Northeast
Utilities System

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April 18, 2006

Mr. S. Derek Phelps
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: Docket F-06 - Connecticut Siting Council Review of 2006 Forecasts of Electric Loads and Resources

Dear Mr. Phelps:

This letter provides the response to requests for the information listed below.

Response to CSC-01 Interrogatories dated 03/28/2006
CSC-001, 002, 003, 004, 005, 006, 007, 008

Very truly yours,

Janet R. Palmer

Janet R. Palmer
Manager
Regulatory Policy - CT
NUSCO
As Agent for CL&P

JRP/dd
cc: Service List

Service List
Docket F-06

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Witness: Allen W. Scarfone
Request from: Connecticut Siting Council

Question:
On page 3 of the Connecticut Light and Power Company's (CL&P) 2006 Forecast of Electric Loads and Resources (CL&P Forecast), CL&P notes that "The Independent System Operator of New England forecasts that Connecticut will have a generation capacity deficiency of 979 megawatts in 2011- assuming no new plants and no retirement of existing generation." Is this projection based on ISO New England's 90/10 forecast or 50/50 forecast?

Response:
The projection is based on the ISO-NE 90/10 forecast. Please see the ISO-NE Regional System Plan Table 4.8 on page 54.

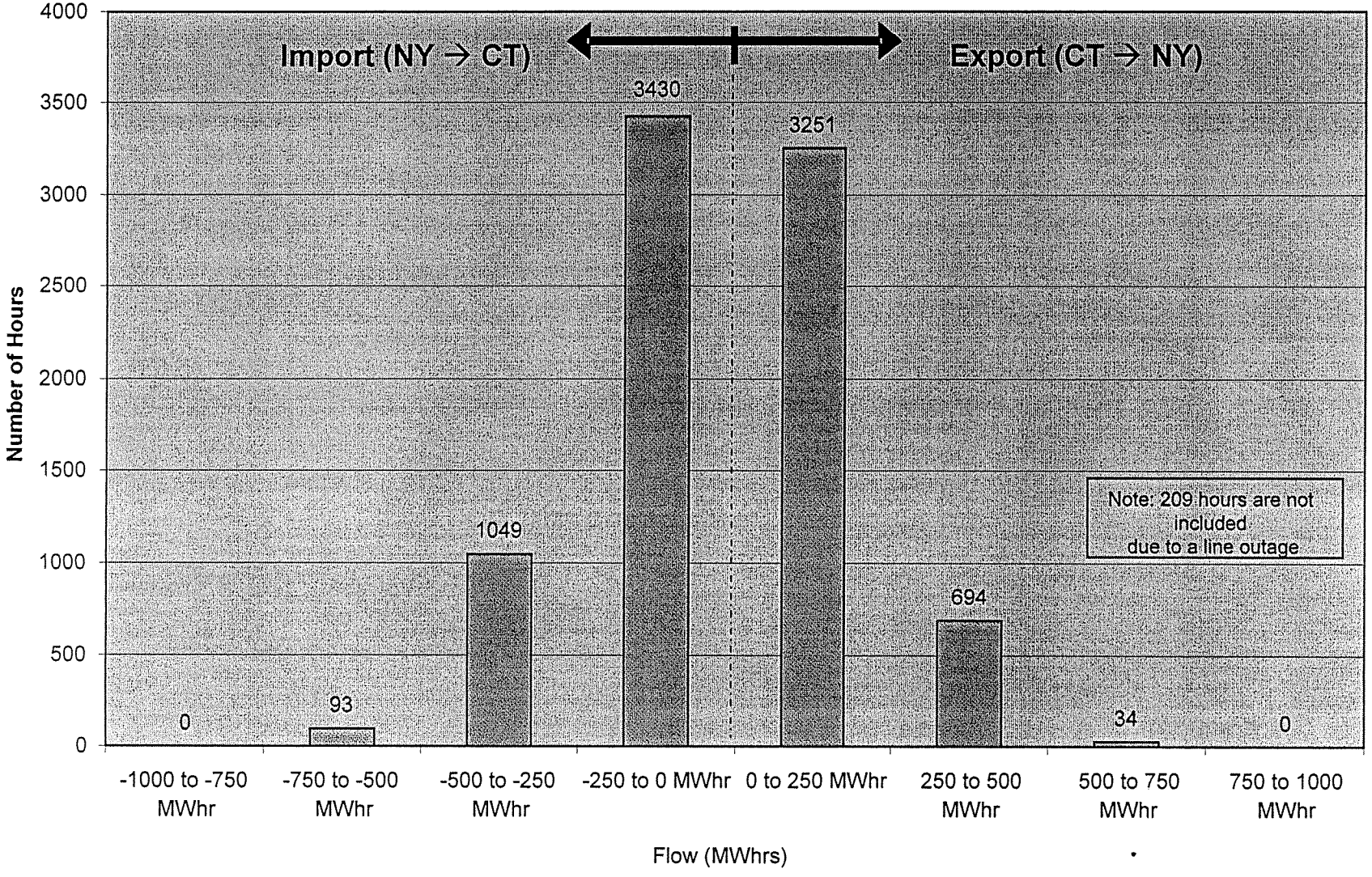
Witness: Allen W. Scarfone
Request from: Connecticut Siting Council

