



Bureau of
Energy Resources,
United States
Department of State



National
Association of
Regulatory
Utility
Commissioners

Sources of monitoring information: availability, integrity, and verification of data

Quat Nguyen

Connecticut Public Utilities Regulatory Authority

September 2, 2015





Topics

- History of Dockets
- Major Requirements
- Monitoring and Reporting
- Samples



History

- Following Hurricane Carl in 1986, the Authority initiated a proceeding to investigate utility performance in preparing for the storm and managing outage restoration following the storm.
- Docket No. 86-11-18, DPUC Review of Performance of UI, CL&P and SNETCO in Restoring Service After Storm Carl. In the Decision in that proceeding, the Authority ordered the electric utilities to report on their performance after every storm that results in a major electric outage event.



History of Dockets

- Following an initial investigation into Hurricane Gloria in 1985 and Hurricane Carl in 1986. The PURA created Docket No. 86-12-03, Long Range Investigation to Examine the Adequacy of the Transmission and Distribution Systems of The Connecticut Light and Power Company and The United Illuminating Company.
- The PURA issued a voluminous Decision that required many changes in the way the electric utilities maintain their electric systems and report on such programs to the Authority.



Major Requirements

The major requirements of Docket No. 86-12-03 are:

- submit an annual report on the reliability of its electric system to the Authority, including data broken down to an individual circuit basis (useful fact: CL&P's system is comprised of about 1200 circuits);
- identify those parts of its system that exhibit the worst performance, and submit improvement plans to the PURA.
- CL&P was required to re-prioritize areas of its system that should receive more tree trimming, based on history and customer density;
- CL&P was required to conduct a number of studies on electric construction types (for example, tree wire);
- UI was required to conduct a number of studies on its system that related to issues unique to it.



- The annual reporting requirements are still in effect today, and both UI and CL&P provide annual reports to the Authority that include highly detailed information on how the companies manage reliability related issues.
- The PURA does not merely file these reports; rather, they serve as the basis for frequent communication between the PURA and the electric utilities, as the PURA works continuously to improve electric reliability for customers in the State.



Reporting Requirements

- The General Statutes of Connecticut §16-245y(a) requires the PURA to submit reliability data of SAIDI and SAIFI, to the Legislature by January 1 of each year. The PURA requires the electric distribution companies to report the Transmission and Distribution Reliability Performance Reports (TDRP Reports) reliability statistics by October 1 each year.
- The TDRP Reports contain comprehensive data regarding outages and reliability from each utility for the prior calendar year. These reports provide valuable information regarding the factors that affect reliability and the effectiveness of reliability initiatives by the EDCs.



Sec. 16-11-101 Record of interruptions

(a) Every electric company shall notify the PURA of all electric outages whenever the total customer-outage hours is equal to, or greater than 200, provided, outages of less than 30 duration need not be reported unless the loss of the electric supply produces a substantial adverse effect or hardship on the public.

(b) Every electric company shall keep a record for a period of two years of the time of starting and shutting down its generating units, and of the indication of station instruments at sufficiently frequent intervals to show the characteristics of the service, and the details of any significant changes in operating practices.



Sec. 16-11-101 Record of interruptions (cont.)

(c) Every utility shall make all reasonable efforts to prevent interruptions of service, and when such interruptions occur shall endeavor to reestablish service with the shortest possible delay. Whenever the service is necessarily interrupted or curtailed for any significant length of time for the purpose of working on equipment, such work should be done at a time which will cause the least inconvenience to customers, and those customers who will be affected shall be notified in advance to the extent practicable except in cases of emergency.



Infrastructure Maintenance Requirement

- Proper maintenance of the EDCs transmission and distribution facilities has played a major role in achieving high reliability, public safety, and customer satisfaction.



