STATE OF CONNECTICUT

SITING COUNCIL

Re:	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 Scovill Rock Switching Station in Middletown and Norwalk Substation in Norwalk, Connecticut Including the Reconstruction of Portions of Existing 115-kV and 345-kV Electric Transmission Lines, the Construction of the 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 272 April 2, 2004

ERRATA PAGES FOR CHANGES READ INTO THE RECORD BY APPLICANTS' WITNESSES DURING HEARINGS ON MARCH 23–25, 2004

The Connecticut Light and Power Company ("CL&P") and The United Illuminating Company ("UI") (together, the "Companies") submit the attached errata pages to document corrections to the Companies' Application and the pre-filed testimony of the Companies' witnesses. These corrections were read into the record by the Companies and their witnesses during the Connecticut Siting Council ("Council") hearings held in this docket on March 23 – 25, 2004.

Errata Pages and Corrections

- Corrections to page ES-6 of the Executive Summary of the Application regarding acreage figures in the Route Comparison table

- Corrections to page F-21 of Section F of the Application concerning the affiliates of NRG, Inc.

- Corrections to page G-15 of Section G of the Application regarding certain numbers concerning the construction required for a 115-kV transmission solution

- Corrections to page H-33 of Section H of the Application regarding the number of additional miles of overhead transmission line

- Corrections to page H-41 of Section H of the Application regarding acreage figures in the Proposed and Alternative Route Comparison table

- Corrections to page 5 of the testimony of the Direct Testimony of Philip Cole completing the last sentence in a response

- A revision to Page 8 of the Direct Testimony of Stuart Aaronson clarifying the question regarding laboratory studies

- A revised response to data request CSC-01, Q-CSC-010 correcting the witness

Additionally, the Companies provided an update on the status of the Milford Power generating facility (referred to on pages F-20 and F-30 of Section F and page G-13 of Section G of the Application) to reflect that Unit #1 went on line on February 12 at a rating of 267 MW.

Respectfully Submitted,

Applicants,

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_____
By: Albert W. Cretella, III
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_____
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Revised March 23, 2004

Table ES-2
Route Comparison

Route	Total Route Length (miles Overhead/ Underground)	# of Houses and Other Buildings to be Acquired	ROW Easements to be Acquired (acres)	Property to be Acquired for Substations (acres)	Capital Cost (millions of 2003 $)
Proposed Route	69 (45-OH; 24-UG)	0	12.6	17.5	603.9
Alternative A	73 (60-OH; 13-UG)	0	**61.6**	19.5	620.0
Alternative B	74 (72-OH; 2-UG)	29	**121.8**	21.5	601.8

The proposed route, Alternative A and Alternative B are all technically feasible, can be constructed, and meet all statutory siting criteria. However, either alternative would result in greater impacts than the proposed route. Sections H and I of this Application discuss both the proposed route and the alternative routes, and demonstrate why the Companies have selected the proposed route as the best alignment for the 345-kV transmission line.

ENVIRONMENTAL IMPACT

The Companies have made substantial efforts to provide extensive information to the municipalities and to the Council with respect to the existing environment along the proposed Project route and the potential impacts of the Project on that existing environment. As detailed in Sections L and M of the Application, the Companies have taken care in the design and development of the Project to identify environmental resources in the Project area and to minimize adverse environmental impacts. As shown in this Application, the Companies have considered and addressed the potential impacts of the Project on geology, topography and soils; water resources, wetlands and water quality; vegetation and wildlife; threatened or endangered species; coastal resources; land uses and development; transportation and road, railroad, and utility crossings; archaeological and historic resources; air quality; noise; and visual resources. The Project will not result in any significant long-term adverse environmental impacts.

production because of legal and financial difficulties. The proposed 548 MW Towantic Energy plant (also referred to as Oxford Power), has been withdrawn from the ISO-NE Study queue. In Docket No. 217, the Council stated that it "recognizes there will not be any new large electric generation facility in the near future for SWCT's need for electricity." (Docket No. 217, Revised Opinion, p. 4)

The deteriorating financial conditions of the owners/operators of some of the existing generation units in SWCT further exacerbate the situation and call into question the ongoing availability of those units. On May 14, 2003, NRG, Inc. and certain of its affiliates, including Connecticut Jet Power LLC, Devon Power LLC, *

and Norwalk Power LLC filed for reorganization under Chapter 11 of the U.S. Bankruptcy Code. Connecticut Jet Power LLC provides approximately 52 MW from its Cos Cob units; Devon Power LLC provides 337 MW from the Devon units; and Norwalk Power LLC provides 330 MW from its Norwalk Harbor units. In September of 2001, NRG gave notice that it intended to retire, within two years, its units at Cos Cob and Norwalk Harbor. In early 2003, Federal Energy Regulatory Commission ("FERC") declined to approve reliability must run status for the NRG units, but did approve an alternate cost recovery mechanism known as "PUSH", which took effect June 1, 2003. NRG has indicated that it expects to emerge from reorganization later in 2003, but NRG's future plans with respect to the Connecticut generating units is far from clear.

