NYSEG

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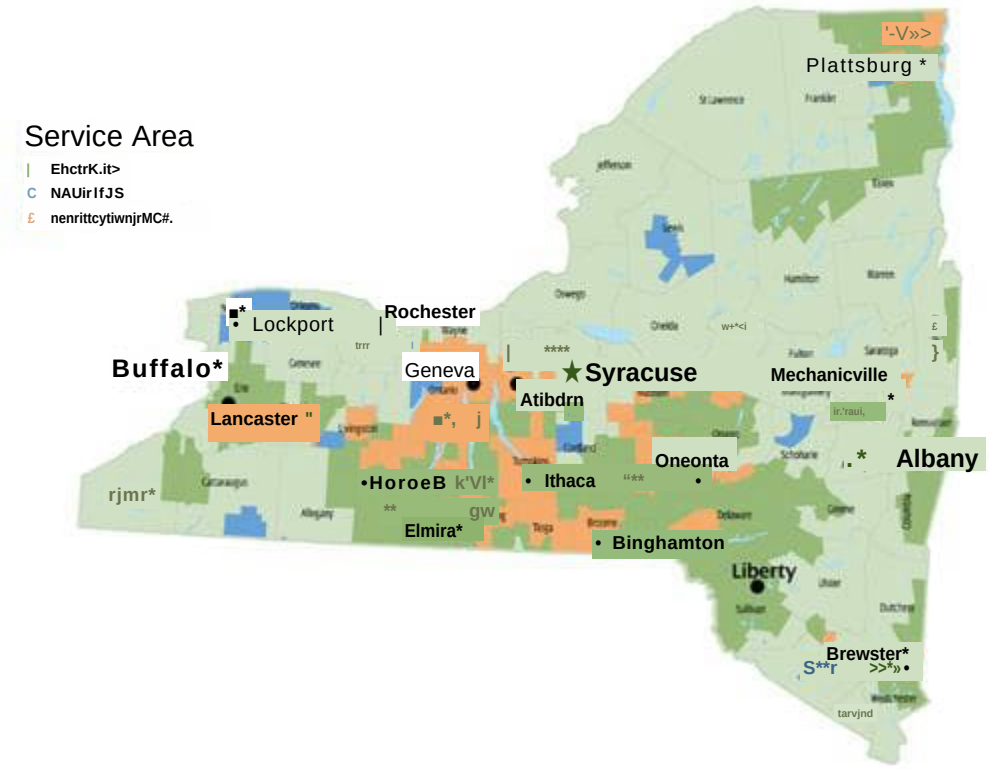

2022 Annual Reliability Report
March 31, 2023

Submitted in compliance with:
Case 23-E-0119 – Standards on Reliability of Electric Service – Annual Report
As Amended in Electric Service Standards Annual Reliability Report Guidelines – 12/19/2008

2022 ANNUAL RELIABILITY REPORT INDEX

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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

Corporate Overview

The New York State Electric & 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 905,435 electric customers as of December 2022. NYSEG serves a primarily rural area comprised of 149 small cities and villages with 4,549 circuit miles of transmission lines, and 34,258 circuit miles of primary distribution lines, served from 431 substations.

NYSEG's electric service territory covers approximately 40% of New York State. NYSEG's Corporate Office is 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.

Workforce Numbers

by Job Title for Each of the Previous 5 Years –

NYSEG Job Title	2018	2019	2020	2021	2022
Chief Line Mechanic	149	163	157	100	99
Line Mechanic 1/C	158	133	132	135	151
Line Mechanic 2/C	4	35	67	103	117
Line Apprentice	9	16	41	44	36
Chief UC&M Mech - Maint	27	29	28	28	27
UC&M Mechanic 1/C	33	34	31	31	27
UC&M Mechanic 2/C	13	12	15	12	26
UC&M Apprentice	8	18	18	17	14
SP&C Tech A	18	20	22	21	21
SP&C Tech B	4	3	1	5	5
SP&C Tech C	5	3	5	4	3
SP&C Tech Trainee	1	3	4	1	2
Totals	429	469	521	501	528

Note: 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.

Corporate Summary of Performance

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

CORPORATE PERFORMANCE WITHOUT MAJOR STORMS

	2018	2019	2020	2021	2022
CAIDI (goal - 2.08)	2.17	1.93	1.98	2.02	1.88
SAIFI (goal - 1.20)	1.19	1.35	1.38	1.46	1.45
Interruptions	11,349	11,051	11,880	11,774	14,858
Customer Hours	2,310,303	2,329,587	2,451,105	2,658,719	2,458,728
Customers Interrupted	1,063,122	1,207,533	1,238,177	1,317,127	1,310,034
Customers Connected	891,168	895,050	899,315	905,005	905,435

NYSEG met the CAIDI target and exceeded the SAIFI target in 2022. The target levels for 2022 were: CAIDI (2.08) and SAIFI (1.20).

Both NYSEG and RG&E experienced non-utility controlled outages during 2022. The Companies have petitioned the Commission for exclusion of these events from the Companies' reported electric reliability performance. If the Commission grants the requests for exclusion, in whole or in part, the Companies would adjust reported performance for 2022 accordingly.

PSC Cause Code Analysis

NEW YORK STATE ELECTRIC AND GAS CORPORATE						
PSC CODE	PSC CAUSE CODE DESCRIPTION	CAIDI				
		2018	2019	2020	2021	2022
1	Major Storms	16.82	6.09	11.86	4.45	10.20
2	Tree Contacts	2.37	2.40	2.33	2.47	2.20
3	Overloads	3.17	1.69	2.27	1.69	2.32
4	Operational Errors	1.05	0.70	1.12	1.00	0.57
5	Equipment Failures	1.87	1.74	1.77	1.99	1.86
6	Accidents/Non-Utility	2.19	1.67	1.57	1.69	1.51
7	Prearranged	1.60	1.31	1.62	0.41	1.58
8	Customer Equipment	2.22	2.03	0.96	0.68	1.48
9	Lightning	2.16	1.80	2.08	2.44	1.57
10	Unknown	2.45	1.66	1.76	1.57	1.55

NEW YORK STATE ELECTRIC AND GAS CORPORATE						
PSC CODE	PSC CAUSE CODE DESCRIPTION	SAIFI				
		2018	2019	2020	2021	2022
1	Major Storms	1.09	0.55	0.72	0.71	0.83
2	Tree Contacts	0.48	0.47	0.57	0.52	0.55
3	Overloads	0.01	0.02	0.02	0.02	0.02
4	Operational Errors	0.01	0.02	0.03	0.04	0.02
5	Equipment Failures	0.27	0.42	0.38	0.40	0.40
6	Accidents/Non-Utility	0.25	0.24	0.21	0.24	0.26
7	Prearranged	0.01	0.02	0.02	0.07	0.05
8	Customer Equipment	0.01	0.00	0.01	0.00	0.00
9	Lightning	0.10	0.09	0.06	0.09	0.09
10	Unknown	0.05	0.07	0.07	0.08	0.05

Corporate Corrective Actions

Corrective actions relating to reliability indices and/or trends in electric system performance– NYSEG met its CAIDI performance target in 2022 with a measure of 1.88 and a goal of 2.08. The implementation of company-wide programs and process improvements designed to reduce the overall interruption duration has consistently shown to provide benefits to CAIDI and ensure NYSEG consistently meets its target in recent years.

Trees continue to be the single largest contributor to system interruptions and the SAIFI impact of trees contacting the NYSEG electric system increased in 2022. While increased funding for reclamation and danger tree mitigation has been effective, these programs were not enough to offset the degradation of tree performance on the unreclaimed portion of the NYSEG system. When combined with significant impact from company equipment SAIFI, the Company exceeded the SAIFI target of 1.20 with a measure of 1.45.

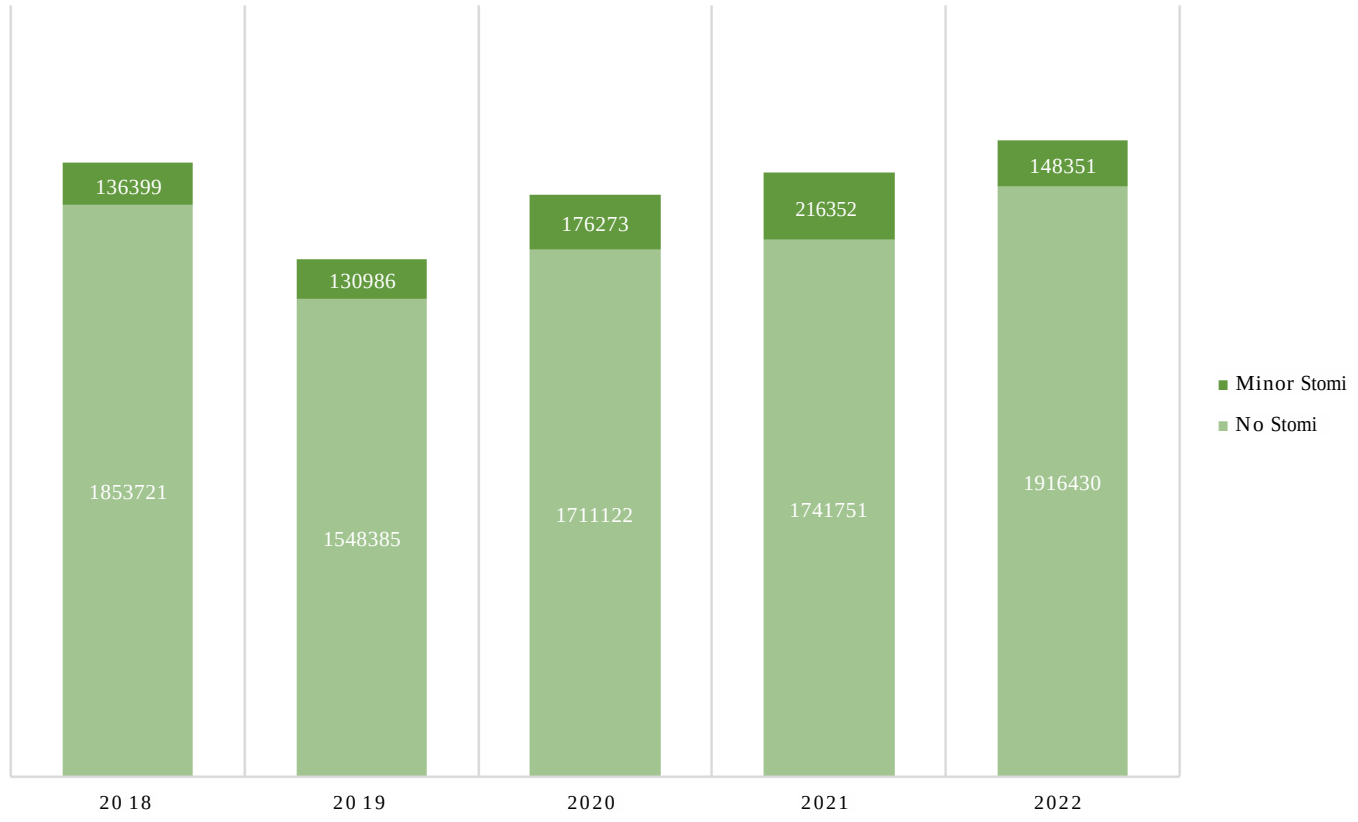
Customers impacted by equipment failures were flat relative to 2021 and comprises 28% of the overall SAIFI contribution. The robust Distribution Line Inspection (DLI) and Transmission Line Inspection (TLI) programs are key contributors to offsetting system degradation, as the programs were designed to reduce the number of distribution and transmission line deficiencies throughout the territory. NYSEG continues to invest in the replacement of aging infrastructure on the transmission, substation, and distribution levels to prevent system degradation.

Weather always has a large impact on the reliability performance of NYSEG's electric system and that trend continued in 2022. The following two graphs provide a breakdown of the customers affected during major storms, minor storms and "blue sky" days over the past five years. For internal reliability tracking and analysis, NYSEG identifies minor storms on an operating division basis, where for a given day, the number of interruptions is at least twice the daily average and the customers affected is at least 4% of the customers served. Then major cause of the interruptions during minor storms needs to be attributed to weather type causes (trees, lightning, etc.).

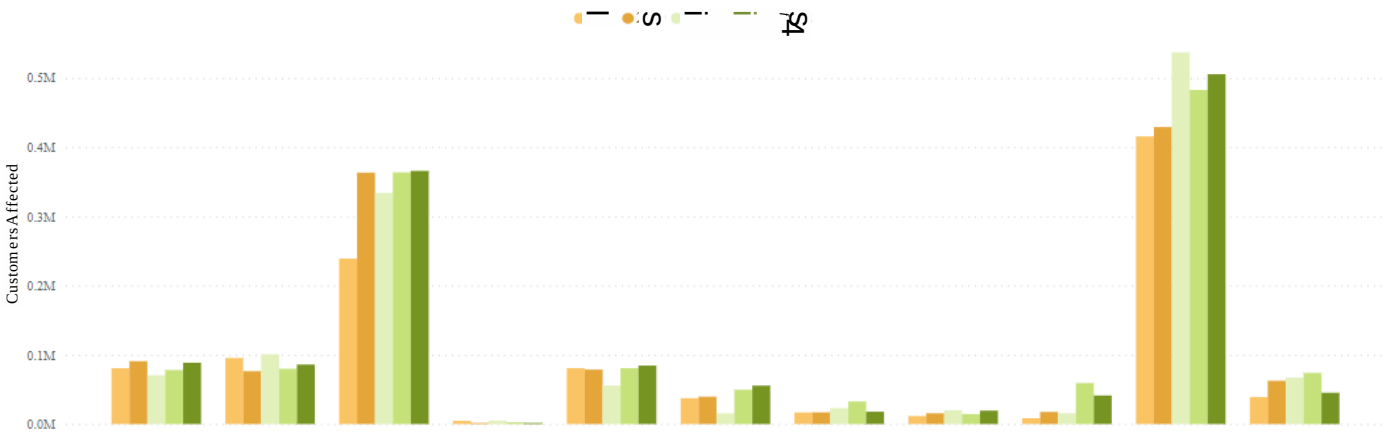
The following graphs provide more details regarding the reliability impacts due to major storms, minor storms, and during blue sky days over the past five years –

TOTAL CUSTOMERS INTERRUPTED THROUGH DECEMBER 31ST

NON-MAJOR TOTAL CUSTOMERS INTERRUPTED THROUGH DECEMBER 31ST



The following graph provides a five-year history of the customers affected by the PSC cause groups:



YEAR	Accident (MVA)	Animal Contact	Company Equipment	Customer Equipment	Lightning	Non Utility' Control	Operating Error	Overloads	Planned	Tree Contacts	Unknown
2018	80,646	95,375	239,003	4,498	80,736	37,368	16,633	11,520	8.471	415,542	39,015
2019	90,777	76,328	363,143	1,106	78,661	39,550	16,808	15,510	17.449	428,994	62,548
2020	70,395	100,740	333,791	4,888	55,664	15,385	'>'• O">S	19.985	15,538	536,791	67.195
2021	78,045	79,898	363,511	2,547	80,693	49,627	32,665	14.462	59.159	482,591	73,929
2022	88,513	85,985	365,694	711	84,507	55,535	17,790	19.411	41,222	505,430	45,236

The graph of customers interrupted by cause demonstrates the high impact to SAIFI from tree related outages and its role as the leading factor in NYSEG failing to meet its SAIFI performance measure.

NYSEG will continue to aggressively execute the vegetation reclamation program to prioritize reliability benefits. In addition, we are evaluating the scope of the vegetation management program, replacing aged and deteriorated equipment, and improving current reliability focused programs while developing new programs designed to improve system reliability.

The following contains information for specific programs that NYSEG has identified for improved system reliability performance:

Animal Guard Program

Due to the identified challenges with animal contact, NYSEG developed and executed an aggressive animal guarding program for distribution transformers. This program has shown to provide a 99% decrease in distribution animal contact SAIFI. NYSEG will continue to execute this program in 2023 per the established efficacy.

Vegetation Management

Per the 2020 rate case, NYSEG Electric distribution vegetation management spending will increase to a total of $57.2 million annually for each of the three Rate Years, with NYSEG Electric distribution vegetation management accounting for $30 million annually. In addition, NYSEG Electric will establish a new distribution vegetation management Reclamation Program with a planned spending of $17.2 million annually to reclaim circuits that have not been trimmed in over five years. NYSEG Electric will

also establish a new Danger Tree program funded at $10 million annually to address danger trees outside of the distribution right-of-way, including but not limited to, ash trees.

This increased funding granted by the NY PSC will be critical to improving system reliability.

Distribution Circuit Resiliency and Hardening

In June 2018, NYSEG and RG&E announced that a comprehensive Resiliency Plan would be developed as part of an overall approach to storm hardening of the electric distribution systems. The Resiliency Plan responds primarily to the number of storms of all types and severity that NYSEG and RG&E have experienced over the past decade, the substantial number of tree related outages experienced during these storms and throughout each year, and an emerging consensus among customers and public officials that it is appropriate for the Companies to enhance the resiliency of their electric infrastructure. As a part of the current NYSEG and RG&E rate cases, the Companies presented testimony covering the overall Resiliency Plan, as well as providing more specific information about individual Resiliency Plan projects that were planned to proceed in 2019 and 2020.

The overall approach to develop the plan consisted of three distinct steps:

1) Identify and rank the worst performing distribution **resiliency** circuits from among NYSEG's approximate 1,200 and RG&E's approximate 885 circuits
2) Define a cost-effective plan for work to be done on each of the identified circuits
3) Prioritize the circuits to be addressed in each year, based on reliability rankings and other relevant criteria

The Resiliency Plan identified in the Companies' rate case testimony includes three coordinated sets of actions or programs. The first two programs, hardening of the existing infrastructure and enhanced vegetation management (EVM) increase the ability of the system to withstand intense storms and thereby experience a reduction in the number of storm-related outages.

- **Hardening** of infrastructure involves using more robust construction practices and materials.
- **Enhanced Vegetation Management** involves "ground-to-sky" tree trimming and more aggressive targeting and removal of hazard trees.

The third program includes actions that would enable the Companies to restore power more quickly by making changes to the configuration of NYSEG's and RG&E's distribution networks along with automation investments.

- **Changes to the topology** of circuits enables the Companies to isolate outages and restore power more quickly through a combination of actions including adding or upgrading lines, increasing feeder ties, and increasing automation. Automation work includes the installation of additional SCADA-enabled line switches, tie switches, and reclosers to segment long circuits into multiple sections that can be isolated automatically to limit the number of customers that lose power during an event, and also contribute to the speed of restoring power to those customers who do lose power.

Although "reliability" and "resiliency" are distinct objectives, actions that improve resiliency can improve reliability and vice versa. Thus, each work items/planned activities identified in the Annual Reliability Report would contribute to some degree toward improved resiliency. Resiliency in this context refers to preventing and limiting the scope and impact of outages when they occur, and the ability to expediently restore power after a significant outage.

With respect to the ability of the Resiliency Plan actions to improve reliability, defined as "the ability of an electric distribution utility to deliver the desired quantity of quality power to all customers when needed", hardening and EVM resiliency plan actions would contribute to improved reliability on the network.

Distribution Line Deficiency (DLD) Program

With NYSEG's aging infrastructure it is important to first find where there are known equipment issues (deficiencies), prioritize the found deficiencies, and then efficiently repair them.

The current distribution line inspection (DLI) and transmission line inspection (TLI) programs are designed to inspect the electric system and then prioritize the deficiencies found from a Level I (most critical with high need for repair) to Level III (least critical, allowing more time for repair). NYSEG's system currently has a backlog of Level II deficiencies which have contributed to reliability performance issues.

NYSEG has developed a program to address the backlog of Level II deficiencies. This program started in 2019 and is expected to continue through 2023. This program is designed to better align and utilize internal and contractor workforces and prioritize deficiency repair on a circuit-by-circuit basis.

Circuit Breaker Replacement Program

The nature of circuit breaker failures inherently results in larger and longer duration outages. In 2015, the Company established a targeted replacement of circuit breakers deemed to be in poor condition. Over the last few years, this circuit breaker replacement program has resulted in the replacement of more than 300 circuit breakers in the NYSEG territory alone. Going forward, in the period 2020 through 2023, the goal is to replace roughly 80 NYSEG circuit breakers per year which will contribute to improvements in system reliability.

Substation Asset Condition Program

The Company plans to upgrade several poor condition substations approaching their end-of-life. In addition, the Company is developing a comprehensive plan to assess its entire fleet of NYSEG substations to develop long term upgrade plans. These plans and associated cost estimates will be included in our next rate case.

Loss of Load

NYSEG has identified an opportunity to improve customer reliability by limiting the amount of customer load exposed to outages for single line or transformer contingency events on the transmission and sub-transmission systems. As a result, NYSEG's Transmission Planning group has begun piloting an automated means of identifying large, exposed customer load pockets using a new *Loss of Load* criteria.

This *Loss of Load* analysis approach is being integrated into our routine Local Transmission Planning studies with the goal of ensuring that reliability upgrades not only focus on the mitigation of voltage and thermal violations but also focus on mitigating large customer load pocket exposures to credible contingency events.

Distribution Standards

As outlined in the Company's recent rate case filing, the Company has updated its distribution standards and design specifications to improve system response to adverse weather conditions including major storm events. The following categories had been addressed:

- Poles – increased minimum pole class applications
- Tree wire – expanded use of tree wire
- Guying – increased strength requirements for guying

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.

Major Storms, Minor Storms and Uncontrollable Events

The table below lists the major storm excludable events from 2022.

Storm Event #	Event Start	Event Stop	Division	Start Date	End Date	Ints	CstAff	CstHrs
1	1/17/2022	1/19/2022	Liberty	1/17/2022	1/19/2022	32	1569	5486
2	2/4/2022	2/6/2022	Liberty	2/4/2022	2/5/2022	28	5733	18483
			Mechanicville	2/4/2022	2/5/2022	56	13547	142144
			Oneonta	2/4/2022	2/6/2022	38	805	4215
3	2/17/2022	2/18/2022	Brewster	2/17/2022	2/18/2022	33	9542	13239
4	3/6/2022	3/10/2022	Binghamton	3/7/2022	3/10/2022	182	26968	207540
			Brewster	3/7/2022	3/9/2022	62	5858	18510
			Geneva	3/6/2022	3/7/2022	15	3028	5816
			Ithaca	3/7/2022	3/10/2022	62	13821	47982
			Lancaster	3/6/2022	3/7/2022	56	3665	9530
			Liberty	3/7/2022	3/10/2022	94	9334	55272
			Oneonta	3/7/2022	3/10/2022	187	15669	225550
5	4/19/2022	4/23/2022	Binghamton	4/19/2022	4/23/2022	911	113569	2715136
			Ithaca	4/19/2022	4/20/2022	75	5700	37034
			Liberty	4/19/2022	4/20/2022	38	7192	16527
			Oneonta	4/19/2022	4/24/2022	788	65237	1880169
			Plattsburgh	4/19/2022	4/21/2022	205	17344	103619
6	5/16/2022	5/17/2022	Auburn	5/16/2022	5/17/2022	17	1579	7957
			Geneva	5/16/2022	5/17/2022	11	7347	10554
7	5/22/2022	5/23/2022	Binghamton	5/22/2022	5/23/2022	15	19316	6248
8	6/16/2022	6/17/20202	Geneva	6/16/2022	6/17/2022	25	4458	17829
9	7/1/2022	7/2/2022	Binghamton	7/1/2022	7/3/2022	39	5867	36141
			Oneonta	7/1/2022	7/3/2022	52	10024	76636
10	7/12/2022	7/13/2022	Mechanicville	7/12/2022	7/13/2022	77	5123	21475
			Oneonta	7/12/2022	7/13/2022	34	9604	43063
11	7/13/2022	7/14/2022	Auburn	7/13/2022	7/14/2022	4	4449	34927
12	7/21/2022	7/21/2022	Brewster	7/21/2022	7/21/2022	29	10309	16731
13	7/24/2022	7/26/2022	Binghamton	7/24/2022	7/25/2022	67	9530	21981
			Elmira	7/24/2022	7/26/2022	72	7612	58598
			Ithaca	7/24/2022	7/25/2022	87	23646	64978
			Liberty	7/24/2022	7/25/2022	92	12163	61760
			Oneonta	7/24/2022	7/26/2022	147	17308	249863
14	8/4/2022	8/5/2022	Binghamton	8/4/2022	8/5/2022	53	7545	28143
			Elmira	8/4/2022	8/5/2022	54	6101	14215
			Ithaca	8/4/2022	8/4/2022	10	6912	13192
			Oneonta	8/4/2022	8/5/2022	45	7871	49883
15	8/29/2022	8/30/2022	Hornell	8/29/2022	8/30/2022	21	2669	16137
16	9/5/2022	9/7/2022	Binghamton	9/5/2022	9/7/2022	26	14734	25536
			Brewster	9/5/2022	9/7/2022	77	10212	22617
17	11/17/2022	11/20/2022	Lancaster	11/17/2022	11/20/2022	179	38256	98610
18	11/30/2022	12/1/2022	Brewster	11/30/2022	12/1/2022	81	10922	38390
19	12/16/2022	12/18/2022	Binghamton	12/16/2022	12/17/2022	90	4467	11176
			Mechanicville	12/16/2022	12/18/2022	61	10548	23448
			Oneonta	12/16/2022	12/15/2022	84	2449	12128
			Plattsburgh	12/16/2022	12/18/2022	255	22257	196950
20	12/23/2022	12/26/2022	Binghamton	12/23/2022	12/24/2022	44	2189	7919
			Brewster	12/23/2022	12/25/2022	362	53914	325894
			Elmira	12/23/2022	12/24/2022	76	5900	27415
			Geneva	12/23/2022	12/24/2022	53	8624	40215
			Hornell	12/23/2022	12/25/2022	84	8500	41581
			Lancaster	12/23/2022	12/26/2022	258	48053	348886
			Mechanicville	12/23/2022	12/26/2022	149	11415	93274
			Plattsburgh	12/23/2022	12/24/2022	46	4134	7362

The following table lists the minor storm events from 2022. This information is presented for reliability trending and comparison purposes only.

