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May 11, 2012

Ms. Linda Roberts
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: Docket No. F-2012/2013 - Connecticut Siting Council Review of the Ten-Year Forecast of Connecticut Electric Loads and Resources

Dear Ms. Roberts:

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

Response to CSC-01 Interrogatories dated 04/05/2012
CSC-001, 002, 003, 004, 005, 006, 007, 008, 009

Very truly yours,

Christopher R. Bernard
Manager
Regulatory Policy - Transmission
NUSCO
As Agent for CL&P

cc: Service List

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

Question:
Provide the actual and weather-normalized annual peak historical loads for The Connecticut Light and Power Company's (CL&P) service area for 2002 through 2011.

Response:
The table below shows the actual and weather-normalized annual historical peaks, in MW, for CL&P for 2002 - 2011.

Year	Actual (MW)	Normalized (MW)
2002	5,183	4,988
2003	4,980	5,093
2004	4,818	5,056
2005	5,402	5,277
2006	5,512	5,084
2007	5,209	5,209
2008	5,289	5,184
2009	4,873	4,935
2010	5,345	4,994
2011	5,516	5,279

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

Question:
As a comparison, provide the predicted weather-normalized (i.e. 50/50) loads for 2002 through 2011 from the 2002 CL&P forecast report.

Response:
The table below shows the forecasted weather-normalized (i.e., 50/50) annual peaks, in MW, for CL&P for 2002 - 2011 as shown in CL&P's "2002 Forecast of Loads and Resources for 2002 - 2011".

Year	Peak Normalized (MW)
2002	4,988
2003	5,093
2004	5,056
2005	5,277
2006	5,084
2007	5,209
2008	5,184
2009	4,935
2010	4,994
2011	5,279

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

Question:
Explain the methodology of how historical actual peak load data is converted to weather-normalized historical peak load data.

Response:
Historical actual peak load data is converted to weather-normalized peaks by multiplying weather factors (developed from an historical analysis of MW load per degree day), times the difference between actual and normal temperatures, and adding or subtracting this product to or from the historic peak to yield the estimated normalized peak load.

Temperature differences from normal are calculated for three weather variables: mean daily temperature for the peak day, mean daily temperature for the day before the peak day and a THI (Temperature Humidity Index).

An example of the calculation for 2006 is show below:

		Weather Variables Temperature (Normal - Actual)			Weather Factor MW/Degree * Factor
Actual Peak	5,512 MW				
Peak Day	-190 MW	=(83	-	88)	* 38
Day Before	-124 MW	=(81	-	87)	* 20.6
THI	-114 MW	=(83	-	86)	* 37.9
Normalized	5,084 MW				

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

Question:
On page 5 of the 2012 CL&P Forecast, CL&P notes that, "This forecast includes explicit additions to the electrical energy output requirements due to electric vehicles." Provide any assumptions made regarding electrical energy consumption by electric vehicles.

Response:
The table below shows the forecasted annual energy consumption by electric vehicles. This load represents approximately an annual increase of 4,300 plug in electric vehicles per year.

Year	GWh
2012	16
2013	33
2014	49
2015	65
2016	81
2017	98
2018	114
2019	130
2020	146
2021	163

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

Question:
On page 8 of the 2012 CL&P Forecast, there are no gigawatt-hours (GWh) reported from ISO-NE's Load Response Program (ISOLRP). Is this because the limited number of hours that the ISOLRP is in use results in a negligible energy savings?

Response:
Yes. In the forecast, CL&P assumed that customers who are in the ISOLRP will only be called to curtail load a few times each year so the impact on energy output is minimal.

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

Question:
On page 8 of the CL&P Forecast, the Net Electrical Energy Output Requirements are listed. Are these based on the 50/50 forecast scenario? If yes, provide a similar table based on the Extreme Hot Weather Scenario.

Response:
Yes, the Net Electrical Energy Output Requirements ("Energy") are based on the 50/50 forecast. The Extreme Hot Weather Scenario is based on the single hottest peak day that has occurred during the more than 50 years that CL&P has been collecting weather data. CL&P does not currently have an Extreme Hot Weather Scenario for Energy. To construct one, a definition of extreme hot weather, as it pertains to Energy, would have to be determined. There are at least three ways that this could be defined:

1) Choose the hottest day from historical data for each individual day in the summer.
2) Choose the hottest month from historical data for each individual month in the summer.
3) Choose the hottest summer season from historical data.

