

August 22, 2017

ORIGINAL

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

Re: Docket No. 461A - CSC 461A Greenwich Substation and Line Project - Petition for Reconsideration

Dear Mr. Stein:

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

Response to CSC-02 Interrogatories dated 08/09/2017
CSC-062, 063, 064, 065, 066, 067, 068

Response to CSC-03 Interrogatories dated 08/14/2017
CSC-069

Response to STACY-02 Interrogatories dated 08/14/2017
STACY-001, 002, 003

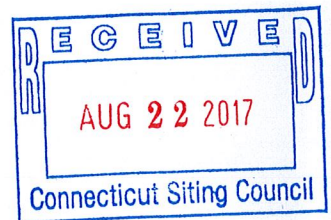
Response to TOWN-02 Interrogatories dated 08/11/2017
TOWN-072, 073, 074, 075, 076, 077, 078, 079, 080, 081, 082, 083, 084

Very truly yours,

Kathleen Shanley /tr

Kathleen Shanley
Manager
Transmission, Siting
As Agent for CL&P
dba EversourceEnergy

cc: Service List



CL&P dba Eversource Energy
Docket No. 461A

Data Request CSC-02
Dated: 08/09/2017
Q-CSC-062
Page 1 of 1

Witness: Witness Panel
Request from: Connecticut Siting Council

Question:

Referring to July 25 2017, Transcript. p. 127. What was the attendance at the energy efficiency Earth Day event?

Response:

Two light bulb swaps have been conducted in coordination with the Town of Greenwich over the past year. While attendance records are not kept for these events, we have estimated the number of attendees based upon the quantity of bulbs distributed. Below are the results obtained from these the two events:

October 25, 2016
Location: Greenwich Town Hall
1,000 bulbs distributed
34 customers enrolled in Home Energy Solutions

April 22, 2017
Location: Arch St Teen Center
1,785 bulbs distributed
32 customers enrolled in Home Energy Solutions

CL&P dba Eversource Energy
Docket No. 461A

Data Request CSC-02
Dated: 08/09/2017
Q-CSC-063
Page 1 of 1

Witness: Witness Panel
Request from: Connecticut Siting Council

Question:

Referring to July 25 2017, Transcript. p. 158. What percentage of the total project cost is attributed to distribution elements and what percentage of the total project cost is attributed to transmission elements? What percentage of each is borne by Connecticut ratepayers?

Response:

The attached table provides the allocation for the currently proposed project into regional transmission, (PTF), local transmission (LNS), and Distribution cost components. For convenience, this table is provided as a revision to the previously submitted table on IR 057.

Project Estimates		GSLP Cost Component Allocation			PMP
Project Component	Currently Proposed GSLP	Transmission PTF (regional)	Transmission non-PTF (Network Service)	Distribution	Previous PMP (Not feasible-shown for reference only)
Transmission Line	\$52,515,678		\$52,515,678		\$33,430,842
Greenwich Substation	\$28,992,801				\$28,136,749
Transmission Component	\$12,291,549		\$12,291,549		\$13,961,853
Distribution Component	\$16,701,252			\$16,701,252	\$14,174,896
Cos Cob Substation	\$12,669,170	\$12,669,170			\$12,669,170
Prospect Substation Modifications	\$952,837			\$952,837	\$952,837
Distribution Feeder Relocation	\$4,586,275			\$4,586,275	\$2,890,743
Project Total	\$99,716,760	\$12,669,170	\$64,807,227	\$22,240,364	\$78,080,340
Project Estimates		Rate Impact			
Percent of Project	100.00%	12.71%	64.99%	22.30%	
CL&P Customer - % of Load		19.42%	60.44%	100.00%	
Estimated Annual Retail Cost to CL&P Customers	9,849,000	\$ 418,000	\$ 5,719,000	\$ 3,712,000	
Average CL&P Retail Rate (\$/kWh)	\$ 0.000441	\$ 0.000019	\$ 0.000256	\$ 0.000166	
Estimated Average Monthly Impact to 700 kWh CL&P Retail Customer	\$ 0.309	\$ 0.013	\$ 0.179	\$ 0.116	
Variations					
Project Component	Additional Cost to GSLP				Additional Cost to PMP
All Indoor Substation Variation at 290 RR (Vol1, Ex. A, sec. F.1.1)	N/A				\$1,400,000
ConnDOT Line Exit Variation (Vol 1, Ex. A, sec. F.2)	N/A				\$2,200,000
Two Single Circuit Transmission Line Variation (Vol 1, Ex. A, sec. F.3)	N/A				\$10,500,000
Force Main Variation (Vol 1, Ex. A, sec. F.4)	N/A				\$700,000
Extension of UG Transmission Line to 290 RR Ave	\$1.0M	Note - row added for refinement of costs			
Pipejacking Underneath I-95 (Vol 1, Ex. B, sec. A.5.1.1)	\$1.5M	Note - revised for updated costs			
Project Component	Reduced Cost to GSLP				N/A
Cofferdam Variation (Vol 1, Ex. B, sec. A.4)	\$1.8M				Reduced Cost to PMP
Reduction in D feeders for 290 RR Ave	\$1.7M	Note - row added for clarity			N/A

