THE CONNECTICUT SITING COUNCIL
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

Testimony of

David A. Schlissel

And

Peter J. Lanzalotta

On behalf of

The Towns of Bethany, Cheshire, Durham, Easton, Fairfield, Hamden, Middlefield, Milford, North Haven, Norwalk, Orange, Wallingford, Weston, Westport, Wilton, and Woodbridge, Connecticut

May 25, 2004

Q. Mr. Schlissel, please state your name, position and business address.

A. My name is David A. Schlissel. I am a Senior Consultant at Synapse Energy Economics, Inc., 22 Pearl Street, Cambridge, MA 02139.

Q. Mr. Lanzalotta, please state your name, position and business address.

A. My name is Peter J. Lanzalotta. I am a Principal with Lanzalotta & Associates LLC, ("Lanzalotta") 9762 Polished Stone, Columbia, Maryland 21046.

Q. On whose behalf are you testifying in this case?

A. We are testifying on behalf of the Towns of Bethany, Cheshire, Durham, Easton, Fairfield, Hamden, Middlefield, Milford, North Haven, Norwalk, Orange, Wallingford, Weston, Westport, Wilton and Woodbridge, Connecticut (the "Towns").

Q. Mr. Schlissel, please summarize your educational background and recent work experience.

A. I graduated from the Massachusetts Institute of Technology in 1968 with a Bachelor of Science Degree in Engineering. In 1969, I received a Master of Science Degree in Engineering from Stanford University. In 1973, I received a Law Degree from Stanford University. In addition, I studied nuclear engineering at the Massachusetts Institute of Technology during the years 1983-1986.

Since 1983, I have been retained by governmental bodies, publicly-owned utilities, and private organizations in 24 states to prepare expert testimony and analyses on engineering and economic issues related to electric utilities. My clients have included the Staff of the California Public Utilities Commission, the Staff of the Arizona Corporation Commission, the Staff of the Kansas State Corporation Commission, the Arkansas Public Service Commission, municipal utility systems in Massachusetts, New York, Texas, and North Carolina, and the Attorney General of the Commonwealth of Massachusetts. I am currently a Senior Consultant at Synapse Energy Economics.

I have testified before state regulatory commissions in Connecticut, Arizona, New Jersey, Kansas, Texas, New Mexico, New York, Vermont, North Carolina, South Carolina, Maine, Illinois, Indiana, Ohio, Massachusetts, Missouri, and Wisconsin and before an Atomic Safety & Licensing Board of the U.S. Nuclear Regulatory Commission.

A copy of my current resume is attached as Exhibit SL-1.

Q. Please describe Synapse Energy Economics.

A. Synapse Energy Economics ("Synapse") is a research and consulting firm specializing in energy and environmental issues, including electric generation, transmission and distribution system reliability, market power, electricity market prices, stranded costs, efficiency, renewable energy, environmental quality, and nuclear power.

Q. Mr. Lanzalotta, please summarize your educational background and recent work experience.

A. I am a graduate of Rensselaer Polytechnic Institute, where I received a Bachelor of Science degree in Electric Power Engineering. In addition, I hold a Masters degree in Business Administration with a concentration in Finance from Loyola College in Baltimore.

I am currently a Principal of Lanzalotta & Associates LLC, which was formed in January 2001. Prior to that, I was a partner of Whitfield Russell Associates, with which I had been associated since March 1982. My areas of expertise include electric system planning and operation, cost of service, and utility rate design. I am a registered professional engineer in the states of Maryland and Connecticut.

In particular, I have been involved with the planning and operation of electric utility systems as an employee of and as a consultant to a number of privately- and publicly-owned electric utilities over a period exceeding twenty-eight years.

I have presented expert testimony before the FERC and before regulatory commissions and other judicial and legislative bodies in 16 states, the District of

Columbia, and the Provinces of Alberta and Ontario. My clients have included utilities, regulatory agencies, ratepayer advocates, independent producers, industrial consumers, the United States Government, and various city and state government agencies.

A copy of my current resume is included as Exhibit SL-2.

Q. Mr. Schlissel, have you filed testimony in support of the construction of a new high voltage transmission line?

A. Yes. I filed testimony before the West Virginia Public Service Commission in March 1998 supporting Appalachian Power Company's proposal to build a 765-kV transmission line from West Virginia to Virginia. My support of that transmission line was based on my review of Company and consultant analyses which showed that the line was needed to enable the Company to adequately and reliably serve the needs of customers in its Eastern/Southern service areas.

Q. Mr. Lanzalotta, have you ever filed testimony in support of the construction of a new high voltage transmission line?

A. Yes. I filed testimony in 1992 before the Public Utilities Commission of Hawaii in which I supported the construction of a double-circuit 138-kV transmission line.

Q. What is the purpose of your testimony?

A. Synapse and Lanzalotta were retained by the Towns to evaluate the length of the proposed Middletown to Norwalk Project that could be installed underground and to examine whether there are technically viable alternatives to the Project. This testimony presents the results of our review of the materials on these issues filed by Connecticut Light & Power Company and United Illuminating Company. ("the Applicants") We will file testimony on July 19, 2004 that will present our conclusions on undergrounding issues and on the viability of alternatives to the proposed Middletown to Norwalk Project.

Q. Please explain how you conducted your analyses.

A. We originally reviewed the Applicants' Municipal Consultation Filing and prepared comments that the Town of Durham submitted to the Company in June 2003. Since that time we have reviewed the Applicants' October 9, 2003 Application to the Siting Council, the Applicants' December 16, 2003 Supplemental Filing, and Addenda Nos. 1, 2, and 3 to that Supplemental Filing. We also have reviewed the testimony and studies submitted in support of the Application, the Supplemental Filing and the three Addenda.

The Towns also have submitted interrogatories to the Applicants and to ISO-NE. We have reviewed the responses to that discovery and to questions submitted by the Attorney General and the Siting Council. In addition, we have reviewed regional transmission studies. Finally, we have undertaken, but not yet completed, load flow studies to examine whether there are viable alternatives to the Applicants' proposed Middletown to Norwalk Project.

Q. Please summarize your conclusions.

A. We have reached the following conclusions at this time:

1. The Siting Council should not reject the possibility that there could be a technically feasible East Shore Alternative based upon the results of the load flow studies submitted by the Applicants.

2. The Siting Council should not reject the possibility that additional underground cable could be installed in Segment 1 and/or 2 Towns based upon the studies submitted to date by the Applicants.

Q. Do you agree that the transmission system needs reinforcement to ensure adequate system capability and reliability to serve customer demands in Southwest Connecticut?

A. Yes. Based on our familiarity with the transmission system in Southwest Connecticut from earlier studies and our review of the analyses provided in this

proceeding, we believe that additional reinforcement of the transmission system is necessary to ensure adequate system capability and reliability.

The Applicants' East Shore Route Load Flow Studies

Q. Please describe the East Shore Route studied by the Applicants.

A. In response to concerns raised by the Town of Wallingford, the Applicants have studied an East Shore Route for its proposed Beseck to East Devon 345-kV line. This East Shore Route would use the existing '387' line from Wallingford to the East Shore substation. A new 345-kV line would be built from East Shore to East Devon. The East Shore Route studied by the Applicants also included some reconfiguring of the East Shore substation and, in some cases, the reconductoring of a portion of the '387' line to enable the line to carry more power.

Q. What is the Applicants' conclusion concerning the East Shore Route they studied?

A. They have rejected the East Shore Route as a viable alternative to their proposed Middletown to Norwalk Project. This rejection appears to have been based on the load flow studies that the Applicants commissioned from PowerGEM.

Q. Should the Siting Council reject the concept of an East Shore Alternative to the proposed Middletown to Norwalk Project based on the results of the East Shore Route load flow studies presented by the Applicants in Addenda Nos. 1, 2, and 3 to their December 16, 2003 Supplemental Filing?

A. No. The Applicants have studied only a very limited version of an East Shore Alternative. It is not surprising that this "stripped-down" alternative did not fare well in the stressed load flow studies presented by the Applicants.

Q. What is the basis for your conclusion that the Applicants only studied a very limited version of an East Shore Alternative?

A. In their Application for the Middletown to Norwalk Project the Applicants have emphasized how important it is both to create a new strong-source of power into Southwest Connecticut and to connect that source to substations in Milford,

Bridgeport and Norwalk.[1] For this reason, the Applicants' proposed Middletown to Norwalk Project includes a new Beseck Switching Station and new 345 kV lines between Oxbow Junction and Beseck, between Black Pond and between Beseck and Scovill Rock and Chestnut Junction, as well as the proposed line from Beseck to Norwalk through the East Devon and Singer substations.

In particular, the Applicants have explained that the new Beseck Switching Station would form an electrical "hub" in the Middletown area and would be a "vital link and central artery for power to flow across Connecticut and the region."[2] The Applicants also have explained that:

> ISO-NE and the Southwest Connecticut Working Group determined, through power flow analyses, that Beseck would be the best location to establish an electrical hub that would be part of an overall solution to serve the electrical needs in southwest Connecticut. The investigation to interconnect the multiple transmission resources in the Middletown area required planners to look at the most efficient design to integrate multiple transmission loops, to diversify transmission sources, diversify generation resources, enhance reliability with regional interconnection, and optimize transmission capabilities using higher voltages.[3]

However, when the Applicants studied an East Shore Route, this evaluation relied upon the existing system configuration in the Middletown area. The proposed Beseck Switching Station was eliminated from the plan, as were the proposed line segments between Beseck and Oxbow Junction, Beseck and Black Pond, and Scovill Rock and Chestnut Junction. The only new 345 kV transmission facilities that were added included a line from East Shore to Norwalk, through East Devon and Singer. In addition, the Applicants reconfigured the existing East Shore substation and, in certain cases, reconductored about ten miles of the existing 387 line.

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1 For example, see page ES-5 of the October 9, 2003 Application.

2 CL&P/UI response to Data Request CSC-01, Question CSC-028.

3 CL&P/UI response to Data Request CSC-01, Question CSC-023, explaining why the existing 345-kV connection between Chestnut Junction and Oxbow Junction is not part of the Application.

Thus, the Applicants have not identified what was an optimal or even a viable East Shore Alternative to their proposed Middletown to Norwalk Project and have actually eliminated proposed system enhancements that are essential components of their own preferred Project. Instead, they have merely studied what would happen if ten miles of the existing '387' line from Scovill Rock to East Shore were reconductored, the existing East Shore substation were reconfigured, and a 345 kV line were added from East Shore to Norwalk. They have not examined how robust the East Shore Alternative would be if additional elements (such as the Beseck Switching Station and some or all of the related 345 kV line segments) were included that would make this an effective power path into Southwestern Connecticut. The failure to do so seriously limited the ability of the Applicants' East Shore Route to reliably carry power into Southwestern Connecticut and, consequently, distorted the results of the Applicants' load flow studies.

Q. Who determined the configuration of the East Shore Route that would be used in the Applicants' load flow studies?

A. Although the Applicants retained PowerGEM to perform the load flow studies of the East Shore Route, the PowerGEM study reports reveal that the specific configuration that was examined was based on "instructions from UI."[4] Therefore, the Applicants, not PowerGEM, determined the configuration of the East Shore Route that would be studied.

