

ELECTRIC SERVICE RELIABILITY IN PENNSYLVANIA 2004

PENNSYLVANIA PUBLIC UTILITY COMMISSION



Electric Service Reliability In Pennsylvania 2004

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EXECUTIVE SUMMARY

Over the past few years, electric service reliability has been under increased scrutiny in Pennsylvania. The Electricity Generation Customer Choice and Competition Act mandates that the Pennsylvania Public Utility Commission (Commission) ensure that levels of reliability that existed prior to the restructuring of the electric utility industry would continue in the new competitive markets. Dec. 3, P.L. 802, No. 138 § 4.

In response to this mandate, the Commission initially adopted reporting requirements designed to ensure the continuing safety, adequacy and reliability of the generation, transmission and distribution of electricity in the Commonwealth. The Commission also established reliability benchmarks and standards to measure the performance of each electric distribution company (EDC). Recently, the reporting requirements were enhanced to provide for better oversight of reliability performance, and the benchmarks and standards were tightened in an effort to ensure performance at historic levels or better.

The performance standard is the minimum level of EDC reliability performance permitted by the Commission and is a level of performance beyond which the company must either justify its poor performance or provide information on the corrective measures it will take to improve performance. Performance that does not meet the standard for any reliability measure is the threshold for triggering additional scrutiny and potential compliance enforcement actions.

In 2004, two of the 11 EDCs failed to meet their rolling 12-month performance standards for the average duration of service outages per affected customer. Six EDCs failed to meet their rolling 12-month performance standards for the average frequency of service outages per customer. Five EDCs have petitioned the Commission to amend their performance benchmarks and standards. Four of these EDCs have had unacceptable reliability performances based on one or more measures during 2004. Depending on the outcome of these proceedings, the status of some EDCs' past performance may change.

In addition to improving the monitoring and reporting of the reliability performance of the EDCs, the Commission has initiated a rulemaking proceeding to determine whether specific inspection and maintenance standards for electric transmission and distribution systems should be adopted. The Commission is currently evaluating comments from interested parties on the need for standards and what types of standards are appropriate.

Disclaimer: Any comments or conclusions contained in this report do not necessarily reflect the views or opinions of the Commission or individual commissioners.

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SECTION 1 -- INTRODUCTION

Purpose

This report discusses the reliability performance of electric distribution companies (“EDCs”) operating within the Commonwealth during the calendar year 2004. Although the reliability of the bulk transmission system¹ is integral to the overall reliability of electric service, this report focuses on the reliability of the electric distribution system.

The information contained in this report was obtained from the first annual reliability reports submitted by the EDCs pursuant to the Commission’s revised regulations.² These annual reports provide an assessment of electric service reliability for each EDC’s service territory.

This year’s report, *Electric Service Reliability in Pennsylvania*, was prepared by the Bureau of Conservation, Economics and Energy Planning (CEEP) with input from a Staff Internal Working Group on Electric Service Reliability³ (SIWG). The Commission created SIWG to reevaluate its oversight efforts with regard to electric service reliability, and monitor ongoing reliability performance in Pennsylvania. The SIWG was also charged with revising the Commission’s reliability regulations and reliability benchmarks and standards.

Background

The Electricity Generation Customer Choice and Competition Act⁴ (Act) became effective January 1, 1997. The Act amended Title 66 of the Pennsylvania Consolidated Statutes (“Code”) by adding Chapter 28 to establish standards and procedures to create direct access by retail customers to the competitive market for the generation of electricity, while maintaining the safety and reliability of the electric distribution system. Specifically, the Commission was given a legislative mandate to ensure that levels of reliability that existed prior to the restructuring of the electric utility industry would continue in the new competitive markets.⁵

¹ The high voltage transmission system, nominally >100 kV, is regulated by the Federal Energy Regulatory Commission. The electric distribution system is under the purview of the Pennsylvania Public Utility Commission.

² 52 Pa. Code § 57.195.

³ The Staff Internal Working Group on Electric Service Reliability consists of staff members from the Bureau of Conservation, Economics and Energy Planning, the Bureau of Audits, the Bureau of Fixed Utility Services and the Law Bureau.

⁴ Dec. 3, P.L. 802, No. 138 § 4.

⁵ 66 Pa.C.S. §§ 2802(12), 2804(1) and 2807(d).

In response to this legislative mandate, the Commission adopted a Final Rulemaking Order on April 23, 1998, setting forth various reporting requirements designed to ensure the continued safety, adequacy and reliability of the generation, transmission and distribution of electricity in the Commonwealth.⁶ The Final Rulemaking Order also suggested that the Commission could reevaluate its monitoring efforts at a later time as deemed appropriate.

Subsequently, on December 16, 1999, the Commission entered a Final Order establishing reliability benchmarks and standards for the EDCs.⁷ The purpose of these reliability indices is to measure the performance of EDCs' transmission and distribution systems in terms of the frequency and duration of unplanned electric service outages to ensure that the levels of reliability existing prior to retail competition do not deteriorate.

In June 2002, the Legislative Budget and Finance Committee⁸ completed a report, *Assessing the Reliability of Pennsylvania's Electric Transmission and Distribution Systems*, which addressed the effect of electric industry deregulation/restructuring on the reliability of the transmission and distribution systems and made several recommendations for improving the Commission's oversight of electric service reliability.

On July 18, 2002, SIWG submitted a report, *Review of the Commission's Monitoring Process for Electric Distribution Service Reliability*, which reviewed the Commission's monitoring process for electric service reliability and offered recommendations for better coordination of monitoring efforts, tightening the standards for reliability performance and establishing additional reporting requirements by the EDCs.

On May 7, 2004, the Commission adopted amendments to its existing regulations regarding electric reliability standards, which became effective on September 18, 2004.⁹ In conjunction with the adoption of the amended regulations, the Commission adopted an Order amending its benchmarks and standards.

⁶ Docket No. L-00970120; 52 Pa. Code §§ 57.191-57.197.

⁷ Docket No. M-00991220.

⁸ The Legislative Budget and Finance Committee is a Joint Committee of the Pennsylvania General Assembly.

⁹ Docket No. L-00030161; 34 Pa.B. 5135.

SECTION 2 – RELIABILITY PERFORMANCE MEASURES

Reliability Performance Indices

The benchmarks and standards established by the Commission are based on four reliability performance indices which have been adopted by the Institute of Electrical and Electronic Engineers, Inc. (IEEE). These indices include: (1) Customer Average Interruption Duration Index (CAIDI); (2) System Average Interruption Frequency Index (SAIFI); (3) System Average Interruption Duration Index (SAIDI); and Momentary Average Interruption Frequency index (MAIFI).

- CAIDI is the average duration of sustained interruptions¹⁰ for those customers who experience interruptions during the analysis period. CAIDI represents the average time required to restore service to the average customer per sustained interruption. It is determined by dividing the sum of all sustained customer interruption durations, in minutes, by the total number of interrupted customers.
- SAIFI measures the average frequency of sustained interruptions per customer occurring during the analysis period. It is calculated by dividing the total number of sustained customer interruptions by the total number of customers served.
- SAIDI is the average duration of sustained customer interruptions per customer occurring during the analysis period. It is the average time customers were without power. It is determined by dividing the sum of all sustained customer interruption durations, in minutes, by the total number of customers served. SAIDI is also the product of CAIDI and SAIFI.
- MAIFI measures the average frequency of momentary interruptions¹¹ per customer occurring during the analysis period. It is calculated by dividing the total number of momentary customer interruptions by the total number of customers served.

The actual values of these four reliability indices are submitted by the EDCs on both a quarterly (rolling 12-month average) and annual basis. Also

¹⁰ The loss of electric service by one or more customers for the period defined as a sustained customer interruption by IEEE as it may change from time to time – currently 5 minutes or greater. The term does not include “major events” or the authorized termination of service to an individual customer.

¹¹ The loss of electric service by one or more customers for the period defined as a momentary customer interruption by the IEEE as it may change from time to time – currently less than 5 minutes. The term does not include “major events” or the authorized termination of service to an individual customer.

included is the data used in calculating the indices, namely the average number of customers served, the number of sustained customer interruption minutes and the number of customers affected by service interruptions.¹² This data has been used by the Commission to establish reliability performance benchmarks and standards.

It is noted that some EDCs do not currently have the necessary equipment to collect data relating to momentary service interruptions (MAIFI). However, the Commission desires to assess, where possible, the affect of frequent momentary interruptions on EDCs' customers. Thus, the provision of this data is required, if available.

In addition to the outage data mentioned above, the Commission's regulations require EDCs to report a breakdown and analysis of outage causes, such as equipment failure, animal contact and contact with trees. This analysis is helpful in identifying the primary causes of service interruptions and determining which causes, if any, can be prevented in the future through proposed solutions.

The revised regulations also require EDCs to report reliability performance on a system-wide basis, rather than on an operating area basis, and provide an analysis of the worst performing five percent of circuits.

Major Events

In order to analyze and set measurable goals for electric service reliability performance, outage data is separated into normal and abnormal periods so that only normal event periods are used for calculating reliability indices. The term "major event" is used to identify an abnormal event, such as a major storm, and is defined as either of the following:

- An interruption of electric service resulting from conditions beyond the control of the EDC which affects at least 10% of the customers in the EDC's service territory during the course of the event for a duration of five minutes or greater.
- An unscheduled interruption of electric service resulting from an action taken by an EDC to maintain the adequacy and security of the electrical system.

¹² For some EDCs, MAIFI statistics are unavailable due to insufficient field equipment necessary to provide meaningful data.

Outage data relating to major events are to be excluded from the calculation of reliability indices. In order to avoid the inappropriate exclusion of outage data, the Commission has implemented a process whereby an EDC must submit a formal request for exclusion of service interruptions for reporting purposes, accompanied by data which demonstrates that a service interruption qualifies as a major event.

For the calendar year 2004, 24 requests for exclusion of major outage data relating to major events were filed by the EDCs. Of these requests, 21 were approved, two were partially approved and one was denied. Appeals of two of the Commission's decisions were denied.

Reliability Performance Benchmarks and Standards

On December 16, 1999, the Commission established electric service performance benchmarks and standards for the operating areas of each EDC. Performance benchmarks were based on a five-year historical average (1994-1998). Performance standards were established as two standard deviations above the mean historical value. Both the benchmarks and standards were revised in 2004.

In the past, some EDCs had used one, system-wide, operating area to compute their reliability metrics, while other EDCs subdivided their service territories into multiple operating areas. This resulted in an inconsistent application of the "major event" definition for exclusion of outage data. Thus, the Commission directed each EDC to recalculate its benchmarks for each index, based on only one operating area – the entire service territory.

As currently established, the *performance benchmark* represents the statistical average of the EDC's annual, system-wide, reliability performance index values for the five-year time period from 1994-1998. The benchmark serves as an objective level of performance that each EDC should strive to achieve and maintain, and is a reference point for comparison of future reliability performance.

The two standard deviation approach for establishing minimum performance standards, used by the Commission between 1999 and 2004, proved to be inappropriate. A standard deviation measures the degree of variance from an average and, since the benchmark data at the time was limited to only five data points, the Commission was not confident that the standard deviation statistic would yield a valid result. Thus, in 2004, the Commission established thresholds using percentage bandwidths above the benchmark for both short-term and long-term standards.

The current *performance standard* is a numerical value that represents the minimal performance allowed for each reliability index for a given EDC. Performance standards are based on each EDC's historical performance benchmarks. Both long-term (rolling three-year) and short-term (rolling 12-month) performance standards have been established for each EDC. The performance standard is the minimum level of EDC reliability performance permitted by the Commission and is a level of performance beyond which the company must either justify its poor performance or provide information on corrective measures it will take to improve performance. Performance that does not meet the standard for any reliability measure is the threshold for triggering additional scrutiny and potential compliance enforcement actions.

The rolling 12-month standard is 120% of the benchmark for the major EDCs and 135% for the small EDCs.¹³ A greater degree of short-term latitude recognizes that small EDCs have fewer customers and fewer circuits than large EDCs, potentially allowing a single event to have a more significant impact on the reliability performance of the small EDCs' distribution systems. The 12-month standard became effective on November 1, 2004.

The rolling three-year standard is 110% of the benchmark for all EDCs. This new performance standard was set at 10% above the historical benchmark to ensure that the standard is no higher than the worst annual performance experienced during the years prior to restructuring. The three-year average performance will be measured against the standard at the end of each calendar year. The Commission will enforce the three-year standard beginning April 30, 2007.

Note: A lower number for any index indicates better reliability performance; i.e., a lower frequency of outages or shorter outage duration. A higher number indicates worse performance. For example, if an EDC has a CAIDI benchmark of 180 minutes, a rolling 12-month CAIDI standard of 216 minutes and an actual CAIDI for a particular year of 200 minutes, its performance is considered to be adequate. If CAIDI is 160 minutes, the performance is better than the historical average performance. A CAIDI of 240 minutes, on the other hand, indicates a failure to meet the performance standard.

Benchmarks and standards for EDC reliability performance are listed in Appendix A.

¹³ Large EDCs currently include: Allegheny Power, Duquesne Light, Met-Ed, Penelec, Penn Power, PECO and PPL. Small EDCs include: UGI, Citizens', Pike County and Wellsboro.

SECTION 3 -- STATISTICAL UTILITY PERFORMANCE DATA

Statewide Summary

The 2004 reliability data submitted by the EDCs indicates that two EDCs failed to meet their rolling 12-month performance standards for CAIDI; six EDCs failed to meet their rolling 12-month SAIFI performance standards; and SAIDI standards were exceeded by four EDCs. The following table provides actual 2004 reliability performance for each EDC and the benchmarks and standards for each reliability index.

Customer Average Interruption Duration Index (CAIDI)				% Above (+) or Below (-) Standard	% Above (+) or Below (-) Benchmark
EDC	2004	Benchmark	Standard		
Allegheny Power	190	178	214	-11.2%	6.7%
Duquesne Light	92	108	130	-29.2%	-14.8%
Met-Ed (FE)	128	127	152	-15.8%	0.8%
Penelec (FE)	140	115	138	1.4%	21.7%
Penn Power (FE)	120	92	110	9.1%	30.4%
PECO	106	112	134	-20.9%	-5.4%
PPL	159	145	174	-8.6%	9.7%
UGI	143	169	228	-37.3%	-15.4%
Citizens	64	105	141	-54.6%	-39.0%
Pike County	172	178	240	-28.3%	-3.4%
Wellsboro	84	124	167	-49.9%	-32.5%
System Average Interruption Frequency Index (SAIFI)				% Above (+) or Below (-) Standard	% Above (+) or Below (-) Benchmark
EDC	2004	Benchmark	Standard		
Allegheny Power	1.13	0.67	0.80	41.3%	68.7%
Duquesne Light	1.03	1.17	1.40	-26.4%	-12.0%
Met-Ed (FE)	1.54	1.06	1.27	21.3%	45.3%
Penelec (FE)	1.77	1.15	1.38	28.3%	53.9%
Penn Power (FE)	1.43	1.02	1.22	17.2%	40.2%
PECO	0.98	1.23	1.48	-33.8%	-20.3%
PPL	1.09	0.98	1.18	-7.7%	11.1%
UGI	0.65	0.83	1.12	-42.0%	-21.7%
Citizens	0.39	0.20	0.27	44.4%	95.0%
Pike County	0.52	0.39	0.53	-1.9%	33.3%
Wellsboro	3.13	1.23	1.66	88.6%	154.5%
System Average Interruption Duration Index (SAIDI)				% Above (+) or Below (-) Standard	% Above (+) or Below (-) Benchmark
EDC	2004	Benchmark	Standard		
Allegheny Power	216	119	172	25.6%	81.5%
Duquesne Light	95	126	182	-47.8%	-24.6%
Met-Ed (FE)	197	135	194	1.5%	45.9%
Penelec (FE)	248	132	190	30.5%	87.9%
Penn Power (FE)	172	94	135	27.4%	83.0%
PECO	104	138	198	-47.5%	-24.6%
PPL	173	142	205	-15.6%	21.8%
UGI	93	140	256	-63.7%	-33.6%
Citizens	25	21	38	-34.2%	19.0%
Pike County	90	69	127	-29.1%	30.4%
Wellsboro	263	153	278	-5.5%	71.6%

Note: GREEN = better than benchmark; RED = worse than standard; BLACK = between benchmark and standard.

Utility Specific Performance Data

Allegheny Power

Allegheny Power (AP) provides service to 700,630 electric utility customers in western, north and south central Pennsylvania. In 2004, AP had total retail energy sales of about 20.2 billion kilowatthours.

AP's overall reliability performance in 2004 was better than its performance during the previous two years. However, AP's 2004 SAIFI and SAIDI exceeded the standard by 41.3% and 25.6%, respectively. SAIFI was 1.13 interruptions per customer, compared to the standard of 0.8. SAIDI was 216 minutes per customer, compared to the standard of 172. CAIDI was acceptable at 190 minutes with a standard set at 214.

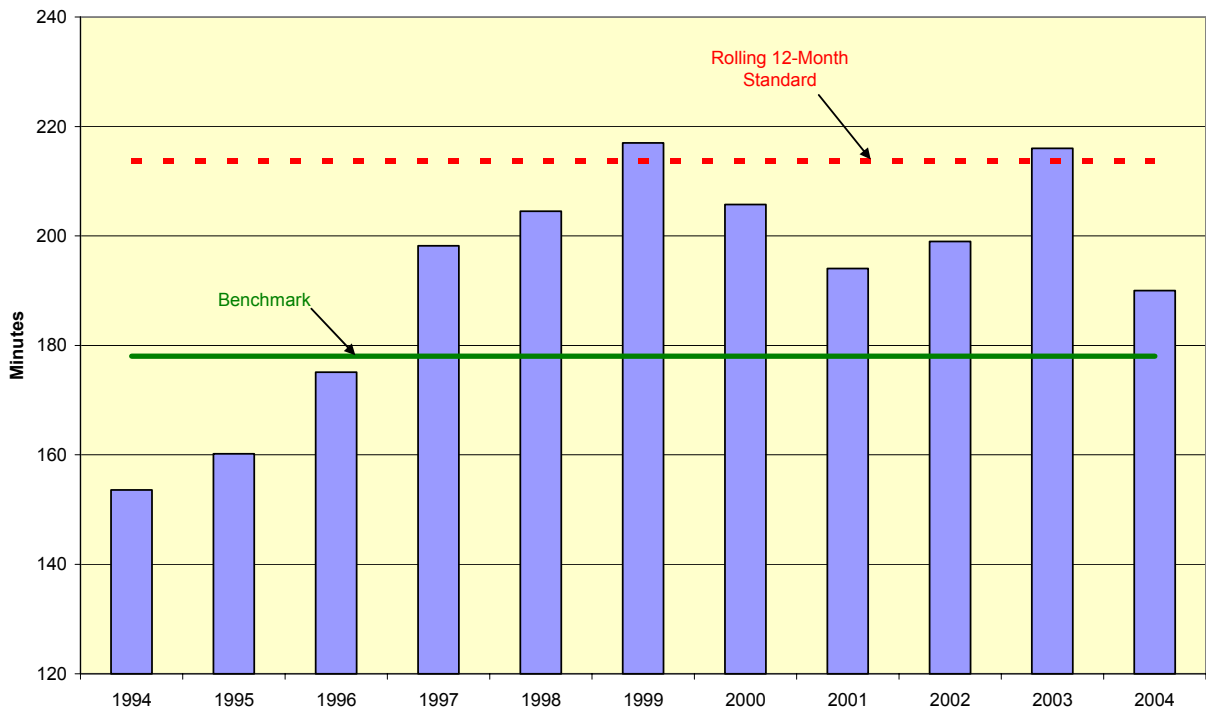
The calculations for the 2004 reliability indices exclude outage data relating to two major events, which were approved by the Commission:

- May 21 -24, 2004: thunderstorms, high wind and lightning; 86,434 customer interruptions excluded; 39,702,186 customer minutes excluded.
- September 17 -21, 2004: Tropical Storm Ivan– high winds, severe rain and flooding; 89,063 customer interruptions excluded; 62,539,699 customer minutes excluded.

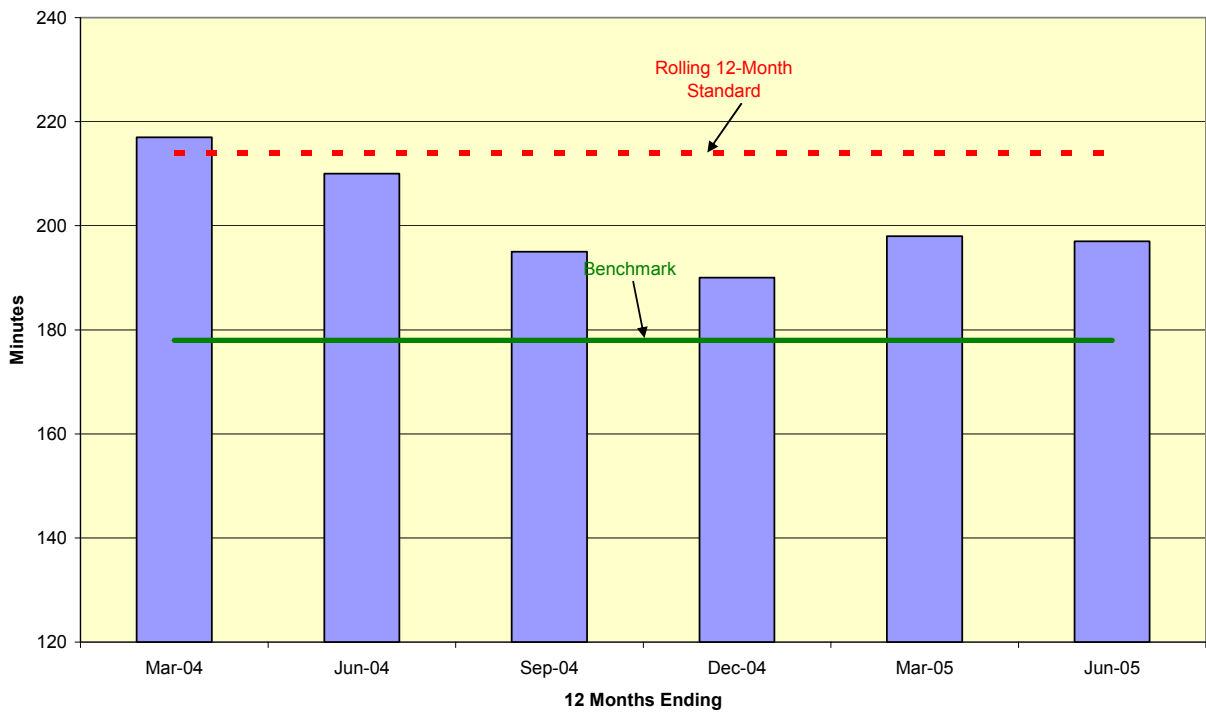
In 2004, AP experienced 782,493 service interruptions with a total duration of 148.8 million minutes, which was about 19.1% lower than that which was reported last year.

The following graphs depict trends in the duration of service interruptions for the AP system from 1994 to 2004, and for the four quarters of 2004 and the first two quarters of 2005, compared to the newly established benchmarks and standards.

**Allegheny Power System
Customer Average Interruption Duration Index (CAIDI)**

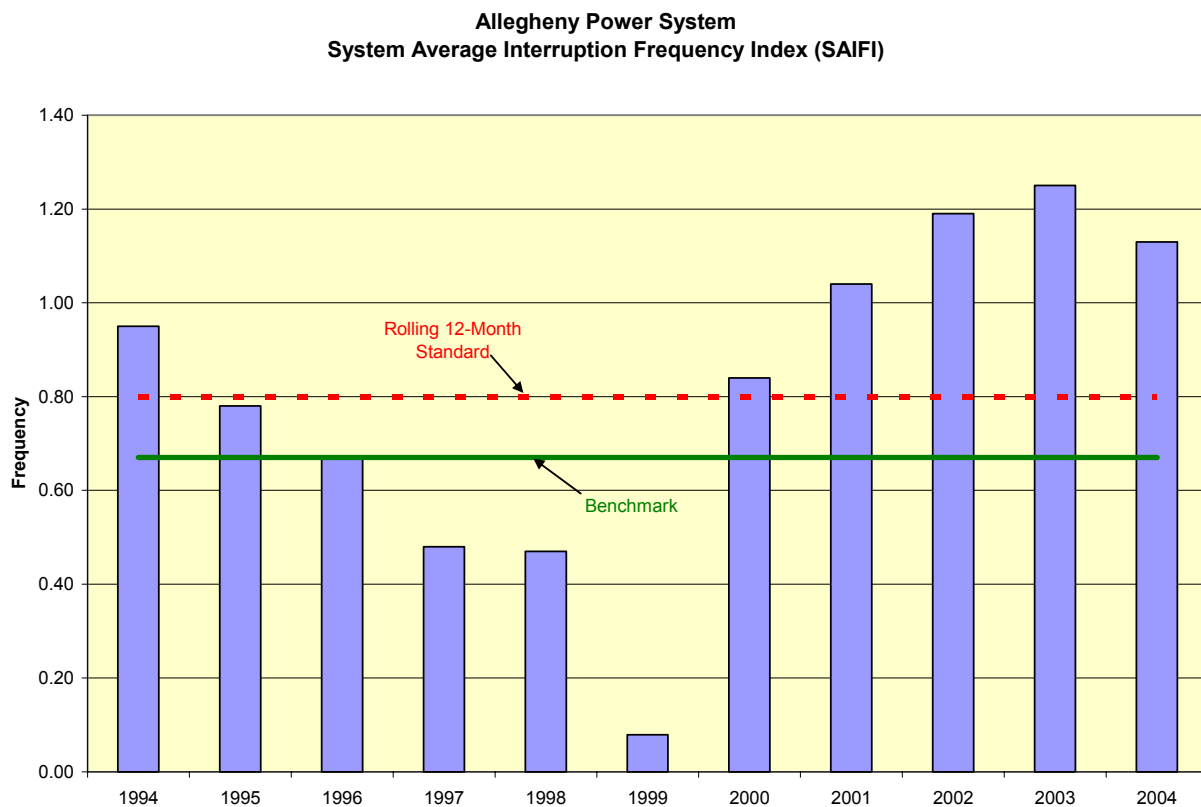


**Allegheny Power System
Customer Average Interruption Duration Index (CAIDI)**



As seen here, CAIDI improved considerably from the 12 months ended March 2004 to the 12 months ended December 2004. Average CAIDI values decreased from 217 minutes, which exceeded the standard, to 190 minutes, which was 11.2% below the standard. The CAIDI values for the first two quarters of 2005 increased slightly, but remained within an acceptable range.

