1106107	GOLDEN BRIDGE 417	17	966	1,740	1.80	2.02
1107505	HARLEM VALLEY 105	2	12	10	0.79	2.00
1107433	HAVILAND HOLLOW	15	1,472	2,349	1.60	1.99
1105679	KENT CLIFFS 292	18	1,030	1,902	1.85	1.97
1106120	GOLDEN BRIDGE 420	5	2,146	3,404	1.59	1.92
1106985	PUTNAM LAKE 485	9	1,948	3,074	1.58	1.88
1106275	KENT 175	11	2,204	1,287	0.58	1.86
1107733	UNION VALLEY 433	43	4,160	6,121	1.47	1.80
1107239	TILLY FOSTER 439	12	1,625	2,839	1.75	1.76
1106857	POUND RIDGE 457	33	991	2,826	2.85	1.67
1109706	CARMEL 502	18	2,456	2,578	1.05	1.63
1105977	DINGLE RIDGE 277	10	564	1,186	2.10	1.62
1105691	KENT CLIFFS 291	9	1,148	2,087	1.82	1.54
1106104	GOLDEN BRIDGE 414	28	1,772	5,443	3.07	1.49
1105722	CRAFTS 422	21	2,161	2,520	1.17	1.46

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1107078	SYLVAN LAKE 478	28	3,467	5,998	1.73	1.45
1106121	GOLDEN BRIDGE 421	19	1,609	2,305	1.43	1.43
1106346	MOHANSIC 406	10	884	1,180	1.34	1.39
1106277	KENT 526	10	1,432	2,865	2.00	1.38
1106984	PUTNAM LAKE 484	14	1,497	1,461	0.98	1.36
1107191	TEAKETTLE SPOUT 491	14	1,416	1,111	0.78	1.31
1105004	CROTON FALLS 515	15	1,814	3,268	1.80	1.24
1109701	CARMEL 501	18	2,711	1,754	0.65	1.23
1105354	AMENIA 154	18	1,372	683	0.50	1.20
1105249	AMAWALK 449	9	1,514	4,892	3.23	1.19
1109101	CHU-LONG MTN RD	2	7	27	3.79	1.17
1107189	TEAKETTLE SPOUT 489	23	1,275	3,043	2.39	1.17
1107731	UNION VALLEY 431	11	1,648	3,653	2.22	1.10
1107732	UNION VALLEY 432	21	2,204	3,359	1.52	1.05
1108601	CHU-PLEASANT RIDGE	2	3	10	3.40	1.00
1108401	CHU-TURKEY RUN CHU	1	3	9	3.13	1.00
1105113	ADAMS CORNERS 413	18	678	1,628	2.40	0.98
1105425	BEDFORD HILLS 225	14	982	2,800	2.85	0.91
1106340	MOHANSIC 403	11	491	1,130	2.30	0.80
1106667	PAWLING 509	25	1,366	3,080	2.26	0.76
1108501	CHU-SEPARATE RD	1	6	11	1.88	0.75
1105868	CROSS RIVER 468	12	545	2,049	3.76	0.71
1106343	MOHANSIC 405	6	728	2,304	3.16	0.70
1105598	CANTITOE 498	7	86	314	3.65	0.61
1105978	DINGLE RIDGE 278	4	209	407	1.95	0.57
1107242	TILLY FOSTER 442	5	549	657	1.19	0.47
1105582	CANTITOE 282	14	213	833	3.91	0.37
1105462	BEDFORD HILLS 462	18	346	992	2.87	0.34
1107190	TEAKETTLE SPOUT 490	1	237	486	2.05	0.28
1107237	TILLY FOSTER 437	12	256	625	2.44	0.26
1107080	SYLVAN LAKE 480	19	260	576	2.22	0.26
1106749	PEACH LAKE 249	7	191	503	2.63	0.23
1109703	CARMEL 503	22	184	381	2.08	0.19
1106750	PEACH LAKE 250	5	97	154	1.58	0.18
1109001	CHU-CHAPMAN RD	1	1	5	5.10	0.14
1105427	BEDFORD HILLS 227	4	80	381	4.75	0.12
1106342	MOHANSIC 404	5	79	217	2.75	0.12
1106666	PAWLING 166	5	55	84	1.53	0.08
1106276	KENT 176	4	43	321	7.47	0.05
1105002	CROTON FALLS 514	1	9	35	3.90	0.01

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ELMIRA						
Circuit	Circuit Description	Interruptions	Customers Affected	Customer Hours Interrupted	CAIDI	SAIFI
5204446	SOUTH ADDISON 346	32	6,684	20,584	3.08	5.08
5202012	MONTOUR FALLS 512	29	6,403	18,013	2.81	4.94
5204447	SOUTH ADDISON 347	28	2,130	8,179	3.84	4.43
5202011	MONTOUR FALLS 511	30	4,965	10,445	2.10	3.88
5204545	WHISKEY CREEK 345	37	2,707	6,157	2.28	3.35
5208161	YAWGER RD 361	5	176	1,119	6.36	3.32
5204241	PRESHO 341	63	2,604	6,162	2.37	3.27
5201200	BROAD ST 300	6	3,123	8,629	2.76	3.01
5200364	FIRST ST 264	4	243	493	2.03	2.76
5206898	PRATTSBURG TAP 598	11	500	1,059	2.12	2.73
5206901	MONTOUR ODESSA TAP	29	2,300	4,534	1.97	2.55
5201601	RIDGE RD 501	38	3,799	19,254	5.07	2.53
5203659	FALLBROOK 359	3	77	120	1.57	2.41
5200370	FIRST ST 370	4	252	815	3.23	2.38
5200286	MADISON AVE 386	12	967	2,723	2.81	2.29
5208162	YAWGER RD 362	42	4,429	9,640	2.18	2.23
5200371	FIRST ST 371	4	876	2,061	2.35	2.08
5204398	PULTENEY TAP 598	7	1,335	2,905	2.18	2.08
5206530	PHILO RD 330	8	1,441	4,040	2.80	2.06
5204544	WHISKEY CREEK 344	35	1,679	3,446	2.05	2.04
5200383	FIRST ST 283	2	44	190	4.32	2.00
5203658	FALLBROOK 358	2	8	8	0.95	2.00
5206528	PHILO RD 328	2	264	170	0.64	1.96
5201418	CHEMUNG 318	38	1,776	2,744	1.55	1.86
4302701	VAN ETTEN 570	24	1,429	2,650	1.85	1.83
5200925	HAMPTON RD 325	22	986	1,123	1.14	1.72
5201711	GOSS RD 211	6	491	525	1.07	1.70
5203722	FULTON ST 222	3	1,646	3,698	2.25	1.58
5206335	NORTH URBANA 535	21	2,232	6,384	2.86	1.54
5203464	CANADA RD 564	16	2,992	2,976	0.99	1.51
5202139	CAYUTA 239	12	519	1,434	2.76	1.46
5203834	HAMMONDSPORT 334	9	1,138	2,371	2.08	1.45
5202528	WOODHULL - ELMIRA	6	109	259	2.39	1.42
5201605	RIDGE RD 305	29	2,098	3,052	1.45	1.42
5200814	RIVERSIDE 314	5	787	1,088	1.38	1.39
5203352	CAMPBELL 352	15	761	1,822	2.40	1.35
5201419	CHEMUNG 319	23	450	1,868	4.15	1.26
5204141	PRATTSBURG 241	5	702	2,156	3.07	1.18
5200266	MADISON AVE 066	4	134	204	1.53	1.18
5200583	WOODLAWN AVE 183	8	1,234	2,002	1.62	1.14
5206529	PHILO RD 329	1	1,072	928	0.87	1.13
5205435	DINEHARTS 535	6	197	602	3.06	1.12
5203833	HAMMONDSPORT 333	15	610	1,003	1.65	1.12
5203907	KANE ST 207	12	1,103	1,605	1.45	1.11
5204140	PRATTSBURG 240	5	495	1,355	2.74	1.09

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5201023	BULKHEAD 323	10	1,666	714	0.43	1.09
5200927	HAMPTON RD 327	3	217	486	2.24	1.08
5204002	KEUKA-ELMIRA 202	6	388	441	1.14	1.08
5204242	PRESHO 342	1	145	249	1.72	1.06
5203660	FALLBROOK 360	3	2,051	1,792	0.87	1.04
5200285	MADISON AVE 385	4	1,070	2,362	2.21	1.01
5200290	MADISON AVE 090	2	421	705	1.67	1.01
5201201	BROAD ST 301	4	740	91	0.12	1.01
5207301	PENN ELEC-ELMIRA PE1	2	2	10	4.76	1.00
5302163	TROUPSBURG 563	1	403	497	1.23	1.00
5202031	MONTOUR FALLS 231	1	253	1,737	6.87	0.99
5204782	HICKLING 382	19	940	1,620	1.72	0.99
5200111	WEST ELMIRA 111	9	1,220	3,127	2.56	0.97
5302528	WOODHULL 228	1	549	677	1.23	0.95
5204637	KANONA 337	2	241	880	3.65	0.94
5200415	HILLCREST RD 315	7	237	1,976	8.34	0.89
5203139	BATH 339	19	759	2,089	2.75	0.82
5201022	BULKHEAD 322	21	688	2,044	2.97	0.77
5202033	MONTOUR FALLS 233	19	796	2,867	3.60	0.71
5201021	BULKHEAD 321	46	1,220	2,859	2.34	0.70
5203462	CANADA RD 562	16	1,085	3,425	3.16	0.67
5201607	RIDGE RD 307	25	432	978	2.26	0.66
5203843	HAMMONDSPORT 243	23	454	547	1.20	0.54
5203723	FULTON ST 223	6	249	559	2.25	0.48
5203721	FULTON ST 221	6	555	2,070	3.73	0.44
5208163	YAWGER RD 363	29	639	1,264	1.98	0.42
5200618	14TH ST 118	8	258	665	2.58	0.41
5206631	BATH TAP 531	4	57	148	2.59	0.38
5200416	HILLCREST RD 316	17	823	1,031	1.25	0.36
5205591	NEW CORNING 391	4	251	722	2.88	0.29
5200812	RIVERSIDE 312	4	40	84	2.08	0.28
5203908	KANE ST 208	13	258	706	2.74	0.27
5203351	CAMPBELL 351	12	152	328	2.16	0.27
5200104	WEST ELMIRA 104	2	107	719	6.72	0.26
5201606	RIDGE RD 306	9	263	411	1.57	0.26
5201028	BULKHEAD 128	3	198	503	2.54	0.24
5203662	FALLBROOK 362	5	70	122	1.74	0.21
5201712	GOSS RD 212	3	58	176	3.04	0.13
5201079	BULKHEAD 079	2	49	42	0.87	0.12
5201143	TUTTLE PLACE 143	3	97	508	5.23	0.11
5200102	WEST ELMIRA 102	1	12	19	1.60	0.06
5204636	KANONA 336	4	6	26	4.38	0.05
5204003	KEUKA-ELMIRA 203	4	30	122	4.04	0.03
5200619	14TH ST 119	4	32	71	2.23	0.03
5200811	RIVERSIDE 311	2	25	41	1.63	0.03

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5201798	GOSS RD 398	1	1	1	1.28	0.03
5200926	HAMPTON RD 326	3	23	113	4.89	0.02
5200617	14TH ST 117	2	26	68	2.61	0.02
5201203	BROAD ST 303	2	2	10	5.22	0.01
5200105	WEST ELMIRA 105	1	10	26	2.58	0.01
5202201	COASTAL LUMBER CO PVT	1	2	6	3.17	0.00
5200549	WOODLAWN AVE 349	1	1	1	1.35	0.00
5200989	HAMPTON RD 089	1	1	1	0.88	0.00
5205590	NEW CORNING 390	1	1	1	0.72	0.00

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GENEVA						
Circuit	Circuit Description	Interruptions	Customers Affected	Customer Hours Interrupted	CAIDI	SAIFI
4208401	RGE-SAVANNAH 001	6	180	428	2.38	3.67
4208001	OVID-GENEVA 001	4	96	344	3.59	3.20
4201702	SENECA FALLS 602	16	3,826	4,904	1.28	2.62
4203899	FLAT ST 599	9	802	1,986	2.48	2.40
4200101	MACEDON 601	14	3,515	2,726	0.78	2.34
4202701	ST JOHNS 201	4	629	535	0.85	2.15
4203302	BANKERT RD 602	1	1,125	1,323	1.18	2.01
4203550	SENECA ORDNANCE 650	3	30	86	2.86	2.00
4201002	WEST GENEVA 602	23	1,307	2,892	2.21	1.89
4203301	BANKERT RD 601	8	915	1,913	2.09	1.56
4204389	BLODGETT RD 589	10	1,939	4,983	2.57	1.51
4203303	BANKERT RD 600	19	1,898	3,650	1.92	1.51
4204789	RUSHVILLE TAP 589	9	702	1,907	2.72	1.46
4207769	HYATT RD 569	20	2,192	1,895	0.86	1.34
4200405	VAN BUREN ST 605	9	1,128	520	0.46	1.30
4202101	GORHAM 201	4	469	893	1.90	1.27
4201701	SENECA FALLS 601	11	1,428	2,741	1.92	1.24
4200404	VAN BUREN ST 604	15	2,447	3,404	1.39	1.20
4201503	WATERLOO 203	15	857	470	0.55	1.17
4202901	MILO 201	8	819	3,585	4.38	1.10
4201101	LEHIGH ST 601	19	519	750	1.44	1.00
4200901	OAK CORNERS 201	1	299	35	0.12	0.97
4202401	MIDDLESEX 201	13	920	2,782	3.03	0.84
4201001	WEST GENEVA 601	11	873	1,725	1.98	0.82
4200902	OAK CORNERS 202	5	187	1,022	5.46	0.80
4203897	FLAT ST 597	47	2,282	3,895	1.71	0.80
4201802	MAC DOUGALL 702	16	708	3,054	4.31	0.73
4201801	MAC DOUGALL 601	19	462	1,158	2.51	0.65
4200406	VAN BUREN ST 606	14	1,244	3,051	2.45	0.64
4200103	MACEDON 603	11	653	2,154	3.30	0.63
4203096	GREENIDGE 596	43	1,084	3,091	2.85	0.54
4203989	VOAK RD 589	3	141	436	3.09	0.53
4201103	LEHIGH ST 603	15	810	1,034	1.28	0.53
4207947	SLEIGHT RD 547	8	247	483	1.96	0.44
4207946	SLEIGHT RD 546	24	632	2,156	3.41	0.39
4201703	SENECA FALLS 603	20	625	1,458	2.33	0.34
4202302	RUSHVILLE 202	6	227	381	1.68	0.29
4201004	WEST GENEVA 604	13	523	571	1.09	0.28
4200801	PHELPS 201	8	253	621	2.45	0.25
4200102	MACEDON 602	9	316	1,058	3.35	0.21
4200403	VAN BUREN ST 603	13	451	1,131	2.51	0.21
4204686	HALEY RD 586	9	105	268	2.57	0.17
4200602	CLYDE 202	4	156	361	2.31	0.16
4203105	DUNDEE 205	11	193	424	2.19	0.16
4201602	GOULDS 202	1	56	12	0.22	0.16

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GENEVA						
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4200502	LYONS 602	3	27	47	1.74	0.13
4200603	CLYDE 203	9	79	302	3.82	0.12
4201501	WATERLOO 201	10	161	481	2.99	0.10
4202102	GORHAM 202	4	35	54	1.55	0.10
4202501	BELLONA 201	7	37	123	3.36	0.09
4200503	LYONS 603	12	140	205	1.47	0.09
4201003	WEST GENEVA 603	5	143	199	1.39	0.07
4203501	SENECA ORDNANCE PVT	1	6	23	3.85	0.05
4201502	WATERLOO 202	1	31	39	1.25	0.04
4201102	LEHIGH ST 602	2	54	48	0.89	0.04
4202601	DRESDEN 201	3	19	70	3.70	0.03
4204001	KEUKA 201	5	14	48	3.32	0.02
4202201	HALL 201	2	2	5	2.55	0.01
4203507	SENECA ORDNANCE 207	3	4	8	2.22	0.01
4200501	LYONS 601	1	2	4	1.80	0.01
4200202	PALMYRA 202	3	5	17	3.21	0.00
4203401	GARLOCKS PVT	1	1	3	2.93	0.00
4205501	DC-GWLISK	1	2	5	2.64	0.00
4200201	PALMYRA 201	1	3	6	2.10	0.00
4208601	RGE-LYONS 001	1	1	2	1.50	0.00

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HORNELL						
Circuit	Circuit Description	Interruptions	Customers Affected	Customer Hours Interrupted	CAIDI	SAIFI
5303639	JASPER 539	10	1,188	4,831	4.07	3.18
5301220	LEICESTER 320	8	2,405	4,181	1.74	3.02
5307043	MORAINE RD 543	18	1,986	4,051	2.04	2.56
5300468	ATLANTA 568	29	2,067	4,713	2.28	2.39
5301431	NAPLES 331	11	1,285	1,618	1.26	2.37
5300719	CANASERAGA 219	9	1,071	2,423	2.26	2.33
5304351	COFFEE HILL RD	23	1,683	3,807	2.26	2.28
5308201	RGE-HOCHANDLE RD	6	9	26	2.86	2.25
5301572	PALMITER RD 372	28	1,453	3,916	2.69	2.14
5301266	LEICESTER 266	5	479	1,092	2.28	2.03
5302163	TROUPSBURG 563	7	786	1,337	1.70	1.96
5307601	NM-VERNAL RD NIM	2	52	90	1.73	1.93
5303894	ROBESON 594	4	131	607	4.64	1.90
5300641	BENNETT 541	20	2,387	5,803	2.43	1.83
5301111	HOWARD 311	10	637	1,854	2.91	1.71
5308501	RGE-DALTON RD RGE	2	25	95	3.80	1.67
5302240	WALLACE 340	44	1,810	4,300	2.38	1.64
5303794	GAINESVILLE 594	7	635	1,275	2.01	1.52
5302528	WOODHULL 228	10	783	1,195	1.53	1.36
5301570	PALMITER RD 370	16	959	3,725	3.88	1.27
5302431	WAYLAND 231	13	1,187	3,407	2.87	1.14
5301351	MEYER 351	18	753	1,108	1.47	1.13
5301573	PALMITER RD 373	13	1,012	3,588	3.55	1.11
5301752	PORTAGEVILLE 252	4	254	540	2.13	1.10
5301466	NAPLES 566	21	1,026	3,144	3.06	1.09
5300946	COHOCTON 246	1	541	978	1.81	1.03
5301867	SILVER SPRINGS 267	1	1	5	5.10	1.00
5300817	CANISTEO 217	6	437	1,600	3.66	1.00
5301350	MEYER 350	45	1,745	3,773	2.16	1.00
5308101	RGE-TOWNLINE RD	1	14	23	1.62	1.00
5301571	PALMITER RD 371	1	383	1,372	3.58	0.97
5301110	HOWARD 310	5	139	415	3.00	0.90
5302067	STANTON AVE 367	14	1,553	3,178	2.05	0.87
5301861	SILVER SPRINGS 261	10	642	1,202	1.87	0.73
5302430	WAYLAND 230	3	448	1,083	2.42	0.56
5301614	PERRY CENTER 214	9	220	713	3.24	0.55
5307501	NM-LAGRANGE RD NIM	1	3	10	3.18	0.50
5301955	SPRING WATER 255	23	515	1,543	3.00	0.50
5307080	MORAINE RD 580	8	264	314	1.19	0.38
5302381	WARSAW 381	1	438	1,300	2.97	0.34
5300320	ARKPORT 220	6	333	852	2.56	0.32
5301352	MEYER 352	9	337	612	1.82	0.31
5300281	WEBB CROSSING 281	2	181	314	1.73	0.28
5300280	WEBB CROSSING 280	2	28	121	4.32	0.24
5300458	ATLANTA 258	12	107	252	2.35	0.22

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HORNELL						
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5301430	NAPLES 330	6	84	173	2.06	0.20
5302068	STANTON AVE 368	5	71	149	2.10	0.11
5301615	PERRY CENTER 215	3	18	62	3.42	0.08
5300601	BENNETT 301	4	68	142	2.10	0.06
5302380	WARSAW 380	13	79	219	2.75	0.05
5300173	HILL ST 273	1	30	79	2.62	0.05
5301343	MEYER 243	2	22	32	1.47	0.03
5300170	HILL ST 270	1	11	36	3.25	0.01
5300600	BENNETT 300	1	7	7	1.00	0.01
5307801	NM-ROUTE 21 NIM	3	4	15	3.90	0.00
5300816	CANISTEO 216	1	1	4	3.82	0.00

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ITHACA						
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4306301	POZZO 522	3	4	32	7.98	4.00
4305901	ROUTE 79 746	6	440	827	1.88	3.93
4300104	CAYUGA HEIGHTS 601	8	6,319	6,464	1.02	3.05
4303101	NORTH LANSING 522	13	2,502	4,391	1.76	2.62
4300303	SOUTH LANSING 721	4	1,443	1,030	0.71	2.09
4300502	LUDLOWVILLE 727	3	1,089	787	0.72	2.05
4300501	LUDLOWVILLE 726	2	355	249	0.70	2.04
4302001	VALOIS 508	17	1,622	6,045	3.73	2.03
4300402	CAYUGA ROCK SALT	1	24	60	2.49	2.00
4301403	WEST DANBY 530	21	2,422	4,598	1.90	1.60
4300203	EAST ITHACA 401	4	843	1,420	1.68	1.58
4301901	OVID 715	21	2,208	5,259	2.38	1.55
4301702	TRUMANSBURG 747	17	2,402	3,295	1.37	1.42
4300101	CAYUGA HEIGHTS 604	15	1,941	3,511	1.81	1.30
4300302	SOUTH LANSING 720	8	883	1,042	1.18	1.25
4301801	INTERLAKEN 705	16	1,782	2,348	1.32	1.22
4303401	BURDETT MECK 508	35	1,520	3,487	2.29	1.20
4300105	CAYUGA HEIGHTS 605	4	941	1,246	1.32	1.13
4301701	TRUMANSBURG 723	6	726	489	0.67	1.09
4300202	EAST ITHACA 405	19	1,498	2,889	1.93	1.08
4301501	WEST HILL 609	9	610	936	1.53	1.06
4300103	CAYUGA HEIGHTS 602	1	595	704	1.18	1.06
4302301	FOURTH ST 781	3	694	915	1.32	1.05
4302002	VALOIS 719	11	773	2,431	3.15	1.04
4303601	SOUTH LANSING TAP	6	1,108	2,664	2.40	1.04
4301502	WEST HILL 610	13	2,070	1,749	0.85	1.04
4301201	CANDOR 529	1	1,100	3,192	2.90	1.00
4306001	BLACKMAN HILL 746	1	31	44	1.43	1.00
4300102	CAYUGA HEIGHTS 603	1	34	40	1.18	1.00
4306501	SALT PAD 521	1	1	1	1.15	1.00
4202006	SAMPSON 206	1	9	6	0.70	1.00
4304201	HARFORD 524	4	153	168	1.10	0.99
4300602	MORAVIA 746	7	408	837	2.05	0.88
4304001	HARFORD MILLS 749	5	255	1,220	4.79	0.86
4302205	SOUTH HILL 614	2	541	214	0.39	0.85
4302901	BENJAMIN HILL 748	19	1,253	2,654	2.12	0.81
4300603	MORAVIA 606	28	721	1,760	2.45	0.70
4303701	PERUVILLE TAP 522	29	859	2,029	2.36	0.63
4302206	SOUTH HILL 608	5	373	1,242	3.33	0.58
4302601	WALPOLE RD 741	3	121	315	2.61	0.53
4300601	MORAVIA 704	10	381	809	2.12	0.53
4303001	DANBY RD 571	20	422	1,116	2.64	0.32
4300205	EAST ITHACA 404	14	764	1,645	2.15	0.28
4301001	DRYDEN 734	15	236	1,058	4.48	0.27
4305301	COUNTY HOSP - TBURG 540	28	625	2,268	3.63	0.27

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ITHACA						
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4301601	COUNTY HOSPITAL 736	8	220	553	2.51	0.27
4302204	SOUTH HILL 607	5	375	494	1.32	0.27
4303801	DRYDEN TAP 524	13	478	625	1.31	0.26
4302303	FOURTH ST 783	3	74	136	1.83	0.22
4302102	BURDETT 702	11	147	541	3.69	0.21
4301101	BROOKTONDALE 531	14	389	591	1.52	0.21
4300701	LOCKE 718	12	135	570	4.21	0.19
4300902	ETNA 709	15	267	650	2.44	0.18
4304901	WILSEYVILLE 751	6	67	192	2.87	0.14
4302305	FOURTH ST 785	2	70	14	0.20	0.12
4301301	SPENCER 712	8	108	447	4.15	0.09
4300201	EAST ITHACA 406	5	208	130	0.63	0.08
4302203	SOUTH HILL 613	4	107	291	2.72	0.06
4305101	CASS HILL-ITHACA 743	1	11	22	2.00	0.06
4301002	DRYDEN 735	2	33	98	2.97	0.05
4300802	PERUVILLE 733	5	24	146	6.08	0.04
4302304	FOURTH ST 784	2	30	11	0.38	0.04
4309001	NM-GLEN HAVEN RD	1	1	3	3.28	0.02
4306201	CRUM TOWN 530	1	2	21	10.73	0.01
4305801	ETNA TAP 523	1	3	13	4.48	0.01
4306601	BEER TAP 534	2	2	4	1.98	0.01
4308801	NM-BABCOCK	1	1	9	9.23	0.00
4302801	CORNELL LAKE	1	1	6	5.90	0.00
4301802	INTERLAKEN SVC	1	1	1	1.00	0.00

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LANCASTER						
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3103901	SOUTH PARK 471	28	8,885	10,030	1.13	4.57
3102402	WALES CENTER 326	16	2,937	6,800	2.31	4.27
3101203	ELLICOTT RD 237	7	3,834	8,176	2.13	4.27
3105302	COBBLEHILL 548	44	5,482	12,980	2.37	4.19
3104201	BENNINGTON CTR 445	21	1,989	3,094	1.56	3.98
3104202	BENNINGTON CTR 446	24	2,883	8,951	3.10	3.97
3104902	NEW GARDENVILLE 536	14	4,756	8,099	1.70	3.85
3101802	JAVA 281	14	2,841	6,178	2.17	3.59
3100701	FROG VALLEY 184	25	2,232	4,013	1.80	3.31
3101801	JAVA 280	15	2,937	9,441	3.21	3.25
3100104	LEGION DR 510	11	585	1,576	2.70	3.13
3100603	SILVER CREEK 180	14	4,148	17,136	4.13	3.12
3102901	ARMOR 371	5	8,010	19,083	2.38	3.03
3107501	West Varysburg 355	23	1,227	2,424	1.98	2.78
3105301	COBBLEHILL 530	35	6,292	8,312	1.32	2.64
3102401	WALES CENTER 325	20	2,829	5,634	1.99	2.61
3103401	COWLESVILLE 450	13	900	1,867	2.08	2.56
3103205	LANGER RD 434	16	5,321	12,237	2.30	2.46
3102902	ARMOR 372	14	4,886	14,899	3.05	2.38
3103105	DICK RD 537	21	6,658	12,153	1.82	2.38
3103402	COWLESVILLE 451	10	1,777	3,672	2.07	2.28
3104101	STOLLE RD 551	13	3,260	7,785	2.39	2.25
3100602	SILVER CREEK 179	8	2,952	16,050	5.44	2.17
3103004	DAVIS 531	17	4,898	4,885	1.00	2.17
3101204	ELLICOTT RD 238	2	303	1,228	4.05	2.09
3100804	ERIE ST 205	9	4,068	8,141	2.00	2.09
3102903	ARMOR 373	7	4,420	11,301	2.56	2.08
3101103	SLOAN 231	8	4,098	3,416	0.83	2.07
3105204	ROLL RD 524	13	5,221	5,259	1.01	2.02
3103203	LANGER RD 432	12	3,671	6,474	1.76	1.92
3103005	DAVIS 383	16	2,552	5,847	2.29	1.90
3107301	SPRINGBROOK 495	13	2,474	4,620	1.87	1.81
3100301	ELLINGTON 164	21	1,280	3,072	2.40	1.80
3102107	WALDEN AVE 307	3	476	1,061	2.23	1.77
3100201	DAYTON 160	18	743	1,251	1.68	1.75
3102303	HOLLAND 520	36	1,874	4,612	2.46	1.67
3102701	CHERRY CREEK 501	10	663	1,329	2.01	1.66
3100809	ERIE ST 515	7	2,407	6,428	2.67	1.58
3100702	FROG VALLEY 185	8	434	682	1.57	1.56
3103304	WENDE RD 443	1	3	7	2.23	1.50
3105202	ROLL RD 529	12	3,744	5,182	1.38	1.48
3102004	HAMBURG 295	3	478	773	1.62	1.45
3102501	WEHRLE DR 330	4	390	1,433	3.67	1.36
3103002	DAVIS 381	24	1,690	4,899	2.90	1.35
3100302	ELLINGTON 165	7	248	519	2.09	1.34