Q. Have you had an opportunity to review the instructions that were provided to PowerGEM by UI?

A. No. UI refused the Towns' initial request for these instructions.[5] Counsel for the Towns subsequently made several oral requests for this information but, to date, these requests have not resulted in the production of any of the instructions given to PowerGEM by UI.

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[4] For example, see Attachment No. 1 to the January 7, 2004 Addendum No. 1 to the Application's Supplemental Filing, at page 5.

[5] CL&P/UI response to Data Request Towns-06, Question Towns-063(b).

Q. Are the Applicants' load flow studies flawed in any other ways?

A. Yes. The Applicants over-stress their East Shore Route under unrealistically severe generation scenarios.

Q. Please explain.

A. It is essential to examine the operation of the transmission system under certain severe but realistic conditions, such as contingencies in which individual lines or generating facilities are out of service at the times when peak system demands are being experienced. For this reason, the Applicants appropriately have studied the transmission system under several different generating unit dispatch scenarios.

However, two of the dispatch scenarios used by the Applicants in their load flow studies unrealistically assumed that many generating facilities, including a significant number of new units, all would be out of service at the same time, and during peak load periods. For example, generating unit Dispatch Scenario Number 2B assumes that Milford Unit 2, all of the Wallingford Units and all of the Bridgeport Energy Units, a total of nine new units, are out of service at the same time.[6] This is a very unrealistic scenario that over-stresses the transmission system in Southwestern Connecticut, especially given that the owners of these generating facilities would have substantial economic incentives to have their units available to take advantage of higher power prices during peak load periods.

Generating unit Dispatch Scenario Number 5B is even more unrealistic in that it assumes that both Milford Units are out of service at the same time as all of the Wallingford and all of the Bridgeport Energy units.[7] This would make a total of ten new generating units all out of service at the same time during peak load periods. Again, this is a very unrealistic scenario.

Given that these two dispatch scenarios unrealistically starve Southwestern Connecticut of generating facilities, it is no surprise that 63 percent of the

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[6] Dispatch Scenario No. 2 also assumes that there would be no generation at either of the Norwalk Harbor Units.

[7] Dispatch Scenario No. 5 also assumes that there would be no generation at Devon Units 7 or 8.

transmission line overloads identified in the Applicants' load flow studies of their East Shore Alternative with the New Haven Harbor Station out of service were experienced in these two generating unit dispatch scenarios.

Q. Are you currently preparing load flow studies that would evaluate whether there is a viable East Shore Alternative to the Applicants' proposed project?

A. Yes. We will present the results of these analyses in the testimony to be filed in mid-to-late July.

Q. Are the conclusions of the ISO-NE Southwest Connecticut Working Group based on an independent assessment of the viability of an East Shore Alternative?

A. No. First, the findings of the ISO-NE Southwest Connecticut Working Group study that the Applicants have submitted regarding the East Shore Route are based on the Applicants' load flow studies. Therefore, the findings in the ISO-NE Southwest Connecticut Working Group study suffer from the same basic design flaws that affected the Applicants' load flow studies. For this reason, the Siting Council should not rely on these findings to reject the possibility that there might be a stronger and more credible alternative to the Applicants' proposed Beseck to East Devon line.

Moreover, five of the eight members of the ISO-NE Southwest Connecticut Working Group are current employees of NU or UI.[8] A sixth member is either a retired NU employee or a former consultant to NU. Only one member of the working group is an employee of ISO-NE. Thus, the group (and its study) should not be viewed as independent from the Applicants. For this reason, the Siting Council should closely question the Applicants' claims that they were "advised" by the ISO-NE Southwest Connecticut Working Group as to the factors that had to be examined in their thermal analyses.

[8] CL&P/UI response to Data Request Towns-05, Question Towns-054, attached as Exhibit SL-3.

Q. Do you have any comment on the Applicants' claim that the use of the existing 387 line with a new 345 kV line from East Shore to Norwalk would not create a new electrical path into Southwest Connecticut?

A. Yes. Connecting the existing 387 line to a new 345 kV-line at the East Shore substation would create a new 345-kV electrical path into Southwest Connecticut.

The Applicants' Undergrounding Studies

Q. Please describe the studies that the Applicants have undertaken to evaluate how much of the proposed Middletown to Norwalk Project in the Segment 1 and 2 Towns could be underground.

A. The Applicants have retained GE Power Systems Energy Consulting ("GE") to examine several scenarios involving their proposed Middletown to Norwalk Project. The first GE study that the Applicants have provided to the Towns examined the East Devon to Beseck portion of the project as a 33-mile overhead line.[9] Consequently, there was no undergrounding in any of the Segment 1 or 2 Towns.

The second GE study modeled the Devon to Beseck portion of the project with 40 miles of underground cables.[10]

The third, and final GE study of the proposed Middletown to Norwalk Project, configured the East Devon to Beseck portion of the project with two sets of 10-mile underground cables with 14 miles of overhead line in the middle.[11] Therefore, there were 20 miles of underground 345-kV line in this configuration.

GE also modeled two scenarios of what the Applicants have described as an East Shore Route. We will discuss these scenarios later in this testimony.

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[9] *Connecticut Cable Transient and Harmonic Study for Phase 2,* Final Report dated November 2003.

[10] *Connecticut Cable Transient and Harmonic Study for Middletown to Norwalk Project, East Devon-Beseck 40-mile Cable Option (MIN-P1)*, Final Report dated November 2003.

[11] *Cable Transient and Harmonic Study for Middletown to Norwalk Project, East Devon-Beseck 40-mile Cable Option (MIN-P2)*, Final Report dated December 2003.

Q. Please briefly describe the conclusions of these three studies.

A. The November 2003 GE Final Report for the Applicants' preferred configuration (i.e., no undergrounding in Segments 1 and 2) concluded that "with the appropriate selection of equipment and implementation of operating practices, [the proposed] Phase 2 [project] can be operated consistent with Northeast Utilities' expectations for transients and harmonic distortion impact."[12]

The GE Final Report for the forty mile all-underground configuration of the East Devon to Beseck line concluded that this system configuration was "potentially very risky and is not recommended."[13]

Finally, GE's Final Report for the twenty-mile underground configuration of the East Devon to Beseck line found that this alternative did not exhibit any fatal flaws. However, GE's analysis revealed significant risks that would require considerable limitations and restrictions on operating practices and future modifications of the system. Therefore, GE recommended that this configuration be avoided.[14]

Q. Just to be clear then, the Applicants asked GE to study three separate scenarios that included no undergrounding in the Segment 1 and 2 Towns, 40 miles of undergrounding, and 20 miles of undergrounding. Is that correct?

A. Yes.

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[12] *Connecticut Cable Transient and Harmonic Study for Phase 2,* Final Report dated November 2003, at page E-1.

[13] *Connecticut Cable Transient and Harmonic Study for Middletown to Norwalk Project, East Devon-Beseck 40-mile Cable Option (MIN-P1)*, Final Report dated November 2003, at page E-1.

[14] *Cable Transient and Harmonic Study for Middletown to Norwalk Project, East Devon-Beseck 40-mile Cable Option (MIN-P2)*, Final Report dated December 2003, at page E-1.

Q. Therefore, GE has not prepared a harmonics and transients study for the proposed Middletown to Norwalk Project, configured as the Applicants have proposed, that examined the impact of undergrounding some, but less than 20 miles, of 345-kV cable within the Segment 1 and 2 Towns.

A. That is correct. GE has not studied whether it is technically feasible and recommended to install underground lengths of five miles, ten miles or of any distance of less than twenty miles of the proposed Middletown to Norwalk Project within the Segment 1 and 2 Towns.

Q. The October 9, 2003 Application filed by Northeast Utilities and United Illuminating Company stated that adding another seven miles of underground cable construction and its associated capacitive charging power to a configuration that already included lengthy underground construction in the Segment 3 and 4 Towns "would be highly undesirable from a reliability and operability point of view."[15] Did the Applicants provide the analyses which formed the basis for this conclusion?

A. The Towns asked the Applicants to provide the documents that formed the basis for this statement.[16] The Applicants' response was to refer the Towns to the three GE studies attached as exhibits to the Companies' December 16, 2003 Supplemental Filing. These are the three studies we previously discussed, none of which examined the reliability or operability of adding seven miles of underground cable in the Segment 1 or 2 Towns.

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[15] October 9, 2003 Application, at page G-18.

[16] Data Request D-W-01, Question D-W-016, dated October 24, 2003.

Q. These three GE studies examined the consequences of including zero miles, forty miles, and twenty miles of underground cable in the Segment 1 and 2 Towns. Did the Applicants cite to the specific findings of the GE studies which support the claim that adding seven miles of underground cables in the Segment 1 and 2 Towns would be highly undesirable from a reliability and operability point of view?

A. No. The Towns asked the Applicants to provide specific page and quotation references in the three referenced GE studies that formed the basis for this conclusion.[17] However, instead of providing the requested information, the Applicants merely referred the Towns to the executive summaries of the three GE studies.[18] The Applicants did not cite the specific language or findings in the GE studies which formed the basis for their claim that adding another seven miles of underground cable would be highly undesirable.

Q. You mentioned that the Applicants' claim that an additional seven miles of underground cable, beyond that in the Segment 3 and 4 Towns, would be highly undesirable was included in the October 9, 2003 Application. When were the three GE studies which the Applicants say form the basis for this conclusion actually completed?

A. The Final Reports for the three GE studies are dated November and December 2003. Consequently, all three studies were completed after the Application was filed with the Siting Council.

Moreover, it appears from the correspondence between GE and the Applicants that the GE study that examined forty miles of underground cable in the Segment 1 and 2 Towns was not started until some time in early October 2003.[19] The GE study that examined twenty miles of underground cable in the Segment 1 and 2

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[17] CL&P/UI responses to Data Request D-W-01, Question D-W-016 and Data Request D-W-02, Question D-W-059, attached as Exhibit SL-4.

[18] Ibid.

[19] See the CL&P/UI response to Data Request Towns-01, Question Towns-024-SP03.

Towns was not started until mid-November 2003.[20] Consequently, it is not clear how the results of these studies could form the basis for a conclusion regarding the undesirability of adding seven miles of underground cable in the Segment 1 and 2 Towns that was included in the Application submitted in early October 2003.

Q. The Applicants' December 16, 2003 Supplemental Filing states that NU, UI and GE have concluded that "it may be technically possible to add in the range of 5 miles of underground cable construction to the Companies' proposed route, provided that the additional length is contiguous to or originating from a substation. However, this technical feasibility, based on a review of transients and harmonics only, is risky from an operational, power distortion and future expansion standpoint."[21] Is the conclusion that adding five or fewer miles of undergrounding in the Segment 1 and 2 Towns would be "risky" based on any specific studies or analyses?