In addition, Public Act 02-64 instituted sulfur dioxide emission limits on older oil-fired electric generation that take effect by year-end 2004. These limitations, which restrict facility operations, threaten the economic viability of older fossil fuel plants, such as Norwalk Harbor, and create uncertainty about their continued short-term and long-term availability.

Finally, as discussed in Section F.5.4, constraints on the existing 115-kV system in SWCT do not allow the concurrent operation of all existing generation units in SWCT, or the connection of any new generation, and the Bethel to Norwalk project alone would not resolve this problem. (Docket No. 217, Findings of Fact # 43, 89-91)

***Eliminated Milford Power LLC**

satisfied national, regional and NEPOOL reliability standards for the design and operation of a bulk power system, and the other criteria enumerated in Section G. In addition, in evaluating possible 115-kV and 345-kV solutions, the Companies also considered the ability of each configuration to be constructed without a significant number of line outages, which would create reliability risks, increase congestion costs, and impact the overall timing of the Project.

Required Construction

A 115-kV transmission solution would require the rebuilding of approximately 111 miles of 115-kV transmission lines and the building of approximately **10** miles of new overhead transmission lines on existing ROWs. To construct the overhead facilities it would be necessary to expand the approximately **99** route miles of existing ROW or procure land on which to construct new ROWs. In addition to the overhead transmission modifications, 155 miles of underground 115-kV transmission would have to be constructed, as well as modifying or constructing **31** substations including the installation of two STATCOMs and two phase shifting transformers.

The sheer magnitude of the number of transmission facilities which would have to be built and/or modified with a 115-kV solution is staggering. A 115-kV solution requires "splitting the transmission network" in SWCT; that is, virtually duplicating the existing system. This would require the construction of a new 115-kV loop from Devon to Pequonnock to Norwalk Harbor to Glenbrook to Norwalk to Devon; rebuilding all seven 115-kV transmission lines into SWCT from Frost Bridge and Southington Substations; and the rebuilding of critical 115-kV transmission lines between Devon and Pequonnock Substations and the Norwalk-Stamford Sub-area.

In comparison, the preferred 345-kV solution requires the construction of an overhead 345-kV transmission line and modification of 115-kV transmission circuits on 45 miles of existing ROW; ROW expansion along 2.5 miles of

none are eligible for the National Register of Historic Places ("NRHP") and some have been destroyed. For example, one archaeological site within the existing transmission line ROW in Fairfield has been severely pot-hunted. Although site-specific cultural resource testing has not been conducted along the ROW, a review was performed to identify areas of potential archaeological resource sensitivity (i.e., locations where conditions would potentially be favorable for the location of unrecorded sites). In addition to Native American sites, 10 significant historic resources or districts are located within approximately 0.25 mile of the alternative.

In summary, compared to the proposed route, Alternative A would result in:

- Overhead crossings of 49 more wetlands and watercourses, including four wetlands with high potential and five wetlands with moderate potential for productive amphibian habitat. (Along the underground portion of the proposed route between Singer Substation and Norwalk Substation, the cable would be installed beneath 11 watercourses and associated wetlands using subsurface installation techniques such as horizontal directional drilling or boring.)

- Acquisition of 64 acres of privately-owned land for the expanded ROW and approximately 2-4 acres of privately-owned land for the Hawthorne Transition Station.

- Clearing of approximately 64 more acres of predominantly forested areas (it is assumed that the existing vegetation on virtually all of the expanded ROW would have to be cleared).

- Substantially longer alignment through residential areas.

- **15** more miles of overhead transmission line.

H.5.4 Route Selection Rationale

The proposed route, Alternative A and Alternative B all would meet the public need that is the basis for this Project, and all satisfy the statutory criteria for the grant of a Certificate. The proposed route and Alternatives A and B are identical from Scovill Rock Switching Station in Middletown to East Devon Substation in Milford (i.e., Segments 1 and 2). This results primarily from the availability of an existing ROW from Middletown to Milford that, with the exception of a 2.5 mile section of the route in Middletown and Haddam, is wide enough to accommodate the construction of a new 345-kV line without ROW expansion.

For the portion of the proposed route from East Devon Substation to Singer Substation (Segment 3) and from Singer Substation to Norwalk Substation (Segment 4), the new 345-kV line would be installed underground, primarily within public roadways. In contrast, between East Devon, Singer and Norwalk Substations, Alternatives A and B would incorporate an underground transmission cable configuration only in selected locations and would use, and in large portions expand, the existing overhead 115-kV transmission corridors.