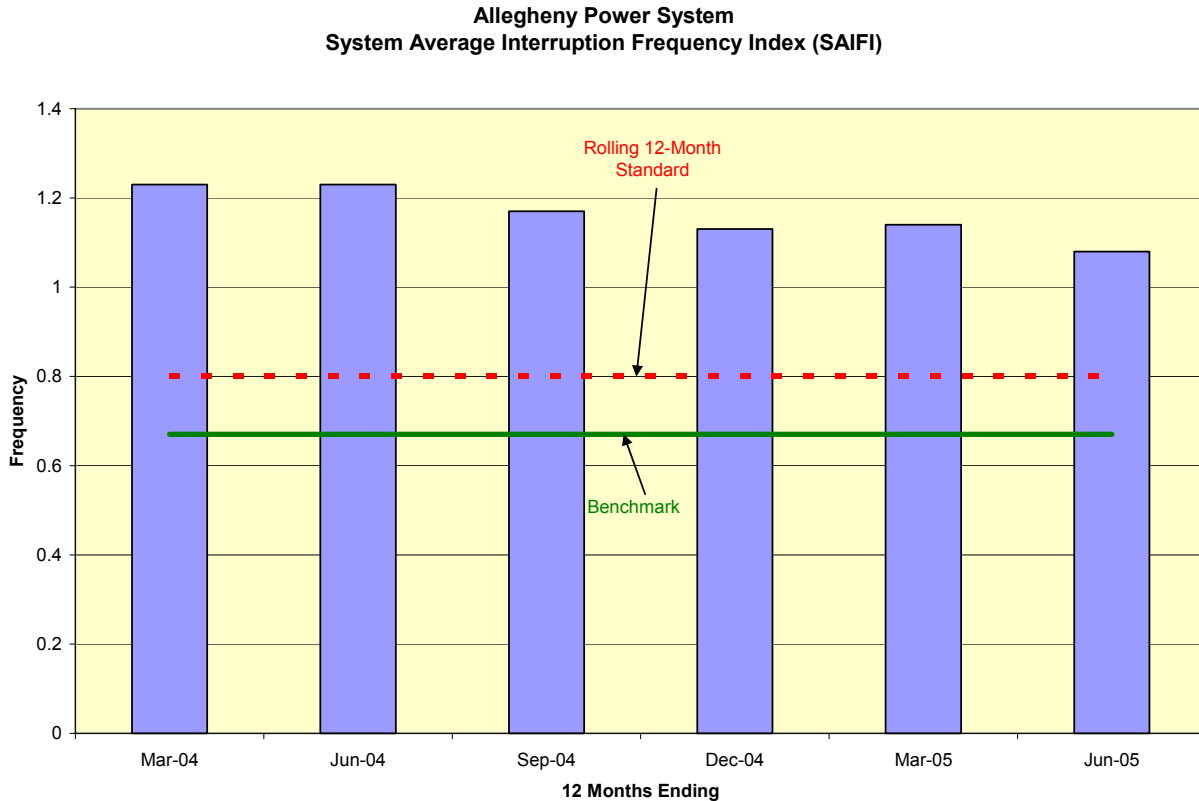
The next two graphs depict trends in the frequency of service interruptions for the AP system from 1994 to 2004, and for the four quarters of 2004 and the first two quarters of 2005, compared to the newly established benchmarks and standards for SAIFI.



In 2000, AP reported that it had implemented a new Outage Management System (OMS) which resulted in significant increases in reliability statistics. AP also reported having several months of missing data for its 1997 and 1998 SAIFI calculations. On June 9, 2004, AP filed a petition to amend its benchmarks, asserting that the recomputed benchmarks are unrealistic and artificially low.¹⁴ A settlement agreement was reached by all of the parties to the proceeding. However, the matter was subsequently remanded to the Commission's Office of Administrative Law Judge for further development of the record regarding the recalculation of AP's reliability benchmarks.

¹⁴ Docket No. M-00991220 F0003.

In its May 11, 2004, Order, the Commission recognized that because several months of data were missing for 1997 and 1998, AP's SAIFI and SAIDI benchmarks were set artificially low. Thus, the 20% bandwidth is rather narrow. It is noted that AP's recent SAIFI values are similar to those of other large EDCs. For example, its SAIFI value for the 12 months ending June 2005 was 1.08, compared to an average of 1.30 for other large EDCs. The Commission's ultimate decision on AP's pending petition to amend the SAIFI benchmark may resolve this issue.

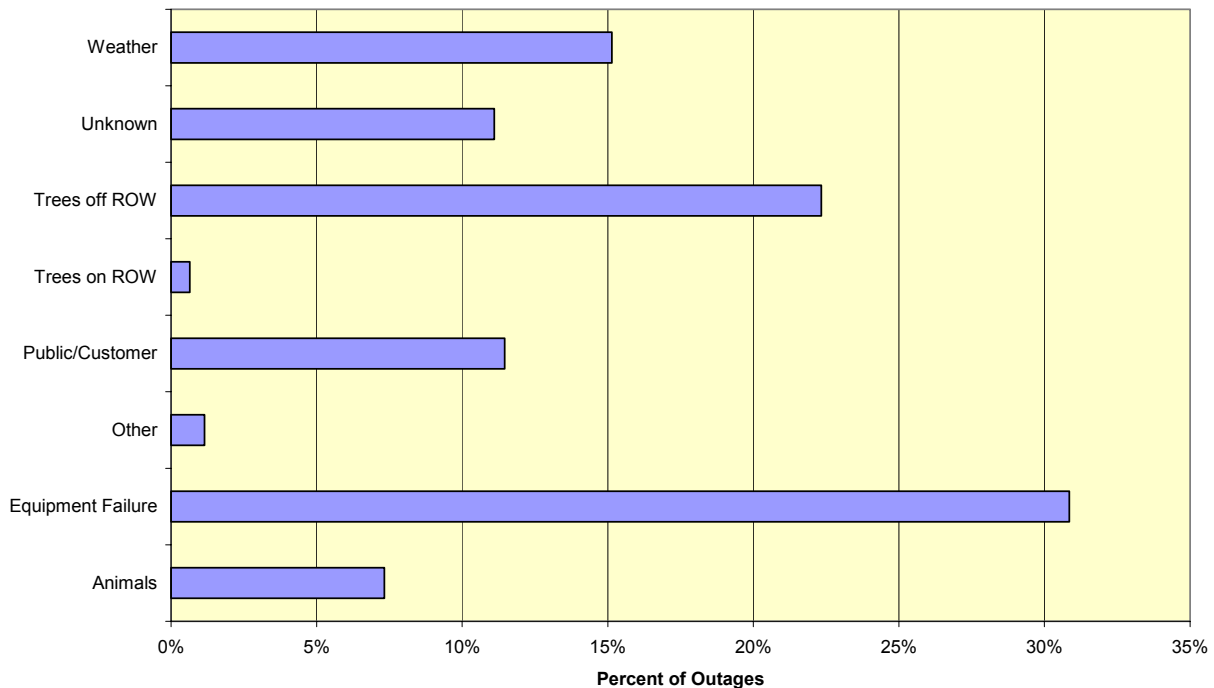


The graph below shows the distribution of causes of service outages occurring during 2004 as a percentage of total outages. Equipment failure (30.9%) and trees off the right-of-way (22.3%) were the leading causes of service interruptions.

AP states that the greatest improvement in company-controllable outages will result from several initiatives in place to improve distribution reliability. These include: (1) reviewing system components on selected circuits with SAIFI greater than 2.0 and more than 300 customers served, and circuits serving over 1,000 customers; (2) addressing poor performing circuits and line segments; (3) removing, or significantly reducing in height, diseased or damaged trees located outside the right-of-way that pose a threat to service reliability; and (4)

conducting main line inspections to improve reliability through the reduction of circuit lockouts occurring as a result of failures on the main line.

**Allegheny Power System
2004 Outage Causes**



Duquesne Light Company

Duquesne Light Company (Duquesne) provides service to 587,664 total electric utility customers in southwestern Pennsylvania. In 2004, Duquesne had total retail energy sales of 13.9 billion kilowatthours.

Electric service reliability has been fairly consistent across the service territory. Duquesne states that its effective outage restoration process and significant distribution automation allows it to restore power quickly to large numbers of customers.

Duquesne's overall performance continues to be better than the standard level of reliability. Duquesne's 2004 CAIDI of 92 minutes was 16 minutes better than the benchmark of 108 minutes. The 2004 SAIFI was an average of 1.03

outages per customer, compared to a benchmark of 1.17 outages. SAIDI was 95 minutes, 24.6% better than the benchmark.¹⁵

The calculations for the 2004 reliability indices exclude outage data relating to three major events, which were approved by the Commission:

- May 21 - 23, 2004: severe thunderstorms, damaging lightning, heavy winds and wind gusts in excess of 55 mph; 142,000 customers affected.
- June 14 - 16, 2004: severe thunderstorms, damaging lightning, heavy rains and high winds; 101,000 customers affected. A portion of this event exclusion is under appeal with the Commission.
- September 17 - 21, 2004: Tropical Storm Ivan - torrential rains, high winds and widespread flooding; 143,801 customers affected.

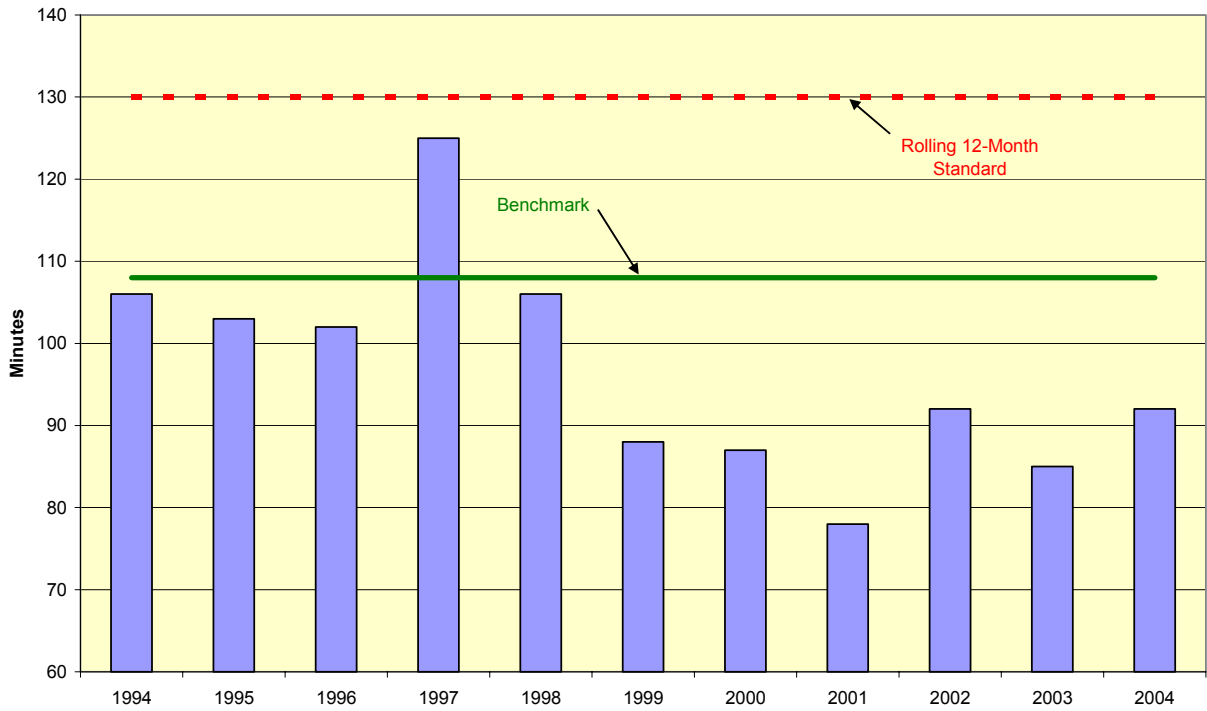
The Duquesne service territory also experienced 13 additional storms that caused extensive damage to overhead equipment, but did not affect enough customers to qualify for exclusion as major events.

In 2004, Duquesne experienced a total of 6.6 million kilovoltamperes (KVA) interrupted with a total duration of 608.8 million KVA-minutes, excluding major events, which was 12.5% lower than that which was reported last year.

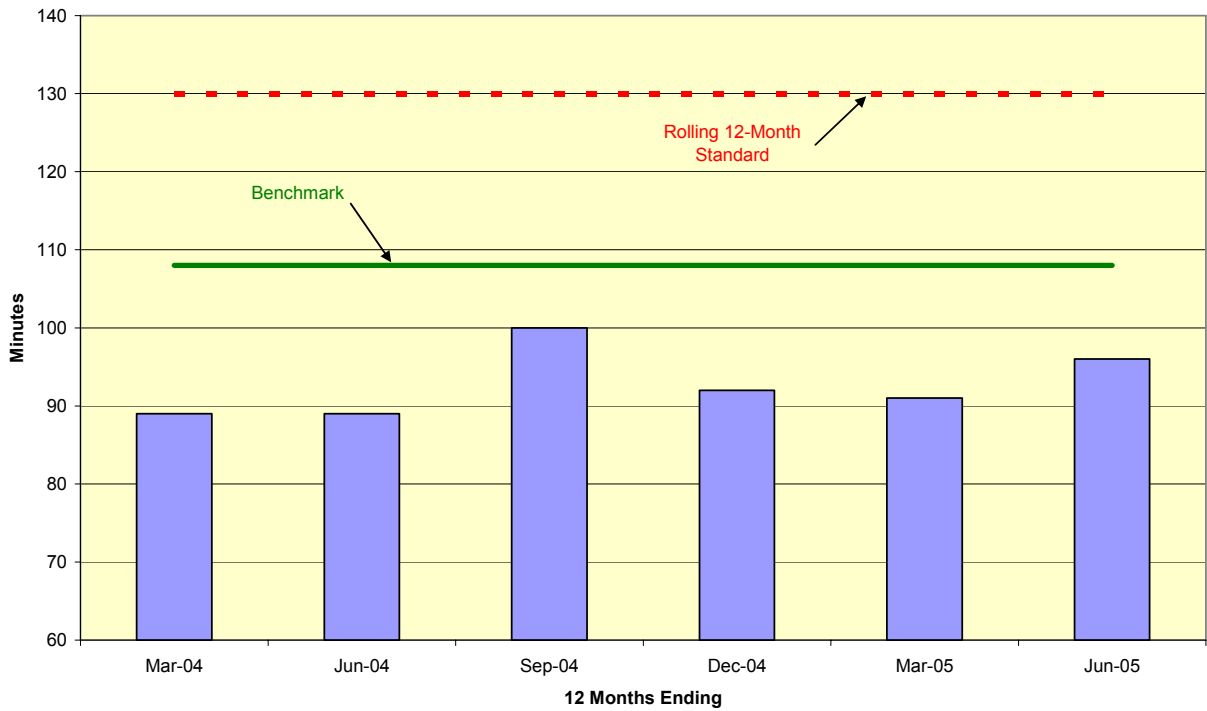
The following graphs depict trends in the duration of service interruptions for the Duquesne system from 1994 to 2004, and for the four quarters of 2004 and the first two quarters of 2005, compared to the newly established benchmarks and standards.

¹⁵ Duquesne's system does not provide an actual count of customers interrupted. The data available is in regard to interrupted load. The unit used is KVA, or kilovoltampere, which is the basic unit of apparent power.

**Duquesne Light Company
Customer Average Interruption Duration Index (CAIDI)**



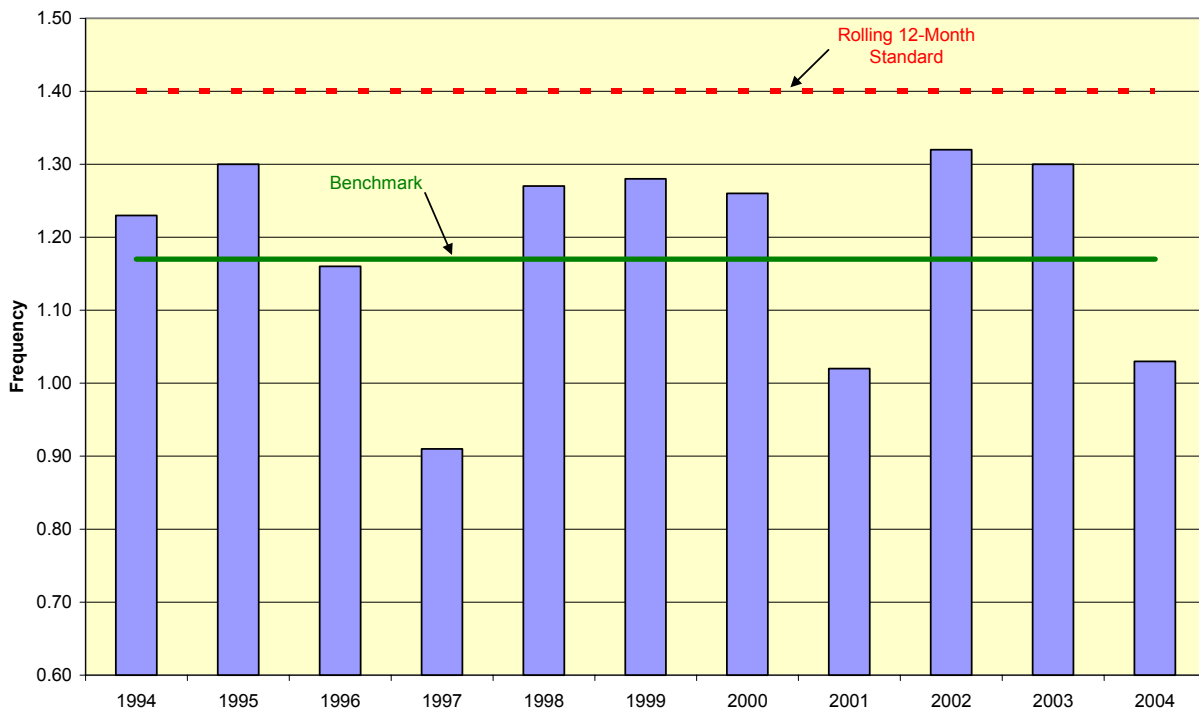
**Duquesne Light Company
Customer Average Interruption Duration Index (CAIDI)**



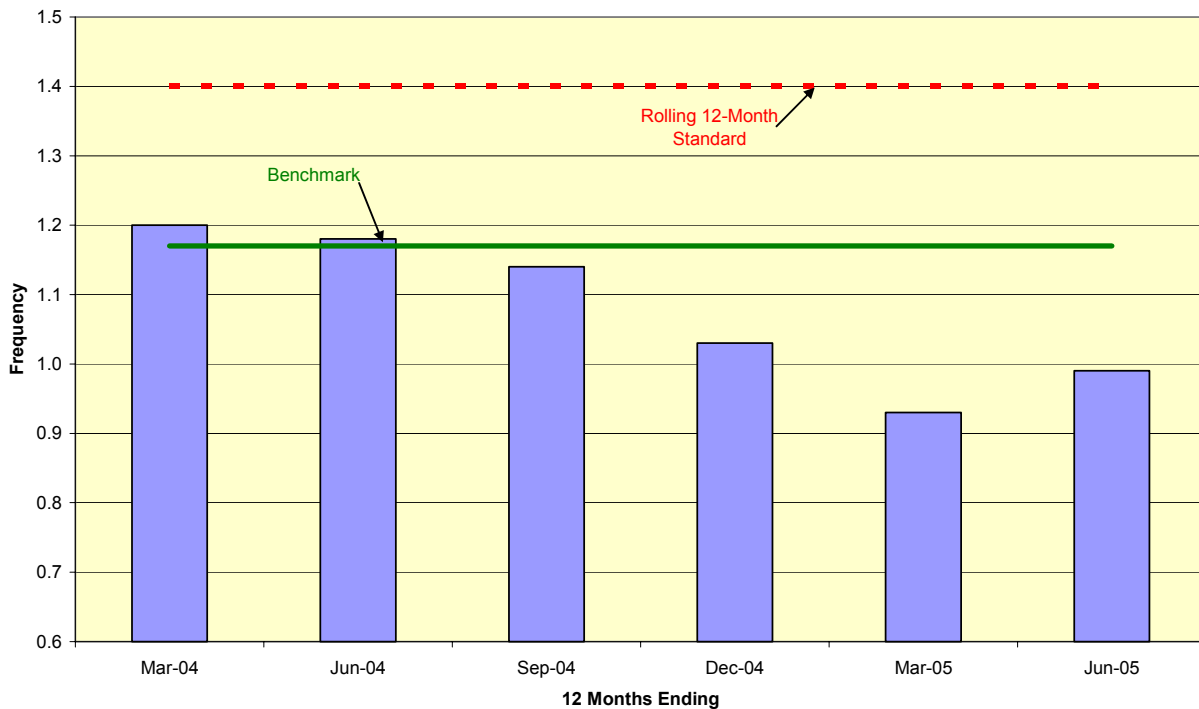
The next two graphs show trends in the frequency of service interruptions for the Duquesne service territory from 1994 to 2004, and for the four quarters of 2004 and the first two quarters of 2005, compared to the newly established benchmarks and standards for SAIFI.

As can be seen, Duquesne’s reliability performance falls well within the parameters of acceptability for both CAIDI and SAIFI. CAIDI has remained consistently below 100 minutes over the past several years. Interruption frequency dropped to 1.03 in 2004, similar to that experienced in 2001. SAIFI has improved from the 12 months ending March 2004 (1.2) to the 12 months ending December 2004 (1.03).

**Duquesne Light Company
System Average Interruption Frequency Index (SAIFI)**



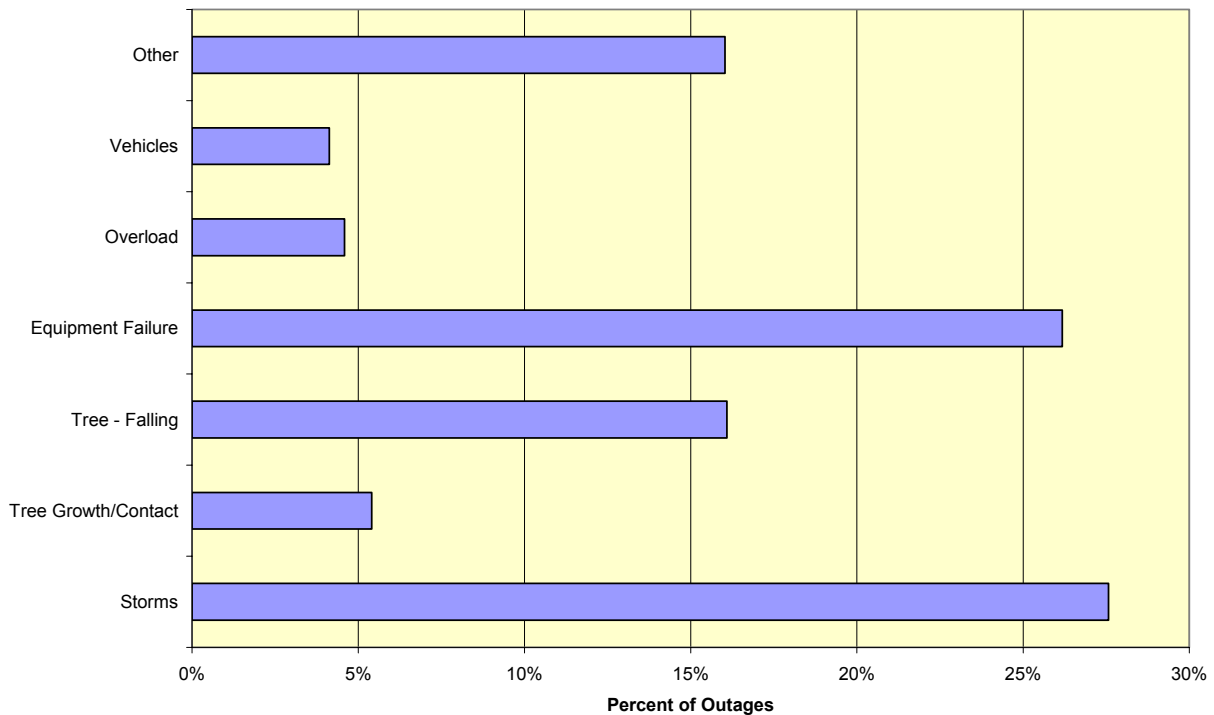
**Duquesne Light Company
System Average Interruption Frequency Index (SAIFI)**



The graph below shows the distribution of causes of service outages occurring during 2004 as a percentage of total outages. Equipment failures (26.2%) and storms (27.6%) were the leading causes of service interruptions.

Duquesne states that scheduled preventative and predictive maintenance activities continue to reduce the potential for future service interruptions. Component failure analysis is utilized to identify equipment types to target for preventative maintenance and/or capital replacement. Isolated problem areas with multiple outages are identified by tracking component lockouts.

**Duquesne Light Company
2004 Outage Causes**



Metropolitan Edison Company

Metropolitan Edison Company (Met-Ed) provides service to 520,687 electric utility customers in eastern and south central Pennsylvania. In 2004, Met-Ed had total retail energy sales of 13.4 billion kilowatthours.

Met-Ed’s reliability performance summary was filed as a joint report submitted on behalf of the three Pennsylvania operating companies of FirstEnergy: Met-Ed, Penelec and Penn Power.

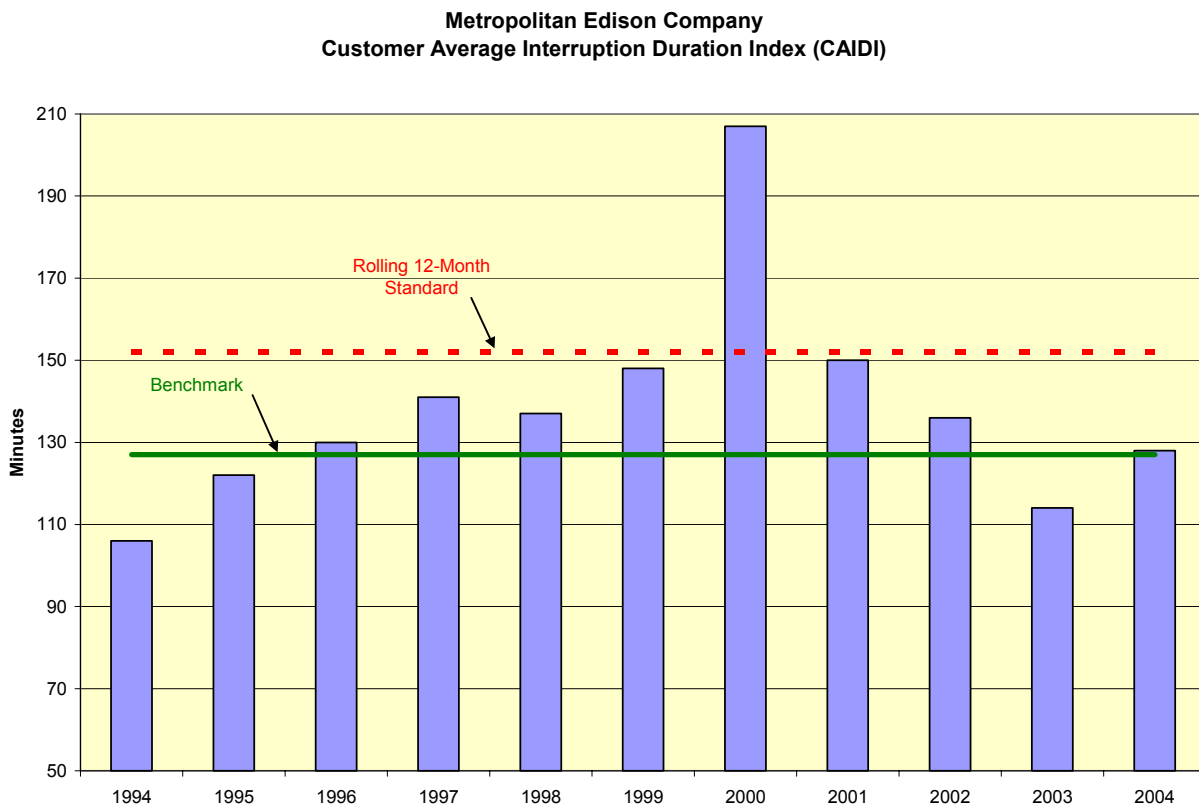
Met-Ed’s overall reliability performance in 2004 was worse than last year’s performance. CAIDI was 128 minutes, compared to 114 minutes in 2003, and just one minute greater than the benchmark. SAIFI, on the other hand, was 1.54 interruptions, compared to last year’s 1.23 and 21.3% over the standard. These two indices resulted in a SAIDI of 197 minutes, three minutes greater than the standard.