Storm Event #	Event Date	Division	Ints	CstAff	CstHrs	% Out
1	1/14/2022	Brewster	16	3878	3660.872	4%
2	1/17/2022	Brewster	20	4388	7855.723	5%
3	1/2/2022	Geneva	6	2293	6048.075	4%
4	1/17/2022	Mechanicville	30	4122	9880.118	8%
5	2/18/2022	Liberty	45	2251	4614.168	4%
6	2/17/2022	Plattsburgh	5	1525	2648.208	4%
7	3/7/2022	Elmira	34	4072	9852.658	6%
8	3/3/2022	Hornell	1	1408	3104.337	4%
9	3/7/2022	Mechanicville	23	3276	10546.002	6%
10	3/31/2022	Oneonta	10	5578	3590.768	6%
11	3/6/2022	Plattsburgh	30	2048	8814.63	5%
12	4/19/2022	Elmira	20	3133	7320.686	4%
13	4/7/2022	Geneva	6	4312	5013.632	7%
14	4/21/2022	Liberty	2	3391	2345.216	6%
15	4/19/2022	Mechanicville	6	1808	1780.633	4%
16	5/16/2022	Ithaca	19	4607	7967.759	7%
17	5/16/2022	Liberty	10	4136	2331.509	7%
18	5/16/2022	Mechanicville	11	2325	2686.569	5%
19	5/16/2022	Plattsburgh	6	1975	241.016	5%
20	6/1/2022	Auburn	4	2510	4202.45	7%
21	6/1/2022	Ithaca	7	4976	12378.461	8%
22	6/4/2022	Mechanicville	2	3769	6861.603	7%
23	6/18/2022	Ithaca	12	2854	5978.208	4%
24	7/1/2022	Liberty	11	3473	9736.561	6%
25	7/12/2022	Ithaca	8	3054	715.704	5%
26	7/23/2022	Elmira	7	5408	6086.57	7%
27	7/28/2022	Geneva	3	2322	3570.806	4%
28	7/28/2022	Ithaca	3	3172	3726.138	5%
29	8/4/2022	Liberty	18	3909	12280.343	7%
30	8/5/2022	Lancaster	13	13438	11616.178	7%
31	8/16/2022	Hornell	8	1413	2963.442	4%
32	8/21/2022	Auburn	6	3005	23958.066	8%
33	8/22/2022	Auburn	4	3068	2944.592	8%
34	8/23/2022	Mechanicville	8	4515	9544.302	9%
35	8/29/2022	Elmira	17	3452	4387.808	5%
36	9/6/2022	Ithaca	5	4488	9882.729	7%
37	9/6/2022	Liberty	17	4245	6682.33	7%
38	9/13/2022	Mechanicville	9	2334	2411.249	5%
39	10/13/2022	Plattsburgh	9	2079	5533.945	5%
40	10/15/2022	Hornell	7	1338	2000.24	4%
41	11/12/2022	Auburn	2	1520	1596.38	4%
42	11/30/2022	Geneva	10	2842	3439.173	5%
43	11/30/2022	Ithaca	17	2653	3516.07	4%
44	11/30/2022	Plattsburgh	14	1993	2741.825	5%
45	12/3/2022	Geneva	18	3542	8582.17	6%
46	12/3/2022	Lancaster	38	6878	13078.385	4%
47	12/3/2022	Plattsburgh	20	1625	874.594	4%

NYSEG experienced several large uncontrollable, non-weather-related events in 2022. The largest of these events are listed in the table below.

Division	Event Start Date	Customers Impacted	Customer Hours	Cause Description
Liberty	7/26/2022	2826	1364.958	Pole Damage/Failure - Accident/Non-Utility
Binghamton	4/4/2022	2494	1788.198	Pole Equipment Damage/Failure - Accident/Non-Utility
Geneva	1/30/2022	2175	398.025	Conductor Down - Accident/Non-Utility
Mechanicville	1/16/2022	2170	7378	Loss of Supply - Foreign Utility
Oneonta	11/15/2022	1958	1631.014	Tree Contact - Customer or Cust Contractor Felled
Mechanicville	1/16/2022	1839	6252.6	Loss of Supply - Foreign Utility
Geneva	7/3/2022	1837	4776.2	Fire - House/Building
Plattsburgh	3/29/2022	1716	1630.2	Loss of Supply - Foreign Utility
Plattsburgh	4/7/2022	1714	227.962	Loss of Supply - Foreign Utility
Plattsburgh	7/11/2022	1708	285.236	Loss of Supply - Foreign Utility
Geneva	12/3/2022	1642	4433.4	Conductor Down - Accident/Non-Utility
Lancaster	6/3/2022	1624	459.592	Pole Equipment Damage/Failure - Accident/Non-Utility
Geneva	5/2/2022	1577	2602.05	Pole Equipment Damage/Failure - Accident/Non-Utility
Lancaster	2/11/2022	1572	5187.6	Pole Damage/Failure - Accident/Non-Utility
Geneva	5/2/2022	1532	1711.244	Pole Equipment Damage/Failure - Accident/Non-Utility
Brewster	4/25/2022	1505	2057.335	Pole Equipment Damage/Failure - Accident/Non-Utility
Plattsburgh	7/11/2022	1481	247.327	Loss of Supply - Foreign Utility
Geneva	3/3/2022	1465	1977.75	Conductor Down - Accident/Non-Utility
Plattsburgh	7/11/2022	1412	235.804	Loss of Supply - Foreign Utility

Mechanicville	11/20/2022	1405	1077.635	Loss of Supply - Foreign Utility
Mechanicville	11/20/2022	1405	140.5	Loss of Supply - Foreign Utility
Binghamton	7/4/2022	1363	613.35	Tree Contact - Customer or Cust Contractor Felled
Lancaster	7/15/2022	1360	1292	Pole Damage/Failure - Accident/Non-Utility
Plattsburgh	7/26/2022	1357	226.619	Loss of Supply - Foreign Utility
Plattsburgh	10/18/2022	1353	225.951	Loss of Supply - Foreign Utility
Plattsburgh	7/11/2022	1344	224.448	Loss of Supply - Foreign Utility
Geneva	8/17/2022	1330	3414.11	Pole Damage/Failure - Accident/Non-Utility
Plattsburgh	7/11/2022	1325	198.75	Loss of Supply - Foreign Utility
Liberty	9/6/2022	1303	2172.101	Pole Damage/Failure - Accident/Non-Utility
Lancaster	7/7/2022	1292	1550.4	Pole Damage/Failure - Accident/Non-Utility
Plattsburgh	7/11/2022	1269	211.923	Loss of Supply - Foreign Utility
Plattsburgh	7/11/2022	1260	189	Loss of Supply - Foreign Utility
Liberty	4/11/2022	1258	2327.3	Pole Equipment Damage/Failure - Accident/Non-Utility
Binghamton	6/15/2022	1211	847.7	Tree Contact - Customer or Cust Contractor Felled
Plattsburgh	10/18/2022	1183	197.561	Loss of Supply - Foreign Utility
Plattsburgh	7/26/2022	1183	197.561	Loss of Supply - Foreign Utility
Plattsburgh	4/8/2022	1172	2226.8	Pole Equipment Damage/Failure - Accident/Non-Utility
Plattsburgh	3/29/2022	1160	154.28	Loss of Supply - Foreign Utility
Plattsburgh	4/7/2022	1160	154.28	Loss of Supply - Foreign Utility
Mechanicville	1/16/2022	1101	3743.4	Loss of Supply - Foreign Utility
Lancaster	2/11/2022	1057	1408.981	Pole Damage/Failure - Accident/Non-Utility

Geneva	5/2/2022	1056	1161.6	Pole Equipment Damage/Failure - Accident/Non-Utility
Brewster	8/22/2022	1029	205.8	Fire - House/Building
Plattsburgh	7/11/2022	1018	152.7	Loss of Supply - Foreign Utility
Binghamton	11/7/2022	1008	1008	Pole Damage/Failure - Accident/Non-Utility
Brewster	9/12/2022	1001	150.15	Other - Accident/Non-Utility
Brewster	9/13/2022	1001	150.15	Other - Accident/Non-Utility
TOTALS		68211	70267.545	

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.

Reliability and Other Programs

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 Organization plays 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, as well as increase system reliability. 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 infrastructure. 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 associated assets at least once over a period of five years, as required by the Safety Order.

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, 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 and mitigated. 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.

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 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% "leveling" factor to each to ensure equal 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 required. 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 per safety order, and as required.

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 per safety order, and as required.

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: As needed.

Wood Pole Inspection and Maintenance Program

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

Program benefits: Wood pole inspection and maintenance program enhances the safety and reliability of the electric energy delivery system by identifying and reducing defective wood poles. The supplemental preservative, remedial pesticide treatment, extends the average life several years up to double the typical in-service life of a pole without remedial treatment.

Program Cycle: 10 years, as budget allows.

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: as needed, or as budget allows.

Thermographic Inspection Program

A comprehensive scan is conducted on transmission and subtransmission circuits, electric substations, and distribution circuits. All circuit three phase is inspected yearly, with single phase taps managed and inspected as budget allows, 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: inspected yearly.

Corona Detection Program

A comprehensive scan of transmission circuits, subtransmission circuits, electric substations, and 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. 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, or as budget allows.

Overhead Network Aerial Inspection and Maintenance Program

The objective of this program is to perform preventative maintenance on transmission assets. Aerial inspection methodologies are used to perform inspection programs.

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 network circuit integrity and reliability.

Program Cycle: 5 years for Transmission 34.5kV and above.

Electric Substation Battery Maintenance Program

The maintenance of substation batteries includes routine inspections, charger and individual cell voltage checks, 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 operating system protection equipment.

Program Cycle: Varies based on industry, regulatory, and company requirements.

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 (yearly), 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 per safety order, and as required.

Voltage Regulator Maintenance Program

Replace obsolete and defective station and pole top voltage regulators with new or reconditioned units' system wide. A comprehensive visual inspection of the control cabinet is performed every 2 years. Regulator installations Infrared inspections are performed as part of the IR inspection program.

Program benefits: Replacing obsolete regulators provides improved voltage regulation and improves power quality for the customer.

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

Network Vegetation Management

Maintain the integrity of the gas and electric network right-of-way, utilizing integrated vegetation management techniques. Eliminate tree contacts that occur from vegetation growth on the electric network right-of-way (ROW). Maintain the gas transmission ROW to facilitate access for inspections and maintenance. The gas transmission and distribution right-of-way (ROW) is patrolled each fall to identify safety and access concerns.

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

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/sectionalizer control cabinets are inspected annually.

Program benefits: 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 and general public.

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.

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.

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

Reliability Program Actuals	2018*	2019*	2020 *	2021 *	2022*
Oper Superv & Eng	$ 1,935,689	$ 3,208,532	$ 2,609,960	$ 2,912,609	$ 3,296,122
Load Dispatching					
Station Expenses	$ 4,356,613	$ 3,909,095	$ 4,373,898	$ 4,104,965	$ 4,146,749
Overhead Line Expense	$ 3,460,059	$ 3,435,767	$ 1,288,630	$ 962,114	$ 1,101,532
Transmission of Elec	$ 9,698,663	$ 9,689,190	$ 5,488,487	$ 4,105,170	$ 4,097,205
Misc. Transmission Expenses	$ 4,067,190	$ 4,744,352	$ 4,474,373	$ 4,781,589	$ 4,538,453
Oper Superv & Eng	$ 4,228,099	$ 6,474,949	$ 5,159,326	$ 5,703,350	$ 7,999,477
Station Expenses	$ 5,219,247	$ 4,638,822	$ 1,334,855	$ 6,581,821	$ 2,894,458
Overhead Line Expense	$ 15,688,105	$ 13,050,887	$ 10,379,630	$ 22,796,872	$ 14,615,601
Underground Line Expenses	$ 1,268,522	$ 1,142,308	$ 985,578	$ 933,523	$ 881,903
Street Light & Sign	$ 77,438	$ 42,923	$ 58,574	$ 62,332	$ 41,069
Meter Expense	$ 9,508,282	$ 8,561,942	$ 8,787,714	$ 8,970,160	$ 9,081,996
Customer Installation Expenses	$ 277,730	$ 377,472	$ 612,117	$ 792,769	$ 2,011,583
Misc. Distribution Expenses	$ 11,711,794	$ 11,895,345	$ 12,488,829	$ 17,043,537	$ 18,992,951
Maint Superv & Eng	$ 315,257	$ 8,964	$ -	$ (4,643)	$ 50,050
Maintenance of Structures	$ 320,613	$ 68,851	$ 153,825	$ 191,356	$ 135,094
Maintenance Station Expenses	$ 4,799,115	$ 6,120,035	$ 5,475,284	$ 8,325,570	$ 8,170,896
Maint. Overhead Line Expense	$ 14,139,931	$ 12,096,577	$ 13,788,687	$ 17,356,399	$ 17,401,798
Maint Underground	$ 90,901	$ 90,495	$ 126,768	$ 87,590	$ 110,790
Maint Superv & Eng	$ 24,567,849	$ 7,684,571	$ 7,679,249	$ 6,591,283	$ 12,922,595
Maintenance of Structures	$ 6,301	$ 21,976	$ 45,833	$ 15,665	$ 13,277
Maintenance Station Equipment	$ 6,301,854	$ 6,154,885	$ 6,531,387	$ 8,123,352	$ 8,700,377
Maint Overhead Line	$ 190,897,345	$ 175,462,160	$ 232,295,960	$ 225,938,794	$ 307,660,969
Maint of Underground	$ 708,328	$ 614,515	$ 863,288	$ 796,712	$ 1,187,636
Maint of Line Transformers	$ -	$ 2,433	$ -		
Maint Street Light	$ 1,758,960	$ 1,582,556	$ 999,480	$ 858,115	$ 713,553
Maint of Meters	$ 300				

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

Reliability Program Actuals	2018*	2019*	2020 *	2021 *	2022*
Oper Superv & Eng	$ 1,935,689	$ 3,208,532	$ 2,609,960	$ 2,912,609	$ 3,296,122
Load Dispatching					
Station Expenses	$ 4,356,613	$ 3,909,095	$ 4,373,898	$ 4,104,965	$ 4,146,749
Overhead Line Expense	$ 3,460,059	$ 3,435,767	$ 1,288,630	$ 962,114	$ 1,101,532
Transmission of Elec	$ 9,698,663	$ 9,689,190	$ 5,488,487	$ 4,105,170	$ 4,097,205
Misc. Transmission Expenses	$ 4,067,190	$ 4,744,352	$ 4,474,373	$ 4,781,589	$ 4,538,453
Oper Superv & Eng	$ 4,228,099	$ 6,474,949	$ 5,159,326	$ 5,703,350	$ 7,999,477
Station Expenses	$ 5,219,247	$ 4,638,822	$ 1,334,855	$ 6,581,821	$ 2,894,458
Overhead Line Expense	$ 15,688,105	$ 13,050,887	$ 10,379,630	$ 22,796,872	$ 14,615,601
Underground Line Expenses	$ 1,268,522	$ 1,142,308	$ 985,578	$ 933,523	$ 881,903
Street Light & Sign	$ 77,438	$ 42,923	$ 58,574	$ 62,332	$ 41,069
Meter Expense	$ 9,508,282	$ 8,561,942	$ 8,787,714	$ 8,970,160	$ 9,081,996
Customer Installation Expenses	$ 277,730	$ 377,472	$ 612,117	$ 792,769	$ 2,011,583
Misc. Distribution Expenses	$ 11,711,794	$ 11,895,345	$ 12,488,829	$ 17,043,537	$ 18,992,951

* The annual audit of the corporate books and records is not yet complete, therefore the 2022 amounts shown on the above table(s) should be considered unaudited.

Transmission and Distribution Program

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 deficiency found during the distribution system inspection is identified and prioritized during the inspection. Each deficiency 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 193,000 inspections for NYSEG. NYSEG also performs stray voltage testing on these same (20%) assets as well as (100%) of their streetlights, traffic signal equipment and underground manholes and handholes.

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

2022 Major Capital Project Investments

Project Title	2022 Actuals
Distribution Line	$ 31,346.62
Distribution Line Inspection	$ 16,672.99
Substation Circuit Breaker Replacement Program	$ 19,726.14
Transmission Line	$ 16,025.66
Betterments	$ 14,190.63
Line 879 Rebuild-Ausable Town Line to Rainbow Falls	$ 420.10
Substation Minor Capital	$ 5,866.08
Mobile Replacements (#2 and #4)	$ 1,274.65
Line 880 Rebuild	$ 9,324.74
Dingle Ridge - 2nd Bank and 13.2kV Conversion	$ 4,597.96
Java NWA-Microgrid	$ 712.62
Resiliency Plan	$ 32,715.52
Wood Street, Add 3rd 345/115 kV Trfmr	$ 20,491.94
Willet - Install New Transformer	$ 580.14
NYSEG BES Program - FERC Compliance	$ 82,291.73
Seneca Lake L595 Submarine Cable Rebuild	$ 72.55
North Brewster Reinforcement	$ 1,804.58
Flat Street - Bank 2 New Transformer	$ -
Sackett Lake Replace Transformer	$ 2,731.87

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

2022 Specific Distribution Reliability Projects/Investments

Name	Description	Actual
LLT ORDER POLES WEEKS	LLT ORDER POLES WEEKS-STORES DO NOT ORDER-ALREADY ORDERED ON PO # BELOW P&CG PO # 4505951724 Quantity 100 -50/2's 30923048 showing Pole WD DF Penta 50 C2 88 - 50/1's 30923047 showing Pole WD DF Penta 50 C1 SHIP TO: P&CG - CONTACT 24 HOURS PRIOR TO DELIVER DAVE MOSCA @ UNLOADING ETC. 96 WEST RIVER ROAD SCOTTSVILLE, NY 14546	$ 264,898.95
MAJOR BETTERMENT PL 249-250 Tie 7of10~S	NYSEG to convert 16 poles, on line 1090, on the Peach Lake 250 circuit, along June Road, in the Town of North Salem from single phase 4.8kv to 3 phase 4.8kv. This work is being done for the Brewster Automation Project in order to tie together the Peach Lake 249 and Peach Lake 250 ciruits on June Rd. The Tie Point will be at or near L1090 P9458	$ 1,277.88
Ten Mile River Substation Expansion (ESE	Ten Mile River Substation Expansion (ESE91000) *CAPEX* WO For Internal Labor* / External Costs *C.Schaffer/A.Wiafe/J.Sopata NYSEG-Brewster Ten Mile Sub. R/B WBS# UH-N0000612 to be charged.	$ 21,384.08
LLT ANIMAL GUARD PROGRAM 2021 GENE	LLT ANIMAL GUARD PROGRAM 2021 GENEVA DIV MACEDON: 601 $382.00; VAN BUREN ST: 603 521; WEST GENEVA: 602 $477.00; TOTAL TXFS: $1380.00; TOTAL TXFS REQUIRING AG INSTALLS $1380.00	$ 45,110.33
KF Ring Girder NYSEG Eng - I	HYDROPOWER PLANT, CIVIL ENGINEERING WORK	$ 102,773.68
NYSEG Loop Schemes CapEx External	OVERHEAD LINES 13-20KV (11-UK / 2,4-13,2-USA)	$ 81,324.11

NYSEG Firewall Replacement Project (TS-I	Install Work Order NYSEG - Firewall Replacement CAP WBS #UH-N0005763 to be charged Project Manager: Adrian Pardo <Adrian_Pardo@rge.com> Firewalls to install: South Perry Scope: Replace all the existing firewalls.	$ 2,885.13
Goudey Transformer Addition(T-C)	N/A	$ 232,952.88
CCTP - Upgrade SS CAPEX-SCM (Internal&Ex	CCTP - Upgrade SS CAPEX-SCM (Internal&External Labor) NYSEG UC&M (Rice, Spoth, Brennan) WBS: UH-N0000121 Proj. Def: UH-N0000120 IUSA Project mgr: Inma Sanz 607-762-7109	$ 745.88
Fraser- Add 345kV Transformer(T-C)	Fraser- Add 345kV Transformer(T-C) 2/25/13: Revised status per Joe Sopata based on FA Report for February.	29.44-
Line 620 Rebuild *CAPEX* ECD Internal La	Line 620 Rebuild *CAPEX* ECD Internal Labor and External Services WBS UH-N0000692 PM: Gideon Oppong-Darko	$ 37,122.29
Meyer Sub - Add 115kV Xfmr Bank 6 (TS-C)	Meyer Sub - Add 115kV Xfmr Bank 6 (TS-C) No Removal WO required. Note: Non-stock description added for 115kV CBs for J.Sopata to price on requisition #10160658. (9/6/2012 SRH) Note #2: Non-stock description added for 34.5kV VTs for J.Sopata to price on requisition #10160798. (9/7/2012 SRH) Note #3: Non-stock description added for 115kV CCVTs for J.Sopata to price on requisition #10163275. (9/25/2012 SRH) 2/25/13: Revised status per Joe Sopata based on FA Report for February. KAP	$ 836,203.91
South Perry Add 2nd 115 kV P&C Capex Ord	South Perry Add 2nd 115 kV P&C Capex Ord UH-N0000106	$ 43,083.88

Stillwater Sub.Upgrade Transformer(DS-C)	Stillwater Sub.Upgrade Transformer(DS-C) Upgrade Stillwater Substation with one new 34.5-4.8x12.5kV, 10/12.5(14) MVA, LTC Transformer. The scope is to expand the existing substation to install a new structure to accommodate 34.5kV motor-operated line load break switches, a 34.5kV bank breaker, a new 10/12.5(14) MVA, 34.5-4.8x12.5kV LTC Transformer, add one new 12.5kV distribution circuit position, a new control house and 12kV power cable connection to the existing 12.5kV bus and distribution circuits. WBS #2E.00109 - PBAF Attached IUSA Contact: Joe Sopata	1.86-
HAT LLT 2022 WIRE NYSEG	HAT LLT 2022 WIRE NYSEG Delivery 5 Oak st, Sidney NY 42.311108, -75.397486 Contact: Bill Sears 607-287-3760	$ 777,674.04
Willet Sub New 115kV Transformer (TS-C)	Willet Sub New 115kV Transformer (TS-C) Note: Non-stock description added for 115kV CB for J.Sopata to price on requisition #10160702. (9/6/2012 SRH) Note #2: Non-stock description added for 34.5kV CB for J.Sopata to price on requisition #10160704. (9/6/2012 SRH) Note #3: Non-stock description added for 34.5kV VT for J.Sopata to price on requisition #10160800. (9/7/2012 SRH) Note #4: Non-stock description added for 115kV CCVTs for J.Sopata to price on requisition #101634xx. (9/26/2012 SRH)	$ 489,015.36

WNDM SS SS E EQP ECD D	SUBSTATION ELEC.SYSTEM 132 KV (115-USA)	$ 3.25
Wood Street-Add 345kV Transformer(T-C)	N/A	$ 20,456,361.63
NYSEG ECC LC - Binghamton	N/A	$ 231,364.08
FICS - Robinson PV Project (Borrego) - L	COMMUNICATIONS	$ 4,684.45
NYSEG ERA Integration CapEx Int Staff	COMPUTER APPLICATIONS (SOFTWARE)	$ 7,137.54
2022 ANIMAL GUARD INSTALLS-PLATTSBU	01/05/2022 20:34:37 CET LEE CASE (U438514) THIS NOTIFICATION IS TO TRACK AN LLT WORK ORDER FOR THE ORDER OF THE ANIMAL GUARDS BEING INSTALLED IN 2022. QUANTITY: MID: 1291 30054325 4617 30922812 CAPEX WBS - UI-N5471	$ 2,423,241.60
CANCEL	CANCEL TRIP SAVES HAVE BEEN REC'D, LLT CAN BE CLOSED LLT FOR TRIP-SAVERS PLATTSBURGH DIV-MLR THIS ORDER CONTAINS THE FOLLOWING MATERIAL FOR THE TRIP-SAVERS BEING INSTALLED IN THE PLATTSBURGH DIVISION: MID: QTY: 36126039 16 36126043 16 36126040 1 30053256 22	$ 165,783.85
DAP LLT Trip Savers 2022	DAP LLT Trip Savers 2022 MID 30053256 (15kV) Ship to: Power & Construction Group ATTN: Dave Mosca 585-406-0776 96 River Rd Scottsville, NY 14546	$ 189,733.78
TB_ Recl repl Fail_PERUVILLE TAP 522 ABB	04/28/2022 18:49:27 CET KIRA RATLIFF (E824029) TB_ Recl repl Fail_NYS-PERUVILLE TAP 522	$ 94,805.46

CLCPA - L842 Baker Hill to Pierce ENG -	CLCPA - L842 Baker Hill to Pierce ENG - CAP Engineering for L842 46kV Baker Hill to Pierce Oneonta C, part of CLCPA WBS UH-N0006453	$ 60,556.22
Live EO	COMPUTER APPLICATIONS (SOFTWARE)	$ 97,380.31
2022 WO Needed - Binghamton	2022 WO Needed - Binghamton	$ 650,646.43
Lancstr SUB D Clerical/Misc Exp	N/A	$ 643,592.37
LI,rep poles,gowanda vlg,legion dr153	09/03/2020 17:11:06 CET GINGER JAMES (E600506) WPIT2 - REPL - 153 US HWY 62 Pole Eval: Reject 02/01/2021 17:01:32 CET MARK COOKE (E824584) replace pole. no flagging. tree trimming yes. pole locate on embankment. pic attached	$ 82,514.34
Chenango Bridge. Modernization Project (	Chenango Bridge. Modernization Project (DS-I) *CAPEX* INST	$ 1,809,646.77
L47 (36) 345kV STRUCTURE REPAIR -MCHE	L47 (36) 345kV STRUCTURE REPAIR -MCHENR REPLACE KNEE BRACE	$ 332,156.14
Reconductor.Broadway 535.William St.Lanc	07/29/2020 14:32:00 CET DENISE ZIEMENDORF (U433458) Desc "Reconductor William street L289 P138 to L289 P158 from 1/0 to 477AL. Conductor is carrying 300 amps."	$ 238,276.69
Wild Oaks Village primary underground re	03/16/2020 19:07:40 CET CRAIG LINCOLN (E603176) 02/25/2020 18:00:12 CET CRAIG LINCOLN (E603176) This w/o is proposed to rebuild the existing facilities at Wild Oak Village Phase one	$ 702,184.85
LI 2 REL L. 379 Hickory Hill Rd T/Shusha	11/25/2020 19:51:20 CET RFCIUSAMOV (RFCIUSAMOV) Generated for WO: 006200236562 LI 2-HIGH - REPLACE X-ARMS 1201701 - YES POLE SOUNDED INSPECTED BY: E601632 01/13/2021 17:43:55 CET TIMOTHY ELLIS (U332741) work order completed Salem Tap Circuit 627, 4.8kV L. 379, P. 4, P. 7 This work order will take care of DLI notifications 10102850196 & 10102850199 On this work order along Hickory Hill Rd, in the town of Shushan, on L. 379 P. 4 & P. 7 were found to be in poor condition. These poles were installed in 1946. A track vehicle will be needed to set poles. These poles are sole owned. L. 379, P. 4 -Set 45/2 pole tangent xarm framing P. 7 -Set 45/2 pole, new 10kVA Conventional transformer, tangent xarm framing Tree work is required all along line. There are DLI notifications assoiated with vegetation trimming. I have added trimming for spans on poles that are being replaced. Cost of trimming is $44,625.87 and attached to operation# 0072	$ 207,513.29