While Option 1 would produce the highest energy forecast, it has virtually no probability of occurrence, and would be the most difficult to compute. Thus, Option 1 has not been computed. Option 2 would be somewhat more likely to occur (but still highly unlikely), and would produce a lower energy forecast than Option1. Option 3 would be the most likely to occur and would produce the lowest energy forecast of the three options. Page 2 of 2 shows the results for Options 2 and 3.

Adjustments to Output based on Extreme Hot Weather Scenarios

Option 3 - Hottest Summer Season

Year	Unadjusted Output GWH	Distributed Generation GWH	Company Sponsored C&LM GWH	ISO-NE Load Response GWH	Adjusted Output GWH	Annual Change (%)
HISTORY NORMALIZED FOR WEATHER						
2011					23,281	
FORECAST						
2012	24,772	(581)	(64)	-	24,128	3.6%
2013	25,049	(590)	(252)	-	24,208	0.3%
2014	25,484	(597)	(432)	-	24,455	1.0%
2015	25,866	(597)	(607)	-	24,661	0.8%
2016	26,285	(598)	(779)	-	24,908	1.0%
2017	26,491	(597)	(948)	-	24,946	0.2%
2018	26,738	(597)	(1,113)	-	25,028	0.3%
2019	26,964	(597)	(1,275)	-	25,092	0.3%
2020	27,194	(597)	(1,435)	-	25,162	0.3%
2021	27,305	(597)	(1,593)	-	25,115	-0.2%
Compound Rates of Growth (2011-2021)						
	1.6%				0.8%	

Option 2 - Hottest Month for Each Month of the Summer

Year	Unadjusted Output GWH	Distributed Generation GWH	Company Sponsored C&LM GWH	ISO-NE Load Response GWH	Adjusted Output GWH	Annual Change (%)
HISTORY NORMALIZED FOR WEATHER						
2011					23,281	
FORECAST						
2012	25,722	(581)	(64)	-	25,077	7.7%
2013	25,903	(590)	(252)	-	25,062	-0.1%
2014	26,378	(597)	(432)	-	25,349	1.1%
2015	26,796	(597)	(607)	-	25,592	1.0%
2016	27,249	(598)	(779)	-	25,872	1.1%
2017	27,486	(597)	(948)	-	25,942	0.3%
2018	27,763	(597)	(1,113)	-	26,053	0.4%
2019	28,018	(597)	(1,275)	-	26,146	0.4%
2020	28,277	(597)	(1,435)	-	26,245	0.4%
2021	28,415	(597)	(1,593)	-	26,225	-0.1%
Compound Rates of Growth (2011-2021)						
	2.0%				1.2%	

1. Sales plus losses and company use.

Witness: David A. Ferrante
Request from: Connecticut Siting Council

Question:
Provide the basic underlying assumptions associated with the distributed generation (DG) included in Table 2-2 of the 2012 CL&P Forecast, including but not limited to the DG projects approved, number of megawatts of each DG project, the number of units expected to go into service or the assumed probability that they will go into service, etc.

Response:
Distributed Generation ("DG") projects listed in Table 2-2 are developed in accordance with Public Act 05-01, *An Act Concerning Energy Independence* ("PA 05-01"). The forecast in Table 2-2 is comprised of 1) presently commercial DG projects forecast at 100% of their MW capacity and 2) not-yet-commercial DG projects forecast at less than 100% of their MW capacity, because their estimated in-service dates were further into the forecast period. There are 59 projects in the first group totaling 101.593 MWs, which are shown on pages 2 and 3. There are 28 projects in the second group in varying degrees of development that account for an additional 9.994 MWs of DG capacity and are shown on page 4.

The Kimberly Clark DG unit has a capacity higher than the current peak demand of the Kimberly Clark facility. The peak load forecast presented in CL&P's FLR represents the peak load demand of its own customers. Thus, the DG forecast presented in Table 2-2 of the CL&P Forecast excludes Kimberly Clark DG generation in excess of its own needs which is sold into the New England energy market.

The DG that is presented in Table 2-2 reflects the projected load reduction at the time of the system peak, and thus, is lower than the sum of the non coincident probability weighted capacity of the projects shown on pages 2 - 4.