In 2004, Met-Ed's service area experienced one major event. The calculations for the reliability indices exclude outage data related to this event, which was approved by the Commission:

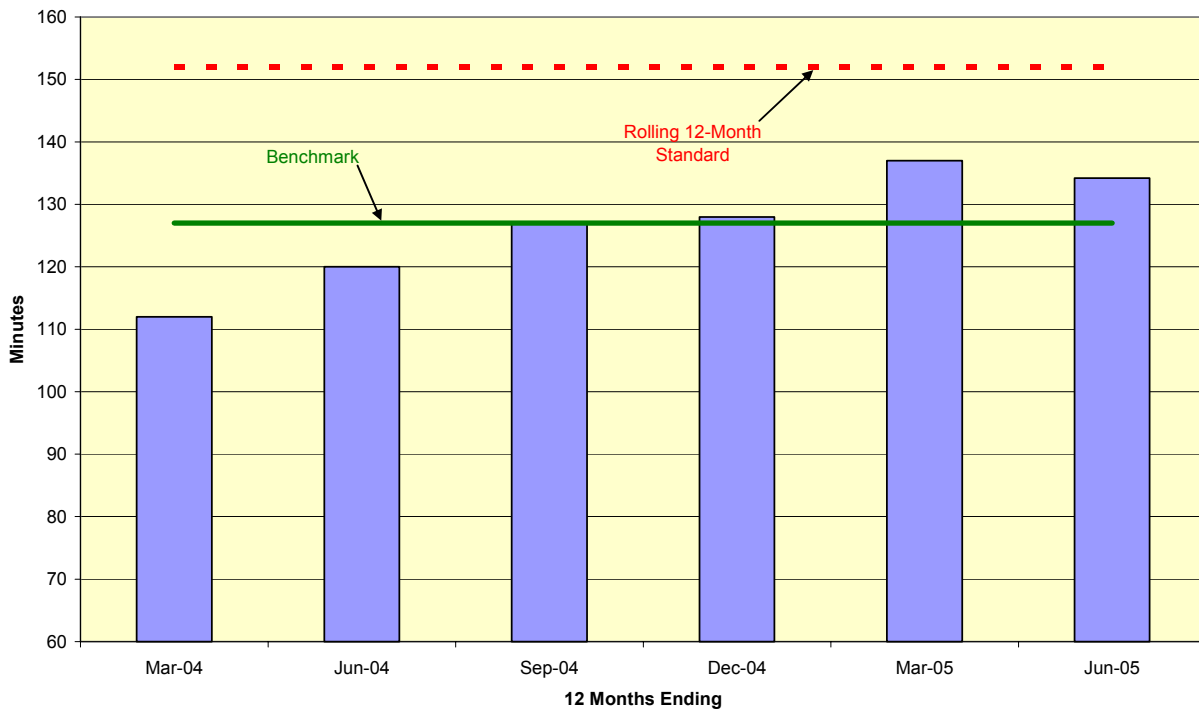
- September 18 - 21, 2004: heavy rainfall, gusting winds and area flooding from Tropical Storm Ivan; 58,400 customers affected; 33,225,279 minutes excluded. Flooding delayed service restoration in several areas.

In 2004, Met-Ed experienced 765,520 customer interruptions with a total duration of 97.6 million minutes, or 25.7% higher than 2003.

The following graphs depict trends in the duration of service interruptions for the Met-Ed system from 1994 to 2004, and for the four quarters of 2004 and the first two quarters of 2005, compared to the newly established benchmarks and standards.



**Metropolitan Edison Company
Customer Average Interruption Duration Index (CAIDI)**



Although acceptable, the 12-month rolling averages for CAIDI have continually increased throughout 2004. CAIDI has continued to increase in 2005, with the actual value for the 12 months ended March 2005 increasing by 7% to 137 minutes.

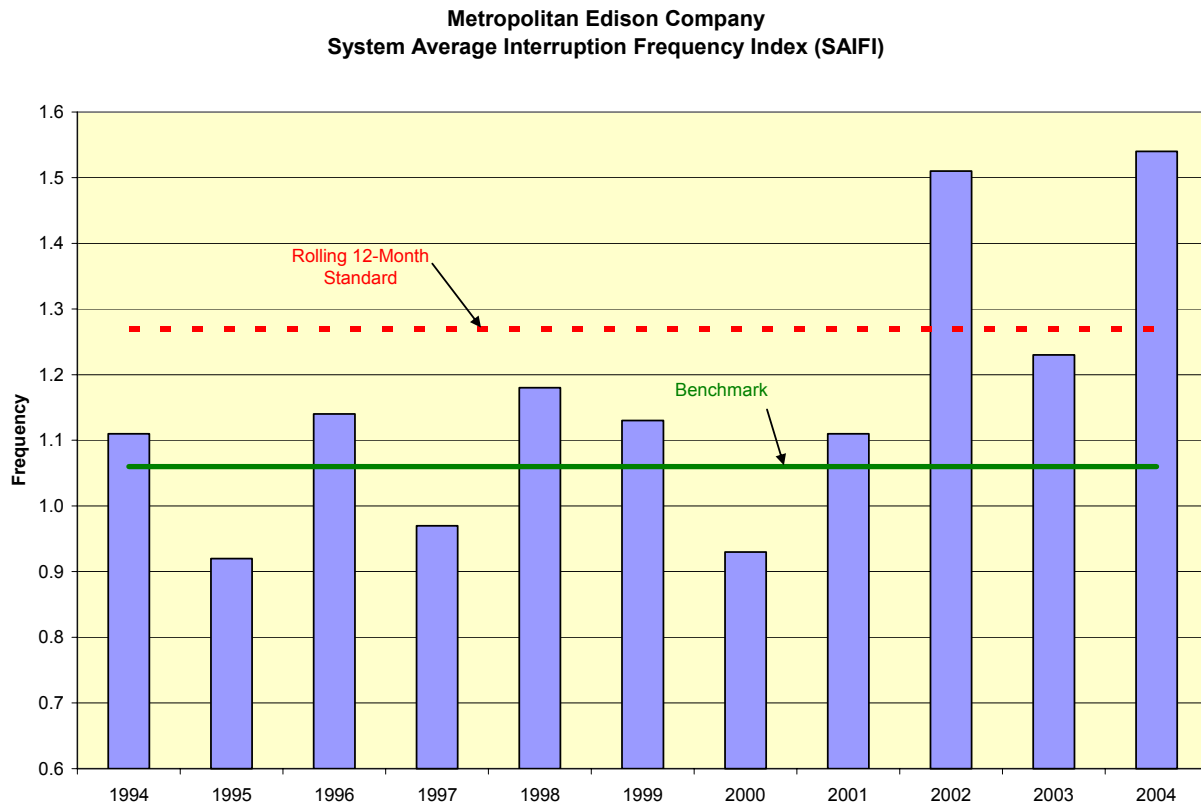
The next two graphs depict trends in the frequency of service interruptions from 1994 to 2004, and for the four quarters of 2004 and the first two quarters of 2005, compared to the newly established benchmarks and standards.

The increase in last year's frequency of service outages is indicated by the upward trend in the rolling 12-month averages for the four quarters of 2004. SAIFI rose from an acceptable 1.12 for the 12 months ended March 2004 to an unacceptable level of 1.54 for the 12 months ended December 2004.

In its report, Met-Ed gives no direct explanation for the rise in the number of interruptions. Met-Ed's report indicated that it anticipated achieving a four-year distribution and a five-year transmission vegetation management cycle by the end of 2004; however, some vegetation management subcontractors were temporarily dispatched to Florida in response to the four hurricanes that struck portions of Florida in the fall of 2004. Thus, some of the work was completed in

2005. It is also noted that 2004 expenditures for preventive maintenance were 20% below budget.

This negative trend in outage frequency is unacceptable. It is noted that the SAIFI values for the first and second quarters of 2005 were 1.50 and 1.53, respectively, still worse than the performance standard.

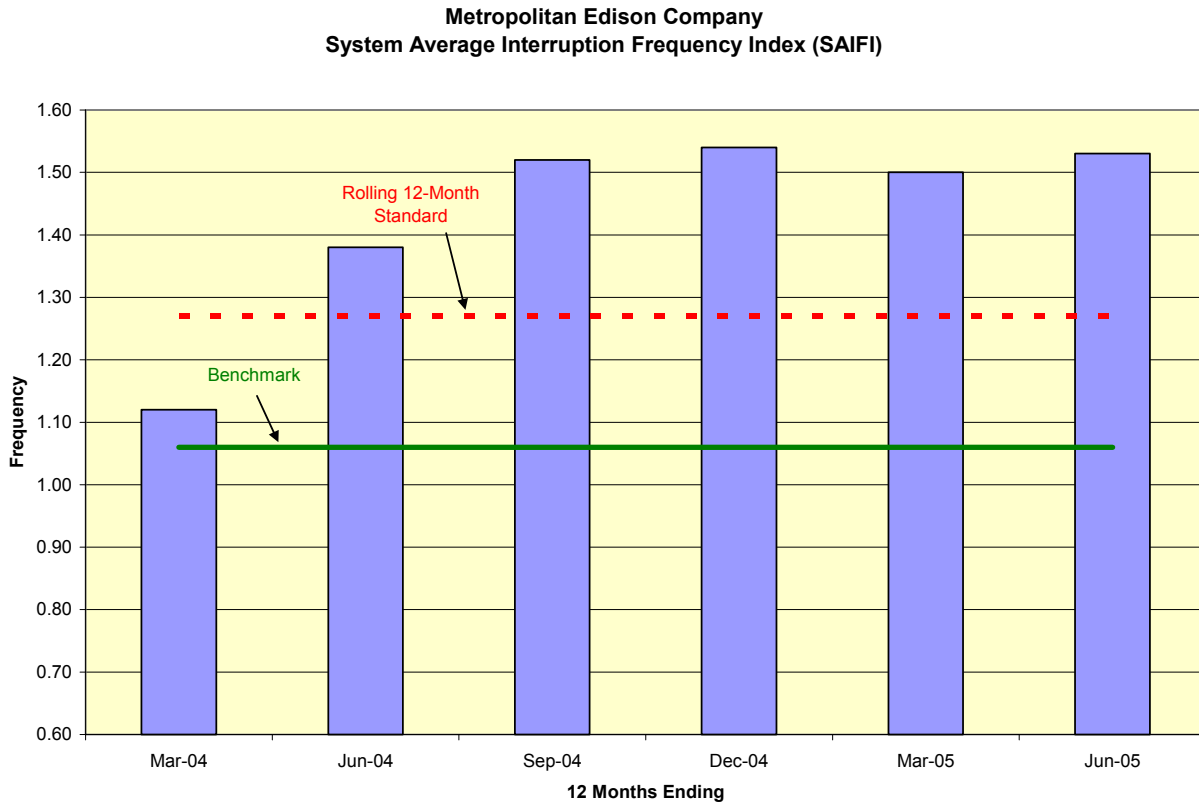


If Met-Ed's reliability performance does not significantly improve, the Commission may require a separate report discussing the reasons for not meeting the standard and the corrective measures Met-Ed is taking to improve performance.¹⁶ It is noted that the Joint Petition for Settlement in the investigation of FirstEnergy's reliability performance requires Met-Ed to achieve the established reliability benchmarks for CAIDI, SAIFI and SAIDI by 2007. The CAIDI target levels are 124 in 2005, 117 in 2006, and 108 in 2007. The SAIFI target levels are 1.38 in 2005, 1.26 in 2006, and 1.06 in 2007.¹⁷ The SAIFI target level was not met in the first two quarters of 2005.

¹⁶ 52 Pa. Code § 57.195(g).

¹⁷ On January 16, 2004, the Commission instituted an investigation of FirstEnergy's compliance with the Commission's regulations and orders relating to reliable electric service, and seeking recommendations for reliability improvements. On November 4, 2004, the Commission approved a Joint Petition for Settlement which, among other things, sets forth goals for improving reliability performance and achieving benchmark levels of reliability by the end of 2007 for Met-Ed, Penelec and Penn Power. Docket No. I-00040102.

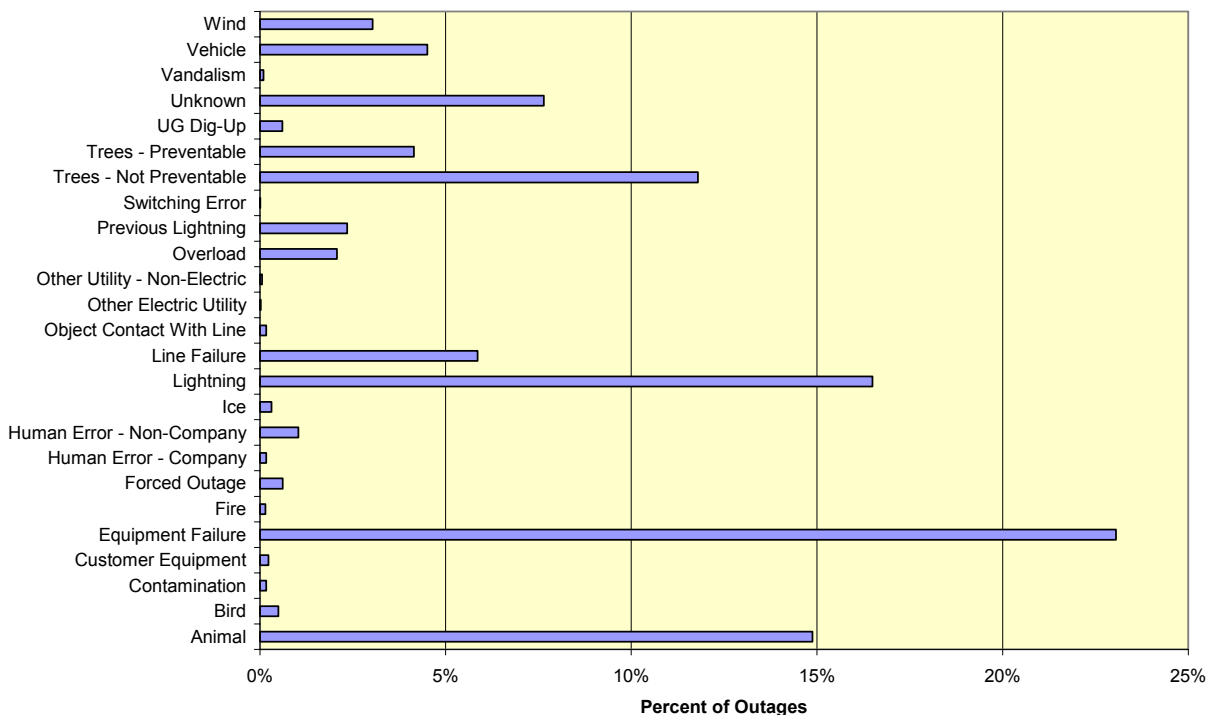
On May 26, 2004, FirstEnergy filed a Petition for the Amendment of Benchmarks.¹⁸ While we await the outcome of this proceeding, Staff will work with Met-Ed to determine the root causes of this poor performance and find solutions to reverse this negative trend.



The graph below shows the distribution of causes of service outages occurring during 2004 as a percentage of total outages. Equipment failures (23.1%) and lightning (16.5%) were the leading causes of service interruptions. Taken together, non-preventable tree-related outages and preventable tree-related outages accounted for 25.9% of all outages in 2004.

¹⁸ Docket No. P-00042115.

**Metropolitan Edison Company
2004 Outage Causes**



Pennsylvania Electric Company

Pennsylvania Electric Company (Penelec) provides service to 585,658 electric utility customers in western and northern Pennsylvania. In 2004, Penelec had total retail energy sales of 13.7 billion kilowatthours.

Penelec’s reliability performance summary was filed as a joint report submitted on behalf of the three Pennsylvania operating companies of FirstEnergy: Met-Ed, Penelec and Penn Power.

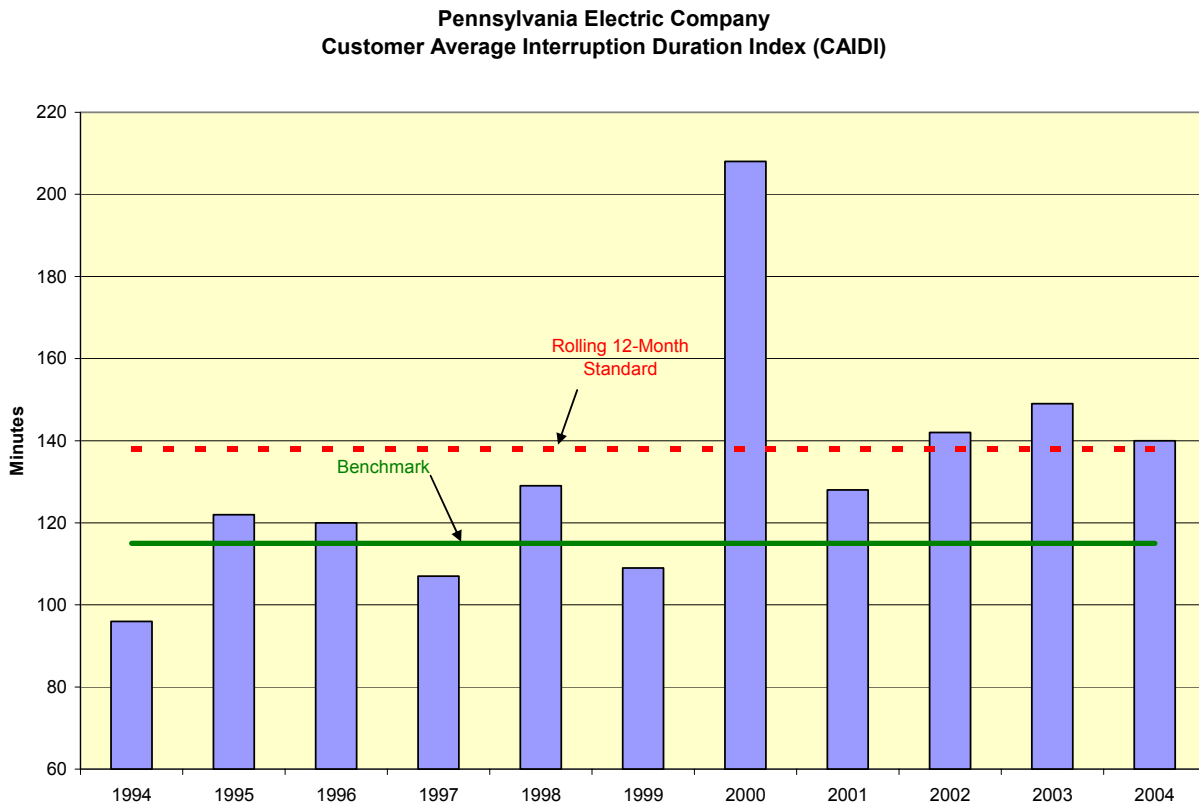
Penelec’s overall reliability performance in 2004 was worse than last year’s performance. CAIDI was 140 minutes, compared to 149 minutes in 2003, but still worse than the standard of 138 minutes. SAIFI was 1.77 service interruptions, compared to last year’s 1.6 and a performance standard of 1.38. The product of these two indices resulted in a SAIDI of 248 minutes, 58 minutes or 30.5% worse than the standard.

In 2004, Penelec’s service territory experienced one major event. The calculations for the reliability indices exclude outage data related to this event, which was approved by the Commission:

- December 1 - 3, 2004; heavy rain and high winds with gusts over 50 mph; 73,000 customers affected; 18,246,893 minutes excluded.

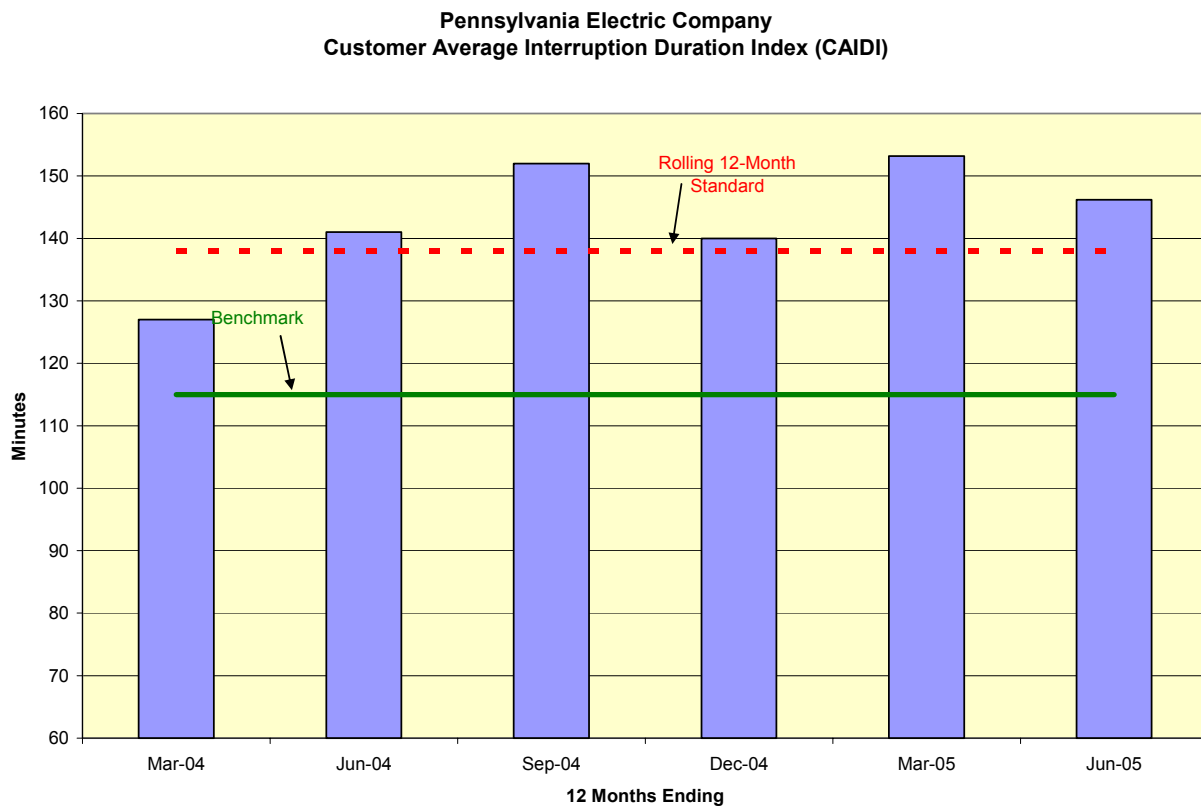
In 2004, Penelec experienced 1,031,525 customer interruptions with a total duration of 144.2 million minutes, or 2.1% higher than 2003.

The following graphs depict trends in the duration of service interruptions for Penelec from 1994 to 2004, and for the four quarters of 2004 and the first two quarters of 2005, compared to the newly established benchmarks and standards.



The annual CAIDI values have exceeded the performance standard for the past three years. Penelec has not offered any direct explanation for its continued poor performance. The company has stated that it anticipated achieving a four-year distribution and a five-year transmission vegetation management cycle by the end of 2004; however, some vegetation management subcontractors were temporarily dispatched to Florida in response to the four hurricanes that struck

portions of Florida in the fall of 2004. Thus, some of the work was completed in 2005. Expenditures for vegetation management were 10% below budget in 2004.



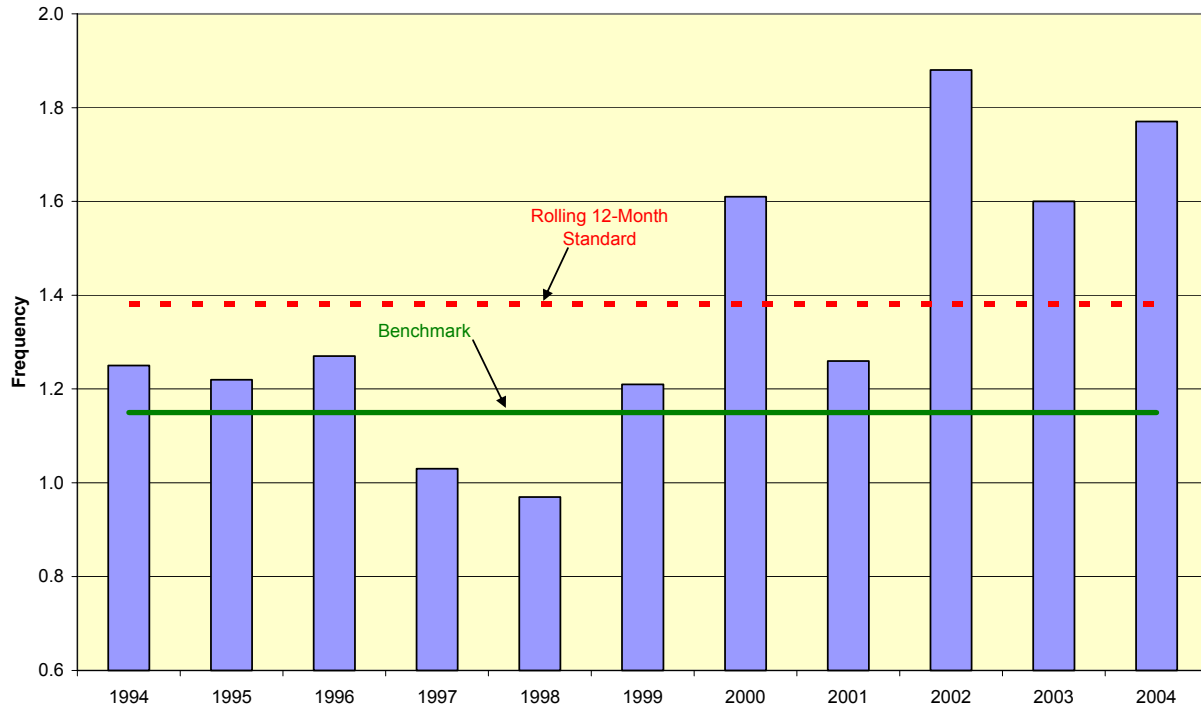
The rolling 12-month averages for the last three quarters of 2004 and the first two quarters of 2005 were all worse than the standard. Penelec has reported that its reliability performance indices have been negatively impacted by four significant, but not excludable, storms in May and June of 2004, and outages resulting from Tropical Storms Francis and Ivan in September. These outages have continued to impact performance to some extent for the 12 months ended March 2005, which had a CAIDI of 153 minutes. The second quarter CAIDI value was 146 minutes.

The next two graphs show trends in the frequency of service interruptions from 1994 to 2004, and for the four quarters of 2004 and the first two quarters of 2005, compared to the newly established benchmarks and standards.