CL&P dba Eversource Energy
Docket No. 461A

Data Request CSC-02
Dated: 08/09/2017
Q-CSC-064
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Witness: Witness Panel
Request from: Connecticut Siting Council

Question:

Reference CSC-01, Q-CSC-061. Is it anticipated that the cost of the architectural treatment of the 281 Railroad Avenue indoor substation and the Town-requested pedestrian bridge would not be regionalized, but rather be borne by Connecticut ratepayers?

Response:

The Company anticipates that the cost of each of these features would be recovered consistent with the transmission or distribution components as described in Q-CSC-059.

The incremental costs of the building enclosure around the substation equipment at 281 Railroad Avenue indoor substation would be recovered through distribution rates as a distribution component of the Project. CL&P's retail customers would bear 100% of the cost of the building and all architectural treatments.

The incremental costs associated with the Town-requested pedestrian bridge would be recovered as a non- PTF transmission component of the project through Eversource's local transmission rates (in Schedule 21-ES of the ISO-NE Open Access Transmission Tariff). Consistent with those rates, these costs would be borne by the wholesale transmission customers of CL&P, WMECO AND PSNH.

CL&P dba Eversource Energy
Docket No. 461A

Data Request CSC-02
Dated: 08/09/2017
Q-CSC-065
Page 1 of 1

Witness: Witness Panel
Request from: Connecticut Siting Council

Question:

Reference CSC-01, Q-CSC-057. Revise table to only include the AMP with variations, including revisions after the table was submitted. Include a new row to include the cost variation of extending the transmission line to the 290 Railroad Avenue Substation location.

Response:

See table provided in response to Q-CSC-063.

Witness: Witness Panel
Request from: Connecticut Siting Council

Question:

Referring to July 25 2017, Transcript. pp. 37-38. Provide more detail on the feasibility of extending the transmission line either overhead or underground along the south side of Interstate 95 between the commuter parking lots on Sound Shore Drive and Indian Field Road.

Response:

Eversource has examined two route options South of Interstate Highway 95: one close to I-95 inside the DOT taking Line and one on private easements along Cobb Island Drive.

Routes Inside the ConnDOT Taking Line:

1. Any overhead route along the ConnDOT right-of-way would not be compliant with Chapter 4 of the Utility Accommodation Manual.
2. Very steep side slopes would make construction very difficult and therefore expensive for either an overhead or underground transmission line. This would be driven by the costs of access road construction and shoring along this path.
3. Construction of either an overhead or underground transmission line would require the removal of the tree buffer along Interstate 95 next to several residences and a preschool (Putnam - Indian Field School).
4. Concern over controlling sediment into Cos Cob Harbor because of the proximity of the water and steep side slope would additionally drive the project costs

Routes On Private Easements along Cobb Island Drive (underground only):

1. Any route along Cobb Island Drive would require easements, not only for the approach to Cobb Island Drive from Sound Shore Drive, but along the road itself as it is a private road. This would still require license agreements with ConnDOT immediately off of Sound Shore Drive.
2. The steep side slopes would still exist near Sound Shore Drive for approximately 450 feet.
3. Cobb Island Drive is relatively narrow and restoration would be more expensive than otherwise encountered because of architectural features along the road. Additional expense would be required to accommodate the security gate for this private road.
4. The concern over sediment control near Cos Cob Harbor would remain for this option also.

CL&P dba Eversource Energy
Docket No. 461A

Data Request CSC-02
Dated: 08/09/2017
Q-CSC-067
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Witness: Witness Panel
Request from: Connecticut Siting Council

Question:

Regarding both proposed substations, would any trees on abutting properties require removal to meet NERC substation clearance standards?

Response:

Eversource is not aware of any NERC rules that address specific tree removal requirements around substations. However, any trees that overhang the perimeter fence would have to be trimmed to prevent the use of the trees to gain intrusion by people or animals into the substation. If the trees are considered a hazard and pose a threat of falling into the substation, they may have to be removed to prevent damage to the substation during storms. Specific tree management activities will be discussed in detail in the Development and Management Plans.

