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January 10, 2012

Mr. Robert Stein
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: Docket No. LIFE-CYCLE 2011 - LIFE-CYCLE 2011

Dear Mr. Stein:

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

Response to CSC-03 Interrogatories dated 12/14/2011
CSC-001, 002, 003, 004

Response to HD-01 Late Filed Exhibits dated 11/29/2011
LF-001, 002, 003, 004

Very truly yours,

John Morissette /tr

John Morissette
Manager
Transmission siting and Permitting
NUSCO
As Agent for CL&P

cc: Service List

Witness: Anthony W. Johnson III
Request from: Connecticut Siting Council

Question:
To the extent possible, provide The Connecticut Light and Power Company's (CL&P) transmission line vegetation management costs for the years 2004 through 2010. Explain the reason for any sharp increases from one year to the next.

Response:
As shown in the attached table on page 2 of 2, CL&P's annual transmission line vegetation management costs increased several times during the past ten years. From 2003 - 2004, costs increased due to CL&P's initiation of a 10-year side trimming program in 2004. From 2004 - 2005, CL&P's costs increased due to increasing costs for scheduled brush maintenance work under the established 4-year cycle and a focus on hazard tree removals. Costs increased from 2006 - 2008 due to the issuance of federal regulatory requirements for transmission vegetation programs. These requirements resulted in increased tree removals (cedars) within the transmission rights-of-way and off-right-of-way removals of hazard trees adjacent to selected lines in 2007, with a further increase in 2008 removals and continuing at the 2008 level thereafter. Also, CL&P obtained LiDAR surveys of transmission rights-of-way vegetation conditions in 2008 and again in 2011, which added costs in those two years.

CL&P Transmission Vegetation Management
Expenditures - 2002 - 2011

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Expenditures *(Thousands of Dollars)*	$1,339	$1,230	$1,569	$1,733	$1,776	$2,360	$2,724	$2,684	$2,745	$3,055

Witness: Raymond L. Gagnon
Request from: Connecticut Siting Council

Question:
This question refers to CL&P's previous response to question CSC-002 of Set One. Provide a breakdown of capital costs for the same CL&P overhead transmission line first costs according to the following categories:

- Poles / Foundations
- Cable/Hardware
- Site Work
- Construction Management
- Engineering
- Sales Tax
- Project Management

Response:
CL&P's response to CSC-01, Q-CSC-002 reformatted to use the requested breakdown of costs per mile is as follows:

	Wood 115-kV Single Circuit typically wood h-frame	Steel 115-kV Single Circuit typically monopole	Wood 345-kV Single Circuit typically wood h-frame	Steel 345-kV Single Circuit typically monopole
Poles/Foundations	$615,350	$1,457,321	$1,356,200	$2,818,800
Cable/Hardware	$777,600	$838,874	$1,473,100	$1,810,400
Site Work	$961,450	$1,476,882	$1,448,250	$1,695,300
Construction Management	$135,500	$136,536	$136,150	$147,350
Engineering	$321,000	$455,682	$502,750	$701,550
Sales Tax	$39,400	$44,452	$49,900	$94,500
Project Management	$465,100	$461,253	$454,850	$446,900
Total Cost/Mile	$3,315,400	$4,871,000	$5,421,200	$7,714,800

While CL&P's current standard is to use wood, wood laminate, or tubular steel structures, there may be situations in which a steel lattice structure is appropriate.

Notes:

1. Costs may vary significantly due to adverse soil conditions such as rock, water, and/or contaminated soil.
2. All costs are in 2011 dollars.
3. Estimates based on Northeast Utilities Transmission's Estimate Database and actual costs for recently completed work.
4. No land costs are included in the above costs due to high variability in property acquisition costs.
5. No substation improvements are included in the above unit costs.
6. Typical conductor size is 1272-kcmil ACSS for 115-kV.
7. Typical conductor size is 2 bundle 1590-kcmil ACSS for 345-kV.
8. Estimates assume 10 structures per mile, including eight tangents, one angle and one dead-end.

Witness: Raymond L. Gagnon
Request from: Connecticut Siting Council

Question:
This question refers to CL&P's previous response to question CSC-003 of Set One. Provide a breakdown of capital costs for the same CL&P overhead transmission line first costs according to the following categories:

- Poles / Foundations
- Cable/Hardware
- Site Work
- Construction Management
- Engineering
- Sales Tax
- Project Management

Response:
The response provided to CSC-01, Q-CSC-003 has been reformatted to use the requested cost categories and the reformatted version is provided below:

	Steel 115-kV Double Circuit typically monopole
Poles/foundations	$2,312,107
Cable/hardware	$1,586,986
Site Work	$1,572,621
Construction management	$147,947
Engineering	$624,522
Sales Tax	$62,449
Project Management	$454,767
Totals	$6,761,399

CL&P does not have recent data for double-circuit 345-kV lines. Because the loss of both circuits on a double-circuit line due to a common cause (e.g., structure failure) is considered a single contingency event in system reliability planning, CL&P expects less use of 115-kV double-circuit transmission lines in the future.