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3102002	HAMBURG 293	6	1,555	2,490	1.60	1.31
3102302	HOLLAND 321	10	1,532	5,048	3.29	1.29
3103302	WENDE RD 441	5	705	1,461	2.07	1.29
3102301	HOLLAND 320	14	1,333	3,187	2.39	1.25
3105001	BIG TREE 528	17	2,713	8,165	3.01	1.22
3101602	ALDEN 263	8	1,376	2,907	2.11	1.22
3103204	LANGER RD 433	10	2,457	5,656	2.30	1.21
3103303	WENDE RD 442	10	1,585	3,453	2.18	1.21
3102205	BLOSSOM 517	11	3,085	5,659	1.83	1.20
3103202	LANGER RD 431	6	953	2,138	2.24	1.18
3102001	HAMBURG 292	4	1,574	2,855	1.81	1.17
3101903	ORCHARD PARK 287	5	801	427	0.53	1.16
3103903	SOUTH PARK 473	6	922	254	0.28	1.14
3102102	WALDEN AVE 301	16	2,397	3,214	1.34	1.13
3100802	ERIE ST 203	6	1,269	3,560	2.81	1.09
3103201	LANGER RD 430	5	1,880	4,221	2.24	1.08
3103902	SOUTH PARK 472	12	1,580	723	0.46	1.07
3101101	SLOAN 229	5	1,454	2,044	1.41	1.06
3103702	CEMETERY RD 490	3	2,862	2,339	0.82	1.03
3100601	SILVER CREEK 178	7	1,097	6,758	6.16	1.02
3100808	ERIE ST 209	2	871	2,515	2.89	1.02
3101601	ALDEN 262	3	571	1,298	2.27	1.02
3102003	HAMBURG 294	3	929	1,550	1.67	1.02
3103701	CEMETERY RD 491	5	2,188	6,010	2.75	1.01
3103207	LANGER RD 436	2	228	529	2.32	1.01
3100801	ERIE ST 202	3	1,012	2,947	2.91	1.00
3100806	ERIE ST 207	1	288	835	2.90	1.00
3107101	WENDE PRISON 525	1	1	2	2.23	1.00
3102502	WEHRLE DR 331	4	1,324	2,297	1.73	1.00
3102005	HAMBURG 296	1	251	385	1.53	1.00
3101102	SLOAN 230	1	1,028	1,405	1.37	1.00
3102104	WALDEN AVE 303	1	399	486	1.22	1.00
3102105	WALDEN AVE 304	1	311	378	1.22	1.00
3102106	WALDEN AVE 305	1	961	1,170	1.22	1.00
3102103	WALDEN AVE 302	2	322	384	1.19	1.00
3102101	WALDEN AVE 300	1	486	575	1.18	1.00
3109860	RGE-YOUNGERS RD 160	1	1	0	0.35	1.00
3100807	ERIE ST 208	1	859	2,491	2.90	0.99
3104802	NORTH BROADWAY 544	7	1,283	2,653	2.07	0.99
3101702	REIN RD 272	17	1,170	3,993	3.41	0.98
3101603	ALDEN 264	8	1,332	3,046	2.29	0.95
3103101	DICK RD 390	2	384	322	0.84	0.88
3102605	EAST AURORA 345	6	1,070	2,147	2.01	0.84
3104004	LOSSON RD 402	32	2,812	4,929	1.75	0.82
3103603	LAKE AVE 482	10	2,039	3,619	1.77	0.77

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LANCASTER						
Circuit	Circuit Description	Interruptions	Customers Affected	Customer Hours Interrupted	CAIDI	SAIFI
3101703	REIN RD 270	1	40	59	1.48	0.74
3103001	DAVIS 380	16	699	1,664	2.38	0.73
3103003	DAVIS 382	20	1,071	3,160	2.95	0.65
3100501	RANDOLPH 174	17	389	1,143	2.94	0.64
3102607	EAST AURORA 347	1	206	86	0.42	0.61
3102505	WEHRLE DR 334	8	589	648	1.10	0.54
3104003	LOSSON RD 403	15	1,531	1,427	0.93	0.54
3100901	GIRDLE RD 554	13	607	1,091	1.80	0.53
3104005	LOSSON RD 405	5	349	407	1.16	0.51
3105203	ROLL RD 545	22	1,261	2,395	1.90	0.47
3101002	INDIAN CHURCH RD 224	2	220	390	1.78	0.43
3105201	ROLL RD 512	14	886	2,869	3.24	0.41
3102506	WEHRLE DR 332	11	343	601	1.75	0.38
3103803	TYLER ST 462	17	678	1,988	2.93	0.37
3104002	LOSSON RD 401	13	745	2,213	2.97	0.34
3103801	TYLER ST 460	8	482	1,249	2.59	0.32
3103703	CEMETERY RD 492	18	835	1,706	2.04	0.32
3103601	LAKE AVE 480	11	629	744	1.18	0.32
3103107	DICK RD 396	7	492	666	1.36	0.30
3102202	BLOSSOM 313	8	328	436	1.33	0.30
3103605	LAKE AVE 484	12	374	903	2.42	0.22
3200204	TRANSIT 111	1	106	34	0.32	0.22
3102606	EAST AURORA 346	13	212	672	3.17	0.21
3102603	EAST AURORA 343	7	184	585	3.19	0.19
3100401	NEW ALBION 168	7	58	124	2.14	0.16
3105003	BIG TREE 539	3	142	148	1.04	0.16
3102503	WEHRLE DR 335	2	55	103	1.87	0.15
3101901	ORCHARD PARK 285	3	120	612	5.10	0.14
3102602	EAST AURORA 342	10	145	203	1.40	0.13
3101902	ORCHARD PARK 286	6	111	464	4.19	0.12
3102201	BLOSSOM 312	7	311	749	2.41	0.12
3104801	NORTH BROADWAY 535	5	313	542	1.73	0.12
3103104	DICK RD 393	7	163	1,254	7.70	0.10
3103502	SOUTH COLDEN 456	2	18	30	1.67	0.08
3102801	EBENEZER 360	2	63	98	1.56	0.07
3100103	LEGION DR 154	6	80	123	1.54	0.07
3104001	LOSSON RD 404	9	136	516	3.80	0.06
3103501	SOUTH COLDEN 455	6	27	54	1.99	0.06
3103802	TYLER ST 461	3	71	141	1.98	0.06
3101003	INDIAN CHURCH RD 225	1	25	200	7.98	0.05
3103804	TYLER ST 463	4	54	81	1.50	0.05
3103103	DICK RD 392	4	58	75	1.29	0.04
3200602	CHESTNUT RIDGE 190	1	32	28	0.88	0.04
3102802	EBENEZER 361	2	36	100	2.79	0.03
3101701	REIN RD 271	3	3	3	1.06	0.03

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LANCASTER						
Circuit	**Circuit Description**	**Interruptions**	**Customers Affected**	**Customer Hours Interrupted**	**CAIDI**	**SAIFI**
3101001	INDIAN CHURCH RD 223	2	20	147	7.35	0.02
3100502	RANDOLPH 175	2	11	36	3.31	0.02
3102604	EAST AURORA 340	2	11	15	1.36	0.02
3102203	BLOSSOM 314	2	15	12	0.78	0.02
3106301	JAMISON RD 518	1	1	9	9.10	0.01
3105002	BIG TREE 523	2	5	6	1.25	0.01

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LIBERTY						
Circuit	Circuit Description	Interruptions	Customers Affected	Customer Hours Interrupted	CAIDI	SAIFI
2409101	ORG-ROWLEY RD	7	54	144	2.65	7.71
2408901	ORG-BARKER RD	6	77	223	2.89	5.92
2407617	FRENCH WOODS 217	19	809	2,421	2.99	4.28
2402786	ROSCOE 286	37	2,406	9,107	3.79	3.16
2402623	Rock Hill 223	5	1,364	5,212	3.82	3.09
2407716	ROCK VALLEY 216	10	325	1,617	4.98	2.56
2402182	LUXTON LAKE 182	38	2,552	3,603	1.41	2.56
2402624	Rock Hill 224	10	2,325	9,173	3.95	2.50
2404401	FREMONT-ACIDALIA	11	534	1,729	3.24	2.48
2403885	CALLICOON 285	54	4,009	11,696	2.92	2.48
2403734	MOUNTAINDALE 207	15	3,450	9,417	2.73	2.35
2403659	WALDEN 359	83	7,773	11,033	1.42	2.30
2402625	ROCK HILL 125	13	1,662	5,381	3.24	2.24
2401589	HAZEL 189	12	1,223	922	0.75	2.24
2402229	MAPLEWOOD 229	10	4,339	5,808	1.34	2.17
2400435	COCHECTON	13	462	782	1.69	2.08
2404301	SHORTCUT RD 349	2	175	990	5.65	2.01
2402622	Rock Hill 222	2	28	107	3.80	2.00
2404030	WILLOWEMOC 030	20	783	1,472	1.88	1.94
2403658	WALDEN 358	49	2,801	7,531	2.69	1.91
2401611	JEFFERSONVILLE	38	1,638	4,184	2.55	1.83
2401514	HAZEL 353	18	647	2,832	4.38	1.78
2401763	KIAMESHA 263	13	1,449	2,944	2.03	1.76
2403252	WHITE LAKE 290	49	3,145	6,526	2.08	1.72
2401612	JEFFERSONVILLE	14	1,164	4,073	3.50	1.69
2408501	CHU-BLUE HILL RD	2	5	19	3.65	1.67
2402627	ROCK HILL 220	5	197	601	3.05	1.56
2402227	MAPLEWOOD 127	9	837	2,075	2.48	1.53
2403736	MOUNTAINDALE 206	16	897	1,255	1.40	1.43
2403404	YULAN 204	39	2,662	5,317	2.00	1.40
2402584	OLD FALLS 284	12	1,351	5,189	3.84	1.35
2403738	MOUNTAINDALE 208	7	709	370	0.52	1.26
2401844	LIBERTY 144	10	1,432	1,481	1.03	1.18
2402321	MONTICELLO 136	8	1,145	1,319	1.15	1.17
2401011	BEAVER BROOK 011	6	227	465	2.05	1.14
2403251	WHITE LAKE 151	23	1,792	3,740	2.09	1.10
2402228	MAPLEWOOD 128	1	1	2	1.83	1.00
2404101	VILLA ROMA 001	1	7	3	0.48	1.00
2402583	OLD FALLS 283	40	1,397	3,701	2.65	0.95
2402322	MONTICELLO 137	7	634	5,528	8.72	0.94
2401610	JEFFERSONVILLE	48	1,566	4,002	2.55	0.92
2401971	LIVINGSTON MANOR	15	241	746	3.09	0.75
2400202	SHIELDS RD 002	3	221	463	2.10	0.74
2402787	ROSCOE 287	9	420	1,467	3.49	0.73
2402480	NEVERSINK 080	19	501	1,467	2.93	0.50

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LIBERTY						
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2401970	LIVINGSTON MANOR 070	14	610	1,468	2.41	0.49
2401275	FOSTERDALE 107	7	257	1,945	7.57	0.47
2401311	GROSSINGER 211	23	659	2,095	3.18	0.47
2401197	CONCORD 197	12	126	357	2.83	0.47
2404201	WHITE SULPHER SPRING 001	8	238	703	2.96	0.45
2402820	SACKETT LAKE 020	9	221	1,131	5.12	0.29
2401276	FOSTERDALE 108	5	107	256	2.39	0.28
2401310	GROSSINGER 210	19	238	1,062	4.47	0.22
2403999	HILLDALE 225	14	403	876	2.18	0.21
2401842	LIBERTY 142	3	100	323	3.23	0.19
2402323	MONTICELLO 138	3	103	143	1.39	0.17
2403195	SWAN LAKE 157	6	54	924	17.13	0.11
2402324	MONTICELLO 139	3	29	118	4.06	0.11
2403194	SWAN LAKE 158	8	62	81	1.31	0.08
2402588	OLD FALLS 288	5	79	222	2.80	0.06
2403605	WALDEN 705	8	115	331	2.88	0.05
2403607	WALDEN 707	4	46	97	2.12	0.05
2401198	CONCORD 198	1	16	35	2.17	0.04
2402821	SACKETT LAKE 121	4	4	27	6.67	0.01
2401761	KIAMESHA 261	1	1	4	4.10	0.00

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LOCKPORT						
Circuit	Circuit Description	Interruptions	Customers Affected	Customer Hours Interrupted	CAIDI	SAIFI
3200602	CHESTNUT RIDGE 190	18	1,187	1,866	1.57	1.41
3200502	LOCUST ST 153	11	1,890	4,289	2.27	1.21
3200302	PARK AVE 121	3	581	1,642	2.83	1.07
3200103	VINE ST 103	5	569	1,095	1.92	1.03
3200208	TRANSIT 413	1	63	152	2.42	1.00
3200502	LOCUST ST 153	1	1,555	311	0.20	1.00
3200505	LOCUST ST 151	3	1,157	1,796	1.55	0.88
3200204	TRANSIT 111	1	376	733	1.95	0.78
3200504	LOCUST ST 150	11	1,918	3,500	1.83	0.62
3200301	PARK AVE 120	3	570	1,189	2.09	0.54
3200601	CHESTNUT RIDGE 191	13	636	1,065	1.67	0.47
3201701	SOUTH NIAGARA ST 201	5	210	294	1.40	0.27
3200203	TRANSIT 110	1	49	292	5.97	0.24
3200401	MILL ST 130	4	122	191	1.57	0.21
3200402	MILL ST 131	7	65	110	1.68	0.16
3200102	VINE ST 102	2	114	174	1.53	0.12
3200206	TRANSIT 113	5	68	83	1.23	0.08
3200501	LOCUST ST 152	4	155	151	0.97	0.07
3200205	TRANSIT 112	2	39	51	1.33	0.05
3200101	VINE ST 101	2	15	15	0.96	0.03
3200207	TRANSIT 114	1	3	5	1.80	0.01

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MECHANICVILLE						
Circuit	Circuit Description	Interruptions	Customers Affected	Customer Hours Interrupted	CAIDI	SAIFI
1205901	RAYLINSKI TAP 606	32	23,705	39,811	1.68	5.23
1204003	CRARYVILLE 611	26	3,080	5,369	1.74	4.78
1205403	KLINE KILL 631	64	6,769	13,857	2.05	3.68
1209029	NM-MECHANICVILLE	6	11	27	2.52	3.67
1203102	RUTLAND 131	19	2,218	4,863	2.19	3.63
1204004	CRARYVILLE 610	80	7,470	19,070	2.55	3.53
1205402	KLINE KILL 630	62	7,486	15,886	2.12	3.06
1203806	WEST LEBANON 166	20	1,903	3,849	2.02	2.88
1201401	GRANVILLE-SALEM	30	2,538	7,186	2.83	2.72
1203207	STEPHENTOWN 622	62	5,037	9,682	1.92	2.66
1201801	TIPLADY RD TAP 628	17	354	1,540	4.35	2.53
1203101	RUTLAND 130	10	1,198	2,890	2.41	2.50
1203902	CROOKED LAKE 613	25	2,389	5,430	2.27	2.44
1201701	SALEM TAP 627	45	3,302	11,449	3.47	2.42
1203502	MELLONVILLE 151	10	2,335	4,262	1.83	2.14
1206301	LUTHER FOREST 607	26	8,383	23,251	2.77	2.13
1203501	MELLONVILLE 150	11	1,119	1,941	1.74	2.00
1204001	CRARYVILLE 400	61	3,146	6,258	1.99	1.74
1203206	STEPHENTOWN 136	33	1,768	4,207	2.38	1.68
1203401	CANAAN 145	28	1,309	3,355	2.56	1.51
1201201	SALEM 175	25	807	2,760	3.42	1.45
1203805	WEST LEBANON 165	17	1,396	2,829	2.03	1.40
1201301	COMSTOCK-	59	1,802	6,484	3.60	1.31
1203302	WYNANTSKILL 141	8	1,271	3,170	2.49	1.25
1201101	GRANVILLE 301	2	437	2,139	4.89	1.23
1206302	LUTHER FOREST 635	4	147	293	1.99	1.23
1203606	CHATHAM 156	7	241	625	2.60	1.14
1202312	HALFMOON 412	8	2,096	10,804	5.16	1.12
1201102	GRANVILLE 302	3	872	4,837	5.55	1.07
1201501	FLIKE RD TAP 605	13	436	759	1.74	1.04
1209017	NM-MECHANICVILLE	1	22	42	1.90	1.00
1209263	NM-CHATHAM 963	1	8	9	1.15	1.00
1209028	NM-MECHANICVILLE	1	7	6	0.85	1.00
1209251	NM-CHATHAM 951	1	5	8	1.70	0.83
1202310	HALFMOON 410	11	1,100	1,260	1.15	0.47
1206002	MULBERRY 602	15	1,488	2,166	1.46	0.45
1203702	WEST SAND LAKE 161	3	149	75	0.50	0.33
1204201	WEST SAND LAKE TAP	5	240	678	2.82	0.32
1206115	CRELLIN 615	10	11	19	1.77	0.32
1204301	SNOWS CORNERS 608	7	101	215	2.13	0.24
1209137	NM-GRANVILLE 370	1	1	4	4.40	0.20
1202215	STILLWATER 215	10	152	216	1.41	0.15
1203301	WYNANTSKILL 140	8	144	798	5.55	0.14
1203605	CHATHAM 155	5	123	319	2.58	0.14
1208901	SLATEVILLE 620	2	15	37	2.46	0.07

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MECHANICVILLE						
Circuit	**Circuit Description**	**Interruptions**	**Customers Affected**	**Customer Hours Interrupted**	**CAIDI**	**SAIFI**
1204401	Cobb Hill Tap 609	2	56	70	1.24	0.07
1201202	SALEM 176	3	19	62	3.27	0.05
1203901	CROOKED LAKE 170	4	24	49	2.03	0.02
1201601	VANESS RD TAP 604	3	4	8	2.04	0.01
1204101	WYNANTSKILL TAP 416	1	1	1	0.52	0.00

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ONEONTA						
Circuit	Circuit Description	Interruptions	Customers Affected	Customer Hours Interrupted	CAIDI	SAIFI
2304401	WILLET-ONEONTA 423	6	637	1,222	1.92	5.95
2309364	NM-ONEONTA 064	4	32	147	4.58	4.57
2302075	SOUTH COOPERSTOWN	30	4,807	10,520	2.19	4.48
2300512	OTEGO 012	11	2,269	1,624	0.72	3.79
2305412	SOUTH NEW BERLIN 012	9	2,075	10,113	4.87	3.55
2300520	OTEGO 200	27	3,976	2,434	0.61	3.49
2300922	UNADILLA 022	24	3,788	5,499	1.45	3.30
2300612	COLLIERS 012	21	3,678	5,196	1.41	3.20
2308417	SANDS CREEK 217	8	315	935	2.97	3.18
2300912	UNADILLA 012	12	3,848	3,545	0.92	3.16
2300522	OTEGO 022	10	3,208	866	0.27	3.08
2309665	PENN ELEC-WALTON 065	6	18	189	10.50	2.57
2304726	EARLVILLE 226	26	2,124	9,055	4.26	2.53
2301327	MILFORD 227	36	2,947	7,051	2.39	2.52
2304727	EARLVILLE 227	23	2,564	8,047	3.14	2.33
2307901	SHANDAKEN 501	36	4,034	9,560	2.37	2.21
2308312	FINCH HOLLOW 012	8	975	1,647	1.69	2.19
2301212	GILBERTSVILLE 012	18	1,430	4,777	3.34	2.17
2309751	NM-WALTON 051	4	44	114	2.61	2.10
2305516	EAST NORWICH 516	34	3,759	6,747	1.80	2.08
2304725	EARLVILLE 225	27	1,403	6,986	4.98	2.07
2309857	NM-CRUMHORN LAKE	2	70	375	5.36	2.00
2309558	CHU-WALTON2 058	2	22	63	2.86	2.00
2307011	AXTELL RD 511	26	2,479	10,685	4.31	1.95
2305065	MORRISVILLE 265	11	1,161	4,693	4.04	1.94
2302704	BROTHERTOWNE 504	15	1,205	9,932	8.24	1.92
2307647	GRAND GORGE 247	28	1,689	11,226	6.65	1.92
2307309	DEPOSIT 109	24	2,444	8,149	3.33	1.76
2307211	DELHI 211	20	1,597	2,882	1.80	1.75
2304942	EDMESTON 220	18	1,384	4,801	3.47	1.73
2307210	DELHI 210	9	2,158	5,456	2.53	1.69
2307646	GRAND GORGE 246	23	1,646	2,897	1.76	1.62
2307010	AXTELL RD 510	17	1,608	6,443	4.01	1.52
2304122	NEW BERLIN 022	13	803	1,063	1.32	1.47
2301614	MORRIS 214	24	932	2,782	2.99	1.41
2307715	HANCOCK 215	5	151	274	1.81	1.37
2309480	CHU-WALTON1 080	2	4	31	7.69	1.33
2306218	BELL AYRE 218	13	494	1,379	2.79	1.29
2307716	HANCOCK 216	60	1,828	4,558	2.49	1.18
2304612	BRIDGEWATER 012	4	651	1,385	2.13	1.18
2305515	EAST NORWICH 515	33	3,358	11,485	3.42	1.16
2305312	WOODS CORNERS 012	16	790	1,678	2.12	1.05
2303345	AFTON-ONEONTA 245	3	133	512	3.85	1.04
2305066	MORRISVILLE 266	9	847	724	0.85	1.03
2307645	GRAND GORGE 245	41	1,424	6,701	4.71	1.01

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ONEONTA						
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2302124	WEST DAVENPORT 022	1	538	1,587	2.95	1.01
2301712	WEST ST 012	2	156	438	2.81	1.01
2309404	CHU-WALTON1 104	1	2	11	5.37	1.00
2306217	BELL AYRE 217	1	43	115	2.67	1.00
2309921	NM-NORWICH 021	1	14	33	2.35	1.00
2301512	EMMONS 012	1	225	416	1.85	1.00
2308241	WINDHAM 241	1	731	694	0.95	1.00
2300821	COOPERSTOWN 121	23	777	3,540	4.55	0.93
2307912	SHANDAKEN 012	23	551	1,727	3.13	0.93
2307390	DEPOSIT 290	20	979	3,358	3.43	0.90
2301970	SPRINGFIELD CENTER	22	907	2,385	2.63	0.90
2304812	EATON 012	16	604	1,592	2.64	0.88
2301412	MOUNT UPTON 012	18	561	1,744	3.11	0.81
2305222	WATERVILLE 022	13	332	997	3.00	0.81
2309774	NM-WALTON 074	3	5	11	2.31	0.71
2303012	GUILDFORD CENTER 012	25	618	1,999	3.23	0.70
2301358	MILFORD 258	16	787	765	0.97	0.70
2308239	WINDHAM 239	37	1,053	4,969	4.72	0.65
2307412	DOWNSVILLE 012	24	766	2,474	3.23	0.64
2308240	WINDHAM 240	50	919	2,657	2.89	0.63
2306435	ANDES 235	34	970	4,080	4.21	0.57
2304312	OXFORD 012	27	527	1,938	3.68	0.52
2309581	CHU-WALTON2 081	1	1	0	0.23	0.50
2306330	ARKVILLE 230	57	1,388	4,404	3.18	0.49
2303504	COLUMBUS 220	4	128	343	2.68	0.48
2306961	WEST WINFIELD 261	6	583	2,696	4.62	0.42
2307032	AXTELL RD 032	15	361	1,444	3.99	0.41
2304232	ORISKANY FALLS 142	18	423	1,294	3.06	0.41
2305112	NORTH NORWICH 012	8	171	877	5.13	0.39
2300712	BAINBRIDGE 012	13	409	1,151	2.81	0.39
2304322	OXFORD 022	14	345	1,367	3.96	0.38
2308102	RIVER RD 102	8	346	619	1.79	0.33
2300312	PIERCE AVE 012	2	132	156	1.18	0.32
2304512	BOUCKVILLE 012	16	289	843	2.93	0.29
2301522	EMMONS 022	1	64	23	0.37	0.28
2304112	NEW BERLIN 012	9	207	740	3.58	0.27
2302112	WEST DAVENPORT 012	13	273	911	3.34	0.26
2303503	COLUMBUS 219	3	29	108	3.76	0.25
2300332	PIERCE AVE 032	2	151	933	6.18	0.24
2307310	DEPOSIT 110	6	116	309	2.66	0.23
2300303	PIERCE AVE 203	5	213	315	1.48	0.23
2306212	BELL AYRE 212	23	232	499	2.16	0.21
2301123	JORDANVILLE 023	3	44	98	2.24	0.18
2301032	SIDNEY-RAILROAD 032	9	218	614	2.82	0.16
2306960	WEST WINFIELD 260	12	201	644	3.20	0.15

NEW YORK STATE ELECTRIC AND GAS CORPORATION
CAIDI/SAIFI Circuit Report - Descending SAIFI Order
January 1, 2018 to December 31, 2018

ONEONTA						
Circuit	Circuit Description	Interruptions	Customers Affected	Customer Hours Interrupted	CAIDI	SAIFI
2300304	PIERCE AVE 204	6	85	221	2.58	0.15
2300162	SAND ST 062	6	92	169	1.83	0.15
2304042	BIRDSALL 042	1	19	86	4.55	0.14
2308105	RIVER RD 105	20	151	410	2.71	0.14
2309470	CHU-WALTON1 070	1	1	2	2.03	0.14
2309350	NM-ONEONTA 050	1	1	5	5.00	0.12
2300152	SAND ST 052	3	128	420	3.28	0.11
2308104	RIVER RD 104	4	122	328	2.69	0.11
2300212	HENRY ST 150	2	94	195	2.07	0.09
2304032	BIRDSALL 032	1	29	37	1.28	0.09
2301612	MORRIS 012	4	38	143	3.75	0.08
2301822	RICHFIELD SPRINGS 022	4	36	118	3.27	0.08
2300722	BAINBRIDGE 022	6	31	99	3.20	0.06
2309925	NM-NORWICH 025	1	1	3	3.17	0.06
2301022	SIDNEY-RAILROAD 022	4	23	40	1.71	0.06
2305212	WATERVILLE 012	4	21	80	3.81	0.03
2301812	RICHFIELD SPRINGS 012	12	42	107	2.56	0.03
2301012	SIDNEY-RAILROAD 012	6	48	81	1.67	0.03
2304072	BIRDSALL 072	1	16	24	1.52	0.03
2300122	SAND ST 022	1	20	8	0.38	0.03
2307712	HANCOCK 012	2	9	12	1.36	0.02
2302076	SOUTH COOPERSTOWN 276	1	5	15	3.03	0.01
2305006	MORRISVILLE 106	1	1	3	2.53	0.01
2304222	ORISKANY FALLS 141	1	1	2	2.12	0.00
2300823	COOPERSTOWN 123	1	1	0	0.32	0.00

NEW YORK STATE ELECTRIC AND GAS CORPORATION
CAIDI/SAIFI Circuit Report - Descending SAIFI Order
January 1, 2018 to December 31, 2018

PLATTSBURGH						
Circuit	Circuit Description	Interruptions	Customers Affected	Customer Hours Interrupted	CAIDI	SAIFI
1501601	BLUE MTN LAKE 504	45	11,356	34,150	3.01	9.42
1503401	HARRIS LAKE 424	27	4,351	9,878	2.27	7.02
1508801	NM-MEGSVILLE RD NIM	8	15	123	8.24	5.00
1502601	JAY 502	21	1,764	3,294	1.87	4.44
1509201	NM-RAQUETTE	6	98	509	5.19	3.63
1502244	DANNEMORA 444	16	4,701	18,048	3.84	3.47
1500113	CHATEAUGAY 513	21	2,923	6,196	2.12	3.11
1503101	NORTON 420	40	3,126	6,038	1.93	2.76
1501001	WEST CHAZY 136	15	2,881	4,335	1.50	2.57
1503902	MASON CORNERS 451	16	2,048	2,334	1.14	2.55
1501137	BANKER RD 437	18	3,650	2,986	0.82	2.52
1502245	DANNEMORA 445	1	5	21	4.32	2.50
1502101	CLINTONVILLE 456	11	730	1,551	2.12	2.45
1500114	CHATEAUGAY 514	30	4,475	8,830	1.97	2.17
1501138	BANKER RD 438	27	2,754	2,563	0.93	2.11
1503301	STEAMBOAT LANDING	2	8	46	5.76	2.00
1509301	NM-TAYLOR RD NIM	2	48	59	1.23	2.00
1502602	JAY 411	51	3,029	7,145	2.36	1.88
1503202	PERU 427	19	2,078	2,245	1.08	1.66
1502574	HIGH FALLS 474	23	1,986	3,904	1.97	1.56
1502701	STICKNEY BRIDGE 210	12	806	3,912	4.85	1.53
1508701	NM-COONROD RD NIM	3	3	11	3.84	1.50
1500517	SCIOTA-FLATROCK 517	45	4,585	7,168	1.56	1.45
1501802	CABOT MINE 414	17	1,353	2,102	1.55	1.44
1503702	BARTON BROOK 404	17	1,001	990	0.99	1.43
1503701	BARTON BROOK 403	27	1,251	1,975	1.58	1.42
1501767	SOUTH JUNCTION 467	20	2,381	2,287	0.96	1.41
1503047	KEESESVILLE 447	46	2,675	7,296	2.73	1.33
1500901	LYON MTN 510	18	1,785	2,019	1.13	1.32
1503201	PERU 426	18	1,608	745	0.46	1.32
1501502	WOODRUFF POND 461	15	1,327	1,596	1.20	1.31
1508601	NM-CARGIN RD NIM	1	13	27	2.10	1.18
1501501	WOODRUFF POND 460	22	941	1,362	1.45	1.04
1501370	LIMESTONE 470	7	943	698	0.74	1.01
1500817	HYDE 417	10	610	709	1.16	0.71
1503901	MASON CORNERS 450	22	746	1,302	1.75	0.57
1501801	CABOT MINE 413	14	562	854	1.52	0.46
1505002	TOM MILLER RD 478	4	240	416	1.73	0.30
1504508	ARIZONA AVE 408	4	28	26	0.91	0.30
1509101	NM-JUDSON RD NIM	1	2	11	5.27	0.29
1502030	HAMMOND LANE 430	4	264	423	1.60	0.27
1502032	HAMMOND LANE 432	2	49	156	3.19	0.25
1503002	KEESESVILLE 153	1	99	128	1.29	0.20
1501901	MILL C 125	8	154	232	1.51	0.15
1501766	SOUTH JUNCTION 466	6	60	109	1.84	0.09

NEW YORK STATE ELECTRIC AND GAS CORPORATION
CAIDI/SAIFI Circuit Report - Descending SAIFI Order
January 1, 2018 to December 31, 2018

PLATTSBURGH						
Circuit	Circuit Description	Interruptions	Customers Affected	Customer Hours Interrupted	CAIDI	SAIFI
1501401	BEEKMANTOWN 133	6	54	104	1.93	0.06
1504507	ARIZONA AVE 407	2	2	2	1.08	0.03
1505001	TOM MILLER RD 477	1	2	8	3.95	0.01

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Provide an analysis of the worst-performing circuits. The analysis must cover a minimum of 5% of the circuits and include a description of the methodology used to identify worst-performing circuits –

Part of NYSEG's efforts to maintain a highly reliable electric distribution system is the Worst Performing Circuit Analysis. This program consists of a yearly evaluation of all of the distribution circuits and the development of reliability plans by the operating divisions to address key circuits that will best benefit from additional analysis and/or corrective work in the field.