Craryville Bank #3 115/34.5 kV Replaceme	Craryville Bank #3 115/34.5 kV Replacement (DS-I) *CAPEX* INSTALL Work Order NYSEG - Substation Minors / Transformer Replacement CAP WBS# UI-N0018 to be charged. Substation Manager: Rice, Kevin <KRice@nyseg.com> Scope: - Replace failed Bank #3	$ 407,704.49
Mobile SS #2 replacement *CAPEX* ESE Int	Mobile SS #2 replacement *CAPEX* ESE Internal Labor WBS: UH-N0000282 PM: Manuel Figuerola	$ 561,323.39
Mobile SS #4 replacement *CAPEX* ESE Int	Mobile SS #4 replacement *CAPEX* ESE Internal Labor WBS: UH-N0000284 PM: Manuel Figuerola	$ 693,231.23
Line 880 Rebuild - CAPEX	Line 880 Rebuild - CAPEX WBS UH-N0000414 PM Adam Aes	$ 1,689,684.44

RPL Poles & 3phPri RT202 DR277 Brew~SI	N/A	$ 43.50
PQ West Varysburg load for Java	06/28/2016 18:03:09 KAREN LATELLO (U438890) CU FOR NYSEG PQ Equip WEST VARYSBURG0 Sub L=577 Pole P-878 This work order is necessary to install 3-Lighthouse MV sensors on this circuit for fault finders. Work is capital-related Quote attached to job Lighthouse MV sensor cellular	$ 451.05
Java SS Microgrid BESS Projects Capex Or	Java SS Microgrid BESS Projects Capex Order PM: Megan Pomeroy-Slawski WBS: UH-N0000428	$ 415,579.08
HAT_Stphtwn621_Upgrd Wire Sect_6017	03/25/2021 20:33:37 CET WARREN MILLER (E826396) Upgrade single phase wire section on SE Hollow Rd from P79 to P46	$ 1,433,054.93
HAT LLT 2022 ALL DEVICES AND TRIP SAV	HAT LLT 2022 ALL DEVICES AND TRIP SAVERS NYSEG Delivery 5 Oak st, Sidney NY 42.311108, -75.397486 Contact: Bill Sears 607-287-3760	$ 548,666.33
FERC Brightline-Oakdale SS CAPEX-ECD (In	PRIMARY SUBSTAT. 220KV (220/275-UK / 230-USA)	$ 2,541,516.77
Line 595 Seneca Cable CAPEX-ECD (Int/Ext	Line 595 Seneca Cable CAPEX-ECD (Int/Ext Labor) NEW WBS UH-N0000208 IUSA PM: Michal Bartczak, Hallie Friedman Contract PM: Jorge De La Fuente	$ 36,593.46
Silo Ridge Field Club @ Amenia (CAPEX-EC	Silo Ridge Field Club @ Amenia (CAPEX-ECD Internal Labor and External Services) UH-N0000274 Avagrid PM: Jak Urmatbek 607-762-8528	$ 1,747,234.01
Sackette Lake Upgrade Transformer(DS-C)	Sackette Lake Upgrade Transformer(DS-C) Expand the existing substation to install 34.5kV line breakers and a new 34.5kV, 14MVA Transformer. Scope: Expand the existing substation to install 34.5kV line breakers, a 34.5kV bank breaker, a new 10/12.5(14) MVA, 34.5-4.8x12.5kV LTC transformer, a new control house, and 12kV power cable connection to the existing 12.5kV bus and distribution circuits. The P&C costs include a Fiber Optic line to Coopers Corners Sub and upgrades at the Coopers Corners Sub 34.5kV Line 344 terminal. WBS #3U.00218 - PBAF Attached IUSA Contact: Joe Sopata	$ 317,970.04

Vegetation Management Program

Distribution Vegetation Line Clearance Rate Plan Level and Actual Expenditures for Each of Previous 5 Years provided below.

Year	Rate Plan Level	Actual
2018	$30,000,000	$29,510,546
2019	$30,000,000	$33,891,785
2020	$48,000,000	$46,257,787
2021	$57,203,000	$67,078,508
2022	$57,200,000	$45,552,061

Division	Distrubition Miles Completed 2022	34.5 kV	15 kV	5 kV
Auburn	242.14	73.76	101.83	66.55
Binghamton	207.03	83.02	46.54	77.47
Brewster	291.6	0	202.4	89.2
Elmira	380.61	135.21	245.4	0
Geneva	390.045	215.705	161.89	12.45
Hornell	296.94	82.75	137.82	76.37
Ithaca	483.32	170.27	130.21	182.84
Lancaster	489.6	78.21	201.87	209.52
Liberty	296.86	135.28	20	141.58
Mechanicville	379.17	204.68	79.13	95.36
Oneonta	323.58	0	323.58	0
Plattsburgh	154.79	56.79	98	0
NYSEG	**3935.685**	**1235.68**	**1748.67**	**951.34**

Power Quality Program

New York State Electric & Gas Corporation (NYSEG) works to provide very reliable electric service with a high degree of power quality. This section of the report contains a description of NYSEG's power quality program along with a representation of the power quality data that was obtained through this program in 2022.

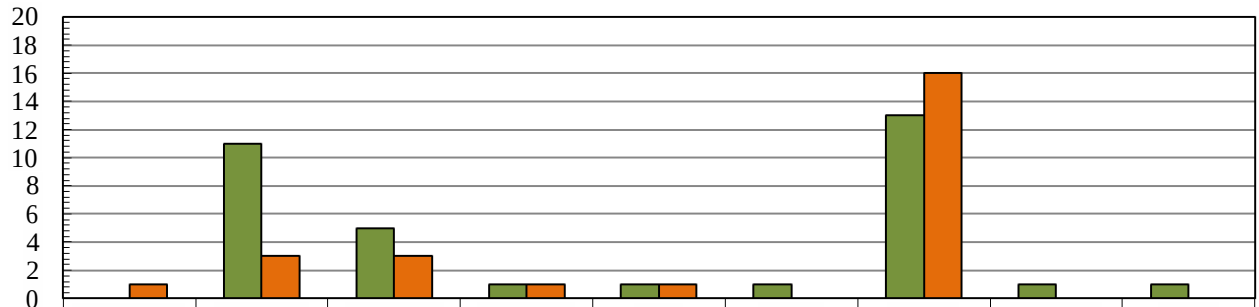
NYSEG's power quality program is designed to address customer needs and requests with a team of specialists capable of investigating and resolving power quality issues. This team is located throughout the state in various NYSEG operating Divisions.

NYSEG utilizes different processes based on the complexity of the customer's problem. Flickering lights are usually a short, intermittent event with different potential causes, potentially resolvable over the phone or through voltage measurements during a field check. High/low voltage and other PQ (power quality) issues may be more complicated, potentially requiring field monitoring of the electric service and data analysis to determine the cause and potential solution. The more complex PQ investigations are especially important to commercial and industrial class customers that may operate very sensitive equipment. NYSEG always works with its customers to determine the cause, when practical, and develop a solution to address the customer's concerns and needs.

In 2022, NYSEG had 4,740 momentary interruption events as recorded by NYSEG's Energy Control System (SCADA System) on our Distribution and Transmission systems and that are directly related to Distribution feeders and Transmission Lines. These momentary events are often related to transient faults being cleared by reclosing devices or automatic restoration schemes that can minimize the impact felt by our customers; however, there were only 59 total Power Quality inquiries reported by customers or company, due to NYSEG's continued investment in grid automation and modernization that is improving the overall customer experience. For example, the use of reclosers will play a big role in shielding customers from long duration outages by automatically clearing transient faults. In such instances, a customer that could have seen a 10- to 60-minute interruption will instead see a short-duration, momentary interruption.

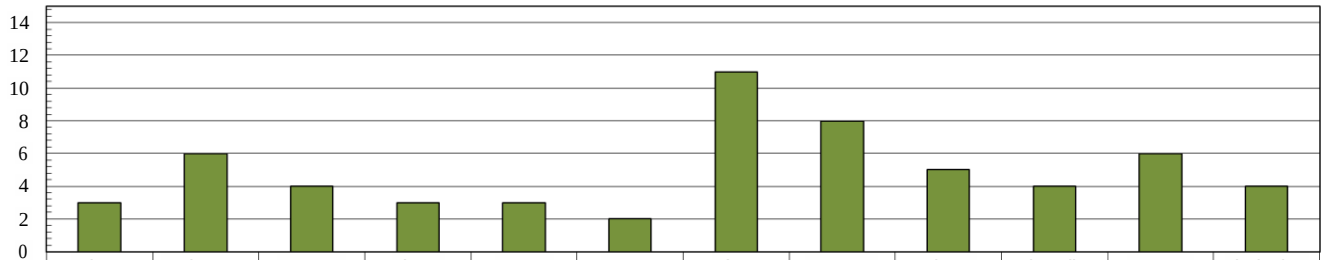
The following pages contain the data that was collected throughout 2022 regarding the PQ calls NYSEG received and the resulting investigations that were conducted.

2022 Reported Power Quality Incidents by Problem Type and Party



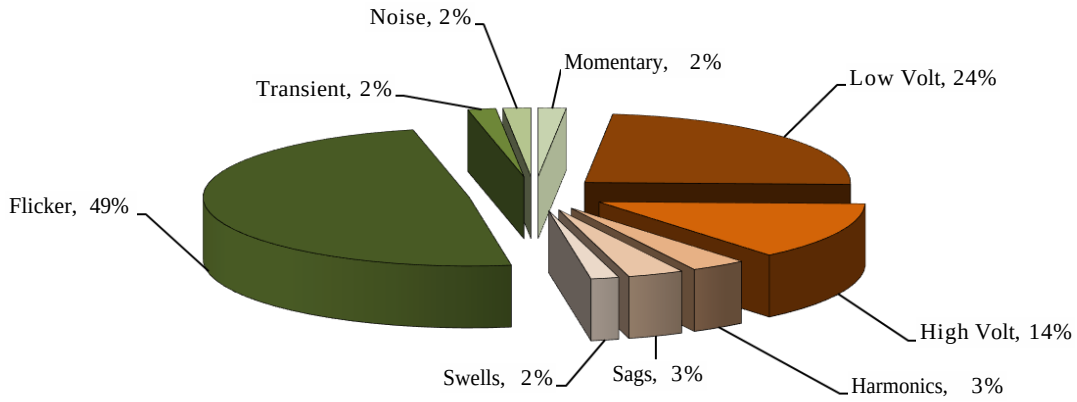
	Momentary	Low Volt	High Volt	Harmonic	Sags	Swells	Flicker	Transient	Noise
□ NYSEG	0	11	5	1	1	1	13	1	1
□ Customer	1	3	3	1	1	0	16	0	0

2022 Reported Power Quality Incidents by Division



[□Divisi cm	Aubum	Binghamton	Brewster	Elmira	Geneva	Home11	Ithaca	Lancaster	Liberty	Mechanicville	Oneonta.	Plattsburgh
	3	6	4	3	3	2	11	8	5	4	6	4

2022 Reported Power Quality Incidents by Problem Type



Worst Performing Circuit Summary

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 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 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 2022								Identified Resiliency Circuit
Division	Circuit	Circuit Description	Customers Connected	Circuit Voltage	Circuit CAIDI	Circuit SAIFI	Weighted SAIFI	
Auburn	4402102	STRYKER AVE 721	1,912	12470	2.37	0.00	0.0018	
Auburn	4400702	AURORA 708	724	12470	6.19	0.00	0.0016	
Auburn	4400502	GRANT AVE 719	1,077	12470	3.68	0.00	0.0016	
Binghamton	8101705	CHENANGO BRIDGE 428	1,946	34500	10.88	0.01	0.0078	
Binghamton	8102301	GENEGANTSLET	1,529	34500	7.62	0.01	0.0060	
Binghamton	8102901	AFTON 429	1,425	34500	10.30	0.01	0.0047	
Binghamton	8104601	KATTLEVILLE 422	2,844	34500	2.68	0.01	0.0041	
Binghamton	4301201	CANDOR 529	1,113	34500	8.03	0.01	0.0040	
Binghamton	8107402	SOUTH OWEGO 540	1,332	34500	6.04	0.01	0.0038	
Binghamton	8101202	RANO 694	1,215	12470	8.46	0.01	0.0035	
Binghamton	8104602	KATTLEVILLE 426	879	34500	9.42	0.01	0.0034	
Brewster	1105723	CRAFTS 423	2,623	13200	8.23	0.02	0.0125	
Brewster	1107078	SYLVAN LAKE 478	2,478	13200	5.02	0.01	0.0065	
Brewster	1106855	POUND RIDGE 455	1,615	13200	6.00	0.01	0.0059	**Yes**
Brewster	1107733	UNION VALLEY 433	2,334	13200	5.06	0.01	0.0058	
Brewster	1105722	CRAFTS 422	1,489	13200	7.09	0.01	0.0049	
Elmira	5202011	MONTOUR FALLS 511	1,335	34500	9.73	0.01	0.0041	
Elmira	5203462	CANADA RD 562	1,631	34500	5.83	0.01	0.0039	
Elmira	5204446	SOUTH ADDISON 346	1,330	12470	10.10	0.00	0.0032	**Yes**
Elmira	5201418	CHEMUNG 318	969	12470	9.32	0.00	0.0031	
Elmira	5202012	MONTOUR FALLS 512	1,311	34500	6.73	0.00	0.0027	
Geneva	4203897	FLAT ST 597	2,946	34500	15.95	0.02	0.0100	
Geneva	4203096	GREENIDGE 596	2,076	34500	9.64	0.01	0.0052	
Geneva	4200406	VAN BUREN ST 606	1,955	12470	4.94	0.01	0.0041	
Geneva	4207769	HYATT RD 569	1,689	34500	6.81	0.01	0.0040	
Hornell	5300641	BENNETT 541	1,321	34500	6.36	0.01	0.0033	
Hornell	5307043	MORAINE RD 543	807	34500	8.89	0.00	0.0021	
Hornell	5304351	COFFEE HILL RD	744	12470	5.00	0.00	0.0017	
Ithaca	4303801	DRYDEN TAP 524	1,862	34500	7.52	0.01	0.0051	
Ithaca	4305301	COUNTY HOSP - TBURG	2,322	34500	4.38	0.01	0.0048	
Ithaca	4303701	PERUVILLE TAP 522	1,406	34500	6.41	0.01	0.0046	**Yes**
Ithaca	4301502	WEST HILL 610	2,054	12470	3.00	0.01	0.0039	
Lancaster	3103702	CEMETERY RD 490	2,893	12470	8.06	0.01	0.0089	
Lancaster	3102205	BLOSSOM 517	2,590	34500	11.22	0.01	0.0079	
Lancaster	3103105	DICK RD 537	2,808	34500	8.06	0.01	0.0071	
Lancaster	3102202	BLOSSOM 313	1,160	12470	16.29	0.01	0.0063	
Lancaster	3103004	DAVIS 531	2,045	34500	2.70	0.01	0.0055	
Lancaster	3103203	LANGER RD 432	1,920	12470	3.27	0.01	0.0054	
Lancaster	3104101	STOLLE RD 551	1,693	34500	9.36	0.01	0.0047	
Lancaster	3102303	HOLLAND 520	1,325	34500	8.09	0.01	0.0044	
Liberty	2403885	CALLICOON 285	1,671	7200	9.55	0.01	0.0045	
Liberty	2403659	WALDEN 359	3,442	34500	3.78	0.01	0.0038	
Liberty	2402583	OLD FALLS 283	1,672	4800	3.70	0.00	0.0026	
Liberty	2401610	JEFFERSONVILLE 110	1,745	7200	3.37	0.00	0.0026	
Mechanicville	1206301	LUTHER FOREST 607	4,275	4800	7.54	0.02	0.0142	
Mechanicville	1204004	CRARYVILLE 610	2,176	34500	6.48	0.01	0.0046	
Mechanicville	1204001	CRARYVILLE 400	1,846	12470	6.98	0.01	0.0043	
Oneonta	2306960	WEST WINFIELD 260	1,361	12470	10.06	0.01	0.0039	
Oneonta	2301358	MILFORD 258	1,135	12470	6.72	0.01	0.0039	
Oneonta	2300922	UNADILLA 022	1,187	4800	7.29	0.01	0.0033	
Oneonta	2300912	UNADILLA 012	1,219	4800	2.47	0.00	0.0030	
Oneonta	2300520	OTEGO 200	1187	12470	8.64	0.00	0.00289	
Oneonta	2306330	ARKVILLE 230	2921	12470	4.18	0.00	0.002823	
Oneonta	2307716	HANCOCK 216	1573	12470	13.09	0.00	0.002769	
Plattsburgh	1500901	LYON MTN 510	1401	34500	10.61	0.01	0.005809	
Plattsburgh	1503101	NORTON 420	1171	12470	9.05	0.01	0.005172	
Plattsburgh	1500517	SCIOTA-FLATROCK 517	3268	34500	3.06	0.01	0.004646	

Network Feeder Performance

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.

In 2022, there were no reported outages on any of the Green Street primary circuits.

Auburn

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

AUBURN PERFORMANCE WITHOUT MAJOR STORMS

	2018	2019	2020	2021	2022
CAIDI (goal - 1.75)	2.12	1.72	2.03	2.08	2.44
SAIFI (goal - 1.00)	0.94	1.10	0.65	0.70	0.91
Interruptions	304	420	334	380	439
Customer Hours	73,456	70,422	48,712	53,941	82,736
Customers Interrupted	34,574	40,845	23,990	25,975	33,883
Customers Connected	36,958	37,051	37,188	37,338	37,363

Auburn exceeded the CAIDI target and met the SAIFI target in 2022.

Auburn Performance: CAIDI & SAIFI by PSC cause codes –

AUBURN DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	CAIDI				
		2018	2019	2020	2021	2022
1	Major Storms	3.19	4.97	4.70	3.61	7.11
2	Tree Contacts	2.51	2.89	3.00	2.50	3.62
3	Overloads	3.90	3.05	2.00	2.88	1.53
4	Operational Errors	0.00	0.00	0.82	0.00	0.00
5	Equipment Failures	1.85	1.31	1.52	2.21	1.65
6	Accidents/Non-Utility	2.15	1.08	1.35	2.35	1.99
7	Prearranged	1.48	0.53	1.21	0.97	1.04
8	Customer Equipment	1.50	2.00	2.83	2.54	2.17
9	Lightning	2.52	1.58	2.04	1.43	2.28
10	Unknown	1.59	2.03	1.20	1.15	1.78

AUBURN DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	SAIFI				
		2018	2019	2020	2021	2022
1	Major Storms	0.27	0.05	0.28	0.22	0.16
2	Tree Contacts	0.11	0.30	0.26	0.30	0.32
3	Overloads	0.00	0.00	0.00	0.00	0.00
4	Operational Errors	0.00	0.00	0.02	0.00	0.00
5	Equipment Failures	0.25	0.40	0.15	0.12	0.32
6	Accidents/Non-Utility	0.50	0.26	0.15	0.07	0.18
7	Prearranged	0.00	0.00	0.01	0.02	0.01
8	Customer Equipment	0.00	0.00	0.00	0.00	0.01
9	Lightning	0.05	0.13	0.01	0.15	0.04
10	Unknown	0.03	0.01	0.04	0.04	0.03

Auburn Failed Division Review – exceeded 2022 CAIDI target

Interruption Breakdown by PSC Cause Code

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	47	10.71%	1852	5.47%	5576.618	6.74%
Tree Out Row	117	26.65%	10181	30.05%	37972.469	45.90%
Overloads	10	2.28%	96	0.28%	146.96	0.18%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	73	16.63%	12040	35.53%	19812.304	23.95%
Accidents/Non-Utility	93	21.18%	6750	19.92%	13413.59	16.21%
Prearranged	27	6.15%	276	0.81%	286.189	0.35%
Customer Equipment	15	3.42%	196	0.58%	425.082	0.51%
Lightning	30	6.83%	1328	3.92%	3030.645	3.66%
Unknown	27	6.15%	1164	3.44%	2072.055	2.50%
Totals	439	100%	33883	100%	82735.912	100%

Summary for 2022–

The Auburn Division in 2022 exceeded its CAIDI target and met 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 2023 planned efforts to improve reliability performance per causes are the following:

- Tree Contacts – Tree Trimming completed on circuits identified with risks.
- Accidents/Non-Utility – Review and Mitigate Risk.
- Equipment Failures – Review and Replace with upgrades.

The following circuits have been identified as worst performing circuits in 2022:

- STRYKER AVE 721
- AURORA 708
- GRANT AVE 719

The 2023 Action Plans for these circuits are –

STRYKER AVE 721

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	0	0.00%	0	0.00%	0	0.00%
Tree Out Row	5	23.81%	411	16.70%	600.57	19.13%
Overloads	1	4.76%	1	0.04%	3.083	0.10%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	5	23.81%	12	0.49%	33.085	1.05%
Accidents/Non-Utility	4	19.05%	1967	79.93%	2401.771	76.51%
Prearranged	3	14.29%	22	0.89%	38.1	1.21%
Customer Equipment	1	4.76%	7	0.28%	16.8	0.54%
Lightning	1	4.76%	4	0.16%	3.132	0.10%
Unknown	1	4.76%	37	1.50%	42.55	1.36%
Totals	21	100%	2461	100%	3139	100%

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

- Completing Circuit switching and tagine, adding Tie Switches for better reliability.
- Complete a more rigorous tree trimming plan to combat tree contact outages.
- 2 DLI's scheduled to be completed in the field.

AURORA 708

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	1	3.13%	85	3.37%	215.305	4.12%
Tree Out Row	3	9.38%	951	37.72%	1651.223	31.59%
Overloads	0	0.00%	0	0.00%	0	0.00%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	6	18.75%	828	32.84%	1788.457	34.22%
Accidents/Non-Utility	15	46.88%	249	9.88%	824.721	15.78%
Prearranged	0	0.00%	0	0.00%	0	0.00%
Customer Equipment	0	0.00%	0	0.00%	0	0.00%
Lightning	3	9.38%	47	1.86%	48.983	0.94%
Unknown	4	12.50%	361	14.32%	698.033	13.36%
Totals	32	100%	2521	100%	5227	100%

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

- Complete a more rigorous tree trimming plan to combat tree contact outages.
- 5 DLI's scheduled to be completed in the field.

GRANT AVE 719

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	1	14.29%	62	4.15%	93	2.68%
Tree Out Row	1	14.29%	20	1.34%	14.66	0.42%
Overloads	1	14.29%	12	0.80%	21.396	0.62%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	2	28.57%	1078	72.20%	2843.674	81.93%
Accidents/Non-Utility	0	0.00%	0	0.00%	0	0.00%
Prearranged	0	0.00%	0	0.00%	0	0.00%
Customer Equipment	0	0.00%	0	0.00%	0	0.00%
Lightning	0	0.00%	0	0.00%	0	0.00%
Unknown	2	28.57%	321	21.50%	498.067	14.35%
Totals	7	100%	1493	100%	3471	100%

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

- Complete a more rigorous tree trimming plan to combat tree contact outages.
- 12 DLI's scheduled to be completed in the field.

Tree Trimming Completed in 2022 at Auburn Division

2022 Lump Sum Distribution Line Clearance			NELSON	
NYSEG AUBURN Division				
Circuit	SAP Circuit Number	Miles	Voltage Class	Customer Count
AURORA 707	4400701	18.7	12.5	801
BRUTON RD 521	4403401	11.1	12.5	1021
GENOA 603	4401701	45.1	4.8	550
GRANT 718	4400501	4.7	12.5	793
HAMILTON 530	4402901	27.3	34.5	901
OTISCO 701	4401501	31.2	12.5	573
~~PORT BYRON 611~~ (removed 5.18.22)	~~4401101~~	~~45.1~~	~~4.8~~	~~590~~
STRYKER 702	4402101	47.2	12.5	2720
SWIFT 316	4400603	6.5	4.1	1546
WRIGHT 520	4400304	46.4	34.5	
GREEN ST 322	4400901	3.9	4.1	643
Auburn Total		242		

HOTSPOT (After MSA)				
SWIFT 314	4400601	1.8	4.2	403
NI-MO GLENHAVEN RD 029	4409229	1.4	34.5	48
NM OLCOTT DRIVE 058	4409358	0.1	4.8	3
NM RIPLEY HILL RD 078	4409878	0.2	4.8	1
NM COUNTY LINE RD 072	4409672	0.3	4.8	14
Additional Total…		3.8		
Auburn Grand Total…		246		

Update for 2021 –

The Auburn Division in 2021 exceeded its CAIDI target but met 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 2022 to improve the Auburn Division's reliability performance and to address the failure of CAIDI include:

- 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.
- As part of the Distribution Automation Project Auburn has approximately 59 locations scheduled to have Reclosers/SCADA Switches installed in effort to increase circuit reliability.
- Loop schemes added to the Stryker Ave circuits in 2022.
- 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.
- Distribution Automation Goals: Recloser/SCADA Switches to be installed in 2023.
- 2023 DLI's –0 Notifications Open/ 0 Work Orders Created.

<u>Jobs planned for 2023 or beyond:</u>

- Priority to L1/L2 DLI Work Plan.
- Distribution Automation Recloser and review of poor performing circuits to add additional reliability upgrades or improvements.

Binghamton

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

BINGHAMTON PERFORMANCE WITHOUT MAJOR STORMS

	2018	2019	2020	2021	2022
CAIDI (goal - 2.00)	2.00	1.77	2.17	2.07	1.92
SAIFI (goal - 1.00)	0.82	1.04	1.54	1.35	1.30
Interruptions	1,094	946	1,258	1,192	1,441
Customer Hours	187,065	208,564	326,937	320,987	286,729
Customers Interrupted	93,581	118,089	150,915	154,709	149,373
Customers Connected	113,661	113,840	113,982	114,872	114,578

Binghamton met the CAIDI target and exceeded the SAIFI target in 2022.