No cost estimates are provided for 345-kV double-circuit transmission lines because the loss of two 345-kV transmission circuits for a single contingency typically has too great an impact on system reliability.

Notes:

1. Costs may vary significantly due to adverse soil conditions such as rock, water, and/or contaminated soil.
2. All costs are in 2011 dollars.
3. Estimates based on Northeast Utilities Transmission's Estimate Database and actual costs for recently completed work.
4. No land costs are included in the above costs due to high variability in property acquisition costs.
5. No substation improvements are included in the above unit costs.
6. Typical conductor size is 1272-kcmil ACSS.
7. Estimates assume 10 structures per mile, including eight tangents, one angle and one dead-end.

Witness: Raymond L. Gagnon
Request from: Connecticut Siting Council

Question:
This question refers to CL&P's previous response to question CSC-004 of Set One. Provide a breakdown of CL&P underground transmission line first costs according to the following categories: · Ducts / Vaults

- Cable/Hardware
- Site Work
- Construction Management
- Engineering
- Sales Tax
- Project Management

Response:
The response provided to CSC-01, Q-CSC-004 has been reformatted to use the requested cost categories and the reformatted version is provided below:

	115-kV single circuit XLPEt	115-kV double circuit XLPE	345-kV single circuit XLPE	345-kV double circuit XLPE
Duct & Vault	$6,009,792	$9,242,496	$7,030,624	$10,816,640
Cable & Hardware	$6,573,210	$10,108,980	$7,689,745	$11,830,700
Site Work	$3,004,896	$4,621,248	$3,515,312	$5,408,320
Construction Management	$375,612	$577,656	$439,414	$676,040
Engineering	$1,878,060	$2,888,280	$2,197,070	$3,380,200
Sales Tax	$187,806	$288,828	$219,707	$338,020
Project Management	$751,224	$1,155,312	$878,828	$1,352,080
Cost per mile	$18,780,600	$28,882,800	$21,970,700	$33,802,000

	115-kV single circuit HPFF	345-kV single circuit HPFF	345-kV double circuit HPFF
Duct & Vault	$5,314,590	$5,905,100	$9,084,770
Cable & Hardware	$4,566,056	$5,073,396	$7,805,225
Site Work	$2,694,722	$2,994,135	$4,606,362
Construction Management	$299,414	$332,682	$511,818
Engineering	$1,497,068	$1,663,409	$2,559,090
Sales Tax	$149,707	$166,341	$255,909
Project Management	$449,120	$499,023	$767,727
Cost per mile	$14,970,677	$16,634,085	$25,590,900

Notes:

1. Costs may vary significantly due to adverse soil conditions such as rock, water, and/or contaminated soil.
2. All costs are in 2011 dollars.
3. Estimates based on Northeast Utilities Transmission's Estimate Database and actual costs for recently completed work.
4. No land costs are included in the above costs due to high variability in property acquisition costs.
5. No substation improvements or overhead to underground transition stations are included in the above unit costs.
6. All underground cable construction costs exclude reactors.
7. Since it is usually necessary at 345 kV to use two (or more) parallel cable sets to provide ampacities similar to that provided by one overhead line, the 345-kV XLPE and HPFF double-circuit costs should be compared to single 345-kV overhead circuit costs.
8. Assumed conductor size for 115-kV XLPE cables is 3000 kcmil.
9. Assumed conductor size for 345-kV XLPE cables is 3000 kcmil.
10. Assumed conductor size for HPFF cables is 2500 kcmil.
11. HPFF underground lines require pressurization plants at each end of the line, the cost of these pressurization plants is approximately $2,000,000 and has not been included in the above cost estimates.
12. The 345-kV cable systems have high charging currents which for typical circuit lengths will require compensation by shunt reactors. These shunt reactors would be located at the terminal substations of an underground 345-kV circuit, or at line transition stations built specifically for transitions between overhead and underground segments of a 345-kV circuit. The initial and ongoing costs of these shunt reactors and associated equipment is not included in the above estimates for 345-kV cable lines.

Witness: Raymond L. Gagnon
Request from: Connecticut Siting Council

Question:
Please provide the basis for CL&P's 40-year depreciation life for transmission facilities. When was the last depreciation study completed? Please confirm that the 40-year depreciation life is used to calculate book depreciation, and not tax depreciation.

Response:
The basis for CL&Ps depreciation life for transmission plant is the last depreciation study. The average service life noted for each plant account in the table below is both the average expected life of the plant and the average book depreciation life. The capital Federal Energy Regulatory Commission (FERC) account categories for transmission plant are shown below with the associated average depreciation life.