Circuit Analysis Process

- During the third quarter of the year, each circuit is evaluated by its reliability performance over the twelve month period of July 1st through June 30th.
- The number of interruptions, customers interrupted (affected), and the customer hours of interruption are recorded for each NYSEG circuit minus any major storm interruptions.
- A weighted SAIFI factor is calculated based on a specific circuit's impact to the overall company SAIFI.
- All of the circuits are then sorted highest to lowest based on their individual weighted SAIFI contributions to NYSEG's overall reliability performance.
- The individual NYSEG Division worst performing circuits, representing 5% of the respective Division's circuits based on their weighted SAIFI value, are then assigned to each Division for further analysis and for the development of Reliability Improvement Plans.

Developing Reliability Improvement Plans

- The results of the circuit analysis are provided to the operating divisions close to the end of each year.
- The operating divisions then further evaluate each of their higher-ranked circuits. They consider recent work that may have been done on the circuits and the feasibility of improving the circuit reliability with additional work on a cost/benefit basis.
- The goal of each of these reliability plans is to identify those circuits with performance that can best benefit from additional work and to balance the proposed work with the current budget and manpower availability.

Worst Performing Circuits 2018									
Division	Circuit	Circuit Decription	Customers Connected	Circuit Voltage	Circuit Miles	Circuit CAIDI	Circuit SAIFI	Weighted SAIFI	SAIFI Rank
Auburn	4402101	STRYKER AVE 702	2,702	12.5	58.00	0.96	2.85	0.0079	6
Auburn	4402102	STRYKER AVE 721	1,883	12.5	56.00	0.85	2.46	0.0047	34
Auburn	4401602	MARIETTA 511	974	34.5	65.00	0.96	3.53	0.0035	66
Binghamton	8101705	CHENANGO BRIDGE 428	1,900	34.5	79.00	2.32	3.42	0.0066	12
Binghamton	8104601	KATTLEVILLE 422	2,839	34.5	93.00	1.08	2.19	0.0064	17
Binghamton	8102301	GENEGANTSLET CORNERS 422	1,492	34.5	102.00	1.47	3.81	0.0058	19
Binghamton	8104102	CASTLE GARDEN 622	2,490	12.5	61.00	2.00	1.52	0.0039	55
Binghamton	8102802	LOUNSBERRY 179	984	12.5	67.00	2.73	2.50	0.0025	108
Binghamton	8104401	WILLET 423	1,126	34.5	124.00	2.15	1.98	0.0023	123
Binghamton	8103901	BERKSHIRE 746	807	4.8	69.00	1.90	2.50	0.0021	148
Binghamton	8102801	LOUNSBERRY 178	961	12.5	80.00	2.83	2.04	0.0020	155
Brewster	1105724	CRAFTS 424	1,252	13.2	41.00	2.09	7.79	0.0100	4
Brewster	1107733	UNION VALLEY 433	2,317	13.2	37.00	1.25	3.29	0.0078	8
Brewster	1105004	CROTON FALLS 515	1,467	13.2	28.00	1.93	5.00	0.0075	10
Brewster	1105115	ADAMS CORNERS 412	1,396	13.2	46.00	2.67	4.62	0.0066	14
Elmira	5208162	YAWGER RD 362	1,986	12.5	65.00	1.73	3.85	0.0078	7
Elmira	5204446	SOUTH ADDISON 346	1,317	12.5	59.00	2.83	3.49	0.0047	35
Elmira	5201021	BULKHEAD 321	1,746	12.5	105.00	1.41	2.25	0.0040	50
Elmira	5202033	MONTOUR FALLS 233	1,129	8.32	51.00	2.17	3.42	0.0039	52
Elmira	5204447	SOUTH ADDISON 347	481	12.5	52.00	2.67	5.81	0.0028	89
Geneva	4203897	FLAT ST 597	2,841	34.5	186.00	1.47	2.30	0.0067	11
Geneva	4200101	MACEDON 601	1,499	12.5	32.00	1.02	3.43	0.0052	26
Geneva	4201003	WEST GENEVA 603	2,084	12.5	15.00	0.30	1.18	0.0025	109
Geneva	4204001	KEUKA 201	766	4.8	32.00	1.37	3.09	0.0024	115
Hornell	5307043	MORAINE RD 543	775	34.5	93.00	1.60	3.74	0.0030	85
Hornell	5301220	LEICESTER 320	796	12.5	46.00	2.27	3.05	0.0025	111
Hornell	5300641	BENNETT 541	1,303	34.5	126.00	2.17	1.70	0.0023	125
Hornell	5301350	MEYER 350	1,741	12.5	98.00	1.88	1.26	0.0022	128
Ithaca	4301702	TRUMANSBURG 747	1,692	4.8	80.00	1.73	3.33	0.0057	20
Ithaca	4301801	INTERLAKEN 705	1,456	4.8	91.00	2.54	3.41	0.0051	29
Ithaca	4301403	WEST DANBY 530	1,516	34.5	78.00	3.11	3.11	0.0048	32
Ithaca	4300104	CAYUGA HEIGHTS 601	2,069	12.5	19.00	0.69	2.08	0.0044	43
Lancaster	3103901	SOUTH PARK 471	1,945	12.5	41.00	1.23	5.43	0.0108	3
Lancaster	3103105	DICK RD 537	2,803	34.5	33.00	1.36	2.31	0.0066	13
Lancaster	3105301	COBBLEHILL 530	2,379	34.5	114.00	1.46	2.69	0.0065	15
Lancaster	3105202	ROLL RD 529	2,536	34.5	48.00	1.73	2.50	0.0065	16
Lancaster	3103203	LANGER RD 432	1,911	12.5	19.00	1.78	2.87	0.0056	22
Lancaster	3105204	ROLL RD 524	2,585	34.5	18.00	1.06	1.70	0.0045	39
Lancaster	3102303	HOLLAND 520	1,121	34.5	83.00	2.55	3.88	0.0044	40
Liberty	2403885	CALLICOON 285	1,614	7.2	131.00	2.14	5.69	0.0094	5
Liberty	2403605	WALDEN 705	2,269	12.5	24.00	0.80	3.33	0.0077	9
Liberty	2403404	YULAN 204	1,902	12.5	115.00	1.96	1.97	0.0038	58
Liberty	2403734	MOUNTAINDALE 207	1,467	12.5	29.00	1.00	2.29	0.0034	70
Lockport	3200504	LOCUST ST 150	3,100	12.5	35.00	2.09	0.70	0.0022	131
Lockport	3200502	LOCUST ST 153	1,556	12.5	12.00	1.93	1.06	0.0017	197
Mechanicville	1205901	RAYLINSKI TAP 606	4,529	34.5	31.00	1.95	2.70	0.0125	1
Mechanicville	1206301	LUTHER FOREST 607	3,932	34.5	42.00	1.57	3.04	0.0122	2
Mechanicville	1204004	CRARYVILLE 610	2,114	34.5	125.00	1.52	2.10	0.0045	36
Mechanicville	1203207	STEPHENTOWN 622	1,894	34.5	152.00	1.91	1.80	0.0035	67
Oneonta	2305516	EAST NORWICH 516	1,806	34.5	110.00	1.76	2.91	0.0054	24
Oneonta	2301327	MILFORD 227	1,168	12.5	96.00	3.95	3.42	0.0041	48
Oneonta	2307901	SHANDAKEN 501	1,827	34.5	72.00	2.53	2.12	0.0039	51
Oneonta	2306330	ARKVILLE 230	2,861	12.5	182.00	1.57	1.32	0.0038	56
Oneonta	2306960	WEST WINFIELD 260	1,327	12.5	113.00	3.08	2.52	0.0034	72
Oneonta	2304312	OXFORD 012	1,019	4.8	83.00	2.02	2.67	0.0028	92
Oneonta	2303012	GUILDFORD CENTER 012	886	4.8	78.00	1.58	2.97	0.0027	97
Plattsburgh	1501601	BLUE MTN LAKE 504	1,205	34.5	79.00	2.75	4.20	0.0052	28
Plattsburgh	1503401	HARRIS LAKE 424	620	12.5	36.00	1.53	7.89	0.0050	31
Plattsburgh	1502602	JAY 411	1,614	12.5	86.00	1.61	2.75	0.0045	37

Section 6. Network Feeder Performance

Provide a listing of network feeders, by operating area, based on the number of open automatics for the calendar year.

The Binghamton secondary network is fed by nine primary distribution feeders--the Noyes Island 271, 272, 273, 274, 275, 276, 277, 278, and 279 circuits. The secondary network is designed to operate under contingencies for loss of two out of the six feeders. The Noyes Island Substation has two sets of 12/16/20 MVA transformer banks to cover contingencies for loss of one of the transformers.

The Auburn secondary network is fed by four primary distribution feeders--the Green Street 316, 322, 323, and 330 circuits. The secondary network is designed to operate under contingencies for loss of two out of the four feeders. The Green Street Substation has two set of 7.5/9.375 MVA transformer banks to cover contingencies in the event of a loss of one of the transformers.

Provide an analysis of the worst-performing feeders. The analysis must cover a minimum of 5% of the feeders and include a description of the methodology used to identify the worst performing feeders.

In 2018, the Noyes Island had two short duration outages on the 277 circuit impacting less than 100 customers. New cable and cable terminations were installed on the affected sections. No further outages occurred after the new materials were installed.

In 2018, there were no reported outages on any of the Green Street primary circuits.

ROCHESTER GAS & ELECTRIC

CORPORATION

2018 Annual Reliability Report

March 31, 2019

Submitted in compliance with:
Case 02-E-1240 – Standards on Reliability of Electric Service – Annual Report
As Amended in Electric Service Standards Annual Reliability Report Guidelines – 12/19/2008

Table of contents

DEFINITIONS

CAIDI (Customer Average Interruption Duration Index) – the average time needed to restore service to the average customer per sustained interruption. It is the sum of customer interruption durations divided by the total number of customer interruptions

CAIDI = Sum total of customer hours of interruption / Sum total of customers Interrupted

Customer Hours of Interruption - the duration of an interruption (hours) multiplied by the number of customers affected (interrupted) for a given interruption.

Customer - actively metered electric customer.

Distortion (Harmonics) - non-fundamental frequency components of a distorted 60 Hz power wave. Harmonic frequencies are integral multiples of the 60 Hz fundamental frequency. The odd-multiple harmonics are usually most troublesome. Harmonics are usually produced by the customer's equipment.

DLI – Distribution Line Inspection

Failed Division - any division that did not meet the PSC level of CAIDI and/or SAIFI as established in PSC case 02-E-1240.

Flicker (Voltage) - a variation of input voltage sufficient in duration to allow visual observation of a change in electric light source intensity.

Interruption - loss of electric service for more than five minutes to one or more customers.

Major Storm - a weather event that causes at least 10% of the metered customers in an operating area to be without service and/or that results in any metered customers to be without service for 24 hours or more.

Momentary Interruption - a loss of electric service to one or more customers with a duration lasting less than five minutes.

Outage Duration - measured from time reported until service is restored (in minutes).

Overvoltage - a steady state (0.5 seconds or longer) voltage delivered to the customer's service in excess of the ANSI upper service voltage limit (126 volts on a 120 volt service).

Power Quality – The characteristics of electric power received by the customer, with the exception of interruptions.

RI/TVI - radio or TV interference; see Electrical Noise.

Reliability - the degree to which electric service is supplied without interruption.

SAIFI (System Average Interruption Frequency Index) – is the average frequency of sustained interruptions per customer over a predefined area. It is the total number of customer interruptions divided by the total number of customers served.

SAIFI = Number of Customers Interrupted / Number of Customers Served

Sag (Voltage) - a momentary drop in voltage (more than 5% below the nominal voltage) for a time duration of 0.015 to 0.5 seconds. Voltage sags can be caused by faults or switching on the utility transmission and distribution system or by switching of customer loads that have large initial inrush/starting currents (e.g. motors, transformers, large DC power supplies).

Stray Voltage - a voltage usually less than 10 volts between two points that can be contacted simultaneously by a human or an animal.

Swell (Voltage) - a momentary rise in voltage (more than 5% above nominal) for a time duration of 0.015 to 0.5 seconds. This rise is caused by a fault on 1-phase of the system. The voltage rise is not experienced on the faulted phase.

TLI – Transmission Line Inspection

Transient - a sub-cycle voltage wave in an electric circuit, which is evidenced by a sharp, brief disturbance of the input-power voltage waveform. The duration is less than half-cycle of the normal voltage waveform and often less than one millisecond. (Switching transients may be caused by the utility breakers, capacitors, etc., or by the customer on/off equipment switching, load cycling, etc.).

Undervoltage - a steady state (0.5 seconds or longer) voltage delivered to the customer's service below the lower service voltage limit (114 volts on a 120 volts system).

PSC Interruption Classes

1. Major Storm
2. Tree Contacts
3. Overloads
4. Operating or Working Errors
5. Apparatus or Equipment Failures
6. Accidents or Events Not Under the Utility's Control
7. Prearranged
8. Customer's Equipment Failure
9. Lightning
10. Unknown or Unclassified

Section 1. Assessment of Reliability Performance - Corporate

Corporate Overview

Rochester Gas and Electric Corporation (RG&E) serves a franchise area of approximately 2,700 square miles in West-Central New York comprising urban, suburban, and rural areas. RG&E supplies electric and natural gas to a population of nearly one million people. RG&E provides electric service to its customers utilizing 1,094 miles of transmission lines and 8,812 miles of distribution lines that are a server from 155 substations. Central to the franchise area is the City of Rochester that comprises a major load area, but the Company also serves the City of Canandaigua and prosperous agricultural areas along Lake Ontario and in the Genesee Valley. The Company has 377,943 yearly average electric customers as of December 2018.

RG&E's Corporate Office is located in Rochester, New York. The Company is organized with 4 distinct operating divisions spread across its service territory – Canandaigua, Genesee Valley, Lakeshore and Rochester.

The following table shows the corporate five-year history of performance, excluding major storms:

CORPORATE PERFORMANCE WITHOUT MAJOR STORMS

	2014	2015	2016	2017	2018
CAIDI	1.74	1.82	1.79	1.77	1.79
SAIFI	0.76	0.75	0.58	0.59	0.75
Interruptions	2,972	3,037	2,838	3,157	3,228
Customer Hours	488,493	507,357	383,460	388,438	504,600
Customers Interrupted	280,590	278,760	214,019	219,583	281,793
Customers Connected	369,072	371,431	371,886	374,586	377,943

RG&E met the CAIDI and SAIFI targets in 2018.
The target levels for 2018 were – CAIDI (1.90) and SAIFI (0.90)

Corporate Performance: CAIDI & SAIFI by PSC cause codes –

ROCHESTER GAS & ELECTRIC CORPORATE						
PSC CODE	PSC CAUSE CODE DESCRIPTION	CAIDI				
		2014	2015	2016	2017	2018
1	Major Storms	7.42	4.29	3.51	31.42	9.24
2	Tree Contacts	2.20	2.11	2.02	2.05	1.77
3	Overloads	1.47	1.65	0.90	0.68	2.76
4	Operational Errors	0.81	0.73	1.12	0.73	0.45
5	Equipment Failures	1.62	1.92	1.70	2.07	1.84
6	Accidents/Non-Utility	1.18	1.29	1.55	1.46	1.78
7	Prearranged	2.24	2.48	2.29	0.78	2.25
8	Customer Equipment	2.43	1.18	1.61	2.08	2.02
9	Lightning	2.26	2.89	2.61	1.99	1.21
10	Unknown	1.51	1.46	1.89	1.81	1.97

ROCHESTER GAS & ELECTRIC CORPORATE						
PSC CODE	PSC CAUSE CODE DESCRIPTION	SAIFI				
		2014	2015	2016	2017	2018
1	Major Storms	0.09	0.11	0.12	0.74	0.25
2	Tree Contacts	0.21	0.20	0.16	0.20	0.21
3	Overloads	0.00	0.01	0.01	0.01	0.01
4	Operational Errors	0.05	0.01	0.02	0.01	0.02
5	Equipment Failures	0.22	0.22	0.20	0.15	0.28
6	Accidents/Non-Utility	0.14	0.20	0.10	0.10	0.14
7	Prearranged	0.02	0.02	0.02	0.06	0.02
8	Customer Equipment	0.00	0.00	0.00	0.00	0.02
9	Lightning	0.09	0.04	0.05	0.05	0.03
10	Unknown	0.02	0.04	0.02	0.01	0.02

2018 Major Storm Exclusions – Summary Table

Storm Event #	Event Start	Event Stop	Division	Start Date	End Date	Ints	CstAff	CstHrs
1	2/25/2018	2/25/2018	Genesee	2/25/2018	2/25/2018	4	3,510	4,033
2	3/1/2018	3/6/2018	Canadaigua	3/2/2018	3/4/2018	18	1,472	13,034
			Genesee	3/1/2018	3/6/2018	95	15,206	224,489
			Rochester	3/1/2018	3/3/2018	42	2,716	20,495
3	4/4/2018	4/7/2018	Canadaigua	4/4/2018	4/6/2018	28	4,838	32,761
			Genesee	4/4/2018	4/6/2018	56	2,606	33,540
			Lakeshore	4/4/2018	4/6/2018	55	3,414	36,299
			Rochester	4/4/2018	4/7/2018	268	41,211	420,641
4	5/4/2018	5/5/2018	Lakeshore	5/4/2018	5/6/2018	16	4,993	31,302
			Rochester	5/4/2018	5/5/2018	39	2,714	22,598
5	6/13/2018	6/14/2018	Lakeshore	6/13/2018	6/14/2018	12	3,661	3,672
6	9/21/2018	9/21/2018	Lakeshore	9/21/2018	9/21/2018	5	3,311	3,417
7	11/28/2018	11/28/2018	Lakeshore	11/28/2018	11/29/2018	27	3,510	14,388

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Corporate corrective actions due to not meeting reliability indices and/or due to adverse trends in specific categories –

RG&E continued to provide high levels of electric service reliability to its customers in 2018. Both the CAIDI and SAIFI year end measures met the corporate target levels. Analysis of the above PSC interruption class CAIDI and SAIFI five year tables do not indicate a need to file corrective actions at this time.

As noted in previous reports, certain anomalies adversely affect the Companies reliability performance and ability to meet the CAIDI and SAIFI measures. These events can be classified into two main categories –

- Weather impacts
- Uncontrollable events

Adverse Weather

Weather Impacts – Multiple large impacting weather events have significant negative impacts on the reliability indices. Mechanisms are in place to allow the exclusion of the reliability impacts due to the most severe events but not for those “shoulder” or minor storm events.

RG&E has developed a process to identify and track minor storms days by Division. This information will be used to study the relationship between the hardening of the electric delivery system and how that affects major storm events and minor storm events.

The table below lists the minor storm events from 2018 –

Division	Date	Interruptions	Customers Affected	Customer Hours	Percent Customers Out
Canandaigua	1/16/2018	8	5,173	3,333	15.8%
Lakeshore	3/27/2018	3	7,554	6,866	28.5%
Genesee	5/4/2018	12	1,052	3,268	5.8%
Genesee	6/13/2018	3	752	2,957	4.1%
Genesee	6/18/2018	3	1,113	1,935	6.1%
Lakeshore	8/6/2018	6	1,307	5,398	4.9%
Lakeshore	12/22/2018	11	2,718	9,626	10.1%
	TOTALS	**46**	**19,669**	**33,382**	

The information above is presented for reliability trending and comparison purposes only.

Uncontrollable Events

RG&E experienced a number of large uncontrollable, non-weather related events in 2018. The largest of these events are listed in the table below.

Division	Event Start Date	Customers Impacted	Customer Hours	Cause Description
Rochester	3/8/2018	1,155	2,118	Motor Vehicle Accident
Rochester	5/16/2018	1,219	935	Tree - Customer or Cust Contractor Felled
Genesee	5/28/2018	1,068	4,381	Motor Vehicle Accident
Lakeshore	6/12/2018	1,462	2,357	Motor Vehicle Accident
Rochester	7/23/2018	1,240	2,905	Motor Vehicle Accident
Rochester	8/16/2018	760	1,046	Motor Vehicle Accident
Genesee	8/18/2018	815	1,261	Loss of Foreign Supply
Rochester	9/14/2018	2,774	2,899	Motor Vehicle Accident
Rochester	10/23/2018	3,505	3,741	Motor Vehicle Accident
Rochester	10/24/2018	1,747	1,994	Tree - Customer or Cust Contractor Felled
Genesee	10/26/2018	660	1,857	Motor Vehicle Accident
	totals:	16,405	25,494	

RG&E is reviewing and monitoring all uncontrollable interruptions to identify any emerging trends due to motor vehicle accidents, loss of foreign supply, vandalism and/or foreign objects.

RG&E will continue to identify and track events of this nature in future years for potential exclusion from reliability metrics' calculations as allowed per the process noted in the current Rate Plan.

Major Transmission & Distribution Capital Investments in 2018 -

2018 Major Capital Project Investments

Project Title	2017 Act	2018 Act	Total
RARP Rochester Area Reliability Project	$13,128,160	$56,932,160	$70,395,461
Sta 23 115kV Substation	$54,943,797	$30,111,549	$85,055,346
Station 262 New 115kV /34.5kV Substation	$16,312,302	$7,132,406	$23,444,709
Station 38 Total Refurbishment	$6,758,736	$6,199,403	$12,958,139
SCADA/Automation RGE	$2,318,143	$3,607,621	$5,925,764
Replace DC Pilot Wire System	$665,716	$2,090,623	$2,756,339
RGE System Hardening - Composite Poles Pilot Project and Critical Facility Monitori	$0	$1,642,220	$1,642,220
Cable Replacement on Circuits 740 & 759	$381,662	$1,414,519	$1,796,182
Breaker Program	$3,971,605	$1,360,452	$5,332,057
Battery Program	$739,880	$1,126,626	$1,866,506
Station 5 Substation Modernization Prj	$2,654,014	$882,095	$3,536,109
Transmission Line	$255,262	$617,880	$873,142
Replacement of Substation Equipment at multiple stations	$1,109,765	$509,907	$1,619,672
Line 902 Upgrade	$195,077	$336,004	$531,081
RTU Installation Project	$242,719	$260,726	$503,445
Station 178 Cap Bank - RTU & Scada Work	$38,561	$49,470	$88,032
Highway Inner Loop Transformation Project Circuit 513 (L0663)	$574,489	$32,802	$607,290
Station 80 CapBank Relays	$33,820	$10,980	$44,800
Station 65 - Replace Breaker Foundation	$8,441	$10,777	$19,218
Circuit 765 - Recloser Automated Program	$12,913	$2,772	$15,685

Reliability indices for individual regions and overall company will reflect the impacts of these projects.

Specific Distribution Reliability Projects/Investments in 2018 -

Name	Description	Actual
Lakeshore Dr CDGA Cable replace Circuit 0142CF5149	Cable fault job-Circuit 0142CF5149. Replace faulted 750kcm 3 phase cables from SWGR #5 to SWGR # 1 to SWGR # 2 via direct boring. Direct bore 1920' two 5" conduits @ 1920' total. Install 6 x 6 x 6' lakelands MC-100 manhole & MC-101 cover per sketch. Install 4 - 4" bollards in front of existing SWGR # 5, Tr. # 74 & Tr. # 85 to keep vehicle from hitting our equipment. RG&E cable crews to install new 500 mcm 3 in 1 EPR cables@ 2030' total.	$354,678
Edgemere Dr, Replace faulted cable sections and place circuit back to normal	Old CRRL 5kV cables needed replacement, had RG&E Subway crew clean and thread entire duct system for a spare to run new 500KCM EPR CNJ 15kV rd cables from cable pole to VS MH. This will upgrade the circuit for rating and Tie Point at replaced VS as well place circuit to current standards for operation and materials. Replace 670' +/- Primary Cable Between MH# 1252.04 to 1252.11 Edgemere Dr. (which is cut and cocked) Circuit# 2538 / Block# 340 / Subway# 1252.02. Also Replace VS# 2561 with a double pull VS in MH# 1252.43 Edgemere Dr. (Normally Open VS w/2537 cir) Block# 542 / Subway# 1252.06. Replace 3/c cable between MH 1252.17 and P-12A. Also replace VS 2561 in MH 1252.43 ASAP - cable is cocked and circuits are tied.	$120,444
7709 Platform Rebuild Distribution Order County Road 20 in the Town of Amity	Project to replace circuit 7709 platform to allow for replacement of 50A regulators with new 100A regulators. The old inoperable 34.5kV switching structure will be removed and replaced with new pole mounted switches.	$79,545
Replace Pole 70A on circuit 0418RO5270 located on Lyell Rd.	Reliabilty issue in the town of Gates. On circuit#0418RO5270 there is a 3 phase rear lot feed that has had many outages on it (Hickory Manor Dr/Atwood Dr). Can the UG cable from P-26A (near #5 Hickory Manor Dr) be directional bored to P-69 Lyell Rd and move the sectionalizing switches to P-69A. the UG cable on P-26A1 be directional bored to P-68A Lyell Rd. Or can the first couple sections of OH wire be changed to UG cable and add more fusing on the OH.	$39,587
Install recloser on first pole outside of substation on circuit 0202LS5194	Since these Unit Substations have no low side breaker, and trips on the High Side for a 12 KV fault, Tom believes that a recloser on the first section of 12 KV leaving the Unit Substation, with Automation, would prevent through faulting the transformer, improve restoration times, and eliminate having to delay restoration by having someone come out to do a TCG test on the transformer N2 Blanket. This investment could also prevent though fault damage to the equipment, and give the ECC control of the recloser as a low side breaker with SCADA would do. From ELM: Adding reclosers to protect the unit substations? is a good reliability issue.	$24,490
RPL Adirondack St 385 P-2A.	Pole severely leaning and damaged with lots of checking at base. Has been hit in the past. Line inspection called to replace.	$19,059
DPRP Wildbriar Rd HEN replace cable, 2199 circuit - station 75	Replace defective UG Cable between P-5C and P-6M via M.H.2507.25.(3- 500M) with 1- 3/C 500M RD Cable	$10,238
Cable Replacement job at Fawn Meadow Farm	Replace 5671 feet of faulty primary cable via 4" direct bore and install new 1/0 EPR 15k primary cable on Circuit 0127CF5230.	$10,201
Pixley Indust Pky Gates replace pole #13	P-13 Pixley Industrial Park Way needs to be replaced. There are wood pecker holes in the pole and ants. center of pole is rotted.This is a three phase d.d.e. vertical constr w/ 45deg angle, single phase tap and a 3-phase cable pole feeding a pmt from buckarm. Existing p-13 40'/3. Replace w/ 50'/3. Circuit 0114RO2520	$10,164
Circuits 0113RO5102, 0104RO5156, and 0104RO5157 in the Town of Chili XLP Cable Replacement	Replacing these cable sections will reduce the number of cable faults, place the system back to its normal loop system and improve system reliability.	$3,352

Reliability indices for individual regions and overall company will reflect the impacts of these projects.

Specific distribution reliability projects/investments to be taken based on the results from the annual distribution facility inspection reports provided in each year –

Equipment inspection is one method for identifying work necessary to maintain reliability. The Company performs a visual inspection of its overhead distribution system based on a 5-year cycle. Each discrepancy found during the distribution system inspection is identified and prioritized during the inspection. Each discrepancy is classified as a Level I, Level II, Level III, or Level IV condition. The Operations Department plans, schedules, and performs corrective actions. Discrepancies are resolved (repaired or replaced) based upon these inspection results. The results of this inspection program are explained in the annual Stray Voltage Test and Inspection report that is submitted each February.

Stray voltage testing and Distribution Line Inspection/Transmission Line Inspection (DLI/TLI) work is mandated by New York State Public Service Commission Order - Case 04-M-0159. Failure to fully comply exposes each company to a rate base penalty of (75) basis points. Recovery of costs for stray voltage testing and inspections are established under each Companies rate case agreement. RGE performs inspections on approximately (20%) of their owned assets annually (100% every 5 years). This equates to about 59,000 inspections. RGE also performs stray voltage testing on these same (20%) assets and also (100%) of streetlights, traffic signal equipment and underground manholes and handholes.

Section 2. Assessment of Reliability Performance – Divisions

Canandaigua Division

The following table shows the Canandaigua five-year history of performance, excluding major storms

CANANDAIGUA PERFORMANCE WITHOUT MAJOR STORMS

	2014	2015	2016	2017	2018
CAIDI (goal - 1.50)	1.70	1.80	1.59	1.70	1.20
SAIFI (goal - 1.40)	0.82	0.64	0.75	0.71	1.07
Interruptions	433	470	415	512	447
Customer Hours	46,356	42,757	38,227	39,177	42,428
Customers Interrupted	27,309	23,820	24,014	23,050	35,328
Customers Connected	33,284	37,277	32,230	32,641	33,006

Canandaigua met both the CAIDI and SAIFI targets in 2018.