Question:
On page 4 of the CL&P Forecast, item number 6, a drawing shows the flow of electricity through New England's 345-kV transmission system. On the 345-kV line entering western Connecticut from New York state (#398 line), does power typically flow in or out of Connecticut? Or does this change depending on load conditions?

Response:

The New England power grid is a free-flowing network of long-distance, high-voltage transmission lines and substations that carry electricity from generation resources to local utilities for distribution to customers. Power flows over transmission lines are affected by many variables including load levels, generation dispatch, the configuration of the transmission network and inter-regional transfers of bulk power between control areas. The attached chart identifies the number of hours, magnitude, and direction of power flow on the 345-kV Long Mountain (CT) - Pleasant Valley (NY) 398 transmission line for 2005. The chart indicates that in 2005 there was not a predominant flow of power in either direction. Power flows on the 345-kV Long Mountain - Pleasant Valley 398 transmission line were similar in magnitude and duration.

345-kV Long Mountain (CT) - Pleasant Valley (NY) 398 line
(2005 Power Flow Data)



Witness: Richard A. Soderman
Request from: Connecticut Siting Council

Question:
Review the 2005 report titled Connecticut Siting Council Review of the Forecast of Connecticut Electric Loads and Resources, and provide any comments that may be helpful in the preparation of the 2006 report. For example, are there any new topics that CL&P believes should be addressed in the 2006 report that were not covered in the 2005 report?

Response:

CL&P has reviewed the Council's "Ten Year Forecast of Connecticut Electric Loads and Resources 2005-2014" ("Report"). The Company believes the Report is well written and informative on the major topics that affect the generation and transmission of electricity in Connecticut. The Report sufficiently integrates the projected load forecasts of the Electric Distribution Companies and ISO-NE, as well as a summary of the generation fleet located in Connecticut. The Report effectively represents the fuel diversity concern, age of resources and the identification of the need for new generation.

In the event the Council elects to include additional topics in the 2006 Report CL&P is pleased to suggest the following five topics for consideration:

1) Locational Installed Capacity Market Settlement
2) FERC's establishment of an Electric Reliability Organization
3) Transmission cost allocations in New England
4) Record-high energy prices in New England
5) National discussion on transmission expansion

The Company would be pleased to provide additional information on these topics or address them at the upcoming Council hearing.

Witness: Charles R. Goodwin
Request from: Connecticut Siting Council

Question:
Compare and discuss the historical 10-year change to the ten-year forecast for both the system requirements and peaks.

Response:
In the forecast that the Company developed in 1996, the ten-year forecasted growth rates on summer peak load and system requirements were both about 1%. For several years after that, the forecasted growth rates were very similar, with peak growth following requirements, both fluctuating around 1%. In the 2004 and 2005 forecasts, however, the ten-year energy growth rate was increased to about 1.5% because of the tendency towards larger homes and more electronic equipment, and the summer peak growth rate was increased to about 2%, largely due to increasing saturations of air conditioning. Air conditioning plays a significant role in customer peak demands for electricity and will continue to expand and stress the existing infrastructure to meet its demands. In 2005, customers reacted to higher electric prices by reducing their monthly usage, yet peak load grew by over 5% on a weather normalized basis. The Company is reevaluating its peak forecasting methodology in order to better reflect peak growth that is higher than energy growth.

Witness: Allen W. Scarfone
Request from: Connecticut Siting Council

Question:
List the technologies that Connecticut Light & Power has in place to monitor and communicate voltage fluctuations? Identify transmission system conditions and actions to maintain and protect the grid and customers.

Response:
CL&P has the following technologies in place to monitor and communicate voltage fluctuations:

- Voltages throughout the transmission system are measured by potential transformers and capacitively coupled voltage transformers at substations. The measured voltages are communicated to CONVEX system operators via a Supervisory Control and Data Acquisition (SCADA) System. The SCADA technology uses Remote Terminal Units (RTUs) at substations to collect the data and to communicate the data via dedicated communication links (usually fiber optic and/or microwave channels) to the CONVEX Energy Management System computers. The SCADA system software automatically alarms the CONVEX operators if the voltage at any measurement location has fluctuated above or below pre-set limits.