The most recent Depreciation Study for CL&P was based upon assets at year end 1995. This study was updated by a Capital Recovery Calculation study (CRC) that was based upon asset values at year end 1997. The CRC was filed with the FERC on August 26, 2003 in Docket ER03-1247 in NUSCO's Open Access Transmission Tariff filing, which was accepted on October 22, 2003. The CRC is still in effect for transmission assets included in CL&P's transmission formula rate tariff.

Account	Transmission Plant	Average Depreciation Life (Yrs)
350.0	Land	Indefinite
350.0	Land Rights	65
352.0	Structures and Improvements	45
353.0	Station Equipment	41.2
354.0	Towers and Fixtures	51.3
355.0	Poles and Fixtures	38
356.0	OH Conductor and Devices	42
357.0	UG Conduit	45.8
358.0	UG Conductor and Devices	39.2
398.73	Communication Equipment	43

Witness: Raymond L. Gagnon
Request from: Connecticut Siting Council

Question:
What carrying charge rates is CL&P using?

Response:

CL&P assumes that the carrying charge rate sought in the question above is the "Capital Recovery Factor (Fixed Charge Rate)" as defined on page 44 of the CSC 2007 Life Cycle Report. Based on information CL&P filed with FERC in the 2010 FERC Form 1, the Capital Recovery Factor is calculated to be 14.1%, based on an ROE of 11.64% for projects that have not applied for any special incentives. This factor reflects the following components:

- Return on capital investment
- Depreciation
- Federal and state income taxes
- Property Taxes
- Insurance

Witness: Raymond L. Gagnon
Request from: Connecticut Siting Council

Question:
What are CL&P's current AFUDC rates and what is the basis for those rates?

Response:
Below are the current Allowance for Funds Used During Construction (AFUDC) rates used for Transmission investment in CL&P's territory. The computation of AFUDC is generally prescribed by the Federal Energy Regulatory Commission (FERC) in Order No. 561. As stated in Plant Instruction No. 3, paragraph 17 of the FERC Uniform System of Accounts, AFUDC includes the cost of borrowed funds and a reasonable rate on other funds used during the period of construction. The FERC formula for computing AFUDC is comprehensive and takes into consideration the following:

- Debt and equity funds
- The level of construction (balance at the end of the prior month of construction work in progress)
- Short-term debt
- The cost of long-term debt and preferred stock based on the traditional embedded cost approach, using the preceding year-end costs.
- The cost rate for common equity, i.e,. the rate granted in the most recent rate proceeding.

Asset Description	FERC Approved ROE	AFUDC Rate Code	AFUDC Rate
NEEWS - PTF Investment	12.89%	F	0%
Transmission PTF Investment	11.64%	C	8.83%
Transmission non-PTF Investment	11.14%	A	8.58%

Witness: Keith M. Sickles
Request from: Connecticut Siting Council

Question:
Does CL&P have any figures on painted versus galvanized versus alloy structures, core 10 type structures, as to whether there is any impact on structure life expectancies and associated O&M costs?

Response:
CL&P uses both galvanized and weathering surface treatments on steel structures. The structure location, the need to match existing structures, local aesthetic preferences, and pricing all influence the type of surface treatment selected. Painted structures are no longer used.

The average cost per pound for a new steel pole structure is approximately as follows for the listed types of steel surface treatment:

Galvanized	$1.83/lb
Weathering	$1.69/lb
Painted	$1.79/lb

These costs fluctuate with market indices. Costs for new lattice-steel structures are not available because CL&P rarely uses lattice-steel construction in new line construction.

CL&P does not have specific data on O&M costs for structures with different coatings, however, in general:

- Galvanized steel structures will provide greater corrosion resistance (last longer) than weathering steel in salt air environments resulting in reduced life cycle costs. Painted steel structures would be expected to perform similar to galvanized structures if maintained properly.
- Weathering steel and galvanized steel perform about the same in non-salt environments provided the weathering steel-pole design properly addresses the effects of water retention.
- Painted structures have a recurring O&M cost due to the need for periodic painting over their life. The painting interval depends on environmental effects. A recent cost estimate of $38,000 was provided to CL&P for painting of 5 steel-pole structures 85 ft. in height (assuming no lead abatement). The cost of painting lattice-steel structures would likely be higher due to increased labor costs.

Below is a typical cost comparison for a steel-pole structure using the data above.

	Steel Structure Surface Treatment Life Cycle Cost Estimate Typical 115-kV Tangent Structure - 85 FT					
	Structure Weight	Unit Price /lb	Steel Structure Cost	Asset Life (yrs)	O&M Cost *	Total Life Cycle Cost
Galvanized	20,000	$ 1.83	$ 36,600.00	45	0	$ 36,600.00
Weathered	20,000	$ 1.69	$ 33,800.00	45	0	$ 33,800.00
Painted	20,000	$ 1.79	$ 35,800.00	45	$ 15,200.00	$ 51,000.00
* Assumes painted structures are painted every 20 years at a cost of $7,600 per structure.						