Canandaigua Performance: CAIDI & SAIFI by PSC cause codes –

CANANDAIGUA DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	CAIDI				
		2014	2015	2016	2017	2018
1	Major Storms	4.05	2.12	2.20	2.18	7.26
2	Tree Contacts	1.76	1.86	1.95	1.88	1.43
3	Overloads	0.33	0.78	5.91	1.67	5.48
4	Operational Errors	0.41	0.00	0.50	0.39	0.45
5	Equipment Failures	1.60	2.15	1.38	2.32	1.13
6	Accidents/Non-Utility	1.72	1.36	1.73	1.39	2.10
7	Prearranged	2.49	1.54	1.52	0.29	1.38
8	Customer Equipment	1.00	1.24	10.00	4.50	1.75
9	Lightning	1.89	2.95	1.96	1.62	0.98
10	Unknown	1.76	1.03	2.38	2.38	1.49

CANANDAIGUA DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	SAIFI				
		2014	2015	2016	2017	2018
1	Major Storms	0.22	0.24	0.21	0.07	0.19
2	Tree Contacts	0.22	0.18	0.15	0.29	0.13
3	Overloads	0.00	0.01	0.00	0.00	0.00
4	Operational Errors	0.05	0.00	0.00	0.01	0.05
5	Equipment Failures	0.11	0.10	0.45	0.10	0.55
6	Accidents/Non-Utility	0.17	0.15	0.09	0.10	0.09
7	Prearranged	0.01	0.01	0.00	0.06	0.01
8	Customer Equipment	0.00	0.00	0.00	0.00	0.00
9	Lightning	0.24	0.09	0.04	0.12	0.21
10	Unknown	0.02	0.09	0.02	0.03	0.03

Canandaigua Division Review –

Interruption Breakdown by Cause Code

CAUSE DESCRIPTION	*Interruptions*		*Customers Interrupted*		*Customer Hours of Interruption*	
Tree In ROW	50	11.2%	3,794	10.7%	5,228	12.3%
Tree Out ROW	21	4.7%	556	1.6%	990	2.3%
Overloads	7	1.6%	44	0.1%	241	0.6%
Operational Errors	1	0.2%	1,616	4.6%	727	1.7%
Equipment Failures	108	24.2%	18,121	51.3%	20,414	48.1%
Accidents/Non-Utility	136	30.3%	2,891	8.2%	6,082	14.3%
Prearranged	83	18.6%	233	0.7%	321	0.8%
Customer Equipment	3	0.7%	44	0.1%	77	0.2%
Lightning	12	2.7%	7,024	19.9%	6,854	16.2%
Unknown	26	5.8%	1,005	2.8%	1,495	3.5%
TOTALS	**447**	**100%**	**35,328**	**100%**	**42,430**	**100%**

Summary for 2018 –

The Canandaigua Division in 2018 met both its CAIDI and SAIFI targets.

The major contributing causes of outages in 2018 were equipment failures, tree contacts, accidents or non-utility incidents. After careful analysis, the 2019 planned corrective efforts to improve reliability performance per cause are the following:

- Equipment – Review DLI data and identify highest potential areas for corrections
- Accidents/Non-Utility – Relocate poles and/or install reflective tape where feasible
- Tree – Patrol worst performing circuits and trim where needed. Planned to complete 201.97 miles of maintenance trimming of the following circuits:
    - 0142CF5148
    - 0125CF5208
    - 0143CF5146
    - 0125CF5182
    - 0146CF5141
    - 0125CF5250

The following circuits have been identified as worst performing circuits in 2018 [see section 5 on page 97] –

- Circuit 0143CF5146
- Circuit 0145CF5143
- Circuit 0428CF5138

The 2019 Action Plans for these circuits are –

Circuit 0143CF5146 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	3	5.4%	661	24.4%	917	24.8%
Tree Out ROW	3	5.3%	389	14.3%	1,750	47.3%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	8	14.2%	195	7.2%	190	5.1%
Accidents/Non-Utility	9	16.1%	359	13.2%	446	12.1%
Prearranged	31	55.4%	73	2.7%	64	1.7%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	0	0.0%	1,034	38.1%	328	8.9%
Unknown	2	3.6%	3	0.1%	4	0.1%
TOTALS	**56**	100.0%	**2,714**	100.0%	**3,699**	100.0%

Based on the data in the table above, the following plan has been created -

- Apart of the 2019 cycle / maintenance tree trimming circuits.
- Update the controls and communication equipment for a regulator bank on Country Road 16.
- Install 5 SCADA functional switches and associated communication.
- Patrol circuit for proper lightning protection and missing grounding equipment

Circuit 0145CF5143—

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	9	23.1%	1,306	34.1%	2,739	51.8%
Tree Out ROW	1	2.6%	3	0.1%	3	0.1%
Overloads	1	2.6%	14	0.4%	153	2.8%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	7	17.9%	17	0.3%	72	1.4%
Accidents/Non-Utility	10	25.6%	56	1.5%	204	3.9%
Prearranged	1	2.6%	1,023	26.7%	120	2.3%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	5	12.8%	1,261	32.9%	1,798	34.0%
Unknown	5	12.8%	154	4.0%	194	3.7%
TOTALS	**39**	100.0%	**3,834**	100.0%	**5,283**	100.0%

Based on the data in the table above, the following plan has been created -

- Add this circuit to vegetation management's hot spot trimming plan for 2019.
- Instruct the engineers to reduce the prearranged outages within our engineering designs whenever possible.
- Install 4 SCADA functional switches and associated communication

Circuit 0428CF5138—

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	1	5.6%	1	0.0%	1	0.0%
Tree Out ROW	0	0.0%	0	0.0%	0	0.0%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	3	16.6%	3,248	87.5%	2,905	84.7%
Accidents/Non-Utility	11	61.1%	418	11.3%	383	11.2%
Prearranged	1	5.6%	2	0.1%	2	0.1%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	1	5.5%	1	0.0%	1	0.0%
Unknown	1	5.6%	41	1.1%	137	4.0%
TOTALS	**18**	100.0%	**3,711**	100.0%	**3,429**	100.0%

Based on the data in the table above, the following plan has been created -

- Evaluate circuit for poles that are deteriorated and beyond useful life.
- Patrol circuit for proper lightning protection and missing grounding equipment.
- Relocate poles and/or install reflective tape where feasible

Update for 2017 –

In 2017, the Canandaigua Division met its SAIFI target but exceeded its CAIDI target. The major contributing causes of this failure are attributed to accidents or non-utility incidents, prearranged interruptions, and tree contacts.

Corrective Actions undertaken in 2018 to improve the Canandaigua Division's reliability performance and to address the 2017 failure of CAIDI include:

- DLI Program continuation - Proactive inspection program to identify and repair distribution system deficiencies including damaged cross arms, transformers, conductors, ties, animal guards, and poles. 1,021 DLI Notifications were completed.
- Hot spot tree trimming.
- Completed circuit patrols, checked and repaired as needed.
- Checked down grounds and lighting arresters

Additional Capital and O&M initiatives tracked in 2018 to enhance reliability include —

- Osmose pole inspection, treatment and replacement program. 42 poles were replaced.
- Third Party Make Ready Project – ensuring proper clearances and replacing substandard poles when necessary

Jobs planned for 2019 or beyond:

- Automation Project – Installing new regulator controllers and communication equipment for 22 locations
- 34.5kV Automation line 737 Project

Genesee Division

The following table shows the Genesee five-year history of performance, excluding major storms

GENESEE PERFORMANCE WITHOUT MAJOR STORMS

	2013	2014	2015	2016	2018
CAIDI (goal - 1.75)	2.47	1.64	2.15	1.88	2.07
SAIFI (goal - 1.40)	1.09	1.18	1.14	1.23	1.56
Interruptions	338	303	361	373	416
Customer Hours	49,291	35,363	44,549	41,825	59,433
Customers Interrupted	19,958	21,549	20,759	22,248	28,680
Customers Connected	18,291	18,277	18,270	18,073	18,437

Genesee exceeded its CAIDI and SAIFI targets in 2018.

Genesee Performance: CAIDI & SAIFI by PSC cause codes –

GENESEE DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	CAIDI				
		2014	2015	2016	2017	2018
1	Major Storms	2.07	3.64	7.60	3.12	12.29
2	Tree Contacts	1.85	2.75	2.84	2.48	2.03
3	Overloads	2.46	2.42	3.10	3.74	0.21
4	Operational Errors	0.34	0.25	0.00	0.13	0.29
5	Equipment Failures	1.58	1.95	0.96	1.28	1.94
6	Accidents/Non-Utility	2.31	1.41	2.22	2.15	2.40
7	Prearranged	0.29	0.88	0.89	1.27	1.41
8	Customer Equipment	0.67	2.00	2.00	4.00	5.50
9	Lightning	1.56	1.72	2.54	2.14	1.68
10	Unknown	1.44	1.97	1.61	2.67	3.95

GENESEE DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	SAIFI				
		2014	2015	2016	2017	2018
1	Major Storms	0.11	0.12	0.41	1.94	1.16
2	Tree Contacts	0.49	0.42	0.44	0.55	0.56
3	Overloads	0.00	0.01	0.00	0.00	0.03
4	Operational Errors	0.02	0.00	0.00	0.00	0.00
5	Equipment Failures	0.37	0.39	0.49	0.18	0.57
6	Accidents/Non-Utility	0.04	0.18	0.14	0.09	0.25
7	Prearranged	0.04	0.01	0.03	0.01	0.03
8	Customer Equipment	0.00	0.00	0.00	0.00	0.00
9	Lightning	0.17	0.04	0.04	0.16	0.06
10	Unknown	0.03	0.09	0.09	0.04	0.06

Genesee Failed Division Review – exceeded 2018 CAIDI & SAIFI targets

Interruption Breakdown by Cause Code

CAUSE DESCRIPTION	*Interruptions*		*Customers Interrupted*		*Customer Hours of Interruption*	
Tree In ROW	78	18.8%	5,993	20.9%	11,188	18.8%
Tree Out ROW	58	13.9%	4,359	15.2%	9,841	16.6%
Overloads	2	0.5%	545	1.9%	116	0.2%
Operational Errors	1	0.2%	76	0.3%	22	0.0%
Equipment Failures	92	22.3%	10,444	36.3%	20,275	34.2%
Accidents/Non-Utility	63	15.1%	4,470	15.6%	10,724	18.0%
Prearranged	75	18.0%	531	1.9%	750	1.3%
Customer Equipment	1	0.2%	2	0.0%	11	0.0%
Lightning	25	6.0%	1,066	3.7%	1,790	3.0%
Unknown	21	5.0%	1,194	4.2%	4,719	7.9%
TOTALS	**416**	**100%**	**28,680**	**100%**	**59,436**	**100%**

Summary for 2018 –

The Genesee Division in 2018 exceeded both its CAIDI and SAIFI targets. The major contributing causes of these failures are attributed to tree contacts, equipment failures, and accidents or non-utility incidents.

After careful analysis, the 2019 planned corrective efforts to improve reliability performance per cause are the following:

- Tree – Patrol worst performing circuits and trim where needed. Complete planned maintenance trimming of the following circuits:
  - 0163GV1241
  - 0167GV1208
  - 0167GV1211
  - 0173GV1248
  - 0173GV1249
  - 0173GV1250
  - 0174GV1212
  - 0174GV1224
  - 0175GV1243
  - 0176GV1217
  - 0179GV1221
  - 0246GV1206
  - 0246GV1207
  - 8303GV7710
  - 8377GV7708
  - 8379GV7709
- Equipment Failures – Review DLI data and identify highest potential areas for corrections
- Accidents/Non-Utility – Relocate poles and/or install reflective tape where feasible

The following circuits have been identified as worst performing circuits in 2018 [see section 5 on page 97] –

- Circuit 8301GV7704
- Circuit 8327GV7701
- Circuit 8333GV7702

The 2019 Action Plans for these circuits are—

Circuit 8301GV7704 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	6	17.2%	97	3.6%	267	3.4%
Tree Out ROW	4	11.4%	904	33.9%	1,863	23.6%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	4	11.4%	175	6.6%	474	6.0%
Accidents/Non-Utility	4	11.4%	1,140	42.8%	4,547	57.7%
Prearranged	13	37.1%	106	4.0%	126	1.6%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	1	2.9%	15	0.6%	10	0.2%
Unknown	3	8.6%	227	8.5%	591	7.5%
TOTALS	**35**	100.0%	**2,664**	100.0%	**7,878**	100.0%

Based on the data in the table above, the following plan has been created -

- Relocate poles and/or install reflective tape where feasible.
- Evaluate for additional tree trimming and/or sections for hot spot trimming

Circuit 8327GV7701 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	6	27.3%	584	23.8%	1,364	38.9%
Tree Out ROW	3	13.6%	661	26.9%	787	22.4%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	3	13.6%	4	0.1%	12	0.3%
Accidents/Non-Utility	4	18.2%	655	26.6%	505	14.4%
Prearranged	4	18.2%	48	2.0%	34	1.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	2	9.1%	506	20.6%	808	23.0%
Unknown	0	0.0%	0	0.0%	0	0.0%
TOTALS	**22**	100.0%	**2,458**	100.0%	**3,510**	100.0%

Based on the data in the table above, the following plan has been created -

- Evaluate for additional tree trimming and/or sections for hot spot trimming.
- Patrol circuit for lightning protection. Replace defective arresters if found.

Circuit 8333GV7702 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	10	21.7%	1,766	64.6%	3,330	54.3%
Tree Out ROW	11	23.9%	358	13.1%	1,076	17.5%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	4	8.7%	274	10.0%	146	2.4%
Accidents/Non-Utility	6	13.0%	144	5.3%	346	5.6%
Prearranged	6	13.0%	19	0.7%	29	0.5%
Customer Equipment	1	2.3%	2	0.1%	11	0.2%
Lightning	0	0.0%	0	0.0%	0	0.0%
Unknown	8	17.4%	172	6.2%	1,199	19.5%
TOTALS	**46**	100.0%	**2,735**	100.0%	**6,137**	100.0%

Based on the data in the table above, the following plan has been created -

- Evaluate for additional tree trimming and/or sections for hot spot trimming.

Update for 2017 –

In 2017, Genesee Division met its SAIFI target but exceeded its CAIDI target. The major contributing causes of this failure are attributed to tree contacts, equipment failures, prearranged interruptions, and accidents or non-utility incidents.

Corrective Actions undertaken in 2018 to improve the Genesee Division's reliability performance and to address the 2017 failure of CAIDI include –

- Complete full maintenance tree trimming on the following circuits:
  - 0174GV1245
  - 0171GV1237
  - 0169GV1214
  - 0167GV1209
  - 8376GV7706
  - 8301GV7704
- Replaced defective poles identified for replacement as part of the Wood Pole Inspection and Treat (WPIT) and DLI programs.
- Replaced 450 aging distribution poles across the division.
- Corrected DLI deficiencies as required.
- Upgraded the regulators and recloser for circuit 7709

Additional Capital and O&M initiatives tracked in 2018 to enhance reliability include—

- Distribution Line Inspection (DLI) Program
- Wood Pole Inspection and Treat (WPIT) Program

Jobs planned for 2019 or beyond:

- Replace outdated sectionalizers with SCADA controlled reclosers on the following circuits:
    - 8333GV7702
    - 8376GV7706
    - 8375GV7707
- Complete planned maintenance trimming of the following circuits:
    - 0163GV1241
    - 0167GV1208
    - 0167GV1211
    - 0173GV1248
    - 0173GV1249
    - 0173GV1250
    - 0174GV1212
    - 0174GV1224
    - 0175GV1243
    - 0176GV1217
    - 0179GV1221
    - 0246GV1206
    - 0246GV1207
    - 8303GV7710
    - 8377GV7708
    - 8379GV7709
- Distribution Automation Project
    - Install a total of 10 new reclosers and SCADA switches.
    - Upgrade the controls at 14 regulator locations to add SCADA capabilities.
- Distribution Line Inspection (DLI) Program

Lakeshore Division

The following table shows the Lakeshore five-year history of performance, excluding major storms

LAKESHORE PERFORMANCE WITHOUT MAJOR STORMS

	2014	2015	2016	2017	2018
CAIDI (goal - 1.50)	1.28	2.00	1.94	1.75	2.10
SAIFI (goal -1.40)	2.44	1.14	0.83	1.17	1.94
Interruptions	393	368	348	352	423
Customer Hours	79,368	57,994	42,702	54,463	103,888
Customers Interrupted	62,276	29,045	21,970	31,130	49,539
Customers Connected	25,520	25,565	26,342	26,499	25,486

Lakeshore exceeded both its CAIDI and SAIFI targets in 2018.

Lakeshore Performance: CAIDI & SAIFI by PSC cause codes –

LAKESHORE DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	CAIDI				
		2014	2015	2016	2017	2018
1	Major Storms	9.62	1.46	2.98	10.03	4.72
2	Tree Contacts	2.21	2.43	2.01	1.89	2.66
3	Overloads	1.00	1.11	3.11	0.00	2.39
4	Operational Errors	1.35	2.00	0.00	1.22	0.36
5	Equipment Failures	1.23	1.36	1.50	2.94	1.64
6	Accidents/Non-Utility	1.00	1.41	1.65	1.90	2.25
7	Prearranged	2.23	1.41	1.81	0.16	1.65
8	Customer Equipment	1.20	1.86	11.00	5.00	1.96
9	Lightning	2.18	2.40	3.78	2.57	2.32
10	Unknown	1.85	2.28	1.58	3.62	2.04

LAKESHORE DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	SAIFI				
		2014	2015	2016	2017	2018
1	Major Storms	0.30	0.18	0.33	1.22	0.74
2	Tree Contacts	0.35	0.57	0.36	0.49	0.38
3	Overloads	0.00	0.01	0.00	0.00	0.01
4	Operational Errors	0.05	0.00	0.00	0.00	0.02
5	Equipment Failures	0.52	0.09	0.06	0.16	0.56
6	Accidents/Non-Utility	1.43	0.37	0.32	0.17	0.67
7	Prearranged	0.00	0.00	0.00	0.25	0.01
8	Customer Equipment	0.00	0.00	0.00	0.00	0.22
9	Lightning	0.08	0.07	0.06	0.09	0.02
10	Unknown	0.01	0.02	0.03	0.01	0.05

Lakeshore Failed Division Review – exceeded 2018 CAIDI & SAIFI targets

Interruption Breakdown by Cause Code

CAUSE DESCRIPTION	*Interruptions*		*Customers Interrupted*		*Customer Hours of Interruption*	
Tree In ROW	73	17.3%	5,299	10.7%	14,221	13.7%
Tree Out ROW	50	11.8%	4,324	8.7%	11,417	11.0%
Overloads	13	3.1%	236	0.5%	565	0.5%
Operational Errors	2	0.5%	433	0.9%	154	0.1%
Equipment Failures	109	25.7%	14,267	28.8%	23,345	22.5%
Accidents/Non-Utility	125	29.5%	17,289	34.9%	38,927	37.5%
Prearranged	16	3.8%	172	0.3%	283	0.3%
Customer Equipment	6	1.4%	5,686	11.5%	11,123	10.7%
Lightning	19	4.5%	437	0.9%	1,014	1.0%
Unknown	10	2.4%	1,396	2.8%	2,843	2.7%
TOTALS	**423**	**100%**	**49,539**	**100%**	**103,890**	**100%**

Summary for 2018 –

The Lakeshore Division in 2018 exceeded both its CAIDI and SAIFI targets. The major contributing causes of these failures were accidents or non-utility incidents, tree contacts, and equipment failures.

After careful analysis, the 2019 planned corrective efforts to improve reliability performance per cause are the following:

- Accidents/Non-Utility – Relocate poles and/or install reflective tape where feasible
- Tree – Patrol worst performing circuits and trim where needed. Planned to complete 235.05 miles of cycle trimming on the below circuits:
    - 0195LS5153
    - 0210LS0208
    - 0210LS0225
    - 0192LS0215
    - 0181LS0233
    - 0205LS0237
    - 0198LS5227
    - 0194LS5117
    - 0189LS5112
- Equipment Failures – Install recloser and regulator automation devices that will improve restoration times and prevent fault damage

The following circuits have been identified as worst performing circuits in 2018 [see section 5 on page 97] –

- Circuit 0194LS5116
- Circuit 0194LS5117
- Circuit 0194LS5118

The 2019 Action Plans for these circuits are –

Circuit 0194LS5116 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	3	14.3%	38	0.9%	329	12.1%
Tree Out ROW	1	4.8%	3	0.1%	15	0.6%
Overloads	1	4.8%	1	0.0%	13	0.5%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	7	33.3%	1,411	32.6%	1,530	56.7%
Accidents/Non-Utility	7	33.3%	204	4.7%	409	15.2%
Prearranged	2	9.5%	2,677	61.7%	401	14.9%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	0	0.0%	0	0.0%	0	0.0%
Unknown	0	0.0%	0	0.0%	0	0.0%
TOTALS	**21**	100.0%	**4,334**	100.0%	**2,697**	100.0%

Based on the data in the table above, the following plan has been created -

- Add this circuit to vegetation management's hot spot trimming plan for 2019.
- Patrol circuit for proper lightning protection and missing grounding equipment.
- Instruct the engineers to reduce the prearranged outages within our engineering designs whenever possible.
- Update the controls and communication equipment for a regulator bank on Route 370.
- Upgrade an older transformer on Short Cut Rd. (Pole 26)

Circuit 0194LS5117 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	4	20.0%	148	4.2%	419	12.0%
Tree Out ROW	2	10.0%	616	17.6%	1,473	42.3%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	3	15.0%	974	27.8%	812	23.3%
Accidents/Non-Utility	5	25.0%	375	10.7%	337	9.7%
Prearranged	2	10.0%	1,286	36.8%	193	5.5%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	1	5.0%	26	0.7%	58	1.8%
Unknown	3	15.0%	73	2.2%	187	5.4%
TOTALS	**20**	100.0%	**3,498**	100.0%	**3,479**	100.0%

Based on the data in the table above, the following plan has been created -

- Add this circuit to vegetation management's hot spot trimming plan for 2019.
- Patrol circuit for proper lightning protection and missing grounding equipment.
- Instruct the engineers to reduce the prearranged outages within our engineering designs whenever possible.
- Update the controls and communication equipment for a regulator bank on Route 370.
- Replace P-277A with 45' pole. Hang 50kva and run primary from P-277 to P277-A

Circuit 0194LS5118 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	6	23.1%	207	5.5%	423	7.2%
Tree Out ROW	4	15.4%	123	3.3%	589	10.0%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	3	11.5%	1,414	37.6%	3,485	59.1%
Accidents/Non-Utility	10	38.5%	595	15.8%	792	13.3%
Prearranged	2	7.7%	1,354	36.0%	181	3.1%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	0	0.0%	0	0.0%	0	0.0%
Unknown	1	3.8%	66	1.8%	429	7.3%
TOTALS	**26**	100.0%	**3,759**	100.0%	**5,899**	100.0%

Based on the data in the table above, the following plan has been created -

- Relocate poles and/or install reflective tape where feasible.
- Add this circuit to vegetation management's hot spot trimming plan for 2019
- Add a New REGULATOR with the communications on Duck Lake Rd in Conquest for the distribution automation project

Update for 2017 –

In 2017, Lakeshore Division met its SAIFI target and exceeded its CAIDI target. The major contributing causes of this failure were accidents or non-utility incidents, tree contacts, and equipment failures.

Corrective Actions undertaken in 2018 to improve the Lakeshore Division's reliability performance and to address the 2017 failure of CAIDI include –

- DLI Program continuation - Proactive inspection program to identify and repair distribution system deficiencies including damaged cross arms, transformers, conductors, ties, animal guards, and poles. 9401 Distribution Line Inspection service notifications were completed.
- Hot spot tree trimming.
- Completed circuit patrols, checked and repaired as needed.
- Checked down grounds and lighting arresters

Additional Capital and O&M initiatives tracked in 2018 to enhance reliability include —

- Automation Project – Installing new reclosers, regulator controllers and communication equipment
- Third Party Make Ready Project – ensuring proper clearances and replacing substandard poles when necessary

Jobs planned for 2019 or beyond:

- Crescent Beach Project
- Automation Project – Installing new reclosers, regulator controllers and communication equipment

Rochester Division

The following table shows the Rochester five-year history of performance, excluding major storms

ROCHESTER PERFORMANCE WITHOUT MAJOR STORMS

	2014	2015	2016	2017	2018
CAIDI (goal - 2.00)	1.93	1.76	1.79	1.73	1.78
SAIFI (goal - 0.80)	0.58	0.71	0.49	0.49	0.56
Interruptions	1,843	1,838	1,702	1,906	1,942
Customer Hours	327,406	362,057	260,706	253,624	298,851
Customers Interrupted	169,456	205,136	145,787	146,518	168,246
Customers Connected	291,991	290,319	295,221	297,193	301,014

Rochester met both the CAIDI and SAIFI targets in 2018.

Rochester Performance: CAIDI & SAIFI by PSC cause codes –

ROCHESTER DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	CAIDI				
		2014	2015	2016	2017	2018
1	Major Storms	8.77	5.58	2.72	39.89	9.94
2	Tree Contacts	2.33	1.94	1.86	2.04	1.60
3	Overloads	1.45	1.84	0.87	0.65	3.09
4	Operational Errors	0.82	0.72	1.12	0.75	0.46
5	Equipment Failures	1.72	1.93	1.92	2.02	2.08
6	Accidents/Non-Utility	1.42	1.25	1.42	1.35	1.36
7	Prearranged	2.43	2.58	2.39	1.12	2.34
8	Customer Equipment	2.45	1.13	1.00	1.83	4.01
9	Lightning	2.53	3.03	2.49	1.94	1.49
10	Unknown	1.47	1.49	1.99	1.38	1.61

ROCHESTER DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	SAIFI				
		2014	2015	2016	2017	2018
1	Major Storms	0.05	0.09	0.07	0.70	0.15
2	Tree Contacts	0.18	0.16	0.13	0.14	0.18
3	Overloads	0.00	0.01	0.02	0.01	0.01
4	Operational Errors	0.05	0.02	0.03	0.01	0.01
5	Equipment Failures	0.20	0.24	0.18	0.15	0.21
6	Accidents/Non-Utility	0.04	0.19	0.08	0.10	0.09
7	Prearranged	0.03	0.02	0.02	0.05	0.03
8	Customer Equipment	0.00	0.00	0.00	0.00	0.00
9	Lightning	0.07	0.03	0.03	0.02	0.01
10	Unknown	0.02	0.03	0.01	0.01	0.02

Rochester Division Review –

Interruption Breakdown by Cause Code

CAUSE DESCRIPTION	*Interruptions*		*Customers Interrupted*		*Customer Hours of Interruption*	
Tree In ROW	348	17.9%	33,582	20.0%	55,082	18.4%
Tree Out ROW	82	4.2%	21,051	12.5%	32,067	10.8%
Overloads	103	5.3%	4,187	2.5%	12,929	4.3%
Operational Errors	11	0.6%	4,368	2.6%	2,001	0.7%
Equipment Failures	691	35.5%	60,903	36.2%	126,633	42.4%
Accidents/Non-Utility	330	17.0%	28,213	16.8%	38,496	12.9%
Prearranged	246	12.7%	7,938	4.7%	18,607	6.2%
Customer Equipment	11	0.6%	170	0.1%	682	0.2%
Lightning	34	1.8%	2,246	1.3%	3,354	1.1%
Unknown	86	4.4%	5,588	3.3%	9,013	3.0%
TOTALS	**1,942**	**100%**	**168,246**	**100%**	**298,863**	**100%**

Summary for 2018 –

The Rochester Division in 2018 has met both its CAIDI and SAIFI targets.