- Digital Fault Recorders (DFRs) are also installed at selected CL&P substations throughout Connecticut. These devices store a graphical record of the three-phase currents and voltages immediately before, during and after a disturbance or an abnormal voltage fluctuation. DFRs record and plot the magnitudes of the voltages and currents on a millisecond time scale. The Company uses this data to analyze system performance and to ensure reliability of protection systems. Protection systems will be modified if their operating characteristics are ever found to be inadequate to ensure system security.

There are two types of voltage fluctuations; transient and steady state. Transient fluctuations last for fractions of a second. Due to their short duration, the CONVEX operator must configure the system prior to this type of disturbance in order to ensure system security. As a Local Control Center of ISO-NE, CONVEX is charged with the responsibility of dispatching reactive resources (e.g., substation capacitor banks, STATCOMs, and generator reactive output). CONVEX operators energize or de-energize substation capacitor banks to maintain reactive reserve on generators, so that the amount of compensation generators can provide to the system during and immediately following a contingency is maximized.

CONVEX monitors a majority of the substations with voltages of 69 kV or greater in Connecticut and Western Massachusetts. Seasonal and real-time power-flow analyses provide the CONVEX operators with information about the potential contingencies that could have an adverse impact to the reliability of the transmission grid. The CONVEX operators can control static (switching capacitor banks and adjusting load tap-changing transformers) and dynamic sources (generators, DVARS, STATCOMs) to provide the necessary voltage support to maintain system security. Normally, dynamic reactive power sources function automatically to regulate system voltage within acceptable bandwidths.

In conjunction with ISO-NE, CONVEX ensures that the generation dispatch is sufficient to keep actual power transfers into the state of Connecticut, and into constrained areas within Connecticut and Western Massachusetts, below the transfer limit so as to avoid unacceptable voltage fluctuations following the failure of the most limiting element(s) of the system.

Witness: Charles R. Goodwin
Request from: Connecticut Siting Council

Question:
In Table 1-1 of the CL&P Forecast, approximately what is the probability of the summer extreme weather peak being exceeded in a given year?

Response:
The extreme weather peaks are based on the temperatures that have occurred on the hottest and coolest peak days since 1950. Because these extremes are the greatest in roughly the last 50 years, there is approximately a 1 in 50 chance that we will experience more extreme summer or winter peak temperatures. With a roughly 1 in 50 chance, the probability of these extreme weather assumptions being exceeded is about 2%. Note that this probability relates to only the weather risk and does not address the probability of load growth or other economic factors producing more extreme peaks.

Witness: Joseph R. Swift
Request from: Connecticut Siting Council

Question:
Describe any new and/or innovative Conservation and Load Management energy savings measures that CL&P has put into use or is considering.

Response:
The Connecticut Light and Power Company's (CL&P) Conservation and Load Management (C&LM) department continues to focus its short- and long-term efforts and budgets, on programs that provide cost effective capacity and energy savings to Connecticut's energy consumers. C&LM department staff constantly evaluate conservation programs and, where appropriate, create new and innovative programs for customers, update program processes, and market programs via new conduits to deliver more effective energy-saving programs and measures.

CL&P works on a continuous basis with the Energy Conservation Management Board (ECMB), which was established by legislation to advise and assist the utilities in the development and implementation of C&LM programs and initiatives. Members of the ECMB include representatives of the Office of Consumer Counsel, Attorney General, Connecticut Business and Industry Association, Department of Environmental Protection, CL&P, UI and other organizations. The ECMB retains energy-efficiency industry experts as consultants who work with theECMB and the utilities in the development of new program initiatives. The ECMB also utilizes a process to ensure that ideas and proposals from members of the public can be brought forward and considered. C&LM Department staff maintains membership in various regional and national industry organizations and regularly participate in energy-efficiency seminars and conferences where new and innovative programs are discussed.

