



STATE OF CONNECTICUT

DEPARTMENT OF PUBLIC UTILITY CONTROL
TEN FRANKLIN SQUARE
NEW BRITAIN, CT 06051

DOCKET NO. 01-04-20 DPUC 2001 ANNUAL REPORT TO THE GENERAL
ASSEMBLY ON ELECTRIC DISTRIBUTION COMPANY
SYSTEM RELIABILITY

June 20, 2001

By the following Commissioners:

Donald W. Downes
John W. Betkoski, III
Jack R. Goldberg

DECISION

I. INTRODUCTION

A. SUMMARY

General Statutes of Connecticut (Conn. Gen. Stat.) §16-245y requires each electric distribution company to report reliability data to the Department of Public Utility Control (Department) for the prior 12 months in terms of System Average Interruption Duration Index and System Average Interruption Frequency Index by October 1 of each year. The Department is then required to report the data for each electric and electric distribution company to the joint standing committee of the General Assembly having cognizance of matters relating to energy, by the following January 1. This report covers calendar year 2000. The Department finds that reliability in the State has generally been improving since Public Act 98-28, An Act Concerning Electric Restructuring, was enacted.

B. CONDUCT OF THE PROCEEDING

By letter dated March 30, 2001, The United Illuminating Company (UI) provided its annual reliability data to the Department of Public Utility Control (Department). By letter dated March 30, 2001, The Connecticut Light and Power Company (CL&P) provided its annual reliability data.

No hearing is required on this matter, and none was held. The data provided by UI and CL&P were not contested.

C. PARTIES AND INTERVENORS

The Department recognized the following as parties in this proceeding: The Connecticut Light and Power Company, P. O. Box 270, Hartford, CT 06141-0270; The United Illuminating Company, P. O. Box 1564, New Haven, CT 06506-0901; and the Office of Consumer Counsel, Ten Franklin Square, New Britain, CT 06051.

II. DEPARTMENT ANALYSIS

A. IMPLEMENTATION OF CONN. GEN. STAT. §16-245Y

Conn. Gen. Stat. §16-245y requires the Department to submit reliability data, in terms of the System Average Interruption Duration Index (SAIDI) and System Average Interruption Frequency Index (SAIFI) to the Legislature by January 1 of each year. SAIDI is defined as the sum of customer interruptions in the prior 12-month period, in minutes, divided by the average number of customers served during that period. Conn. Gen. Stat. §16-245y(a). SAIFI is defined as the total number of customers interrupted in the prior 12-month period divided by the average number of customers served during this period. Id. SAIDI can be viewed as the average outage duration experienced by all customers on an electric distribution company's system, and SAIFI can be viewed as the average outage frequency on an electric distribution company's system. Lower SAIDI and SAIFI numbers reflect better reliability performance in terms of outage duration and frequency. Both SAIDI and SAIFI are required by statute to exclude

outages attributable to major storms, scheduled outages, and outages caused by customer equipment, each as determined by the Department. Conn. Gen. Stat. §16-245y(a)(1).

Conn. Gen. Stat. §16-245y(a) requires the electric distribution companies to report reliability statistics to the Department by October 1 each year. The Department currently receives the Transmission and Distribution Reliability Performance Reports (TDRP Reports) on or about March 31 of each year, which 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 electric distribution companies.

In this report, the Department exceeds the requirements of Conn. Gen. Stat. §16-245y and includes information on the causes of outages. This will provide the Legislature with insight into the circumstances that affect the reliability data the Department reports to the Legislature.

Conn. Gen. Stat. §16-245y(a)(1) requires the Department to exclude major storms from the SAIDI and SAIFI data. Traditionally, the Department has emphasized reliability data excluding major storms, since major storms have a large effect on reliability data and can cause large year-to-year variations. Further, the electric distribution companies have limited influence over the reliability of the system under major storm conditions. Some factors under the control of the electric distribution companies can certainly improve performance of the distribution system under major storm conditions; however, the impact of major storms on the distribution system reliability data may be significant regardless of the design or operation of that system.

