middletown | norwalk

January 14, 2005

VIA HAND DELIVERY

Ms. Pamela Katz
Chairman
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06501

Re: Docket No. 272

Dear Ms. Katz:

Attached are the statistics and projected failure rates for 345-kV XLPE cable that Mr. Emerick requested. This is the data on which Appendix A to the ROC Report is based. Since CL&P undertook to keep the information it obtained from cable vendors in confidence, we are unable to provide a breakdown of the failures according to each specific installation.

Sincerely,

Roger C. Zaklukiewicz

Roger C. Zaklukiewicz
Vice President, Transmission Projects

Enclosure

cc: Service List

CONNECTICUT SITING COUNCIL
DOCKET 272
UPDATED 345-kV FAULT RATE CALCULATIONS
JANUARY 14, 2005

On June 18, 2004, The Connecticut Light and Power Company and The United Illuminating Company ("the Companies") filed cable failure rate projections for EHV XLPE cable that were provided by the Companies' consultant Brian Gregory of Cable Consulting International Ltd. (Exhibit 113). This failure rate information was based on operating experience for thirteen cable installations. The total cable length in these installations was 173.5 km (108 miles). Seven of these installations, totaling 95.7 km (60 miles) in length, involved cable operating at voltages of 220 kV to 275 kV. The other six installations, totaling 77.8 km (48 miles) in length, involved cable operating above 300 kV.

Mr. Gregory calculated three failure rates, using a metric of projected failures per 100 miles of cable installed, per year. The "optimistic failure rate" excluded the data on the Singapore circuit that had 7 failures. The "realistic failure rate" included all data. The "pessimistic failure rate" was the failure rate for the one Singapore circuit. The projected failure rate was calculated by multiplying the actual failure rate by 0.59, as discussed in Exhibit 113. The results of these calculations, as set forth in Exhibit 113, were as follows:

	Actual (per 100 miles of cable per year)	Projected (per 100 miles of cable per year)
Optimistic	2.71	1.6
Realistic	3.94	2.3
Pessimistic	11.2	6.6

Since filing Exhibit 113, CL&P has created an extensive database regarding 345-kV XLPE cable through an intensive data gathering effort and on-site meetings with 11of the world's leading suppliers of EHV XLPE cable. These meetings, which were conducted as part of the procurement process for the 345-kV XLPE cable installation on the Bethel-Norwalk Project, included the following suppliers:

- ABB, Sweden
- Brugg Cables, Switzerland
- J-Power (Hitachi & Sumitomo), Japan
- LG Cable, Korea
- Nexans, Norway
- NKT Cables, Germany
- Pirelli Cables and Systems, Finland, France, and Holland
- Sagem, France
- Südkabel, Germany
- Taihan Electric Wire Company, Korea
- VISCAS (Fujikura & Furukawa), Japan

Power Delivery Consultants (Jay Williams) and Cable Consulting International (Brian Gregory), then reviewed CL&P's XLPE cable data base for accuracy, checking cable lengths, in-service dates, and failures of the cable systems. The result of this effort is that CL&P now has a more extensive data base with respect to the operating experience for XLPE cable in voltage classes above 230 kV than was available at the time Exhibit 113 was prepared. This database provides

the operating experience for 403 km (250 miles) of cable operating above 300 kV, as compared to the 77.8 km (48 miles) in the database on which Exhibit 113 was based.

Working closely with Mr. Gregory, CL&P utilized this more extensive data base to recalculate the failure rate projections. The updated failure rates are set forth below:

	Actual (per 100 miles of cable per year)	Projected (per 100 miles of cable per year)
Optimistic	0.64	0.64
Realistic	2.02	2.02
Pessimistic	9.93	9.93

The "optimistic" failure rate was based only on CL&P's data base for cables operating over 300 kV. The "realistic" failure rate was based on CL&P's data for cables operating over 300 kV plus Mr. Gregory's data for cables 230 kV-275 kV utilized in his June 18, 2004 report. The "pessimistic" failure rate was based on the two Singapore circuits as recommended by Mr. Gregory. The above failure rate table does not utilize a factor of .59 applied to the "actual" rate to calculate the "projected" rate, as was done in Exhibit 113, because, with the use of the expanded database, the actual fault rate is roughly equivalent to the projected fault rate. Mr. Gregory concurs with the methodology used to prepare this updated table.