A. No. The Towns asked the Applicants to provide copies of any analyses, studies, evaluations, reports or workpapers that form the basis for this conclusion. NU and UI were unable to provide any documents – indeed, the Applicants acknowledged that they "did not perform any specific studies to determine the possibility of adding up to 5 miles of additional cable construction to the Companies' proposed route."[22]

Instead, the Applicants merely said that the conclusion regarding the feasibility of adding up to five miles of additional underground cable construction in the Segment 1 and 2 Towns was "reached by extrapolation of the results of the analysis performed by GE."[23]

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[20] See an 11/19/2003 GE e-mail in the CL&P/UI response to Data Request Towns-01, Question Towns-024-SP03.

[21] December 16, 2003 Supplemental Filing, at page 8.

[22] CL&P/UI response to Data Request Towns-01, Question Towns-027(a) through (d).

[23] Ibid.

Q. Did the Applicants provide any documents at all that recorded or memorialized how the results of the GE studies were "extrapolated" to reach this conclusion?

A. No.[24]

Q. Is the claim that any additional miles of underground cable construction would have to be contiguous to or originate from a substation based on any specific analyses or studies?

A. No. The Applicants do not have any analyses or studies to support this claim.[25]

Instead, the Applicants merely explained the obvious fact that requiring any additional underground cable to be continuous and originate at a substation would limit the amount of transition equipment between East Devon and Beseck.[26] However, without detailed studies, the Applicants said that they "were not able to extrapolate that such transition stations would be acceptable."[27]

Q. Is it important that analyses of the impact of undergrounding less than twenty miles of the proposed Beseck to East Devon line be undertaken?

A. Yes. Given the high projected EMF levels in certain cross-sections along the proposed right of way for the Beseck to East Devon line, it is very important that analyses of the potential for undergrounding shorter lengths of the line be undertaken.

Q. Has ISO-NE performed any independent analyses to determine how much of the proposed Middletown to Norwalk Project could be installed underground?

A. No.[28]

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[24] Ibid.
[25] CL&P/UI response to Data Request Towns-01, Question Towns-027(e) and (f).
[26] CL&P/UI response to Data Request Towns-01, Question Towns-027(d).
[27] Ibid.
[28] ISO-NE response to Data Request Towns-01, Questions Towns-01.

Q. Has ISO-NE performed any independent analyses to examine the impact on the New England electric grid, or any portion thereof, of undergrounding of any of the proposed Middletown to Norwalk Project in the Segment 1 or 2 Towns?

A. No.[29]

Q. Please describe the studies that GE performed regarding the East Shore Route.

A. GE performed cable transient and harmonic studies for an East Shore Route that was configured the same as it was in the Applicants' load flow studies.[30] GE examined two scenarios. In the first scenario, there was a 10 mile overhead line from East Devon to a transition station in Orange and three parallel seven mile underground cables from Orange to East Shore. In the second scenario, there were three parallel thirteen mile underground cables directly from East Devon to East Shore.

Q. Please summarize the results of the GE studies of the East Shore Route.

A. GE concluded that harmonic and switching transient evaluation of the two East Shore Route configurations did not identify any overtly fatal flaws, and the switching transient results were similar to those of the Applicants' preferred configuration for the project, i.e., with an overhead Beseck to East Devon line. Therefore, GE concluded that with the appropriate selection of equipment and implementation of operating practices, these East Shore Route configurations could be feasible alternatives to the Applicants' proposed configuration from a switching transients and harmonics perspective. However, GE said that because the harmonic characteristics of the East Shore Route configurations are of

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29 ISO-NE response to Data Request Towns-01, Questions Towns-03.

30 *Connecticut Cable Transient and Harmonic Study for East Shore Alternatives,* Final Report dated April 5, 2004.

significant concern, a more comprehensive study would be required to further evaluate the alternatives.[31]

Q. Did the Applicants request that GE undertake such a more comprehensive study?

A. Not to our knowledge.

Q. Have the Applicants provided any analyses regarding the impact of the undergrounding of other sections of the proposed Middletown to Norwalk Project besides the Beseck to East Devon segment?

A. No. The Applicants have made numerous claims regarding the adverse impact of undergrounding the proposed 345-kV lines between Beseck and Oxbow Junction, Beseck and Black Pond or Scovill Rock and Chestnut Junction. However, the Applicants have not provided any GE harmonics and transients study, or any other analysis, that evaluates the effect of the undergrounding of some or all of this line would have on system reliability or operability.[32]

Q. Is it important that such an analysis be undertaken?

A. Yes. Given the high projected EMF levels along the right-of-way within Segment 1 from the proposed overhead 345-kV line between Beseck and Oxbow Junction, we consider it critical that analyses of the potential for undergrounding of some or all of this line be undertaken.

Q. Please describe the studies that the Towns are undertaking to examine how much of the Applicants proposed Beseck to East Devon line or an East Shore Alternative could be underground.

A. The Towns initially requested the GE model and associated data so that we could present a number of alternative scenarios to the Siting Council regarding the undergrounding of different sections of the proposed Middletown to Norwalk

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[31] *Connecticut Cable Transient and Harmonic Study for East Shore Alternatives,* Final Report dated April 5, 2004, at page E-1.

[32] CL&P/UI response to Data Request D-W-01, Question D-W-004.

Project in the Segment 1 and 2 Towns. We also were interested in examining how much of a proposed East Shore Alternative could be underground without unduly affecting system reliability and operability.

However, as the Siting Council is aware, GE refused to provide us access to their model or the data used in the modeling. Subsequently, following a long period of negotiations among the Towns, the Applicants and GE, an agreement was reached whereby GE would analyze two scenarios developed by the Towns. These studies have just begun.

We currently anticipate that GE will be analyzing two scenarios involving an East Shore Alternative that includes a new 345-kV line from East Shore to East Devon, reconductoring of the existing 387 line, reconfiguring of the existing East Shore substation and the Beseck Switching Station plus new lines from Beseck to Black Pond and Oxbow Junction and from Scovill Rock to Chestnut Junction. In one scenario, the entire thirteen mile distance from East Shore to East Devon will be underground. In the second scenario, the seven miles from East Shore to a transition station in Orange will be underground. The remaining distance to the East Devon substation will be overhead. In addition, approximately six miles of the line between Beseck and Oxbow Junction will be underground in the Town of Durham.

The Towns of Milford and Woodbridge also are commissioning GE for town-specific analyses that would examine the impact of undergrounding approximately five miles of cable within each town.

Q. Does this complete your testimony at this time?

A. Yes.

Docket No. 272
EXHIBIT SL-1

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SUMMARY

I have worked for thirty years as a consultant and attorney on complex management, engineering, and economic issues, primarily in the field of energy. This work has involved conducting technical investigations, preparing economic analyses, presenting expert testimony, providing support during all phases of regulatory proceedings and litigation, and advising clients during settlement negotiations. I received undergraduate and advanced engineering degrees from the Massachusetts Institute of Technology and Stanford University, respectively, and a law degree from Stanford Law School

PROFESSIONAL EXPERIENCE

Electric System Reliability - Evaluated whether new transmission lines and generation facilities were needed to ensure adequate levels of system reliability. Investigated the causes of distribution system outages and inadequate service reliability. Examined the reasonableness of utility system reliability expenditures.

Transmission Line Siting – Examined the need for proposed transmission lines. Analyzed whether proposed transmission lines could be installed underground. Worked with clients to develop alternate routings for proposed lines that would have reduced impacts on the environment and communities.

Power Plant Operations and Economics - Investigated the causes of more than one hundred power plant and system outages, equipment failures, and component degradation, determined whether these problems could have been anticipated and avoided, and assessed liability for repair and replacement costs. Examined power plant operating, maintenance, and capital costs. Analyzed power plant operating data from the NERC Generating Availability Data System (GADS). Evaluated utility plans for and management of the replacement of major power plant components. Assessed the adequacy of power plant quality assurance and maintenance programs. Examined the selection and supervision of contractors and subcontractors.

Power Plant Repowering - Evaluated the environmental, economic and reliability impacts of rebuilding older, inefficient generating facilities with new combined cycle technology.

Power Plant Air Emissions – Investigated whether proposed generating facilities would provide environmental benefits in terms of reduced emissions of NO_x, SO_2 and CO_2. Examined whether new state emission standards would lead to the retirement of existing power plants or otherwise have an adverse impact on electric system reliability.

Power Plant Water Use – Examined power plant repowering as a strategy for reducing water consumption at existing electric generating facilities. Analyzed the impact of converting power plants from once-through to closed-loop systems with cooling towers on plant revenues and electric system reliability. Evaluated the potential impact of the EPA's Proosed Clean Water Act Section 316(b) Rule for Cooling Water Intake Structures at existing power plants.

Nuclear Power - Examined the impact of the nuclear power plant life extensions and power uprates on decommissioning costs and collections policies. Evaluated utility decommissioning cost estimates and cost collection plans. Investigated the significance of the increasing ownership of nuclear power plants by multiple tiered holding companies with limited liability company subsidiaries. Investigated the potential safety consequences of nuclear power plant structure, system, and component failures.

Electric Industry Regulation and Markets - Investigated whether new generating facilities that were built for a deregulated subsidiary should be included in the rate base of a regulated utility. Evaluated the reasonableness of proposed utility power purchase agreements with deregulated affiliates. Investigated the prudence of utility power purchases in deregulated markets. Examined whether generating facilities experienced more outages following the transition to a deregulated wholesale market in New England. Evaluated the reasonableness of nuclear and fossil plant sales and the auctions of power purchase agreements. Analyzed the impact of proposed utility mergers on market power. Assessed the reasonableness of contract provisions and terms in proposed power supply agreements.

Economic Analysis - Analyzed the costs and benefits of energy supply options. Examined the economic and system reliability consequences of the early retirement of major electric generating facilities. Evaluated whether new electric generating facilities are used and useful. Quantified replacement power costs and the increased capital and operating costs due to identified instances of mismanagement.

Expert Testimony - Presented the results of management, technical and economic analyses as testimony in more than ninety proceedings before regulatory boards and commissions in twenty three states, before two federal regulatory agencies, and in state and federal court proceedings.

Litigation and Regulatory Support - Participated in all aspects of the development and preparation of case presentations on complex management, technical, and economic issues. Assisted in the preparation and conduct of pre-trial discovery and depositions. Helped identify and prepare expert witnesses. Aided the preparation of pre-hearing petitions and motions and post-hearing briefs and appeals. Assisted counsel in preparing for hearings and oral arguments. Advised counsel during settlement negotiations.

TESTIMONY

Arizona Corporation Commission (Docket No. E-01345A-03-0437 – February 2004
Whether Arizona Public Service Company should be allowed to acquire and include in rate base five generating units that were built by a deregulated affiliate.

State of Rhode Island Energy Facilities Siting Board (Docket No. SB-2003-1) – February 2004
Whether the cost of undergrounding a relocated 115kV transmission line would be eligible for regional cost socialization.

State of Maine Department of Environmental Protection (Docket No. A-82-75-0-X) – December 2003
The storage of irradiated nuclear fuel in an Independent Spent Fuel Storage Installation (ISFSI) and whether such an installation represents an air pollution control facility.