Projects forecast at 100% in-service	
Project Name	MW
Avon Convalescent Home, Inc	0.074
Biopur Inc.	0.225
Bradley Home- Cogen	0.074
Branford High School	0.240
Cabela's Retail Inc.	0.800
Cellu-Tissue	2.920
Central CT Coast YMCA (Soundview Family)	0.060
City of Danbury - High School	0.072
City Of Middletown - New High School	0.200
Component Technologies, Inc	0.295
Connecticut Natural Gas	0.072
Ct Center For Science & Exploration	0.200
Ct Department Of Transportation Aviation And Ports	1.222
Danbury Hospital	4.117
Duncaster Inc (1)	0.148
Duncaster Inc (2)	0.148
Duncaster Inc (3) Aquatic Center	0.074
East Hartford Public Schools	0.240
Elim Park Baptist Home Inc.	0.074
Executive Square (Winn Properties)	0.074
Flanagan Industries (1)	0.640
Flanagan Industries (2)	0.157
Frito Lay Inc	3.772
Greater Hartford Jewish Community Center	0.150
Greenwich Hospital	0.280
Hartford Steam Company	3.510
Hebrew Home & Hospital	0.150
Hughes Health and Rehabilitation	0.075
International Skating Center Of Conn LLC	0.134
Jerome Home	0.074
Kimberly Clark	33.485
King's Daughters & Sons Hsg (Kingsway Apts)	0.075
Mashantucket MPTN Foxwoods	15.000
Mashantucket Pequot Tribal Center	0.074
Northwestern Connecticut YMCA	0.049
Norwalk High School (City Of Norwalk)	0.250
Pepperidge Farm (1)	1.198
Plainville Electric Products Co. (Pepco) 1	0.375
Pratt & Whitney (UTC) (1)	7.520
Pratt & Whitney (UTC) (3)	2.100
Pratt & Whitney (UTC) (4)	0.800
Rand Whitney	14.200
Saint Mary Home	0.075
Sheffield Laboratories (1)	0.250
Sheffield Laboratories (2)	0.325

Projects forecast at 100% in-service	
Project Name	MW
Smithfield Gardens (Sha Corp)	0.074
Southington Care Center	0.074
Southington-Cheshire Community YMCA	0.074
The Stop & Shop Supermarket Company, LLC	0.400
Town Of Mansfield (Community Ctr)	0.100
Town Of Mansfield (Middle School)	0.075
United Technologies - CSC Data Center	1.170
UTC Fuel Cells	0.400
Wesleyan University	2.366
West Hartford Health & Rehabilitation (Brookview Corp)	0.074
Westover School	0.068
Whole Foods Market	0.200
Windham Community Memorial Hospital	0.325
Windham Public Schools (High School)	0.148
Total MW's	101.593

Projects forecast at <100%			
Project Number	Estimated in-service	Probability	Estimated MW
1	Dec-11	90%	0.068
2	Mar-11	90%	0.360
3	Dec-11	80%	0.208
4	Apr-12	80%	0.052
5	Sep-10	80%	4.152
6	Jul-10	80%	0.048
7	Dec-11	80%	0.060
8	Mar-12	50%	0.940
9	Apr-12	50%	0.038
10	Mar-12	50%	0.200
11	Jun-10	50%	0.038
12	Feb-12	50%	0.038
13	Feb-12	50%	0.038
14	Aug-11	50%	0.200
15	Mar-12	50%	0.038
16	Feb-12	40%	0.034
17	Feb-12	30%	0.023
18	Mar-12	25%	0.075
19	Apr-12	25%	0.350
20	Jun-12	25%	0.451
21	Dec-12	25%	0.600
22	Oct-12	10%	1.420
23	Apr-12	10%	0.080
24	Apr-12	10%	0.008
25	Apr-12	10%	0.200
26	Oct-12	10%	0.107
27	Dec-12	10%	0.040
28	Jun-13	6%	0.132
Total Estimated MW's			9.994

Witness: David J. Bebrin
Request from: Connecticut Siting Council

Question:
In the context of the Conservation and Load Management Program (C&LM Program), explain the difference between passive and active resources.

Response:
Active resources are dispatchable resources (demand response and some distributed generation) that respond during specific shortage events. For example, resources entered into the ISO Demand Response Program are active resources because they may be called to perform during shortage events.

Passive resources are non-dispatchable resources (energy efficiency, plus a small amount of distributed generation) that reduce load whenever those resources are in operation. For example, energy efficient lighting will reduce load for many hours throughout the year based on the usage pattern for that technology.

Witness: David J. Bebrin
Request from: Connecticut Siting Council

Question:
Is CL&P's C&LM Program limited to passive resources?

Response:
No. CL&P's C&LM programs have both "passive" and "active" resources. C&LM's Energy Efficiency resources are defined as passive. CL&P's C&LM Demand Response Resources (Real Time Emergency Generation and Real Time Demand Response) are defined as active.