Binghamton Performance: CAIDI & SAIFI by PSC cause codes –

BINGHAMTON DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	CAIDI				
		2018	2019	2020	2021	2022
1	Major Storms	6.37	4.31	1.80	5.30	14.98
2	Tree Contacts	2.00	2.25	2.52	2.80	2.08
3	Overloads	3.23	0.94	1.16	1.52	2.04
4	Operational Errors	0.88	0.84	0.55	0.86	0.27
5	Equipment Failures	1.96	1.82	1.75	1.77	2.09
6	Accidents/Non-Utility	1.44	1.66	1.89	1.59	1.07
7	Prearranged	1.04	1.47	0.67	1.34	1.39
8	Customer Equipment	3.28	1.16	1.65	1.36	1.27
9	Lightning	2.76	1.25	2.08	1.57	2.45
10	Unknown	2.78	1.20	2.87	2.71	1.84

BINGHAMTON DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	SAIFI				
		2018	2019	2020	2021	2022
1	Major Storms	0.31	0.35	0.31	0.99	1.78
2	Tree Contacts	0.34	0.28	0.71	0.48	0.52
3	Overloads	0.00	0.02	0.02	0.00	0.00
4	Operational Errors	0.00	0.00	0.01	0.08	0.01
5	Equipment Failures	0.18	0.39	0.42	0.51	0.44
6	Accidents/Non-Utility	0.17	0.09	0.11	0.15	0.18
7	Prearranged	0.00	0.00	0.01	0.02	0.04
8	Customer Equipment	0.01	0.00	0.00	0.00	0.00
9	Lightning	0.10	0.20	0.04	0.07	0.07
10	Unknown	0.02	0.06	0.01	0.04	0.04

Binghamton Failed Division Review – exceeded 2022 SAIFI target

Interruption Breakdown by PSC Cause Code

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	276	19.15%	15000	10.04%	31076.134	10.84%
Tree Out Row	413	28.66%	44746	29.96%	93381.412	32.57%
Overloads	33	2.29%	144	0.10%	293.698	0.10%
Operational Errors	7	0.49%	1315	0.88%	356.797	0.12%
Equipment Failures	316	21.93%	50600	33.87%	105712.999	36.87%
Accidents/Non-Utility	141	9.78%	20574	13.77%	21986.962	7.67%
Prearranged	159	11.03%	4550	3.05%	6343.214	2.21%
Customer Equipment	3	0.21%	19	0.01%	24.178	0.01%
Lightning	52	3.61%	7696	5.15%	18868.895	6.58%
Unknown	41	2.85%	4729	3.17%	8684.214	3.03%
Totals	1441	100%	149373	100%	286728.503	100%

Summary for 2022 -

The Binghamton Division in 2022 met its CAIDI target and exceeded its SAIFI target. The major contributing causes of the outages in 2022 were tree contacts, equipment failures, and prearranged.

After careful analysis, the 2023 planned efforts to improve reliability performance per causes are the following:

- Tree Contacts – Conducting tree trimming and hot spot trimming on Transmission and Distribution Circuits as scheduled.
- Equipment Failures – 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.
- Prearranged – Make Ready are most of the prearranged outages and unavoidable to get planned work completed.

The following circuits have been identified as worst performing circuits in 2022:

- CHENANGO BRIDGE 428
- GENEGANTSLET CORNERS 422
- AFTON 429
- KATTLEVILLE 422
- CANDOR 529
- SOUTH OWEGO 540
- RANO 694
- KATTLEVILLE 426

The 2023 Action Plans for these circuits are –

CHENANGO BRIDGE 428

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	2	9.52%	3	0.03%	4.801	0.03%
Tree Out Row	2	9.52%	1962	20.66%	1749.352	12.20%
Overloads	1	4.76%	1	0.01%	1.033	0.01%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	12	57.14%	3582	37.72%	4368.222	30.46%
Accidents/Non-Utility	0	0.00%	1926	20.28%	1669.842	11.64%
Prearranged	2	9.52%	59	0.62%	79.251	0.55%
Customer Equipment	0	0.00%	0	0.00%	0	0.00%
Lightning	1	4.76%	1942	20.45%	6441.154	44.91%
Unknown	1	4.76%	21	0.22%	29.4	0.20%
Totals	21	100%	9496	100%	14343	100%

Based on the data provided 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.
- Work with UC&M/SP&C on improvements and proactive device maintenance.

GENEGANTSLET CORNERS 422

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	5	20.00%	64	0.70%	104.714	0.67%
Tree Out Row	6	24.00%	1685	18.31%	1967.723	12.60%
Overloads	1	4.00%	1	0.01%	1.067	0.01%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	10	40.00%	7448	80.94%	13532.1	86.65%
Accidents/Non-Utility	2	8.00%	2	0.02%	5.8	0.04%
Prearranged	0	0.00%	0	0.00%	0	0.00%
Customer Equipment	0	0.00%	0	0.00%	0	0.00%
Lightning	0	0.00%	0	0.00%	0	0.00%
Unknown	1	4.00%	2	0.02%	5.9	0.04%
Totals	25	100%	9202	100%	15617	100%

Based on the data provided 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.
- Work with UC&M/SP&C on improvements and proactive device maintenance.

AFTON 429

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	9	25.71%	226	3.09%	1195.068	7.36%
Tree Out Row	15	42.86%	338	4.62%	1304.913	8.04%
Overloads	0	0.00%	0	0.00%	0	0.00%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	6	17.14%	4037	55.15%	10325.61	63.61%
Accidents/Non-Utility	2	5.71%	1572	21.48%	2280.702	14.05%
Prearranged	0	0.00%	0	0.00%	0	0.00%
Customer Equipment	0	0.00%	0	0.00%	0	0.00%
Lightning	0	0.00%	0	0.00%	0	0.00%
Unknown	3	8.57%	1147	15.67%	1126.259	6.94%
Totals	35	100%	7320	100%	16233	100%

Based on the data provided 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.
- Work with UC&M/SP&C on improvements and proactive device maintenance.

KATTLEVILLE 422

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	6	19.35%	2910	36.52%	5025.616	32.41%
Tree Out Row	5	16.13%	89	1.12%	156.794	1.01%
Overloads	1	3.23%	3	0.04%	2.301	0.01%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	9	29.03%	3399	42.65%	4603.183	29.68%
Accidents/Non-Utility	5	16.13%	83	1.04%	828.924	5.35%
Prearranged	2	6.45%	60	0.75%	80	0.52%
Customer Equipment	0	0.00%	0	0.00%	0	0.00%
Lightning	2	6.45%	1422	17.84%	4807.96	31.00%
Unknown	1	3.23%	3	0.04%	3.501	0.02%
Totals	31	100%	7969	100%	15508	100%

Based on the data provided 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.
- Work with UC&M/SP&C on improvements and proactive device maintenance.

CANDOR 529

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	2	10.53%	67	1.76%	262.865	5.28%
Tree Out Row	13	68.42%	2524	66.23%	4225.336	84.87%
Overloads	0	0.00%	0	0.00%	0	0.00%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	0	0.00%	1110	29.13%	388.5	7.80%
Accidents/Non-Utility	1	5.26%	9	0.24%	11.547	0.23%
Prearranged	2	10.53%	97	2.55%	81.8	1.64%
Customer Equipment	0	0.00%	0	0.00%	0	0.00%
Lightning	0	0.00%	0	0.00%	0	0.00%
Unknown	1	5.26%	4	0.10%	8.468	0.17%
Totals	19	100%	3811	100%	4979	100%

Based on the data provided 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.
- Work with UC&M/SP&C on improvements and proactive device maintenance.

SOUTH OWEGO 540

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	1	4.00%	1332	25.12%	488.844	5.54%
Tree Out Row	15	60.00%	2774	52.32%	6464.961	73.33%
Overloads	1	4.00%	1	0.02%	1.6	0.02%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	7	28.00%	1194	22.52%	1858.047	21.08%
Accidents/Non-Utility	1	4.00%	1	0.02%	2.683	0.03%
Prearranged	0	0.00%	0	0.00%	0	0.00%
Customer Equipment	0	0.00%	0	0.00%	0	0.00%
Lightning	0	0.00%	0	0.00%	0	0.00%
Unknown	0	0.00%	0	0.00%	0	0.00%
Totals	25	100%	5302	100%	8816	100%

Based on the data provided 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.
- Work with UC&M/SP&C on improvements and proactive device maintenance.

RANO 694

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	0	0.00%	0	0.00%	0	0.00%
Tree Out Row	2	100.00%	1351	35.80%	6312.471	71.59%
Overloads	0	0.00%	0	0.00%	0	0.00%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	0	0.00%	0	0.00%	0	0.00%
Accidents/Non-Utility	0	0.00%	1211	32.09%	847.7	9.61%
Prearranged	0	0.00%	1212	32.11%	1656.804	18.79%
Customer Equipment	0	0.00%	0	0.00%	0	0.00%
Lightning	0	0.00%	0	0.00%	0	0.00%
Unknown	0	0.00%	0	0.00%	0	0.00%
Totals	2	100%	3774	100%	8817	100%

Based on the data provided 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.
- Work with UC&M/SP&C on improvements and proactive device maintenance.

KATTLEVILLE 426

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	3	17.65%	181	4.82%	318.225	5.88%
Tree Out Row	7	41.18%	1937	51.58%	4359.142	80.48%
Overloads	2	11.76%	2	0.05%	2.967	0.05%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	2	11.76%	767	20.43%	184.428	3.41%
Accidents/Non-Utility	2	11.76%	836	22.26%	510.93	9.43%
Prearranged	1	5.88%	32	0.85%	40.544	0.75%
Customer Equipment	0	0.00%	0	0.00%	0	0.00%
Lightning	0	0.00%	0	0.00%	0	0.00%
Unknown	0	0.00%	0	0.00%	0	0.00%
Totals	17	100%	3755	100%	5416	100%

Based on the data provided 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.
- Work with UC&M/SP&C on improvements and proactive device maintenance.

Update for 2021 –

The Binghamton Division in 2021 exceeded both its CAIDI target and its SAIFI target.

The major contributing causes of the outages in 2021 were tree contacts, accidents or non-utility incidents, and equipment failures.

Corrective Actions undertaken in 2022 to improve the Auburn Division's reliability performance and to address the failures of CAIDI and SAIFI include:

- 2022 Distribution Circuits were trimmed for maintenance:
    - Chenango Forks 206 (8103101) 100% compete.
    - Greene 425 (8103301) 60% complete. Will finish in 2023.
    - Greene 607 (8103302) 100% complete.

- Langdon 610 (8102701) 100% complete.
- Morningside Heights 674 (8104201) 100% complete.
- Noyes Island 107 (8100408) 100% complete.
- Noyes Island 121 (8100407) 100% complete.
- Route 38 513 (8108201) 100% complete.
- South Owego 540 (8107402) 100% complete.
- Endicott Hill 181 (8101101) 90% complete. Will finish in 2023.
- Endicott Hill 183 (8101102) 0% complete. Will finish in 2023.
- Morningside Heights 675 (8104202) 0% complete. Will finish in 2023.
- Vestal 623 (8101401) 80% complete. Will finish in 2023.

- 2022 Transmission circuits were trimmed for maintenance:
  - 430 Line
  - 943 Line
  - 945 Line
  - 417 Line
  - 919 Line floor work complete.

- Completed 1,042 Level 1,2 & 3 & NIR DLIs
- Completed 170 WPITs

Additional Capital and O&M initiatives tracked in 2022 to enhance reliability include—

- Regulator, Recloser and Breaker Upgrades
- Multiple Overhead Distribution Line relocations for Serviceability and Reliability
- DAP & Resiliency Program Initiatives
- Continue Lisle 417 regulators and reconductoring
- Rt 38B regulators and reconductoring
- Noyes Island Green Monster
- Genegantslet 422 Loop Scheme
- Inspect and Treat Cycle for Transmission Lines:
  - Lines 32, 356, 413, 414, 415, 416, 453, 513, 515, 516, 524 & 961
- Trip Savers
- Chenango Bridge Distribution Breaker Upgrade Program
- Lounsberry Substation Relocation, Upgrade and Circuit Addition
- Clark St Substation Modernization, conversion to 12.5kv and loop scheme creation
- Rano Blvd Substation Bus Regulator Upgrade

<u>Jobs planned for 2023 or beyond:</u>

- The below distribution circuits will be trimmed for maintenance:

  - Tarbell 602 (8103602) 0% complete
  - Halsey Valley 530 (4302501) 0% complete

- Remaining circuits for 2023 Q2 to Q4 have gone out to contractors to bid. Circuits have not been awarded yet.

- The below Transmission circuits will be trimmed for 2023:
  - 919 line, just edge work to finish
  - 32 line
  - 961 line
  - 510 line
  - 453 line
  - 515 line
  - 513 line
  - 524 line
  - 410 line
  - 414 line
  - 416 line
  - 413 line

Brewster

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

BREWSTER PERFORMANCE WITHOUT MAJOR STORMS

	2018	2019	2020	2021	2022
CAIDI (goal - 2.25)	2.06	1.50	1.61	1.57	1.66
SAIFI (goal - 1.70)	1.94	1.80	1.54	2.11	1.79
Interruptions	1,537	1,441	1,279	1,446	1,640
Customer Hours	348,900	236,377	217,923	292,213	262,630
Customers Interrupted	169,602	157,373	135,187	186,133	157,769
Customers Connected	87,313	87,458	87,733	88,030	88,275

Brewster met the CAIDI target and exceeded the SAIFI target in 2022.

Brewster Performance: CAIDI & SAIFI by PSC cause codes –

BREWSTER DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	CAIDI				
		2018	2019	2020	2021	2022
1	Major Storms	24.95	6.23	20.19	2.49	4.39
2	Tree Contacts	2.24	1.70	1.80	2.11	1.95
3	Overloads	3.79	1.12	2.04	1.35	1.66
4	Operational Errors	2.17	0.53	0.96	0.87	0.17
5	Equipment Failures	1.46	1.49	1.35	1.21	1.47
6	Accidents/Non-Utility	1.68	1.25	1.44	1.58	1.63
7	Prearranged	1.71	0.54	2.54	0.26	1.16
8	Customer Equipment	1.95	9.05	1.75	2.36	0.76
9	Lightning	3.11	2.07	2.10	1.08	1.27
10	Unknown	1.92	1.30	1.51	1.51	0.73

BREWSTER DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	SAIFI				
		2018	2019	2020	2021	2022
1	Major Storms	4.12	0.53	3.28	0.80	1.12
2	Tree Contacts	1.18	0.82	0.77	0.98	0.89
3	Overloads	0.00	0.08	0.01	0.08	0.05
4	Operational Errors	0.00	0.07	0.07	0.03	0.03
5	Equipment Failures	0.31	0.23	0.36	0.35	0.37
6	Accidents/Non-Utility	0.30	0.35	0.23	0.30	0.27
7	Prearranged	0.01	0.02	0.01	0.24	0.05
8	Customer Equipment	0.00	0.00	0.00	0.00	0.00
9	Lightning	0.09	0.11	0.05	0.10	0.03
10	Unknown	0.05	0.12	0.03	0.03	0.09

Brewster Failed Division Review – exceeded 2022 SAIFI target

Interruption Breakdown by PSC Cause Code

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	82	5.00%	4538	2.88%	7969.978	3.03%
Tree Out Row	786	47.93%	73927	46.86%	144726.086	55.11%
Overloads	38	2.32%	4766	3.02%	7910.649	3.01%
Operational Errors	5	0.30%	2604	1.65%	435.687	0.17%
Equipment Failures	213	12.99%	32486	20.59%	47871.309	18.23%
Accidents/Non-Utility	315	19.21%	23733	15.04%	38611.57	14.70%
Prearranged	102	6.22%	4759	3.02%	5514.828	2.10%
Customer Equipment	4	0.24%	109	0.07%	82.868	0.03%
Lightning	26	1.59%	2958	1.87%	3742.235	1.42%
Unknown	69	4.21%	7889	5.00%	5764.339	2.19%
Totals	1640	100%	157769	100%	262629.549	100%

Summary for 2022–

The Brewster Division in 2022 met its CAIDI target and exceeded its SAIFI target.

After careful analysis, the 2023 planned efforts to improve reliability performance per cause are the following:

- Tree contacts –
  - Tree trimming routine work is TBD for 2023.
  - Trees to be trimmed and removed on capital service jobs where proper tree clearance is not met.
- Accidents/Non-utility –
  - Engineer and design repeat MVA locations to relocate hazardous pole locations across division.
- Equipment Failures –
  - Circuit patrol worst performing circuits and replace identified equipment, in need of replacement due to age, clearance, hazard, etc.
  - Complete assigned DLIs/WPITs in Brewster division.

The following circuits have been identified as worst performing circuits in 2022:

- CRAFTS 423
- SYLVAN LAKE 478
- POUND RIDGE 455
- UNION VALLEY 433
- CRAFTS 422

The 2023 Action Plans for these circuits are –

CRAFTS 423

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	1	2.63%	27	0.14%	39.609	0.15%
Tree Out Row	21	55.26%	7937	40.02%	10125.36	37.22%
Overloads	0	0.00%	0	0.00%	0	0.00%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	5	13.16%	7501	37.82%	12736.39	46.82%
Accidents/Non-Utility	9	23.68%	4260	21.48%	4220.519	15.51%
Prearranged	0	0.00%	0	0.00%	0	0.00%
Customer Equipment	1	2.63%	103	0.52%	73.851	0.27%
Lightning	0	0.00%	0	0.00%	0	0.00%
Unknown	1	2.63%	4	0.02%	9.668	0.04%
Totals	38	100%	19832	100%	27205	100%

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

- Circuit patrols by the end of Quarter 1 of 2023 to identify any potential areas in need of a rebuild to increase reliability.
- Complete assigned DLIs/WPITs
- Engineer and design repeat MVA locations to relocate hazardous pole locations
- Trees to be trimmed and removed on capital service jobs where proper tree clearance is not met.

SYLVAN LAKE 478

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	0	0.00%	0	0.00%	0	0.00%
Tree Out Row	14	46.67%	1713	35.64%	3315.727	33.21%
Overloads	0	0.00%	0	0.00%	0	0.00%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	4	13.33%	2621	54.54%	5338.244	53.46%
Accidents/Non-Utility	8	26.67%	295	6.14%	1258.756	12.61%
Prearranged	2	6.67%	169	3.52%	52.501	0.53%
Customer Equipment	1	3.33%	2	0.04%	2.334	0.02%
Lightning	1	3.33%	6	0.12%	17.1	0.17%
Unknown	0	0.00%	0	0.00%	0	0.00%
Totals	30	100%	4806	100%	9985	100%

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

- Implement ARA-Advanced Restoration Automation through Spectrum. Aids operators and dispatchers in detecting and isolating distribution faults as well as restoring un-faulted sections of line automatically using remote SCADA control.
- Design and engineering of URD rebuild Chelsea Cove which contains ~300 plus customers. Will increase reliability by replacing older cable with corroded bare neutral on underground primary.
- Design and engineer reconductor job of copper primary to 1/0 aluminum and relocating poles to more accessible areas. Will increase reliability in area and decrease outage time.
- (Substation Work) Sylvan Lake MT1-15 115 kV Switch Replacement- parts received, to be scheduled in 2023.
- Circuit patrols by the end of 2023 to identify any potential areas in need of a rebuild to increase reliability.
- Complete assigned DLIs/WPITs
- Engineer and design repeat MVA locations to relocate hazardous pole locations
- Trees to be trimmed and removed on capital service jobs where proper tree clearance is not met.

POUND RIDGE 455

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	3	4.69%	45	0.89%	96.606	1.41%
Tree Out Row	14	21.88%	2186	43.27%	4294.313	62.51%
Overloads	0	0.00%	0	0.00%	0	0.00%
Operational Errors	2	3.13%	1612	31.91%	216.18	3.15%
Equipment Failures	8	12.50%	20	0.40%	81.987	1.19%
Accidents/Non-Utility	4	6.25%	1068	21.14%	2002.925	29.15%
Prearranged	28	43.75%	90	1.78%	124.995	1.82%
Customer Equipment	0	0.00%	0	0.00%	0	0.00%
Lightning	1	1.56%	4	0.08%	14.268	0.21%
Unknown	4	6.25%	27	0.53%	39.009	0.57%
Totals	64	100%	5052	100%	6870	100%

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

- Circuit patrols by the end of Quarter 1 of 2023 to identify any potential areas in need of a rebuild to increase reliability.
- (Substation Work) POUND RIDGE -Switch Replacement SW 81416, 81419 (DS-I)- Parts received to be scheduled in 2023.
- Complete assigned DLIs/WPITs
- Engineer and design repeat MVA locations to relocate hazardous pole locations
- Trees to be trimmed and removed on capital service jobs where proper tree clearance is not met.

UNION VALLEY 433

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	4	10.81%	115	1.51%	157.083	1.49%
Tree Out Row	22	59.46%	3545	46.52%	4108.841	38.88%
Overloads	2	5.41%	848	11.13%	2025.418	19.17%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	3	8.11%	2422	31.78%	2682.715	25.38%
Accidents/Non-Utility	3	8.11%	42	0.55%	75.92	0.72%
Prearranged	0	0.00%	0	0.00%	0	0.00%
Customer Equipment	0	0.00%	0	0.00%	0	0.00%
Lightning	0	0.00%	0	0.00%	0	0.00%
Unknown	3	8.11%	649	8.52%	1518.143	14.37%
Totals	37	100%	7621	100%	10568	100%

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

- Design and engineering a tie point between the Union Valley 433 and the Croton Falls 516. Will potentially remove load from the 433.
- Circuit patrols by the end of 2023 to identify any potential areas in need of a rebuild to increase reliability.
- Complete assigned DLIs/WPITs
- Engineer and design repeat MVA locations to relocate hazardous pole locations
- Trees to be trimmed and removed on capital service jobs where proper tree clearance is not met.

CRAFTS 422

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	1	7.14%	2	0.04%	7.4	0.09%
Tree Out Row	6	42.86%	3342	59.76%	6560.256	80.13%
Overloads	0	0.00%	0	0.00%	0	0.00%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	4	28.57%	2176	38.91%	1487.673	18.17%
Accidents/Non-Utility	2	14.29%	47	0.84%	107.095	1.31%
Prearranged	1	7.14%	25	0.45%	25	0.31%
Customer Equipment	0	0.00%	0	0.00%	0	0.00%
Lightning	0	0.00%	0	0.00%	0	0.00%
Unknown	0	0.00%	0	0.00%	0	0.00%
Totals	14	100%	5592	100%	8187	100%

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

- Design and engineering a tie point between the Croton Falls 516 and the Crafts 422. This will remove the existing tie 433-T2-422. Croton Falls has more load capability and can act as a better tie than the Union Valley 433.
- Circuit patrols by the end of 2023 to identify any potential areas in need of a rebuild to increase reliability.
- Complete assigned DLIs/WPITs
- Engineer and design repeat MVA locations to relocate hazardous pole locations
- Trees to be trimmed and removed on capital service jobs where proper tree clearance is not met.

Update for 2021–

In 2021, the Brewster Division met its CAIDI target and exceeded its SAIFI target.

Corrective Actions undertaken in 2022 to improve the Brewster Division's reliability performance include:

- Installation of 23 trips savers by internal crews (total of 58 trip savers installed in Brewster by internal and resiliency crews).
- Resiliency Projects Completed:
    - 61 Tree Removals on Crafts 424.
    - 7.9 miles of circuit upgrade including a new line to create a new tie with West Patterson 475 to the north along Gipsy Trail Rd. 1 new SCADA switch. 1 new SCADA Recloser on Crafts 424.
    - 9.6 miles of circuit upgrade to create 3 new self-ties. 12 new SCADA switches. 5 new trip savers. 1 new Recloser on Pound Ridge 455.

    - Installation of 23 SCADA Regulators in Brewster Division.
    - Installation of 32 SCADA Reclosers in Brewster Division.
    - Installation of 8 SCADA Capacitors in Brewster Division.
    - Installation of 35 SCADA Trip Savers in Brewster Division.
- The following 27 circuits were trimmed on routine by the Forestry Department in 2022:
    - Adams Corners 413
    - Amawalk 413
    - Bedford Hills 227
    - Carmel 502
    - Cantitoe 282 and 497
    - Crafts 422 and 423
    - Cross River 468
    - Croton Falls 446, 514 and 515
    - Central Hudson Interconnects- Long Mountain Rd, Pleasant Ridge Rd, Route 301, Separate Rd, and White Pond Rd
    - Kent Cliffs 291 and 292
    - Pawling 166 and 509
    - Pound Ridge 456 and 457
    - Putnam Lake 485
    - Tilly Foster 437, 441, and 442
- **Substation:** Sylvan Lake 478 breaker fully automated with ECC in summer of 2022.

Additional Capital and O&M initiatives tracked in 2022 to enhance reliability include—

- Animal Guards (Total of 1607 transformers protected in Brewster Division)
    - 270 transformers protected on Amawalk 453
    - 308 transformers protected on Golden Bridge 414
    - 417 transformers protected on Carmel 501
    - 384 transformers protected on Adams Corners 411
    - 228 transformers protected on Amawalk 451
- DLIs/WPITs
    - 5 DLI Level 1s construction complete
    - 92 DLI Level 2s construction complete
    - 102 DLI Level 3s construction complete
    - 145 WPITs construction complete
- Heritage Hills URD rebuild
- Wild Oaks URD Rebuild
- Country Hill URD Rebuild
- Pawling 509 Overhead Rebuild along Route 22.

Jobs planned for 2023 or beyond:

- Dingle Ridge Substation conversion
- Extend Dingle Ridge Circuitry into adjacent circuit to reduce overload
- Amenia Substation conversion
- Amenia Substation Distribution Conversion to 13.2KV done by Resiliency
- Continue Heritage Hills rebuild
- Countryside, Yorktown URD rebuild
- Indian Hill, Lewisboro URD rebuild
- Chelsea Cove, Beekman URD rebuild

- Croton Falls 516 conversion and rebuild
- Croton Falls and Union Valley tie
- Ten Mile River conversion and rebuild
- Bedford Hills 225 Conversion
- Sylvan Lake 478 Route 55 Overhead Conductor Rebuild
- Cantitoe and Pound Ridge Tie
- Resiliency: Ready for construction- 2.65 miles of wire upgrade. 2 new SCADA switches. 1 new SCADA Recloser on Adams Corners 411 (2024)
- Resiliency: Ready for construction- 2.14 miles of wire upgrade. 1 new SCADA switch. 1 new SCADA Recloser. 4 new trip savers on Adams Corners 412 (2024)
- Resiliency: Ready for construction- 0.81 miles of wire upgrade. 0.9 miles of new circuit. 1 new SCADA switch. 2 new SCADA Reclosers. 2 new trip savers on Adams Corners 413 (2024)
- Resiliency: In design/engineering- 4.4 miles of wire upgrade. 2.6 of voltage conversion to create new tie. 3 new SCADA switches. 2 new Reclosers on the West Patterson 475 (2025)
- Resiliency: Needs to be designed/engineered- 5.95 miles of wire upgrade. 7 new SCADA switches. 2 new Reclosers. 6 new trip savers on Cantitoe 497 (Pending Rate Case Approval)
- Substation:
    - Install animal fence- Bedford Hills, Cross River, Kent, and Putnam Lake
    - Switch replacement- Bedford 1B-34, Carmel 4B-04, Dover 80526-80529, Katonah 80825, Pawling 16575-16578, Pound Ridge 81419, Sylvan Lake MT1-15, Union Valley B1-14, and West Patterson B1-65.
    - Breaker Replacement- Carmel
    - Transformer Replacement- Katonah 2BK
- DLIs
    - 103 Level 2 DLIs to be complete in 2023
    - 199 Level 3 DLIs to be complete in 2023

Elmira

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

ELMIRA PERFORMANCE WITHOUT MAJOR STORMS

	2018	2019	2020	2021	2022
CAIDI (goal - 2.50)	2.38	2.22	2.23	1.94	2.14
SAIFI (goal - 1.00)	1.27	1.42	1.60	1.27	1.36
Interruptions	1,117	1,114	1,200	1,071	1,281
Customer Hours	215,811	225,385	255,338	178,220	210,821
Customers Interrupted	90,613	101,695	114,595	91,846	98,428
Customers Connected	71,251	71,488	71,811	72,423	72,270

Elmira met the CAIDI target and exceeded the SAIFI target in 2022.