Rhode Island Public Utility Commission (Docket No. 3564) – December 2003 and January 2004
Whether Narragansett Electric Company should be required to install a relocated 115kV transmission line underground.

New York State Board on Electric Generation Siting and the Environment (Case No. 01-F-1276) – September, October and November 2003
The environmental, economic and system reliability benefits that can reasonably be expected from the proposed 1,100 MW TransGas Energy generating facility in Brooklyn, New York.

Wisconsin Public Service Commission (Case 6690-UR-115209) - September and October 2003
The reasonableness of Wisconsin Public Service Corporation's decommissioning cost collections for the Kewaunee Nuclear Plant.

Oklahoma Corporation Commission (Cause No. 2003-121) – July 2003
Whether Empire District Electric Company properly reduced its capital costs to reflect the write-off of a portion of the cost of building a new electric generating facility.

Arkansas Public Service Commission (Docket 02-248-U) – May 2003
Entergy's proposed replacement of the steam generators and the reactor vessel head at the ANO Unit 1 Steam Generating Station.

Appellate Tax Board, State of Massachusetts (Docket No C258405-406) – May 2003
The physical nature of electricity and whether electricity is a tangible product or a service.

Maine Public Utilities Commission (Docket 2002-665-U) – April 2003
Analysis of Central Maine Power Company's proposed transmission line for Southern York County and recommendation of alternatives.

Massachusetts Legislature, Joint Committees on Government Regulations and Energy – March 2003
Whether PG&E can decide to permanently retire one or more of the generating units at its Salem Harbor Station if it is not granted an extension beyond October 2004 to reduce the emissions from the Station's three coal-fired units and one oil-fired unit.

New Jersey Board of Public Utilities (Docket No. ER02080614) – January 2003

The prudence of Rockland Electric Company's power purchases during the period August 1, 1999 through July 31, 2002.

New York State Board on Electric Generation Siting and the Environment (Case No. 00-F-1356) – September and October 2002 and January 2003
The need for and the environmental benefits from the proposed 300 MW Kings Park Energy generating facility.

Arizona Corporation Commission (Docket No. E-01345A-01-0822) – March 2002
The reasonableness of Arizona Public Service Company's proposed long-term power purchase agreement with an affiliated company.

New York State Board on Electric Generation Siting and the Environment (Case No. 99-F-1627) – March 2002
Repowering NYPA's existing Poletti Station in Queens, New York.

Connecticut Siting Council (Docket No. 217) – March 2002, November 2002, and January 2003
Whether the proposed 345-kV transmission line between Plumtree and Norwalk substations in Southwestern Connecticut is needed and will produce public benefits.

Vermont Public Service Board (Case No. 6545) – January 2002
Whether the proposed sale of the Vermont Yankee Nuclear Plant to Entergy is in the public interest of the State of Vermont and Vermont ratepayers.

Connecticut Department of Public Utility Control (Docket 99-09-12RE02) – December 2001
The reasonableness of adjustments that Connecticut Light and Power Company seeks to make to the proceeds that it received from the sale of Millstone Nuclear Power Station.

Connecticut Siting Council (Docket No. 208) – October 2001
Whether the proposed cross-sound cable between Connecticut and Long Island is needed and will produce public benefits for Connecticut consumers.

New Jersey Board of Public Utilities (Docket No. EM01050308) - September 2001
The market power implications of the proposed merger between Conectiv and Pepco.

Illinois Commerce Commission Docket No. 01-0423 – August, September, and October 2001
Commonwealth Edison Company's management of its distribution and transmission systems.

New York State Board on Electric Generation Siting and the Environment (Case No. 99-F-1627) - August and September 2001
The environmental benefits from the proposed 500 MW NYPA Astoria generating facility.

New York State Board on Electric Generation Siting and the Environment (Case No. 99-F-1191) - June 2001
The environmental benefits from the proposed 1,000 MW Astoria Energy generating facility.

New Jersey Board of Public Utilities (Docket No. EM00110870) - May 2001
The market power implications of the proposed merger between FirstEnergy and GPU Energy.

Connecticut Department of Public Utility Control (Docket 99-09-12RE01) - November 2000
The proposed sale of Millstone Nuclear Station to Dominion Nuclear, Inc.

Illinois Commerce Commission (Docket 00-0361) - August 2000
The impact of nuclear power plant life extensions on Commonwealth Edison Company's decommissioning costs and collections from ratepayers.

Vermont Public Service Board (Docket 6300) - April 2000
Whether the proposed sale of the Vermont Yankee nuclear plant to AmerGen Vermont is in the public interest.

Massachusetts Department of Telecommunications and Energy (Docket 99-107, Phase II) - April and June 2000
The causes of the May 18, 1999, main transformer fire at the Pilgrim generating station.

Connecticut Department of Public Utility Control (Docket 00-01-11) - March and April 2000
The impact of the proposed merger between Northeast Utilities and Con Edison, Inc. on the reliability of the electric service being provided to Connecticut ratepayers.

Connecticut Department of Public Utility Control (Docket 99-09-12) - January 2000
The reasonableness of Northeast Utilities plan for auctioning the Millstone Nuclear Station.

Connecticut Department of Public Utility Control (Docket 99-08-01) - November 1999
Generation, Transmission, and Distribution system reliability.

Illinois Commerce Commission (Docket 99-0115) - September 1999
Commonwealth Edison Company's decommissioning cost estimate for the Zion Nuclear Station.

Connecticut Department of Public Utility Control (Docket 99-03-36) - July 1999
Standard offer rates for Connecticut Light & Power Company.

Connecticut Department of Public Utility Control (Docket 99-03-35) - July 1999
Standard offer rates for United Illuminating Company.

Connecticut Department of Public Utility Control (Docket 99-02-05) - April 1999
Connecticut Light & Power Company stranded costs.

Connecticut Department of Public Utility Control (Docket 99-03-04) - April 1999
United Illuminating Company stranded costs.

Maryland Public Service Commission (Docket 8795) - December 1998
Future operating performance of Delmarva Power Company's nuclear units.

Maryland Public Service Commission (Dockets 8794/8804) - December 1998
Baltimore Gas and Electric Company's proposed replacement of the steam generators at the Calvert Cliffs Nuclear Power Plant. Future performance of nuclear units.

Indiana Utility Regulatory Commission (Docket 38702-FAC-40-S1) - November 1998
Whether the ongoing outages of the two units at the D.C. Cook Nuclear Plant were caused or extended by mismanagement.

Arkansas Public Service Commission (Docket 98-065-U) - October 1998
Entergy's proposed replacement of the steam generators at the ANO Unit 2 Steam Generating Station.

Massachusetts Department of Telecommunications and Energy (Docket 97-120) - October 1998
Western Massachusetts Electric Company's Transition Charge. Whether the extended 1996-1998 outages of the three units at the Millstone Nuclear Station were caused or extended by mismanagement.

Connecticut Department of Public Utility Control (Docket 98-01-02) - September 1998
Nuclear plant operations, operating and capital costs, and system reliability improvement costs.

Illinois Commerce Commission (Docket 97-0015) - May 1998
Whether any of the outages of Commonwealth Edison Company's twelve nuclear units during 1996 were caused or extended by mismanagement. Whether equipment problems, personnel performance weaknesses, and program deficiencies could have been avoided or addressed prior to plant outages. Outage-related fuel and replacement power costs.

Public Service Commission of West Virginia (Case 97-1329-E-CN) - March 1998
The need for a proposed 765 kV transmission line from Wyoming, West Virginia, to Cloverdate, Virginia.

Illinois Commerce Commission (Docket 97-0018) - March 1998
Whether any of the outages of the Clinton Power Station during 1996 were caused or extended by mismanagement.

Connecticut Department of Public Utility Control (Docket 97-05-12) - October 1997
The increased costs resulting from the ongoing outages of the three units at the Millstone Nuclear Station.

New Jersey Board of Public Utilities (Docket ER96030257) - August 1996
Replacement power costs during plant outages.

Illinois Commerce Commission (Docket 95-0119) - February 1996
Whether any of the outages of Commonwealth Edison Company's twelve nuclear units during 1994 were caused or extended by mismanagement. Whether equipment problems, personnel performance weaknesses, and program deficiencies could have been avoided or addressed prior to plant outages. Outage-related fuel and replacement power costs.

Public Utility Commission of Texas (Docket 13170) - December 1994
Whether any of the outages of the River Bend Nuclear Station during the period October 1, 1991, through December 31, 1993, were caused or extended by mismanagement.

Public Utility Commission of Texas (Docket 12820) - October 1994
Operations and maintenance expenses during outages of the South Texas Nuclear Generating Station.

Wisconsin Public Service Commission (Cases 6630-CE-197 and 6630-CE-209) - September and October 1994
The reasonableness of the projected cost and schedule for the replacement of the steam generators at the Point Beach Nuclear Power Plant. The potential impact of plant aging on future operating costs and performance.

Public Utility Commission of Texas (Docket 12700) - June 1994
Whether El Paso Electric Company's share of Palo Verde Unit 3 was needed to ensure adequate levels of system reliability. Whether the Company's investment in Unit 3 could be expected to generate cost savings for ratepayers within a reasonable number of years.

Arizona Corporation Commission (Docket U-1551-93-272) - May and June 1994
Southwest Gas Corporation's plastic and steel pipe repair and replacement programs.

Connecticut Department of Public Utility Control (Docket 92-04-15) - March 1994
Northeast Utilities management of the 1992/1993 replacement of the steam generators at Millstone Unit 2.

Connecticut Department of Public Utility Control (Docket 92-10-03) - August 1993
Whether the 1991 outage of Millstone Unit 3 as a result of the corrosion of safety-related plant piping systems was due to mismanagement.

Public Utility Commission of Texas (Docket 11735) - April and July 1993
Whether any of the outages of the Comanche Peak Unit 1 Nuclear Station during the period August 13, 1990, through June 30, 1992, were caused or extended by mismanagement.

Connecticut Department of Public Utility Control (Docket 91-12-07) - January 1993 and August 1995
Whether the November 6, 1991, pipe rupture at Millstone Unit 2 and the related outages of the Connecticut Yankee and Millstone units were caused or extended by mismanagement. The impact of environmental requirements on power plant design and operation.

Connecticut Department of Public Utility Control (Docket 92-06-05) - September 1992
United Illuminating Company off-system capacity sales.

Public Utility Commission of Texas (Docket 10894) - August 1992
Whether any of the outages of the River Bend Nuclear Station during the period October 1, 1988, through September 30, 1991, were caused or extended by mismanagement.

Connecticut Department of Public Utility Control (Docket 92-01-05) - August 1992
Whether the July 1991 outage of Millstone Unit 3 due tot he fouling of important plant systems by blue mussels was the result of mismanagement.

California Public Utilities Commission (Docket 90-12-018) - November 1991, March 1992, June and July 1993
Whether any of the outages of the three units at the Palo Verde Nuclear Generating Station during 1989 and 1990 were caused or extended by mismanagement. Whether equipment problems, personnel performance weaknesses and program deficiencies could have been avoided or addressed prior to outages. Whether specific plant operating cost and capital expenditures were necessary and prudent.