CL&P's recent new or innovative energy-saving measures include:

Energy Opportunities Program

In late 2005, CL&P's C&LM department reviewed the operations and performance of its commercial and industrial (C&I) programs and determined that CL&P needed to maximize C&LM's retrofit programs' impacts to effectively serve more Connecticut business customers. This resulted in the elimination of several retrofit programs: Custom Services, Express Lighting, Municipal Buildings and C&I Request for Proposals. Energy-saving measures from each of these programs were selected to create one retrofit program–the Energy Opportunities (EO) program. The merger of the four retrofit programs under the EO program umbrella has systematically simplified program delivery, maximized cost-effectiveness, and minimized customer confusion regarding the prior plethora of retrofit programs. C&LM management's decision to streamline the program benefits customers by giving them one program to serve all their retrofit needs. C&LM staff and CL&P-qualified vendors also benefit through C&LM management's streamlining of program implementation. Synergizing all retrofit programs under one program has eliminated redundancies in program staff and tracking methods/systems. It has also reduced C&LM's marketing efforts and overall management oversight of retrofit programs. The elimination of these redundancies ensures that Connecticut's C&I customers receive energy-efficiency retrofit services in a cost-effective manner. Reducing duplicative capital and labor costs allows the EO program to deliver more energy-efficient retrofit services to C&I customers.

DuctWorks Program

Starting April 1, 2006, CL&P initiated its DuctWorks program–a home performance program aimed at sealing duct systems in thousands of Connecticut homes. Air leaking from, or into, ducts can create enormous energy losses in homes, especially when ducts are located in unconditioned spaces, such as basements and attics. To be eligible for the program, participants must be a CL&P electric customer and their homes must have central air conditioning or heat pumps.

CL&P has hired three DuctWorks vendors to perform the energy-saving measures: Competitive Resources, Inc., Steve Winters & Associates and Pro Chek Home Inspection Services. Technicians from these firms will visit CL&P customers' homes and perform duct blaster tests on their systems to measure air leakage. The technicians will then seal accessible sections of the duct system (mostly in attics and basements) and test to measure the improvement. These measures will help the customer prevent thermal loss and energy inefficiencies. In addition, technicians will also install efficient, compact fluorescent lighting inside and outside the home.

These measures are available to CL&P customers with central air conditioning at no cost to the customer. Funding for the program comes from the Connecticut Energy Efficiency Fund.

Residential Direct Load Control Program

In response to Order No. 8 of the Department of Public Utility Control's decision dated December 28, 2005, in Docket No. 05-07-14 PH01, CL&P and The United Illuminating Company (UI) have submitted a detailed plan to offer a Direct Load Control (DLC) program to residential and small commercial and industrial customers.

The objective of the joint utility DLC program is to decrease the summer peak kilowatt (kW) load in Connecticut, particularly in the Southwest Connecticut 53-town portion of the state over a five-year deployment. In September 2006, CL&P and UI will be promoting and enrolling residents and small commercial and industrial businesses in the DLC program. This peak load reduction will be realized by installing a DLC set-back thermostat or DLC switch to curtail load at customers' businesses or residences.

The DLC program plan is currently being reviewed by the Connecticut Department of Public Utility Control. Final energy-saving measures and customer incentives are yet to be determined.

Museum Partnership Program

In 2004, CL&P management and program staff determined that program changes to its SmartLiving Center program were necessary in order to reach a broader audience of Connecticut's energy customers. As a result, CL&P initiated a new education center program in late 2004–the Museum Partnership program.

The Museum Partnership program facilitates collaborations with key educational museums, science centers and other high-traffic public venues throughout Connecticut to deliver energy-efficiency program information. This information is delivered through workshops, children activities and exhibits with emphasis on broad C&LM program offerings. In October 2005, three educational displays were installed at the Stepping Stones Museum for Children in Norwalk (SSMC). The SSMC and CL&P worked to develop three permanent energy-efficiency stations which include: a *Connect It! Conserve It!* exhibit where children construct electrical circuits; a *What's Your Wattage?* exhibit that allows visitors to compare the energy consumption of incandescent versus compact fluorescent (energy-efficient) light bulbs; and *Gallery Explorations*–a hands-on tour that leads children through various demonstrations regarding energy and its conservation.

Witness: Allen W. Scarfone
Request from: Connecticut Siting Council

Question:
Were the modifications to the Sasco Creek Substation (Petition No. 760) identified in the CL&P forecast? When would this upgrade be needed to meet CL&P's needs?

Response:

No. CL&P's proposed temporary modifications to the Connecticut DOT's Sasco Creek Railroad Substation, which the Council approved under CL&P's Petition No. 760, were for temporary equipment additions within an existing substation facility. These temporary facilities are needed before the summer of 2006.

These temporary equipment additions are similar to the existing equipment within this substation, and very similar to temporary equipment additions which the Council approved in 1996 under CL&P's Petition No. 346 when similar circumstances existed in Westport, CT.

CL&P did omit to include in its forecast a projected need for a new bulk distribution substation in Westport that could be sited near to the DOT's substation. A new bulk substation is needed in Westport, and CL&P forecasts that it will propose to site and build this new substation for an in-service date as soon as 2009.