The major contributing causes of outages in 2018 were equipment failures, tree contacts, accidents or non-utility incidents. After careful analysis, the 2019 planned corrective efforts to improve reliability performance per causes are the following:

- Accidents/Non-Utility – Relocate poles and/or install reflective tape where feasible. Promote Dig safe 311 whenever possible
- Equipment Failures – Review DLI data and identify highest potential areas for corrections. Install regulator communication and control upgrades that will improve restoration times and fault damage.
- Tree – Patrolled worst performing circuits and trim where needed. Planned to complete 440.52 miles of maintenance trimming of the following circuits:

0104RO5288	0058RO0415	0035RO0375	0016RO0475
0418RO5270	0073RO0418	0038RO0368	0081RO2158
0419RO5246	0060RO0433	0037RO0365	0097RO2190
0070RO5132	0062RO0469	0035RO0324	0040RO2223
0070RO5131	0076RO2102	0095RO0321	0103RO2234
0101RO2551	0076RO2127	0034RO0310	0086RO2510
0086RO2524	0090RO2139	0039RO0293	0114RO2520
0017RO2517	0045RO2173	0063RO0356	0112RO2523
0086RO2511	0420RO2184	0075RO0423	0093RO2530
0046RO2507	0109RO5136	0118RO2129	0069RO5158
0048RO2501	0106RO5165	0117RO2131	0069RO5159
0015RO2117	0089RO5218	0075RO2198	0419RO5164
0043RO2105	0124RO5247	0113RO5101	0070RO5235
0019RO0496	0115RO5257	0418RO5108	0093RO5255
0029RO0452	0039RO0292	0072RO0439	0051RO0460
0029RO0450	0040RO0429	0014RO0435	0043RO0470

The following circuits have been identified as worst performing circuits in 2018 [see section 5 on page 97] –

- 0001RO0336
- 0014RO0437
- 0040RO0376
- 0043RO2104
- 0055RO5240
- 0056RO5178
- 0067RO5175
- 0070RO5132
- 0073RO0419
- 0093RO5254
- 0093RO5255
- 0104RO5156
- 0104RO5157
- 0104RO5288
- 0106RO5166
- 0106RO5167
- 0109RO5195
- 0113RO5102
- 0113RO5228
- 0115RO5258
- 0117RO2130
- 0117RO5187
- 0124RO5128
- 0136RO5296
- 0230RO5162
- 0230RO5163
- 0418RO5199
- 0418RO5201
- 0419RO5120
- 0424RO5203

The 2019 Action Plans for these circuits are –

Circuit 0001RO0336 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	0	0.0%	0	0.0%	0	0.0%
Tree Out ROW	0	0.0%	0	0.0%	0	0.0%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	4	80.0%	1,300	52.4%	1,884	51.3%
Accidents/Non-Utility	0	0.0%	0	0.0%	0	0.0%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	0	0.0%	0	0.0%	0	0.0%
Unknown	1	20.0%	1,179	47.6%	1,789	48.7%
TOTALS	**5**	100.0%	**2,479**	100.0%	**3,673**	100.0%

Based on the information above, the following plan has been created -

- Evaluate circuit for underground cables that are outdated and research potential cable cure and replacement possibilities.
- Research and prevent the “unknown” interruption cause

Circuit 0014RO0437 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	0	0.0%	0	0.0%	0	0.0%
Tree Out ROW	0	0.0%	0	0.0%	0	0.0%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	5	71.4%	1,618	95.8%	4,918	96.0%
Accidents/Non-Utility	1	14.3%	3	0.2%	4	0.1%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	0	0.0%	0	0.0%	0	0.0%
Unknown	1	14.3%	68	4.0%	199	3.9%
TOTALS	**7**	100.0%	**1,689**	100.0%	**5,121**	100.0%

Based on the information above, the following plan has been created -

- Evaluate circuit for underground cables that are outdated and research potential cable cure and replacement possibilities.
- Evaluate circuit for defective or old cutouts and transformers.
- Relocate poles and/or install reflective tape where feasible

Circuit 0040RO0376 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	0	0.0%	0	0.0%	0	0.0%
Tree Out ROW	0	0.0%	0	0.0%	0	0.0%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	5	83.3%	760	47.5%	887	33.5%
Accidents/Non-Utility	1	16.7%	841	52.5%	1,758	66.5%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	0	0.0%	0	0.0%	0	0.0%
Unknown	0	0.0%	0	0.0%	0	0.0%
TOTALS	**6**	100.0%	**1,601**	100.0%	**2,645**	100.0%

Based on the information above, the following plan has been created -

- Relocate poles and/or install reflective tape where feasible.
- Evaluate circuit for underground cables that are outdated and research potential cable cure and replacement possibilities.
- Evaluate circuit for defective or old cutouts and transformers

Circuit 0043RO2104 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	2	50.0%	82	4.3%	430	22.5%
Tree Out ROW	0	0.0%	0	0.0%	0	0.0%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	1	25.0%	912	47.8%	152	8.0%
Equipment Failures	1	25.0%	915	47.9%	1,327	69.5%
Accidents/Non-Utility	0	0.0%	0	0.0%	0	0.0%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	0	0.0%	0	0.0%	0	0.0%
Unknown	0	0.0%	0	0.0%	0	0.0%
TOTALS	**4**	100.0%	**1,909**	100.0%	**1,909**	100.0%

Based on the information above, the following plan has been created -

- Add this circuit to vegetation management's hot spot trimming plan for 2019.
- Evaluate circuit for defective or old cutouts and transformers.
- Work with Operations and ECC to ensure that trouble completion codes are entered correctly

Circuit 0055RO5240 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	2	14.3%	2,478	42.7%	3,010	42.9%
Tree Out ROW	1	7.1%	2,455	42.3%	3,027	43.1%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	1	7.1%	254	4.4%	356	5.1%
Equipment Failures	4	28.6%	366	6.3%	372	5.3%
Accidents/Non-Utility	2	14.3%	40	0.7%	53	0.8%
Prearranged	2	14.3%	2	0.0%	7	0.1%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	0	0.0%	0	0.0%	0	0.0%
Unknown	2	14.3%	211	3.6%	192	2.7%
TOTALS	**14**	100.0%	**5,806**	100.0%	**7,017**	100.0%

Based on the information above, the following plan has been created -

- Add this circuit to vegetation management's hot spot trimming plan for 2019.
- Relocate poles and/or install reflective tape where feasible.
- Evaluate circuit for defective or old cutouts and transformers.
- Work with Operations and ECC to ensure that trouble completion codes are entered correctly

Circuit 0056RO5178 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	0	0.0%	0	0.0%	0	0.0%
Tree Out ROW	0	0.0%	0	0.0%	0	0.0%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	0	0.0%	708	47.1%	1,212	54.9%
Accidents/Non-Utility	1	33.3%	7	0.5%	2	0.1%
Prearranged	1	33.3%	3	0.2%	2	0.1%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	1	33.3%	784	52.2%	993	45.0%
Unknown	0	0.0%	0	0.0%	0	0.0%
TOTALS	**3**	100.0%	**1,502**	100.0%	**2,209**	100.0%

Based on the information above, the following plan has been created -

- Relocate poles and/or install reflective tape where feasible.
- Patrol circuit for lightning protection

Circuit 0067RO5175 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	0	0.0%	0	0.0%	0	0.0%
Tree Out ROW	0	0.0%	0	0.0%	0	0.0%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	2	50.0%	1,578	99.1%	2,559	99.8%
Accidents/Non-Utility	1	25.0%	1	0.1%	1	0.0%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	1	25.0%	13	0.8%	4	0.2%
Unknown	0	0.0%	0	0.0%	0	0.0%
TOTALS	**4**	100.0%	**1,592**	100.0%	**2,564**	100.0%

Based on the information above, the following plan has been created -

- 8.81 miles of planned cycle trimming is scheduled for 2019.
- Relocate poles and/or install reflective tape where feasible.
- Patrol circuit for lightning protection.
- Evaluate circuit for underground cables that are outdated and research potential cable cure and replacement possibilities.
- Evaluate circuit for defective or old cutouts and transformers

Circuit 0070RO5132 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	2	25.0%	168	9.2%	397	61.0%
Tree Out ROW	0	0.0%	0	0.0%	0	0.0%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	2	25.0%	35	1.9%	47	7.2%
Accidents/Non-Utility	1	12.5%	25	1.4%	38	5.8%
Prearranged	3	37.5%	1,603	87.5%	169	26.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	0	0.0%	0	0.0%	0	0.0%
Unknown	0	0.0%	0	0.0%	0	0.0%
TOTALS	**8**	100.0%	**1,831**	100.0%	**651**	100.0%

Based on the information above, the following plan has been created -

- Add this circuit to vegetation management's hot spot trimming plan for 2019.
- 7.65 Miles of planned cycle trimming is scheduled for 2019.
- Relocate poles and/or install reflective tape where feasible.
- Evaluate circuit for underground cables that are outdated and research potential cable cure and replacement possibilities.
- Evaluate circuit for defective or old cutouts and transformers.

Circuit 0073RO0419 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	2	33.3%	981	65.0%	1,473	70.5%
Tree Out ROW	1	16.7%	491	32.5%	499	23.9%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	2	33.3%	7	0.5%	22	1.1%
Accidents/Non-Utility	0	0.0%	0	0.0%	0	0.0%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	0	0.0%	0	0.0%	0	0.0%
Unknown	1	16.7%	31	2.1%	94	4.5%
TOTALS	**6**	100.0%	**1,510**	100.0%	**2,088**	100.0%

Based on the information above, the following plan has been created -

- Add this circuit to vegetation management's hot spot trimming plan for 2019.
- Evaluate circuit for underground cables that are outdated and research potential cable cure and replacement possibilities.
- Evaluate circuit for defective or old cutouts and transformers

Circuit 0093RO5254–

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	2	22.2%	2	0.1%	2	0.1%
Tree Out ROW	0	0.0%	0	0.0%	0	0.0%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	2	22.2%	66	3.6%	181	12.6%
Accidents/Non-Utility	1	11.1%	642	34.6%	929	64.5%
Prearranged	3	33.3%	1,135	61.3%	315	21.9%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	0	0.0%	0	0.0%	0	0.0%
Unknown	1	11.1%	8	0.4%	13	0.9%
TOTALS	**9**	100.0%	**1,853**	100.0%	**1,440**	100.0%

Based on the information above, the following plan has been created -

- Add this circuit to vegetation management's hot spot trimming plan for 2019.
- Relocate poles and/or install reflective tape where feasible.
- Evaluate circuit for underground cables that are outdated and research potential cable cure and replacement possibilities.
- Evaluate circuit for defective or old cutouts and transformers.

Circuit 0093RO5255 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	7	24.1%	282	10.5%	604	25.1%
Tree Out ROW	1	3.4%	58	2.2%	189	7.8%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	7	24.1%	507	18.8%	936	38.9%
Accidents/Non-Utility	10	34.5%	183	6.8%	210	8.7%
Prearranged	1	3.4%	1,609	59.7%	398	16.5%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	1	3.4%	8	0.3%	12	0.5%
Unknown	2	6.9%	46	1.7%	60	2.5%
TOTALS	**29**	100.0%	**2,693**	100.0%	**2,409**	100.0%

Based on the information above, the following plan has been created -

- Add this circuit to vegetation management's hot spot trimming plan for 2019.
- 16.6 miles of planned cycle trimming is scheduled for 2019.
- Relocate poles and/or install reflective tape where feasible.
- Patrol circuit for lightning protection.
- Evaluate circuit for underground cables that are outdated and research potential cable cure and replacement possibilities.
- Evaluate circuit for defective or old cutouts and transformers.

Circuit 0104RO5156 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	0	0.0%	0	0.0%	0	0.0%
Tree Out ROW	1	16.7%	64	1.4%	80	1.0%
Overloads	1	16.7%	10	0.2%	21	0.3%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	1	16.7%	2,480	55.2%	6,759	85.6%
Accidents/Non-Utility	3	50.0%	1,938	43.1%	1,032	13.1%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	0	0.0%	0	0.0%	0	0.0%
Unknown	0	0.0%	0	0.0%	0	0.0%
TOTALS	**6**	100.0%	**4,492**	100.0%	**7,892**	100.0%

Based on the information above, the following plan has been created -

- Add this circuit to vegetation management's hot spot trimming plan for 2019.
- Relocate poles and/or install reflective tape where feasible.
- Evaluate circuit for underground cables that are outdated and research potential cable cure and replacement possibilities.
- Evaluate circuit for defective or old cutouts and transformers.

Circuit 0104RO5157 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	0	0.0%	0	0.0%	0	0.0%
Tree Out ROW	1	10.0%	54	2.4%	58	1.3%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	3	30.0%	2,170	95.1%	4,212	97.4%
Accidents/Non-Utility	4	40.0%	18	0.8%	35	0.8%
Prearranged	2	20.0%	40	1.8%	21	0.5%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	0	0.0%	0	0.0%	0	0.0%
Unknown	0	0.0%	0	0.0%	0	0.0%
TOTALS	**10**	100.0%	**2,282**	100.0%	**4,326**	100.0%

Based on the information above, the following plan has been created -

- Add this circuit to vegetation management's hot spot trimming plan for 2019.
- Relocate poles and/or install reflective tape where feasible.
- Evaluate circuit for underground cables that are outdated and research potential cable cure and replacement possibilities.
- Evaluate circuit for defective or old cutouts and transformers.

Circuit 0104RO5288 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	3	30.0%	287	11.6%	633	32.6%
Tree Out ROW	0	0.0%	0	0.0%	0	0.0%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	1	10.0%	1,373	55.4%	1,004	51.8%
Accidents/Non-Utility	4	40.0%	211	8.5%	161	8.3%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	2	20.0%	606	24.5%	142	7.3%
Unknown	0	0.0%	0	0.0%	0	0.0%
TOTALS	**10**	100.0%	**2,477**	100.0%	**1,940**	100.0%

Based on the information above, the following plan has been created -

- Add this circuit to vegetation management's hot spot trimming plan for 2019.
- 31.88 miles of planned cycle trimming is scheduled for 2019.
- Relocate poles and/or install reflective tape where feasible.
- Patrol circuit for lightning protection.
- Evaluate circuit for underground cables that are outdated and research potential cable cure and replacement possibilities.
- Evaluate circuit for defective or old cutouts and transformers.

Circuit 0106RO5166 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	2	8.0%	25	0.9%	38	1.0%
Tree Out ROW	0	0.0%	0	0.0%	0	0.0%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	7	28.0%	1,774	64.9%	2,251	59.7%
Accidents/Non-Utility	13	52.0%	844	30.9%	1,346	35.8%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	1	4.0%	1	0.0%	2	0.1%
Unknown	2	8.0%	89	3.3%	128	3.4%
TOTALS	**25**	100.0%	**2,733**	100.0%	**3,765**	100.0%

Based on the information above, the following plan has been created -

- Add this circuit to vegetation management's hot spot trimming plan for 2019.
- Relocate poles and/or install reflective tape where feasible.
- Patrol circuit for lightning protection.
- Evaluate circuit for underground cables that are outdated and research potential cable cure and replacement possibilities.
- Evaluate circuit for defective or old cutouts and transformers.

Circuit 0106RO5167 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	6	25.0%	516	11.3%	1,675	20.8%
Tree Out ROW	4	16.7%	1,617	35.8%	2,834	35.1%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	756	16.7%	655	8.1%
Equipment Failures	4	16.7%	25	0.6%	46	0.6%
Accidents/Non-Utility	7	29.2%	1,587	35.1%	2,826	35.0%
Prearranged	1	4.1%	6	0.1%	11	0.1%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	0	0.0%	0	0.0%	0	0.0%
Unknown	2	8.3%	16	0.4%	25	0.3%
TOTALS	**24**	100.0%	**4,523**	100.0%	**8,072**	100.0%

Based on the information above, the following plan has been created -

- Add this circuit to vegetation management's hot spot trimming plan for 2019.
- Relocate poles and/or install reflective tape where feasible.
- Instruct the engineers to reduce the prearranged outages within our engineering designs whenever possible.
- Evaluate circuit for underground cables that are outdated and research potential cable cure and replacement possibilities.
- Evaluate circuit for defective or old cutouts and transformers.

Circuit 0109RO5195 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	9	28.1%	466	13.1%	473	11.2%
Tree Out ROW	3	9.4%	1,787	49.9%	1,737	41.1%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	4	12.5%	588	16.4%	958	22.7%
Accidents/Non-Utility	15	46.9%	707	19.7%	996	23.6%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	0	0.0%	0	0.0%	0	0.0%
Unknown	1	3.1%	34	0.9%	58	1.4%
TOTALS	**32**	100.0%	**3,582**	100.0%	**4,222**	100.0%

Based on the information above, the following plan has been created -

- Add this circuit to vegetation management's hot spot trimming plan for 2019.
- Relocate poles and/or install reflective tape where feasible.
- Evaluate circuit for underground cables that are outdated and research potential cable cure and replacement possibilities.
- Evaluate circuit for defective or old cutouts and transformers.

Circuit 0113RO5102 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	0	0.0%	0	0.0%	0	0.0%
Tree Out ROW	0	0.0%	0	0.0%	0	0.0%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	3	60.0%	22	1.0%	28	3.6%
Accidents/Non-Utility	0	0.0%	0	0.0%	0	0.0%
Prearranged	1	20.0%	2,085	98.9%	730	96.1%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	1	20.0%	2	0.1%	2	0.3%
Unknown	0	0.0%	0	0.0%	0	0.0%
TOTALS	**5**	100.0%	**2,109**	100.0%	**760**	100.0%

Based on the information above, the following plan has been created -

- Patrol circuit for lightning protection.
- Evaluate circuit for underground cables that are outdated and research potential cable cure and replacement possibilities.
- Evaluate circuit for defective or old cutouts and transformers.

Circuit 0113RO5228 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	3	23.1%	959	50.3%	988	39.8%
Tree Out ROW	0	0.0%	0	0.0%	0	0.0%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	3	23.1%	9	0.5%	10	0.4%
Accidents/Non-Utility	2	15.3%	3	0.2%	29	1.2%
Prearranged	3	23.1%	924	48.5%	1,431	57.8%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	2	15.4%	9	0.5%	19	0.8%
Unknown	0	0.0%	0	0.0%	0	0.0%
TOTALS	**13**	100.0%	**1,904**	100.0%	**2,477**	100.0%

Based on the information above, the following plan has been created -

- Add this circuit to vegetation management's hot spot trimming plan for 2019.
- Relocate poles and/or install reflective tape where feasible.
- Patrol circuit for lightning protection.
- Evaluate circuit for underground cables that are outdated and research potential cable cure and replacement possibilities.
- Evaluate circuit for defective or old cutouts and transformers.

Circuit 0115RO5258 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	4	26.7%	601	32.8%	1,070	29.8%
Tree Out ROW	1	6.7%	66	3.6%	213	5.9%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	2	13.3%	18	1.0%	51	1.4%
Accidents/Non-Utility	6	40.0%	1,140	62.3%	2,250	62.7%
Prearranged	2	13.3%	6	0.3%	3	0.2%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	0	0.0%	0	0.0%	0	0.0%
Unknown	0	0.0%	0	0.0%	0	0.0%
TOTALS	**15**	100.0%	**1,831**	100.0%	**3,587**	100.0%

Based on the information above, the following plan has been created -

- Add this circuit to vegetation management's hot spot trimming plan for 2019.
- Relocate poles and/or install reflective tape where feasible.
- Evaluate circuit for underground cables that are outdated and research potential cable cure and replacement possibilities.
- Evaluate circuit for defective or old cutouts and transformers.

Circuit 0117RO2130 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	2	40.0%	1,288	88.3%	1,507	61.0%
Tree Out ROW	1	20.0%	149	10.2%	888	36.0%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	2	40.0%	22	1.5%	73	3.0%
Accidents/Non-Utility	0	0.0%	0	0.0%	0	0.0%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	0	0.0%	0	0.0%	0	0.0%
Unknown	0	0.0%	0	0.0%	0	0.0%
TOTALS	**5**	100.0%	**1,459**	100.0%	**2,468**	100.0%

Based on the information above, the following plan has been created -

- Add this circuit to vegetation management's hot spot trimming plan for 2019.
- Evaluate circuit for underground cables that are outdated and research potential cable cure and replacement possibilities.
- Evaluate circuit for defective or old cutouts and transformers.

Circuit 0117RO5187 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	8	21.6%	460	13.2%	650	17.3%
Tree Out ROW	2	5.4%	1,032	29.5%	1,306	34.7%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	6	16.2%	145	4.1%	291	7.7%
Accidents/Non-Utility	11	29.7%	1,649	47.2%	1,144	30.4%
Prearranged	5	13.5%	96	2.7%	119	3.2%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	3	8.2%	49	1.4%	91	2.4%
Unknown	2	5.4%	67	1.9%	163	4.3%
TOTALS	**37**	100.0%	**3,498**	100.0%	**3,764**	100.0%

Based on the information above, the following plan has been created -

- Add this circuit to vegetation management's hot spot trimming plan for 2019.
- Relocate poles and/or install reflective tape where feasible.
- Patrol circuit for lightning protection.
- Evaluate circuit for underground cables that are outdated and research potential cable cure and replacement possibilities.
- Evaluate circuit for defective or old cutouts and transformers.

Circuit 0124RO5128 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	4	17.4%	40	2.4%	106	3.2%
Tree Out ROW	1	4.3%	1,077	64.7%	1,777	54.2%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	5	21.7%	528	31.7%	1,366	41.7%
Accidents/Non-Utility	4	17.4%	8	0.5%	11	0.3%
Prearranged	6	26.2%	7	0.4%	6	0.2%
Customer Equipment	1	4.3%	2	0.2%	9	0.3%
Lightning	2	8.7%	2	0.1%	3	0.1%
Unknown	0	0.0%	0	0.0%	0	0.0%
TOTALS	**23**	100.0%	**1,664**	100.0%	**3,278**	100.0%

Based on the information above, the following plan has been created -

- Add this circuit to vegetation management's hot spot trimming plan for 2019.
- Relocate poles and/or install reflective tape where feasible.
- Patrol circuit for lightning protection.
- Evaluate circuit for underground cables that are outdated and research potential cable cure and replacement possibilities.
- Evaluate circuit for defective or old cutouts and transformers.

Circuit 0136RO5296 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	0	0.0%	0	0.0%	0	0.0%
Tree Out ROW	5	55.6%	5,168	97.2%	6,690	92.9%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	3	33.3%	142	2.7%	502	7.0%
Accidents/Non-Utility	1	11.1%	3	0.1%	9	0.1%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	0	0.0%	0	0.0%	0	0.0%
Unknown	0	0.0%	0	0.0%	0	0.0%
TOTALS	**9**	100.0%	**5,313**	100.0%	**7,201**	100.0%

Based on the information above, the following plan has been created -

- Add this circuit to vegetation management's hot spot trimming plan for 2019.
- Relocate poles and/or install reflective tape where feasible.
- Evaluate circuit for underground cables that are outdated and research potential cable cure and replacement possibilities.
- Evaluate circuit for defective or old cutouts and transformers.

Circuit 0230RO5162 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	5	23.8%	368	21.9%	552	12.2%
Tree Out ROW	1	4.8%	798	47.5%	2,261	49.7%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	5	23.8%	441	26.3%	1,636	35.9%
Accidents/Non-Utility	9	42.9%	65	3.9%	93	2.0%
Prearranged	0	0.0%	0	0.0%	0	0.0%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	1	4.7%	7	0.4%	9	0.2%
Unknown	0	0.0%	0	0.0%	0	0.0%
TOTALS	**21**	100.0%	**1,679**	100.0%	**4,551**	100.0%

Based on the information above, the following plan has been created -

- Add this circuit to vegetation management's hot spot trimming plan for 2019.
- Relocate poles and/or install reflective tape where feasible.
- Patrol circuit for lightning protection.
- Evaluate circuit for underground cables that are outdated and research potential cable cure and replacement possibilities.
- Evaluate circuit for defective or old cutouts and transformers.

Circuit 0230RO5163 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	1	5.8%	64	3.6%	182	5.4%
Tree Out ROW	0	0.0%	0	0.0%	0	0.0%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	8	47.1%	255	14.8%	475	14.2%
Accidents/Non-Utility	3	17.6%	1,190	68.9%	2,173	64.9%
Prearranged	2	11.8%	162	9.4%	405	12.1%
Customer Equipment	1	5.9%	5	0.3%	7	0.2%
Lightning	2	11.8%	51	3.0%	106	3.2%
Unknown	0	0.0%	0	0.0%	0	0.0%
TOTALS	**17**	100.0%	**1,727**	100.0%	**3,348**	100.0%

Based on the information above, the following plan has been created -

- Add this circuit to vegetation management's hot spot trimming plan for 2019.
- Relocate poles and/or install reflective tape where feasible.
- Patrol circuit for lightning protection.
- Evaluate circuit for underground cables that are outdated and research potential cable cure and replacement possibilities.
- Evaluate circuit for defective or old cutouts and transformers.

Circuit 0418RO5199 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	4	33.3%	323	13.7%	627	29.2%
Tree Out ROW	0	0.0%	0	0.0%	0	0.0%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	3	25.0%	191	8.1%	121	5.6%
Accidents/Non-Utility	4	33.4%	1,800	76.1%	1,392	64.7%
Prearranged	1	8.3%	50	2.1%	11	0.5%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	0	0.0%	0	0.0%	0	0.0%
Unknown	0	0.0%	0	0.0%	0	0.0%
TOTALS	**12**	100.0%	**2,364**	100.0%	**2,151**	100.0%

Based on the information above, the following plan has been created -

- Add this circuit to vegetation management's hot spot trimming plan for 2019.
- Relocate poles and/or install reflective tape where feasible.
- Evaluate circuit for underground cables that are outdated and research potential cable cure and replacement possibilities.
- Evaluate circuit for defective or old cutouts and transformers.

Circuit 0418RO5201 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	1	6.7%	29	1.4%	11	0.3%
Tree Out ROW	0	0.0%	0	0.0%	0	0.0%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	7	46.7%	253	12.4%	297	9.2%
Accidents/Non-Utility	4	26.6%	1,745	85.7%	2,892	90.2%
Prearranged	3	20.0%	10	0.5%	11	0.3%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	0	0.0%	0	0.0%	0	0.0%
Unknown	0	0.0%	0	0.0%	0	0.0%
TOTALS	**15**	100.0%	**2,037**	100.0%	**3,211**	100.0%

Based on the information above, the following plan has been created -

- Add this circuit to vegetation management's hot spot trimming plan for 2019.
- Relocate poles and/or install reflective tape where feasible.
- Evaluate circuit for underground cables that are outdated and research potential cable cure and replacement possibilities.
- Evaluate circuit for defective or old cutouts and transformers.

Circuit 0419RO5120 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	2	16.7%	2,169	95.6%	2,641	94.2%
Tree Out ROW	0	0.0%	0	0.0%	0	0.0%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	1	8.3%	46	2.0%	92	3.3%
Accidents/Non-Utility	1	8.3%	23	1.0%	25	0.9%
Prearranged	8	66.7%	31	1.4%	46	1.6%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	0	0.0%	0	0.0%	0	0.0%
Unknown	0	0.0%	0	0.0%	0	0.0%
TOTALS	**12**	100.0%	**2,269**	100.0%	**2,804**	100.0%

Based on the information above, the following plan has been created -

- Add this circuit to vegetation management's hot spot trimming plan for 2019.
- Relocate poles and/or install reflective tape where feasible.
- Evaluate circuit for underground cables that are outdated and research potential cable cure and replacement possibilities.
- Evaluate circuit for defective or old cutouts and transformers.

Circuit 0424RO5203 –

CAUSE DESCRIPTION	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In ROW	2	12.5%	93	5.0%	115	3.0%
Tree Out ROW	1	6.3%	1,612	86.9%	3,327	88.0%
Overloads	0	0.0%	0	0.0%	0	0.0%
Operational Errors	0	0.0%	0	0.0%	0	0.0%
Equipment Failures	2	12.5%	40	2.2%	147	3.9%
Accidents/Non-Utility	8	50.0%	41	2.2%	70	1.9%
Prearranged	1	6.3%	6	0.3%	4	0.2%
Customer Equipment	0	0.0%	0	0.0%	0	0.0%
Lightning	1	6.2%	2	0.2%	17	0.4%
Unknown	1	6.2%	60	3.2%	100	2.6%
TOTALS	**16**	100.0%	**1,854**	100.0%	**3,780**	100.0%

Based on the information above, the following plan has been created -

- Add this circuit to vegetation management's hot spot trimming plan for 2019.
- Relocate poles and/or install reflective tape where feasible.
- Patrol circuit for lightning protection.
- Evaluate circuit for defective or old cutouts and transformers. Also for underground cables that are outdated.

Update for 2017 –

In 2017, the Rochester Division met both its CAIDI and SAIFI targets.

Additional Capital and O&M initiatives tracked in 2018 to enhance reliability include —

- 319 Equipment Replacement work orders were completed
- 44 Distribution Overhead Line Repair work orders were completed
- 16 Highway Distribution Line Relocation Projects were completed.
- Distribution Hardening Project
- City and Town Street Light Separation Projects
- DLI Program continuation - Proactive inspection program to identify and repair distribution system deficiencies including damaged cross arms, transformers, conductors, ties, animal guards, and poles.
- Station 419 Circuit Upgrade – Evaluating options of adding an additional circuit for reliability and capacity improvements.
- Hot Spot trimming was performed on:

0109RO5195	0230RO5163
0230RO5162	0073RO0419
0419RO5120	0074RO0422
0093RO5255	0102RO2540
0106RO5167	0050RO0284
0117RO5187	0083RO2239
0424RO5203	0033RO0363
0117RO2130	0111RO5298

Jobs planned for 2019 or beyond:

- Resiliency Project
- Automation Project – 14 Regulator replacement or communication/control upgrades
- Composite Pole Project
- Distribution Line Inspection Program
- Station 49 Upgrade Project
- Dig Safe 311 Promotion

Section 3. Reliability Programs

Historical O&M efforts expenditures for each of the past five years –

Reliability Program Actuals	2014	2015	2016	2017	2018*
Oper Superv & Eng	$ 1,867,742	$ 571,996	$ 549,829	$ 321,448	$ 396,561
Load Dispatching	$ -	$ -			
Station Expenses	$ 2,602,809	$ 4,150,295	$ 3,144,463	$ 2,260,625	$ 1,844,554
Overhead Line Expense	$ 177,441	$ 109,578	$ 321,443	$ 179,248	$ 620,671
Transmission of Elec	$ 319,896	$ 319,747	$ 321,451	$ 320,216	$ 319,896
Misc. Transmission Expenses	$ 1,159,641	$ 3,976,099	$ 1,184,585	$ 1,159,820	$ 954,990
Oper Superv & Eng	$ 1,870,529	$ 3,582,035	$ 3,015,163	$ 2,735,157	$ 2,122,794
Load Dispatching	$ 1,478,226	$ 578,096	$ 1,781,042	$ 1,565,965	$ 1,655,253
Station Expenses	$ 1,735,725	$ 2,372,530	$ 4,086,631	$ 3,113,440	$ 2,289,018
Overhead Line Expense	$ 645,282	$ 1,796,861	$ 2,087,875	$ 1,007,919	$ 1,929,525
Underground Line Expenses	$ 989,550	$ 704,848	$ 225,340	$ 266,344	$ 340,316
Street Light & Sign	$ 74,284	$ 17,080	$ 4,652	$ 1,716	$ 979
Meter Expense	$ 2,412,338	$ 1,162,183	$ 2,622,766	$ 1,752,238	$ 1,405,766
Customer Installation Expenses	$ 230,812	$ 198,465	$ 423,108	$ 390,808	$ 299,012
Misc. Distribution Expenses	$ 4,488,721	$ 3,005,683	$ 4,022,406	$ 4,189,005	$ 3,922,163

Reliability Program Actuals	2014	2015	2016	2017	2018*
Maint Superv & Eng	$ 271,707	$ 417,499	$ 401,017	$ 223,051	$ 280,199
Maintenance of Structures	$ 27,093	$ 8	$ 7,134	$ 1,288	$ -
Maintenance station Expenses	$ 1,397,072	$ 1,144,133	$ 1,644,236	$ 1,568,987	$ 1,478,639
Maint. Overhead Line Expense	$ 1,671,364	$ 3,263,074	$ 3,115,707	$ 2,436,483	$ 2,488,690
Maint Underground	$ 231,241	$ 241,583	$ 235,212	$ 254,686	$ 394,168
Maint Superv & Eng	$ 4,550,218	$ 516,917	$ 709,555	$ 4,392,599	$ 3,452,085
Maintenance of Structures	$ 19,046	$ -			
Maintenance Station Equipment	$ 1,621,940	$ 1,815,656	$ 2,612,907	$ 3,025,830	$ 3,018,063
Maint Overhead Line	$ 24,768,054	$ 32,632,364	$ 27,973,428	$ 96,039,712	$ 43,516,083
Maint of Underground	$ 126,992	$ 2,077,401	$ 2,169,323	$ 2,580,153	$ 1,980,352
Maint of Line Transformers	$ 218,278	$ -	$ 23,749	$ -	$ -
Maint Street Light	$ 451,324	$ 759,527	$ 572,748	$ 565,605	$ 620,475
Maint of Misc Distr	$ 206,160	$ 1,161,980	$ 2,256,740	$ (56,478,828)	$ (4,892,604)

* The annual audit of the corporate books and records is not yet complete, therefore the 2018 amounts shown on the above table(s) should be considered unaudited

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Program Overviews and Summaries –

RG&E is dedicated to preserving the integrity of the energy delivery system and minimizing the consequence of equipment failure through the development and implementation of comprehensive, reliability-centered, cost-effective maintenance programs.