Public Utility Commission of Texas (Docket 9945) - July 1991
Whether El Paso Electric Company's share of Palo Verde Unit 3 was needed to ensure adequate levels of system reliability. Whether the Company's investment in the unit could be expected to generate cost savings for ratepayers within a reasonable number of years. El Paso Electric Company's management of the planning and licensing of the Arizona Interconnection Project transmission line.

Arizona Corporation Commission (Docket U-1345-90-007) - December 1990 and April 1991
Arizona Public Service Company's management of the planning, construction and operation of the Palo Verde Nuclear Generating Station. The costs resulting from identified instances of mismanagement.

New Jersey Board of Public Utilities (Docket ER89110912J) - July and October 1990
The economic costs and benefits of the early retirement of the Oyster Creek Nuclear Plant. The potential impact of the unit's early retirement on system reliability. The cost and schedule for siting and constructing a replacement natural gas-fired generating plant.

Public Utility Commission of Texas (Docket 9300) - June and July 1990
Texas Utilities management of the design and construction of the Comanche Peak Nuclear Plant. Whether the Company was prudent in repurchasing minority owners' shares of Comanche Peak without examining the costs and benefits of the repurchase for its ratepayers.

Federal Energy Regulatory Commission (Docket EL-88-5-000) - November 1989
Boston Edison's corporate management of the Pilgrim Nuclear Station.

Connecticut Department of Public Utility Control (Docket 89-08-11) - November 1989
United Illuminating Company's off-system capacity sales.

Kansas State Corporation Commission (Case 164,211-U) - April 1989
Whether any of the 127 days of outages of the Wolf Creek generating plant during 1987 and 1988 were the result of mismanagement.

Public Utility Commission of Texas (Docket 8425) - March 1989
Whether Houston Lighting & Power Company's new Limestone Unit 2 generating facility was needed to provide adequate levels of system reliability. Whether the Company's investment in Limestone Unit 2 would provide a net economic benefit for ratepayers.

Illinois Commerce Commission (Dockets 83-0537 and 84-0555) - July 1985 and January 1989
Commonwealth Edison Company's management of quality assurance and quality control activities and the actions of project contractors during construction of the Byron Nuclear Station.

New Mexico Public Service Commission (Case 2146, Part II) - October 1988
The rate consequences of Public Service Company of New Mexico's ownership of Palo Verde Units 1 and 2.

United States District Court for the Eastern District of New York (Case 87-646-JBW) - October 1988
Whether the Long Island Lighting Company withheld important information from the New York State Public Service Commission, the New York State Board on Electric Generating Siting and the Environment, and the U.S. Nuclear Regulatory Commission.

Public Utility Commission of Texas (Docket 6668) - August 1988 and June 1989
Houston Light & Power Company's management of the design and construction of the South Texas Nuclear Project. The impact of safety-related and environmental requirements on plant construction costs and schedule.

Federal Energy Regulatory Commission (Docket ER88-202-000) - June 1988
Whether the turbine generator vibration problems that extended the 1987 outage of the Maine Yankee nuclear plant were caused by mismanagement.

Illinois Commerce Commission (Docket 87-0695) - April 1988
Illinois Power Company's planning for the Clinton Nuclear Station.

North Carolina Utilities Commission (Docket E-2, Sub 537) - February 1988
Carolina Power & Light Company's management of the design and construction of the Harris Nuclear Project. The Company's management of quality assurance and quality control activities. The impact of safety-related and environmental requirements on construction costs and schedule. The cost and schedule consequences of identified instances of mismanagement.

Ohio Public Utilities Commission (Case 87-689-EL-AIR) - October 1987
Whether any of Ohio Edison's share of the Perry Unit 2 generating facility was needed to ensure adequate levels of system reliability. Whether the Company's investment in Perry Unit 1 would produce a net economic benefit for ratepayers.

North Carolina Utilities Commission (Docket E-2, Sub 526) - June 1987
Fuel factor calculations.

New York State Public Service Commission (Case 29484) - May 1987
The planned startup and power ascension testing program for the Nine Mile Point Unit 2 generating facility.

Illinois Commerce Commission (Dockets 86-0043 and 86-0096) - April 1987
The reasonableness of certain terms in a proposed Power Supply Agreement.

Illinois Commerce Commission (Docket 86-0405) - March 1987
The in-service criteria to be used to determine when a new generating facility was capable of providing safe, adequate, reliable and efficient service.

Indiana Public Service Commission (Case 38045) - December 1986
Northern Indiana Public Service Company's planning for the Schaefer Unit 18 generating facility. Whether the capacity from Unit 18 was needed to ensure adequate system reliability. The rate consequences of excess capacity on the Company's system.

Superior Court in Rockingham County, New Hampshire (Case 86E328) - July 1986
The radiation effects of low power testing on the structures, equipment and components in a new nuclear power plant.

New York State Public Service Commission (Case 28124) - April 1986 and May 1987
The terms and provisions in a utility's contract with an equipment supplier. The prudence of the utility's planning for a new generating facility. Expenditures on a canceled generating facility.

Arizona Corporation Commission (Docket U-1345-85) - February 1986
The construction schedule for Palo Verde Unit No. 1. Regulatory and technical factors that would likely affect future plant operating costs.

New York State Public Service Commission (Case 29124) - January 1986
Niagara Mohawk Power Corporation's management of construction of the Nine Mile Point Unit No. 2 nuclear power plant.

New York State Public Service Commission (Case 28252) - October 1985
A performance standard for the Shoreham nuclear power plant.

New York State Public Service Commission (Case 29069) - August 1985
A performance standard for the Nine Mile Point Unit No. 2 nuclear power plant.

Missouri Public Service Commission (Cases ER-85-128 and EO-85-185) - July 1985
The impact of safety-related regulatory requirements and plant aging on power plant operating costs and performance. Regulatory factors and plant-specific design features that will likely affect the future operating costs and performance of the Wolf Creek Nuclear Plant.

Massachusetts Department of Public Utilities (Case 84-152) - January 1985
The impact of safety-related regulatory requirements and plant aging on power plant operating costs and performance. Regulatory factors and plant-specific design features that will likely affect the future operating costs and performance of the Seabrook Nuclear Plant.

Maine Public Utilities Commission (Docket 84-113) - September 1984
The impact of safety-related regulatory requirements and plant aging on power plant operating costs and performance. Regulatory factors and plant-specific design features that will likely affect the future operating costs and performance of the Seabrook Nuclear Plant.

South Carolina Public Service Commission (Case 84-122-E) - August 1984
The repair and replacement strategy adopted by Carolina Power & Light Company in response to pipe cracking at the Brunswick Nuclear Station. Quantification of replacement power costs attributable to identified instances of mismanagement.

Vermont Public Service Board (Case 4865) - May 1984
The repair and replacement strategy adopted by management in response to pipe cracking at the Vermont Yankee nuclear plant.

New York State Public Service Commission (Case 28347) -January 1984
The information that was available to Niagara Mohawk Power Corporation prior to 1982 concerning the potential for cracking in safety-related piping systems at the Nine Mile Point Unit No. 1 nuclear plant.

New York State Public Service Commission (Case 28166) - February 1983 and February 1984
Whether the January 25, 1982, steam generator tube rupture at the Ginna Nuclear Plant was caused by mismanagement.

U.S. Nuclear Regulatory Commission (Case 50-247SP) - May 1983
The economic costs and benefits of the early retirement of the Indian Point nuclear plants.

REPORTS, ARTICLES, AND PRESENTATIONS

Comments on natural gas utilities' Phase I Proposals for pre-approved full cost recovery of contracts with liquid natural gas (LNG) suppliers and the costs of interconnecting their systems with LNG facilities. Comments in California Public Utilities Commission Rulemaking 04-01-025. March 23, 2004.

The Impact of Converting the Cooling Systems at Indian Point Units 2 and 3 on Electric System Reliability. An Analysis for Riverkeeper, Inc. November 3, 2003.

The Impact of Converting Indian Point Units 2 and 3 to Closed-Cycle Cooling Systems with Cooling Towers on Energy's Likely Future Earnings. An Analysis for Riverkeeper, Inc. November 3, 2003.

Entergy's Lost Revenues During Outages of Indian Point Units 2 and 3 to Convert to Closed-Cycle Cooling Systems. An Analysis for Riverkeeper, Inc. November 3, 2003.

Power Plant Repowering as a Strategy for Reducing Water Consumption at Existing Electric Generating Facilities. A presentation at the May 2003 Symposium on Cooling Water Intake Technologies to Protect Aquatic Organisms. May 6, 2003.

Financial Insecurity: The Increasing Use of Limited Liability Companies and Multi-tiered Holding Companies to Own Electric Generating Plants. A presentation at the 2002 NASUCA Annual Meeting. November 12, 2002.

Determining the Need for Proposed Overhead Transmission Facilities. A Presentation by David Schlissel and Paul Peterson to the Task Force and Working Group for Connecticut Public Act 02-95. October 17, 2002.

Future PG&E Net Revenues From The Sale of Electricity Generated at its Brayton Point Station. An Analysis for the Attorney General of the State of Rhode Island. October 2, 2002.

PG&E's Net Revenues From The Sale of Electricity Generated at its Brayton Point Station During the Years 1999-2002. An Analysis for the Attorney General of the State of Rhode Island. October 2, 2002.

Financial Insecurity: The Increasing Use of Limited Liability Companies and Multi-Tiered Holding Companies to Own Nuclear Power Plants. A Synapse report for the STAR Foundation and Riverkeeper, Inc., by David Schlissel, Paul Peterson, and Bruce Biewald, August 7, 2002.

Comments on EPA's Proposed Clean Water Act Section 316(b) for Cooling Water Intake Structures at Phase II Existing Facilities, on behalf of Riverkeeper, Inc., by David Schlissel and Geoffrey Keith, August 2002.

The Impact of Retiring the Indian Point Nuclear Power Station on Electric System Reliability. A Synapse Report for Riverkeeper, Inc. and Pace Law School Energy Project. May 7, 2002.

Preliminary Assessment of the Need for the Proposed Plumtree-Norwalk 345-kV Transmission Line. A Synapse Report for the Towns of Bethel, Redding, Weston, and Wilton Connecticut. October 15, 2001.

ISO New England's Generating Unit Availability Study: Where's the Beef? A Presentation at the June 29, 2001 Restructuring Roundtable.

Clean Air and Reliable Power: Connecticut Legislative House Bill HB6365 will not Jeopardize Electric System Reliability. A Synapse Report for the Clean Air Task Force. May 2001.

Room to Breathe: Why the Massachusetts Department of Environmental Protection's Proposed Air Regulations are Compatible with Reliability. A Synapse Report for MASSPIRG and the Clean Water Fund. March 2001.

Generator Outage Increases: A Preliminary Analysis of Outage Trends in the New England Electricity Market, a Synapse Report for the Union of Concerned Scientists, January 7, 2001.