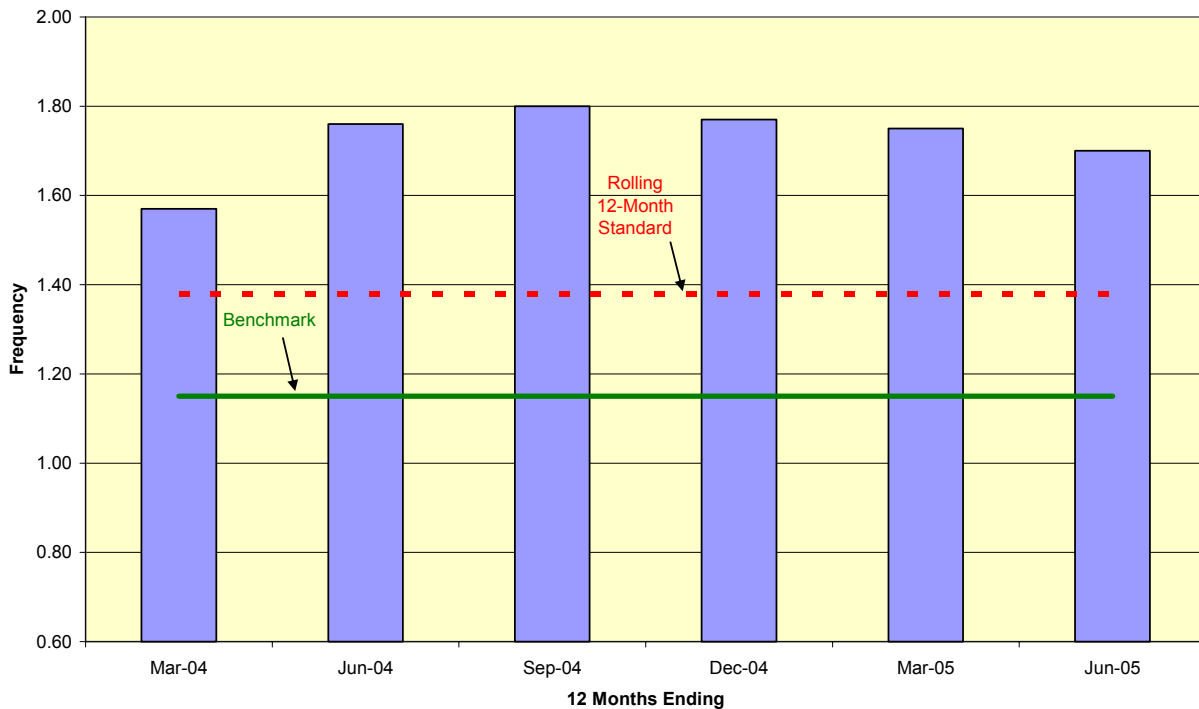
Annual SAIFI values have exceeded the performance standard for the past three years. The rolling 12-month averages for each of the four quarters of 2004 consistently exceeded the standard by a sizable margin. The SAIFI values for

the 12-months ended March 2005 and June 2005 were no better at 1.75 and 1.70 interruptions, respectively.

**Pennsylvania Electric Company
System Average Interruption Frequency Index (SAIFI)**



**Pennsylvania Electric Company
System Average Interruption Frequency Index (SAIFI)**



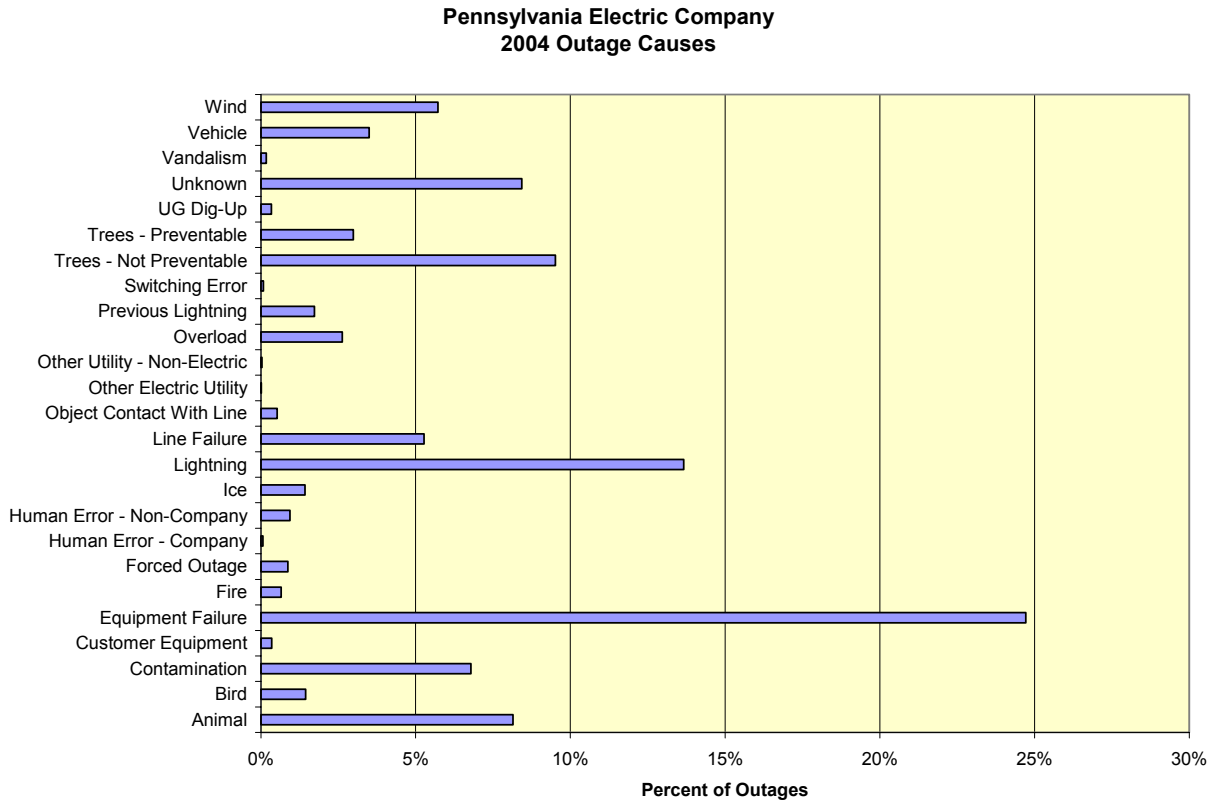
This negative trend in outage frequency is unacceptable. It is noted that the SAIFI values for the first and second quarters of 2005 were still worse than the performance standard.

If Penelec’s reliability performance does not significantly improve, the Commission may require a separate report discussing the reasons for not meeting the standards and the corrective measures Penelec is taking to improve performance.¹⁶ It is noted that the Joint Petition for Settlement in the investigation of FirstEnergy’s reliability performance requires Penelec to achieve the established benchmarks for CAIDI, SAIFI and SAIDI by 2007. The CAIDI target levels are 132 in 2005, 126 in 2006, and 115 in 2007. The SAIFI target levels are 1.54 in 2005, 1.36 in 2006, and 1.15 in 2007.¹⁷ The SAIFI target level was not met in the first two quarters of 2005.

On May 26, 2004, FirstEnergy filed a Petition for the Amendment of Benchmarks.¹⁹ While we await the outcome of this proceeding, Staff will work with Penelec to determine the root causes of this poor performance and find solutions to reverse this negative trend.

¹⁹ Docket No. P-00042115.

The graph below shows the distribution of causes of service outages occurring during 2004 as a percentage of total outages. Equipment failures (24.7%) and lightning (13.7%) were the leading causes of service interruptions. Tree-related outages (both preventable and non-preventable) accounted for 12.5% of all outages in 2004.



Pennsylvania Power Company

Pennsylvania Power Company (Penn Power) provides service to 157,412 electric utility customers in western Pennsylvania. In 2004, Penn Power had total retail energy sales of 4.4 billion kilowatthours.

Penn Power’s reliability performance summary was filed as a joint report submitted on behalf of the three Pennsylvania operating companies of FirstEnergy: Met-Ed, Penelec and Penn Power.

Penn Power's overall reliability performance in 2004 showed a slight improvement over last year's performance; however, performance for all three indices remained unacceptable. CAIDI was 120 minutes, compared to 127 minutes in 2003, but 10 minutes greater than the performance standard. SAIFI was 1.43 interruptions, compared to last year's 1.51 and 23.8% over the standard. These two indices resulted in a SAIDI of 172 minutes, 37 minutes greater than the standard.

In 2004, Penn Power's customers experienced five major events – all occurring in the second quarter. The outage data relating to these events have been excluded from the calculations of the reliability indices.

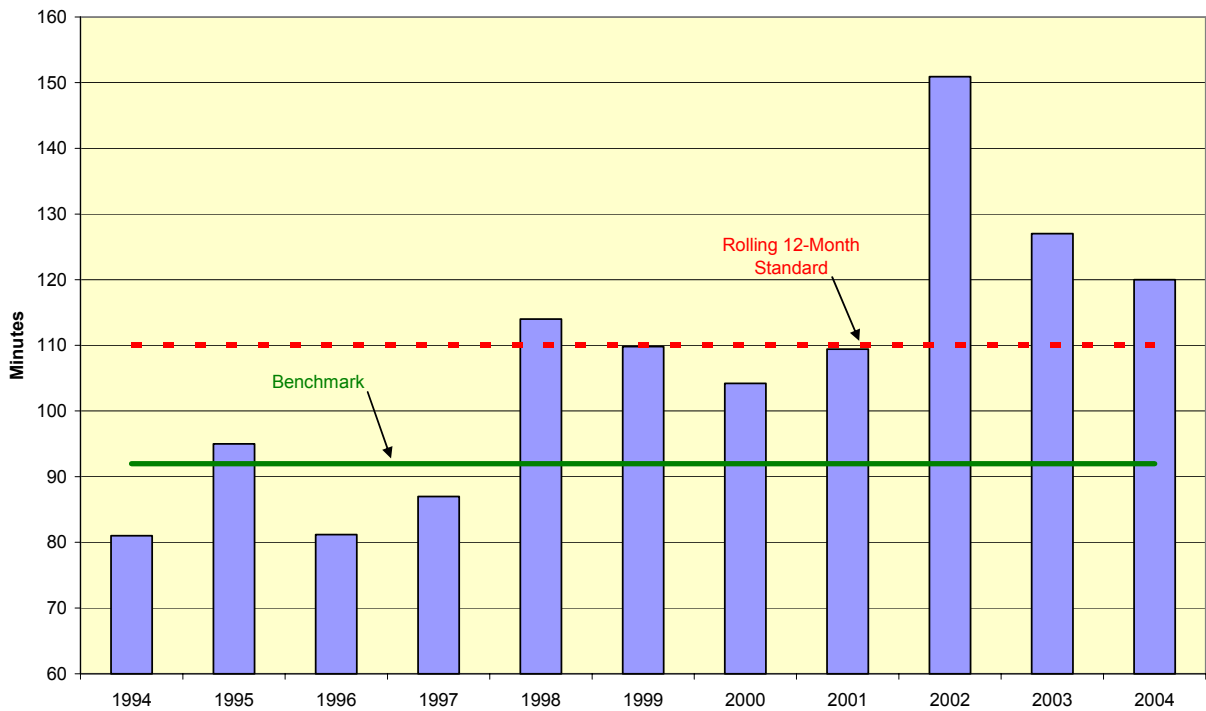
- April 21 - 22, 2004; 69 kV pole fire; 24,000 customers affected; 2,811,181 minutes excluded.
- April 22, 2004; 69 kV switch failure; 17,600 customers affected; 767,444 minutes excluded.
- May 21 - 25, 2004; high winds and thunderstorms; 32,000 customers affected; 17,181,053 minutes excluded.
- June 1 - 2, 2004; thunderstorms; 18,200 customers affected; 2,251,638 minutes excluded.
- June 14 - 17, 2004; high winds and thunderstorms; 34,800 customers affected; 15,547,546 minutes excluded.

In 2004, Penn Power experienced 222,425 customer interruptions with a total duration of 26.6 million minutes, or 11.1% lower than 2003.

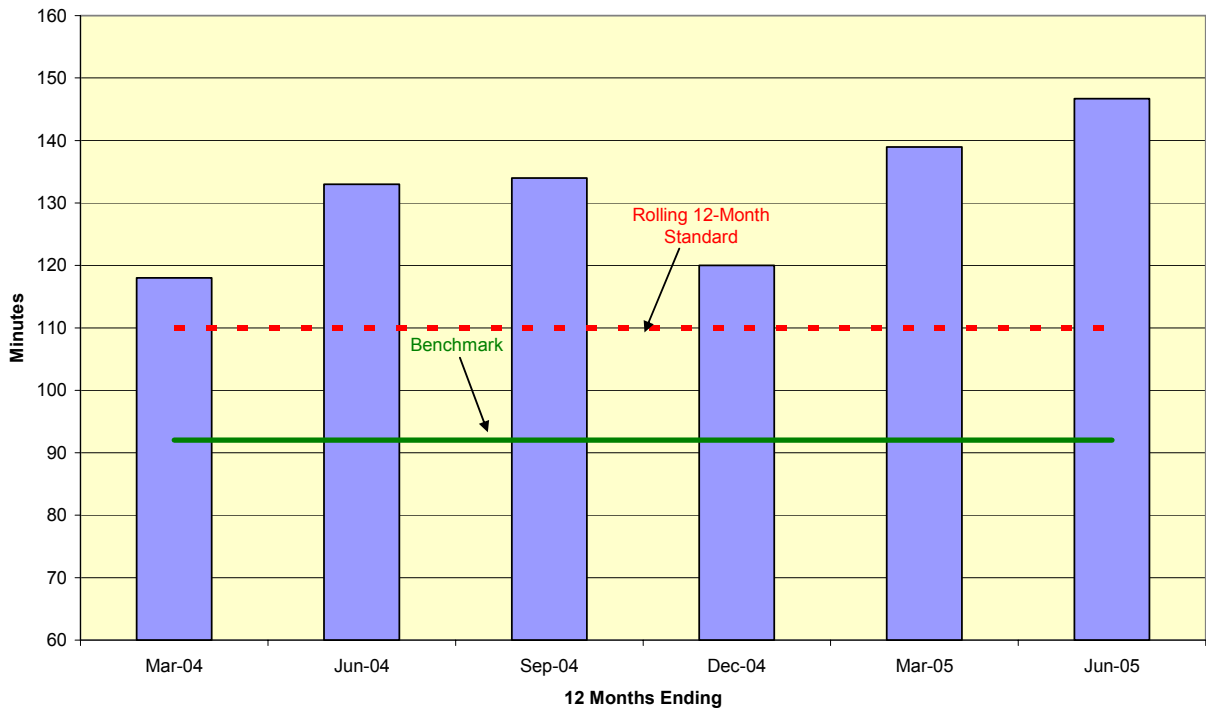
The following graphs depict trends in the duration of service interruptions for the Penn Power system from 1994 to 2004, and for the four quarters of 2004 and the first two quarters of 2005, compared to the newly established benchmarks and standards.

Although there has been some improvement over the past two years in comparison to 2002, CAIDI remains at a level worse than the standard and significantly worse than the benchmark of 92 minutes. The quarterly data shows average outage durations of greater than 130 minutes for the second and third quarters of 2004. While CAIDI dropped to 120 minutes at year end, the CAIDI value for the 12-months ended March 2005 jumped to 139 minutes and the 2005 second quarter CAIDI increased to 147 minutes.

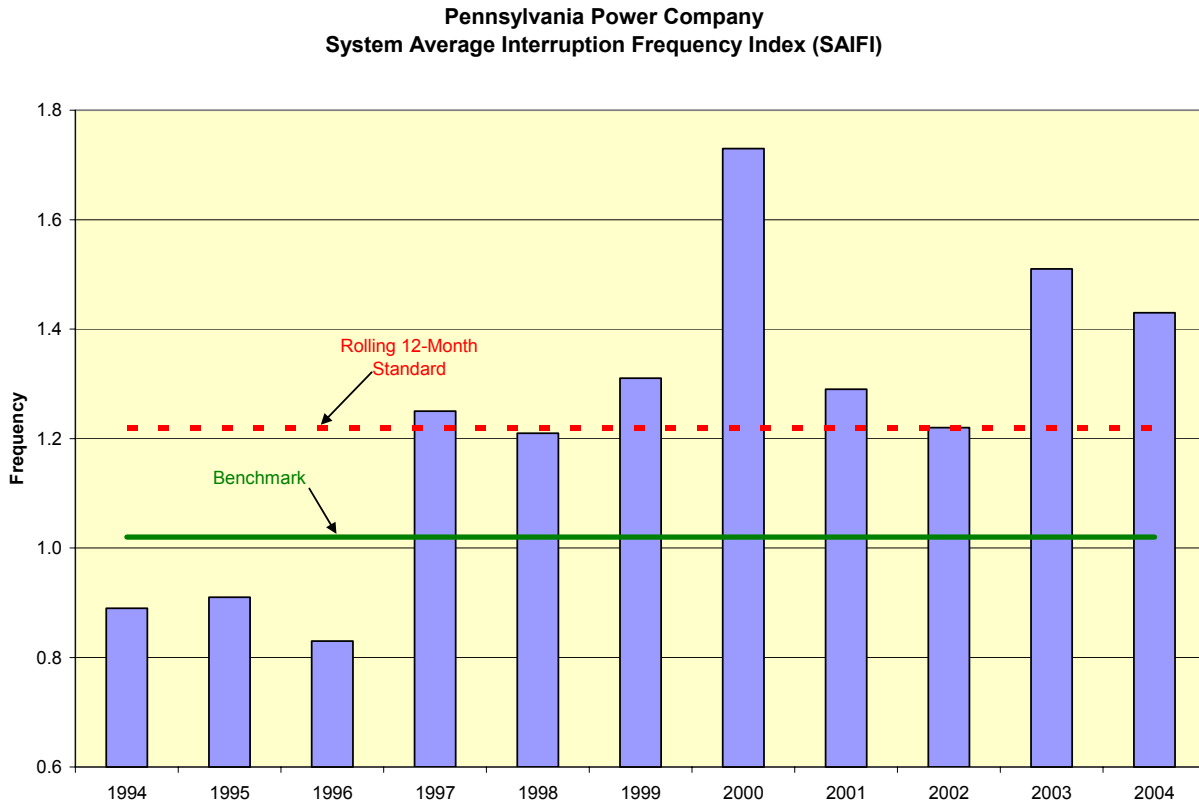
**Pennsylvania Power Company
Customer Average Interruption Duration Index (CAIDI)**



**Pennsylvania Power Company
Customer Average Interruption Duration Index (CAIDI)**



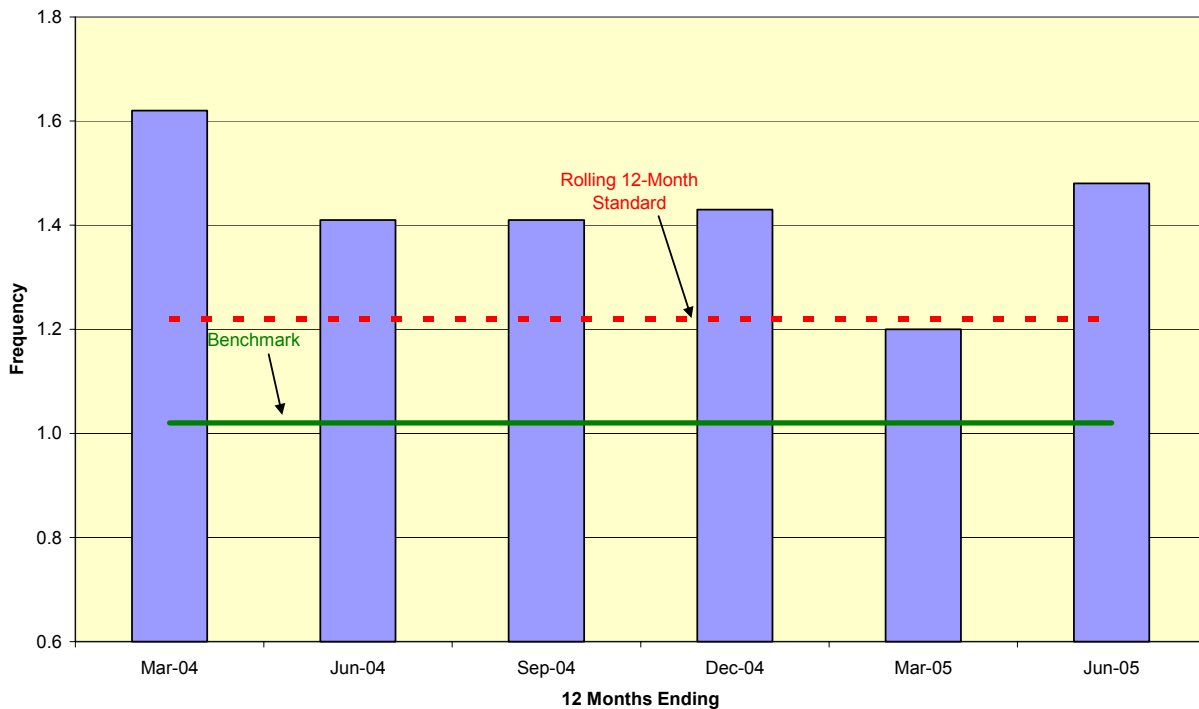
The next two graphs show trends in the frequency of service interruptions from 1994 to 2004, and for the four quarters of 2004 and the first two quarters of 2005, compared to the newly established benchmarks and standards.



As with CAIDI, although there has been some improvement, SAIFI remains well above the performance standard of 1.22 and significantly above the benchmark of 1.02. Reliability performance has remained relatively consistent for the last three quarters of 2004 at an unacceptable 1.4. For the 12 months ended March 2005, the SAIFI value dropped to 1.25, which is just slightly above the standard, and rose to 1.48 in the second quarter of 2005.

Penn Power has indicated it has been adding cutouts since the first of this year to improve reliability performance by minimizing the number of customers affected by a fault condition. Also, Penn Power plans to spend over \$4,000,000 in 2005 to rehabilitate several 69 kV transmission lines which negatively impacted Penn Power's reliability performance in 2004.

**Pennsylvania Power Company
System Average Interruption Frequency Index (SAIFI)**



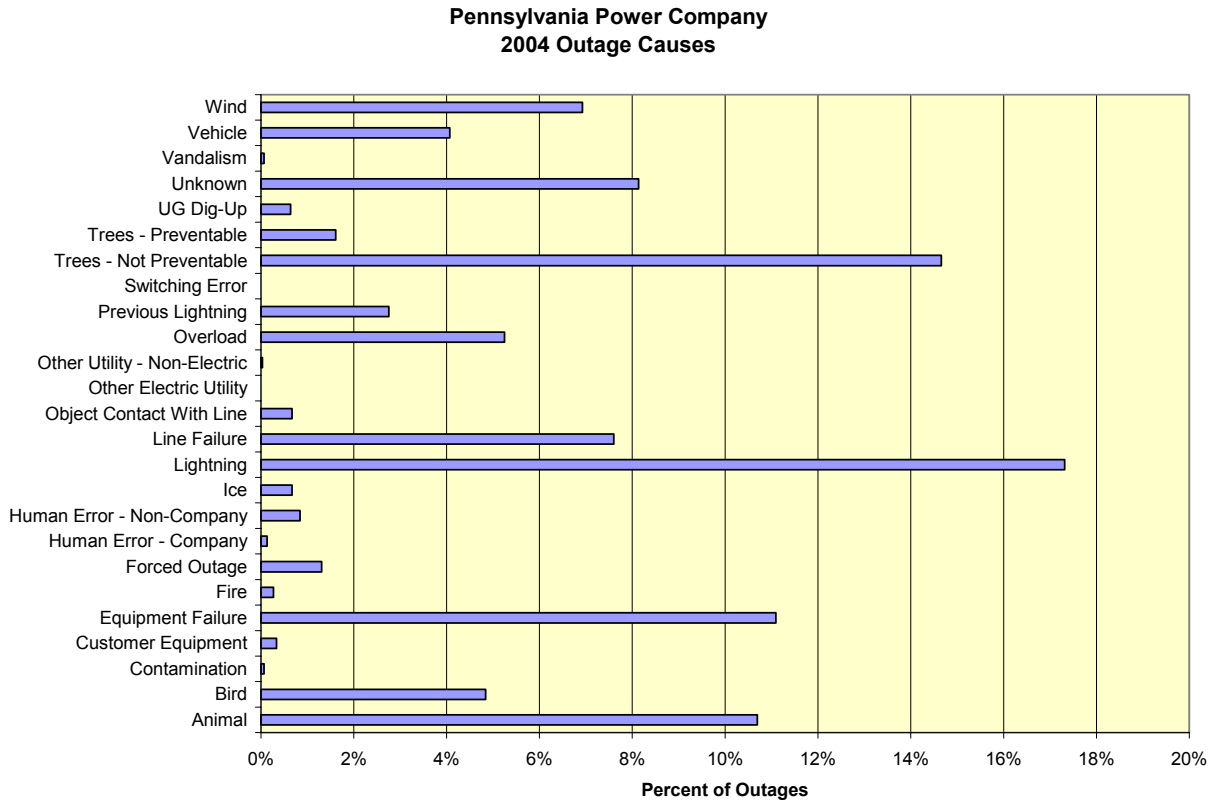
This negative trend in outage frequency is unacceptable. It is noted that the SAIFI value for the second quarter of 2005 was still worse than the performance standard.

If Penn Power’s reliability performance does not significantly improve, the Commission may require a separate report discussing the reasons for not meeting the standard and the corrective measures Penn Power is taking to improve performance.¹⁶ It is noted that the Joint Petition for Settlement in the investigation of FirstEnergy’s reliability performance requires Penn Power to achieve the established benchmarks for CAIDI, SAIFI and SAIDI by 2007. The CAIDI target levels are 114 in 2005, 110 in 2006, and 92 in 2007. The SAIFI target values are 1.32 in 2005, 1.21 in 2006, and 1.02 in 2007.¹⁷ The SAIFI target level was not met in the second quarter of 2005.

On May 26, 2004, FirstEnergy filed a Petition for the Amendment of Benchmarks.²⁰ While we await the outcome of this proceeding, Staff will work with Penn Power to determine the root causes of this poor performance and find solutions to reverse this negative trend.

²⁰ Docket No. P-00042115.

The graph below shows the distribution of causes of service outages occurring during 2004 as a percentage of total outages. Lightning (17.3%) and tree-related outages (16.3%) were the two leading causes of service interruptions.