For the purpose of determining reliability trends of the distribution system, the Department believes it is correct to exclude major storms from the reliability data. However, the Department also examines reliability data including major storms, since these data reflect the ultimate reliability seen by consumers. Also, since reliability of the system under major storm conditions is not entirely out of the control of the electric distribution companies, it is proper to consider major storm conditions when considering the adequacy of the overall design, operation, and maintenance of the distribution system. Therefore, the Department includes SAIDI and SAIFI data both with and without major storms in its annual report to the Legislature.

The Department defines “major storm” based on the following statistical criterion: whenever the number of trouble locations (that result in outages) exceeds the 98.5 percentile of the trouble location frequency over the preceding four years, a major storm will be declared and all interruptions during the major storm period, or that began in that period, are excluded from the non-storm SAIDI and SAIFI calculations. Therefore, the definition is not based on meteorological criteria, but solely on the impact a weather event has on the distribution system.

Traditionally, the Department has used a four-year average of reliability data excluding major storms to determine reliability trends. The Department has used this measure after considering two competing considerations. First, annual variations in weather, apart from major storms, can significantly affect reliability data. Second, to

capture recent changes in reliability data or trends in reliability, the time period should not be too long. The Department believes a four year period is a reasonable compromise of these two considerations. The Department therefore includes reliability data for a four year period in its annual report to the Legislature. Additionally, the Department includes data for the four years ending in 1998, so that current reliability may be compared to reliability statistics that were current when Public Act 98-28, An Act Concerning Electric Industry Restructuring (the Act), was passed into law. This is also consistent with Conn. Gen. Stat. §16-244i(d), which states that quality and reliability of service should be the same or better than levels that existed on July 1, 1998.

B. DESCRIPTION OF THE UTILITIES

CL&P covers 87% of the geographic area of Connecticut and in 2000 served approximately 1.1 million customers. 2000 CL&P TDRP Report, p. 2. CL&P's service territory includes urban, suburban, and rural areas, as well as an extensive amount of wooded and hilly terrain. Id. The rural area and high density of trees in much of CL&P's territory can have a significant effect on CL&P's distribution system, both in terms of the design of many of the circuits and the performance of the circuits that traverse such areas.

UI covers 7% of the geographic area of Connecticut and in 2000 served approximately 310,000 customers. 2000 UI TDRP Report, p. 24. UI's service territory includes predominantly urban and suburban areas, with one small rural area in Easton. Id.

Both UI and CL&P have overhead distribution lines in close proximity to trees. Both companies therefore have extensive programs dedicated to tree trimming to maintain clearance between the lines and the trees. However, because UI's territory has considerably lower tree density than CL&P's, and because more of UI's system is underground, tree-caused outages are less frequent in UI's system.

The remaining 6% of the territory of Connecticut is served by municipal utilities, which are not required to report SAIDI and SAIFI data to the Department.

C. RELIABILITY STATISTICS

1. The Connecticut Light and Power Company

Reliability statistics for CL&P as of year-end 2000 are as follows.

CL&P Reliability Data

	Without Major Storms		With Major Storms	
	<i>SAIDI</i>	<i>SAIFI</i>	<i>SAIDI</i>	<i>SAIFI</i>
1996	130	1.16	893	2.54
1997	116	1.22	320	1.69
1998	129	1.14	205	1.35
1999	107	1.02	352	1.77
2000	81	0.75	240	1.14
1997-2000 Average	108	1.03	279	1.49
1995-1998 Average ¹	132	1.22	484	1.96

2001 CL&P TDRP Report, pp. 6, 7; Decision dated December 1, 1999, in Docket No. 99-06-12, DPUC 1999 Annual Report to the General Assembly on Electric Distribution Company Reliability, p. 4. In the Department's judgment, CL&P's overall reliability has been improving over the last four years, as evidenced by the generally lower SAIDI and SAIFI numbers during that time.

