STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

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December 13, 2004

TO: Parties and Intervenors

FROM: S. Derek Phelps, Executive Director

RE: **DOCKET NO. 272** - The Connecticut Light and Power Company and The United Illuminating Company application for a Certificate of Environmental Compatibility and Public Need for the construction of a new 345-kV electric transmission line and associated facilities between the Scovill Rock Switching Station in Middletown and the Norwalk Substation in Norwalk, Connecticut.

Enclosed herewith please find the following Connecticut Siting Council Exhibit:

KEMA Responses to Interrogatories from the Town of Durham and the Town of Wallingford, dated December 13, 2004.

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

NORTHEAST UTILITIES SERVICE COMPANY APPLICATION
DOCKET NO. 272
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

December 13, 2004

KEMA RESPONSES TO INTERROGATORIES FROM THE TOWN OF DURHAM AND THE TOWN OF WALLINGFORD

(1) Reference KEMA's response dated December 1, 2004, to Interrogatory 6.c. from the Town of Woodbridge. The referenced Interrogatory asked whether KEMA's study results would change (if at all) if KEMA assumed that approximately five miles of undergrounding in certain cases were located in the portion of Phase II proposed to be sited East of the Beseck switching station.[1] In its response, KEMA stated that it had not studied such a case, but that in general, "small variations in the amount of undergrounding should produce limited variations in the results."

(a) The referenced Interrogatory did not ask about *additional* undergrounding, but the *relocation* of the undergrounding studied by KEMA. How would the referenced study results change, if at all, if KEMA assumes that five miles of the undergrounding in the referenced cases were *relocated* to the East of Beseck, but the total amount of undergrounding in the referenced cases remains the same?

A: *KEMA made preliminary additional harmonic impedance calculations for the same substations studied in our filed report. The first case was based on 15 miles of XLPE cable between Devon and Beseck and 5 miles of XLPE cable East of Beseck. In this case, for the buses studied, the lower order harmonic resonance peak around the 3rd harmonic moved slightly higher (3.2 to 3.3), thus improving the situation marginally. We expect similar changes to the first harmonic resonance peaks for the 10 mile and 40 mile cases.*

It would, however, be useful in further studies to investigate the effects of these changes on first resonance points in the region north and east of Beseck.

(b) If KEMA cannot respond to question (1)(a) without performing additional studies, please perform such additional studies and provide a response.

A: *See (a).*

(c) How would the study results referenced in (1) *supra* change, if at all, if KEMA assumes that ten miles of the undergrounding in the cases referenced in (1) were *relocated* to the East of Beseck, but the total amount of undergrounding in the referenced cases remains the same?

A: *KEMA made preliminary additional harmonic impedance calculations for the same substations studied in our filed report. The first case was based on 15 miles of XLPE cable between Devon and Beseck and 5 miles of XLPE cable East of Beseck. In this case, for the buses studied, the lower order harmonic resonance peak around the 3rd harmonic moved slightly higher (3.2 to 3.3), thus improving the situation marginally. We expect similar changes to the first harmonic resonance peaks for the 10 mile and 40 mile cases.*

It would, however, be useful in further studies to investigate the effects of these changes on first resonance points in the region north and east of Beseck.

(d) If KEMA cannot respond to question (1)(c) without performing additional studies, please perform such additional studies and provide a response.

A: *See (c).*

(2) Reference KEMA's response dated December 1, 2004, to Interrogatory 6.d. from the Town of Woodbridge. The referenced Interrogatory asked whether KEMA's study results would change (if at all) if KEMA assumed that approximately five miles of undergrounding in Case-10 were located in the portion of Phase II proposed to be sited East of the Beseck switching station. In its response, KEMA stated that it had not studied such a case, but that in general, "small variations in the amount of undergrounding should produce limited variations in the results."

(a) The referenced Interrogatory did not ask about *additional* undergrounding, but the *relocation* of the undergrounding studied by KEMA. How would the referenced study results change, if at all, if KEMA assumes that five miles of the undergrounding in the referenced case were *relocated* to the East of Beseck, but the total amount of undergrounding in the referenced case remains the same?

A: The proposed changes from the cases previously studied (to answer question (1) above), are small variations. For this reason it was not necessary to make additional calculations for the 15 miles evaluated (based on the original Case II-10). KEMA expects the effects will be similar to these previous results. Specifically, a slight increase of the first harmonic resonance peaks will occur, and very little will change at the substations we studied.

(b) If KEMA cannot respond to question (2)(a) without performing additional studies, please perform such additional studies and provide a response.

A: See (a).

(c) How would the study results referenced in (2) *supra* change, if at all, if KEMA assumes that ten miles of the undergrounding in Case -10 was *relocated* to the East of Beseck, but the total amount of undergrounding in the referenced case remains the same?

A: The proposed changes from the cases previously studied (to answer question (1) above), are small variations. For this reason it was not necessary to make additional calculations for the 15 miles evaluated (based on the original Case II-10). KEMA expects the effects will be similar to these previous results. Specifically, a slight increase of the first harmonic resonance peaks will occur, and very little will change at the substations we studied.

(d) If KEMA cannot respond to question (2)(c) without performing additional studies, please perform such additional studies and provide a response.

A: See (c).

Submitted by:

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