PECO Energy Company

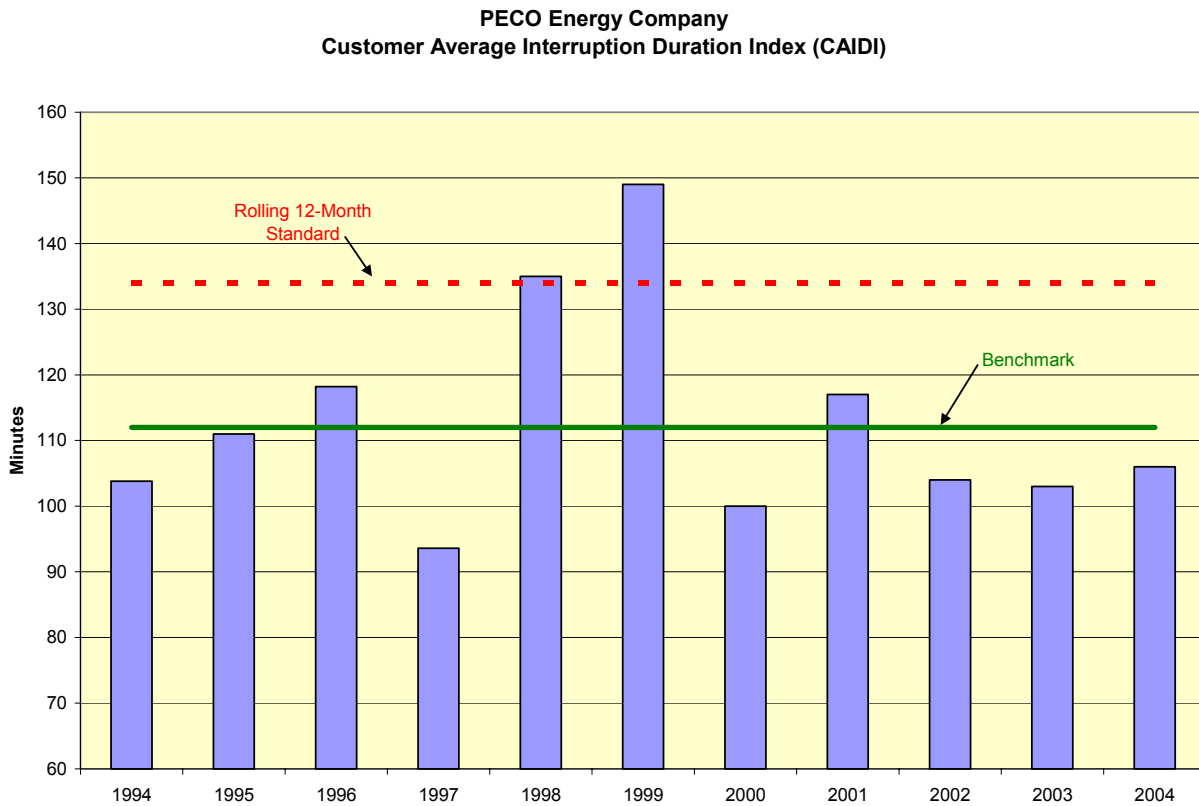
PECO Energy Company (PECO) provides service to 1,536,754 electric utility customers in southeastern Pennsylvania. In 2004, PECO had total retail energy sales of 37.7 billion kilowatthours.

PECO’s overall reliability performance has remained relatively consistent over the past several years. The SAIFI value for 2004 of 0.98 interruptions was below the benchmark of 1.23 and was the lowest since the pre-competition baseline period. The CAIDI value of 106 minutes and the SAIDI value of 104 minutes were also below their respective benchmarks.

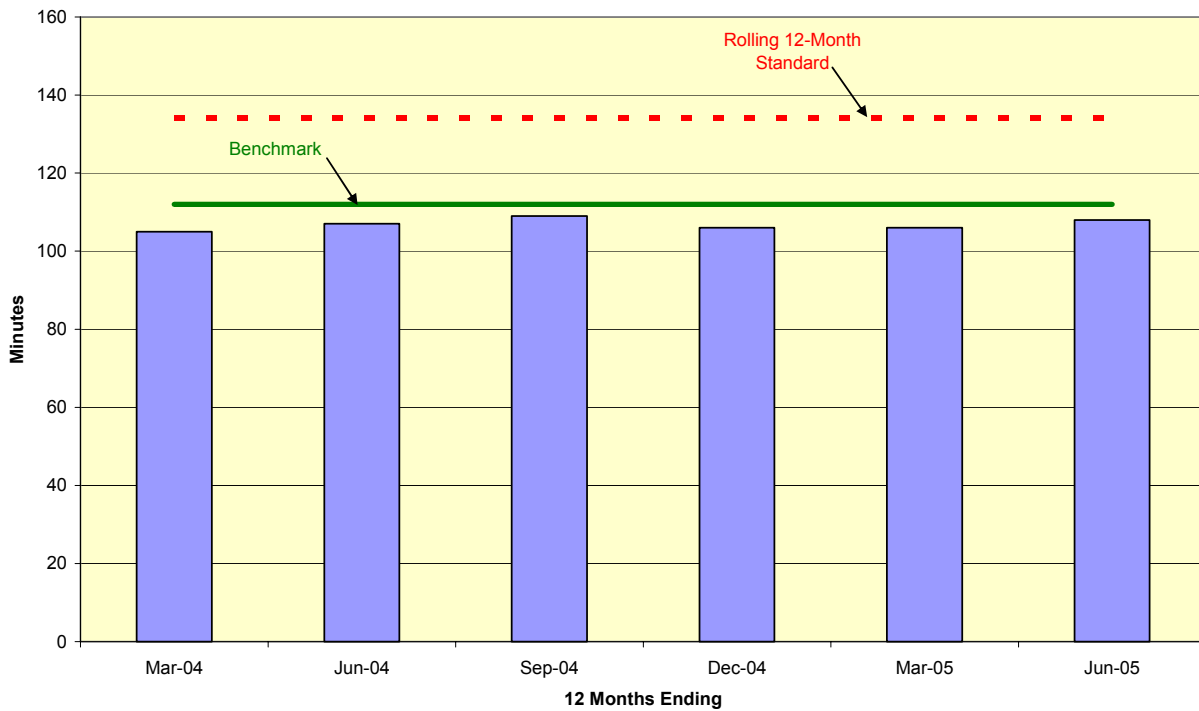
No major events occurred in PECO’s service territory in 2004.

In 2004, PECO's customers experienced 1,574,526 service interruptions with a total duration of 166.6 million minutes, which was about 0.8% greater than the 2003 outage minutes.

The following graphs depict trends in the duration of service interruptions for the PECO system from 1994 to 2004, and for the four quarters of 2004 and the first two quarters of 2005, compared to the newly established benchmarks and standards.



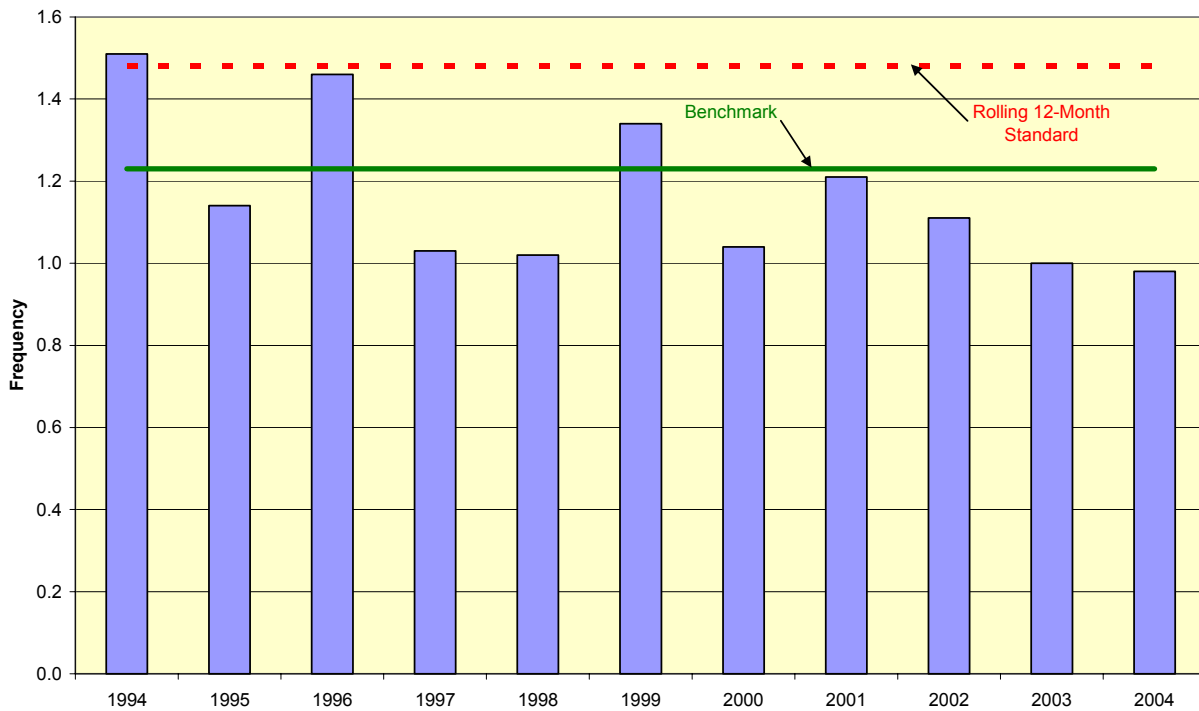
**PECO Energy Company
Customer Average Interruption Duration Index (CAIDI)**



As seen here, for each of the rolling 12-month averages in 2004, CAIDI was consistently better than the established benchmark, ranging from 105 to 109 minutes.

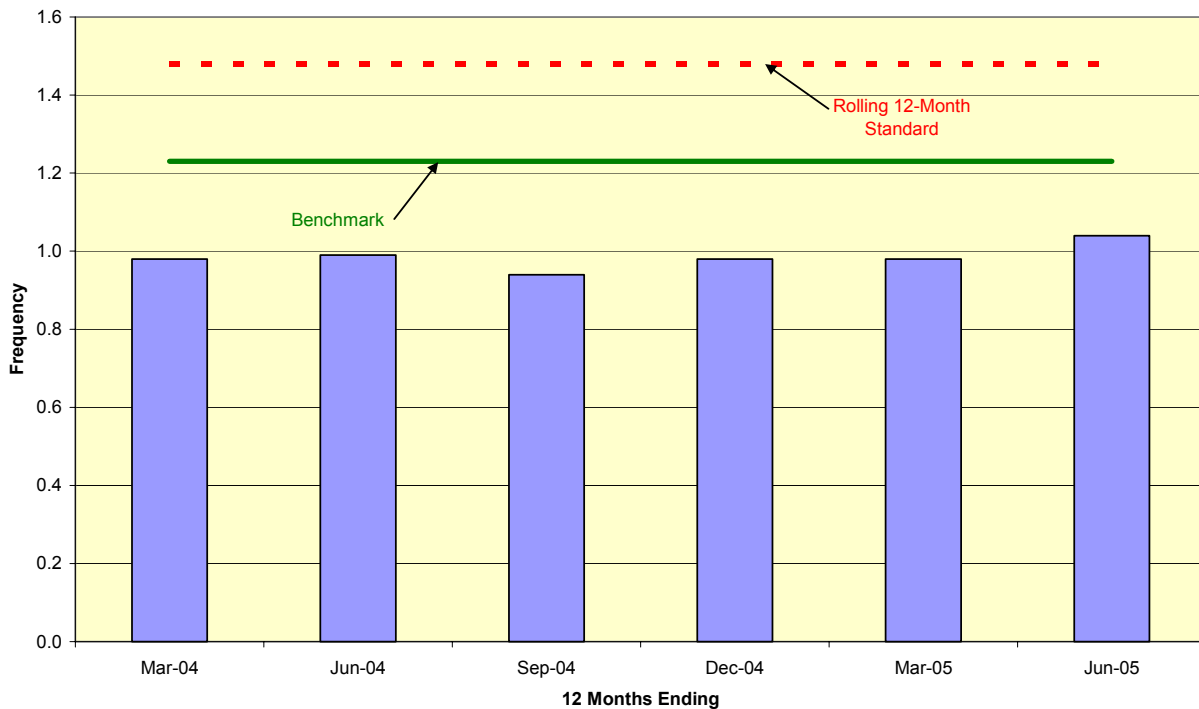
The next two graphs show trends in the frequency of service interruptions for the PECO system from 1994 to 2004, and for the four quarters of 2004 and the first two quarters of 2005, compared to the newly established benchmarks and standards for SAIFI.

PECO Energy Company
System Average Interruption Frequency Index (SAIFI)



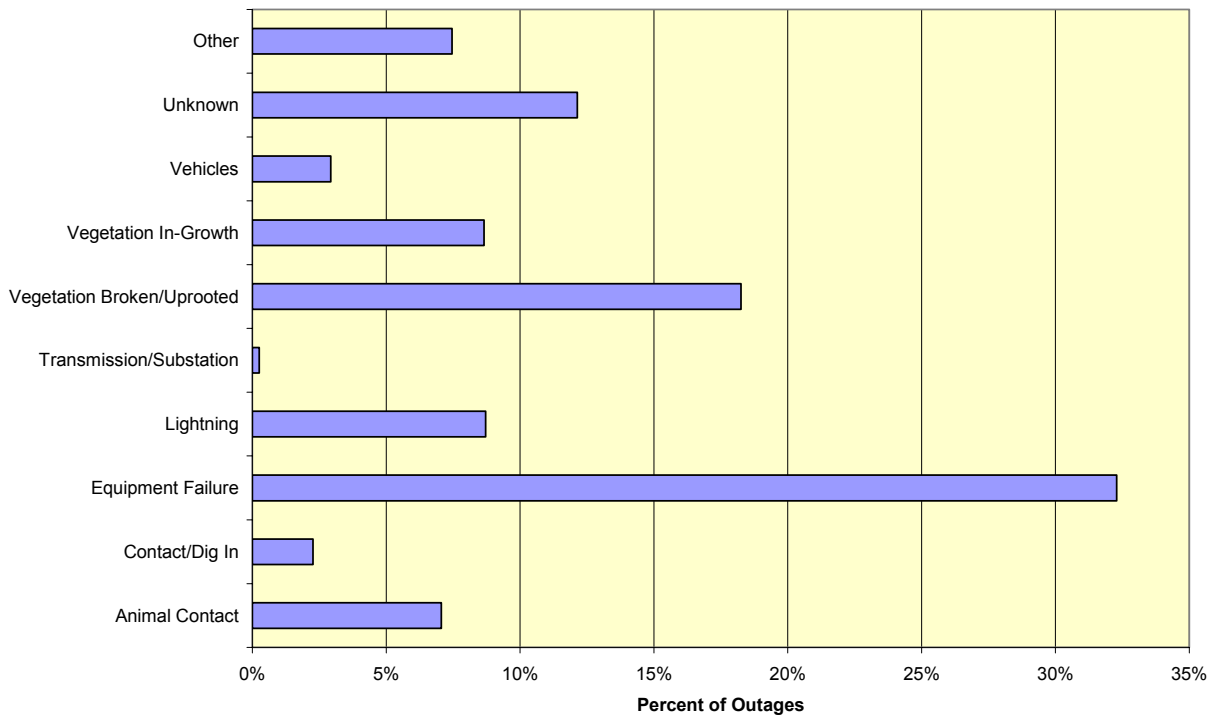
For the past three years, the annual values for SAIFI have been trending downward to 20% below (better than) the benchmark. The rolling 12-month averages for all four quarters in 2004 remained below 1.0 interruptions. Also, for the 12-month period ended March 2005, SAIFI remained at 0.98. The 2005 second quarter SAIFI was 1.04.

**PECO Energy Company
System Average Interruption Frequency Index (SAIFI)**



The graph below shows the distribution of causes of service outages occurring during 2004 as a percentage of total outages. Equipment failure (32.3%) and tree-related incidents (27.0%) were the leading causes of service interruptions. Broken branches and trunks and uprooted trees accounted for 68% of the trouble cases and 88% of vegetation-related customer interruptions. PECO's service territory experienced 14 storms containing lightning activity in 2004.

**PECO Energy Company
2004 Outage Causes**



PPL Electric Utilities Corporation

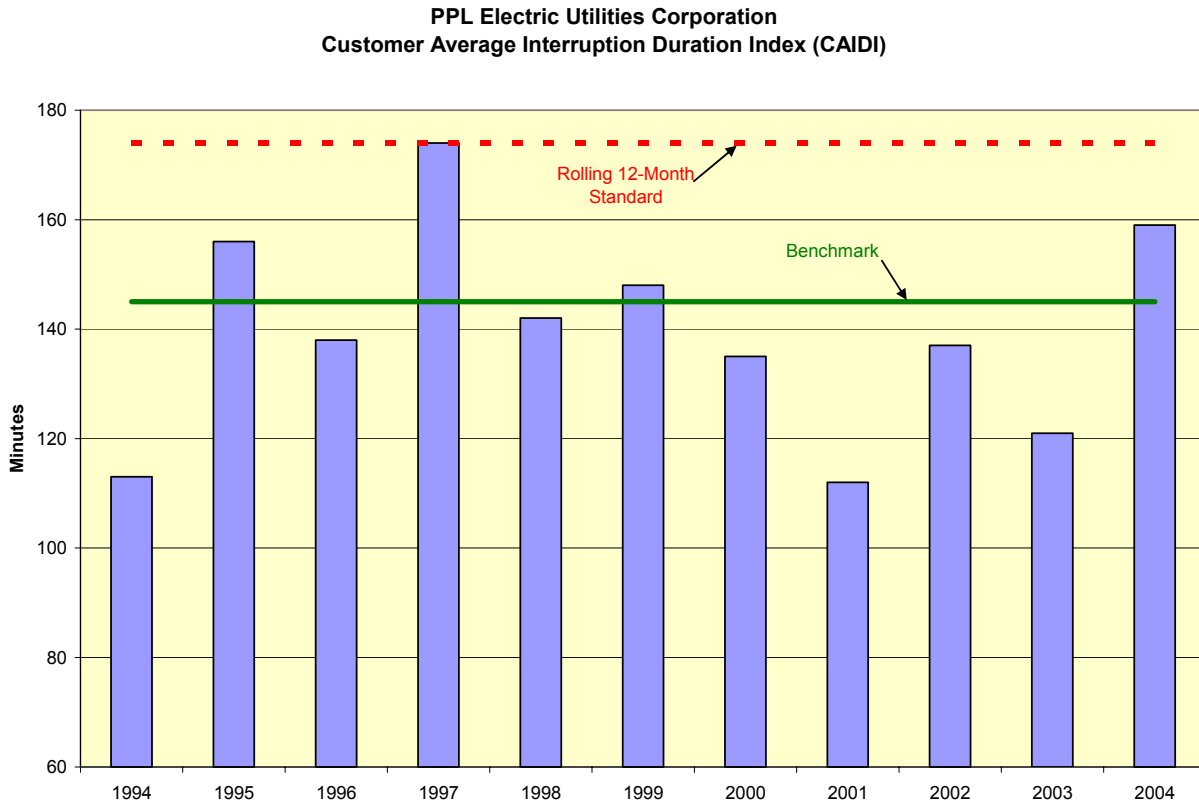
PPL Electric Utilities Corporation (PPL) provides service to 1,351,170 electric utility customers in central eastern Pennsylvania. In 2004, PPL had total retail energy sales of 36.8 billion kilowatthours.

In 2004, PPL continued to provide reliable electric service to its customers at a performance level better than the standards established by the Commission. The SAIDI value of 173 minutes was, however, 61.7% worse than the 2003 SAIDI and 15.6% better than the standard of 205 minutes. CAIDI and SAIFI were also up from 2003 levels: 159 minutes for CAIDI, compared to 121 minutes in 2003 and 1.09 interruptions for SAIFI, compared to last year's 0.87.

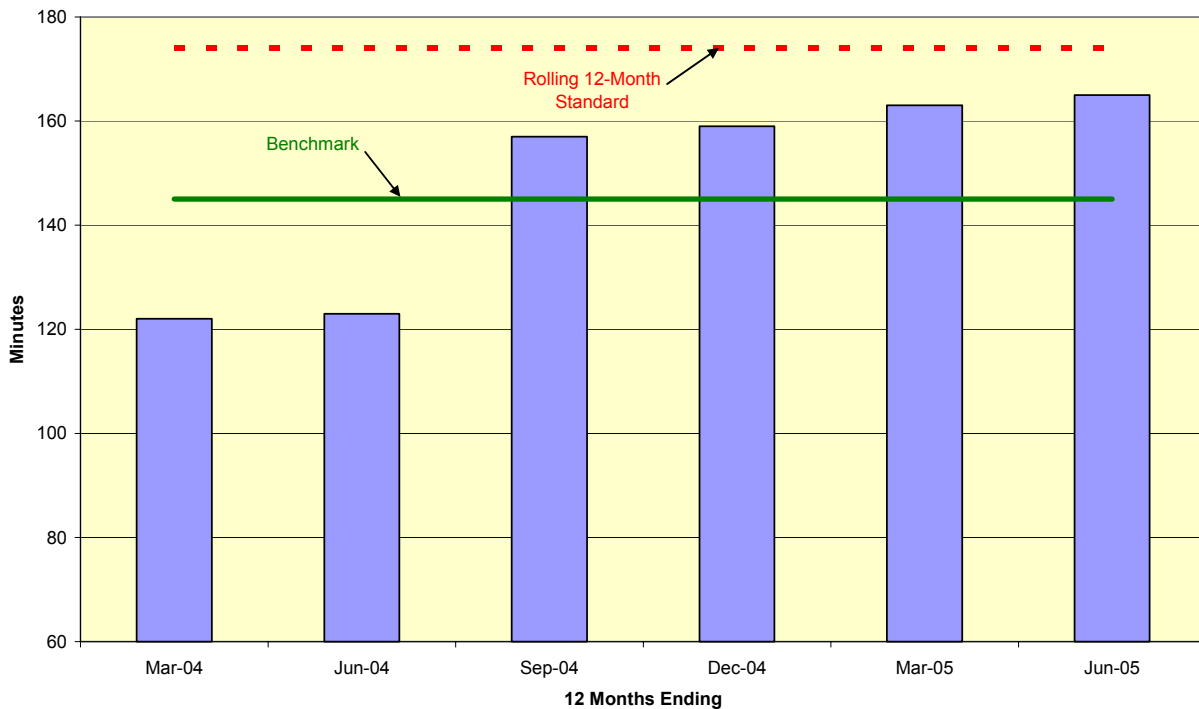
No major events occurred in PPL's service territory in 2004.

PPL experienced 1,448,817 service interruptions in 2004 with a total duration of 230.4 million minutes, or 64.4% higher than last years figure.

The following graphs depict trends in the duration of service interruptions for the PPL system from 1994 to 2004, and for the four quarters of 2004 and the first two quarters of 2005, compared to the newly established benchmarks and standards.



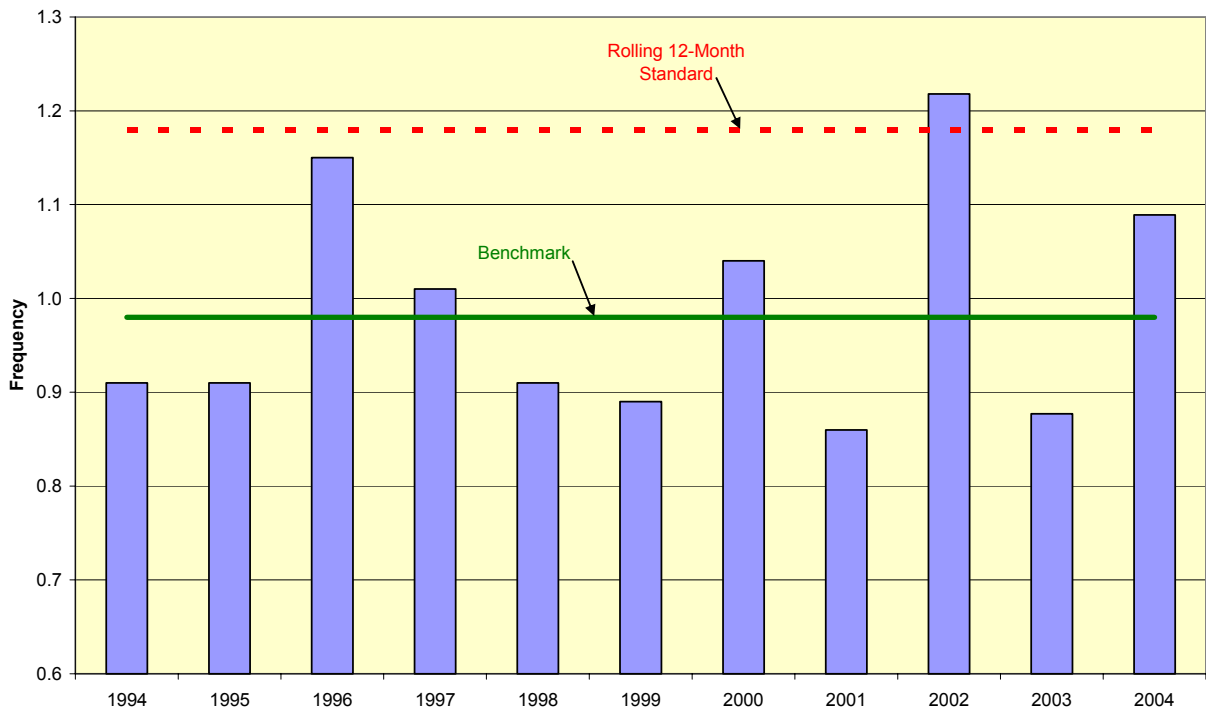
**PPL Electric Utilities Corporation
Customer Average Interruption Duration Index (CAIDI)**



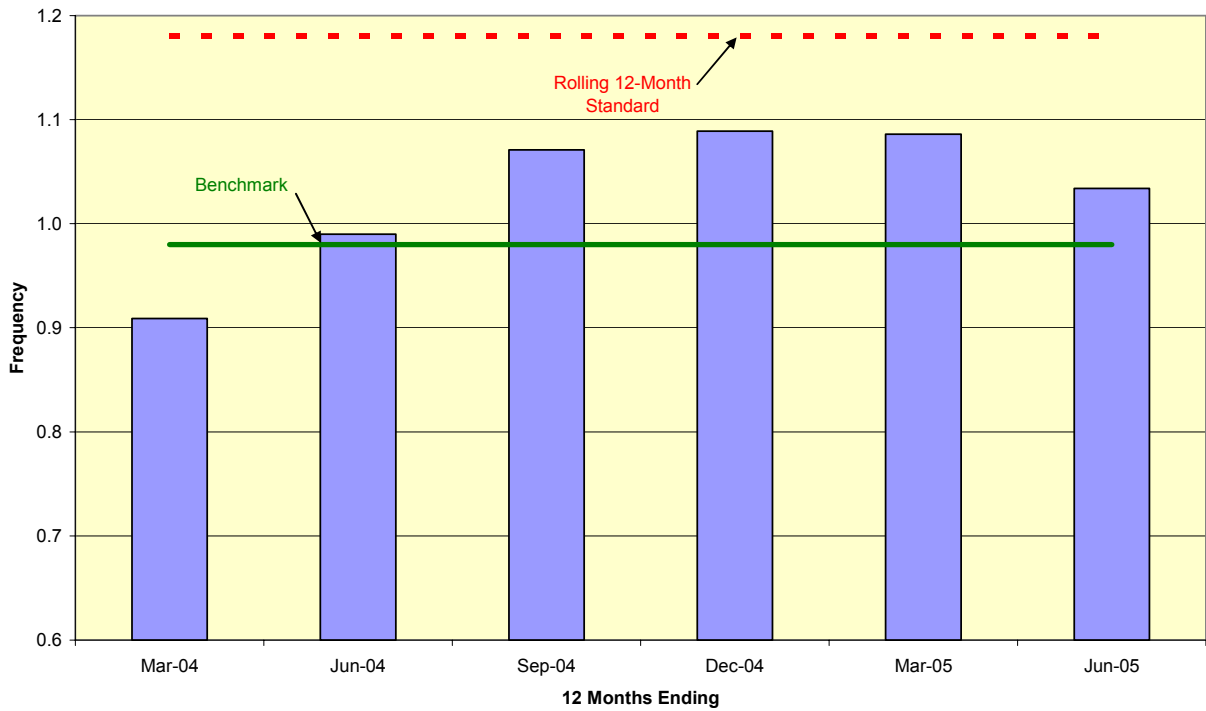
The average interruption duration was below the benchmark from 2000 through 2003 and exceeded the benchmark in 2004, still maintaining an acceptable reliability performance. PPL reported that Tropical Storm Ivan was responsible for approximately 1,300 cases of trouble, representing more than 121,000 customer interruptions and affecting about 9% of PPL's customer base. This single event contributed about 33 minutes to CAIDI for the period.