The Process & Technology Department play a key role in this program. Maintenance engineers plan, develop, implement, and monitor maintenance programs associated with the energy delivery system. One of the primary functions of these engineers is managing maintenance programs for individual components of the energy delivery system. Measurement of the effectiveness of preventative maintenance programs provides the necessary feedback to adjust maintenance activities. Establishing preventative maintenance intervals for energy delivery equipment based upon sound reliability centered maintenance philosophy results in the optimized use of available resources. The Company assesses the serviceability of energy delivery equipment on a continuous basis and applies equipment life extension practices where appropriate. Cost-benefit analyses are performed to evaluate repair versus replace options.

RG&E establishes and updates maintenance practices and procedures consistent with equipment requirements and industry standards. The intent of this is to assure the safety of maintenance personnel and the general public and provide a means of quality assurance. The development of maintenance practices and procedures promotes the application of maintenance in a consistent and effective manner.

Company engineers perform equipment operating assessments through the use of on-line monitoring and on-site inspections. Acquisition and evaluation of operating data is performed to determine equipment status. Recommendations are then made regarding equipment utilization and overload conditions based upon operating safety and loss of life considerations. Technical support for field operations including on-site resolution of maintenance concerns is also provided. These engineers serve as subject matter experts for developing lesson plans for training and are called upon to perform root cause analysis associated with equipment failures.

RG&E's dedication to improved systems reliability is demonstrated by the development of a number of new maintenance programs in addition to the improvement of existing programs. The following pages contain maintenance program summaries for each highlighted maintenance program.

On January 5, 2005, in Case 04-M-0159, the Public Service Commission (PSC) adopted a set of statewide safety standards (Safety Order) that apply to the electric utilities subject to the Commission's jurisdiction. The safety standards include inspections of utility electric facilities on a minimum of a five-year cycle. In accordance with the Safety Order, RG&E has developed and implemented a program for inspection and repair of all electric transmission and distribution facilities. The Program is summarized as follows:

Electric Safety Standards Inspection Program

The objective of all inspections is to conduct a careful and critical examination of an electric facility by a qualified individual to determine the condition of the facility and the potential to cause or lead to safety hazards or adverse effects on reliability. RG&E's inspection program was designed to visually inspect every facility at least once over a period of five years as required by the Safety Order.

Inspections conducted during routine maintenance and other work not directly related to the inspection program count as an inspection visit, provided that the inspection is performed using the same safety and reliability criteria and to the same extent as would otherwise be required under the Electric Safety Standards.

Categories or Facility Groups

Street Lighting

The streetlight inspection program is a comprehensive external visual only inspection of metal streetlight poles, pole hand holes, pole bases, and fixtures. NYSEG inspects approximately 20% of their streetlights annually.

Underground

The underground inspection program provides an inspection of RGE manholes, handholes, vaults, sub-holes, padmount transformers, padmount switchgear and all equipment, devices and cables present within these structures. This includes inspection of structural integrity, drainage, electrical integrity of all equipment and cables (as permissible by visual inspection), and mechanical integrity of all equipment and cables (as permissible by visual inspection). Dangerous conditions and potential threats to electric system reliability are identified. RG&E inspects approximately 20% of their underground assets annually.

Overhead Distribution

The overhead distribution inspection and maintenance program identifies and corrects electric overhead distribution circuit deficiencies on all poles, equipment, and devices present on all distribution structures including guy wires/anchors, crossarms, switches, conductors and other accessory equipment. RG&E inspects approximately 20% of all their distribution assets annually.

RG&E also conducts bi-monthly inspections of all substations. This effort is a comprehensive inspection of all equipment located within the facility by field personnel. Numerous inspections of substation equipment occur during the year as a result of ongoing maintenance work.

Transmission

The objective of all transmission inspections is to identify and correct circuit deficiencies on all transmission circuits and structures.

RG&E is required to visually inspect approximately 20% of all transmission circuits annually within their respective division.

The transmission inspection program is divided into two categories based on voltage class:

- 115KV and above – Comprehensive Helicopter Inspection and Foot Patrol
- Below 115KV – Comprehensive Foot Patrol

The comprehensive helicopter inspection involves performing low level (pole top), slow speed (stop & hover), comprehensive inspection of transmission circuits to identify structure, conductor and equipment damage, defects and deficiencies. Helicopter maintenance capabilities are used where appropriate to perform maintenance functions.

Transmission inspections are accomplished through a comprehensive foot patrol, performed by an inspector competent in line inspection procedures. Inspections include a visual examination of all transmission towers, poles, guy wires, risers, overhead conductors, switches, and other aboveground equipment and facilities.

Inspection Procedure

The annual performance target for inspections includes all existing Maintenance Engineering and Operations inspection programs if the inspection and collected data satisfies the Electric Safety Standards.

The number of facilities to be inspected in each cyclic inspection program is determined by examining the total number of assets to be inspected by asset type (streetlight, distribution pole, transmission pole, underground structure, etc…) in each division and applying a 20% levelization factor to each to ensure equal amount of inspections are taking place annually throughout the company for the 5 year cycle. Once established, the plan will remain unchanged with only small modifications to include any added or removed assets that take place.

Electric facility inspections are performed by trained and qualified personnel. Inspection personnel comply with all appropriate safety procedures and practices specified by the Company (e.g. manhole entry, manhole rescue and work zone protection) when performing inspections.

Repair Prioritization

Inspection discrepancies have been classified into Level I, Level II and Level III and Level IV conditions based on the severity of each discrepancy as it relates to public safety and electric system reliability. Level I discrepancies are the most critical, requiring immediate attention. Level II, Level III, and Level IV conditions, as determined by the inspector, are addressed as specified by the following descriptions:

Level I Condition

A Level I is a condition of any electrical equipment, device or structure that poses a serious and immediate threat to either the safety of the public or the reliability of the electric transmission or distribution system. Such conditions shall be repaired as soon as possible but not longer than one week. Critical safety hazards present at the time of the inspection shall be guarded until the hazard is mitigated.

Level II Condition

A Level II is a condition of any electrical equipment, device or structure that, if not corrected could develop into a Level I Condition. Such conditions shall be repaired within a one year period based on the evaluation of the inspector.

Level III Condition

A Level III is a condition of any electrical equipment, device or structure that has deficiencies, but those deficiencies do not pose any risk to public safety or the reliability of the electric transmission or distribution system. These conditions shall be repaired within a three a year period based on the evaluation of the inspector.

Level IV Condition

Level IV is a condition of any electrical equipment, device or structure that has deficiencies, but repairs are not needed at this time. This condition level is used to track atypical deficiencies that do not require repair within a five year period and will be revaluated in the next cycle.

In addition to the equipment inspection and maintenance associated with the PSC Safety Order, RG&E has implemented the following maintenance programs as system conditions warrant:

Maintenance Program Information

Dynamic O&M/Capital programs are implemented on an ongoing or as needed basis dependent upon reliability and safety requirements.

Underground Manhole and Handhole Inspection Program

Underground switches, transmission cables, distribution cables, secondary cables, cable splices, cable hangers, fuse devices, and transformers are visually inspected for physical condition. Manhole walls, roof and frame & cover are inspected for structural integrity. Equipment is repaired or replaced as appropriate. Manhole detail sheets are updated and duct location parameters are documented.

Program Benefits: A reduction in equipment failure related outages can be achieved through a comprehensive inspection program for underground equipment. Customer reliability is improved. Workers and public safety is improved.

Program Cycle: 5 Years

Overhead Distribution Inspection Program

The objective of this program is to perform proactive and predictive maintenance on RG&E distribution assets. This program provides a comprehensive evaluation of distribution system structures, conductors and equipment. It focuses maintenance activities on correcting all damage, defects and deficiencies.
Program Benefits: The program enhances distribution circuit integrity and reliability. Enhanced safety is achieved by identifying deficiencies that can lead to equipment failures.

Program Cycle: 5 Years

Transmission/Distribution Switch Inspection and Maintenance Program

Lubricate, adjust, exercise and repair as needed on the transmission, sub-transmission and distribution system disconnect switches and isolation devices.

Program Benefits: Maintaining disconnect switches on the transmission, sub-transmission and distribution system improves system reliability and allows for flexible operation of the electric system as it was originally designed. Properly maintained disconnect devices provide for a safer environment for operating personnel.

Program Cycle: Replaced as needed with Capital

Distribution Switchgear Inspection and Maintenance Program

This program provides a comprehensive inspection of PME and PMH type padmount switchgear. It identifies maintenance actions necessary to correct any damage, defects and deficiencies of this equipment.

Program Benefits: Inspection of distribution switchgear provides a means of identifying potential equipment failures and therefore, improves reliability and customer satisfaction.

Program Cycle: 5 Years

Wood Pole Inspection and Maintenance Program

Inspection of wood transmission poles for decay, insect infestation and damage. Treatment with preservatives as required. Identification of danger poles for immediate replacement/reinforcement and reject poles for future replacement/reinforcement.

Program benefits: Wood pole inspection and maintenance program enhances the safety and reliability of the electric energy delivery system by identifying and eliminating defective wood poles before failure and before causing injury, damage, or unscheduled outages. The supplemental preservative extends the average life of poles approximately 30 years.

Program Cycle: As needed

Overhead Aluminum Base Bell Insulator Replacement Program

This program will replace 4-1/4" aluminum base bell 15kV Class insulators on RG&E's high priority overhead distribution circuits. Aluminum base insulators have a high defect rate due to inherent material issues/degradation. Existing insulators will be replaced using a new polymer style insulator.
Program Benefits: The program will replace overhead 4-1/4" aluminum base type insulators using a polymer insulator. Replacement is the only effective solution to eliminate future failures. The replacement program will also minimize customer outages and will improve system reliability.

Program Cycle: Replaced as needed

Thermographic Inspection Program

A comprehensive scan of transmission circuits, subtransmission circuits, electric substations, customer transformers 500kva and above, high priority distribution circuits is conducted on an as needed basis, to identify heating conditions on energy delivery equipment.

Program Benefits: Thermography is a proactive maintenance tool to identify abnormal heating of energy delivery equipment to avert equipment failures resulting in customer outages.

Program Cycle: As needed

Corona Detection Program

A comprehensive scan of transmission circuits, subtransmission circuits, electric substations, customer transformers 500kva and above, high priority distribution circuits is conducted on an as needed basis, to identify self-sustained localized ionization of gas surrounding an energized electrode condition on energy delivery equipment.

Program Benefits: Corona detection is a proactive maintenance tool to assure power system reliability by detecting defective components at early stages of degradation. This program easily locates RF interference and audio noise sources.

Program Cycle: As needed

Steel Pole and Tower Inspection and Maintenance Program

Inspect steel transmission poles and towers and perform repairs as needed. Tower foundations will be inspected for structural integrity and repairs will be conducted on a priority basis. Steel components will be examined for degradation and the necessary cleaning and painting will be conducted.

Program Benefits: The maintenance program for steel towers and poles will prevent major transmission outages by maintaining the structural integrity of the transmission system. The goal of this program is to completely eliminate outages attributed to the degradation of steel poles and towers and their associated foundations.

Program Cycle: As needed

Overhead Transmission Aerial Inspection and Maintenance Program

The objective of this program is to perform proactive and predictive maintenance on transmission assets. Helicopter inspection and maintenance capabilities will be used where appropriate to perform procedures.

Program Benefits: This program provides a comprehensive evaluation of transmission system structures, conductors and equipment. It focuses maintenance activities on correcting all damage, defects and deficiencies. Ultimately the program enhances transmission and subtransmission circuit integrity and reliability.

Program Cycle: 5 years for Transmission 115kV and above.

Electric Substation Battery Maintenance Program

The maintenance of substation batteries includes routine inspections, battery resistance testing and battery replacements where required. All substation batteries are inspected periodically. Discharge tests are performed on bulk electric system station batteries as per NERC intervals.

Program benefits: Substation batteries provide the necessary power required for system protection. A lack of proper battery maintenance can result in catastrophic failure. A comprehensive battery maintenance program ensures a reliable source of energy for system protection equipment.

Program Cycle: Annual

Network Maintenance Program

Perform the required maintenance on network transformers/switches and secondary protectors. Internal and external inspections are performed as well as vault inspection, cleaning, and painting.

Program benefits: A comprehensive network maintenance program ensures continuous uninterrupted service to a portion of RG&E's commercial and industrial customers.

Program Cycle: 5 Years

Distribution Pad Mount Transformer Maintenance Program

All single and 3-phase distribution transformers are inspected on a 5 year cycle to ensure customer safety and maintain system reliability. Distribution transformers for "High Priority" customers are inspected annually along with fluid sampling and analysis.
Program benefits: The increase in customer safety and reliability that this program provides supports the achievement of mandated performance metrics.

Program Cycle: 5 Years

Voltage Regulator Maintenance Program

Replace obsolete and defective station and pole top voltage regulators with new or reconditioned units system wide. Control calibration to be performed approximately every 2 years. Thermovision performed as needed on regulator installations.

Program benefits: Replacing obsolete regulators provides improved voltage regulation and assures appropriate fault duty. This in turn improves reliability and increases personnel safety. Control calibration improves power quality for the customer.

Program Cycle: 2 Years Inspections; replace as needed with Capital

Distribution Line Clearance

The objective of the distribution forestry program is to clear lines and rights-of-ways of vegetation in a cost effective, preventative manner and identify/correct unsafe conditions.

Program benefits: Improve customer service and reliability by reducing tree contact related outages. Circuit restoration labor costs are reduced as a result of this program. Safety related concerns are addressed.

Program Cycle: Varies

Gas and Electric Transmission ROW Management Program

Maintain the integrity of the gas and electric transmission right-of-way utilizing integrated vegetation management techniques. Eliminate tree contacts that occur from vegetation growth on the electric transmission right-of-way (ROW). Maintain the gas transmission ROW to facilitate access for inspections and maintenance.

Program benefits: Minimize preventable outages related to vegetation growth on the electric right-of-way and facilitate access to, and visibility of, the gas ROW for inspection and maintenance.

Program Cycle: Varies

Electric Transmission Aerial Line Patrol

The objective of this program is to fly the transmission and subtransmission system approximately two times per year to detect thermal, structural, and tree related problems. The gas transmission and distribution right-of-way (ROW) is patrolled each fall to identify safety and access concerns.
Program benefits: Reduce outages by identifying conditions that have the potential to interrupt electric energy delivery.

Program Cycle: 2 times per year

Line Recloser/Sectionalizer Maintenance Program

Reclosers are replaced with a new or reconditioned unit as required. Modifications to the original design are performed as required at this time. Recloser and sectionalizer controls are inspected and / or tested annually.

Program benefits: Rotating reconditioned/upgraded reclosers into the system ensures the proper system protection coordination. Reconditioning reclosers improves the dielectric integrity of the associated insulation system. Relocation of the control box improves safety for the operator. This program increases the reliability of the energy delivery system.

Program Cycle: Replaced as needed on Capital

Substation Transformer Maintenance Program

Perform all aspects of transformer maintenance on substation transformers. This includes LTC internal maintenance and control calibration. LTC controls are upgraded as needed to microprocessor based controls. Transformer maintenance includes a full battery of testing (insulation/winding/accessories). Elimination of PCB contaminated transformer oil is also an objective of this program. Insulating fluid is tested and processed as needed (dehydration/degassing/refining).

Program benefits: A comprehensive transformer maintenance program is vital to maintaining the integrity of the Electric Energy Delivery System.

Program Cycle: Varies by voltage class, equipment type and testing criteria

Electric Substation Circuit Breaker Maintenance Program

Perform the required maintenance on all circuit breakers in Electric Substations. Various levels of maintenance are performed including on line external inspections, off line internal inspections, and oil sampling and testing for dielectric quality.

Program benefits: The maintenance program for circuit breakers ensures the mechanical and electrical integrity of a critical component of the energy delivery system. Circuit breaker functionality is critical to the protection of substation equipment and to the safety of operating personnel.

Program Cycle: Varies by voltage class, equipment type and testing criteria

Electrical System Protection Maintenance Program

Maintain the integrity of the electric energy delivery system protective relaying. Comply with NERC and NPCC testing requirements for transmission relays.
Program benefits: A comprehensive relay maintenance program ensures the proper equipment protection, ensures the integrity of the protection system, reduces the likelihood of mis-operations, and ensures personnel safety.

Program Cycle: Varies by voltage class, equipment type and testing criteria

Stray Voltage Testing Program

Provide a comprehensive approach and schedule to address the Commission's objectives to test publicly accessible electric facilities capable of conducting electricity. These facilities include; streetlights, distribution poles, underground network and transmission.

Program benefits: This program identifies locations in the electric delivery system where potential shock conditions exist. Remediation of these conditions will ensure a safe and reliable network to the public and company personnel.

Program Cycle: Annually test 100% Streetlight/Traffic Signal and Underground network and 20% of Distribution, URD and Transmission assets (coinciding with annual inspection scope).

System Fault Indicators

The Installation and periodic replacement of fault indicators are to support the restoration of customers during outages. New fault indicators are installed in locations that can assist crews in determining the location of faults. Installed indicators are tested or replaced as necessary based upon operability.

Program benefits: The use of fault indicators assists field crews with the restoration of lines during outages. A quicker location of faults significantly improves the overall restoration time of customers.

Program Cycle: As needed

Capacitor Maintenance and Repair Program

Periodic testing is conducted on pole mounted capacitors and switches. Replacement of defective capacitors, oil switches and control transformers is conducted as necessary.

Program benefits: Proper operation of switched capacitors maintains voltages within the mandated bandwidth. This reduces power quality issues and maintains customer satisfaction.

Program Cycle: As needed

Operations and Maintenance (O&M) actuals associated with reliability programs for each of previous five years –

Reliability Program Actuals	2014	2015	2016	2017	2018*
Oper Superv & Eng	$ 1,867,742	$ 571,996	$ 549,829	$ 321,448	$ 396,561
Load Dispatching	$ -	$ -			
Station Expenses	$ 2,602,809	$ 4,150,295	$ 3,144,463	$ 2,260,625	$ 1,844,554
Overhead Line Expense	$ 177,441	$ 109,578	$ 321,443	$ 179,248	$ 620,671
Transmission of Elec	$ 319,896	$ 319,747	$ 321,451	$ 320,216	$ 319,896
Misc. Transmission Expenses	$ 1,159,641	$ 3,976,099	$ 1,184,585	$ 1,159,820	$ 954,990
Oper Superv & Eng	$ 1,870,529	$ 3,582,035	$ 3,015,163	$ 2,735,157	$ 2,122,794
Load Dispatching	$ 1,478,226	$ 578,096	$ 1,781,042	$ 1,565,965	$ 1,655,253
Station Expenses	$ 1,735,725	$ 2,372,530	$ 4,086,631	$ 3,113,440	$ 2,289,018
Overhead Line Expense	$ 645,282	$ 1,796,861	$ 2,087,875	$ 1,007,919	$ 1,929,525
Underground Line Expenses	$ 989,550	$ 704,848	$ 225,340	$ 266,344	$ 340,316
Street Light & Sign	$ 74,284	$ 17,080	$ 4,652	$ 1,716	$ 979
Meter Expense	$ 2,412,338	$ 1,162,183	$ 2,622,766	$ 1,752,238	$ 1,405,766
Customer Installation Expenses	$ 230,812	$ 198,465	$ 423,108	$ 390,808	$ 299,012
Misc. Distribution Expenses	$ 4,488,721	$ 3,005,683	$ 4,022,406	$ 4,189,005	$ 3,922,163

* The annual audit of the corporate books and records is not yet complete, therefore the 2018 amounts shown on the above table(s) should be considered unaudited

Workforce Number by Job Title for Each of Previous 5 Years –

RG&E Electric Craft Job Title	2014	2015	2016	2017	2018
Cable Splicer	8	7	6	7	6
Chief Cable Splicer	6	4	3	3	3
Chief Gas Fitter	5	8	7	8	9
Chief Line Mechanic	23	24	22	23	24
Chief Relay Technician	1	1	1	1	1
Chief Substation Electrician	9	9	9	9	9
Chief Trouble Mechanic	11	11	11	11	10
Electric System Specialist	3	3	3	3	2
Foreperson-Gas Cable Maintenance	0	0	0	0	0
Foreperson-Subway	1	1	1	1	1
Lead Substation Electrician	10	10	9	10	9
Line Mechanic	28	31	30	26	23
Relay Technician	3	5	5	5	5
Substation Electrician	3	3	3	3	2
Substation Technician	1	0	1	1	0
Tech - Communications A	1	1	1	1	1
Technician - SCADA	6	6	6	6	5
Trouble Mechanic	10	14	15	14	15
Total	84	129	138	133	125

Contractor Crew Services Used for Each of Previous 5 Years –

RG&E utilizes contractor crew services in a variety of areas to augment internal work forces. Specific contractor crew detail has not been captured for the past 5 years

Distribution Vegetation Line Clearance Budgets and Actual Expenditures for Each of Previous 5 Years –

Year	Rate Plan Level	Actual
2014	$6,600,000	$6,605,063
2015	$6,600,000	$6,600,000
2016	$6,600,000	$7,438,444
2017	$7,860,000	$7,167,169
2018	$8,855,702	$8,645,358

Division	Distribution Miles Completed, 2018	34.5 kV	15 kV	5 kV
Canandaigua	225.4	0.0	195.8	29.6
Genesee Valley	214.0	0.0	0.0	77.4
Lakeshore	223.1	136.5	163.0	60.2
Rochester	437.5	0.0	265.5	172.1
RGE	1,100.0	136.5	624.2	339.3

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Section 4. Power Quality

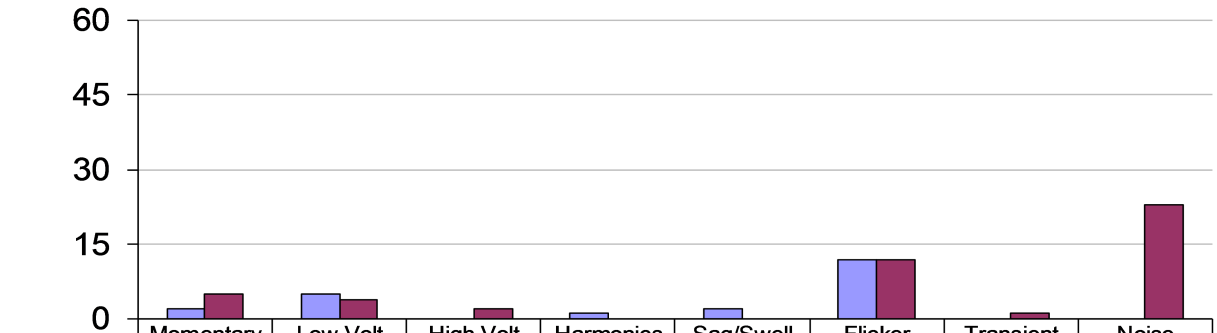
Rochester Gas & Electric Corporation (RG&E) strives to provide to its customers electric service that is very reliable and with a high degree of power quality. This section of the reliability report contains a description of RG&E's power quality program along with a presentation of the power quality data that was obtained through this program in 2018.

RG&E's power quality program is designed to address customer needs and requests dealing with a variety of power quality issues. RG&E has a team of specialists that are capable of investigating and resolving power quality requests and investigations as needed. These team members are located throughout the state in various RG&E operating areas.

The process that RG&E goes through to resolve a PQ request can vary greatly depending on the type of PQ problem the customer is contacting the Company about. For an example, flickering lights are a short intermittent event that can be caused by a number of things. A request of this type may be resolved over the phone or during a field check when voltage measurements are taken. Low voltage, high voltage and some of the other types of PQ issues are more complicated and may require field monitoring of the electric service along with data analysis to determine the cause of the problem and to develop potential system corrections. This type of detailed PQ investigation is especially important to commercial and industrial class customers that may operate very sensitive equipment. RG&E always works with its customers to first determine the cause (whenever practical) and then find a solution that addresses the customers concerns and needs.

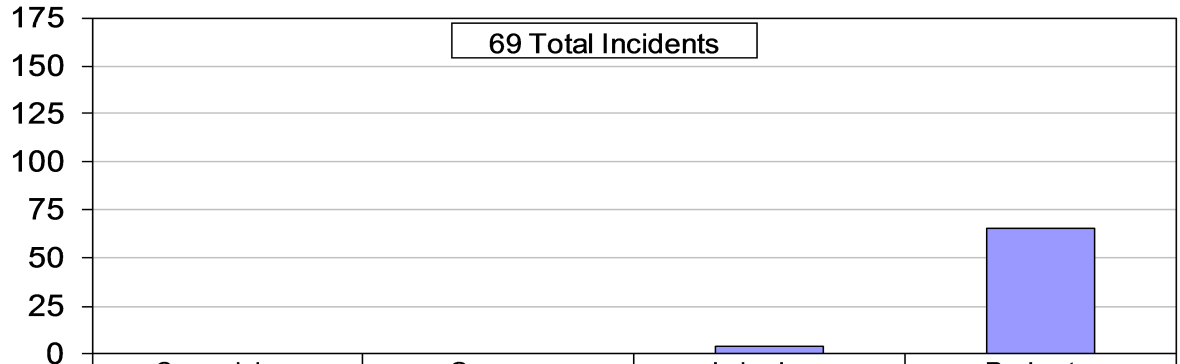
The following pages contain the data that was collected throughout 2018 regarding the PQ calls RG&E received and the resulting investigations that were conducted.

2018 Reported Power Quality Incidents by Problem Type and Party



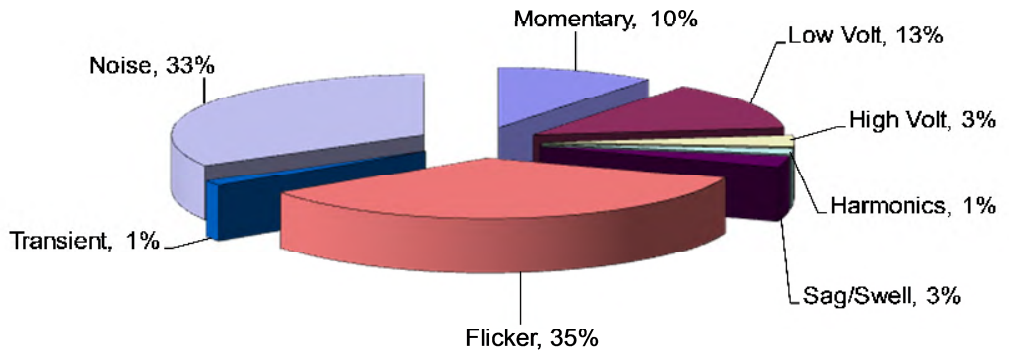
	Momentary	Low Volt	High Volt	Harmonics	Sag/Swell	Flicker	Transient	Noise
RGE	2	5	0	1	2	12	0	0
Customer	5	4	2	0	0	12	1	23

2018 Reported Power Quality Incidents by Division



	Canandaigua	Genesee	Lakeshore	Rochester
Division	0	0	4	65

2018 Reported Power Quality Incidents by Problem Type



Momentary interruptions by Division by voltage level – 5 year history

(RG&E does not calculate MAIFI due to the fact that all circuits do not have SCADA capabilities)

System Recorded Momentary Interruptions* by Division and Circuit Voltage					
4kV Circuits	**2014**	**2015**	**2016**	**2017**	**2018**
Canandaigua	0	4	0	4	0
Genesee	0	0	1	1	0
Lakeshore	0	0	0	0	0
Rochester	94	46	34	83	85
Corporate	94	50	35	88	85
12kV Circuits	**2014**	**2015**	**2016**	**2017**	**2018**
Canandaigua	38	13	4	15	17
Genesee	0	0	0	0	0
Lakeshore	26		0	10	4
Rochester	103	14	30	52	63
Corporate	167	27	34	77	84
All Circuits	**2014**	**2015**	**2016**	**2017**	**2018**
Canandaigua	38	17	4	19	17
Genesee	0	0	1	1	0
Lakeshore	26	0	0	10	4
Rochester	197	60	64	135	148
Corporate	261	77	69	165	169

*This data represents momentary interruption events as recorded by RGE's Energy Control System (SCADA System). These events are limited to momentary interruption events to those substations circuit breakers or switches monitored by the Energy Control System on distribution redail circuits.

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Section 5. Circuit Performance

The following pages contain lists of circuits, by operating area, based on SAIFI and CAIDI performance for the calendar year.