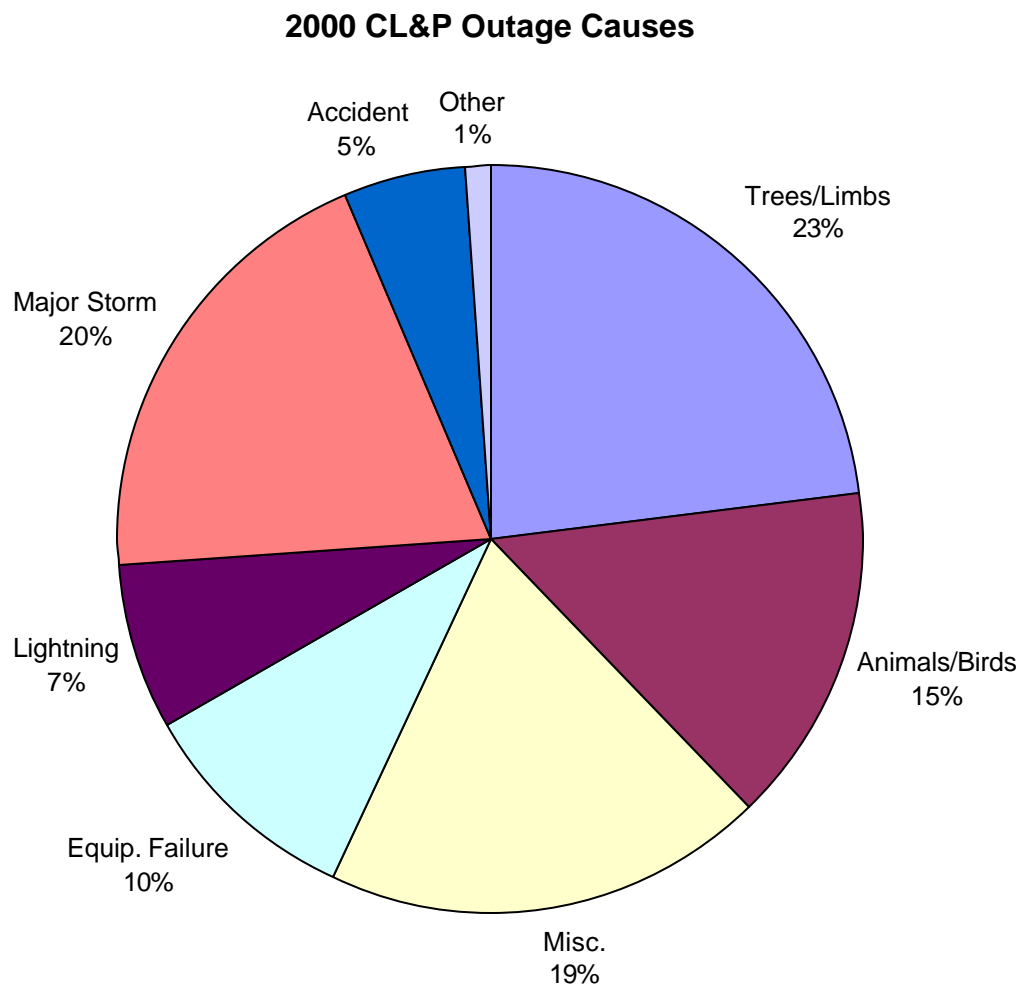
The following major storms in CL&P's service territory in 2000 met the Department's major storm definition criterion:

- On May 10, 2000, a thunder storm resulted in a total of 84,186 customer-hours interrupted;
- May 18, 2000, a thunder storm resulted in a total of 86,778 customer-hours interrupted;
- On June 2-3, 2000, a thunder storm resulted in a total of 1,160,836 customer-hours interrupted;
- On June 11-12, 2000, a thunder storm resulted in a total of 1,062,564 customer-hours interrupted;
- On June 27, 2000, a thunder storm resulted in a total of 102,877 customer-hours interrupted;
- On December 12, 2000, a wind storm resulted in a total of 193,163 customer-hours interrupted;

¹ As stated previously, the Department includes the four-year average ending 1998 in conjunction with Conn. Gen. Stat. §16-244i.

- On December 17, 2000, a rain storm resulted in 345,262 customer-hours interrupted.

The following chart provides data on the causes of outages in CL&P's service territory in 2000.² 2001 CL&P TDRP Report, p. 10.



Note: "Other" includes Scheduled Outages, Customer Caused Outages, and Power Supply Outages. All data are rounded to nearest whole number.