Elmira Performance: CAIDI & SAIFI by PSC cause codes –

ELMIRA DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	CAIDI				
		2018	2019	2020	2021	2022
1	Major Storms	9.62	5.53	0.00	5.61	5.11
2	Tree Contacts	2.39	2.91	2.53	2.36	2.56
3	Overloads	3.65	3.03	2.52	2.35	3.24
4	Operational Errors	2.44	1.02	3.55	2.07	1.27
5	Equipment Failures	1.78	1.58	2.23	2.07	2.05
6	Accidents/Non-Utility	2.96	1.42	1.38	1.72	1.44
7	Prearranged	0.97	2.20	0.26	0.15	0.76
8	Customer Equipment	0.40	2.50	0.60	1.05	1.34
9	Lightning	2.31	1.72	1.43	2.93	2.00
10	Unknown	2.79	2.37	2.92	1.95	1.95

ELMIRA DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	SAIFI				
		2018	2019	2020	2021	2022
1	Major Storms	0.49	0.63	0.00	0.46	0.27
2	Tree Contacts	0.52	0.65	0.70	0.49	0.58
3	Overloads	0.00	0.02	0.00	0.00	0.00
4	Operational Errors	0.04	0.02	0.04	0.00	0.00
5	Equipment Failures	0.22	0.34	0.27	0.26	0.39
6	Accidents/Non-Utility	0.20	0.25	0.30	0.19	0.18
7	Prearranged	0.01	0.03	0.05	0.15	0.04
8	Customer Equipment	0.00	0.00	0.00	0.00	0.00
9	Lightning	0.19	0.05	0.03	0.07	0.05
10	Unknown	0.09	0.06	0.15	0.11	0.13

Elmira Failed Division Review – exceeded 2022 SAIFI target

Interruption Breakdown by PSC Cause Code

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	162	12.65%	13625	13.84%	27661.389	13.12%
Tree Out Row	474	37.00%	28104	28.55%	79349.07	37.64%
Overloads	4	0.31%	32	0.03%	103.658	0.05%
Operational Errors	1	0.08%	14	0.01%	17.738	0.01%
Equipment Failures	185	14.44%	28201	28.65%	57855.688	27.44%
Accidents/Non-Utility	178	13.90%	13237	13.45%	19005.167	9.01%
Prearranged	62	4.84%	2554	2.59%	1953.283	0.93%
Customer Equipment	5	0.39%	7	0.01%	9.383	0.00%
Lightning	64	5.00%	3449	3.50%	6892.851	3.27%
Unknown	146	11.40%	9205	9.35%	17972.665	8.53%
Totals	1281	100%	98428	100%	210820.892	100%

Summary for 2022–

The Elmira Division in 2022 met its CAIDI target and exceeded its SAIFI target. The major contributing causes of this failure were tree contacts, equipment failures, and accidents or non-utility incidents.

After careful analysis, the 2023 planned efforts to improve reliability performance per causes are the following:

- Tree Contacts— Annual Vegetation Maintenance plans prioritize the worst performing circuits for completion as the significant factor for selection.
- Equipment failures— Review DLI data and identify highest potential areas for corrections. Review equipment to see if animal guards can be installed.
- Accidents or non-utility incidents— Continue to respond to all accidents/non-utility within a timely manner. Relocate poles and/or install reflective tape when feasible.

The following circuits have been identified as worst performing circuits in 2022:

- MONTOUR FALLS 511
- CANADA RD 562
- SOUTH ADDISON 346
- CHEMUNG 318
- MONTOUR FALLS 512

The 2023 Action Plans for these circuits are –

MONTOUR FALLS 511

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	3	7.32%	152	3.49%	694.766	6.28%
Tree Out Row	17	41.46%	1251	28.71%	4886.349	44.14%
Overloads	0	0.00%	0	0.00%	0	0.00%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	7	17.07%	2766	63.48%	5013.509	45.29%
Accidents/Non-Utility	3	7.32%	40	0.92%	61.433	0.56%
Prearranged	2	4.88%	21	0.48%	39.9	0.36%
Customer Equipment	0	0.00%	0	0.00%	0	0.00%
Lightning	1	2.44%	7	0.16%	17.5	0.16%
Unknown	8	19.51%	120	2.75%	355.439	3.21%
Totals	41	100%	4357	100%	11069	100%

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

- Increase Hot-Stick training for 34.5KV circuits to shorten length of outages
- Perform detailed line inspection of Zone 1 – from breaker to first protection device.
- Review high customer count sections to reduce the number of affected customer when an outage does take place.
- Post storm circuit sweeps – find and fix.
- Patrol sweeps looking for hazards and danger trees will be completed for this circuit
- All DLI, Distribution Infrared Inspections (Level 2 & 3), and WPITs <35% on this circuit will be completed in 2023

CANADA RD 562

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	1	4.00%	92	2.25%	207	2.42%
Tree Out Row	6	24.00%	751	18.33%	3174.162	37.17%
Overloads	0	0.00%	0	0.00%	0	0.00%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	9	36.00%	1251	30.53%	3167.721	37.09%
Accidents/Non-Utility	2	8.00%	357	8.71%	583.165	6.83%
Prearranged	2	8.00%	6	0.15%	3.667	0.04%
Customer Equipment	0	0.00%	0	0.00%	0	0.00%
Lightning	2	8.00%	1637	39.96%	1398.97	16.38%
Unknown	3	12.00%	3	0.07%	5.6	0.07%
Totals	25	100%	4097	100%	8540	100%

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 customer when an outage does take place.
- Post storm circuit sweeps – find and fix.
- Patrol sweeps looking for hazards and danger trees will be completed for this circuit
- All DLI, Distribution Infrared Inspections (Level 2 & 3), and WPITs <35% on this circuit will be completed in 2023
- Installation of Osprey nest

SOUTH ADDISON 346

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	2	6.45%	6	0.09%	7.134	0.07%
Tree Out Row	12	38.71%	843	13.33%	4132.654	42.64%
Overloads	0	0.00%	0	0.00%	0	0.00%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	4	12.90%	1342	21.22%	529.925	5.47%
Accidents/Non-Utility	2	6.45%	2	0.03%	3.267	0.03%
Prearranged	8	25.81%	1359	21.49%	410.325	4.23%
Customer Equipment	0	0.00%	0	0.00%	0	0.00%
Lightning	1	3.23%	118	1.87%	76.7	0.79%
Unknown	2	6.45%	2655	41.98%	4532.882	46.77%
Totals	31	100%	6325	100%	9693	100%

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 customer when an outage does take place.
- Post storm circuit sweeps – find and fix.
- Patrol sweeps looking for hazards and danger trees will be completed for this circuit
- All DLI, Distribution Infrared Inspections (Level 2 & 3), and WPITs <35% on this circuit will be completed in 2022

CHEMUNG 318

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	5	9.43%	83	2.37%	198.763	2.46%
Tree Out Row	27	50.94%	1343	38.43%	3076.189	38.04%
Overloads	0	0.00%	0	0.00%	0	0.00%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	4	7.55%	979	28.01%	3742.536	46.28%
Accidents/Non-Utility	8	15.09%	1011	28.93%	938.136	11.60%
Prearranged	2	3.77%	11	0.31%	34.469	0.43%
Customer Equipment	0	0.00%	0	0.00%	0	0.00%
Lightning	2	3.77%	47	1.34%	21.385	0.26%
Unknown	5	9.43%	21	0.60%	75.347	0.93%
Totals	53	100%	3495	100%	8087	100%

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 customer when an outage does take place.
- Post storm circuit sweeps – find and fix.
- Patrol sweeps looking for hazards and danger trees will be completed for this circuit
- All DLI, Distribution Infrared Inspections (Level 2 & 3), and WPITs <35% on this circuit will be completed in 2023
- Distribution Automation Program—installing 2 devices acting as recloser/SCADA switch.

MONTOUR FALLS 512

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	3	8.11%	73	6.02%	84.933	2.90%
Tree Out Row	17	45.95%	539	44.47%	1620.799	55.36%
Overloads	0	0.00%	0	0.00%	0	0.00%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	8	21.62%	128	10.56%	122.941	4.20%
Accidents/Non-Utility	1	2.70%	1	0.08%	4.867	0.17%
Prearranged	0	0.00%	0	0.00%	0	0.00%
Customer Equipment	0	0.00%	0	0.00%	0	0.00%
Lightning	2	5.41%	304	25.08%	753.632	25.74%
Unknown	6	16.22%	167	13.78%	340.468	11.63%
Totals	37	100%	1212	100%	2928	100%

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

- Increase Hot-Stick training for 34.5KV circuits to shorten length of outages
- Perform detailed line inspection of Zone 1 – from breaker to first protection device.
- Review high customer count sections to reduce the number of affected customer when an outage does take place.
- Post storm circuit sweeps – find and fix.
- Patrol sweeps looking for hazards and danger trees will be completed for this circuit
- All DLI, Distribution Infrared Inspections (Level 2 & 3), and WPITs <35% on this circuit will be completed in 2022

Update for 2021 –

The Elmira Division in 2021 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 2022 to improve the Elmira Division's reliability performance and to address the failure of SAIFI include:

- Completed Addison 346 Project
- Installed trip savers on the following circuits:
    - Presho 341 – 3 locations
    - Chemung 319 – 1 location
    - Chemung 318 – 1 location
    - Hillcrest 316 – 1 location
    - Bulkhead 321 - 2 locations
    - Bulkhead 322 – 1 location

- Whiskey Creek – 2 locations
- South Addison – 2 locations
- Ridge Rd 305 – 2 Locations

- Installed animal guards on the following circuits:

CHEMUNG 318
BULKHEAD 323
CANADA RD 562
HICKLING 382
PHILO RD 329
SOUTH ADDISON 347
WHISKEY CREEK 345
BATH 339

2022 Elmira Vegetation Breakdown

- 380.6 Circuit Miles Trimmed
- 102 Capital Jobs Complete
- Completed the South Addison Resiliency project.
- 0 Safety Incidents
- 1 Day email / call response time to all PSC Complaints. All tree trimming due to PSC inquires was completed within one weeks' time.
- 0 Refusals

Elmira	BULKHEAD 322	45.4
Elmira	CAMPBELL 352	42.3
Elmira	CHEMUNG 318	71.4
Elmira	HAMMONDSPORT 334	40.2
Elmira	HICKLING 382	39.1
Elmira	MONTOUR FALLS 231	7.1
Elmira	MONTOUR ODESSA TAP 501	53.3
Elmira	PULTENEY TAP 598	20.6
Elmira	VAN ETTEN 570	61.3

Additional Capital and O&M initiatives tracked in 2022 to enhance reliability include–

- All level 2 DLI's completed on time.

Jobs planned for 2023 or beyond:

- Replace 20 Fault indicators on Bath 535 Circuit
- All level 2 DLI's due in 2022 to be completed on time
-
- Install automation devices on the following circuits:

Montour Falls 233
Montour Falls 511
Montour Falls 512

Ridge Rd 305
Ridge Rd 306
Ridge Rd 307
South Addison 347
Bulkhead 128
Bulkhead 321
Bulkhead 322
Bulkhead 323
Yawger Rd 362
Yawger Rd 363

- Continue patrolling circuits to correct mapping discrepancies to allow faster identification and locating of outages
- Complete Fourteenth Street Substation reconductoring project in Q1 as noted in the 2023 Summer preparedness report
- Install trip savers on the following circuits:

Montour-Odessa Tap 501
Hampton Rd 89
Ridge Rd 305
Chemung 318
Fulton St 221

- Vegetation Maintenance on 2 Circuits for 76 miles are planned for the first quarter of 2023.

Geneva

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

GENEVA PERFORMANCE WITHOUT MAJOR STORMS

	2018	2019	2020	2021	2022
CAIDI (goal - 2.00)	1.85	1.96	1.71	1.85	1.68
SAIFI (goal - 1.20)	0.69	1.22	1.73	1.50	1.64
Interruptions	626	691	733	626	1,243
Customer Hours	75,987	142,713	177,671	168,476	167,101
Customers Interrupted	41,036	72,826	103,771	90,347	99,194
Customers Connected	59,436	59,609	59,960	60,276	60,434

Geneva exceeded both the CAIDI and SAIFI targets in 2022.

Geneva Performance: CAIDI & SAIFI by PSC cause codes –

GENEVA DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	CAIDI				
		2018	2019	2020	2021	2022
1	Major Storms	9.56	3.84	5.95	8.78	3.17
2	Tree Contacts	2.60	2.53	2.20	2.21	2.20
3	Overloads	3.44	1.83	0.92	2.51	1.31
4	Operational Errors	0.70	1.88	2.32	1.50	1.36
5	Equipment Failures	1.40	1.75	1.59	1.67	1.08
6	Accidents/Non-Utility	1.62	1.58	1.20	1.93	1.77
7	Prearranged	1.74	0.47	1.05	0.46	1.86
8	Customer Equipment	2.08	1.70	1.77	2.66	2.07
9	Lightning	1.39	1.65	2.34	2.66	0.66
10	Unknown	1.86	2.58	2.18	0.77	1.99

GENEVA DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	SAIFI				
		2018	2019	2020	2021	2022
1	Major Storms	0.48	0.32	0.02	0.50	0.39
2	Tree Contacts	0.19	0.38	0.55	0.44	0.63
3	Overloads	0.02	0.00	0.02	0.00	0.00
4	Operational Errors	0.00	0.00	0.00	0.01	0.00
5	Equipment Failures	0.14	0.20	0.92	0.41	0.31
6	Accidents/Non-Utility	0.15	0.36	0.53	0.27	0.39
7	Prearranged	0.02	0.01	0.00	0.09	0.08
8	Customer Equipment	0.00	0.00	0.00	0.00	0.00
9	Lightning	0.15	0.21	0.12	0.19	0.19
10	Unknown	0.02	0.06	0.04	0.10	0.04

Geneva Failed Division Review – exceeded 2022 the CAIDI and SAIFI targets

Interruption Breakdown by PSC Cause

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	96	7.72%	5802	5.85%	15536.046	9.30%
Tree Out Row	148	11.91%	32161	32.42%	68055.155	40.73%
Overloads	19	1.53%	190	0.19%	249.525	0.15%
Operational Errors	4	0.32%	155	0.16%	210.796	0.13%
Equipment Failures	155	12.47%	18464	18.61%	19915.477	11.92%
Accidents/Non-Utility	170	13.68%	23496	23.69%	41701.117	24.96%
Prearranged	542	43.60%	4820	4.86%	8941.469	5.35%
Customer Equipment	3	0.24%	3	0.00%	6.217	0.00%
Lightning	43	3.46%	11747	11.84%	7786.813	4.66%
Unknown	63	5.07%	2356	2.38%	4697.972	2.81%
Totals	1243	100%	99194	100%	167100.587	100%

Summary for 2022 –

The Geneva Division in 2022 exceeded both its CAIDI and SAIFI targets. The major contributing causes of the outages were tree contacts, accidents/non-utility incidents, and equipment failures.

After careful analysis, the 2023 planned efforts to improve reliability performance per cause are the following:

- Tree Contacts – Additional trimming and hot spot trimming during storm roles for any additional trimming needed at that time within company acquired ROW.
- Accidents/Non-Utility – Continue to respond to these in a timely manner and relocate poles if possible and/or install reflective tape.
- Equipment Failures – Lightning- Review and patrol targeted circuits for additional lightning arrester protection and replace any defective arresters if found. Additional devices are reviewed and examined to determine if any defects that may exist. Upon review if device is determined to be defective requests for work orders are created to replace the defective devices.
- DLI- Maintain active role in completing aging infrastructure.
- 2023- Assume Distribution Automation Recloser installation at locations determined by Distribution Planning field

Completed Tree Trimming in 2022 Geneva Division

2022 Lump Sum Distribution Line Clearance NYSEG GENEVA Division			IRONWOOD	
Circuit	SAP Circuit Number	Miles	Voltage Class	Customer Count
BANKERT 600 (added 5.18.22)	4203303	28.0	12.5	1283
BANKERT 602	4203302	13.2	12.5	564
DRESDEN 201 (removed 5.18.22)	4202601	34.2	4.8	567
GOULDS 201	4201601	5.3	4.8	180
HYATT 569	4207769	109.1	34.5	1683
LYONS 602 (removed 5.18.22)	4200502	13.7	12.5	206
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MIDDLESEX 201 (added 5.18.22)	4202401	80.73	4.8	1190
OAK CORNERS 201 (removed 5.18.22)	—	—	—	—
RGE-SAVANNAH	4208401	3.8	12.5	52
RUSHVILLE TAP 589	4204789	55.2	34.5	485
SENECA FALLS 601	4201701	25.1	12.5	1158
SENECA FALLS 602	4201702	11.0	12.5	1837
SLEIGHT 546	4207946	51.4	34.5	1638
WATERLOO 201 (removed 5.18.22)	—	—	—	—
WATERLOO 202	4201502	7.1	4.8	884

The following circuits have been identified as worst performing circuits in 2022:

- FLAT ST 597
- GREENIDGE 596
- VAN BUREN ST 606
- HYATT RD 569

The 2023 Action Plans for these circuits are –

FLAT ST 597

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	6	11.76%	327	4.48%	2665.006	15.49%
Tree Out Row	13	25.49%	3729	51.13%	11690.9	67.94%
Overloads	0	0.00%	0	0.00%	0	0.00%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	15	29.41%	2712	37.19%	1287.257	7.48%
Accidents/Non-Utility	9	17.65%	466	6.39%	1431.216	8.32%
Prearranged	2	3.92%	22	0.30%	25.84	0.15%
Customer Equipment	1	1.96%	1	0.01%	2	0.01%
Lightning	4	7.84%	35	0.48%	105.029	0.61%
Unknown	1	1.96%	1	0.01%	1.567	0.01%
Totals	51	100%	7293	100%	17209	100%

Based on the data provided in the table above, the following plan has been created - 2023 Betterment Plans Below

- Upgrade primary wire and poles/distribution rebuild | Lovejoy Rd., Penn Yan
- Install regulator | Havens Corners, Penn Yan
- Upgrade capacitor | Carroll, Rd., Penn Yan

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

- Full circuit patrol and infrared scan.
- Fully utilize the 9 SCADA devices installed on Davis Rd 531
- Address all of the Level 2 and Level 3 DLI deficiencies on this circuit
- Currently 51 DLI/WPIT work orders scheduled for 2023
- Photovoltaic farms scheduled for interconnection in 2023
- Add 4 additional SCADA devices

GREENIDGE 596

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	6	12.50%	312	2.76%	1385.04	5.13%
Tree Out Row	17	35.42%	7336	64.98%	21121.55	78.29%
Overloads	1	2.08%	4	0.04%	14.868	0.06%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	11	22.92%	2127	18.84%	1567.408	5.81%
Accidents/Non-Utility	5	10.42%	1097	9.72%	2001.096	7.42%
Prearranged	4	8.33%	202	1.79%	269.238	1.00%
Customer Equipment	0	0.00%	0	0.00%	0	0.00%
Lightning	2	4.17%	52	0.46%	206.184	0.76%
Unknown	2	4.17%	159	1.41%	412.982	1.53%
Totals	48	100%	11289	100%	26978	100%

Work Completed in 2022

- 26 DLI Maintenance Work Orders / Notifications completed in the field
- Reclosers installed as part of the Distribution Automation Project

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

- 2022 Level 2- 18 DLI Notifications Open
- 2022 Level 3- 41 DLI Notifications Open, 36 have work orders created.
- Plan- assign and complete all open DLI notifications focusing on pole replacements of reject poles and any defective cross arms, insulators, transformers, etc.
- Plan- Evaluate for additional tree trimming and/or sections for hot spot trimming and continue to work with customers, when possible, to obtain additional trimming rights, if possible, when outages occur due to trees outside of our ROW to help reduce outages/time.
- Post Storm circuit sweeps – find and fix
- Tree Trimming

VAN BUREN ST 606

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	2	4.17%	14	0.60%	28.201	0.56%
Tree Out Row	4	8.33%	1474	62.83%	3235.305	63.83%
Overloads	0	0.00%	0	0.00%	0	0.00%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	6	12.50%	470	20.03%	946.674	18.68%
Accidents/Non-Utility	4	8.33%	13	0.55%	15.436	0.30%
Prearranged	30	62.50%	350	14.92%	823.481	16.25%
Customer Equipment	0	0.00%	0	0.00%	0	0.00%
Lightning	2	4.17%	25	1.07%	19.292	0.38%
Unknown	0	0.00%	0	0.00%	0	0.00%
Totals	48	100%	2346	100%	5068	100%

Work Completed in 2022

- 11 DLI Maintenance Work Orders / Notifications completed in the field
- Reclosers installed as part of the Distribution Automation Project

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

- 13 DLI Maintenance Work Orders / Notifications completed in the field
- Plan- assign and complete all open DLI notifications focusing on pole replacements of reject poles and any defective cross arms, insulators, transformers, etc.
- Plan- Evaluate for additional tree trimming and/or sections for hot spot trimming and continue to work with customers, when possible, to obtain additional trimming rights, if possible, when outages occur due to trees outside of our ROW to help reduce outages/time.
- Post Storm circuit sweeps – find and fix
- Tree Trimming

HYATT RD 569

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	5	17.24%	104	4.26%	620.935	16.10%
Tree Out Row	3	10.34%	101	4.13%	206.808	5.36%
Overloads	0	0.00%	0	0.00%	0	0.00%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	7	24.14%	308	12.61%	218.365	5.66%
Accidents/Non-Utility	3	10.34%	1794	73.43%	2475.08	64.18%
Prearranged	1	3.45%	11	0.45%	7.15	0.19%
Customer Equipment	0	0.00%	0	0.00%	0	0.00%
Lightning	2	6.90%	10	0.41%	34.164	0.89%
Unknown	8	27.59%	115	4.71%	294.153	7.63%
Totals	29	100%	2443	100%	3857	100%

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

- Reclosers scheduled below to be installed as part of the Distribution Automation Project

10103532745	801000462965	UH-N0000510	DAP Automation Capex	5/20/2022	TB_ Recl repl Failure_RUSHVILLE 589 G&W
10103534973	801000463926	UH-N0000510	DAP Automation Capex	8/24/2022	TB_ Recl repl Fail_HYATT RD 569 G&W
10103701868	801000487810	UH-N0000510	DAP Automation Capex	8/24/2022	TB_ Recl repl Fail_HYATT RD 569 G&W
10103534975	801000463942	UH-N0000510	DAP Automation Capex	8/24/2022	TB_ Recl repl Fail_HYATT RD 569 G&W

Update for 2021 –
The Geneva Division in 2021 met its CAIDI target but exceeded its SAIFI targets. The major contributing causes of the outages were tree contacts, equipment failures, and accidents or non-utility incidents.

Corrective Actions undertaken in 2022 to improve the Geneva's Division's reliability performance and to address the failure of SAIFI include:

- Plan- assign and complete all open DLI notifications focusing on pole replacements of reject poles and any defective cross arms, insulators, transformers, etc.

- Plan- Evaluate for additional tree trimming and/or sections for hot spot trimming and continue to work with customers, when possible, to obtain additional trimming rights, if possible, when outages occur due to trees outside of our ROW to help reduce outages/time.
- Post Storm circuit sweeps – find and fix
- Tree Trimming

Additional Capital and O&M initiatives tracked in 2022 to enhance reliability include:

10103534957	801000463490	UH-N0000510	DAP Automation Capex	8/24/2022	TB_ Recl repl Fail_HALEY RD 586 G&W
10103535020	801000464277	UH-N0000510	DAP Automation Capex	9/7/2022	TB_ Recl repl Fail_BLODGETT RD 589 G&W
10103532744	801000462961	UH-N0000510	DAP Automation Capex	5/20/2022	TB_ Recl repl Failure_BLODGETT 589 G&W
10103532743	801000462956	UH-N0000510	DAP Automation Capex	5/20/2022	TB_ Recl repl Failure_VOAK RD 589 G&W
10103534959	801000463497	UH-N0000510	DAP Automation Capex	8/24/2022	TB_ Recl repl Fail_HYATT RD 569 G&W
10103540081	801000464432	UH-N0000510	DAP Automation Capex	8/24/2022	TB_ Recl Repl Fail_SLEIGHT RD 546 G&W
10103532745	801000462965	UH-N0000510	DAP Automation Capex	5/20/2022	TB_ Recl repl Failure_RUSHVILLE 589 G&W
10103534973	801000463926	UH-N0000510	DAP Automation Capex	8/24/2022	TB_ Recl repl Fail_HYATT RD 569 G&W
10103701868	801000487810	UH-N0000510	DAP Automation Capex	8/24/2022	TB_ Recl repl Fail_HYATT RD 569 G&W
10103534975	801000463942	UH-N0000510	DAP Automation Capex	8/24/2022	TB_ Recl repl Fail_HYATT RD 569 G&W

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Jobs planned for 2023 or beyond:

- Installation of 40 Reclosers scheduled as part of the Distribution Automation Project
- Prioritized DLI L2/L3 Notifications for the Geneva district
- Sampson State Park Upgrade
- Flat Street Betterment work
- Continue Tree Trimming efforts
- Over ten Photovoltaic Farms being serviced in 2024
- Approximately 2 to 3 miles of reconductoring to be completed in 2023 on Lyons 602

Hornell

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

HORNELL PERFORMANCE WITHOUT MAJOR STORMS

	2018	2019	2020	2021	2022
CAIDI (goal - 2.00)	2.39	2.47	2.17	2.31	2.01
SAIFI (goal - 1.00)	0.93	1.30	1.26	1.08	1.20
Interruptions	538	578	561	543	675
Customer Hours	83,298	121,293	103,344	95,033	92,268
Customers Interrupted	34,787	49,163	47,524	41,214	45,830
Customers Connected	37,531	37,673	37,836	38,047	38,118

Hornell exceeded both the CAIDI and SAIFI targets in 2022.