ROCHESTER GAS & ELECTRIC CORPORATION
CAIDI/SAIFI Circuit Report - Descending CAIDI Order
January 1, 2018 to December 31, 2018

CANANDAIGUA					
Circuit	Interruptions	Customers Affected	Customer Hours Interrupted	CAIDI	SAIFI
0149CF0249	2	3	17	5.88	0.00
0168CF0704	1	3	10	3.32	0.00.
0154CF5260	6	766	2,119	2.77	1.61
0125CF5208	8	34	85	2.48	0.05
0168CF0736	1	4	8	2.14	0.00.
0121CF0782	1	1	2	2.13	0.00.
0149CF2905	2	384	808	2.10	0.91
0154CF5261	11	175	333	1.90	0.19
0148CF2901	8	930	1,745	1.88	2.07
0148CF2902	1	1,544	2,879	1.86	2.00
0125CF5250	1	1	2	1.83	0.00
0125CF5134	4	46	83	1.77	2.30
0154CF0391	4	187	307	1.64	0.27
0145CF5143	28	2,036	3,273	1.61	1.97
0125CF5182	5	266	419	1.57	0.27
0428CF5172	16	753	1,131	1.50	0.54
0127CF5230	11	758	1,039	1.37	0.31
0144CF2913	1	911	1,211	1.33	0.99
0144CF2912	1	81	106	1.31	0.75
0168CF5189	20	2,938	3,864	1.31	1.81
0144CF2914	1	75	97	1.30	1.00
0145CF5144	21	1,322	1,721	1.30	1.30
0146CF5139	51	1,795	2,272	1.26	2.54
0155CF0260	2	936	1,178	1.26	2.26
0155CF0259	2	1,534	1,889	1.23	2.10
0127CF5229	8	435	530	1.22	1.03
0155CF0248	0	390	473	1.21	1.38
0168CF5190	29	665	792	1.19	0.24
0153CF0250	2	981	1,161	1.18	1.02
0153CF0251	0	67	77	1.15	1.02
0153CF0252	0	507	583	1.15	0.99
0142CF5148	16	585	613	1.05	0.77
0142CF5192	11	53	53	0.99	0.04
0143CF5146	47	1,947	1,848	0.95	1.77
0142CF5191	8	696	649	0.93	1.14
0428CF5138	24	3,646	3,181	0.87	2.32
0143CF5145	31	1,034	857	0.83	1.21
0142CF5149	2	552	452	0.82	0.92
0127CF5231	13	2,041	1,582	0.77	1.25
0146CF5141	39	3,218	2,289	0.71	3.07
0156CF0255	6	532	360	0.68	1.12
0156CF0257	1	488	301	0.62	1.02

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January 1, 2018 to December 31, 2018

GENESEE					
Circuit	Interruptions	Customers Affected	Customer Hours Interrupted	CAIDI	SAIFI
0175GV1243	9	48	377	7.86	0.11
0173GV1250	3	38	203	5.32	0.15
0173GV1249	12	225	1,038	4.62	0.59
8375GV7707	26	1,279	4,206	3.29	2.32
0128GV0923	0	1	3	3.05	0.00.
0173GV1223	1	4	12	2.95	0.02
0176GV1246	4	130	382	2.93	0.54
0176GV1217	4	122	341	2.79	0.37
0171GV1237	8	81	209	2.58	0.17
8377GV7708	9	1,119	2,809	2.51	1.47
0184GV1203	12	394	979	2.49	3.20
0176GV1247	2	67	163	2.43	0.47
8332GV7703	14	2,286	5,432	2.38	3.41
8303GV7710	2	10	24	2.35	0.09
8333GV7702	39	2,229	5,091	2.28	2.04
0163GV1241	5	18	41	2.25	0.07
8301GV7704	42	4,938	10,960	2.22	6.07
0179GV1230	1	88	193	2.18	0.88
0167GV1211	2	827	1,788	2.16	1.18
0246GV1206	2	573	1,224	2.14	1.17
0167GV1208	1	7	15	2.12	1.00
0167GV1209	1	348	739	2.12	1.16
8327GV7701	15	2,027	4,181	2.06	3.09
0246GV1207	0	814	1,573	1.93	0.93
0169GV1214	4	403	763	1.90	1.07
8316GV7712	8	304	560	1.84	1.16
0184GV1202	1	45	81	1.80	1.10
8379GV7709	29	2,193	3,830	1.75	3.52
8373GV7705	30	2,240	3,751	1.68	1.55
8376GV7706	41	1,347	2,222	1.65	1.34
0247GV1204	9	768	1,161	1.51	0.78
0174GV1245	8	274	395	1.44	0.63
0175GV1244	12	62	89	1.42	0.13
0169GV1213	6	1,261	1,760	1.40	3.05
8345GV7711	36	1,365	1,886	1.38	2.76
0163GV1216	6	426	582	1.36	0.79
0171GV1220	9	315	372	1.18	0.69
0174GV1224	3	4	3	0.89	0.01

ROCHESTER GAS & ELECTRIC CORPORATION
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January 1, 2018 to December 31, 2018

LAKESHORE					
Circuit	Interruptions	Customers Affected	Customer Hours Interrupted	CAIDI	SAIFI
0216LS0795	1	1	6	6.38	0.00.
0193LS0227	1	1	6	6.28	0.00
0132LS5241	3	7	38	5.44	0.01
0230LS5162	1	16	77	4.82	0.00.
0194LS5118	24	2,298	7,581	3.30	3.37
0205LS5202	16	3,381	10,186	3.01	1.78
0214LS2146	1	359	1,031	2.87	0.98
0214LS0222	0	178	504	2.83	1.00
0208LS0242	1	293	818	2.79	1.04
0214LS0211	5	305	850	2.78	1.08
0202LS5194	25	2,149	5,436	2.53	1.06
0207LS0206	4	331	834	2.52	1.22
0195LS5151	15	2,764	6,867	2.48	3.62
0218LS5253	28	1,267	3,131	2.47	2.24
0217LS5238	11	2,015	4,791	2.38	2.34
0194LS5117	19	2,053	4,699	2.29	3.16
0208LS0243	6	717	1,612	2.25	1.68
0212LS0245	1	514	1,159	2.25	2.56
0193LS0226	10	339	759	2.24	0.52
0215LS2154	3	322	710	2.21	1.03
0192LS0215	1	146	321	2.20	1.00
0192LS0232	0	60	132	2.20	0.88
0209LS0240	6	817	1,731	2.12	1.53
0210LS0229	1	144	305	2.12	1.97
0210LS0207	0	537	1,133	2.11	1.99
0189LS5112	18	1,747	3,677	2.10	3.41
0212LS0244	0	385	810	2.10	1.99
0218LS5252	11	276	568	2.06	1.34
0210LS0225	6	2,916	5,921	2.03	4.04
0217LS5154	33	3,374	6,405	1.90	3.37
0195LS5153	18	3,312	6,273	1.89	3.51
0209LS0241	5	925	1,711	1.85	2.77
0210LS0208	7	1,458	2,695	1.85	2.41
0198LS5115	18	1,883	3,460	1.84	4.37
0215LS2155	3	218	396	1.81	1.32
0192LS0216	6	985	1,759	1.79	2.47
0189LS5113	28	2,513	4,026	1.60	1.97
0132LS5293	8	259	409	1.58	0.30
0198LS5227	12	1,261	1,946	1.54	1.39
0205LS0237	3	11	17	1.50	0.02
0194LS5116	20	1,977	2,932	1.48	1.47
0181LS0217	7	716	991	1.38	1.19
0194LS5142	15	1,267	1,749	1.38	2.36
0198LS5114	13	1,215	1,632	1.34	1.51
0181LS0233	3	516	580	1.12	1.15
0189LS5140	4	881	551	0.63	2.88
0199LS0708	0	1	0	0.48	0.00

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ROCHESTER					
Circuit	Interruptions	Customers Affected	Customer Hours Interrupted	CAIDI	SAIFI
0042RO0328	1	2	146	73.08	0.01
0042RO2196	1	1	26	25.97	0.00
0046RO0262	1	6	117	19.42	0.01
0033RO0291	3	6	103	17.17	0.01
0042RO0649	1	4	54	13.58	4.00
0095RO0366	1	1	13	13.18	0.00
0118RO2128	1	10	127	12.67	0.01
0023RO0614	1	1	10	10.37	0.02
0023RO0607	1	89	914	10.27	89.00
0001RO0305	1	97	978	10.08	0.15
0023RO0674	1	1	9	9.42	0.01
0062RO0380	2	21	189	9.03	0.03
0033RO0378	2	32	282	8.83	0.05
0063RO2543	4	40	313	7.84	0.08
0001RO2144	8	1,722	13,023	7.56	1.67
0068RO2157	4	75	557	7.41	0.13
0042RO0630	2	16	117	7.34	1.14
0112RO2522	1	8	57	7.10	0.02
0745RO0686	0	1	7	6.95	0.50
0042RO2194	4	103	694	6.74	0.14
0081RO0777	1	2	13	6.28	0.50
0018RO0446	1	1	6	6.25	0.01
0056RO5179	5	24	149	6.21	0.04
0023RO0541	1	85	520	6.12	1.01
0076RO2101	2	99	589	5.95	0.26
0023RO0547	2	185	1,090	5.89	2.53
0001RO0304	2	58	340	5.86	0.08
0033RO0744	2	3	17	5.62	0.00.
0110RO2168	1	337	1,792	5.32	1.00
0085RO2228	9	325	1,717	5.28	0.37
0051RO0460	5	110	568	5.17	0.11
0050RO0284	3	111	564	5.08	0.14
0418RO5281	1	3	15	4.92	1.00
0022RO2547	1	14	67	4.80	0.02
0026RO0532	1	5	24	4.74	0.62
0001RO2142	10	306	1,446	4.72	0.22
0018RO0484	6	1,565	7,369	4.71	2.10
0114RO2520	6	166	781	4.71	0.28
0033RO0589	2	130	604	4.64	1.01
0068RO0491	2	23	106	4.62	0.05
0037RO0732	2	3	14	4.59	0.00.
0066RO2185	1	29	127	4.38	0.11
0103RO2211	5	1,057	4,594	4.35	1.42
0033RO0653	1	2	8	4.22	2.00
0095RO0320	2	141	590	4.19	0.44

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January 1, 2018 to December 31, 2018

ROCHESTER					
Circuit	Interruptions	Customers Affected	Customer Hours Interrupted	CAIDI	SAIFI
0081RO2165	6	72	299	4.15	0.11
0035RO0324	12	1,046	4,309	4.12	1.59
0420RO2182	6	79	326	4.11	0.20
0029RO0455	2	16	65	4.09	0.04
0085RO2229	2	97	393	4.05	0.44
0102RO2538	2	31	125	4.02	0.06
0038RO0597	0	1	4	3.98	0.00.
0048RO0785	1	1	4	3.97	0.00.
0029RO0452	7	356	1,400	3.93	0.91
0086RO2524	1	7	27	3.88	0.23
0033RO0527	1	1	4	3.75	1.00
0047RO0443	4	537	2,016	3.75	1.21
0093RO2530	5	187	686	3.67	0.31
0016RO0476	4	129	467	3.62	0.12
0072RO0438	5	72	257	3.58	0.06
0035RO0375	1	7	25	3.57	0.04
0034RO0544	1	1	4	3.55	0.50
0029RO0451	4	285	1,004	3.52	0.27
0120RO0406	1	1	3	3.47	0.25
0049RO0270	5	222	767	3.46	0.16
0106RO5167	19	722	2,497	3.46	0.48
0035RO0343	7	751	2,588	3.45	1.45
0036RO0404	7	193	665	3.44	0.18
0043RO0470	5	67	229	3.43	0.05
0050RO0263	2	168	575	3.42	0.21
0113RO5101	9	323	1,104	3.42	0.35
0095RO0334	1	11	37	3.40	0.02
0029RO2559	9	891	2,967	3.33	1.21
0418RO5198	11	552	1,789	3.24	0.22
0086RO2510	5	62	201	3.23	0.11
0019RO0497	1	16	51	3.22	0.35
0014RO0437	8	1,875	5,981	3.19	1.31
0048RO0456	6	901	2,819	3.13	1.18
0029RO0450	2	473	1,472	3.11	1.26
0097RO2193	8	403	1,236	3.06	0.58
0230RO5161	10	767	2,329	3.04	0.85
0049RO0493	2	67	203	3.02	0.11
0075RO0423	2	726	2,193	3.02	1.04
0070RO5193	9	107	322	3.00	0.06
0067RO5175	3	62	184	2.96	0.08
0041RO0432	8	156	455	2.91	0.19
0100RO2203	1	1	3	2.90	0.00
0114RO2519	3	33	94	2.86	0.04
0089RO5219	3	7	20	2.84	0.03
0067RO0730	1	1	3	2.82	0.00

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ROCHESTER					
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0043RO0464	7	979	2,739	2.80	1.35
0103RO2233	4	226	623	2.76	0.34
0001RO0374	1	79	215	2.72	0.26
0019RO0463	1	1	3	2.72	0.01
0043RO2104	1	1	3	2.72	0.00
0089RO5220	5	54	147	2.70	0.04
0106RO5165	8	107	288	2.70	0.20
0048RO0763	1	4	10	2.68	0.00.
0056RO5315	16	640	1,718	2.68	0.48
0424RO5203	8	84	224	2.66	0.10
0043RO0444	2	67	176	2.63	0.05
0055RO5212	14	556	1,451	2.61	0.70
0042RO0280	1	14	36	2.60	0.02
0049RO0408	1	47	122	2.60	0.04
0088RO2219	3	77	200	2.60	0.12
0006RO0306	1	11	28	2.58	1.00
0035RO0338	1	232	599	2.58	0.48
0124RO5128	16	595	1,539	2.58	0.52
0083RO2239	7	469	1,204	2.57	0.57
0038RO0368	4	436	1,118	2.56	0.97
0097RO2192	9	291	744	2.56	0.30
0036RO2533	5	322	821	2.55	0.28
0016RO0482	7	279	711	2.54	0.21
0117RO2130	5	897	2,273	2.53	1.41
0136RO5296	6	1,630	4,129	2.53	1.08
0001RO0339	3	60	151	2.52	0.20
0001RO0336	9	3,748	9,401	2.51	3.17
0070RO5131	5	168	420	2.49	0.08
0066RO0488	5	682	1,693	2.48	1.19
0042RO0477	1	50	124	2.47	0.07
0017RO0360	3	124	305	2.46	0.19
0104RO5156	11	420	1,032	2.46	0.17
0424RO5204	3	60	147	2.44	0.10
0230RO5162	26	2,486	5,962	2.40	1.45
0022RO0425	5	134	317	2.36	0.10
0051RO0461	1	303	702	2.32	0.99
0050RO0283	3	116	266	2.30	0.25
0086RO2525	2	16	37	2.29	0.06
0049RO0466	4	150	333	2.22	0.11
0091RO2147	6	329	729	2.21	0.85
0095RO0346	5	177	390	2.21	0.25
0419RO5119	8	59	131	2.20	0.09
0043RO0462	3	108	235	2.18	0.12
0086RO2511	6	25	55	2.17	0.10
0056RO5305	4	165	357	2.16	0.22

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0096RO2188	11	600	1,294	2.16	1.02
0102RO2537	8	741	1,582	2.14	0.63
0117RO2156	9	869	1,861	2.14	1.43
0230RO5163	15	1,771	3,766	2.13	0.78
0014RO0436	1	7	15	2.10	0.02
0029RO0453	1	17	36	2.10	0.02
0418RO5199	15	721	1,516	2.10	0.39
0001RO0333	3	101	211	2.09	0.24
0085RO2111	8	139	290	2.08	0.27
0118RO2129	2	14	29	2.08	0.22
0106RO5166	23	770	1,586	2.06	0.37
0421RO5126	16	566	1,156	2.04	0.40
0090RO2138	1	13	26	2.03	0.02
0029RO2560	6	110	222	2.01	0.12
0058RO0415	5	581	1,163	2.00	1.25
0096RO2187	4	120	241	2.00	0.08
0017RO0471	3	211	416	1.98	0.30
0072RO2505	10	259	510	1.97	0.32
0014RO2112	3	78	153	1.96	0.06
0056RO5180	19	2,544	4,994	1.96	1.14
0067RO5176	20	495	973	1.96	0.24
0101RO2549	1	4	8	1.95	0.01
0007RO0733	2	2	4	1.94	0.00.
0001RO0373	2	15	29	1.93	0.02
0040RO0386	7	521	1,001	1.92	0.91
0103RO2213	4	154	294	1.92	0.32
0136RO5294	6	391	752	1.92	0.52
0062RO0467	2	6	11	1.90	0.01
0420RO2184	4	566	1,077	1.90	1.03
0092RO2166	2	180	340	1.89	0.19
0120RO5211	10	676	1,275	1.89	0.78
0040RO0376	7	1,462	2,755	1.88	2.39
0076RO2127	4	74	139	1.87	0.42
0015RO2115	4	147	273	1.86	0.41
0037RO0294	11	194	361	1.86	0.28
0058RO0459	8	935	1,730	1.85	1.34
0042RO0299	5	124	228	1.83	0.23
0115RO5257	27	4,016	7,335	1.83	3.43
0095RO0316	9	373	677	1.82	0.23
0016RO2210	4	282	511	1.81	0.36
0017RO2517	5	211	380	1.80	0.19
0041RO0474	1	9	16	1.80	0.02
0124RO5247	3	41	74	1.80	0.11
0419RO5246	9	314	566	1.80	0.26
0064RO0481	2	348	621	1.79	1.06

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0115RO5258	27	4,365	7,773	1.78	3.98
0089RO2121	3	256	453	1.77	0.36
0104RO5157	9	3,209	5,674	1.77	1.16
0421RO5123	8	809	1,429	1.77	0.47
0037RO0358	4	176	309	1.76	0.16
0081RO2227	2	3	6	1.76	0.02
0082RO5234	4	60	106	1.76	0.13
0072RO0440	8	147	256	1.73	0.11
0083RO2180	1	3	5	1.72	0.03
0092RO2167	9	243	419	1.72	0.29
0117RO2131	0	471	801	1.70	1.00
0421RO5121	3	61	103	1.70	0.35
0036RO0483	7	103	175	1.69	0.24
0046RO2508	2	12	20	1.67	0.01
0069RO5160	14	898	1,480	1.65	0.33
0091RO2150	6	182	297	1.64	0.49
0058RO2176	2	16	27	1.63	1.78
0068RO0417	9	356	578	1.63	0.52
0418RO5108	5	132	215	1.62	0.06
0064RO0480	2	38	61	1.61	0.06
0089RO5218	16	256	409	1.60	0.18
0082RO5170	4	62	98	1.59	0.25
0066RO2160	1	140	221	1.58	0.18
0082RO5169	11	282	444	1.58	0.20
0100RO2205	1	3	5	1.58	0.04
0019RO0472	2	291	458	1.57	1.31
0046RO2507	3	369	579	1.57	0.27
0070RO5132	3	80	126	1.57	0.05
0088RO2221	4	78	121	1.56	0.11
0042RO2197	5	62	96	1.55	0.06
0109RO5196	4	68	106	1.55	0.06
0071RO5130	10	616	948	1.54	0.44
0074RO0422	5	24	37	1.54	0.02
0084RO2126	5	89	138	1.54	0.15
0091RO2151	4	316	488	1.54	0.79
0112RO2534	4	1,145	1,744	1.52	1.49
0419RO5164	12	1,610	2,447	1.52	0.99
0050RO0264	3	196	297	1.51	0.40
0088RO2220	8	259	385	1.49	0.28
0039RO0293	8	163	239	1.47	0.15
0102RO2540	1	123	180	1.47	0.14
0112RO2523	6	413	608	1.47	0.48
0419RO5155	19	4,343	6,357	1.46	1.51
0014RO0435	5	76	109	1.44	0.07
0055RO5239	26	748	1,076	1.44	0.33

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0039RO0266	4	40	57	1.43	0.03
0001RO0337	1	2	3	1.42	0.02
0069RO5158	1	6	9	1.42	0.00
0082RO5168	5	43	61	1.42	0.28
0093RO5254	8	932	1,328	1.42	0.48
0093RO5255	30	1,941	2,764	1.42	1.21
0110RO2169	8	1,031	1,461	1.42	1.14
0117RO5187	38	5,329	7,527	1.41	3.28
0109RO5135	1	116	162	1.40	0.18
0046RO0261	5	100	139	1.39	0.10
0029RO0454	2	13	18	1.38	0.02
0069RO5159	11	1,292	1,788	1.38	0.61
0082RO5232	6	127	176	1.38	0.11
0090RO2137	11	1,166	1,613	1.38	2.05
0109RO5195	30	4,088	5,617	1.37	1.50
0037RO0365	3	366	500	1.36	0.75
0016RO0498	2	481	638	1.33	1.06
0040RO0428	5	260	345	1.33	0.27
0047RO0265	7	3,197	4,240	1.33	2.56
0083RO2178	1	24	32	1.33	0.05
0111RO5297	16	2,138	2,850	1.33	3.32
0096RO2189	5	310	408	1.32	0.50
0418RO5201	15	773	1,012	1.31	0.66
0040RO2223	2	131	170	1.30	0.23
0112RO2521	9	1,639	2,099	1.28	2.67
0095RO0321	3	555	707	1.27	1.09
0109RO5137	4	33	42	1.26	0.01
0111RO5298	12	1,705	2,155	1.26	2.25
0071RO5110	21	3,188	3,979	1.25	1.52
0073RO0419	6	1,236	1,548	1.25	2.52
0095RO0326	5	332	415	1.25	1.08
0062RO0468	7	170	210	1.24	0.20
0110RO2170	0	1	1	1.23	1.00
0017RO2516	1	1	1	1.22	0.00
0117RO5186	1	58	71	1.22	2.00
0117RO5188	15	1,832	2,239	1.22	2.27
0015RO2117	2	116	141	1.21	0.08
0063RO0356	2	50	60	1.21	0.15
0111RO5299	3	619	740	1.20	2.11
0126RO5224	10	198	237	1.20	0.12
0075RO2199	9	855	1,015	1.19	1.52
0018RO0486	7	216	253	1.17	0.24
0062RO0383	1	16	19	1.17	0.02
0070RO5237	22	600	697	1.17	0.36
0418RO5270	34	1,571	1,843	1.17	0.59

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ROCHESTER					
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0051RO0445	6	287	331	1.16	0.27
0055RO5240	16	3,842	4,242	1.10	1.53
0091RO2152	5	417	457	1.10	1.67
0041RO0465	3	15	16	1.07	0.05
0420RO2181	7	1,530	1,644	1.07	3.63
0070RO5236	18	3,671	3,854	1.05	1.81
0070RO5235	3	945	982	1.04	1.00
0071RO5129	18	3,236	3,379	1.04	1.07
0035RO0335	2	451	463	1.03	1.60
0081RO2164	5	51	51	1.02	0.10
0081RO2224	7	421	430	1.02	0.74
0045RO2171	3	723	729	1.01	1.09
0049RO0271	3	82	82	1.00	0.07
0076RO2118	1	1	1	1.00	0.01
0033RO0363	3	155	150	0.97	0.25
0045RO2173	2	544	529	0.97	1.04
0085RO2109	2	277	267	0.97	0.86
0113RO5102	16	2,216	2,144	0.97	1.06
0113RO5228	14	1,980	1,916	0.97	1.20
0112RO2536	8	1,382	1,330	0.96	1.45
0015RO2116	1	8	8	0.95	0.02
0045RO2172	1	1,188	1,133	0.95	1.05
0060RO0433	1	1	1	0.92	0.01
0076RO2102	5	130	119	0.91	0.22
0136RO5295	5	14	13	0.91	0.01
0089RO2215	3	29	25	0.88	0.08
0035RO0329	6	1,202	1,047	0.87	1.63
0048RO2501	3	52	44	0.85	0.09
0039RO0292	8	512	430	0.84	0.47
0048RO2502	1	2	2	0.82	0.00
0419RO5120	10	7,250	5,903	0.81	3.35
0065RO0412	4	97	78	0.80	0.12
0103RO2212	2	4	3	0.80	0.01
0017RO0492	3	69	54	0.78	0.06
0065RO0411	1	5	4	0.78	0.01
0065RO2528	1	7	5	0.78	0.01
0126RO5225	17	1,072	830	0.78	0.60
0056RO5178	3	42	32	0.76	0.05
0067RO2545	2	2	1	0.75	0.11
0048RO0458	3	411	305	0.74	2.07
0040RO2135	2	130	93	0.72	1.11
0038RO0367	1	1	1	0.70	0.00
0040RO0377	2	7	4	0.70	0.10
0043RO2105	4	68	48	0.70	0.07
0046RO0297	4	1,361	956	0.70	1.06

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ROCHESTER					
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0124RO5173	12	1,170	823	0.70	0.49
0097RO2191	3	59	41	0.69	0.08
0104RO5288	12	1,080	744	0.69	0.77
0124RO5127	10	3,900	2,644	0.68	2.03
0063RO2541	1	15	10	0.67	0.21
0041RO0431	9	219	139	0.64	0.28
0103RO2232	4	477	283	0.59	0.71
0047RO0289	2	237	137	0.58	1.14
0047RO0290	3	600	346	0.58	1.05
0076RO2119	1	9	5	0.57	0.02
0097RO2190	3	38	22	0.57	0.10
0033RO0362	5	152	84	0.56	0.33
0040RO0429	8	1,002	565	0.56	1.14
0089RO2216	2	7	4	0.56	0.07
0048RO0457	4	93	49	0.54	0.12
0101RO2550	3	72	39	0.54	0.06
0041RO0473	5	537	277	0.51	0.49
0065RO2529	2	15	8	0.51	0.04
0068RO0490	1	46	21	0.47	0.11
0022RO0426	5	866	402	0.46	0.77
0081RO2159	2	36	17	0.46	0.05
0001RO0385	3	26	11	0.43	0.05
0037RO0359	1	1	0	0.43	0.00
0048RO0671	1	1	0	0.42	0.00.
0089RO2123	1	27	11	0.42	0.55
0036RO0354	2	9	3	0.40	0.01
0049RO0442	1	50	19	0.38	0.06
0038RO0379	1	1	0	0.35	0.00
0062RO0469	2	21	6	0.32	0.05
0046RO2548	4	50	15	0.30	0.04
0090RO2139	1	5	1	0.25	0.02
0041RO0430	2	28	7	0.24	0.07
0066RO0489	1	3	1	0.22	0.03
0063RO2542	2	188	38	0.21	1.00
0071RO5109	4	576	122	0.21	0.56
0060RO0494	3	22	4	0.20	0.06
0091RO2149	1	5	1	0.20	0.05
0083RO2238	1	14	3	0.18	0.01
0084RO2124	2	60	10	0.16	0.20
0112RO2535	2	34	5	0.16	0.04
0062RO0381	1	29	4	0.15	0.05
0084RO2125	1	20	2	0.12	0.07

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CANANDAIGUA					
Circuit	Interruptions	Customers Affected	Customer Hours Interrupted	CAIDI	SAIFI
0146CF5141	39	3,218	2,289	0.71	3.07
0146CF5139	51	1,795	2,272	1.26	2.54
0428CF5138	24	3,646	3,181	0.87	2.32
0125CF5134	4	46	83	1.77	2.30
0155CF0260	2	936	1,178	1.26	2.26
0155CF0259	2	1,534	1,889	1.23	2.10
0148CF2901	8	930	1,745	1.88	2.07
0148CF2902	1	1,544	2,879	1.86	2.00
0145CF5143	28	2,036	3,273	1.61	1.97
0168CF5189	20	2,938	3,864	1.31	1.81
0143CF5146	47	1,947	1,848	0.95	1.77
0154CF5260	6	766	2,119	2.77	1.61
0155CF0248	0	390	473	1.21	1.38
0145CF5144	21	1,322	1,721	1.30	1.30
0127CF5231	13	2,041	1,582	0.77	1.25
0143CF5145	31	1,034	857	0.83	1.21
0142CF5191	8	696	649	0.93	1.14
0156CF0255	6	532	360	0.68	1.12
0127CF5229	8	435	530	1.22	1.03
0153CF0250	2	981	1,161	1.18	1.02
0153CF0251	0	67	77	1.15	1.02
0156CF0257	1	488	301	0.62	1.02
0144CF2914	1	75	97	1.30	1.00
0144CF2913	1	911	1,211	1.33	0.99
0153CF0252	0	507	583	1.15	0.99
0142CF5149	2	552	452	0.82	0.92
0149CF2905	2	384	808	2.10	0.91
0142CF5148	16	585	613	1.05	0.77
0144CF2912	1	81	106	1.31	0.75
0428CF5172	16	753	1,131	1.50	0.54
0127CF5230	11	758	1,039	1.37	0.31
0154CF0391	4	187	307	1.64	0.27
0125CF5182	5	266	419	1.57	0.27
0168CF5190	29	665	792	1.19	0.24
0154CF5261	11	175	333	1.90	0.19
0125CF5208	8	34	85	2.48	0.05
0142CF5192	11	53	53	0.99	0.04
0168CF0704	1	3	10	3.32	0.00
0168CF0736	1	4	8	2.14	0.00
0121CF0782	1	1	2	2.13	0.00
0149CF0249	2	3	17	5.88	0.00
0125CF5250	1	1	2	1.83	0.00