Cost, Grid Reliability Concerns on the Rise Amid Restructuring, with Charlie Harak, Boston Business Journal, August 18-24, 2000.

Report on Indian Point 2 Steam Generator Issues, Schlissel Technical Consulting, Inc., March 10, 2000.

Preliminary Expert Report in Case 96-016613, Cities of Wharton, Pasadena, et al v. Houston Lighting & Power Company, October 28, 1999.

Comments of Schlissel Technical Consulting, Inc. on the Nuclear Regulatory Commission's Draft Policy Statement on Electric Industry Economic Deregulation, February 1997.

Report to the Municipal Electric Utility Association of New York State on the Cost of Decommissioning the Fitzpatrick Nuclear Plant, August 1996.

Report to the Staff of the Arizona Corporation Commission on U.S. West Corporation's telephone cable repair and replacement programs, May, 1996.

Nuclear Power in the Competitive Environment, NRRI Quarterly Bulletin, Vol. 16, No. 3, Fall 1995.

Nuclear Power in the Competitive Environment, presentation at the 18th National Conference of Regulatory Attorneys, Scottsdale, Arizona, May 17, 1995.

The Potential Safety Consequences of Steam Generator Tube Cracking at the Byron and Braidwood Nuclear Stations, a report for the Environmental Law and Policy Center of the Midwest, 1995.

Report to the Public Policy Group Concerning Future Trojan Nuclear Plant Operating Performance and Costs, July 15, 1992.

Report to the New York State Consumer Protection Board on the Costs of the 1991 Refueling Outage of Indian Point 2, December 1991.

Preliminary Report on Excess Capacity Issues to the Public Utility Regulation Board of the City of El Paso, Texas, April 1991.

Nuclear Power Plant Construction Costs, presentation at the November, 1987, Conference of the National Association of State Utility Consumer Advocates.

Comments on the Final Report of the National Electric Reliability Study, a report for the New York State Consumer Protection Board, February 27, 1981.

OTHER SIGNIFICANT INVESTIGATIONS AND LITIGATION SUPPORT WORK

Reviewed the salt deposition mitigation strategy proposed for Reliant Energy's repowering of its Astoria Generating Station. October 2002 through February 2003.

Assisted the Connecticut Office of Consumer Counsel in reviewing the auction of Connecticut Light & Power Company's power purchase agreements. August and September, 2000.

Assisted the New Jersey Division of the Ratepayer Advocate in evaluating the reasonableness of Atlantic City Electric Company's proposed sale of its fossil generating facilities. June and July, 2000.

Investigated whether the 1996-1998 outages of the three Millstone Nuclear Units were caused or extended by mismanagement. 1997 and 1998. Clients were the Connecticut Office of Consumer Counsel and the Office of the Attorney General of the Commonwealth of Massachusetts.

Investigated whether the 1995-1997 outages of the two units at the Salem Nuclear Station were caused or extended by mismanagement. 1996-1997. Client was the New Jersey Division of the Ratepayer Advocate.

Assisted the Associated Industries of Massachusetts in quantifying the stranded costs associated with utility generating plants in the New England states. May through July, 1996

Investigated whether the December 25, 1993, turbine generator failure and fire at the Fermi 2 generating plant was caused by Detroit Edison Company's mismanagement of fabrication, operation or maintenance. 1995. Client was the Attorney General of the State of Michigan.

Investigated whether the outages of the two units at the South Texas Nuclear Generating Station during the years 1990 through 1994 were caused or extended by mismanagement. Client was the Texas Office of Public Utility Counsel.

Assisted the City Public Service Board of San Antonio, Texas in litigation over Houston Lighting & Power Company's management of operations of the South Texas Nuclear Generating Station.

Investigated whether outages of the Millstone nuclear units during the years 1991 through 1994 were caused or extended by mismanagement. Client was the Office of the Attorney General of the Commonwealth of Massachusetts.

Evaluated the 1994 Decommissioning Cost Estimate for the Maine Yankee Nuclear Plant. Client was the Public Advocate of the State of Maine.

Evaluated the 1994 Decommissioning Cost Estimate for the Seabrook Nuclear Plant. Clients were investment firms that were evaluating whether to purchase the Great Bay Power Company, one of Seabrook's minority owners.

Investigated whether a proposed natural-gas fired generating facility was need to ensure adequate levels of system reliability. Examined the potential impacts of environmental regulations on the unit's expected construction cost and schedule. 1992. Client was the New Jersey Rate Counsel.

Investigated whether Public Service Company of New Mexico management had adequately disclosed to potential investors the risk that it would be unable to market its excess generating capacity. Clients were individual shareholders of Public Service Company of New Mexico.

Investigated whether the Seabrook Nuclear Plant was prudently designed and constructed. 1989. Clients were the Connecticut Office of Consumer Counsel and the Attorney General of the State of Connecticut.

Investigated whether Carolina Power & Light Company had prudently managed the design and construction of the Harris nuclear plant. 1988-1989. Clients were the North Carolina Electric Municipal Power Agency and the City of Fayetteville, North Carolina.

Investigated whether the Grand Gulf nuclear plant had been prudently designed and constructed. 1988. Client was the Arkansas Public Service Commission.

Reviewed the financial incentive program proposed by the New York State Public Service Commission to improve nuclear power plant safety. 1987. Client was the New York State Consumer Protection Board.

Reviewed the construction cost and schedule of the Hope Creek Nuclear Generating Station. 1986-1987. Client was the New Jersey Rate Counsel.

Reviewed the operating performance of the Fort St. Vrain Nuclear Plant. 1985. Client was the Colorado Office of Consumer Counsel.

WORK HISTORY

2000 - Present: Senior Consultant, Synapse Energy Economics, Inc.

1994 - 2000: President, Schlissel Technical Consulting, Inc.

1983 - 1994: Director, Schlissel Engineering Associates

1979 - 1983: Private Legal and Consulting Practice

1975 - 1979: Attorney, New York State Consumer Protection Board

1973 - 1975: Staff Attorney, Georgia Power Project

EDUCATION

1983-1985: Massachusetts Institute of Technology
Special Graduate Student in Nuclear Engineering and Project Management,

1973: Stanford Law School,
Juris Doctor

1969: Stanford University
Master of Science in Astronautical Engineering,

1968: Massachusetts Institute of Technology
Bachelor of Science in Astronautical Engineering,

PROFESSIONAL MEMBERSHIPS

- New York State Bar since 1981
- American Nuclear Society
- National Association of Corrosion Engineers

- National Academy of Forensic Engineers (Correspondent Affiliate)

Docket No. 272
EXHIBIT SL-2

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PETER J. LANZALOTTA
Principal

PETER J. LANZALOTTA

Peter J. Lanzalotta is a Principal of Lanzalotta & Associates LLC. He is a Professional Engineer licensed in the states of Maryland and Connecticut. Mr. Lanzalotta holds a Bachelor of Science in Electric Power Engineering from Rensselaer Polytechnic Institute and a Master of Business Administration with a concentration in Finance from Loyola College of Baltimore. He is a member of the Institute of Electrical & Electronics Engineers, the National Society of Professional Engineers, the National Fire Protection Association, and the Financial Management Association.

Mr. Lanzalotta has more than twenty-five years of collective experience in the following utility-related areas:

Electric utility system planning, including transmission and interconnection planning and analyses, distribution planning, generation adequacy, and reliability planning criteria.

Electric utility system operations, including interconnected transmission system operations, RTO/ISO analyses, distribution operations, and reliability analyses.

Electric power sales and procurement, including market analysis, load and price forecasting and analyses, power purchase and power sales agreement development and analyses, transmission adequacy analyses, and negotiation support.

Quality of service guarantees and indices, including customer service indices and reliability indices.

Utility cost allocation, rate design, retail rate studies, and line extension charges.

Mr. Lanzalotta has appeared as an expert witness on utility planning and operation matters and on utility rate matters in more than 60 proceedings in 16 states, the District of Columbia, the Provinces of Alberta and Ontario, and before the FERC. A list of proceedings in which Mr. Lanzalotta has testified is attached.

Mr. Lanzalotta has worked for many years on behalf of the City of Chicago on electric reliability-related matters. Mr. Lanzalotta is currently engaged by various government offices and agencies in the states of Delaware, Maryland, New Jersey, and Pennsylvania on an ongoing basis to help develop procedures for the reporting of and the evaluation of electric distribution system reliability performance and remedial actions, as well to investigate specific electric

service reliability concerns. Mr. Lanzalotta has participated in developing electric service reliability standards with attendant incentives and penalties for use with performance-based rates in several states.

Mr. Lanzalotta has participated in negotiations between utilities and customers, advocates, and/or regulators in more than ten states regarding transmission access, the need for generation and/or transmission facilities, electric rates, electric service reliability, and system operator structures under wholesale competition. He has worked with numerous large energy users to negotiate improved supply terms and conditions, to evaluate energy supply alternatives, and to implement projects to reduce energy costs and/or to improve electric supply reliability.

Among the clients he has assisted are various state agencies in the States of Maryland, Delaware, Pennsylvania, South Carolina, New Jersey, Hawaii, and South Dakota, the cities of Chicago IL, New York NY, municipal electric utilities in California, New Jersey, Massachusetts, and Wyoming, an international tire company with more than ten facilities in North America, a large privately-owned aluminum smelter in Ohio, various power project developers, and various energy consumers.

Prior to forming the firm at the end of 2000, Mr. Lanzalotta was a Partner of Whitfield Russell Associates for 15 years and a Senior Associate of the same firm for 4 years before that. Prior to that, he served as System Engineer of the Connecticut Municipal Electric Energy Cooperative (CMEEC). He provided operational and financial suport, and rate analyses for CMEEC's budgeting, ratemaking and project evaluations. He managed CMEEC's participation in New England Power Pool (NEPOOL) operations, and in the Hydro-Quebec/NEPOOL interconnection project. Also he participated in the development of a data base to support CMEEC's operational and financial data needs.

Formerly, he was Chief Engineer for the South Norwalk (Connecticut) Electric Works. He was responsible for system operation, data processing, engineering, rates and tariffs, generation operation and sales, project management and contractor liaison. He designed and implemented cogeneration and small power production programs, improvements in wholesale purchases and generation resources, and was responsible for retail rate design and service policy design. He also was responsible for distribution system design, construction, maintenance, and operations.

Prior to this, Mr. Lanzalotta served as a Utility Engineer for the consulting firm of Van Scoyoc & Wiskup. He was responsible for power pooling analyses and proposals, computer modeling, rate analysis and design, and the preparation of expert testimony on these topics.

Previously, he was a Rates/Service Tariffs Analyst with the Baltimore Gas & Electric Company where he developed cost and revenue studies for a wide range of proposals. Prior to this, Mr. Lanzalotta was an Associate Engineer with the System Operations Department of Baltimore Gas & Electric Company for about 3 years.

1. **In re: Public Service Company of New Mexico**, Docket Nos. ER78-337 and ER78-338 before the Federal Energy Regulatory Commission, concerning the need for access to calculation methodology underlying filing.