Hornell Performance: CAIDI & SAIFI by PSC cause codes –

HORNELL DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	CAIDI				
		2018	2019	2020	2021	2022
1	Major Storms	21.92	4.81	4.86	5.99	5.17
2	Tree Contacts	2.33	2.96	2.63	2.50	2.28
3	Overloads	1.75	1.63	2.68	3.03	1.98
4	Operational Errors	1.00	3.46	1.21	0.71	0.54
5	Equipment Failures	3.20	1.98	2.22	1.49	1.92
6	Accidents/Non-Utility	2.31	2.17	1.69	2.20	1.95
7	Prearranged	0.38	1.82	2.34	1.28	1.53
8	Customer Equipment	1.33	1.47	3.33	4.44	2.63
9	Lightning	2.03	2.33	1.82	3.42	2.20
10	Unknown	2.60	3.84	2.06	2.21	2.01

HORNELL DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	SAIFI				
		2018	2019	2020	2021	2022
1	Major Storms	0.61	0.39	0.19	0.20	0.29
2	Tree Contacts	0.35	0.46	0.35	0.43	0.38
3	Overloads	0.00	0.00	0.00	0.00	0.05
4	Operational Errors	0.00	0.02	0.00	0.03	0.04
5	Equipment Failures	0.20	0.53	0.44	0.27	0.28
6	Accidents/Non-Utility	0.11	0.16	0.30	0.12	0.26
7	Prearranged	0.03	0.02	0.05	0.02	0.05
8	Customer Equipment	0.00	0.02	0.00	0.00	0.00
9	Lightning	0.20	0.03	0.09	0.19	0.10
10	Unknown	0.04	0.06	0.01	0.02	0.06

Hornell Failed Division Review – exceeded 2022 CAIDI and SAIFI targets

Interruption Breakdown by PSC Cause

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	120	17.78%	6843	14.93%	15635.837	16.95%
Tree Out Row	194	28.74%	7542	16.46%	17225.369	18.67%
Overloads	8	1.19%	1878	4.10%	3713.91	4.03%
Operational Errors	8	1.19%	1443	3.15%	783.86	0.85%
Equipment Failures	135	20.00%	10724	23.40%	20581.67	22.31%
Accidents/Non-Utility	117	17.33%	9766	21.31%	19073.33	20.67%
Prearranged	16	2.37%	1807	3.94%	2762.139	2.99%
Customer Equipment	2	0.30%	2	0.00%	5.267	0.01%
Lightning	46	6.81%	3774	8.23%	8318.637	9.02%
Unknown	29	4.30%	2051	4.48%	4168.42	4.52%
Totals	675	100%	45830	100%	92268.439	100%

Summary for 2022 –

The Hornell Division in 2022 exceeded both its CAIDI and SAIFI targets. The major contributing causes of these failures were tree contacts, equipment failures, and accident/non-utility incidents.

After careful analysis, the 2022 planned efforts to improve reliability performance per cause are the following:

- Tree contacts–
  - Atlanta 568
  - Meyer 362
  - Warsaw 380 & Warsaw 381 (Resiliency program)
  - Palmatier 372 Hot Spot
- Equipment failures – Review DLI data and identify highest potential areas for corrections
- Accident/Non-Utility – Accident/Non-Utility – Relocate poles and/or install reflective tape where feasible.

The following circuits have been identified as worst performing circuits in 2022:

- BENNETT 541
- MORAINE RD 543
- COFFEE HILL RD

The 2023 Action Plans for these circuits are:

BENNETT 541

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	5	15.63%	541	15.12%	2282.044	26.34%
Tree Out Row	14	43.75%	1443	40.34%	2615.922	30.19%
Overloads	0	0.00%	0	0.00%	0	0.00%
Operational Errors	1	3.13%	1	0.03%	20	0.23%
Equipment Failures	7	21.88%	692	19.35%	1514.109	17.48%
Accidents/Non-Utility	1	3.13%	27	0.75%	67.959	0.78%
Prearranged	1	3.13%	199	5.56%	384.667	4.44%
Customer Equipment	0	0.00%	0	0.00%	0	0.00%
Lightning	2	6.25%	97	2.71%	37.996	0.44%
Unknown	1	3.13%	577	16.13%	1740.809	20.09%
Totals	32	100%	3577	100%	8664	100%

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

- 541S7 replace sectionalizer with recloser
- Review DLI data and identify highest potential areas for corrections
- Patrol with line inspection
    - Pole replacements
    - Open secondary replacements

MORAINE RD 543

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	2	10.00%	24	1.19%	102.05	2.06%
Tree Out Row	7	35.00%	1085	53.87%	1726.828	34.79%
Overloads	0	0.00%	0	0.00%	0	0.00%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	3	15.00%	151	7.50%	182.233	3.67%
Accidents/Non-Utility	1	5.00%	272	13.51%	2352.8	47.40%
Prearranged	2	10.00%	457	22.69%	471.903	9.51%
Customer Equipment	0	0.00%	0	0.00%	0	0.00%
Lightning	4	20.00%	24	1.19%	126.974	2.56%

Unknown	1	5.00%	1	0.05%	0.9	0.02%
Totals	20	100%	2014	100%	4964	100%

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

- 543SW2 replace ABB SCADA with recloser
- New three phase primary tie line to provide backup feeds for both circuits 543 and 580, as well as provide a backup feed for the Canaseraga substation which is currently radially fed.
- Review DLI data and identify highest potential areas for corrections
- Patrol with line inspection
    - Pole replacements
    - Open secondary replacements

COFFEE HILL RD

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	8	28.57%	778	22.62%	1943.693	21.38%
Tree Out Row	0	0.00%	0	0.00%	0	0.00%
Overloads	0	0.00%	0	0.00%	0	0.00%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	2	7.14%	11	0.32%	48.287	0.53%
Accidents/Non-Utility	17	60.71%	2620	76.18%	6967.246	76.65%
Prearranged	0	0.00%	0	0.00%	0	0.00%
Customer Equipment	0	0.00%	0	0.00%	0	0.00%
Lightning	1	3.57%	30	0.87%	130.5	1.44%
Unknown	0	0.00%	0	0.00%	0	0.00%
Totals	28	100%	3439	100%	9090	100%

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

- One MVA created large outage. Review for accident mitigation.
- Review DLI data and identify highest potential areas for corrections
- Patrol with line inspection
    - Pole replacements
    - Open secondary replacements

Update for 2021 –

The Hornell Division in 2021 exceeded both its CAIDI and SAIFI targets. The major contributing causes of these failures were tree contacts, equipment failures, and accident/non-utility incidents.

Corrective actions undertaken in 2022 to improve the Hornell Division's reliability performance and to address the 2021 failure of CAIDI and SAIFI include –

- Distribution Automation Project
    - Install 4 new SCADA enabled three phase reclosers, 1 new SCADA switch
    - Gainesville 594 Circuit

Additional capital and O&M projects completed in 2022 include—

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

Jobs planned for 2023 or beyond:

- New three phase primary tie line to provide backup feeds for both circuits 543 and 580, as well as provide a backup feed for the Canaseraga substation which is currently radially fed.
- Troupsburg 563 replace cooper sectionalizer with recloser
- Moraine 580 replace existing ABB switch with recloser
- Swain hill 543S3 replace sectionalizer with recloser

Ithaca

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

ITHACA PERFORMANCE WITHOUT MAJOR STORMS

	2018	2019	2020	2021	2022
CAIDI (goal - 2.25)	1.78	2.17	2.08	2.21	1.85
SAIFI (goal - 1.20)	0.77	1.88	1.01	1.34	1.59
Interruptions	581	765	724	694	799
Customer Hours	85,061	253,581	132,107	185,562	187,643
Customers Interrupted	47,855	116,762	63,449	84,064	101,257
Customers Connected	61,903	62,216	62,683	62,702	63,637

Ithaca met the CAIDI target and exceeded the SAIFI target in 2022.

Ithaca Performance: CAIDI & SAIFI by PSC cause codes –

ITHACA DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	CAIDI				
		2018	2019	2020	2021	2022
1	Major Storms	6.77	3.22	0.00	2.94	3.26
2	Tree Contacts	1.98	2.68	2.36	2.32	1.57
3	Overloads	2.28	3.90	0.99	1.77	2.47
4	Operational Errors	0.08	0.27	0.61	0.00	0.59
5	Equipment Failures	1.48	2.04	1.62	2.45	2.44
6	Accidents/Non-Utility	1.68	1.94	2.22	1.90	1.37
7	Prearranged	0.27	0.89	4.00	1.99	2.44
8	Customer Equipment	1.64	1.44	2.29	0.53	1.24
9	Lightning	1.70	2.49	3.97	2.03	1.54
10	Unknown	1.68	3.93	1.80	1.83	0.78

ITHACA DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	SAIFI				
		2018	2019	2020	2021	2022
1	Major Storms	0.52	0.39	0.00	0.65	0.79
2	Tree Contacts	0.43	0.67	0.52	0.50	0.75
3	Overloads	0.01	0.03	0.02	0.00	0.00
4	Operational Errors	0.01	0.11	0.07	0.00	0.02
5	Equipment Failures	0.13	0.74	0.17	0.45	0.50
6	Accidents/Non-Utility	0.07	0.22	0.11	0.24	0.12
7	Prearranged	0.01	0.03	0.00	0.01	0.08
8	Customer Equipment	0.00	0.00	0.00	0.04	0.00
9	Lightning	0.10	0.09	0.03	0.05	0.09
10	Unknown	0.01	0.00	0.07	0.05	0.01

Ithaca Failed Division Review – exceeded 2022 SAIFI target

Interruption Breakdown by PSC Cause

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	144	18.02%	24180	23.88%	33824.386	18.03%
Tree Out Row	214	26.78%	23772	23.48%	41342.562	22.03%
Overloads	19	2.38%	102	0.10%	251.528	0.13%
Operational Errors	3	0.38%	1169	1.15%	692.433	0.37%
Equipment Failures	189	23.65%	31924	31.53%	77801.719	41.46%
Accidents/Non-Utility	83	10.39%	7919	7.82%	10872.858	5.79%
Prearranged	67	8.39%	5325	5.26%	12984.892	6.92%
Customer Equipment	10	1.25%	25	0.02%	30.901	0.02%
Lightning	49	6.13%	5965	5.89%	9157.205	4.88%
Unknown	21	2.63%	876	0.87%	684.174	0.36%
Totals	799	100%	101257	100%	187642.658	100%

Summary for 2022 –

The Ithaca Division in 2022 met its CAIDI target and exceeded its SAIFI target. The major contributing causes of these failures were tree contacts, equipment failures, and accident/non-utility incidents.

After careful analysis, the 2023 planned efforts to improve reliability performance per cause are the following:

- Tree Contacts – Annual Vegetation Maintenance plans prioritize the worst performing circuits for completion as the significant factor for selection.
- Equipment Failures – Perform thorough visual and infrared inspections throughout the division and repair all deficiencies identified.
- 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 2022:

- DRYDEN TAP 524
- COUNTY HOSP - TBURG 540
- PERUVILLE TAP 522
- WEST HILL 610

The 2023 Action Plans for these circuits are –

DRYDEN TAP 524

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	3	17.65%	797	21.00%	933.618	13.01%
Tree Out Row	1	5.88%	48	1.26%	214.416	2.99%
Overloads	0	0.00%	0	0.00%	0	0.00%
Operational Errors	1	5.88%	668	17.60%	167	2.33%
Equipment Failures	6	35.29%	2050	54.02%	5457.898	76.05%
Accidents/Non-Utility	3	17.65%	148	3.90%	382.055	5.32%
Prearranged	1	5.88%	82	2.16%	17.794	0.25%
Customer Equipment	2	11.76%	2	0.05%	4.2	0.06%
Lightning	0	0.00%	0	0.00%	0	0.00%
Unknown	0	0.00%	0	0.00%	0	0.00%
Totals	17	100%	3795	100%	7177	100%

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

- Circuit was patrolled and deficiencies were repaired in 2022. The only reason this circuit showed as a red circuit again was due to the 524 transmission issues and the T&B reclosers in bypass in 2022.

COUNTY HOSP - TBURG 540

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	4	14.81%	292	4.92%	1351.007	16.27%
Tree Out Row	7	25.93%	4631	78.08%	4271.584	51.43%
Overloads	0	0.00%	0	0.00%	0	0.00%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	10	37.04%	606	10.22%	1662.841	20.02%
Accidents/Non-Utility	3	11.11%	108	1.82%	182.932	2.20%
Prearranged	0	0.00%	0	0.00%	0	0.00%
Customer Equipment	0	0.00%	0	0.00%	0	0.00%
Lightning	3	11.11%	294	4.96%	836.721	10.07%
Unknown	0	0.00%	0	0.00%	0	0.00%
Totals	27	100%	5931	100%	8305	100%

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

- Circuit was fully trimmed in 2022.
- Completed patrol for deficiencies in 2021 and made all necessary repairs.

PERUVILLE TAP 522

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	2	3.92%	2561	32.78%	2136.103	23.51%
Tree Out Row	5	9.80%	2900	37.12%	3446.525	37.93%
Overloads	1	1.96%	1	0.01%	2.15	0.02%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	3	5.88%	420	5.38%	529.606	5.83%
Accidents/Non-Utility	3	5.88%	216	2.76%	619.366	6.82%
Prearranged	30	58.82%	286	3.66%	293.764	3.23%
Customer Equipment	1	1.96%	1	0.01%	2.283	0.03%
Lightning	6	11.76%	1428	18.28%	2057.405	22.64%
Unknown	0	0.00%	0	0.00%	0	0.00%
Totals	51	100%	7813	100%	9087	100%

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

- The Peruville Tap 522 was rebuilt and was a voltage upgrade performed by the resiliency team in 2022. All Deficiencies and anything found through inspections were complete under this project.

WEST HILL 610

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	1	5.88%	92	14.22%	253	25.23%
Tree Out Row	0	0.00%	0	0.00%	0	0.00%
Overloads	0	0.00%	0	0.00%	0	0.00%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	6	35.29%	57	8.81%	172.9	17.24%
Accidents/Non-Utility	8	47.06%	423	65.38%	437.417	43.62%
Prearranged	0	0.00%	0	0.00%	0	0.00%
Customer Equipment	0	0.00%	0	0.00%	0	0.00%
Lightning	2	11.76%	75	11.59%	139.425	13.90%
Unknown	0	0.00%	0	0.00%	0	0.00%
Totals	17	100%	647	100%	1003	100%

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

- Create work orders to make repairs found during patrol for deficiencies.

Update for 2021 –

The Ithaca Division in 2021 met its CAIDI target and exceeded its SAIFI target. The major contributing causes of these failures were tree contacts, equipment failures, and accident/non-utility incidents.

Corrective Actions undertaken in 2022 to improve the Ithaca Division's reliability performance and to address the failure of SAIFI include:

-

Additional capital and O&M projects completed in 2022 include—

- 714 DLD/WPIT notifications completed in 2022
- For Ithaca Thomas & Betts recloser replacement program: 43 devices were replaced

Jobs planned for 2023 and beyond:

- The circuits we are working this year for red circuit patrols and repairs are

- Ovid 715
- East Ithaca 406
- Etna Tap 523
- Moravia 606
- Valois 508
- 763 DLD/WPIT notifications planned for completion in 2023

Lancaster

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

LANCASTER PERFORMANCE WITHOUT MAJOR STORMS

	2018	2019	2020	2021	2022
CAIDI (goal - 1.75)	2.08	1.74	1.72	1.83	1.73
SAIFI (goal - 1.20)	1.16	1.32	1.51	1.20	1.39
Interruptions	1,410	1,342	1,658	1,494	2,790
Customer Hours	447,561	427,100	484,864	413,733	452,502
Customers Interrupted	215,692	246,063	281,781	226,450	262,239
Customers Connected	185,757	186,197	187,148	188,264	189,061

Lancaster met the CAIDI target and exceeded the SAIFI target in 2022.

Lancaster Performance: CAIDI & SAIFI by PSC cause codes –

LANCASTER DIVISION						
PSC CODE	**PSC CAUSE CODE DESCRIPTION**	**CAIDI**				
		2018	**2019**	**2020**	**2021**	**2022**
1	Major Storms	7.57	6.13	5.98	5.00	5.08
2	Tree Contacts	2.38	1.97	2.09	2.41	1.77
3	Overloads	3.54	1.82	1.99	1.70	2.19
4	Operational Errors	0.64	0.82	0.65	0.83	0.60
5	Equipment Failures	1.67	1.73	1.62	1.74	1.73
6	Accidents/Non-Utility	2.21	1.48	1.47	1.79	2.24
7	Prearranged	2.90	1.60	1.25	0.64	1.97
8	Customer Equipment	4.74	3.42	2.17	1.72	0.49
9	Lightning	2.89	3.02	2.08	3.17	1.01
10	Unknown	2.50	1.44	1.31	1.22	1.18

LANCASTER DIVISION						
PSC CODE	**PSC CAUSE CODE DESCRIPTION**	**SAIFI**				
		2018	**2019**	**2020**	**2021**	**2022**
1	Major Storms	0.67	0.83	0.53	0.60	0.48
2	Tree Contacts	0.34	0.33	0.41	0.30	0.34
3	Overloads	0.02	0.00	0.05	0.03	0.04
4	Operational Errors	0.05	0.02	0.01	0.04	0.03
5	Equipment Failures	0.38	0.52	0.58	0.41	0.55
6	Accidents/Non-Utility	0.30	0.28	0.19	0.23	0.18
7	Prearranged	0.01	0.04	0.01	0.03	0.07
8	Customer Equipment	0.00	0.00	0.00	0.00	0.00
9	Lightning	0.01	0.04	0.07	0.02	0.11
10	Unknown	0.05	0.09	0.17	0.14	0.05

Lancaster Failed Division Review – exceeded 2022 SAIFI target

Interruption Breakdown by PSC Cause

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	265	9.50%	36380	13.87%	55,846	12.34%
Tree Out Row	287	10.29%	27818	10.61%	58,062	12.83%
Overloads	47	1.68%	8178	3.12%	17,923	3.96%
Operational Errors	11	0.39%	6084	2.32%	3,635	0.80%
Equipment Failures	497	17.81%	104312	39.78%	180,236	39.83%
Accidents/Non-Utility	280	10.04%	34643	13.21%	77,734	17.18%
Prearranged	1257	45.05%	12643	4.82%	24,962	5.52%
Customer Equipment	6	0.22%	166	0.06%	81	0.02%
Lightning	63	2.26%	21645	8.25%	21,761	4.81%
Unknown	77	2.76%	10370	3.95%	12,261	2.71%
Totals	2790	100%	262239	100%	452,502	100%

Summary for 2022 –

The Lancaster Division in 2022 met its CAIDI target and exceeded its SAIFI target. The major contributing causes of this failure were prearranged incidents, tree contacts, equipment failures, and accidents or non-utility incidents.

After careful analysis, the 2023 planned efforts to improve reliability performance per cause are the following:

- **Prearranged** – Review distribution circuits and implement ways to minimize affected customers through switching, load shift, cutouts, etc. Especially focus on third party attachers that are using Outside contractors to minimize the time for pre-arranged outages.

- **Tree Contacts** – Full circuit patrols on worst performing circuits and complete hot spot trimming. Full year 2023 tree trimming schedule not released by forestry department. Only circuit scheduled for the 1st quarter trimming will be Langner 432. Review locations to add additional twenty (20) trip saver devices to areas prone to mild outages.

- **Equipment Failures** – Utilizing conventional transformers for all jobs rather than CSP transformers. Identify and replace overloaded transformers with larger capacity units.

- **Accidents/Non-Utility** – Continue installing SCADA sectionalizing devices to sectionalize outages via ECC and crews in field. Schedule troubleshooter shift crews on off hours rather than calling in crews

The following circuits have been identified as worst performing circuits in 2022:

- CEMETERY RD 490
- BLOSSOM 517
- DICK RD 537
- BLOSSOM 313
- DAVIS 531
- LANGNER RD 432
- STOLLE RD 551
- HOLLAND 520

The 2023 Action Plans for these circuits are –

CEMETERY RD 490

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	0	0.00%	0	0.00%	0	0.00%
Tree Out Row	0	0.00%	0	0.00%	0	0.00%
Overloads	0	0.00%	0	0.00%	0	0.00%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	3	14.29%	794	19.48%	1639	17.05%
Accidents/Non-Utility	2	9.52%	3149	77.24%	7743	80.52%
Prearranged	16	76.19%	134	3.29%	233	2.43%
Customer Equipment	0	0.00%	0	0.00%	0	0.00%
Lightning	0	0.00%	0	0.00%	0	0.00%
Unknown	0	0.00%	0	0.00%	0	0.00%
Totals	21	100%	4077	100%	9617	100%

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

- Full circuit patrol and infrared scan
- Reduce customer count below 2500
- Adding 4th circuit to cemetery substation to improve resiliency
- Sequential reclosing implementation for existing SCADA devices
- Wood Pole Inspection and Treatment (WPIT) maintenance program

BLOSSOM 517

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	0	0.00%	0	0.00%	0	0.00%
Tree Out Row	0	0.00%	0	0.00%	0	0.00%
Overloads	2	8.33%	2	0.04%	25	0.14%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	6	25.00%	5182	92.70%	18028	96.74%
Accidents/Non-Utility	2	8.33%	177	3.17%	423.	2.27%
Prearranged	13	54.17%	228	4.08%	158	0.85%
Customer Equipment	1	4.17%	1	0.02%	0.367	0.00%
Lightning	0	0.00%	0	0.00%	0	0.00%
Unknown	0	0.00%	0	0.00%	0	0.00%
Totals	24	100%	5590	100%	18636	100%

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

- Full circuit patrol and infrared scan
- Planned maintenance of Level 2/3 DLI notifications including multiple pole replacements
- Wood Pole Inspection and Treatment (WPIT) maintenance program
- Largest outage (13000+ hrs.) – Transmission Outage

DICK RD 537

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	3	5.00%	425	6.56%	992	7.86%
Tree Out Row	0	0.00%	0	0.00%	0	0.00%
Overloads	4	6.67%	70	1.08%	71	0.57%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	4	6.67%	5262	81.22%	10385	82.29%
Accidents/Non-Utility	2	3.33%	276	4.26%	377.154	2.99%
Prearranged	45	75.00%	342	5.28%	650	5.15%
Customer Equipment	0	0.00%	0	0.00%	0	0.00%
Lightning	1	1.67%	76	1.17%	120	0.95%
Unknown	1	1.67%	28	0.43%	22	0.18%
Totals	60	100%	6479	100%	12620	100%

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

- Planned maintenance of Level 2/3 DLI notifications including pole replacements
- Largest single outage (8000+hrs) – Broken conductor

BLOSSOM 313

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	3	9.68%	185	1.53%	441.705	1.61%
Tree Out Row	3	9.68%	60	0.50%	90.015	0.33%
Overloads	4	12.90%	3712	30.75%	10971.59	40.00%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	8	25.81%	7029	58.24%	14034.99	51.17%
Accidents/Non-Utility	4	12.90%	507	4.20%	402.633	1.47%
Prearranged	7	22.58%	534	4.42%	1452.545	5.30%
Customer Equipment	0	0.00%	0	0.00%	0	0.00%
Lightning	1	3.23%	8	0.07%	11.864	0.04%
Unknown	1	3.23%	35	0.29%	23.345	0.09%
Totals	31	100%	12070	100%	27429	100%

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

- Planned maintenance of Level 2/3 DLI notifications including pole replacements
- Installation of SCADA devices to circuit as part of Distribution Automation Program (DAP)
- Circuit to be analyzed by resiliency groups HAT program
- Line Extension 3 phase on Winspear Rd across Buffalo creek to close gap and create circuit loop

DAVIS 531

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	5	26.32%	281	5.32%	735.511	9.50%
Tree Out Row	6	31.58%	1642	31.06%	2143.029	27.67%
Overloads	1	5.26%	6	0.11%	10.098	0.13%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	4	21.05%	596	11.28%	129.595	1.67%
Accidents/Non-Utility	0	0.00%	0	0.00%	0	0.00%
Prearranged	1	5.26%	13	0.25%	9.529	0.12%
Customer Equipment	0	0.00%	0	0.00%	0	0.00%
Lightning	0	0.00%	0	0.00%	0	0.00%
Unknown	2	10.53%	2748	51.99%	4716.942	60.91%
Totals	19	100%	5286	100%	7745	100%

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

- Wood Pole Inspection and Treatment (WPIT) maintenance program
- Installation of SCADA devices to circuit as part of Distribution Automation Program (DAP)
- Circuit was analyzed and improvements engineered in 2022 by resiliency groups HAT program and will be planned and implemented in 2023/2024
- Planned maintenance of Level 2/3 DLI notifications including multiple pole replacements

LANGNER RD 432

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	4	22.22%	3860	64.33%	5297	53.72%
Tree Out Row	0	0.00%	0	0.00%	0	0.00%
Overloads	0	0.00%	0	0.00%	0	0.00%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	8	44.44%	2057	34.28%	4382	44.44%
Accidents/Non-Utility	4	22.22%	74	1.23%	162	1.65%
Prearranged	2	11.11%	9	0.15%	18	0.19%
Customer Equipment	0	0.00%	0	0.00%	0	0.00%
Lightning	0	0.00%	0	0.00%	0	0.00%
Unknown	0	0.00%	0	0.00%	0	0.00%
Totals	18	100%	6000	100%	9862	100%

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

- Full circuit patrol and infrared scan
- Wood Pole Inspection and Treatment (WPIT) maintenance program
- Installation of SCADA devices to circuit as part of Distribution Automation Program (DAP)
- Sequential reclosing implementation for existing SCADA devices
- Scheduled for complete circuit tree trimming 1st Qtr. 2023

STOLLE RD 551

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	4	12.90%	85	1.57%	165	1.63%
Tree Out Row	3	9.68%	283	5.23%	519	5.10%
Overloads	1	3.23%	142	2.63%	220	2.16%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	9	29.03%	3128	57.85%	1206	11.83%
Accidents/Non-Utility	3	9.68%	1718	31.77%	8019	78.67%
Prearranged	10	32.26%	49	0.91%	61	0.60%
Customer Equipment	0	0.00%	0	0.00%	0	0.00%
Lightning	0	0.00%	0	0.00%	0	0.00%
Unknown	1	3.23%	2	0.04%	1	0.01%
Totals	31	100%	5407	100%	10194	100%

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

- Full circuit patrol and infrared scan
- Planned maintenance of Level 2/3 DLI notifications including pole replacements
- Wood Pole Inspection and Treatment (WPIT) maintenance program
- Circuit was analyzed and improvements engineered in 2021/2022 by resiliency group (HAT) program and will be planned and implemented in 2023/2024
- Design / Install segment to close existing gap along Clinton St to create circuit loop.
- Installation of SCADA devices to circuit as part of Distribution Automation Program (DAP)
- Largest outage (7000+ hrs.) Substation Lockout, Animal

HOLLAND 520

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	4	9.76%	295	6.16%	1305	18.81%
Tree Out Row	10	24.39%	753	15.73%	1204	17.35%
Overloads	1	2.44%	1	0.02%	2	0.04%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	10	24.39%	397	8.29%	877	12.65%
Accidents/Non-Utility	5	12.20%	1046	21.85%	1786	25.74%
Prearranged	5	12.20%	99	2.07%	40	0.58%
Customer Equipment	0	0.00%	0	0.00%	0	0.00%
Lightning	5	12.20%	915	19.11%	1338	19.30%
Unknown	1	2.44%	1281	26.76%	384	5.54%
Totals	41	100%	4787	100%	6939	100%

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

- Planned maintenance of Level 2/3 DLI notifications including pole replacements
- Sequential reclosing implementation for existing SCADA devices
- Wood Pole Inspection and Treatment (WPIT) maintenance program
- Circuit was analyzed and improvements engineered in 2022 by resiliency group (HAT) program and will include complete replacement (poles, conductor, equipment, etc.) of 4-mile segment. Construction to be in 2023/2024.