² See Appendix A for information on the causes of outages.

2. The United Illuminating Company

Reliability statistics for The United Illuminating Company as of year-end 2000 are as follows.

UI Reliability Data

	Without Major Storms		With Major Storms	
	<u>SAIDI</u>	<u>SAIFI</u>	<u>SAIDI</u>	<u>SAIFI</u>
1996	46	0.67	64	0.83
1997	48	0.78	60	0.89
1998	61	0.78	97	0.99
1999	58	0.79	106	1.00
2000	57	0.73	122	1.00
1997-2000 Average	56	0.77	96	0.97
1995-1998 Average ³	52	0.77	71	0.90

2001 UI TDRP Report, Chart I-1 and Chart I-2; Decision dated December 1, 1999, in Docket No. 99-06-12, DPUC 1999 Annual Report to the General Assembly on Electric Distribution Company Reliability, p. 7. The Department believes UI's reliability has generally been stable over the last four years. Although the SAIDI numbers have increased somewhat since 1996 and 1997, UI's reliability is very good and the slight increase in SAIDI and SAIFI does not represent a cause for concern that UI's reliability is declining.

The following major storms in UI's service territory in 2000 met the Department's major storm definition criterion:

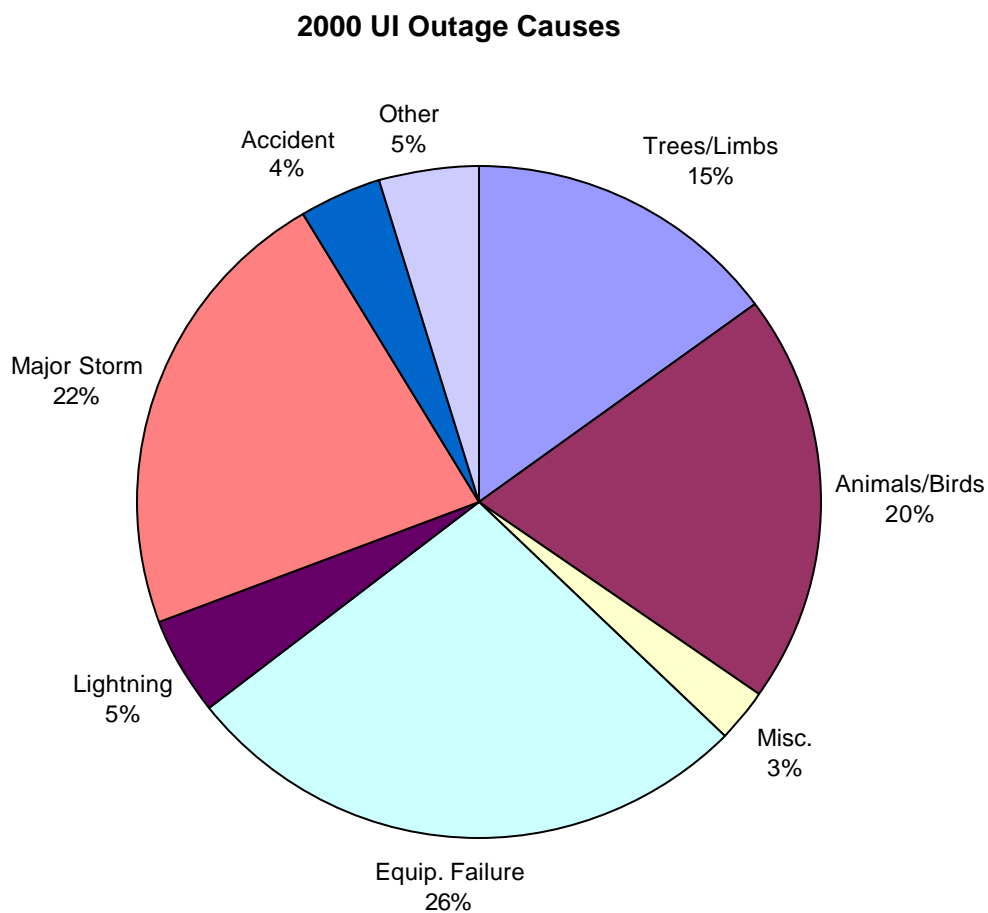
- On May 13-14, 2000, a thunder storm resulted in a total of 43,841 customer-hours interrupted;
- On May 18-19, 2000, a thunder storm resulted in a total of 22,896 customer-hours interrupted;
- On June 2-3, 2000, a thunder storm resulted in a total of 145,852 customer-hours interrupted;
- On June 11-12, 2000, a thunder storm resulted in a total of 58,120 customer-hours interrupted;
- On June 27-28, 2000, a thunder storm resulted in a total of 17,042 customer-hours interrupted;