The following table summarizes key differences between the proposed, Alternative A, and Alternative B:

Table H-5
Proposed and Alternative Route Comparison

Route	Total Route Length (miles Overhead/ Underground)	# of Houses and Other Buildings to be Acquired	Easements to be Acquired* (acres)	Property to be Acquired for Substations (acres)	Capital Cost (millions of 2003 $)
Proposed Route	69 (45-OH; 24-UG)	0	12.6	17.5	603.9
Alternative A	73 (60-OH; 13-UG)	0	**61.6**	19.5	620.0
Alternative B	74 (72-OH; 2-UG)	29	**121.8**	21.5	601.8

* ROW easements include: easements along ROW, easements for river crossings and easements for underground construction.

An investigator who thought he was studying the health effects of alcohol consumption-but was actually seeing the effects of smoking would be an example.

Finally, one has to consider the possibility that an association that is found in even a well designed study may be due simply to chance.

Unfortunately, it is much more difficult to detect these flaws in actual studies than in the examples I have given.

Q. How do epidemiologists determine whether associations that are documented by individual studies are causal?

A. These determinations are made by evaluating multiple studies of the same suspected risk factor, and evaluating the data by standard criteria. These criteria are called the Hill Criteria, named for their originator, Sir Austin Bradford Hill, who was one of the first scientists to determine that smoking causes lung cancer.

- *Strength of association*. The strength of association is described as a "risk ratio" or as an "SMR." For instance, the SMR for lung cancer among smokers is at least 1000. That means that people who smoke are ten times more likely to have lung cancer than people who do not. An SMR of 100-means that there is no difference in the risk of disease in the exposed versus the non-exposed group. An SMR in the range 100-200 **means that there is a weak association, one that is unlikely to prove to be causal.**
- *Dose response.* Does the risk go up as the exposure increases? For instance, cigarette smoking shows a very significant dose response. The more a smoker smokes, the more likely he is to develop-lung cancer.
- *Consistency of Association.* If all of the investigators who investigate a particular question find essentially the same thing, there is very good consistency across the studies. Again, by way of example, ever since epidemiologists first started studying lung cancer

studies have produced no consistent or convincing evidence that power frequency electric or magnetic fields promote the development of cancer.

Q. Please describe laboratory studies that have specifically *examined the relationship of* power frequency magnetic fields and leukemia.

A. Numerous laboratory studies have examined the relationship of exposure to power frequency magnetic fields and the initiation or promotion of leukemia. Near life long exposure to magnetic fields does not increase the risk of leukemia or lymphoma in animals. Mice with a hereditary predisposition to leukemia and rats exposed to ionizing radiation or transplanted leukemia cells do not develop leukemia sooner or a more severe form of the disease when exposed to magnetic fields.

Q. Would you summarize the conclusions you have drawn from your review of the literature regarding the risk of cancer from power lines?

A. Based on my assessment of the published literature, including the reports of nationally constituted scientific review groups, there is no convincing or consistent evidence that power lines pose a cancer risk.

Q. Does this conclude your testimony?

A. Yes.

Witness: ***Peter T. Brandien***
Request from: **Connecticut Siting Council**

Question:
For the chart found in Table A-1 of the Appendix of Volume 6 of the application, discuss why the calculated magnetic field for the Connecticut Baptist Home would be higher under an average load compared to a peak load.

Response:
There are three transmission lines proposed for the corridor in proximity to the Connecticut Baptist Home. All three of these lines are proposed to be constructed in a vertical configuration. The line on the East Side of the right-of-way connects the proposed Beseck Switching Station in Wallingford to the Haddam Neck Substation in Haddam. The line in the center of the right-of-way connects the existing Scovill Rock Switching Station in Middletown to the East Shore Substation in New Haven. The line on the west side of the right-of-way connects the proposed Beseck Switching Station to the Southington Substation in Southington.

The three transmission lines will be phased to reduce magnetic fields as much as possible. It is important to look at what happens to the flows on the lines at both peak and average loading conditions. During almost all modeling scenarios, the line to the west side of the right-of-way has power flowing from the Beseck Switching Station towards the Southington Substation. This power is being fed by the new line between Oxbow Junction and Beseck and the line between Haddam Neck and Beseck. As load in Southwest Connecticut increases, the amount of power flowing towards Southington is reduced as the amount of power flowing towards Southwest Connecticut increases. The load changes are summarized in the table below. All loads are given in Amperes per phase.

Circuit	Average	Peak
East (Haddam Neck to Beseck)	285	745
Center (387: Scovill Rock to East Shore)	614	1215
West (Beseck to Southington)	711	553

Note the reduction in flows between average and peak loading for the West line which is closest to the Connecticut Baptist Home. Due to the higher flows of the closest line during average conditions rather than peak conditions, and the ratio of the flows on the other two circuits nearing each other, the magnetic profile will be reduced during peak conditions near the Connecticut Baptist Home from the levels experienced during average conditions.