Update for 2021—

The Lancaster Division in 2021 exceeded both its CAIDI and SAIFI targets. The major contributing causes of this failure were tree contacts, equipment failures, and accidents or non-utility incidents.

Corrective Actions undertaken in 2022 to improve the Lancaster Division's reliability performance and to address the 2021 failure of CAIDI and SAIFI include –

Blossom 312

- Reconductor Leydecker Rd to 3 phase service
- Reduce customer count to below 2500 by transferring customers to Blossom 314 on Leydecker Rd
- Install regulators on Old Transit Rd to prevent low voltage situations and help with Langner AGR back feed scenarios.

Dick Rd 537

- Installed one (1) new SCADA devices
- Reduce customer counts to near 2500 by transferring customers to Dick Rd 392

Blossom 517

- Full circuit patrol and infrared scan
- Maintenance of Level 2 DLD notifications
- Install trip saver devices to facilitate automated reset of service 801000409013
- Replace inoperable 3phase switches on Transit Rd. L217 P22A

Langner 432

- Automatic Grid Restoration (AGR) has been initiated for Langner Substation

N. Broadway 535

- Full circuit patrol and infrared scan
- Installed one (1) new SCADA devices
- Maintenance of Level 2 DLD notifications
- Reconductor William St (existing conductor is at capacity) 801000415505.
- Replacing SCADA equipment on William St to improve communication and reliability

Cobblehill 530

- Circuit (3 phase) tree trimming
- Maintenance of Level 2 DLD notifications
- Boston State Rd transfer customers to South Park 471, to reduce load on 1500kVA step bank which is on Boston Cross Rd
- On Boston State Rd, build 1500kva step on Cobble Hill 548 for emergency transfer of 4.8kv customers to Cobblehill 548, to reduce load on (Cobble Hill 530) 2500kVA step bank which is on Boston Colden Rd

Losson Rd 403

- Automatic Grid Restoration (AGR) implementation planned for Losson Rd Substation
- Maintenance of Level 2 DLD notifications including 21 pole replacements
- Installed five (5) new SCADA devices
- Extensive 3-phase circuit tree trimming

Losson Rd 402

- Automatic Grid Restoration (AGR) implementation planned for Losson Rd Substation
- Maintenance of Level 2 DLD notifications
- Installed Two (2) new SCADA devices

Roll Rd 545

- Maintenance of Level 2 DLD notifications
- Recently completed resiliency job to reconductor Greiner Rd Line 358 P90 to P124. Converted to 12kv and transferred customer to Wehrle 334
- Reduce customer count to near 2500 customers

Losson 401

- Automatic Grid Restoration (AGR) implementation planned for Losson Rd Substation
- Planned maintenance of Level 2 DLD notifications
- Install new SCADA tie switch between Losson 401 and 405 at Rosina's (801000388397)

Langner 434

- Automatic Grid Restoration (AGR) has been initiated for Langner Substation
- Load Balancing

General

- MRW has replaced 1100+ poles across all circuits in our division

Additional Capital and O&M initiatives tracked in 2022 to enhance reliability include —

- Resiliency – Roll Rd 512 customer swap with Wehrle 335
- Resiliency – Roll Rd 545 customer swap with Wehrle 334
- Silver Creek 180 - Extend the 12.47kv wye and eliminate 7.2kv delta; Also eliminate 2.4KV Delta on Stebbins Rd 801000366712
- Initiate AGR for Cemetery Sub (3 existing circuits)
- Replace 500 kVA step bank with 1500kVA step bank n Harris Hill Rd – Wehrle 331
- Bullis Rd - Stolle 551 5000 kVA PV site to come online
- Planned maintenance of 566 SCADA locations across Lancaster and Lockport
- Reconductor Sandridge Rd Alden 264, to increase load capabilities 801000403558
- Meadow lake subdivision review transformer loading, and upgrades as required 801000395233
- Locust St 150 tie line, which enables to reduce customer count below 2500 by transferring to Locust St 154. 801000390457

<u>Jobs planned for 2023 or beyond:</u>

- Work with operations to identify and implement back feed schemes
- Install new conductor section on transmission underbuilt to transfer load to Walden 305 (801000413126, 801000409562) - Sprint Spectrum Data Center
- Obtain Easement for North Broadway 544 to relieve load along Sonwil Drive Rein 272
- Reconductor Elm Creek Rd, to increase capabilities 801000399024 Randolph 174
- Reconductor Sowles Ave Armor 372 to transfer load off Armor 371 801000257184
- Install regulators of Losson 405; 801000427341
- Sloan Substation Load relief; 801000369435
- Alden 264 Upgrade project – Improvement to allow for load relief with Stolle 551, Cemetery 492 and Wehrle 334 801000383708
- Pavement Rd – Cemetery 492 Lancaster Landfill – Qty 2 - 5000 kVA PV sites
- Ruhlmann Rd - Locust 154 5000kVA PV site to come online
- Establish a fourth circuit for the Cemetery Sub by years' end. Cemetery 493
- Establish Emergency Switching Procedures for Lockport Division
- Increase 4.8kv back feed capacity on Cobble Hill 530 from Cobblehill 548.
- Dick Rd 391 - New Circuit Created and Split customers with Dick Rd 392
- Establish interconnection of Wehrle 331 & Cemetery 491 on Harris Hill Rd
- By year 2025, Reconductor Erie 203 from substation to increase load capacity
- By year 2024, Java Substation install micro grid non-wires alternative
- Wende 443 to relieve load on Cemetery 492 along Broadway Ave
- Walden 305 to provide emergency backup to Sloan 230
- Walden 302 to take over customers for Bison Pkwy
- Walden 301 to provide emergency backup for Sloan 231 on William St
- By Year 2025, Erie St substation rebuild and update
- Convert Erie Street 4.8kV circuits to 12.47 kV
- Re-establish underground (State School) tie connection between Langner 434 and Blossom 314

- By year 2024, Roll Rd 524 Loch Lea subdivision to be fed from Wehrle 335
- Chestnut Ridge 190 – Two new PV projects – Reconductor line to 477
- Close gap on Lockport junction road between South Niagara 201 / 202
- By year 2024, increase capacity to Jamison Rd customers, New Girdle 555 circuit
- Silver Creek 180 - Three new PV jobs – Reconductor Hanover Rd
- Blossom 314 Ebenezer 361 --- load swap to assist low voltage on Blossom 314

Liberty

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

LIBERTY PERFORMANCE WITHOUT MAJOR STORMS

	2018	2019	2020	2021	2022
CAIDI (goal - 2.50)	2.47	2.02	2.21	2.25	1.90
SAIFI (goal - 1.70)	1.23	1.68	1.33	2.00	1.39
Interruptions	984	995	897	1,227	1,168
Customer Hours	160,343	184,605	162,683	251,570	150,690
Customers Interrupted	64,904	91,399	73,454	111,823	79,242
Customers Connected	52,898	54,354	55,134	55,955	56,893

Liberty met both the CAIDI and SAIFI targets in 2022.

Liberty Performance: CAIDI & SAIFI by PSC cause codes –

LIBERTY DIVISION						
PSC CODE	**PSC CAUSE CODE DESCRIPTION**	**CAIDI**				
		2018	**2019**	**2020**	**2021**	**2022**
1	Major Storms	24.83	8.22	5.80	3.46	4.38
2	Tree Contacts	3.12	2.60	2.47	2.59	2.30
3	Overloads	0.89	1.12	5.61	2.79	2.49
4	Operational Errors	5.43	0.51	1.12	2.41	0.83
5	Equipment Failures	1.56	1.45	1.51	1.51	1.43
6	Accidents/Non-Utility	2.58	1.78	1.67	1.60	1.52
7	Prearranged	1.96	2.45	1.49	1.15	1.20
8	Customer Equipment	2.34	1.52	2.82	2.50	2.01
9	Lightning	1.82	1.90	1.72	2.65	1.40
10	Unknown	3.38	1.40	1.83	2.40	1.65

LIBERTY DIVISION						
PSC CODE	**PSC CAUSE CODE DESCRIPTION**	**SAIFI**				
		2018	**2019**	**2020**	**2021**	**2022**
1	Major Storms	2.00	0.62	1.20	0.99	0.63
2	Tree Contacts	0.44	0.77	0.69	0.99	0.71
3	Overloads	0.04	0.03	0.05	0.01	0.02
4	Operational Errors	0.00	0.00	0.01	0.08	0.01
5	Equipment Failures	0.28	0.54	0.22	0.38	0.29
6	Accidents/Non-Utility	0.21	0.18	0.15	0.27	0.28
7	Prearranged	0.00	0.01	0.01	0.01	0.02
8	Customer Equipment	0.04	0.00	0.00	0.00	0.00
9	Lightning	0.12	0.06	0.15	0.25	0.06
10	Unknown	0.10	0.10	0.05	0.02	0.00

Liberty Division Review –

Interruption Breakdown by PSC Cause

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	20	1.71%	931	1.17%	1582.313	1.05%
Tree Out Row	665	56.93%	39671	50.06%	91805.281	60.92%
Overloads	58	4.97%	1129	1.42%	2807.155	1.86%
Operational Errors	2	0.17%	644	0.81%	537.402	0.36%
Equipment Failures	195	16.70%	16244	20.50%	23255.186	15.43%
Accidents/Non-Utility	156	13.36%	16006	20.20%	24378.196	16.18%
Prearranged	21	1.80%	1162	1.47%	1395.72	0.93%
Customer Equipment	21	1.80%	137	0.17%	275.154	0.18%
Lightning	29	2.48%	3299	4.16%	4622.118	3.07%
Unknown	1	0.09%	19	0.02%	31.35	0.02%
Totals	1168	100%	79242	100%	150689.875	100%

Summary for 2022 –

The Liberty Division in 2022 met its CAIDI and SAIFI Targets.

The major contributing causes of 2022 outages were tree contacts and equipment failures. After careful analysis, the 2023 planned efforts to improve reliability performance per causes are the following:

- Tree Contacts – The following Circuits were trimmed in 2022
  a. Willowemoc 30
  b. Hazel 353
  c. Hazel 189
  d. Livingstone Manor 101
  e. Sackett Lake 121
- Equipment Failures – Perform thorough visual and infrared inspections throughout the division and repair all deficiencies identified.

The following circuits have been identified as worst performing circuits in 2022:

- CALLICOON 285
- WALDEN 359
- OLD FALLS 283
- JEFFERSONVILLE 110

The 2023 Action Plans for these circuits are –

CALLICOON 285

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	1	1.59%	2	0.06%	3.2	0.04%
Tree Out Row	41	65.08%	3013	84.85%	6735.375	87.37%
Overloads	0	0.00%	0	0.00%	0	0.00%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	13	20.63%	402	11.32%	742.968	9.64%
Accidents/Non-Utility	7	11.11%	83	2.34%	160.672	2.08%
Prearranged	1	1.59%	51	1.44%	67.167	0.87%
Customer Equipment	0	0.00%	0	0.00%	0	0.00%
Lightning	0	0.00%	0	0.00%	0	0.00%
Unknown	0	0.00%	0	0.00%	0	0.00%
Totals	63	100%	3551	100%	7709	100%

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

- Perform a thorough inspection of the entire circuit. Identify and repair deficiencies.
- Complete an Infrared inspection and repair deficiencies.
- Install 2 new SCADA controlled Reclosers.
- Install trip saver single phase reclosers in strategic locations

WALDEN 359

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	1	1.96%	4	0.06%	12.132	0.15%
Tree Out Row	31	60.78%	2108	29.75%	3936.713	49.75%
Overloads	3	5.88%	34	0.48%	49.822	0.63%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	6	11.76%	1026	14.48%	788.349	9.96%
Accidents/Non-Utility	8	15.69%	3898	55.02%	3101.012	39.19%
Prearranged	1	1.96%	14	0.20%	21	0.27%
Customer Equipment	0	0.00%	0	0.00%	0	0.00%
Lightning	1	1.96%	1	0.01%	3.617	0.05%
Unknown	0	0.00%	0	0.00%	0	0.00%
Totals	51	100%	7085	100%	7913	100%

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

- Perform a thorough inspection of the entire circuit. Identify and repair deficiencies.
- Complete an Infrared inspection and repair deficiencies.
- Install trip saver single phase reclosers in strategic locations

OLD FALLS 283

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	0	0.00%	0	0.00%	0	0.00%
Tree Out Row	27	52.94%	2085	50.90%	3745.781	52.64%
Overloads	6	11.76%	13	0.32%	54.749	0.77%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	11	21.57%	1889	46.12%	3102.279	43.60%
Accidents/Non-Utility	5	9.80%	107	2.61%	210.666	2.96%
Prearranged	0	0.00%	0	0.00%	0	0.00%
Customer Equipment	2	3.92%	2	0.05%	2.35	0.03%
Lightning	0	0.00%	0	0.00%	0	0.00%
Unknown	0	0.00%	0	0.00%	0	0.00%
Totals	51	100%	4096	100%	7116	100%

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

- Perform a thorough inspection of the entire circuit. Identify and repair deficiencies.
- Complete an Infrared inspection and repair deficiencies.
- Install trip saver single phase reclosers in strategic locations

JEFFERSONVILLE 110

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	0	0.00%	0	0.00%	0	0.00%
Tree Out Row	25	67.57%	1667	80.92%	3315.44	80.14%
Overloads	0	0.00%	0	0.00%	0	0.00%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	4	10.81%	12	0.58%	16.882	0.41%
Accidents/Non-Utility	5	13.51%	341	16.55%	730.852	17.67%
Prearranged	0	0.00%	0	0.00%	0	0.00%
Customer Equipment	0	0.00%	0	0.00%	0	0.00%
Lightning	3	8.11%	40	1.94%	73.66	1.78%
Unknown	0	0.00%	0	0.00%	0	0.00%
Totals	37	100%	2060	100%	4137	100%

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

- Perform a thorough inspection of the entire circuit. Identified and repair deficiencies.
- Complete an Infrared inspection and repaired deficiencies
- Install trip saver single phase reclosers in strategic locations

Update for 2021 –

The Liberty Division in 2021 met its CAIDI target and exceeded its SAIFI target. The major contributing causes of 2021 outages were tree contacts and equipment failures.

Corrective Actions undertaken in 2022 to improve the Liberty Division's reliability performance and to address the 2021 failure of SAIFI include –

- Performed thorough visual inspections of 49 circuits and repaired all deficiencies identified

Additional Capital and O&M initiatives tracked in 2022 to enhance reliability include —

- DLI/WPIT Program – Replaced 226 poles throughout the Liberty division
- Installed 32 trip saver single phase reclosers throughout the Liberty division
- Substation Automation
  We are performing upgrades in the automation system of the following substations. These upgrades will provide more visibility of the stations to the SCADA system. The following substation upgrades have been complete:
  - Coopers Corners 115 kV yard- Complete
  - White Lake- Complete
  - Liberty - Complete
  - Concord – Complete

- Sackett Lake Substation (NEW):
    - New High side breakers and larger Transformer
    - Low-side medium voltage GIS
    - Control house with expansion capabilities
    - Conversion of 4.8kV circuits 120 & 121 to 12.5kV
    - Due to be online 1st Qtr. 2023

Jobs planned for 2023 or beyond:

- Sackett Lake 231/230 - Upgrade 9.5 miles of line and convert these circuits to 12.47 kV
- Walden 705/707 - Upgrade 5.85 miles of line, install 16 SCADA reclosers and 9 trip saver single phase reclosers
- Mountaindale 206 – Relocate 37 poles from backlot to roadside on Park Hill Road.
- Hilldale 225 – Install 5 SCADA reclosers and 2 SCADA switches
- Swan Lake 158 – Install 1 SCADA recloser
- Callicoon 285 – (2025) Upgrade 5.1 miles of line and convert voltage, install 3 SCADA switches and 2 SCADA reclosers
- In addition to the above stations, upgrades of the protection and control system, breakers and yards will be performed in the incoming years:
    - Kiamesha (2023) - In progress
    - Ferndale (2023)
    - West Woodbourne (2023)
    - Walden (2023)
    - Maplewood (2023-24)
    - Sheilds Rd (2022) – New recloser on the 4.8kv side of the step
    - White Sulphur Springs (2022) - New recloser on the 4.8kv side of the step
    - Numerous line Recloser, Regulators and Capacitors scheduled for install through 2023 and beyond
- Transmission Upgrades:
    - Yulan Tap- New Motor operator controls with updated relay protection along with communication hardening - 2023
    - West Woodbourne- Updated protection and control - 2023
    - Coopers Corner to Sackett Lake 344 line - structure reinforcement - Complete 2022
    - Coopers Corner – Updated control house, relay, and protection on the 115kv – Complete 2022

Mechanicville

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

MECHANICVILLE PERFORMANCE WITHOUT MAJOR STORMS

	2018	2019	2020	2021	2022
CAIDI (goal - 2.00)	2.28	2.19	2.14	1.83	2.08
SAIFI (goal - 1.40)	1.96	1.29	1.26	1.65	1.69
Interruptions	907	823	894	859	979
Customer Hours	224,925	142,794	137,287	154,525	181,602
Customers Interrupted	98,695	65,159	64,075	84,563	87,225
Customers Connected	50,409	50,528	50,819	51,201	51,489

Mechanicville exceeded both the CAIDI and SAIFI targets in 2022.

Mechanicville Performance: CAIDI & SAIFI by PSC cause codes –

MECHANICVILLE DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	CAIDI				
		2018	2019	2020	2021	2022
1	Major Storms	8.68	6.94	4.21	2.47	6.90
2	Tree Contacts	2.52	2.52	2.11	2.07	2.63
3	Overloads	5.67	6.88	1.96	4.72	4.17
4	Operational Errors	2.15	0.00	0.44	0.57	0.39
5	Equipment Failures	1.94	2.15	1.96	1.90	1.49
6	Accidents/Non-Utility	2.08	3.60	2.23	1.69	2.03
7	Prearranged	2.78	0.46	2.79	0.27	1.40
8	Customer Equipment	1.81	2.40	2.14	5.00	5.37
9	Lightning	2.36	0.80	3.30	2.54	1.67
10	Unknown	1.93	1.32	1.65	1.50	2.54

MECHANICVILLE DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	SAIFI				
		2018	2019	2020	2021	2022
1	Major Storms	1.34	0.87	1.67	1.56	0.79
2	Tree Contacts	0.68	0.44	0.54	0.54	0.63
3	Overloads	0.03	0.01	0.00	0.01	0.05
4	Operational Errors	0.00	0.00	0.05	0.13	0.08
5	Equipment Failures	0.38	0.47	0.31	0.48	0.39
6	Accidents/Non-Utility	0.54	0.11	0.26	0.31	0.31
7	Prearranged	0.00	0.05	0.02	0.02	0.01
8	Customer Equipment	0.02	0.00	0.00	0.00	0.00
9	Lightning	0.20	0.08	0.02	0.10	0.20
10	Unknown	0.11	0.14	0.03	0.08	0.03

Mechanicville Failed Division Review – exceeded 2022 CAIDI and SAIFI targets

Interruption Breakdown by PSC Cause

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	137	13.99%	5808	6.66%	17403.026	9.58%
Tree Out Row	412	42.08%	26702	30.61%	68206.073	37.56%
Overloads	21	2.15%	2611	2.99%	10895.635	6.00%
Operational Errors	3	0.31%	3968	4.55%	1538.4	0.85%
Equipment Failures	173	17.67%	19857	22.77%	29580.102	16.29%
Accidents/Non-Utility	123	12.56%	15863	18.19%	32188.05	17.72%
Prearranged	10	1.02%	592	0.68%	830.049	0.46%
Customer Equipment	7	0.72%	8	0.01%	42.967	0.02%
Lightning	49	5.01%	10402	11.93%	17332.8	9.54%
Unknown	44	4.49%	1414	1.62%	3585.099	1.97%
Totals	979	100%	87225	100%	181602.201	100%

Summary for 2022 –

The Mechanicville Division in 2022 exceeded both its CAIDI and SAIFI targets. The major contributing causes of this failure were tree contacts, equipment failures, and accidents or non-utility incidents.

After careful analysis, the 2023 planned efforts to improve reliability performance per cause are the following:

- **Tree Contacts –**

  - **Roll over from 2022:**
  - Crooked Lake 613- is currently being trimmed by NG Gilbert and is expected to be finished early February 2023.
  - Rutland 131- is currently being trimmed by Lewis Tree Service and is expected to be completed mid-late February 2023.
  - Chatham 155- awarded to Lewis Tree Service, not started yet.
  - West Sand Lake Tap 614- awarded to Lewis Tree Service, not started yet.
  - Craryville 400 – completed maintenance trim in Q4 of 2022.
  - **For Q1 of 2023:**
  - Craryville 610- Awarded to Lewis Tree Service, not started yet.
  - **Perspective Circuits to be worked Q2-Q4 2023:**
    - Canaan 145
    - Chatham 156 (Reclaim)
    - Granville 301 (Reclaim)
    - Granville 302 (Reclaim)
    - Luther Forest 635 (Reclaim)

- Mellenville 150
- Mellenville 151 (Reclaim)
- Raylinski Tap 606
- West Sand Lake 161 (Reclaim)

- **Substation –**
  - **Luther Forest 607**: We will be performing two Infrared inspections of all substation equipment and remediating any found issues. This year we will be performing a scheduled 115/34.5KV Bank LTC Inspection and addressing any issues that uncovers.

The following circuits have been identified as worst performing circuits in 2022:

- LUTHER FOREST 607
- CRARYVILLE 610
- CRARYVILLE 400

The 2023 Action Plans for these circuits are –

LUTHER FOREST 607

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	5	15.15%	386	2.93%	1444.297	7.00%
Tree Out Row	4	12.12%	4175	31.74%	7926.894	38.41%
Overloads	1	3.03%	8	0.06%	15.2	0.07%
Operational Errors	1	3.03%	3762	28.60%	1504.8	7.29%
Equipment Failures	15	45.45%	631	4.80%	863.047	4.18%
Accidents/Non-Utility	2	6.06%	4	0.03%	4.932	0.02%
Prearranged	1	3.03%	5	0.04%	3.75	0.02%
Customer Equipment	0	0.00%	0	0.00%	0	0.00%
Lightning	4	12.12%	4181	31.79%	8872.702	43.00%
Unknown	0	0.00%	0	0.00%	0	0.00%
Totals	33	100%	13152	100%	20636	100%

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

- Accelerate and complete all level 2 DLI deficiencies
- Accelerate and complete all level 3 DLI deficiencies
- Fuse coordination analysis and correction
- Access and install AGR (automated grid restoration)
- Continued Bi-monthly inspections
- Annual binocular inspection
- IR camera inspections
- As of Q4 2022 all 34.5 T&B recloser replacements completed (units taken offline due to manufacturer recall, internal failure)

CRARYVILLE 610

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	13	16.67%	648	8.20%	2006.344	7.91%
Tree Out Row	38	48.72%	1277	16.15%	4267.596	16.82%
Overloads	4	5.13%	1953	24.70%	8628.666	34.00%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	7	8.97%	57	0.72%	129.626	0.51%
Accidents/Non-Utility	10	12.82%	3432	43.40%	9019.579	35.54%
Prearranged	0	0.00%	0	0.00%	0	0.00%
Customer Equipment	0	0.00%	0	0.00%	0	0.00%
Lightning	2	2.56%	454	5.74%	1089.109	4.29%
Unknown	4	5.13%	86	1.09%	235.234	0.93%
Totals	78	100%	7907	100%	25376	100%

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

- Accelerate and complete all level 2 DLI deficiencies
- Accelerate and complete all level 3 DLI deficiencies
- Q1 phase one find and fix circuit patrol
- IR camera inspections
- As of Q4 2022 all 34.5 T&B recloser replacements completed (units taken offline due to manufacturer recall, internal failure)
- Convert main line from 12.5kV to 34.5kV with 477AL conductor starting at L-959 P-2 to
- Upgrade tie recloser at L-297 P-9553 from a 12.5KV to 34.5KV unit.
- Remove 3-500KVA step from L-959 P-2.
- Convert main line from 12.5kV to 34.5kV with 477AL conductor starting at L-284 P-2323 to Circuit 400 L-284 P-2294 (1.5mi).
- Add new 34.5KV recloser at L-284 P-2322 and L-284 P-2324. Upgrade tie recloser (N.O.) at L-284 P-2295 from a 12.5KV to 34.5KV unit.
- Upgrade recloser from 12.5KV to 34.5KV unit at L-284 P-9510.
- Remove recloser at L-959 P-7.
- Install 3-167KVA step at L-284 P-9721.
- Install 3-100KVA step at L-291 P-1.
- Install 1-250KVA step at L-292 P-3765.
- Install 3-250KVA step at L-820 P-1.
- L-297 P-9553 (2.9mi).

