STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

JOINT APPLICATION OF THE CONNECTICUT LIGHT AND POWER COMPANY AND THE UNITED ILLUMINATING COMPANY FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED FOR A 345-KV ELECTRIC TRANSMISSION LINE FACILITY AND ASSOCIATED FACILITIES BETWEEN SCOVILL ROCK SWITCHING STATION IN MIDDLETOWN AND NORWALK SUBSTATION IN NORWALK	DOCKET NO. 272 JULY 19, 2004

SUPPLEMENTAL PREFILED TESTIMONY OF ISO NEW ENGLAND INC.
BY RICHARD V. KOWALSKI

I. Introduction

Q. Please state your name and business affiliation.

A. I am Richard V. Kowalski, Manager, Transmission Planning, of ISO New England Inc. ("ISO").

Q. Have you previously testified on behalf of ISO in this proceeding?

A. Yes. I appeared before the Siting Council for cross-examination on March 23 and on June 17, 2004.

Q. What is your purpose in submitting supplemental pre-filed testimony today?

A. I would like to share with the Siting Council ISO's preliminary conclusions regarding the possible use of HVdc technology in the Middletown- Norwalk transmission project.

HVdc Technology

Q. Have you studied the use of High Voltage Direct Current ("HVdc") technology in the Applicants' proposed Middletown-Norwalk transmission facility?

A. We have at this time conducted a preliminary review of the use of HVdc technology as an alternative to the Applicants' proposed transmission line from Middletown to East Devon to Singer to Norwalk, as proposed in the Application (the "Applicants' Proposal"). We performed thermal, voltage and transfer limit analyses and looked at other aspects of a hypothetical HVdc plan as well.

Q. Please describe the HVdc plan you reviewed.

A. We took the Applicants' Proposal and replaced the proposed overhead AC line between Beseck and East Devon with a 1000 MW HVdc line (the "HVdc Plan").

Q. What were the results of your thermal analysis?

A. ISO conducted a thermal analysis of the Applicants' Proposal compared to the HVdc Plan. There were three contingency overloads that occurred for the HVdc Plan that did not occur for the Applicants' Proposal. In comparison, there was only one contingency overload that occurred for the Applicants' Proposal that did not occur for the HVdc Plan. Therefore, the results of this analysis favored the Applicants' Proposal.

Q. What were the results of the voltage analysis?

A. ISO's voltage analysis indicated acceptable results for both the Applicants' Proposal and the HVdc Plan.

Q. Did the transfer limit analysis indicate any differences between the Applicants' Proposal and the HVdc Plan?

A. ISO's transfer analysis showed that the all-lines-in transfer limit (with 0 interchange between New York and New England) for identical generation conditions favored the Applicants' Proposal by 225 MW, suggesting a 3 to 4 year shorter lifetime for the HVdc Plan.

ISO's line-out transfer limit (with 0 interchange between New York and New England) analysis identified very significant differences between the Applicants' Proposal and the HVdc Plan, most notably when 345kV lines in the Southington area were not in service. The HVdc Plan fared worse by differences in the range of 700 to 2200 MW.

Q. To what can these differences be attributed?

A. Some of these differences can be attributed to the fact that dc systems do not integrate well into networked or looped AC systems, and have been used more often to serve as isolation-type ties between neighboring systems or utilities. Immediately following the loss of a transmission line, neighboring AC lines share the lost capability and compensate for the loss. This is not the case for HVdc lines, which hold at a steady flow following the contingency.

Q. Will HVdc technology improve harmonic resonance issues which have been raised in connection with the Applicants' Proposal?

A. I would not expect an HVdc system to increase system strength in the manner necessary to improve harmonic resonance issues. Application of an HVdc line to replace Beseck to East Devon would be anticipated to worsen the harmonic resonance problems already identified with the Applicants' Proposal.

Q. Why would HVdc technology tend to worsen these harmonic resonance problems?

A. The amount of MVARs of capacitance needed in the filtering systems of the converter stations for "conventional" HVdc technology would add more capacitance to the system, and the increased capacitance would further worsen harmonic resonance conditions, and, as noted, HVdc technology would not increase system strength. The converter stations might also serve to excite some of these resonance conditions.

Q. Would the use of "HVdc light" technology reduce or resolve capacitance problems?

A. The employment of an "HVdc light" voltage-source converter in HVdc technology may somewhat reduce the filter capacitance needed in comparison to conventional HVdc technology, but I would not expect the net result to be sufficient to resolve or significantly reduce capacitance issues. Also, due to the limitations in HVdc light technology, it could possibly be necessary to install two or three complete sets of HVdc converter stations and cables to approach the capability of the Applicants' Proposal.

Q. Does ISO have other concerns regarding the use of HVdc technology in the Middletown-Norwalk transmission project?

A. HVdc is not readily expandable for either the integration of load stations or versatility in generation interconnection and operation. It does not accomplish the overall network integration infrastructure upgrade that is sorely needed in SWCT.

Q. Does this conclude your testimony?

A. Yes, thank you.