³ As stated previously, the Department includes the four-year average ending 1998 in conjunction with Conn. Gen. Stat. §16-244i.

- On September 2-3, 2000, a thunder storm resulted in a total of 50,183 customer-hours interrupted;
- On December 12, 2000, a wind storm resulted in a total of 13,169 customer-hours interrupted.

2001 UI TDRP Report, Appendix 7.

The following chart provides data on the causes of outages in UI’s service territory in 2000.⁴ 2001 UI TDRP Report, Chart I-3.1.



Note: “Other” includes Scheduled Outages, Customer Caused Outages, and Power Supply Outages. All data are rounded to nearest whole number.

⁴ See Appendix A for information on the causes of outages.

3. State-wide Reliability Indices

Conn. Gen. Stat. §16-245y(a) requires the Department to include state-wide SAIDI and SAIFI data in its report to the Legislature. The following chart shows state-wide SAIDI and SAIFI data that combines data from UI and CL&P, using a weighted average by customer count and the SAIDI and SAIFI data provided by each electric distribution company.

State-wide Reliability Indices

	Without Major Storms		With Major Storms	
	<i>SAIDI</i>	<i>SAIFI</i>	<i>SAIDI</i>	<i>SAIFI</i>
1998	114	1.06	181	1.27
1999	96	0.97	298	1.60
2000	76	0.75	214	1.10

The data exclude the approximately 6% of the State that falls within the service territories of the municipal utilities. As demonstrated by the above data, state-wide reliability has been improving since 1998.

Appendix A
Explanations of Outage Cause Categories

Power Supply-	Outages caused by the operation of the electric transmission and distribution system in conjunction with other electric distribution companies, such as Independent System Operator-imposed load shedding or loss of a transmission line owned by another electric distribution company.
Scheduled-	Outages caused by intentionally de-energizing facilities serving customers for the purpose of apparatus change-out, conversion, maintenance, relocation/extension, permanent repair, or customer request.
Major Storm-	Outages associated with weather events that meet the Department-approved major storm criterion.
Customer Caused-	Any interruption caused by customer-owned equipment failure or customer operation.
Animal/Bird Contact-	Any interruption caused by animals or birds contacting energized facilities.
Lightning-	Any interruption caused by lightning affecting energized facilities.
Accident-	Any interruption caused by an employee error, or by a vehicle or foreign object contacting a structure, guy, or enclosure.
Equipment Failure-	Any interruption caused by the failure of a component of the electric distribution company's transmission or distribution system.
Tree/Limb Contact-	Any interruption caused by vegetation contacting energized facilities, other than those felled by customers or employees.
Miscellaneous/ Unknown-	Any interruption caused by an electrical overload, an interruption for which the cause is indeterminate, or miscellaneous causes not included in other categories.

**DOCKET NO. 01-04-20 DPUC 2001 ANNUAL REPORT TO THE GENERAL
ASSEMBLY ON ELECTRIC DISTRIBUTION COMPANY
SYSTEM RELIABILITY**

This Decision is adopted by the following Commissioners:

Donald W. Downes

John W. Betkoski, III

Jack R. Goldberg

CERTIFICATE OF SERVICE

The foregoing is a true and correct copy of the Decision issued by the Department of Public Utility Control, State of Connecticut, and was forwarded by Certified Mail to all parties of record in this proceeding on the date indicated.

Louise E. Rickard
Acting Executive Secretary
Department of Public Utility Control

Jun 25, 2001

Date