CRARYVILLE 400

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	7	11.48%	169	2.44%	619.503	4.29%
Tree Out Row	28	45.90%	3378	48.82%	4993.385	34.54%
Overloads	2	3.28%	229	3.31%	646.109	4.47%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	7	11.48%	549	7.93%	207.464	1.44%
Accidents/Non-Utility	4	6.56%	1865	26.95%	6294.908	43.55%
Prearranged	1	1.64%	9	0.13%	19.647	0.14%
Customer Equipment	1	1.64%	1	0.01%	1.167	0.01%
Lightning	7	11.48%	531	7.67%	1242.753	8.60%
Unknown	4	6.56%	189	2.73%	430.749	2.98%
Totals	61	100%	6920	100%	14456	100%

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

- Accelerate and complete all level 2 DLI deficiencies
- Accelerate and complete all level 3 DLI deficiencies
- Q1 phase one find and fix circuit patrol
- IR camera inspections
- As of Q4 2022, two trip saver installs; Rodman Rd L471 P2A & Cove Rd L503 P1730A
- Convert Craryville 400 circuit from 12.5KV to 34.5KV. Substation Upgrade: New 34.5KV breaker. Removal of 12.5KV bus and transformer.
- Convert main line from 12.5kV to 34.5kV with 477AL conductor starting at Substation to
- Install 5.0MVA 34.5/12.47Kv pad-mounted step transformer between L-285 P-A, P-1, and Reclosers on L-285 P-1 (34.5KV side of step)
- Add new 34.5KV recloser at L-290 P-1, L-284 P-8.
- Upgrade recloser from 12.5KV to 34.5KV unit at L-284 P-46.
- Install 1-167KVA step at L-609 P-3, L-1223 P-1, L-947 P-1, L-985 P-1, L-298 P-2945,
- Install 1-500KVA step at L-297 P-9560, L-838 P-1.
- Install 3-500KVA step at L-265 P-13. Extend 3ph 12.5KV 1.8 mi from L-265 P-13 to L-453 P-5.
- L-297 P-9554 (6.2mi)
- L-817 P-1, and L-U442 P-U1.

Update for 2021-

The Mechanicville Division in 2021 met its CAIDI target but exceeded its SAIFI target. The major contributing causes of this failure were tree contacts, equipment failures, and accidents or non-utility incidents.

Corrective Actions undertaken in 2022 to improve the Mechanicville Division's reliability performance and to address the 2021 failure of SAIFI include:

- Craryville 400 trimming completed Q4 2022

Additional Capital and O&M initiatives tracked in 2022 to enhance reliability include—

- Craryville 400 animal guard survey and installation
- Craryville 610 animal guard survey and installation (excluding 34.5)

Jobs planned for 2023 or beyond:

- Annual Vegetation Maintenance plans prioritize the worst performing circuits for completion as the significant factor for selection
- **Craryville 610**
  - Convert main line from 12.5kV to 34.5kV with 477AL conductor starting at L-959 P-2 to
  - Upgrade tie recloser at L-297 P-9553 from a 12.5KV to 34.5KV unit.
  - Remove 3-500KVA step from L-959 P-2.
  - Convert main line from 12.5kV to 34.5kV with 477AL conductor starting at L-284 P-2323 to Circuit 400 L-284 P-2294 (1.5mi).
  - Add new 34.5KV recloser at L-284 P-2322 and L-284 P-2324. Upgrade tie recloser (N.O.) at L-284 P-2295 from a 12.5KV to 34.5KV unit.
  - Upgrade recloser from 12.5KV to 34.5KV unit at L-284 P-9510.
  - Remove recloser at L-959 P-7.
  - Install 3-167KVA step at L-284 P-9721.
  - Install 3-100KVA step at L-291 P-1.
  - Install 1-250KVA step at L-292 P-3765.
  - Install 3-250KVA step at L-820 P-1.
  - L-297 P-9553 (2.9mi).
- **Craryville 400**
  - Convert Craryville 400 circuit from 12.5KV to 34.5KV. Substation Upgrade: New 34.5KV breaker. Removal of 12.5KV bus and transformer.
  - Convert main line from 12.5kV to 34.5kV with 477AL conductor starting at Substation to
  - Install 5.0MVA 34.5/12.47Kv pad-mounted step transformer between L-285 P-A, P-1, and Reclosers on L-285 P-1 (34.5KV side of step)
  - Add new 34.5KV recloser at L-290 P-1, L-284 P-8.
  - Upgrade recloser from 12.5KV to 34.5KV unit at L-284 P-46.
  - Install 1-167KVA step at L-609 P-3, L-1223 P-1, L-947 P-1, L-985 P-1, L-298 P-2945,
  - Install 1-500KVA step at L-297 P-9560, L-838 P-1. Install 3-500KVA step at L-265 P-13.
  - Extend 3ph 12.5KV 1.8 mi from L-265 P-13 to L-453 P-5.
  - L-297 P-9554 (6.2mi)
  - L-817 P-1, and L-U442 P-U1.

Oneonta

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

ONEONTA PERFORMANCE WITHOUT MAJOR STORMS

	2018	2019	2020	2021	2022
CAIDI (goal - 2.50)	2.67	2.58	2.62	3.24	2.87
SAIFI (goal - 1.00)	1.04	0.76	1.14	1.46	1.01
Interruptions	1,499	1,298	1,522	1,605	1,562
Customer Hours	256,965	182,165	277,985	440,522	272,052
Customers Interrupted	96,213	70,490	106,218	136,008	94,934
Customers Connected	92,429	92,656	92,850	93,451	93,714

Oneonta exceeded both the CAIDI target and the SAIFI targets in 2022.

Oneonta Performance: CAIDI & SAIFI by PSC cause codes –

ONEONTA DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	CAIDI				
		2018	2019	2020	2021	2022
1	Major Storms	10.48	7.17	6.53	4.21	19.71
2	Tree Contacts	2.68	2.89	2.72	3.26	2.93
3	Overloads	1.50	2.19	2.07	2.66	2.26
4	Operational Errors	0.00	0.46	2.38	1.24	5.59
5	Equipment Failures	2.54	1.98	2.54	3.55	3.36
6	Accidents/Non-Utility	3.50	2.67	2.55	2.92	2.13
7	Prearranged	1.60	0.43	2.31	0.44	3.20
8	Customer Equipment	2.14	2.09	0.99	1.76	1.85
9	Lightning	1.84	2.70	2.92	3.24	2.13
10	Unknown	2.54	2.82	2.10	3.48	2.02

ONEONTA DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	SAIFI				
		2018	2019	2020	2021	2022
1	Major Storms	0.69	0.45	0.58	0.51	1.38
2	Tree Contacts	0.48	0.40	0.58	0.57	0.54
3	Overloads	0.00	0.00	0.00	0.00	0.00
4	Operational Errors	0.00	0.00	0.00	0.01	0.00
5	Equipment Failures	0.36	0.21	0.31	0.55	0.25
6	Accidents/Non-Utility	0.13	0.08	0.10	0.14	0.14
7	Prearranged	0.00	0.00	0.05	0.05	0.00
8	Customer Equipment	0.00	0.00	0.00	0.00	0.00
9	Lightning	0.04	0.03	0.05	0.10	0.04
10	Unknown	0.03	0.03	0.05	0.05	0.04

Oneonta Failed Division Review – exceeded 2022 CAIDI and SAIFI targets

Interruption Breakdown by PSC Cause

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	624	39.95%	25936	27.32%	81450.772	29.94%
Tree Out Row	319	20.42%	24260	25.55%	65639.697	24.13%
Overloads	56	3.59%	236	0.25%	532.217	0.20%
Operational Errors	4	0.26%	328	0.35%	1834.912	0.67%
Equipment Failures	273	17.48%	23431	24.68%	78753.312	28.95%
Accidents/Non-Utility	147	9.41%	13111	13.81%	27892.839	10.25%
Prearranged	12	0.77%	88	0.09%	281.971	0.10%
Customer Equipment	10	0.64%	21	0.02%	38.952	0.01%
Lightning	51	3.27%	3973	4.19%	8461.173	3.11%
Unknown	66	4.23%	3550	3.74%	7166.488	2.63%
Totals	1562	100%	94934	100%	272052.333	100%

Summary for 2022 –

The Oneonta Division in 2022 exceeded both its CAIDI and SAIFI targets. The major contributing causes of this failure were tree contacts, equipment failures, and accident/non-utility incidents.

After careful analysis, the 2023 planned efforts to improve reliability performance per cause are the following:

- Tree Contacts – Conducting tree trimming and hot spot trimming on Transmission and Distribution Circuits as scheduled.

- Equipment Failures – 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.

- Accident/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 2022:

- WEST WINFIELD 260
- MILFORD 258
- UNADILLA 022
- UNADILLA 012
- OTEGO 200
- ARKVILLE 230
- HANCOCK 216

The 2023 Action Plans for these circuits are –

WEST WINFIELD 260

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	7	21.88%	1464	26.87%	4732.451	29.26%
Tree Out Row	12	37.50%	3818	70.08%	11031.08	68.19%
Overloads	1	3.13%	1	0.02%	1.65	0.01%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	8	25.00%	66	1.21%	217.434	1.34%
Accidents/Non-Utility	0	0.00%	0	0.00%	0	0.00%
Prearranged	0	0.00%	0	0.00%	0	0.00%
Customer Equipment	0	0.00%	0	0.00%	0	0.00%
Lightning	0	0.00%	0	0.00%	0	0.00%
Unknown	4	12.50%	99	1.82%	193.206	1.19%
Totals	32	100%	5448	100%	16176	100%

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 258

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	4	20.00%	1236	35.35%	450.002	8.10%
Tree Out Row	4	20.00%	890	25.46%	1308.994	23.56%
Overloads	2	10.00%	2	0.06%	3.183	0.06%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	7	35.00%	1357	38.82%	3756.333	67.62%
Accidents/Non-Utility	2	10.00%	10	0.29%	32.602	0.59%
Prearranged	0	0.00%	0	0.00%	0	0.00%
Customer Equipment	0	0.00%	0	0.00%	0	0.00%
Lightning	1	5.00%	1	0.03%	4.183	0.08%
Unknown	0	0.00%	0	0.00%	0	0.00%
Totals	20	100%	3496	100%	5555	100%

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.
- Work with UC&M/SP&C on improvements and proactive device maintenance.

UNADILLA 022

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	7	41.18%	136	4.45%	449.685	10.88%
Tree Out Row	5	29.41%	1334	43.68%	763.036	18.47%
Overloads	0	0.00%	0	0.00%	0	0.00%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	3	17.65%	1465	47.97%	2441.711	59.10%
Accidents/Non-Utility	0	0.00%	0	0.00%	0	0.00%
Prearranged	0	0.00%	0	0.00%	0	0.00%
Customer Equipment	0	0.00%	0	0.00%	0	0.00%
Lightning	0	0.00%	0	0.00%	0	0.00%
Unknown	2	11.76%	119	3.90%	477.018	11.55%
Totals	17	100%	3054	100%	4131	100%

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.
- Work with UC&M/SP&C on improvements and proactive device maintenance.

UNADILLA 012

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	7	29.17%	155	5.62%	483.858	40.43%
Tree Out Row	5	20.83%	1282	46.50%	319.223	26.67%
Overloads	5	20.83%	20	0.73%	33.932	2.84%
Operational Errors	1	4.17%	11	0.40%	29.7	2.48%
Equipment Failures	4	16.67%	1243	45.09%	259.496	21.68%
Accidents/Non-Utility	0	0.00%	0	0.00%	0	0.00%
Prearranged	0	0.00%	0	0.00%	0	0.00%
Customer Equipment	0	0.00%	0	0.00%	0	0.00%
Lightning	0	0.00%	0	0.00%	0	0.00%
Unknown	2	8.33%	46	1.67%	70.541	5.89%
Totals	24	100%	2757	100%	1197	100%

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.
- Work with UC&M/SP&C on improvements and proactive device maintenance.

OTEGO 200

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	2	7.14%	16	0.56%	13.117	0.14%
Tree Out Row	16	57.14%	1508	52.43%	1258.855	13.35%
Overloads	3	10.71%	6	0.21%	16.383	0.17%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	4	14.29%	1276	44.37%	8032.086	85.16%
Accidents/Non-Utility	0	0.00%	0	0.00%	0	0.00%
Prearranged	0	0.00%	0	0.00%	0	0.00%
Customer Equipment	1	3.57%	2	0.07%	5.266	0.06%
Lightning	1	3.57%	1	0.03%	0.883	0.01%
Unknown	1	3.57%	67	2.33%	104.989	1.11%
Totals	28	100%	2876	100%	9432	100%

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.
- Work with UC&M/SP&C on improvements and proactive device maintenance.

ARKVILLE 230

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	36	63.16%	2557	65.75%	10065.17	83.13%
Tree Out Row	3	5.26%	884	22.73%	1184.641	9.78%
Overloads	0	0.00%	0	0.00%	0	0.00%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	6	10.53%	285	7.33%	453.261	3.74%
Accidents/Non-Utility	4	7.02%	62	1.59%	149.631	1.24%
Prearranged	1	1.75%	2	0.05%	4.466	0.04%
Customer Equipment	0	0.00%	0	0.00%	0	0.00%
Lightning	3	5.26%	27	0.69%	79.177	0.65%
Unknown	4	7.02%	72	1.85%	171.882	1.42%
Totals	57	100%	3889	100%	12108	100%

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.
- Work with UC&M/SP&C on improvements and proactive device maintenance.

HANCOCK 216

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	12	23.08%	270	15.72%	638.645	14.13%
Tree Out Row	21	40.38%	941	54.77%	2564.68	56.76%
Overloads	0	0.00%	0	0.00%	0	0.00%
Operational Errors	1	1.92%	14	0.81%	23.562	0.52%
Equipment Failures	6	11.54%	92	5.36%	382.34	8.46%
Accidents/Non-Utility	2	3.85%	164	9.55%	311.22	6.89%
Prearranged	1	1.92%	16	0.93%	59.728	1.32%
Customer Equipment	1	1.92%	1	0.06%	1.917	0.04%
Lightning	2	3.85%	54	3.14%	81.268	1.80%
Unknown	6	11.54%	166	9.66%	454.88	10.07%
Totals	52	100%	1718	100%	4518	100%

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

- Patrol entire circuit and make repairs of any deficiencies found.
- Install animal guards and Review 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 2021 –

The Oneonta Division in 2021 exceeded both its SAIFI and CAIDI targets. The major contributing causes of this failure were tree contacts, equipment failures, and accident/non-utility incidents.

Corrective Actions undertaken in 2022 to improve the Oneonta Division's reliability performance and to address the 2021 failures of CAIDI and SAIFI include:

- 2021 Distribution Circuits were trimmed for maintenance:
    - South Cooperstown 27
    - East Norwich 515
- 2022 Distribution Circuits planned trimming for maintenance:
    - Annual Vegetation Maintenance plans prioritize the worst performing circuits for completion as the significant factor for selection.

Additional capital and O&M initiatives tracked in 2022 to enhance reliability include:

- Regulators at Sidney RR 145 and Conger Ave
- Regulator and Breaker Upgrades at Pierce Ave., and Mt. Upton
- Peas Eddy Tie Line
- Multiple Overhead Distribution Line relocations for Serviceability and Reliability
- Ongoing Upgrades at the Fraser Substation for a new 115kv/46kv yard.
- Distribution Automation Project – Added 32 Reclosers to 15 circuits:
    - Arkville 230
    - Axtell Rd 032
    - Axtell Rd 510
    - Bainbridge 032
    - Bellarye 217

- Bouckville 012
- Brothertowne 504
- East Norwich 515
- Mount Upton 012
- Otego 200
- Oxford 022
- Richfield Springs 012
- Shandaken 501
- Sidney Railroad 145
- Woods Corner 012

Jobs planned for 2023 or beyond:

- Adding animal guards on the following circuits:
  - Grand Gorge 246
  - Grand Gorge 247
- Installation of Trip-Savers on the following circuits:
  - East Norwich 515
  - Hancock 216
  - Delhi 210
  - Arkville 230
  - Sidney Railroad 12
  - Richfield Springs 12

Plattsburgh

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

PLATTSBURGH PERFORMANCE WITHOUT MAJOR STORMS

	2018	2019	2020	2021	2022
CAIDI (goal - 1.75)	2.00	1.73	1.72	1.25	1.11
SAIFI (goal - 1.70)	1.82	1.85	1.74	1.95	2.40
Interruptions	752	638	820	636	850
Customer Hours	150,931	134,588	126,254	103,648	113,595
Customers Interrupted	75,570	77,669	73,218	82,966	102,541
Customers Connected	41,622	41,980	42,171	42,446	42,776

Plattsburgh met the CAIDI target and exceeded the SAIFI target in 2022.

Plattsburgh Performance: CAIDI & SAIFI by PSC cause codes –

PLATTSBURGH DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	CAIDI				
		2018	2019	2020	2021	2022
1	Major Storms	11.27	8.32	2.93	6.65	7.04
2	Tree Contacts	2.30	2.19	2.40	2.10	2.03
3	Overloads	2.49	3.00	2.48	1.72	3.30
4	Operational Errors	0.31	0.82	0.62	0.13	1.92
5	Equipment Failures	2.05	1.15	1.70	1.17	1.02
6	Accidents/Non-Utility	2.53	1.93	1.19	0.87	0.64
7	Prearranged	0.00	0.00	0.95	0.21	0.38
8	Customer Equipment	0.27	5.92	0.88	1.72	1.79
9	Lightning	1.62	1.99	1.28	1.65	2.73
10	Unknown	2.02	1.45	1.56	1.27	1.76

PLATTSBURGH DIVISION						
PSC CODE	PSC CAUSE CODE DESCRIPTION	SAIFI				
		2018	2019	2020	2021	2022
1	Major Storms	2.19	0.67	0.01	0.96	1.02
2	Tree Contacts	0.64	0.43	0.62	0.48	0.39
3	Overloads	0.02	0.00	0.00	0.00	0.00
4	Operational Errors	0.00	0.03	0.05	0.02	0.00
5	Equipment Failures	0.43	0.49	0.40	0.36	0.41
6	Accidents/Non-Utility	0.40	0.75	0.38	0.73	1.27
7	Prearranged	0.00	0.00	0.00	0.09	0.10
8	Customer Equipment	0.01	0.00	0.09	0.00	0.00
9	Lightning	0.21	0.02	0.14	0.01	0.19
10	Unknown	0.11	0.14	0.04	0.26	0.04

Plattsburgh Failed Division Review – exceeded 2022 SAIFI target

Interruption Breakdown by PSC Cause

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	79	9.29%	4373	4.26%	6044.093	5.32%
Tree Out Row	235	27.65%	12352	12.05%	27835.648	24.50%
Overloads	17	2.00%	49	0.05%	161.476	0.14%
Operational Errors	1	0.12%	66	0.06%	126.522	0.11%
Equipment Failures	149	17.53%	17414	16.98%	17816.792	15.68%
Accidents/Non-Utility	221	26.00%	54112	52.77%	34555.628	30.42%
Prearranged	26	3.06%	4273	4.17%	1631.434	1.44%
Customer Equipment	10	1.18%	18	0.02%	32.25	0.03%
Lightning	38	4.47%	8271	8.07%	22544.877	19.85%
Unknown	74	8.71%	1613	1.57%	2846.172	2.51%
Totals	850	100%	102541	100%	113594.892	100%

Summary for 2022 –

The Plattsburgh Division in 2022 met its CAIDI target and exceeded its SAIFI target. The major contributing causes of this failure were tree contacts, accidents/non-utility incidents and equipment failures.

After careful analysis, the 2023 planned efforts to improve reliability performance per causes are the following:

- Tree Contacts – Complete full circuit trim for the following circuits:
  - Barton Brook 403 (56.6 miles)
  - Barton Brook 404 (71.2 miles)
  - Woodruff Pond 461 (20.6 miles)
  - Cabot Mine 413 (55.1 miles)
- Accidents/Non-Utility Incidents –
  - Working to reconfigure lines to enable "target" poles to be relocated out of harm's way.
  - Working to relocate lines further from the edge of the road. This is made difficult by the proximity of structures to the road and the lack of cooperation from property owners to sign an easement for the poles to be relocated out of the bounds of the road and giving up a portion of their property for NYSEG's use.
- Equipment Failures –
  - Replacing distribution equipment such as poles, conductors, switching, and regulation equipment identified based on age and condition during sweeps of division's worst performing circuits and others as they are identified.

- Relocating lines currently located back-lot of off the road to roadside. If relocation is not possible, due to easement refusals, then the line will be rebuilt in place bringing it up to current design and resiliency standards.

The following circuits have been identified as worst performing circuits in 2022:

- LYON MTN 510
- NORTON 420
- SCIOTA-FLATROCK 517

The 2023 Action Plans for these circuits are –

LYON MTN 510

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	3	7.89%	16	0.34%	6.819	0.09%
Tree Out Row	17	44.74%	3442	74.15%	6755.048	87.15%
Overloads	2	5.26%	5	0.11%	12.468	0.16%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	8	21.05%	125	2.69%	135.439	1.75%
Accidents/Non-Utility	6	15.79%	1026	22.10%	795.437	10.26%
Prearranged	0	0.00%	0	0.00%	0	0.00%
Customer Equipment	0	0.00%	0	0.00%	0	0.00%
Lightning	1	2.63%	1	0.02%	3.833	0.05%
Unknown	1	2.63%	27	0.58%	41.85	0.54%
Totals	38	100%	4642	100%	7751	100%

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

- A full circuit maintenance trim was completed in 2022.
- T&B reclosers prone to failure were replaced with new devices.
- A loop scheme is in development to be able to automatically restore customers with the Chateaugay 514 circuit.

NORTON 420

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	6	13.04%	71	0.81%	122.612	1.84%
Tree Out Row	24	52.17%	1071	12.23%	1264.453	19.00%
Overloads	0	0.00%	0	0.00%	0	0.00%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	5	10.87%	1188	13.56%	216.918	3.26%
Accidents/Non-Utility	8	17.39%	5258	60.02%	1710.959	25.70%
Prearranged	0	0.00%	0	0.00%	0	0.00%
Customer Equipment	0	0.00%	0	0.00%	0	0.00%
Lightning	1	2.17%	1170	13.36%	3334.5	50.09%
Unknown	2	4.35%	2	0.02%	7.117	0.11%
Totals	46	100%	8760	100%	6657	100%

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

- A full circuit maintenance trim is planned to be completed in 2023.
- Hazard trees have been actively identified and removed all throughout the circuit.
- Relocation projects have been designed to relocate lines to the road to improve restoration times in the event of failure.
- Aged poles have been surveys by division FCC's and identified to be replaced with work orders to perform replacement to follow.

SCIOTA-FLATROCK 517

	Interruptions		Customers Interrupted		Customer Hours of Interruption	
Tree In Row	1	1.92%	8	0.09%	4	0.02%
Tree Out Row	7	13.46%	112	1.26%	276.016	1.68%
Overloads	2	3.85%	4	0.05%	7.032	0.04%
Operational Errors	0	0.00%	0	0.00%	0	0.00%
Equipment Failures	17	32.69%	3502	39.50%	4687.341	28.54%
Accidents/Non-Utility	11	21.15%	2854	32.19%	5066.714	30.85%
Prearranged	1	1.92%	70	0.79%	134.19	0.82%
Customer Equipment	2	3.85%	6	0.07%	8.199	0.05%
Lightning	5	9.62%	2111	23.81%	5978.594	36.41%
Unknown	6	11.54%	198	2.23%	260.309	1.59%
Totals	52	100%	8865	100%	16422	100%

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

- Hazard trees have been actively identified and removed all throughout the circuit.
- T&B reclosers prone to failure were replaced with new devices.
- A full circuit fuse coordination was performed, designed, and implemented in the field.
- Aged pole survey by division FCC's and identified to be replaced with work orders to perform replacement.

Update for 2021 -

The Plattsburgh Division in 2021 met its CAIDI target but exceeded the SAIFI target. The major contributing causes of this failure were tree contacts, equipment failures, and accidents or non-utility incidents.

Corrective actions undertaken in 2022 to improve the Plattsburgh Division's reliability performance and to address the 2021 failures of SAIFI include –

Additional Capital and O&M initiatives tracked in 2022 to enhance reliability include —

- Full cycle trim of Jay 502 and Banker Rd 437 circuits.
- Installed animal guard on transformers and switching devices.
- All level 2 DLD deficiency corrections were designed and completed in the field.
- Installation of 22 trip saver devices on multiple circuits.
- Completion of phase 2 of the rebuild of the 880-transmission line between Rainbow Falls and Cabot Mine substations.
- Automated switching scheme between the Harris Lake generator and the Blue Mountain Lake generators finalized and implemented in the field.

- Installation
- Replacement of hazardous poles in a portion of the 878 and 881 transmission lines feeding Woodruff Pond substation.
- Limestone and Banker Rd substations underwent an automation upgrades including:
    - New motor operated switches
    - New battery bank, charger, and cabinet
    - New RTU and enclosure
    - New regulator foundation
    - New station service
    - New PT's
    - All switches cleaned, lubed, and maintained
- Sciota-Flatrock 1B-12 breaker was replaced with a new 46kv SF6 gas breaker.

Jobs planned for 2023 or beyond:

- Sequential reclosing settings being implemented on the following circuits:
    - High Falls 474
    - Peru 426
    - Peru 427
    - Hyde 417
    - Cabot Mine 413
    - Cabot Mine 414
- Additional trip savers to be installed throughout the system, goals not yet identified.
- Replacing poles older than 55 years as encountered.
- Replace poles identified during WPIT/DLI inspections and correct all other deficiencies found during contractor surveys.
- Creation of reliability work orders with emphasis on replacing and/or relocating aged poles and overhead conductors to improve access and reliability of the distribution system.
- Ongoing circuit cycle tree trimming.
- Vegetation Management will be patrolling the system to identify and document existing Osprey nests to create a proactive renesting program. This program hopes to provide alternative locations and encourage the Osprey to build their nests in these locations to both improve reliability and protect the Osprey.
- Hazard tree program will continue where budget is available and approved.
- Continue to install animal guards on transformers and switching devices.
- Ongoing rebuild of the 880-transmission line between Rainbow Falls and Cabot Mine substations with portions of the distribution line under-build being rebuilt as well.
- Peru substation will undergo and automation upgrade project including:
    - New battery bank, charger, and enclosure
    - New motor op switches
    - New low side bank breaker
    - New station service
    - All new internal wiring
    - All switches will be cleaned, lubed, and maintained
- Chateaugay substation will undergo breaker replacement and automation upgrade including:
    - New 515 breaker and foundation
    - New 514 breaker and foundation

    - All new internal wiring
    - A new 34.5kv low side breaker will be installed
    - New protection relays and cabinets
    - New RTU
    - New DC panel
- Mason Corners substation will undergo an automation upgrade including:
    - All new internal wiring
    - New 450 breaker
    - New 451 breaker
    - New motor op switches
    - New relays and cabinet