Daily Reporting (page 1)

Report No: CCRPT
Company: Eversource CT
Cust/Hr: 200
Interruption:
Start Date: 8/12/2015

Eversource CT
Trouble Call And Interruption Analysis System
Connecticut Commission - Reportable Interruptions
From: 8/12/2015 To: 8/12/2015

Date: 08/13/2015
Time: 02:01 PM
Page: 1 of 3

Start Date		Interrupt #		Circuit Number		Type of Construction		System Voltage		Total Customer Hours		Total Customers Involved	
08/11/2015		3005410		1Q6-MONTVILLE-4N		DIOH-Dist Overhead		13.2-13.2 KV		370.25		24	
Step Restoration Information													
Step Nbr	Time Off	Time On	Custs Involved	Hours Mins	Cust Hours	First Town	# CST	Second Town	# CST	Third Town	# CST	Sequence ID	Cause of Trouble Spot
1	12:10	02:45	15	14 hrs 35 min	218.75	UNCASVILLE	15						TREE-Tree/Limb Outside Trim Zone/Unknown
2	12:10	05:00	9	16 hrs 50 min	151.5	UNCASVILLE	9						TREE-Tree/Limb Outside Trim Zone/Unknown
Remarks for Step 1						Town: MONTVILLE				Street: KITEMAUG RD			
TREE, PRIMARY DOWN, BROKEN POLE AND OIL SPILL, TREE CREW DISPATCHED													
Remarks for Step 2						Town: MONTVILLE				Street: KITEMAUG RD			
TREE, PRIMARY DOWN, BROKEN POLE AND OIL SPILL, TREE CREW DISPATCHED													



Daily Reporting (page 2)

Report No: CCRPT
Company: Eversource CT
Cust/Hr Interruption: 200
Start Date: 8/12/2015

Eversource CT
Trouble Call And Interruption Analysis System
Connecticut Commission - Reportable Interruptions
From: 8/12/2015 To: 8/12/2015

Date: 08/13/2015
Time: 02:01 PM
Page: 2 of 3

Start Date	Interrupt #			Circuit Number			Type of Construction	System Voltage	Total Customer Hours	Total Customers Involved			
08/11/2015	3005676			11A72-DANBURY-1B			DIOH-Dist Overhead	13.8-13.8 KV	393.17	217			
Step Restoration Information													
Step Nbr	Time Off	Time On	Custs Involved	Hours Mins	Cust Hours	First Town	# CST	Second Town	# CST	Third Town	# CST	Sequence ID	Cause of Trouble Spot
1	21:51	23:37	185	1 hrs 46 min	326.83	DANBURY	185						VHCL-Veh Accident
2	21:51	23:54	28	2 hrs 3 min	57.4	DANBURY	28						VHCL-Veh Accident
3	21:51	00:05	4	2 hrs 14 min	8.93	DANBURY	4						VHCL-Veh Accident
Remarks for Step 1						Town: DANBURY				Street: WILDMAN ST			
None.													
Remarks for Step 2						Town: DANBURY				Street: CHESTNUT ST			
None.													
Remarks for Step 3						Town: DANBURY				Street: CHESTNUT ST			
None.													



Daily Reporting (page 3)

Report No: CCRPT
Company: Eversource CT
Cust/Hr: 200
Interruption:
Start Date: 8/12/2015

Eversource CT
Trouble Call And Interruption Analysis System
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From: 8/12/2015 To: 8/12/2015

Date: 08/13/2015
Time: 02:01 PM
Page: 3 of 3

Start Date			Interrupt #		Circuit Number		Type of Construction			System Voltage		Total Customer Hours		Total Customers Involved	
08/12/2015			3005756		12K1-COLCHESTER-4E		DIOH-Dist Overhead			8.32-8.32 KV		279.47		128	
Step Restoration Information															
Step Nbr	Time Off	Time On	Custs Involved	Hours Mins	Cust Hours	First Town	# CST	Second Town	# CST	Third Town	# CST	Sequence ID	Cause of Trouble Spot		
1	06:39	06:50	128	2 hrs 10 min	277.33	COLCHESTER	128					02IO-AFJ1	TREE-Tree/Limb Outside Trim Zone/Unknown		
Remarks for Step 1						Town: COLCHESTER				Street: OLD RD					
tree took down primary															
Start Date			Interrupt #		Circuit Number		Type of Construction			System Voltage		Total Customer Hours		Total Customers Involved	
08/12/2015			3006061		24H6-WATERTOWN-2W		DIOH-Dist Overhead			13.8-13.8 KV		1663.15		1147	
Step Restoration Information															
Step Nbr	Time Off	Time On	Custs Involved	Hours Mins	Cust Hours	First Town	# CST	Second Town	# CST	Third Town	# CST	Sequence ID	Cause of Trouble Spot		
1	13:45	15:12	1147	1 hrs 26 min	1644.03	WATERTOWN	1106	BETHLEHEM	41				TREE-Tree/Limb Outside Trim Zone/Unknown		
Remarks for Step 1						Town: WATERTOWN				Street: LITCHFIELD RD					
RECLOSER FAILED/UNABLE TO OPERATE/LINEMAN TO TEST FOR POT AND REMOVE TREE USING LIVE LINE PRACTICE/ELECTRICIAN EN ROUTE FOR RECLOSER OPERATION															