2. **In re: Baltimore Gas and Electric Company**, Case No. 7238-V before the Maryland Public Service Commission, concerning outage replacement power costs.

3. **In re: Houston Lighting & Power Company**, Texas Public Utilities Commission Docket No. 4712, concerning modeling methods to determine rates to be paid to cogenerators and small power producers.

4. **In re: Nevada Power Company**, Nevada Public Service Commission, Docket No. 83-707 concerning rate case fuel inventories, rate base items, and O&M expense.

5. **In re: Virginia Electric & Power Company**, Virginia State Corporation Commission, Case No. PUE820091, concerning the operating and reliability-based need for additional transmission facilities.

6. **In re: Public Service Electric & Gas Company**, New Jersey Board of Public Utilities, Docket No. 831-25, concerning outage replacement power costs.

7. **In re: Philadelphia Electric Company**, Pennsylvania Public Utilities Commission, Docket No. P-830453, concerning outage replacement power costs.

8. **In re: Cincinnati Gas & Electric Company**, Public Utilities Commission of Ohio, Case No. 83-33-EL-EFC, concerning the results of an operations/fuel-use audit conducted by Mr. Lanzalotta.

9. **In re: Kansas City Power and Light Company**, before the State Corporation Commission of the state of Kansas, Docket Nos. 142,099-U and 120,924-U, concerning the determination of the capacity, from a new base-load generating facility, needed for reliable system operation, and the capacity available from existing generating units.

10. **In re: Philadelphia Electric Company**, Pennsylvania Public Utilities Commission, Docket No. R-850152, concerning the determination of the

capacity, from a new base-load generating facility, needed for reliable system operation, and the capacity available from existing generating units.

11. **In re: ABC Method Proposed for Application to Public Service Company of Colorado**, before the Public Utilities Commission of the State of Colorado, on behalf of the Federal Executive Agencies ("FEA"), concerning a production cost allocation methodology proposed for use in Colorado.

12. **In re: Duquesne Light Company**, Docket No. R-870651, before the Pennsylvania Public Utilities Commission, on behalf of the Office of Consumer Advocate, concerning the system reserve margin needed for reliable service.

13. **In re: Pennsylvania Power Company**, Docket No. I-7970318 before the Pennsylvania Public Utilities Commission, on behalf of the Office of Consumer Advocate, concerning outage replacement power costs.

14. **In re: Commonwealth Edison Company**, Docket No. 87-0427 before the Illinois Commerce Commission, on behalf of the Citizen's Utility Board of Illinois, concerning the determination of the capacity, from new base-load generating facilities, needed for reliable system operation.

15. **In re: Central Illinois Public Service Company**, Docket No. 88-0031 before the Illinois Commerce Commission, on behalf of the Citizen's Utility Board of Illinois, concerning the degree to which existing generating capacity is needed for reliable and/or economic system operation.

16. **In re: Illinois Power Company**, Docket No. 87-0695 before the State of Illinois Commerce Commission, on behalf of Citizens Utility Board of Illinois, Governors Office of Consumer Services, Office of Public Counsel and Small Business Utility Advocate, concerning the determination of the capacity, from a new base-load generating facility, needed for reliable system operation, and the capacity available from existing generating units.

17. **In re: Florida Power Corporation**, Docket No. 860001-EI-G (Phase II), before the Florida Public Service Commission, on behalf of the Federal Executive Agencies of the United States, concerning an investigation into fuel supply relationships of Florida Power Corporation.

18. **In re: Potomac Electric Power Company**, before the Public Service Commission of the District of Columbia, Docket No. 877, on behalf of the Public Service Commission Staff, concerning the need for and availability of new generating facilities.

19. **In re: South Carolina Electric & Gas Company**, before the South Carolina Public Service Commission, Docket No. 88-681-E, On Behalf of the State of Carolina Department of Consumer Affairs, concerning the capacity needed for reliable system operation, the capacity available from existing generating units, relative jurisdictional rate of return, reconnection charges, and the provision of supplementary, backup, and maintenance services for QFs.

20. **In re: Commonwealth Edison Company**, Illinois Commerce Commission, Docket Nos. 87-0169, 87-0427, 88-0189, 88-0219, and 88-0253, on behalf of the Citizen's Utility Board of Illinois, concerning the determination of the capacity, from a new base-load generating facility, needed for reliable system operation.

21. **In re: Illinois Power Company**, Illinois Commerce Commission, Docket No. 89-0276, on behalf of the Citizen's Utility Board Of Illinois, concerning the determination of capacity available from existing generating units.

22. **In re: Jersey Central Power & Light Company**, New Jersey Board of Public Utilities, Docket No. EE88-121293, on behalf of the State of New Jersey Department of the Public Advocate, concerning evaluation of transmission planning.

23. **In re: Canal Electric Company**, before the Federal Energy Regulatory Commission, Docket No. ER90-245-000, on behalf of the Municipal Light Department of the Town of Belmont, Massachusetts, concerning the reasonableness of Seabrook Unit No. 1 Operating and Maintenance expense.

24. **In re: New Hampshire Electric Cooperative Rate Plan Proposal**, before the New Hampshire Public Utilities Commission, Docket No. DR90-078, on behalf of the New Hampshire Electric Cooperative, concerning contract valuation.

25. **In re: Connecticut Light & Power Company**, before the Connecticut Department of Public Utility Control, Docket No. 90-04-14, on behalf of a group of Qualifying Facilities concerning O&M expenses payable by the QFs.

26. **In re: Duke Power Company**, before the South Carolina Public Service Commission, Docket No. 91-216-E, on behalf of the State of South Carolina Department of Consumer Advocate, concerning System Planning, Rate Design and Nuclear Decommissioning Fund issues.

27. **In re: Jersey Central Power & Light Company**, before the Federal Energy Regulatory Commission, Docket No. ER91-480-000, on behalf of the Boroughs of Butler, Madison, Lavallette, Pemberton and Seaside Heights, concerning the appropriateness of a separate rate class for a large wholesale customer.

28. **In re: Potomac Electric Power Company**, before the Public Service Commission of the District of Columbia, Formal Case No. 912, on behalf of the Staff of the Public Service Commission of the District of Columbia, concerning the Application of PEPCO for an increase in retail rates for the sale of electric energy.

29. **Commonwealth of Pennsylvania, House of Representatives**, General Assembly House Bill No. 2273. Oral testimony before the Committee on Conservation, concerning proposed Electromagnetic Field Exposure Avoidance Act.

30. **In re: Hearings on the 1990 Ontario Hydro Demand\Supply Plan**, before the Ontario Environmental Assessment Board, concerning Ontario Hydro's System Reliability Planning and Transmission Planning.

31. **In re: Maui Electric Company**, Docket No. 7000, before the Public Utilities Commission of the State of Hawaii, on behalf of the Division of Consumer Advocacy, concerning MECO's generation system, fuel and

purchased power expense, depreciation, plant additions and retirements, contributions and advances.

32. **In re: Hawaiian Electric Company, Inc.**, Docket No. 7256, before the Public Utilities Commission of the State of Hawaii, on behalf of the Division of Consumer Advocacy, concerning need for, design of, and routing of proposed transmission facilities.

33. **In re: Commonwealth Edison Company**, Docket No. 94-0065 before the Illinois Commerce Commission on behalf of the City of Chicago, concerning the capacity needed for system reliability.

34. **In re: Commonwealth Edison Company**, Docket No. 93-0216 before the Illinois Commerce Commission on behalf of the Citizens for Responsible Electric Power, concerning the need for proposed 138 kV transmission and substation facilities.

35. **In re: Commonwealth Edison Company**, Docket No. 92-0221 before the Illinois Commerce Commission on behalf of the Friends of Illinois Prairie Path, concerning the need for proposed 138 kV transmission and substation facilities.

36. **In re: Commonwealth Edison Company**, Docket No. 94-0179 before the Illinois Commerce Commission on behalf of the Friends of Sugar Ridge, concerning the need for proposed 138 kV transmission and substation facilities.

37. **In re: Public Service Company of Colorado**, Docket Nos. 95A-531EG and 95I-464E before the Colorado Public Utilities Commission on behalf of the Office of Consumer Counsel, concerning a proposed merger with Southwestern Public Service Company and a proposed performance-based rate-making plan.

38. **In re: South Carolina Electric & Gas Company, Duke Power Company, and Carolina Power & Light Company**, Docket No. 95-1192-E, before the South Carolina Public Service Commission on behalf of the South Carolina Department of Consumer Advocate, concerning avoided cost rates payable to qualifying facilities.

39. **In re: Lawrence A. Baker v. Truckee Donner Public Utility District**, Case No. 55899, before the Superior Court of the State of California on behalf of Truckee Donner Public Utility District, concerning the reasonableness of electric rates.

40. **In re: Black Hills Power & Light Company**, Docket No. OA96-75-000, before the Federal Energy Regulatory Commission on behalf of the City of Gillette, Wyoming, concerning the Black Hills' proposed open access transmission tariff.

41. **In re: Metropolitan Edison Company and Pennsylvania Electric Company** for Approvals of the Restructuring Plan Under Section 2806, Docket Nos. R-00974008 and R-00974009 before the Pennsylvania PUC on behalf of Operating NUG Group, concerning miscellaneous restructuring issues.

42. **In re: New Jersey State Restructuring Proceeding** for consideration of proposals for retail competition under BPU Docket Nos. EX94120585U; E097070457; E097070460; E097070463; E097070466 before the New Jersey BPU on behalf of the New Jersey Division of Ratepayer Advocate, concerning load balancing, third party settlements, and market power.

43. **In re: Arbitration Proceeding In City of Chicago v. Commonwealth Edison** for consideration of claims that franchise agreement has been breached, Proceeding No. 51Y-114-350-96 before an arbitration panel board on behalf of the City of Chicago concerning electric system reliability.

44. **In re: Transalta Utilities Corporation**, Application No. RE 95081 on behalf of the ACD companies, before the Alberta Energy And Utilities Board in reference to the use and value of interruptible capacity.

45. **In re: Consolidated Edison Company,** Docket No. EL99-58-000 on behalf of The Village of Freeport, New York, before FERC in reference to remedies for a breach of contract to provide firm transmission service on a non-discriminatory basis.

46. **In re: ESBI Alberta Ltd.,** Application No. 990005 on behalf of the FIRM Customers, before the Alberta Energy And Utilities Board concerning the reasonableness of the cost of service plus management fee proposed for 1999 and 2000 by the transmission administrator.

47. **In re: South Carolina Electric & Gas Company,** Docket No. 2000-0170-E on behalf of the South Carolina Department of Consumer Affairs before the Public Service Commission of South Carolina concerning an application for a Certificate of Environmental Compatibility and Public Convenience and Necessity for new and repowered generating units at the Urquhart generating station.

48. **In re: BGE,** Case No. 8837 on behalf of the Maryland Office of People's Counsel before the Maryland Public Service Commission concerning proposed electric line extension charges.

49. **In re: PEPCO,** Case No. 8844 on behalf of the Maryland Office of People's Counsel before the Maryland Public Service Commission concerning proposed electric line extension charges.