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GENESEE					
Circuit	Interruptions	Customers Affected	Customer Hours Interrupted	CAIDI	SAIFI
8301GV7704	42	4,938	10,960	2.22	6.07
8379GV7709	29	2,193	3,830	1.75	3.52
8332GV7703	14	2,286	5,432	2.38	3.41
0184GV1203	12	394	979	2.49	3.20
8327GV7701	15	2,027	4,181	2.06	3.09
0169GV1213	6	1,261	1,760	1.40	3.05
8345GV7711	36	1,365	1,886	1.38	2.76
8375GV7707	26	1,279	4,206	3.29	2.32
8333GV7702	39	2,229	5,091	2.28	2.04
8373GV7705	30	2,240	3,751	1.68	1.55
8377GV7708	9	1,119	2,809	2.51	1.47
8376GV7706	41	1,347	2,222	1.65	1.34
0167GV1211	2	827	1,788	2.16	1.18
0246GV1206	2	573	1,224	2.14	1.17
0167GV1209	1	348	739	2.12	1.16
8316GV7712	8	304	560	1.84	1.16
0184GV1202	1	45	81	1.80	1.10
0169GV1214	4	403	763	1.90	1.07
0167GV1208	1	7	15	2.12	1.00
0246GV1207	0	814	1,573	1.93	0.93
0179GV1230	1	88	193	2.18	0.88
0163GV1216	6	426	582	1.36	0.79
0247GV1204	9	768	1,161	1.51	0.78
0171GV1220	9	315	372	1.18	0.69
0174GV1245	8	274	395	1.44	0.63
0173GV1249	12	225	1,038	4.62	0.59
0176GV1246	4	130	382	2.93	0.54
0176GV1247	2	67	163	2.43	0.47
0176GV1217	4	122	341	2.79	0.37
0171GV1237	8	81	209	2.58	0.17
0173GV1250	3	38	203	5.32	0.15
0175GV1244	12	62	89	1.42	0.13
0175GV1243	9	48	377	7.86	0.11
8303GV7710	2	10	24	2.35	0.09
0163GV1241	5	18	41	2.25	0.07
0173GV1223	1	4	12	2.95	0.02
0174GV1224	3	4	3	0.89	0.01
0128GV0923	0	1	3	3.05	0.00

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LAKESHORE					
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0198LS5115	18	1,883	3,460	1.84	4.37
0210LS0225	6	2,916	5,921	2.03	4.04
0195LS5151	15	2,764	6,867	2.48	3.62
0195LS5153	18	3,312	6,273	1.89	3.51
0189LS5112	18	1,747	3,677	2.10	3.41
0194LS5118	24	2,298	7,581	3.30	3.37
0217LS5154	33	3,374	6,405	1.90	3.37
0194LS5117	19	2,053	4,699	2.29	3.16
0189LS5140	4	881	551	0.63	2.88
0209LS0241	5	925	1,711	1.85	2.77
0212LS0245	1	514	1,159	2.25	2.56
0192LS0216	6	985	1,759	1.79	2.47
0210LS0208	7	1,458	2,695	1.85	2.41
0194LS5142	15	1,267	1,749	1.38	2.36
0217LS5238	11	2,015	4,791	2.38	2.34
0218LS5253	28	1,267	3,131	2.47	2.24
0210LS0207	0	537	1,133	2.11	1.99
0212LS0244	0	385	810	2.10	1.99
0210LS0229	1	144	305	2.12	1.97
0189LS5113	28	2,513	4,026	1.60	1.97
0205LS5202	16	3,381	10,186	3.01	1.78
0208LS0243	6	717	1,612	2.25	1.68
0209LS0240	6	817	1,731	2.12	1.53
0198LS5114	13	1,215	1,632	1.34	1.51
0194LS5116	20	1,977	2,932	1.48	1.47
0198LS5227	12	1,261	1,946	1.54	1.39
0218LS5252	11	276	568	2.06	1.34
0215LS2155	3	218	396	1.81	1.32
0207LS0206	4	331	834	2.52	1.22
0181LS0217	7	716	991	1.38	1.19
0181LS0233	3	516	580	1.12	1.15
0214LS0211	5	305	850	2.78	1.08
0202LS5194	25	2,149	5,436	2.53	1.06
0208LS0242	1	293	818	2.79	1.04
0215LS2154	3	322	710	2.21	1.03
0214LS0222	0	178	504	2.83	1.00
0192LS0215	1	146	321	2.20	1.00
0214LS2146	1	359	1,031	2.87	0.98
0192LS0232	0	60	132	2.20	0.88
0193LS0226	10	339	759	2.24	0.52
0132LS5293	8	259	409	1.58	0.30
0205LS0237	3	11	17	1.50	0.02
0132LS5241	3	7	38	5.44	0.01
0216LS0795	1	1	6	6.38	0.00
0230LS5162	1	16	77	4.82	0.00
0199LS0708	0	1	0	0.48	0.00
0193LS0227	1	1	6	6.28	0.00

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0023RO0607	1	89	914	10.27	89.00
0042RO0649	1	4	54	13.58	4.00
0115RO5258	27	4,365	7,773	1.78	3.98
0420RO2181	7	1,530	1,644	1.07	3.63
0115RO5257	27	4,016	7,335	1.83	3.43
0419RO5120	10	7,250	5,903	0.81	3.35
0111RO5297	16	2,138	2,850	1.33	3.32
0117RO5187	38	5,329	7,527	1.41	3.28
0001RO0336	9	3,748	9,401	2.51	3.17
0112RO2521	9	1,639	2,099	1.28	2.67
0047RO0265	7	3,197	4,240	1.33	2.56
0023RO0547	2	185	1,090	5.89	2.53
0073RO0419	6	1,236	1,548	1.25	2.52
0040RO0376	7	1,462	2,755	1.88	2.39
0117RO5188	15	1,832	2,239	1.22	2.27
0111RO5298	12	1,705	2,155	1.26	2.25
0111RO5299	3	619	740	1.20	2.11
0018RO0484	6	1,565	7,369	4.71	2.10
0048RO0458	3	411	305	0.74	2.07
0090RO2137	11	1,166	1,613	1.38	2.05
0124RO5127	10	3,900	2,644	0.68	2.03
0033RO0653	1	2	8	4.22	2.00
0117RO5186	1	58	71	1.22	2.00
0070RO5236	18	3,671	3,854	1.05	1.81
0058RO2176	2	16	27	1.63	1.78
0001RO2144	8	1,722	13,023	7.56	1.67
0091RO2152	5	417	457	1.10	1.67
0035RO0329	6	1,202	1,047	0.87	1.63
0035RO0335	2	451	463	1.03	1.60
0035RO0324	12	1,046	4,309	4.12	1.59
0055RO5240	16	3,842	4,242	1.10	1.53
0071RO5110	21	3,188	3,979	1.25	1.52
0075RO2199	9	855	1,015	1.19	1.52
0419RO5155	19	4,343	6,357	1.46	1.51
0109RO5195	30	4,088	5,617	1.37	1.50
0112RO2534	4	1,145	1,744	1.52	1.49
0035RO0343	7	751	2,588	3.45	1.45
0230RO5162	26	2,486	5,962	2.40	1.45
0112RO2536	8	1,382	1,330	0.96	1.45
0117RO2156	9	869	1,861	2.14	1.43
0103RO2211	5	1,057	4,594	4.35	1.42
0117RO2130	5	897	2,273	2.53	1.41
0043RO0464	7	979	2,739	2.80	1.35
0058RO0459	8	935	1,730	1.85	1.34
0014RO0437	8	1,875	5,981	3.19	1.31

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0019RO0472	2	291	458	1.57	1.31
0029RO0450	2	473	1,472	3.11	1.26
0058RO0415	5	581	1,163	2.00	1.25
0047RO0443	4	537	2,016	3.75	1.21
0029RO2559	9	891	2,967	3.33	1.21
0093RO5255	30	1,941	2,764	1.42	1.21
0113RO5228	14	1,980	1,916	0.97	1.20
0066RO0488	5	682	1,693	2.48	1.19
0048RO0456	6	901	2,819	3.13	1.18
0104RO5157	9	3,209	5,674	1.77	1.16
0042RO0630	2	16	117	7.34	1.14
0056RO5180	19	2,544	4,994	1.96	1.14
0110RO2169	8	1,031	1,461	1.42	1.14
0047RO0289	2	237	137	0.58	1.14
0040RO0429	8	1,002	565	0.56	1.14
0040RO2135	2	130	93	0.72	1.11
0095RO0321	3	555	707	1.27	1.09
0045RO2171	3	723	729	1.01	1.09
0136RO5296	6	1,630	4,129	2.53	1.08
0095RO0326	5	332	415	1.25	1.08
0071RO5129	18	3,236	3,379	1.04	1.07
0064RO0481	2	348	621	1.79	1.06
0016RO0498	2	481	638	1.33	1.06
0113RO5102	16	2,216	2,144	0.97	1.06
0046RO0297	4	1,361	956	0.70	1.06
0045RO2172	1	1,188	1,133	0.95	1.05
0047RO0290	3	600	346	0.58	1.05
0075RO0423	2	726	2,193	3.02	1.04
0045RO2173	2	544	529	0.97	1.04
0420RO2184	4	566	1,077	1.90	1.03
0096RO2188	11	600	1,294	2.16	1.02
0023RO0541	1	85	520	6.12	1.01
0033RO0589	2	130	604	4.64	1.01
0110RO2168	1	337	1,792	5.32	1.00
0418RO5281	1	3	15	4.92	1.00
0033RO0527	1	1	4	3.75	1.00
0006RO0306	1	11	28	2.58	1.00
0117RO2131	0	471	801	1.70	1.00
0110RO2170	0	1	1	1.23	1.00
0070RO5235	3	945	982	1.04	1.00
0063RO2542	2	188	38	0.21	1.00
0051RO0461	1	303	702	2.32	0.99
0419RO5164	12	1,610	2,447	1.52	0.99
0038RO0368	4	436	1,118	2.56	0.97
0029RO0452	7	356	1,400	3.93	0.91

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0040RO0386	7	521	1,001	1.92	0.91
0085RO2109	2	277	267	0.97	0.86
0230RO5161	10	767	2,329	3.04	0.85
0091RO2147	6	329	729	2.21	0.85
0091RO2151	4	316	488	1.54	0.79
0230RO5163	15	1,771	3,766	2.13	0.78
0120RO5211	10	676	1,275	1.89	0.78
0104RO5288	12	1,080	744	0.69	0.77
0022RO0426	5	866	402	0.46	0.77
0037RO0365	3	366	500	1.36	0.75
0081RO2224	7	421	430	1.02	0.74
0103RO2232	4	477	283	0.59	0.71
0055RO5212	14	556	1,451	2.61	0.70
0418RO5201	15	773	1,012	1.31	0.66
0102RO2537	8	741	1,582	2.14	0.63
0026RO0532	1	5	24	4.74	0.62
0069RO5159	11	1,292	1,788	1.38	0.61
0126RO5225	17	1,072	830	0.78	0.60
0418RO5270	34	1,571	1,843	1.17	0.59
0097RO2193	8	403	1,236	3.06	0.58
0083RO2239	7	469	1,204	2.57	0.57
0071RO5109	4	576	122	0.21	0.56
0089RO2123	1	27	11	0.42	0.55
0124RO5128	16	595	1,539	2.58	0.52
0136RO5294	6	391	752	1.92	0.52
0068RO0417	9	356	578	1.63	0.52
0745RO0686	0	1	7	6.95	0.50
0081RO0777	1	2	13	6.28	0.50
0034RO0544	1	1	4	3.55	0.50
0096RO2189	5	310	408	1.32	0.50
0091RO2150	6	182	297	1.64	0.49
0124RO5173	12	1,170	823	0.70	0.49
0041RO0473	5	537	277	0.51	0.49
0106RO5167	19	722	2,497	3.46	0.48
0056RO5315	16	640	1,718	2.68	0.48
0035RO0338	1	232	599	2.58	0.48
0112RO2523	6	413	608	1.47	0.48
0093RO5254	8	932	1,328	1.42	0.48
0421RO5123	8	809	1,429	1.77	0.47
0039RO0292	8	512	430	0.84	0.47
0095RO0320	2	141	590	4.19	0.44
0085RO2229	2	97	393	4.05	0.44
0071RO5130	10	616	948	1.54	0.44
0076RO2127	4	74	139	1.87	0.42
0015RO2115	4	147	273	1.86	0.41

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Circuit	Interruptions	Customers Affected	Customer Hours Interrupted	CAIDI	SAIFI
0421RO5126	16	566	1,156	2.04	0.40
0050RO0264	3	196	297	1.51	0.40
0418RO5199	15	721	1,516	2.10	0.39
0085RO2228	9	325	1,717	5.28	0.37
0106RO5166	23	770	1,586	2.06	0.37
0016RO2210	4	282	511	1.81	0.36
0089RO2121	3	256	453	1.77	0.36
0070RO5237	22	600	697	1.17	0.36
0113RO5101	9	323	1,104	3.42	0.35
0019RO0497	1	16	51	3.22	0.35
0421RO5121	3	61	103	1.70	0.35
0103RO2233	4	226	623	2.76	0.34
0069RO5160	14	898	1,480	1.65	0.33
0055RO5239	26	748	1,076	1.44	0.33
0033RO0362	5	152	84	0.56	0.33
0072RO2505	10	259	510	1.97	0.32
0103RO2213	4	154	294	1.92	0.32
0093RO2530	5	187	686	3.67	0.31
0097RO2192	9	291	744	2.56	0.30
0017RO0471	3	211	416	1.98	0.30
0092RO2167	9	243	419	1.72	0.29
0114RO2520	6	166	781	4.71	0.28
0036RO2533	5	322	821	2.55	0.28
0037RO0294	11	194	361	1.86	0.28
0088RO2220	8	259	385	1.49	0.28
0082RO5168	5	43	61	1.42	0.28
0041RO0431	9	219	139	0.64	0.28
0029RO0451	4	285	1,004	3.52	0.27
0085RO2111	8	139	290	2.08	0.27
0046RO2507	3	369	579	1.57	0.27
0040RO0428	5	260	345	1.33	0.27
0051RO0445	6	287	331	1.16	0.27
0076RO2101	2	99	589	5.95	0.26
0001RO0374	1	79	215	2.72	0.26
0419RO5246	9	314	566	1.80	0.26
0120RO0406	1	1	3	3.47	0.25
0050RO0283	3	116	266	2.30	0.25
0095RO0346	5	177	390	2.21	0.25
0082RO5170	4	62	98	1.59	0.25
0033RO0363	3	155	150	0.97	0.25
0001RO0333	3	101	211	2.09	0.24
0067RO5176	20	495	973	1.96	0.24
0036RO0483	7	103	175	1.69	0.24
0018RO0486	7	216	253	1.17	0.24
0086RO2524	1	7	27	3.88	0.23

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0042RO0299	5	124	228	1.83	0.23
0095RO0316	9	373	677	1.82	0.23
0040RO2223	2	131	170	1.30	0.23
0001RO2142	10	306	1,446	4.72	0.22
0418RO5198	11	552	1,789	3.24	0.22
0056RO5305	4	165	357	2.16	0.22
0118RO2129	2	14	29	2.08	0.22
0076RO2102	5	130	119	0.91	0.22
0050RO0263	2	168	575	3.42	0.21
0016RO0482	7	279	711	2.54	0.21
0063RO2541	1	15	10	0.67	0.21
0420RO2182	6	79	326	4.11	0.20
0106RO5165	8	107	288	2.70	0.20
0001RO0339	3	60	151	2.52	0.20
0082RO5169	11	282	444	1.58	0.20
0062RO0468	7	170	210	1.24	0.20
0084RO2124	2	60	10	0.16	0.20
0041RO0432	8	156	455	2.91	0.19
0017RO0360	3	124	305	2.46	0.19
0092RO2166	2	180	340	1.89	0.19
0017RO2517	5	211	380	1.80	0.19
0036RO0404	7	193	665	3.44	0.18
0089RO5218	16	256	409	1.60	0.18
0066RO2160	1	140	221	1.58	0.18
0109RO5135	1	116	162	1.40	0.18
0104RO5156	11	420	1,032	2.46	0.17
0049RO0270	5	222	767	3.46	0.16
0037RO0358	4	176	309	1.76	0.16
0001RO0305	1	97	978	10.08	0.15
0084RO2126	5	89	138	1.54	0.15
0039RO0293	8	163	239	1.47	0.15
0063RO0356	2	50	60	1.21	0.15
0042RO2194	4	103	694	6.74	0.14
0050RO0284	3	111	564	5.08	0.14
0102RO2540	1	123	180	1.47	0.14
0068RO2157	4	75	557	7.41	0.13
0082RO5234	4	60	106	1.76	0.13
0016RO0476	4	129	467	3.62	0.12
0088RO2219	3	77	200	2.60	0.12
0043RO0462	3	108	235	2.18	0.12
0029RO2560	6	110	222	2.01	0.12
0126RO5224	10	198	237	1.20	0.12
0065RO0412	4	97	78	0.80	0.12
0048RO0457	4	93	49	0.54	0.12
0051RO0460	5	110	568	5.17	0.11

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0066RO2185	1	29	127	4.38	0.11
0081RO2165	6	72	299	4.15	0.11
0086RO2510	5	62	201	3.23	0.11
0049RO0493	2	67	203	3.02	0.11
0049RO0466	4	150	333	2.22	0.11
0124RO5247	3	41	74	1.80	0.11
0072RO0440	8	147	256	1.73	0.11
0088RO2221	4	78	121	1.56	0.11
0082RO5232	6	127	176	1.38	0.11
0067RO2545	2	2	1	0.75	0.11
0068RO0490	1	46	21	0.47	0.11
0424RO5203	8	84	224	2.66	0.10
0424RO5204	3	60	147	2.44	0.10
0022RO0425	5	134	317	2.36	0.10
0086RO2511	6	25	55	2.17	0.10
0046RO0261	5	100	139	1.39	0.10
0081RO2164	5	51	51	1.02	0.10
0040RO0377	2	7	4	0.70	0.10
0097RO2190	3	38	22	0.57	0.10
0419RO5119	8	59	131	2.20	0.09
0048RO2501	3	52	44	0.85	0.09
0063RO2543	4	40	313	7.84	0.08
0001RO0304	2	58	340	5.86	0.08
0067RO5175	3	62	184	2.96	0.08
0070RO5131	5	168	420	2.49	0.08
0096RO2187	4	120	241	2.00	0.08
0015RO2117	2	116	141	1.21	0.08
0089RO2215	3	29	25	0.88	0.08
0097RO2191	3	59	41	0.69	0.08
0042RO0477	1	50	124	2.47	0.07
0014RO0435	5	76	109	1.44	0.07
0049RO0271	3	82	82	1.00	0.07
0043RO2105	4	68	48	0.70	0.07
0089RO2216	2	7	4	0.56	0.07
0041RO0430	2	28	7	0.24	0.07
0084RO2125	1	20	2	0.12	0.07
0102RO2538	2	31	125	4.02	0.06
0072RO0438	5	72	257	3.58	0.06
0070RO5193	9	107	322	3.00	0.06
0086RO2525	2	16	37	2.29	0.06
0014RO2112	3	78	153	1.96	0.06
0418RO5108	5	132	215	1.62	0.06
0064RO0480	2	38	61	1.61	0.06
0042RO2197	5	62	96	1.55	0.06
0109RO5196	4	68	106	1.55	0.06

ROCHESTER GAS & ELECTRIC CORPORATION
CAIDI/SAIFI Circuit Report - Descending SAIFI Order
January 1, 2018 to December 31, 2018

ROCHESTER					
Circuit	Interruptions	Customers Affected	Customer Hours Interrupted	CAIDI	SAIFI
0017RO0492	3	69	54	0.78	0.06
0101RO2550	3	72	39	0.54	0.06
0049RO0442	1	50	19	0.38	0.06
0060RO0494	3	22	4	0.20	0.06
0033RO0378	2	32	282	8.83	0.05
0068RO0491	2	23	106	4.62	0.05
0043RO0470	5	67	229	3.43	0.05
0043RO0444	2	67	176	2.63	0.05
0070RO5132	3	80	126	1.57	0.05
0083RO2178	1	24	32	1.33	0.05
0041RO0465	3	15	16	1.07	0.05
0056RO5178	3	42	32	0.76	0.05
0081RO2159	2	36	17	0.46	0.05
0001RO0385	3	26	11	0.43	0.05
0062RO0469	2	21	6	0.32	0.05
0091RO2149	1	5	1	0.20	0.05
0062RO0381	1	29	4	0.15	0.05
0056RO5179	5	24	149	6.21	0.04
0029RO0455	2	16	65	4.09	0.04
0035RO0375	1	7	25	3.57	0.04
0114RO2519	3	33	94	2.86	0.04
0089RO5220	5	54	147	2.70	0.04
0049RO0408	1	47	122	2.60	0.04
0100RO2205	1	3	5	1.58	0.04
0065RO2529	2	15	8	0.51	0.04
0046RO2548	4	50	15	0.30	0.04
0112RO2535	2	34	5	0.16	0.04
0062RO0380	2	21	189	9.03	0.03
0089RO5219	3	7	20	2.84	0.03
0083RO2180	1	3	5	1.72	0.03
0039RO0266	4	40	57	1.43	0.03
0066RO0489	1	3	1	0.22	0.03
0023RO0614	1	1	10	10.37	0.02
0112RO2522	1	8	57	7.10	0.02
0022RO2547	1	14	67	4.80	0.02
0095RO0334	1	11	37	3.40	0.02
0042RO0280	1	14	36	2.60	0.02
0014RO0436	1	7	15	2.10	0.02
0029RO0453	1	17	36	2.10	0.02
0090RO2138	1	13	26	2.03	0.02
0001RO0373	2	15	29	1.93	0.02
0041RO0474	1	9	16	1.80	0.02
0081RO2227	2	3	6	1.76	0.02
0074RO0422	5	24	37	1.54	0.02
0001RO0337	1	2	3	1.42	0.02

ROCHESTER GAS & ELECTRIC CORPORATION
CAIDI/SAIFI Circuit Report - Descending SAIFI Order
January 1, 2018 to December 31, 2018

ROCHESTER					
Circuit	Interruptions	Customers Affected	Customer Hours Interrupted	CAIDI	SAIFI
0029RO0454	2	13	18	1.38	0.02
0062RO0383	1	16	19	1.17	0.02
0015RO2116	1	8	8	0.95	0.02
0076RO2119	1	9	5	0.57	0.02
0090RO2139	1	5	1	0.25	0.02
0042RO0328	1	2	146	73.08	0.01
0046RO0262	1	6	117	19.42	0.01
0033RO0291	3	6	103	17.17	0.01
0118RO2128	1	10	127	12.67	0.01
0023RO0674	1	1	9	9.42	0.01
0018RO0446	1	1	6	6.25	0.01
0019RO0463	1	1	3	2.72	0.01
0101RO2549	1	4	8	1.95	0.01
0062RO0467	2	6	11	1.90	0.01
0046RO2508	2	12	20	1.67	0.01
0109RO5137	4	33	42	1.26	0.01
0076RO2118	1	1	1	1.00	0.01
0060RO0433	1	1	1	0.92	0.01
0136RO5295	5	14	13	0.91	0.01
0103RO2212	2	4	3	0.80	0.01
0065RO0411	1	5	4	0.78	0.01
0065RO2528	1	7	5	0.78	0.01
0036RO0354	2	9	3	0.40	0.01
0083RO2238	1	14	3	0.18	0.01
0033RO0744	2	3	17	5.62	0.00
0037RO0732	2	3	14	4.59	0.00
0038RO0597	0	1	4	3.98	0.00
0048RO0785	1	1	4	3.97	0.00
0067RO0730	1	1	3	2.82	0.00
0048RO0763	1	4	10	2.68	0.00
0007RO0733	2	2	4	1.94	0.00
0048RO0671	1	1	0	0.42	0.00
0042RO2196	1	1	26	25.97	0.00
0095RO0366	1	1	13	13.18	0.00
0100RO2203	1	1	3	2.90	0.00
0043RO2104	1	1	3	2.72	0.00
0069RO5158	1	6	9	1.42	0.00
0017RO2516	1	1	1	1.22	0.00
0048RO2502	1	2	2	0.82	0.00
0038RO0367	1	1	1	0.70	0.00
0037RO0359	1	1	0	0.43	0.00
0038RO0379	1	1	0	0.35	0.00

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Provide an analysis of the worst-performing circuits. The analysis must cover a minimum of 5% of the circuits and include a description of the methodology used to identify worst-performing circuits –

Part of RG&E's efforts to maintain a highly reliable electric distribution system is the Worst Performing Circuit Analysis. This program consists of a yearly evaluation of all of the distribution circuits and the development of reliability plans by the operating divisions to address key circuits that will best benefit from additional analysis and/or corrective work in the field.

Circuit Analysis Process

- During the third quarter of the year, each circuit is evaluated by its reliability performance over the twelve month period of July 1st through June 30th.
- The number of interruptions, customers interrupted (affected), and the customer hours of interruption are recorded for each RG&E circuit minus any major storm interruptions.
- A weighted SAIFI factor is calculated based on a specific circuit's impact to the overall company SAIFI.
- All of the circuits are then sorted highest to lowest based on their individual weighted SAIFI contributions to RG&E's overall reliability performance.
- The individual RG&E Division worst performing circuits, representing 5% of the respective Division's circuits based on their weighted SAIFI value, are then assigned to each Division for further analysis and for the development of Reliability Improvement Plans.

Developing Reliability Improvement Plans

- The results of the circuit analysis are provided to the operating divisions close to the end of each year.
- The operating divisions then further evaluate each of their higher-ranked circuits. They consider recent work that may have been done on the circuits and the feasibility of improving the circuit reliability with additional work on a cost/benefit basis.
- The goal of each of these reliability plans is to identify those circuits with performance that can best benefit from additional work and to balance the proposed work with the current budget and manpower availability.

Worst Performing Circuits 2018								
Division	Circuit Decription	Customers Connected	Circuit Voltage	Circuit Miles	Circuit CAIDI	Circuit SAIFI	Weighted SAIFI	SAIFI Rank
Canandaigua	0145CF5143	1,020	12.5	54.91	1.38	3.76	0.0152	6
Canandaigua	0428CF5138	1,532	12.5	34.80	0.92	2.42	0.0147	8
Canandaigua	0143CF5146	1,085	12.5	53.38	1.36	2.50	0.0108	15
Genesee	8333GV7702	1,049	19.9	109.47	2.24	2.61	0.0109	13
Genesee	8301GV7704	799	19.9	74.48	2.96	3.33	0.0106	18
Genesee	8327GV7701	635	19.9	95.00	1.43	3.87	0.0098	22
Lakeshore	0194LS5116	1,258	12.5	65.55	0.62	3.45	0.0172	5
Lakeshore	0194LS5118	655	12.5	56.19	1.57	5.74	0.0149	7
Lakeshore	0194LS5117	646	12.5	56.11	0.99	5.41	0.0139	10
Rochester	0055RO5240	2,476	12.5	14.84	1.21	2.34	0.0231	1
Rochester	0136RO5296	1,469	12.5	14.54	1.36	3.62	0.0211	2
Rochester	0106RO5167	1,531	12.5	21.89	1.78	2.95	0.0180	3
Rochester	0104RO5156	2,443	12.5	25.10	1.76	1.84	0.0178	4
Rochester	0109RO5195	2,668	12.5	29.37	1.18	1.34	0.0142	9
Rochester	0117RO5187	1,625	12.5	21.42	1.08	2.15	0.0139	11
Rochester	0106RO5166	2,049	12.5	28.41	1.38	1.33	0.0109	14
Rochester	0093RO5255	1,593	12.5	25.08	0.89	1.69	0.0107	17
Rochester	0001RO0336	1,162	4.16	2.38	1.48	2.13	0.0099	20
Rochester	0104RO5288	1,380	12.5	34.69	0.78	1.79	0.0098	21
Rochester	0418RO5199	1,792	12.5	15.41	0.91	1.32	0.0094	24
Rochester	0104RO5157	2,771	12.5	31.83	1.90	0.82	0.0091	27
Rochester	0419RO5120	2,375	12.5	13.12	1.24	0.96	0.0090	28
Rochester	0113RO5102	2,082	12.5	20.54	0.36	1.01	0.0084	29
Rochester	0418RO5201	1,174	12.5	12.41	1.58	1.74	0.0081	30
Rochester	0043RO2104	1,152	4.16	3.95	1.00	1.66	0.0076	32
Rochester	0113RO5228	1,636	12.5	39.01	1.30	1.16	0.0076	33
Rochester	0424RO5203	829	12.5	7.82	2.04	2.24	0.0074	35
Rochester	0093RO5254	1,909	12.5	8.74	0.78	0.97	0.0074	36
Rochester	0070RO5132	1,592	12.5	9.22	0.36	1.15	0.0073	37
Rochester	0115RO5258	1,129	12.5	32.06	1.96	1.62	0.0073	38
Rochester	0230RO5163	2,291	12.5	33.12	1.94	0.75	0.0069	40
Rochester	0014RO0437	1,429	4.16	4.49	3.03	1.18	0.0067	42
Rochester	0230RO5162	1,711	12.5	62.78	2.71	0.98	0.0067	43
Rochester	0124RO5128	1,108	12.5	30.71	1.97	1.50	0.0066	44
Rochester	0040RO0376	143	4.16	1.82	1.65	11.20	0.0064	45
Rochester	0067RO5175	809	12.5	9.51	1.61	1.97	0.0063	47
Rochester	0073RO0419	489	4.16	8.67	1.38	3.09	0.0060	49
Rochester	0056RO5178	786	12.5	5.15	1.47	1.91	0.0060	51
Rochester	0117RO2130	638	4.16	7.72	1.69	2.29	0.0058	54

Section 6. Network Feeder Performance

Provide a listing of network feeders, by operating area, based on the number of open automatics for the calendar year

The Rochester downtown network system is fed by (16) primary distribution feeders. Station 6 South Ave circuits 654, 675, 677 and 681. Station 26 Court Street Bridge circuits 570 and 571. Station 38 Swan St circuits 530, 531, 533, 534, 569, 580, 591, 598, 679 and 683.

Provide an analysis of the worst-performing feeders. The analysis must cover a minimum of 5% of the feeders and include a description of the methodology used to identify the worst performing feeders.

On January 18, 2018 circuit 679 located on Lawn St. had a cable fault with M.H. 145.06B. On May 13, 2018 circuit 679 experienced a cable fault on the N124 Charlotte St network transformer H.V. SW compartment was found leaking. The transformer was removed from service. On July 2, 2018 circuit 580 had a cable fault on Main St. E. On October 24, 2018, circuit 534 had a cable fault resulting in a failed network protector NP264 located in N167 Clinton Ave.