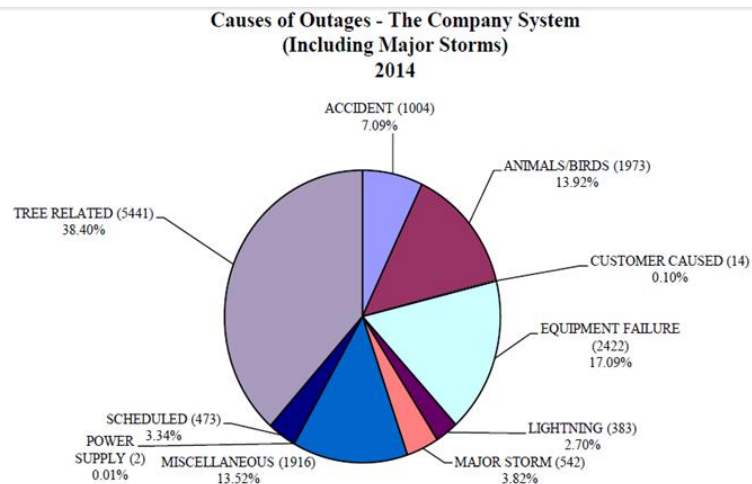


Annual Reporting - CL&P Inspection and Maintenance Report

The Connecticut Light and Power Company Inspection and Maintenance System Report									
January 1 Through November 30, 2014									
System Report						Number of scheduled and completed			
Ref. No	I&M Program Description	Group Responsible	Procedure Number	Unit Description	Total Number of Units	Scheduled for 2014	Completed by 11/30/2014	% completed by 11/30/2014	Notes
1	DB Facilities	Operations	NUMM 5.11	Switch/Transformer	66,892	6,142	5,669	92%	1
2	Capacitor Banks	Maintenance	NUMM 5.05	Capacitor Bank	1,791	1,791	1,791	100%	4
3	Automatic Voltage Regulators	Maintenance	NUMM 5.01	Regulator	866	866	866	100%	4
4	Reclosers	Maintenance	NUMM 5.44 - Inspections	Recloser	2425 (ALL)	3,760 (I)	3,318	88%	2, 4,5
			NUMM 5.44 - Major		1248 (OIL)	104 (M)	45	43%	3, 4
5	UG System Network Transformers	Maintenance	NUMM 5.29, 5.30 - Routine Inspection	Transformer/Protector	642	642 (I)	642	100%	4
			NUMM 5.29, 5.30 - Major Maintenance			321 (M)	317	99%	4
6	UG Plant	Operations	NUMM 5.59	UG Structure (Manholes & Vaults)	10,222	2,124	1,984	93%	6
7	Subway-Street Lights	Operations	NUMM 5.52	Pole	5,108	1,170	1,436	123%	
8	Infrared Inspection	Maintenance	NUMM 5.22	Circuit	1,019	1,019	1,019	100%	



Annual 2014 Outages by Categories



Note: The number of interruptions is included in the parentheses next to each cause.

Accident	7.09%
Vehicle	5.38%
Foreign Objects	1.11%
Employee Error	0.59%

Equipment Failure	17.09%
Overhead System	6.09%
Underground Cable	0.71%
DB Cable	5.70%
Transmission	0.00%
Substation	0.08%
Transformer	4.52%
Other	0.00%

Miscellaneous	13.52%
Overload	1.19%
Other	2.61%
Unknown	9.72%