The next two graphs show trends in the frequency of service interruptions for the PPL system from 1994 to 2004, and for the four quarters of 2004 and the first two quarters of 2005, compared to the newly established benchmarks and standards for SAIFI.

**PPL Electric Utilities Corporation
System Average Interruption Frequency Index (SAIFI)**



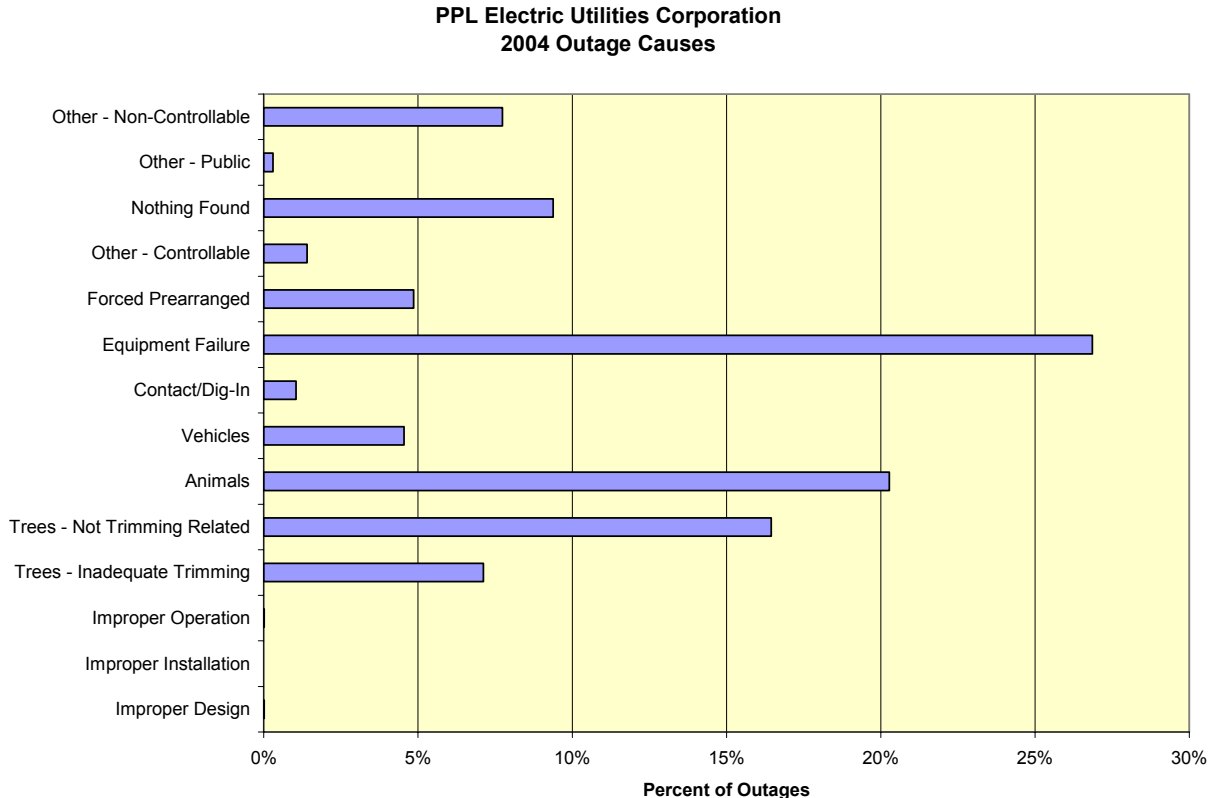
**PPL Electric Utilities Corporation
System Average Interruption Frequency Index (SAIFI)**



PPL's SAIFI was below the benchmark for six of the past 11 years. In 2002, SAIFI slightly exceeded the standard (1.22 vs. 1.18), which PPL attributes to an unusually high number of storms. The 2004 SAIFI of 1.09 interruptions was between the benchmark (0.98) and the standard.

For the 12-month rolling averages, SAIFI has been trending upward: from 0.91 for the 12 months ended March 2004 to 1.09 for the 12 months ended December 2004. Though increasing over the period, these values remain at an acceptable level of performance. SAIFI values for the first half of 2005 show improvement.

The graph below shows the distribution of causes of service outages occurring during 2004 as a percentage of total outages. Equipment failure (26.9%), animals (20.3%) and trees not related to trimming (16.5%) were the leading causes of interruptions. Non-controllable outages due to trees include trees falling into overhead facilities from outside the right-of-way, danger timber blown into facilities and trees or limbs cut or felled into facilities by a non-employee. During the third quarter of 2004, Tropical Storm Ivan was responsible for over 600 cases of trouble and 68,500 customer interruptions in this category.



In 2004, PPL adopted an improved tree-trimming specification and shortened maintenance trimming cycles to reverse a gradual increase in service interruptions attributed to inadequate trimming. These changes took effect on January 1, 2005.

UGI Utilities, Inc.

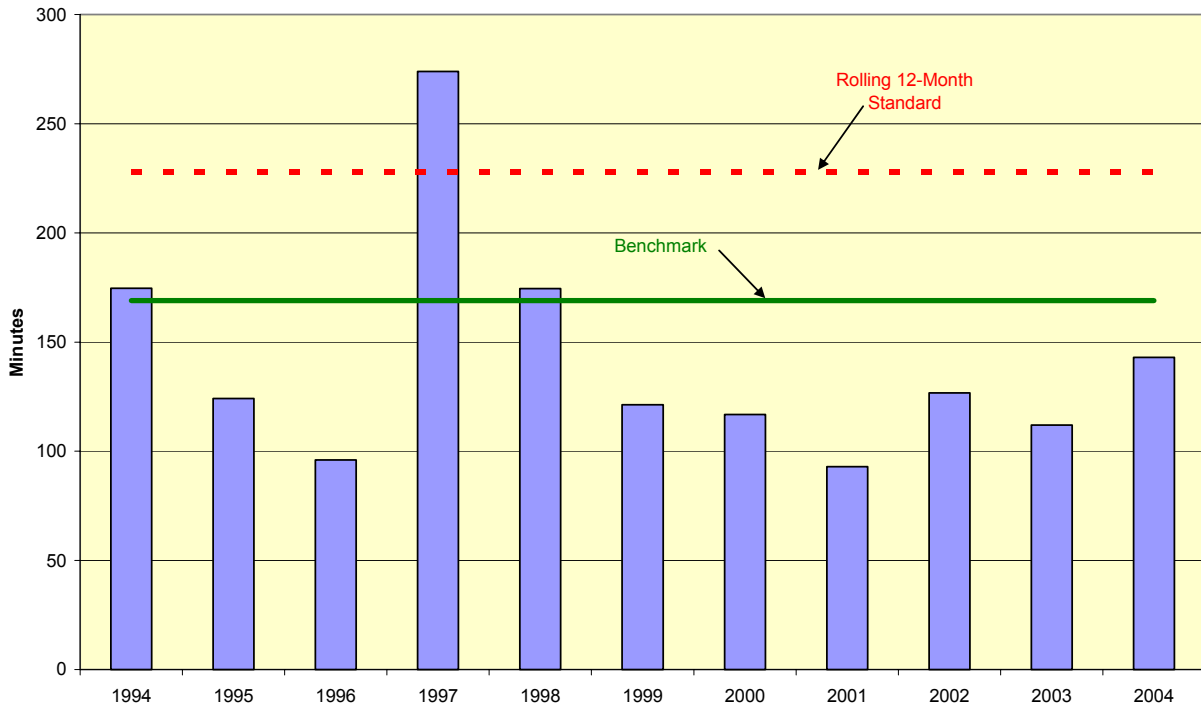
The Electric Division of UGI Utilities, Inc. (UGI) provides service to 61,922 electric utility customers in northwestern Luzerne and southern Wyoming counties, Pennsylvania. In 2004, UGI had total retail energy sales of 989.5 million kilowatthours.

UGI's overall reliability performance during 2004 was better than the established benchmarks. Although the 2004 CAIDI of 143 minutes was 31 minutes greater than the 2003 CAIDI, it was still 15.4% better than the benchmark of 169 minutes. The 2004 SAIFI of 0.65 interruptions was 42.0% better than last year's SAIFI and 21.7% better than the benchmark. UGI points out that favorable weather conditions experienced during the period have contributed significantly to these results.

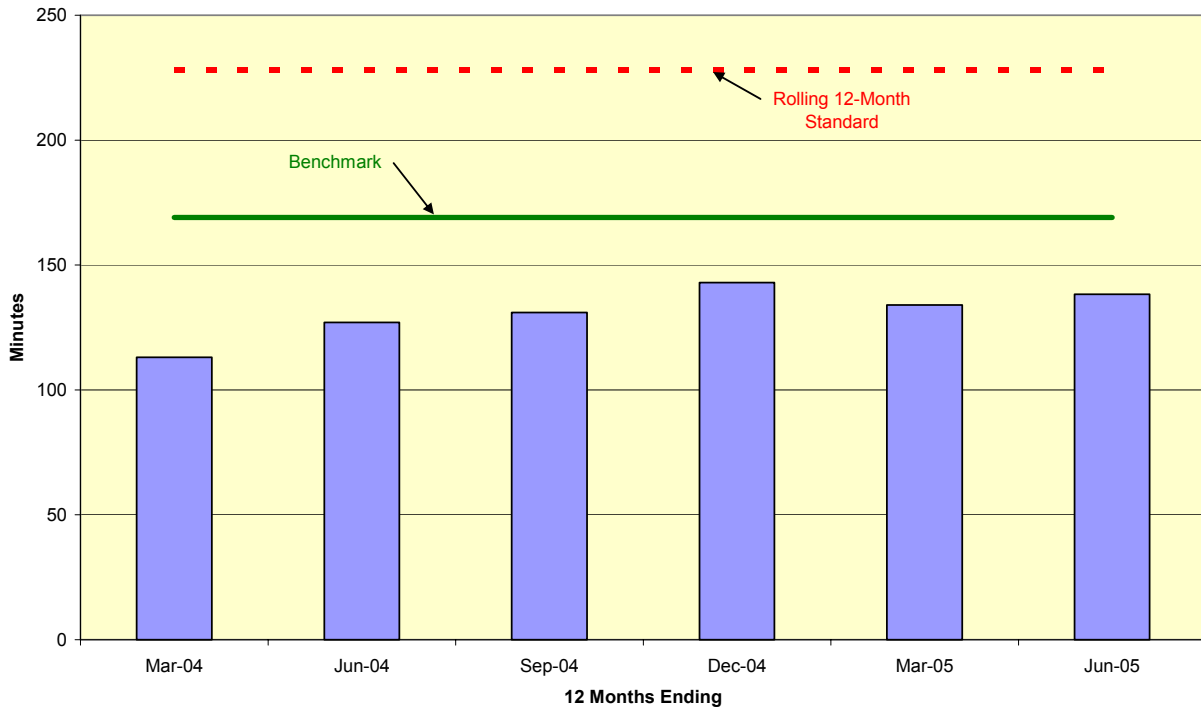
No major events have been reported for 2004.

The following graphs depict trends in the duration of service interruptions for the UGI system from 1994 to 2004, and for the four quarters of 2004 and the first two quarters of 2005, compared to the newly established benchmarks and standards.

**UGI Utilities, Inc.
Customer Average Interruption Duration Index (CAIDI)**



**UGI Utilities, Inc.
Customer Average Interruption Duration Index (CAIDI)**

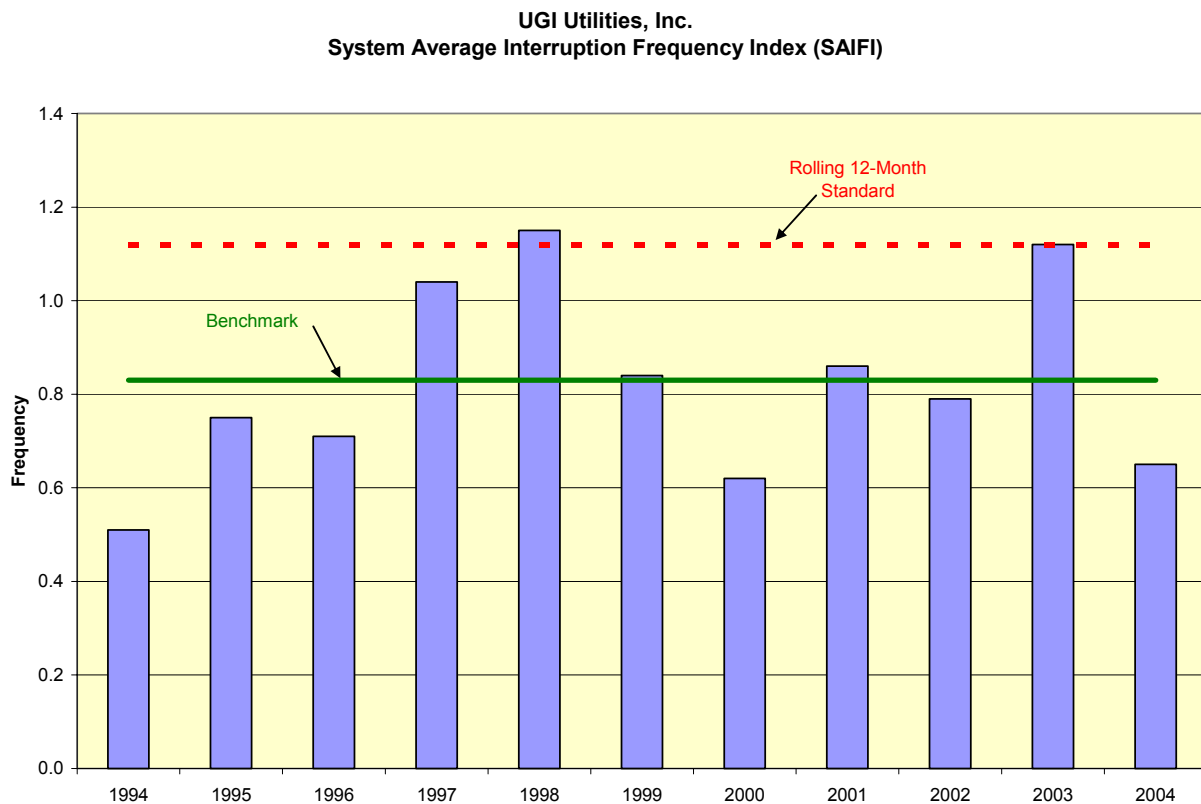


In 2004, UGI experienced 40,125 service interruptions with a total duration of 5.7 million minutes, which was about 25.9% lower than that which was reported last year.

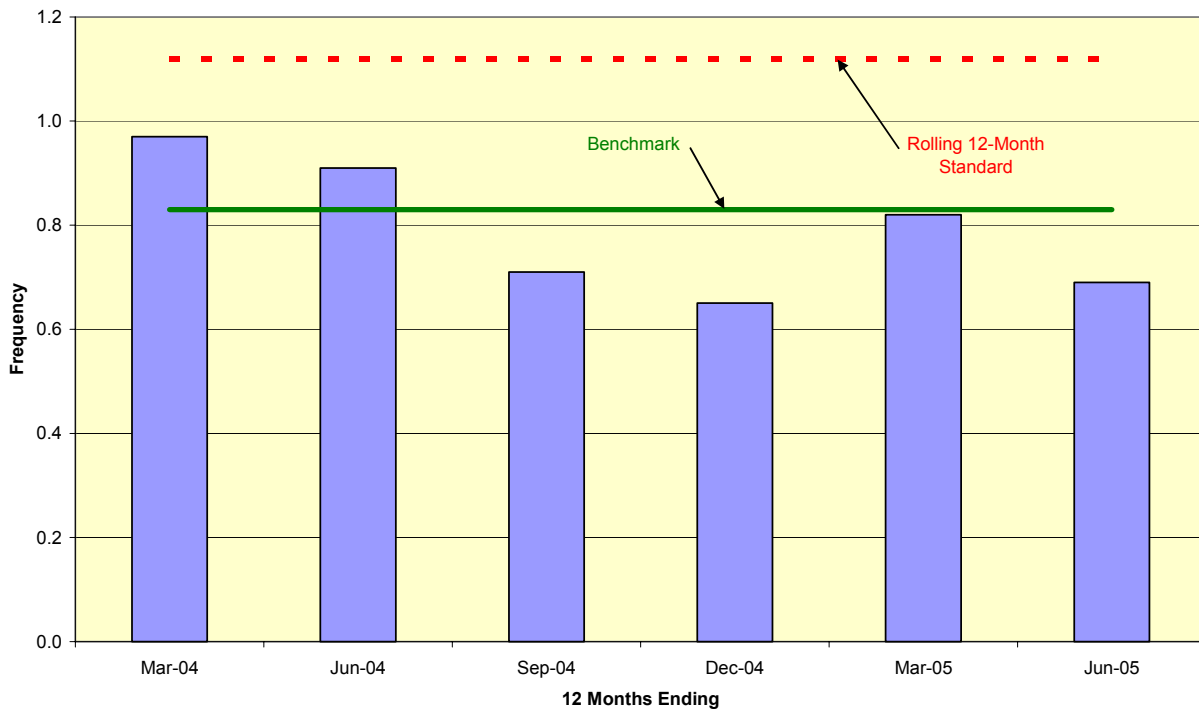
For the fourth consecutive quarter in 2004, UGI's SAIFI results have shown continuous improvement. Since December 2003, there has been a 42% decrease in the rolling 12-month average for SAIFI.

The next two graphs show trends in the frequency of service interruptions for the UGI system from 1994 to 2004, and for the four quarters of 2004 and the first two quarters of 2005, compared to the newly established benchmarks and standards for SAIFI.

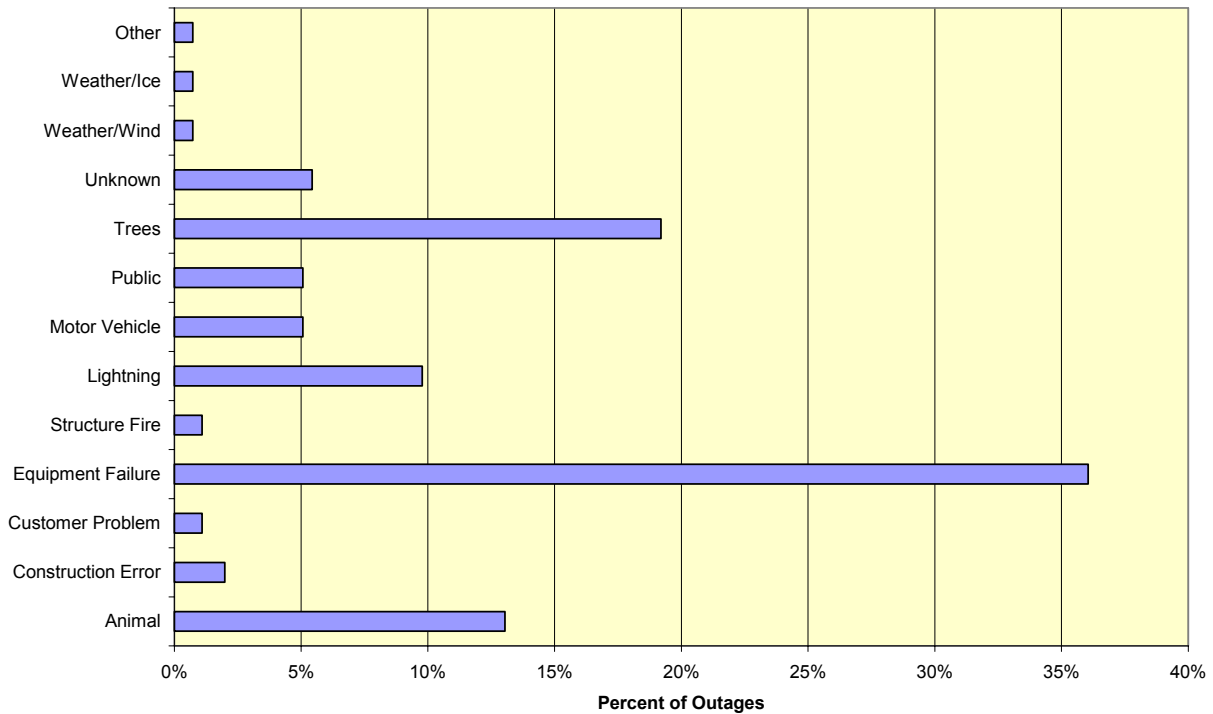
The final graph shows the distribution of causes of service outages occurring during 2004 as a percentage of total outages. Equipment failure (36.1%) and tree-related incidents (19.2%) were the leading causes of service interruptions.



**UGI Utilities, Inc.
System Average Interruption Frequency Index (SAIFI)**



**UGI Utilities, Inc.
2004 Outage Causes**



Citizens' Electric Company

Citizens' Electric Company (Citizens') provides service to 6,550 electric utility customers in Union County, Pennsylvania. In 2004, Citizens' had total retail energy sales of 174.0 million kilowatthours.

Citizens' has a relatively small operating area with an electric system consisting of one distribution substation and nine distribution feeder lines.

In 2004, Citizens' system reliability performance showed an improvement over that of the previous year. Citizens' CAIDI of 64 minutes was eight minutes better than the 2003 CAIDI, and 41 minutes better than the benchmark of 105 minutes. The 2004 SAIFI was an average of 0.39 outages per customer, compared to the previous year's SAIFI of 0.42. The outage frequency has, however, continued to exceed the rolling 12-month standard of 0.27.²¹

Citizens' is currently deploying an Automatic Meter Reading system across its service territory. In addition to the meter reading functionality, this system will enable Citizens' to verify service outages and perform quicker assessments of overall system conditions during a major event.

The calculations for the 2004 reliability indices exclude outage data relating to five major events, which were approved by the Commission:

- February 21, 2004: insulator failure on PPL double-circuit transmission line feeding Citizens' substation; 6,533 customers affected; 344 interruption minutes excluded.
- May 2, 2004: off right-of-way tree; 1,100 customers affected; 55 interruption minutes excluded.
- June 13, 2004: off right-of-way tree; 1,140 customers affected; 40 interruption minutes excluded.
- July 8, 2004: customer action caused phase wires to contact, resulting in a lockout at station recloser; 1,140 customers affected; 15 interruption minutes excluded.
- September 9, 2004: equipment failure – suspension insulator; 1,100 customers affected; 105 interruption minutes excluded.

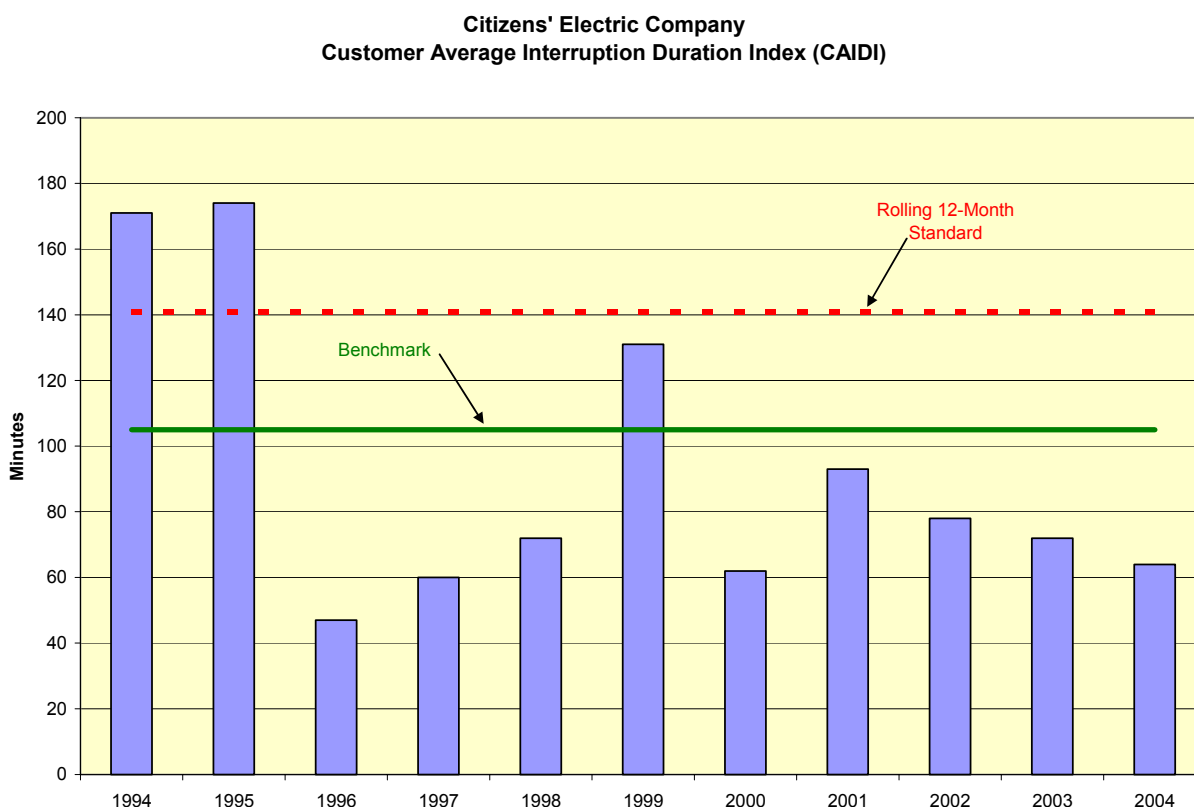
Exclusion of an additional service outage, caused by equipment failure, was denied by the Commission. This outage, occurring on April 26, 2004, involved 1,140 customers and 56,520 customer interruption minutes. On August

²¹ It is noted that the exclusion of the April 26, 2004, outage statistics, currently under appeal, would result in a SAIFI value of 0.21.

11, 2005, Citizens' Petition for Appeal of this determination was denied by the Commission, regarding the exclusion of this service outage, and granted for the purpose of verifying the re-calculation of Citizens' historic reliability benchmarks.²²

Citizens' experienced a total of 2,528 customer interruptions in 2004, with a total duration of 160,675 minutes, excluding major events, which was 17.4% lower than that which was reported last year.

