STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

Northeast Utilities Service Company Application to the Connecticut Siting Council for a Certificate of Environmental Compatibility and Public Need ("Certificate") For The Construction of a New 345-Kv Electric Transmission Line Facility and Associated Facilities Between Scovill Rock Switching Station in Middletown and Norwalk Substation In Norwalk, Including the Reconstruction of Portions of Existing 115-kV and 345-kV Electric Transmission Lines, the Construction of Beseck Switching Station in Wallingford, East Devon Substation in Milford, and Singer Substation in Bridgeport, Modifications at Scovill Rock Switching Station and Norwalk Substation, and the Reconfiguration of Certain Interconnections

Docket No. 272

January 7, 2005

LATE-FILED EXHIBIT OF ABB, INC.

ABB, Inc. submits the attached document addressing the failure rate for HVDC – Light Cable Systems that have been manufactured, delivered and/or installed by ABB, Inc.

ABB, INC.

By: _____

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SERVICE RELIABILITY DATA ON ABB 150 KV HVDC-LIGHT CABLE SYSTEMS

Valid period: October 2002 to December 2004

1. ABB service experience

Up to now ABB has manufactured, delivered and installed two HVDC-Light cable systems on the 150 kV level. That is the Cross Sound Cable Project and the Murray Link project. Some relevant details of these projects are mentioned in Table 1.

Table 1. 150 kV HVDC-Light cable systems project data

Project name	Total cable length[1]	Number of prefabricated joints	Number of prefabricated terminations	Number of flexible joints	Commissioning date	Years in service	Service [km*years]
Cross Sound Cable Project	83 km	4	4	9	August 2002[2]	1.34	111
Murray Link Project	354 km	386	4	0	October 2002	2.22	786

2. Reliability data for 150 kV HVDC-Light cable systems

The number of failures for 150 kV HVDC-Light cables in the projects mentioned are given in Table 2.

Table 2. Number of failures in 150 kV HVDC-Light cables and accessories

Project name	Number of failures cable	Number of failures prefabricated joints	Number of failures prefabricated terminations	Number of failures flexible joints
Cross Sound Cable Project	0	0	0	0
Murray Link Project	1	0	0	Not applicable

[1] The route length is half of this number.

[2] Was not put in commercial operation until August 2003.

The cable failure in the Murray Link project was attributed to scraping marks on the outside of the cable. The fault occurred within 3 months after commissioning.

The total outage time due to that fault was 6 days. This duration is longer than normal due to the fact that the fault occurred in the middle of the Christmas Holidays. Expected repair time is normally 4 days (96 hours).

The data in tables 1 and 2 can be used to calculate the number of faults per 100 kilometer cable per year as well as the number of failures per 100 accessories per year. The results are given in Table 3.

Table 3. Failure statistics for the 150 kV HVDC-Light cable system

Cable or accessory	λ_{cable}=faults/100 km*year	$\lambda_{accessory}$=faults/100 pieces*year
Cable	0,10	Not applicable
Prefabricated joint	Not applicable	0
Prefabricated termination	Not applicable	0
Flexible joint	Not applicable	0

The failure rate λ_{cable} is expected to decrease as time goes.