50. **In re: GenPower Anderson LLC,** Docket No. 2001-78-E on behalf of the South Carolina Department of Consumer Affairs before the Public Service Commission of South Carolina concerning an application for a Certificate of Environmental Compatibility and Public Convenience and Necessity for new generating units at the GenPower Anderson LLC generating station.

51. **In re: Pike County Light & Power Company,** Docket No. P-00011872, on behalf of Pennsylvania Office of Consumer Advocate before the Pennsylvania Public Utility Commission concerning the Pike County request for a retail rate cap exception.

52. **In re: Potomac Electric Power Company and Conectiv,** Case No. 8890, on behalf of the Maryland Office of People's Counsel before the Maryland Public Service Commission concerning the proposed merger of Potomac Electric Power Company and Conectiv.

53. **In re: South Carolina Electric & Gas Company,** Docket No. 2001-420-E on behalf of the South Carolina Department of Consumer Affairs before the Public Service Commission of South Carolina concerning an application for a Certificate of Environmental Compatibility and Public Convenience and Necessity for new generating units at the Jasper County generating station.

54. **In re: Connecticut Light & Power Company,** Docket No. 217 on behalf of the Towns of Bethel, Redding, Weston, and Wilton, Connecticut before

the Connecticut Siting Council concerning an application for a Certificate of Environmental Compatibility and Public Need for a new transmission line facility between Plumtree Substation, Bethel and Norwalk Substation, Norwalk.

55. **In re: The City of Vernon, California,** Docket No. EL02-103 on behalf of the City of Vernon before the Federal Energy Regulatory Commission concerning Vernon's transmission revenue balancing account adjustment reflecting calendar year 2001 transactions.

56. **In re: San Diego Gas & Electric Company et. al.,** Docket No. EL00-95-045 on behalf of the City of Vernon, California before the Federal Energy Regulatory Commission concerning refunds and other monies payable in the California wholesale energy markets.

57. **In re: The City of Vernon, California,** Docket No. EL03-31 on behalf of the City of Vernon before the Federal Energy Regulatory Commission concerning Vernon's transmission revenue balancing account adjustment reflecting 2002 transactions.

58. **In re: Jersey Central Power & Light Company,** Docket Nos. ER02080506, ER02080507, ER02030173, and EO02070417 on behalf of the New Jersey Division of Ratepayer Advocate before the New Jersey Board of Public Utilities concerning reliability issues involved in the approval of an increase in base tariff rates.

59. **In re: Proposed Electric Service Reliability Rules, Standards, and Indices To Ensure Reliable Service by Electric Distribution Companies,** PSC Regulation Docket No. 50, on behalf of the Delaware Public Service Commission Staff before the Delaware Public Service Commission concerning proposed electric service reliability rules, standards and indices.

60. **In re: Central Maine Power Company,** Docket No. 2002-665, on behalf of the Maine Public Advocate and the Town of York before the Maine Public Utilities Commission concerning a Request for Commission Investigation into the New CMP Transmission Line Proposal for Eliot, Kittery, and York.

61. **In re: Metropolitan Edison Company,** Docket No. C-20028394, on behalf of the Pennsylvania Office of Consumer Advocate, before the Pennsylvania

Public Utility Commission concerning the reliability service complaint of Robert Lawrence.

62. **In re: The California Independent System Operator Corporation,** Docket No. ER00-2019 *et al.* on behalf of the City of Vernon, California, before the Federal Energy Regulatory Commission concerning wholesale transmission tariffs, rates and rate structures proposed by the California ISO.

63. **In re: The Narragansett Electric Company,** Docket No. 3564 on behalf of the Rhode Island Department of Attorney General, before the Rhode Island Public Utilities Commission concerning the proposed relocation of the E-183 transmission line.

64. **In re: The City of Vernon, California,** Docket No. EL04-34 on behalf of the City of Vernon before the Federal Energy Regulatory Commission concerning Vernon's transmission revenue balancing account adjustment reflecting 2003 transactions.

65. **In re: Atlantic City Electric Company,** Docket No. ER03020110 on behalf of the New Jersey Division of Ratepayer Advocate before the New Jersey Board of Public Utilities concerning reliability issues involved in the approval of an increase in base tariff rates.

Docket No. 272
EXHIBIT SL-3

CL&P/UI
Docket No. 272

Data Request TOWNS-05
Dated: 03/23/2004
Q- TOWNS-054

Witness: **Roger C. Zaklukiewicz**
Request from: **TOWNS**

Question:
Provide a complete list of the members of the ISO-NE Southwest Connecticut Working Group who participated in the preparation and/or review of the study entitled "Comparison of Middletown to Norwalk Project vs. East Shore Alternative."

Response:
Frank Mezzanotte - ISO-NE (Chairman)

Brent Oberlin - NU
Allen Scarfone - NU
Richard David - UI
Alex Boutsioulis - UI
Rich Pinto - UI
George Bartok - EPRO
Dave Rogers - Consultant (retired)

Docket No. 272
EXHIBIT SL-4

CL&P/UI
Docket No. 272

Data Request D-W-01
Dated: 10/24/2003
Q- D-W-016
Page 1 of 3

Witness: Peter T. Brandien
Request from: Towns of Durham and Wallingford

Question:
Reference page G-18 and Section 4.3.3 of the Application.

a Provide copies of the Documents for the evaluation of incorporating into the loop the existing 345 kV line between Beseck and UI's East Shore Substation in New Haven.
b. Provide copies of the Documents which form the basis for the statement that "in order to meet national and regional reliability standards, a second 345-kV line would have to be built on separate structures on the Beseck to East Shore ROW."
c. Provide copies of the Documents that form the basis for the statement that "the addition of these seven miles of underground construction and its associated capacitive charging power, to a configuration that would already include lengthy underground construction, would be highly undesirable from a reliability and operability point of view."
d. Provide copies of the Documents that form the basis for the statement that "the initial capital cost of a Beseck to East Shore to East Devon 345-kV line would be approximately $100 million more than the cost of a Beseck to East Devon line."

Response:
a) The initial evaluation that resulted in the rejection of the use of the 387 line in a 345-kV loop (see Supplemental Filing dated December 16, 2003, page 12) was based on the preliminary results of a draft ISO-NE study. ISO-NE has not authorized release of the draft.

b) See a) above.

c) See the GE studies attached as exhibits b, c and d of the Companies Supplemental Filing dated December 16, 2003.

d) See the following table of estimated costs below:

Description	Unit Cost	Units	Cost
Underground Line Installation (includes the underwater crossing in vicinity of the Tomlinson Bridge)	$11.0M/mile*	7 Miles	$77,000,000
Transition Switching Stations (includes Breakers, Reactors)	$20,000,000	2	$40,000,000
Switching Station Property Purchases	$500,000/acre	8 Acres	$4,000,000
Net Difference in OH Construction Costs M/N Project / 387 Line Route		N/A	($23,000,000)
Total Incremental Cost Increase			$98,000,000

* 3 - Parallel 345-kV HPFF cables

The source document for this comparison is a memorandum dated September 19, 2003 from Robert J. Charpentier. Some estimates in this memorandum were refined to produce the table.

As indicated in the Supplemental Filing dated December 16, 2003, the companies are currently re-evaluating the alternative of incorporating the existing 345-kV 387 line into the solution for southwest Connecticut. These studies will be provided as soon as they are completed and reviewed by ISO-NE.

Robert J. Charpentier/NUS
SUBSTA ENG+DES
703-6740
09/19/2003 04:01 PM

To: Roger C. Zaklukiewicz/NUS@NU, David W. Forrest/NUS@NU, Aaron L. Goucher/NUS@NU, Anne Bartosewicz/NUS@NU, Peter A. Novak/NUS@NU, Albert W. Cretella III/NUS@NU
cc: Rachel Mosier
bcc:
Subject: Phase 2 - Porpoising

For a hypothetical 10 mile additional section of 345-kV underground HPFF cables installed somewhere between East Devon and Beseck, the estimated installed costs are as follows:

10 mile section of (3) per phase, 2500 kcmil, 345-kV HPFF underground cable	$107 million
(2)Termination substations, each with four breaker ring busses, and three shunt reactors with switching breakers (outdoor bus design - requires 5-6 acres of land)	$17.5 million each
or (alternative)	
(2)Termination substations, each with four breaker ring busses, and three shunt reactors with switching breakers (GIS bus design - requires 2.5-3.5 acres of land)	$20 million each

The estimate for the cable cost is based on the the Phase 1 HPFF cost. The outdoor bus design substation cost and area are based on estimated costs and preliminary layout for Beseck S/S, adjusted for the addition of shunt reactors. The GIS cost is based on a 1.25 multiplier applied to the Beseck S/S cost plus the cost for shunt reactors.

COST SUMMARY - CABLE AND SUBSTATIONS

10 mile triple 345-kV, 2500 kcmil, HPFF with outdoor substations	$142 million
10 mile triple 345-kV, 2500 kcmil, HPFF with GIS substations	$147 million

Witness: **Peter T. Brandien**
Request from: **Towns of Durham and Wallingford**

Question:
Reference the CL&P/UI response to Data Request D-W-01, Question D-W-016(c). Provide specific page and quotation references in the GE studies attached as exhibits b, c and d of the Companies Supplemental Filing dated December 16, 2003 which form the basis for the conclusion that the addition of these "seven miles" of additional underground cable would be highly undesirable from a reliability and operability point of view.

Response:
The reports and analyses in total form the basis for the conclusion that the addition of underground cable is undesirable from a reliability and operability point of view. The reports indicate that the proposed 345-kV cable project would have significant harmonic resonance issues, power quality concerns, and potential challenges for equipment duty.

The Executive Summary (pages E1 thru E3) in the report titled Connecticut Cable Transient and Harmonic Feasibility Study - Final Report dated March 2003 performed by General Electric Power Systems Energy Consulting (Attachment B to the Supplemental Filing made on December 16, 2003) contains a description of the results and GE's conclusion on the impact of the proposed transmission line design on the electric power system.

The Executive Summary (pages E1 thru E3) in the report titled Connecticut Cable Transient and Harmonic Study for Middletown to Norwalk Project East Devon - Beseck 40-mile Cable Option - Final Report dated November 2003 performed by General Electric Power Systems Energy Consulting (Attachment C to the Supplemental Filing made on December 16, 2003) contains a description of the results and GE's conclusion on the impact of the proposed transmission line design on the electric power system.

The Executive Summary (pages E1 thru E3) in the report titled Connecticut Cable Transient and Harmonic Study for Middletown to Norwalk Project East Devon - Beseck 20-mile Cable Option - Final Report dated December 2003 performed by General Electric Power Systems Energy Consulting (Attachment D to the Supplemental Filing made on December 16, 2003) contains a description of the results and GE's conclusion on the impact of the proposed transmission line design on the electric power system.

The Companies concerns with respect to system operability with added underground transmission line segments are not limited soley to the characteristics evaluated in the GE reports. See the Companies Application, Volume 1, Section H - Operability Limitions on pp H-8 and H-9 for a discussion of these issues.