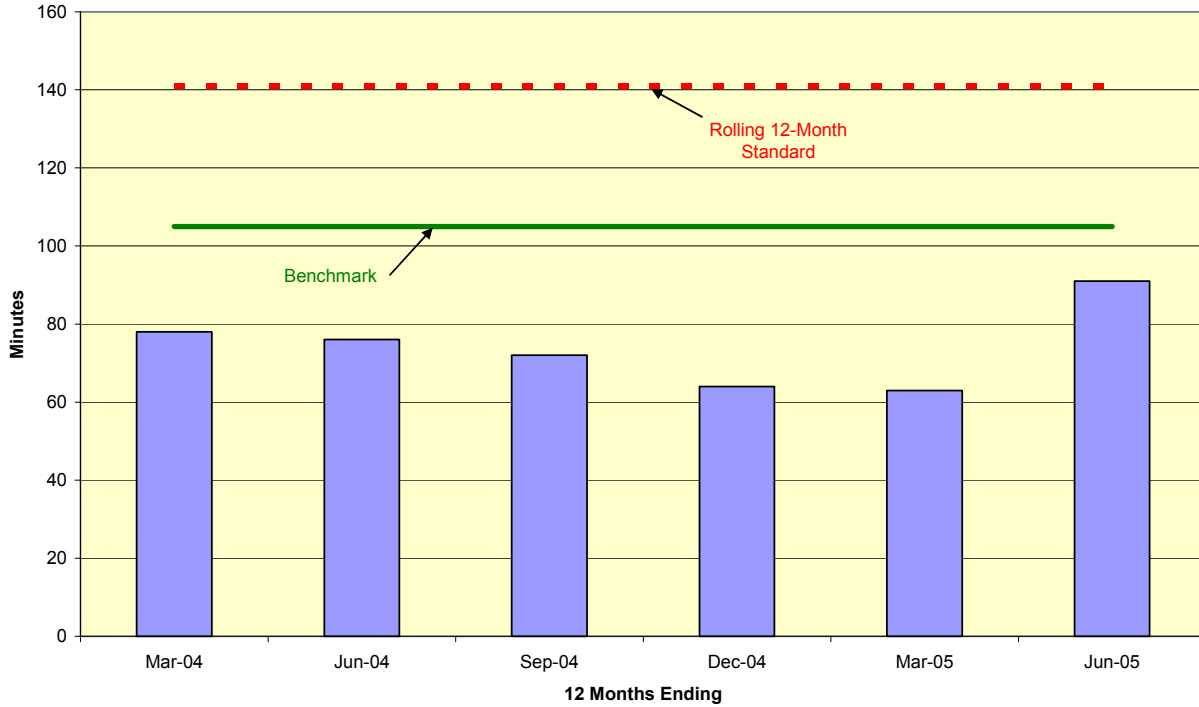
The following graphs depict trends in the duration of service interruptions for the Citizens' system from 1994 to 2004, and for the four quarters of 2004 and the first two quarters of 2005, compared to the newly established benchmarks and standards.



The quarterly rolling 12-month averages are well below (better than) the CAIDI benchmark.

²² Docket No. P-00042127. Another issue presented in Citizens' Petition for Appeal is the development of its base year data. Citizens' requests that it be permitted to recalculate its base year historic reliability benchmarks to include major events caused by equipment failure.

**Citizens' Electric Company
Customer Average Interruption Duration Index (CAIDI)**

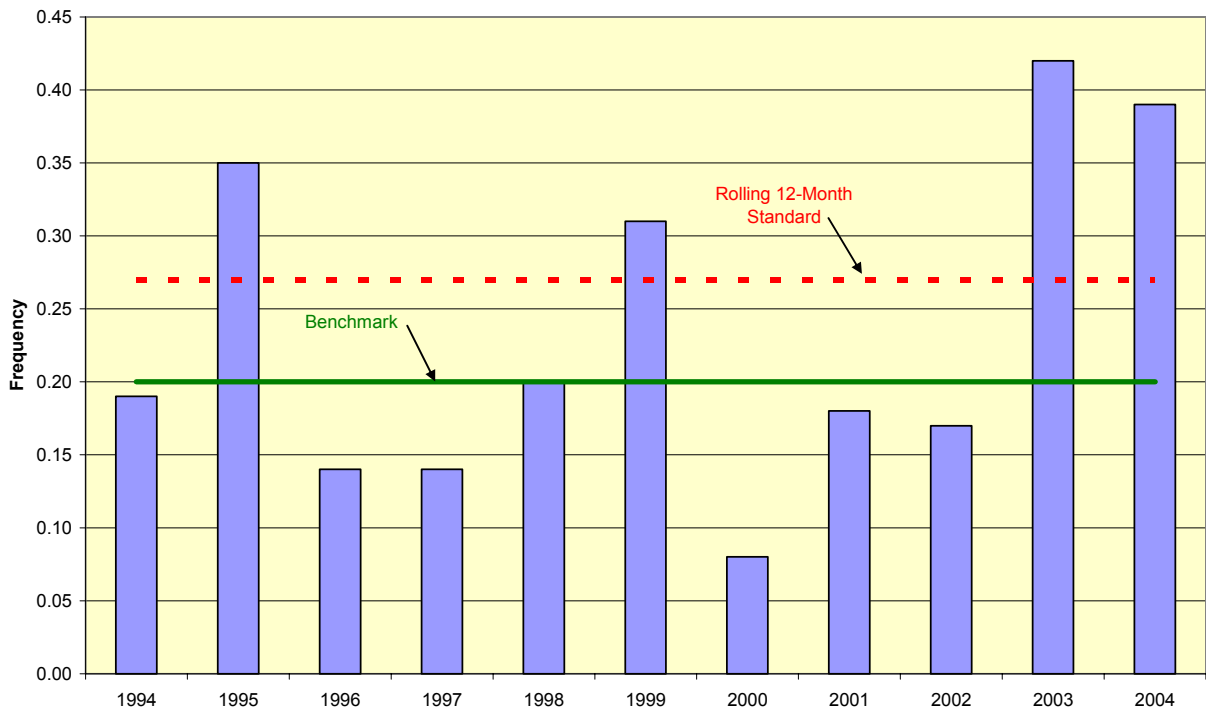


The next two graphs show trends in the frequency of service interruptions for the Citizens' service territory from 1994 to 2004, and for the four quarters of 2004 and the first two quarters of 2005, compared to the newly established benchmarks and standards for SAIFI.

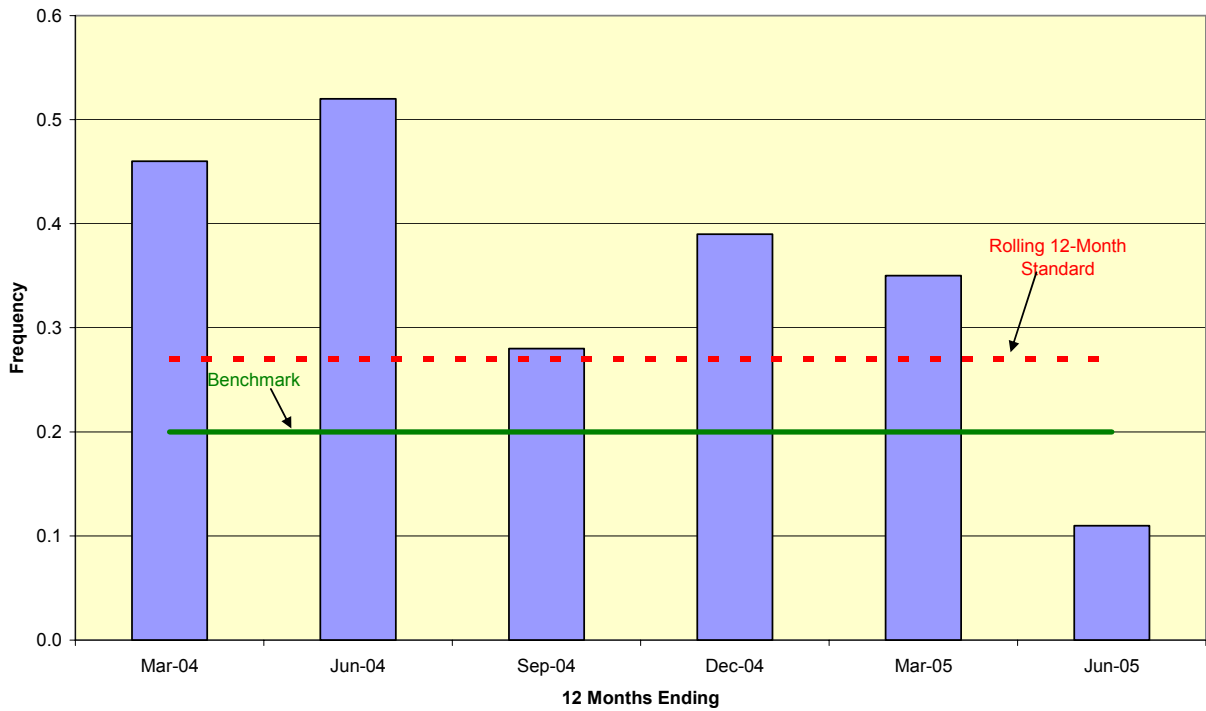
Although the outage frequency values shown on these graphs are much smaller than the SAIFI values of larger companies, valid comparisons are not made with other companies' reliability performance, but with the historical performance of Citizens'. Smaller systems tend to experience more variability in service outage data, which is captured in the development of historical benchmarks.

For the past two years, Citizens' SAIFI has exceeded the standard. Outage frequency for the rolling 12-month averages fluctuated from a low of 0.28 for the 12 months ending September 2004, to a high of 0.52 for the 12 months ending June 2004. The rolling 12-month average SAIFI for the second quarter of 2005 dropped to 0.11, well below the benchmark.

**Citizens' Electric Company
System Average Interruption Frequency Index (SAIFI)**



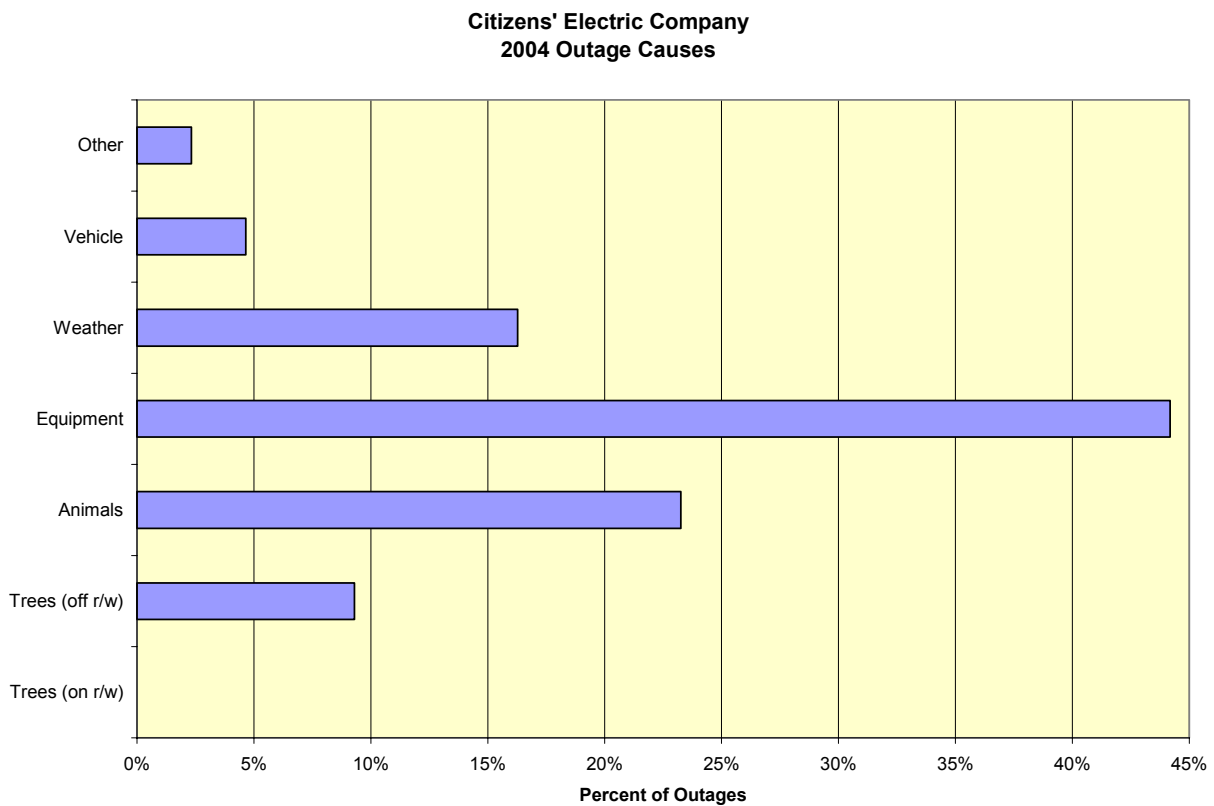
**Citizens' Electric Company
System Average Interruption Frequency Index (SAIFI)**



We expect this fluctuation in Citizens' SAIFI values to continue. Outage frequency will continue to be monitored.

The graph below shows the distribution of causes of service outages occurring during 2004 as a percentage of total outages. The most frequent outage cause was equipment failure, representing 44% of the outages. Excluding the one large event under appeal, each of the remaining equipment-related outages generally affected a small number of customers.

Citizens' has reported that its employees have been more closely scrutinizing certain types of equipment, such as cutouts and arrestors. As a result, the number of equipment failures dramatically declined during the latter part of the year.



Pike County Light & Power Company

Pike County Light & Power Company (Pike County) provides service to 4,351 electric utility customers in Pike County, Pennsylvania. In 2004, Pike County had total retail energy sales of 72.9 million kilowatthours.

Pike County is the westernmost portion of Orange & Rockland's Northern Operating Division. This area is fed from two 34.5 kV radial circuits. Thus, sustained interruptions are usually smaller, affecting fewer customers, and will take a longer amount of time per customer to restore service. In 2004, Matamoras Substation was constructed to improve service reliability.

The 2004 reliability performance of Pike County is a slight improvement over the 2003 performance. The CAIDI value of 172 minutes was 12 minutes less than the previous year and 3.4% below the benchmark of 178 minutes. The 2004 outage frequency remained the same as 2003 (0.52) and a substantial improvement over 2002. The SAIDI value dropped from 96 minutes in 2003 to 90 minutes in 2004.

The calculations for the 2004 reliability indices exclude outage data relating to five major events, which were approved by the Commission:

- January 28, 2004: motor vehicle accident; 1,343 customers affected; 59,092 interruption minutes excluded.
- August 11, 2004: lightning hit riser pole; 2,831 customers affected; 510,845 interruption minutes excluded.
- August 20, 2004: lightning and tree contact; 2,312 customers affected; 692,405 interruption minutes excluded.
- September 18, 2004: lightning, tree contact and flooding; 1,587 customers affected; 1,153,434 interruption minutes excluded.
- September 26, 2004: tree contact; 2,196 customers affected; 1,361,419 interruption minutes excluded.

On June 9, 2004, Pike County filed comments to the Commission's Order²³ of May 11, 2004, which were treated as a petition to amend its benchmarks.²⁴ Pike County submits that the five years of data used to establish reliability benchmark values disadvantages Pike County since such data fails to account adequately for the small size of its service area, the configuration of the system and the potential for volatility in reliability index performance. A settlement agreement was reached by all of the parties to the proceeding.

²³ Docket No. M-00991220.

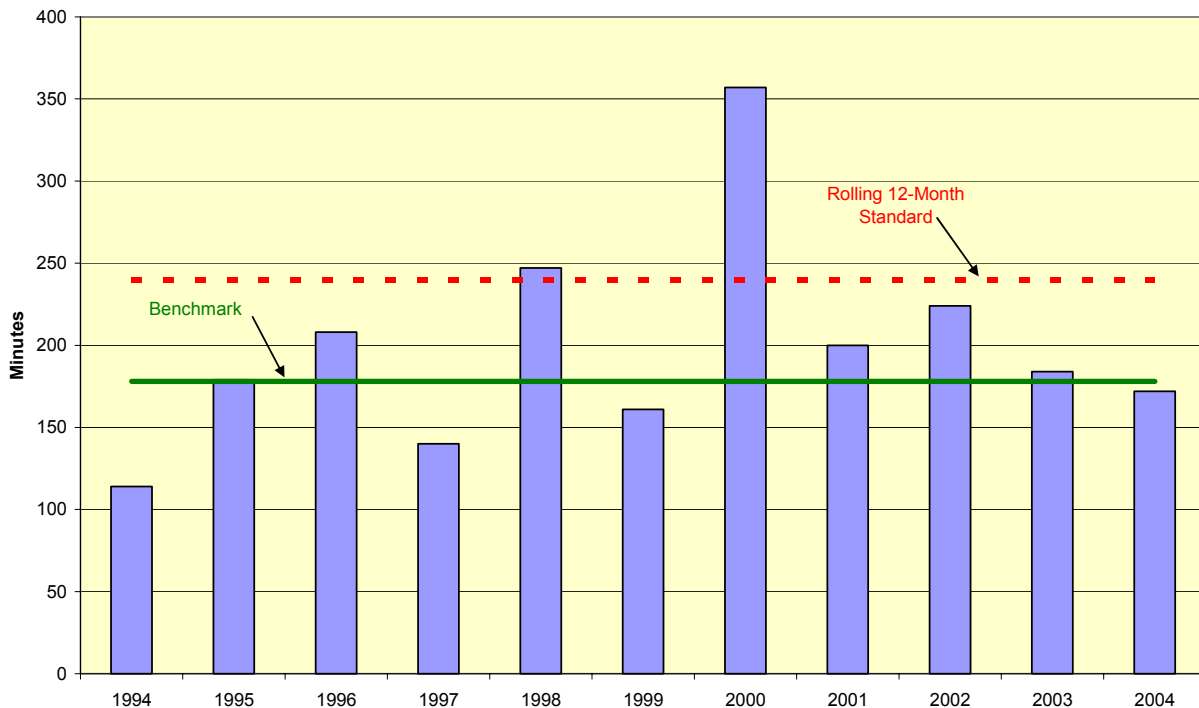
²⁴ Docket No. M-00991220 F0002.

However, the matter was subsequently remanded to the Commission’s Office of Administrative Law Judge for further development of the record regarding the re-calculation of Pike County’s reliability benchmarks.

In 2004, Pike County experienced 2,267 service interruptions with a total duration of 390,469 minutes, which was about 5.9% lower than that which was reported last year.

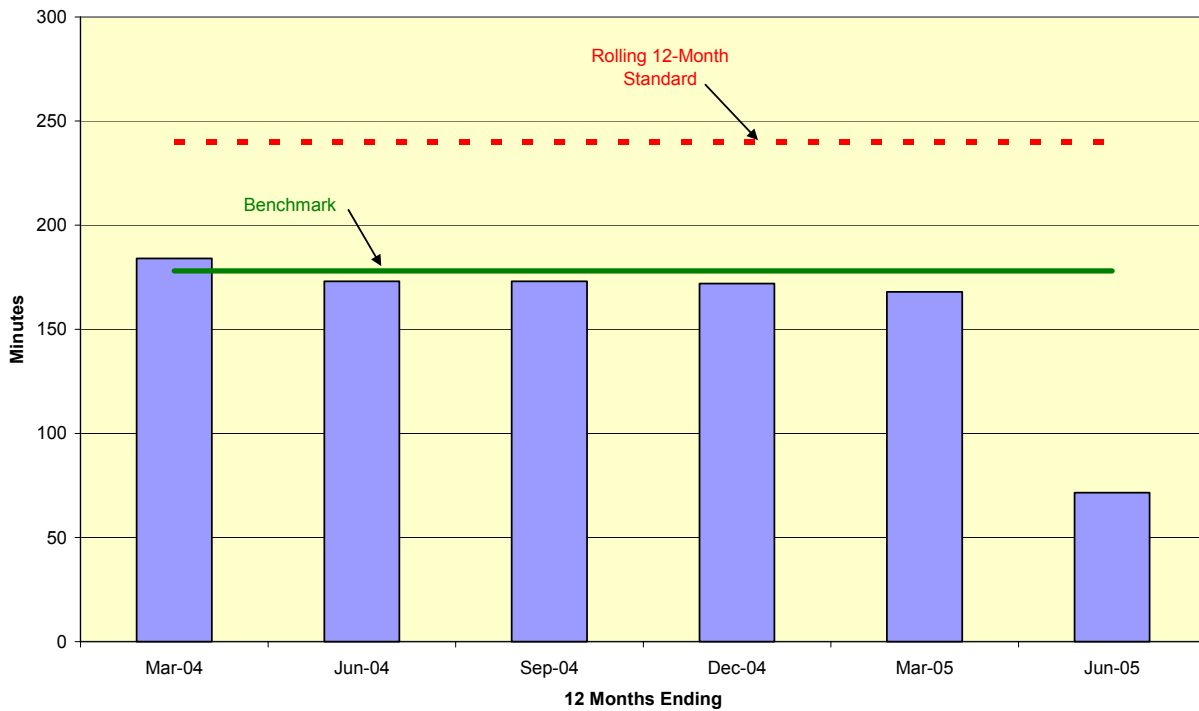
The following graphs depict trends in the duration of service interruptions for the Pike County system from 1994 to 2004, and for the four quarters of 2004 and the first two quarters of 2005, compared to the newly established benchmarks and standards.

**Pike County Light & Power Company
Customer Average Interruption Duration Index (CAIDI)**



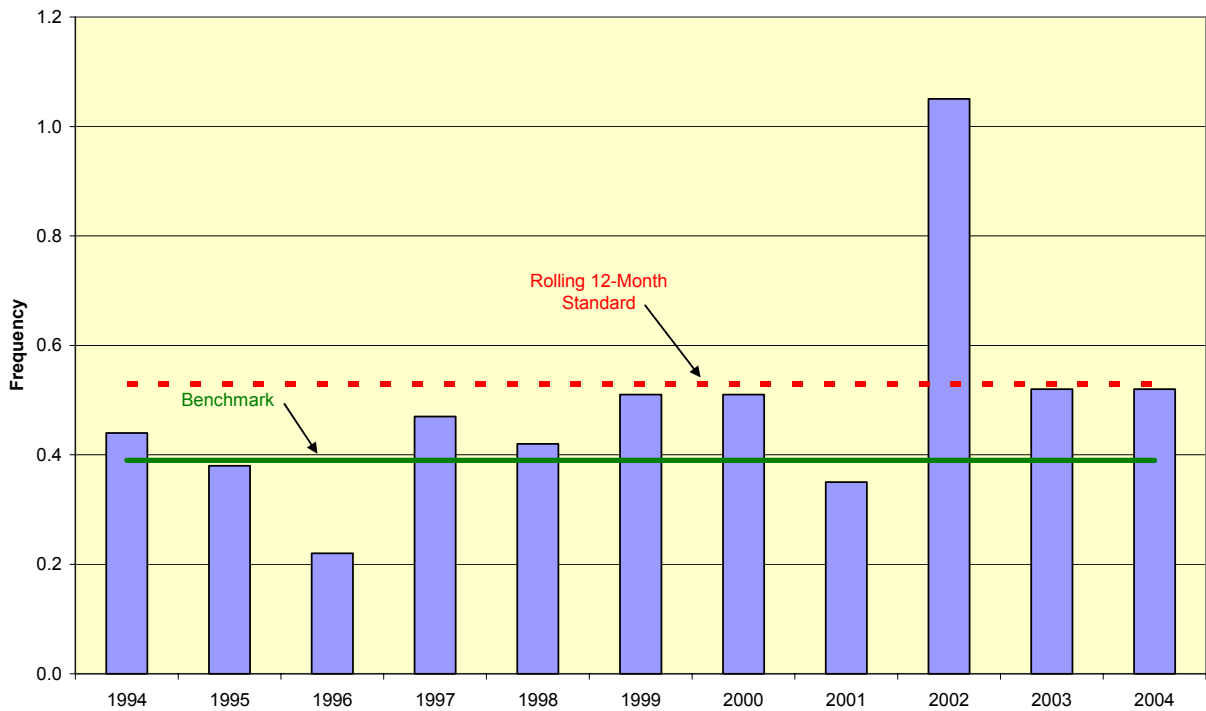
The annual CAIDI values have improved over the past two years, and the 2004 CAIDI is at its lowest level since 1999. Rolling 12-month averages for the last three quarters of 2004, and the first two quarters of 2005, were better than the benchmark.

**Pike County Light & Power Company
Customer Average Interruption Duration Index (CAIDI)**

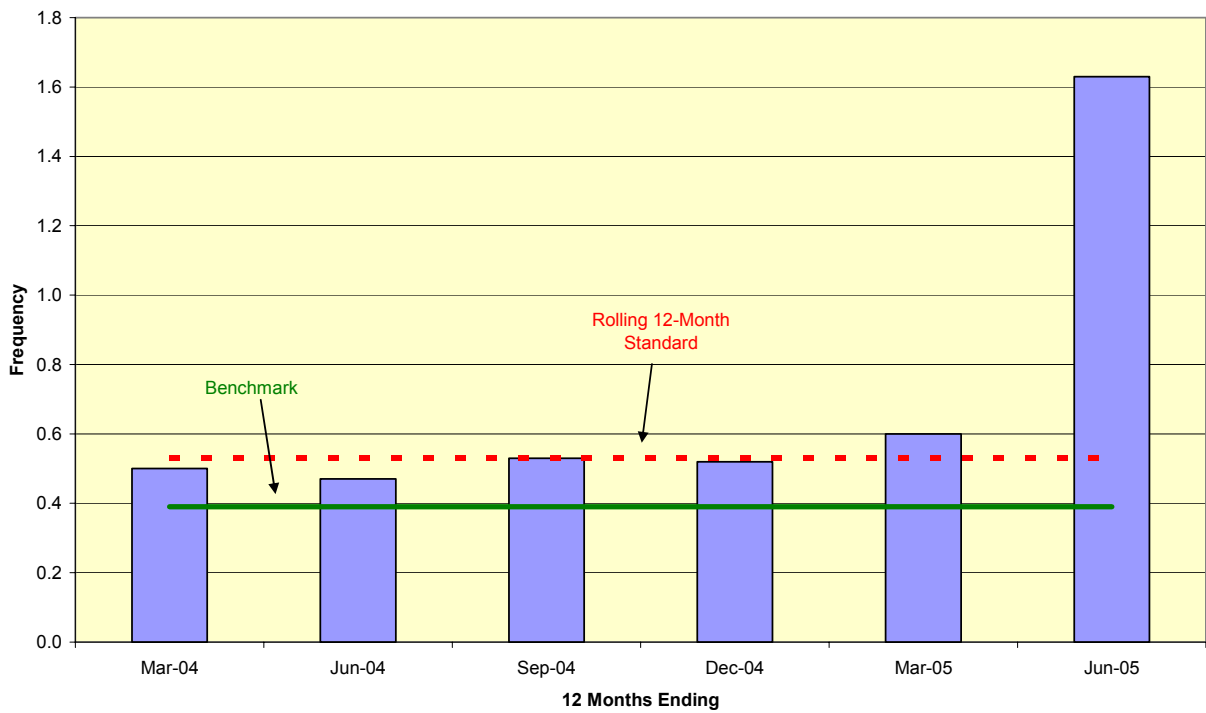


The next two graphs depict trends in the frequency of service interruptions for the Pike County system from 1994 to 2004, and for the four quarters of 2004 and the first two quarters of 2005, compared to the newly established benchmarks and standards for SAIFI.

**Pike County Light & Power Company
System Average Interruption Frequency Index (SAIFI)**



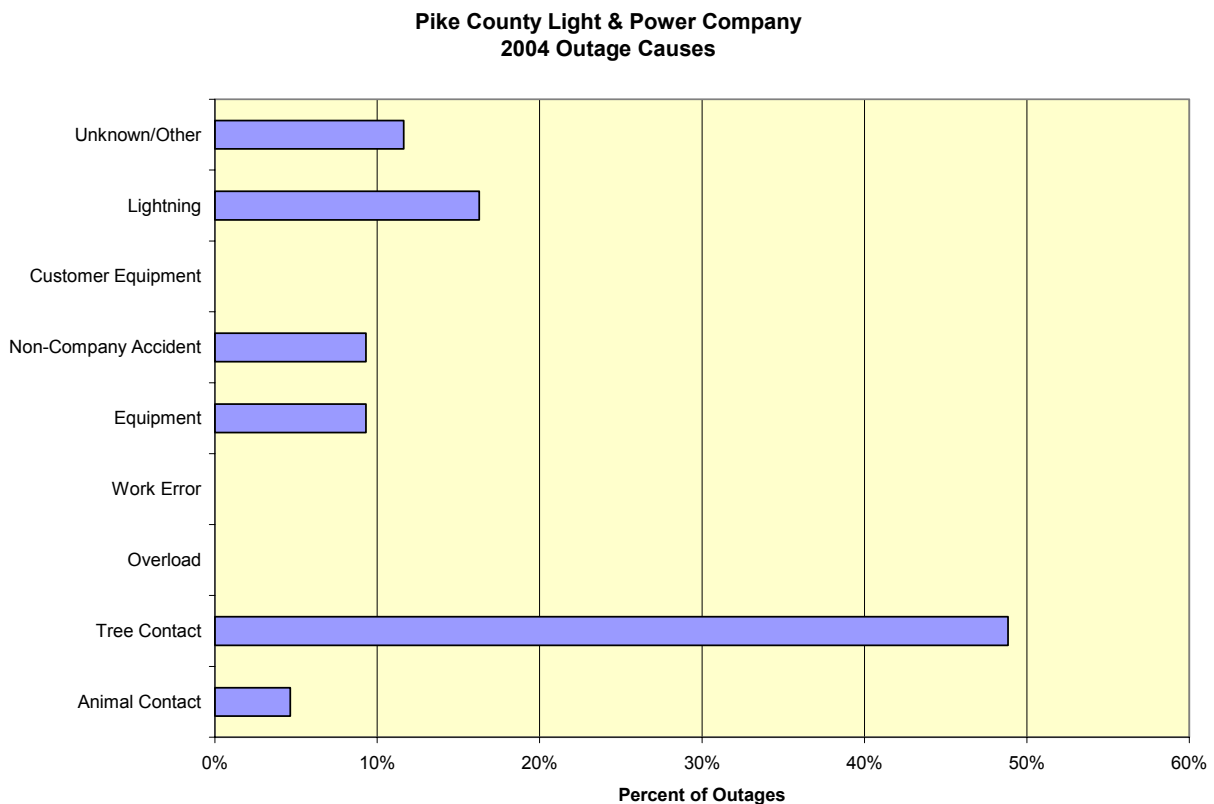
**Pike County Light & Power Company
System Average Interruption Frequency Index (SAIFI)**



For the past two years, SAIFI has been marginally acceptable at 0.52, compared to a benchmark of 0.39 and a rolling 12-month standard of 0.53. There was little variation between the SAIFI quarterly values for 2004. However, the SAIFI values for the first two quarters of 2005 exceeded the performance standard. For the 12-month period ending June 2005, Pike County’s SAIFI was 1.63, over three times the standard, resulting, in part, from the denial of two requests for major event exclusions occurring in May 2005.

The Settlement Petition would increase the SAIFI benchmark to 0.61 and the SAIFI rolling 12-month standard to 0.82.

The graph below shows the distribution of causes of service outages occurring during 2004 as a percentage of total outages. The major cause of service outages is tree contact with 21 interruptions (48.8%) affecting 1,142 customers for a total of 183,518 minutes. Improvement efforts in this area include a four-year, cycle-based tree clearance program. A “cycle-buster” trimming program was also in effect to address key areas where recurring outages have occurred.



Wellsboro Electric Company

Wellsboro Electric Company (Wellsboro) provides service to 5,859 electric utility customers in Tioga County, Pennsylvania. In 2004, Wellsboro had total retail energy sales of 118.8 million kilowatthours.

Wellsboro's reliability performance has improved with regard to outage restoration time, but continues to decline in the average number of service interruptions per customer. Wellsboro's CAIDI has continued to be better than the benchmark, while SAIFI has exceeded the performance standard by a substantial margin.

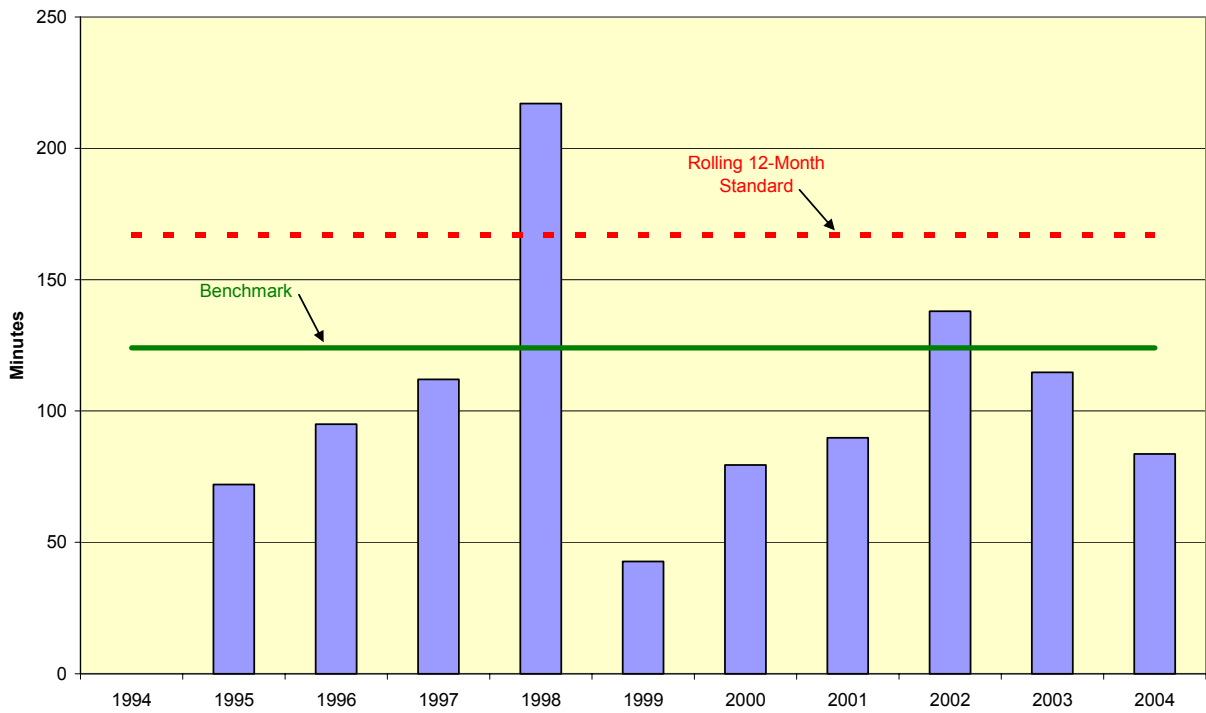
In 2004, Wellsboro experienced two major events. The calculations for the reliability indices exclude outage data related to these events, which were approved by the Commission.

- September 17 - 18, 2004: heavy rain and flooding; 2,854 customers affected; 1,469 interruption minutes excluded.
- November 7, 2004: equipment failure; 5,622 customers affected; 92 interruption minutes excluded.

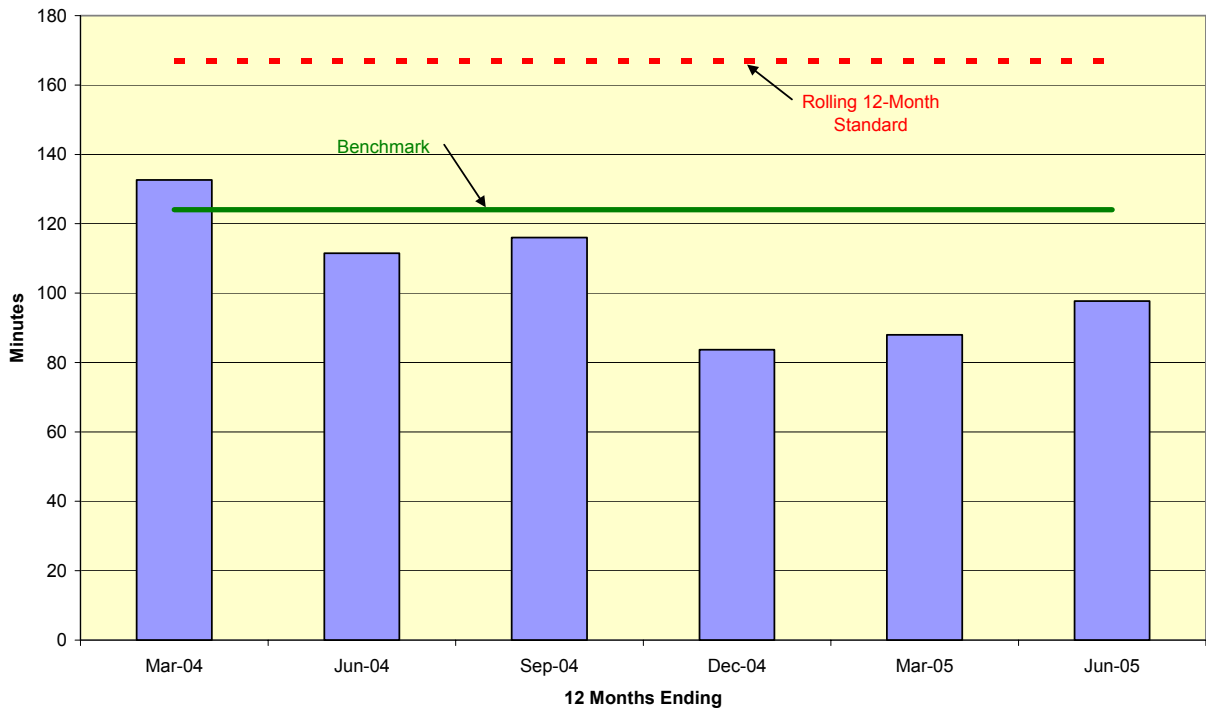
Wellsboro's average interruption duration dropped to 84 minutes in 2004, the lowest value since 2000. This is 40 minutes or 32.3% less than the benchmark of 124 minutes.

The following graphs depict trends in the duration of service interruptions for the Wellsboro system from 1994 to 2004, and for the four quarters of 2004 and the first two quarters of 2005, compared to the newly established benchmarks and standards.

**Wellsboro Electric Company
Customer Average Interruption Duration Index (CAIDI)**



**Wellsboro Electric Company
Customer Average Interruption Duration Index (CAIDI)**



Wellsboro's 2004 SAIFI value was the worst experienced in the past ten years. The average outage frequency of 3.13 was 2.5 times greater than the benchmark of 1.23 and 1.9 times worse than the 12-month standard. Wellsboro's SAIFI has increased each year since 2001. Actually, interruption frequency has exceeded the standard for the past six years.

Four of the past six quarterly SAIFI values exceeded the standard by a wide margin. Also, it is noted that the SAIFI value for the 12 months ended March 2005 was 3.67 interruptions per customer. Wellsboro has offered no explanation for this continuing negative trend.

It is acknowledged that Wellsboro implemented a new Outage Management System (OMS) in 2002. A review of the historical reliability data does not, however, indicate that Wellsboro's poor performance statistics, with regard to SAIFI, are a result of an improved data gathering system.

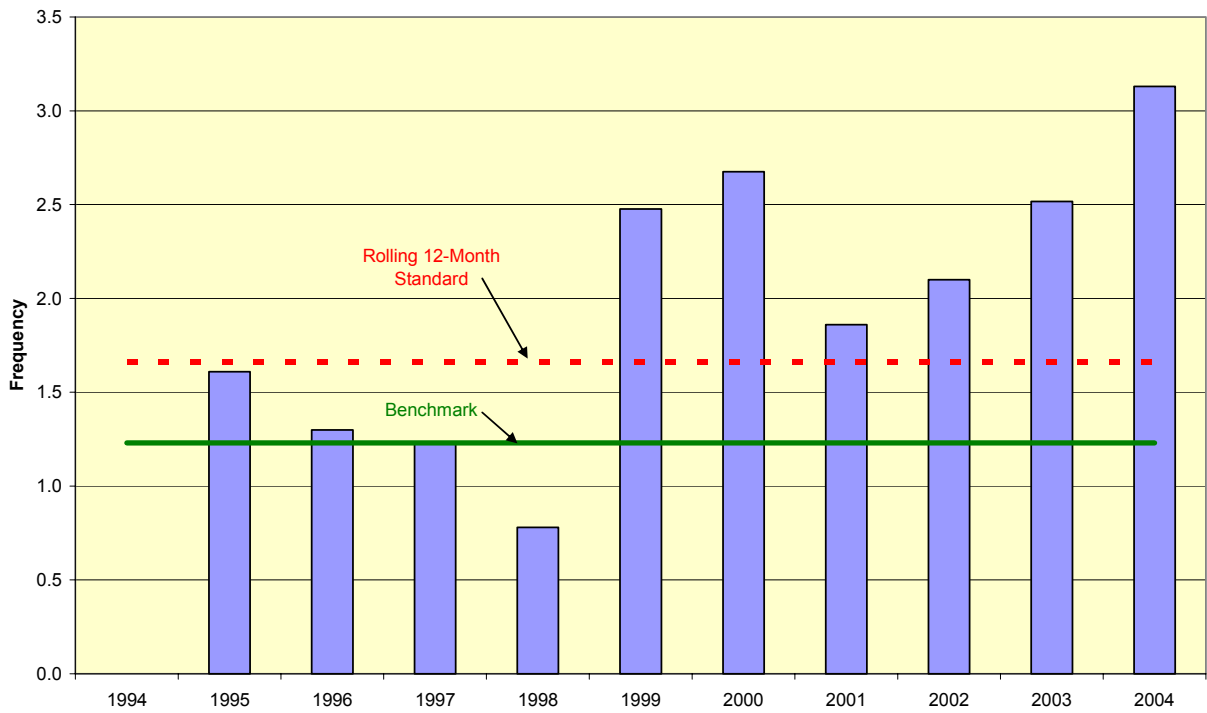
If Wellsboro's reliability performance does not significantly improve, the Commission may require a separate report discussing the reasons for not meeting the standard and the corrective measures Wellsboro is taking to improve performance.²⁵

It is noted that, in its revised 2004 reliability report, Wellsboro reported that it is reviewing its lightning protection scheme, installing additional animal guards and reviewing and updating its 10-year work plan on a circuit by circuit level for its entire distribution system. Wellsboro's performance will continue to be monitored; Commission staff expects to meet with company officials to discuss this negative trend in reliability performance.

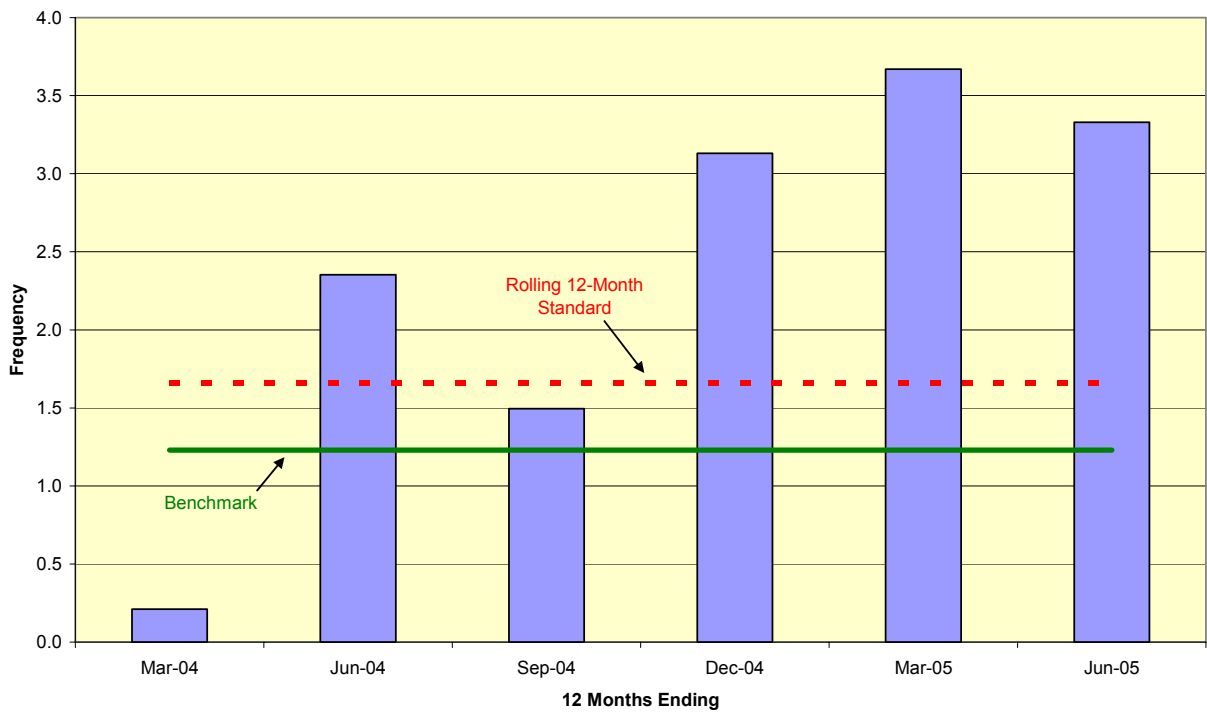
The next two graphs show trends in the frequency of service interruptions from 1994 to 2004, and for the four quarters of 2004 and the first two quarters of 2005, compared to the newly established benchmarks and standards.

²⁵ 52 Pa. Code § 57.195(g).

**Wellsboro Electric Company
System Average Interruption Frequency Index (SAIFI)**

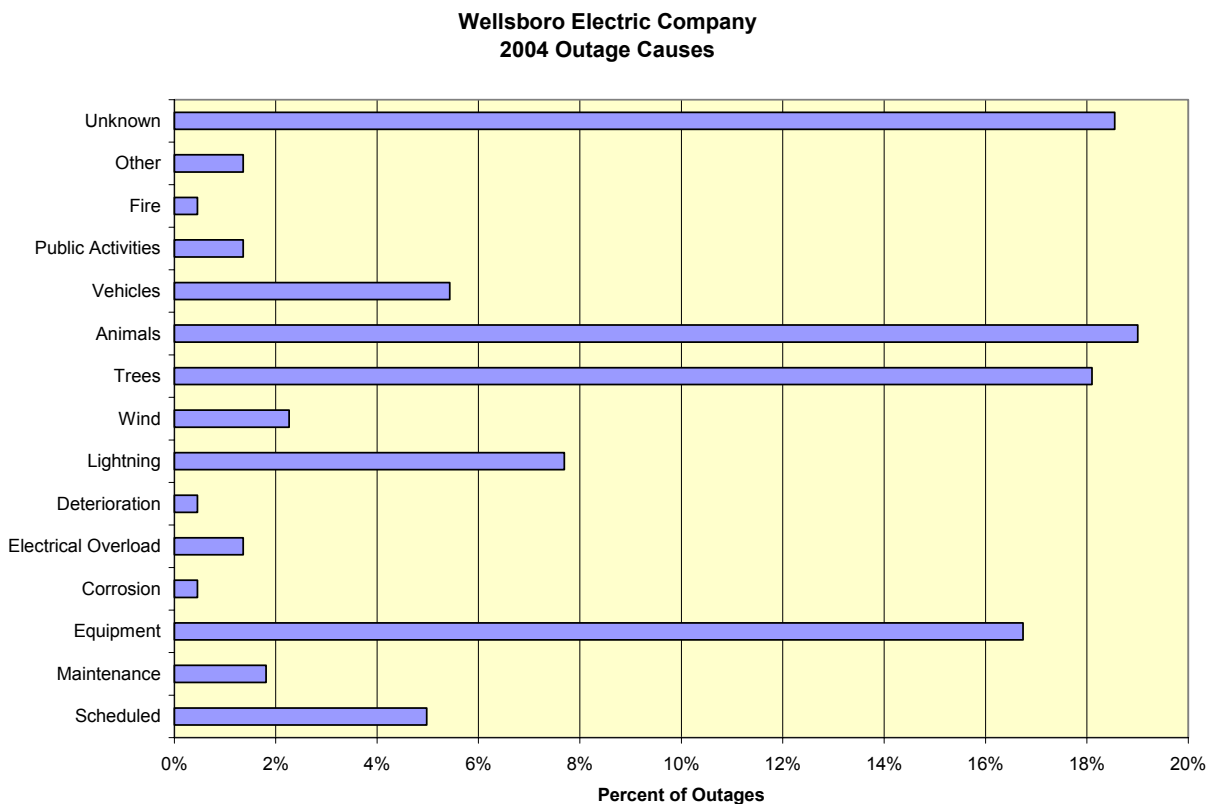


**Wellsboro Electric Company
System Average Interruption Frequency Index (SAIFI)**



Wellsboro’s new OMS tracks causes of outages and is used to identify circuits or individual customers that are experiencing multiple outages due to animal contact, trees etc. This data assists Wellsboro in preventing future outages from occurring.

The graph below shows the distribution of causes of service outages occurring during 2004 as a percentage of total outages. Animals (19.0%), trees (18.1%) and equipment-related incidents (16.7%) were the three major known causes of service outages. There were 41 interruptions (18.6%) caused by unknown factors.



Wellsboro began a chemical application program in 2004 to treat selected circuits in order to decrease vegetation-related outages and extend the manual tree trimming cycle. Data is being gathered to determine the benefit of this program.

SECTION 4 – INSPECTION AND MAINTENANCE STANDARDS

On August 29, 2002, the Commission adopted a Staff report, entitled *Inspection and Maintenance Study of Electric Distribution Systems*. The Staff report found that, based on outage statistics, the greatest impact an EDC can make in improving its service performance is by properly maintaining its equipment and implementing a reasonable vegetation control program. At that time, however, the Commission declined to require specific inspection and maintenance (“I&M”) standards.

In lieu of prescriptive I&M standards, the Commission directed the EDCs to include in their annual reliability reports documentation on inspection and maintenance activities, including vegetation management, distribution and substation maintenance activity and capital improvement projects. The EDCs must provide a comparison of established inspection and maintenance goals and objectives versus actual results achieved during the year.

New information arising out of the blackout in August 2003 formed a basis for further evaluating the need for inspection and maintenance standards. One of the causes of the blackout was the failure to adequately manage tree growth along transmission lines.²⁶ In the wake of the blackout, the Federal Energy Regulatory Commission (FERC) commissioned a study of utility vegetation management practices. The resulting report recommended that oversight organizations should work with the utilities, the utility vegetation management industry and other stakeholders to develop measurable and achievable program objectives to identify what can be done to reduce the likelihood of a recurrence of tree and power line conflicts.²⁷

In light of the national attention to inspection and maintenance standards with particular regard to vegetation management procedures, the Commission initiated a rulemaking proceeding to consider revisions to Chapter 57 of the Code relating to electric service reliability. The purpose of this proceeding is to determine whether the Commission should now adopt specific inspection and maintenance standards and, if so, what types of standards would be appropriate.

An Advance Notice of Proposed Rulemaking Order was adopted on November 18, 2004, with a 60 day comment period.²⁸ Comments and reply comments have been filed with the Commission.

²⁶ *Final Report on the August 14 Blackout in the U.S. and Canada*, U.S.—Canada Power System outage Task Force, pp. 17, 57-64 (April 2004).

²⁷ “Utility Vegetation Management Final Report,” CN Utility Consulting, LLC, March 2004.

²⁸ Docket No. L-00040167, 34 Pa.B. 6550.

SECTION 5 -- CONCLUSION

Over the past few years, electric service reliability has been under increased scrutiny in Pennsylvania. The Electricity Generation Customer Choice and Competition Act mandates that the Commission ensure that levels of reliability that existed prior to the restructuring of the electric utility industry would continue in the new competitive markets.

In response to this mandate, the Commission adopted reporting requirements designed to ensure the continuing safety, adequacy and reliability of the generation, transmission and distribution of electricity in the Commonwealth. The Commission also established reliability benchmarks and standards with which to measure the performance of each electric distribution company (EDC).

The performance standard is the minimum level of EDC reliability performance permitted by the Commission and is a level of performance beyond which the company must either justify its poor performance or provide information on corrective measures it will take to improve performance. Performance that does not meet the standard for any reliability measure is the threshold for triggering additional scrutiny and potential compliance enforcement actions.

In 2004, two of the 11 EDCs failed to meet their rolling 12-month performance standards for the average duration of service outages per affected customer. Six EDCs failed to meet their rolling 12-month performance standards for the average frequency of service outages per customer.

While we are concerned about the performance of these companies, several of them have petitioned the Commission to amend their performance benchmarks and standards. Depending on the outcome of these proceedings, our view of the acceptability of some EDCs' past performance may change. In the interim, we will continue to closely monitor the reliability performance of all the EDCs.

In addition to monitoring the reliability performance of the EDCs, the Commission has initiated a rulemaking proceeding to determine whether the Commission should adopt specific inspection and maintenance standards for electric transmission and distribution systems and, if so, what types of standards would be appropriate.

APPENDIX A – BENCHMARKS AND STANDARDS

EDC	Reliability Indices	Recomputed Benchmark	Rolling 12-Month Standard	Rolling 3-Yr Avg. Standard
Allegheny Power	SAIFI	0.67	0.80	0.74
	CAIDI	178	214	196
	SAIDI	119	172	144
Duquesne Light	SAIFI	1.17	1.40	1.29
	CAIDI	108	130	119
	SAIDI	126	182	153
Met-Ed	SAIFI	1.06	1.27	1.17
	CAIDI	127	152	140
	SAIDI	135	194	163
Penelec	SAIFI	1.15	1.38	1.27
	CAIDI	115	138	127
	SAIDI	132	190	160
Penn Power	SAIFI	1.02	1.22	1.12
	CAIDI	92	110	101
	SAIDI	94	135	114
PECO	SAIFI	1.23	1.48	1.35
	CAIDI	112	134	123
	SAIDI	138	198	167
PPL	SAIFI	0.98	1.18	1.08
	CAIDI	145	174	160
	SAIDI	142	205	172
UGI	SAIFI	0.83	1.12	0.91
	CAIDI	169	228	186
	SAIDI	140	256	170
Citizens	SAIFI	0.20	0.27	0.22
	CAIDI	105	141	115
	SAIDI	21	38	25
Pike County	SAIFI	0.39	0.53	0.43
	CAIDI	178	240	196
	SAIDI	69	127	84
Wellsboro	SAIFI	1.23	1.66	1.35
	CAIDI	124	167	136
	SAIDI	153	278	185