Witness: Witness Panel
Request from: Connecticut Siting Council

Question:

Referring to July 25 2017, Transcript. pp. 76-77. Estimate the number of feet that the 281 Railroad Avenue Substation brick wall could be pulled back from the sidewalk facing Railroad Avenue.

Response:

Should an open-air substation be constructed at 281 Railroad Avenue, the brick wall surrounding the substation could not be pulled back from the sidewalk adjacent to Railroad Avenue. There is an existing easement on the northern portion of the parcel that eliminates the possibility of shifting the substation design any further north.

Should an open-air substation be constructed at 290 Railroad Avenue, the brick wall surrounding the substation could be pulled back from the sidewalk adjacent to Railroad Avenue. While an exact setback distance would be determined as the design advances, it may be possible to pull the wall back from the sidewalk by up to approximately 10 feet.

CL&P dba Eversource Energy
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Data Request CSC-03
Dated: 08/14/2017
Q-CSC-069
Page 1 of 1

Witness: Witness Panel
Request from: Connecticut Siting Council

Question:

Reference Council D 461 FOF # 465. Provide a revised table to include costs for the original HPFF transmission line Preferred Route and Southern Alternative, and the XLPE AMP Route, the PMP Substation, AMP Substation, modifications to other substations, and distribution upgrades. Include rows for variations of each route and exterior substation design options.

Response:

See attached tables.

Table A modifies the information provided in FOF #465 to include the currently proposed GSLP route (previously called AMP route), and the variations requested.

Table B is provided to offer more detail on the component costs of the variations, to be consistent with information provided in response to Q-CSC-057 and 063.

The two different potential Substation locations and shown as separate projects with the current proposed route and variations to offer additional clarity in the comparison of the station sites and cost impacts.

Table A - GSLP in format of F.O.F 465

Projects as proposed during original Docket 461

Component	Currently Proposed GSLP (XLPE AMP Route) - Term at 281 RR Ave (Pole Yard)	Currently Proposed GSLP (XLPE AMP Route)- Term at 290 RR Ave (Pet Pantry)	FOF - 465 Originally Proposed Project - Preferred Route	FOF - 465 Originally proposed Southern Alternative
Transmission Line	\$52,515,678	\$53,415,678	\$72,000,000	\$71,000,000
Cos Cob Modifications / Distribution upgrades (incl Prospect)	\$18,208,282	\$16,512,750	\$16,000,000	\$16,000,000
New Greenwich S/S	\$28,992,801	\$28,136,749	\$52,000,000	\$52,000,000
Total	\$99,716,761	\$98,065,177	\$140,000,000	\$139,000,000

Table B - GSLP Estimated costs in additional detail per Q-CSC-063

Projects as proposed during original Docket 461

Component	Currently Proposed GSLP (XLPE AMP Route) - Term at 281 RR Ave (Pole Yard)	Currently Proposed GSLP (XLPE AMP Route)- Term at 290 RR Ave (Pet Pantry)	FOF - 465 Originally Proposed Project - Preferred Route	FOF - 465 Originally proposed Southern Alternative
Cos Cob SS	\$12,669,170	\$12,669,170	\$12,000,000	\$12,000,000
Greenwich S/S - Total	\$28,992,801	\$28,136,749	\$52,000,000	\$52,000,000
Greenwich SS Trans	\$12,291,548	\$13,961,853	\$35,000,000	\$35,000,000
Greenwich SS Dist	\$16,701,253	\$14,174,896	\$17,000,000	\$17,000,000
Transmission Line (total)	\$52,515,678	\$53,415,678	\$72,000,000	\$71,000,000
Prospect Removal	\$952,837	\$952,837	\$1,000,000	\$1,000,000
Distribution Feeder Relocation	\$4,586,275	\$2,890,743	\$3,000,000	\$3,000,000
Totals	\$99,716,761	\$98,065,177	\$140,000,000	\$139,000,000
Project Component	Additional Cost to GSLP	Additional Cost to GSLP		
Pipejacking Underneath I-95 (Vol 1, Ex. B, sec. A.5.1.1)	\$1.5M	\$1.5M		
Architectural Building to replace wall enclosure	\$0 (incl)	\$1.4M		
Project Component	Reduced Cost to GSLP	Reduced Cost to GSLP		
Cofferdam Variation (Vol 1, Ex. B, sec. A.4)	\$1.8M	\$1.8M		
Wall Enclosure only - no architectural building	\$1.2M	\$0 (incl)		

Witness: Witness Panel
Request from: Parker Stacy

Question:

I have previously submitted information about Tesla's products for battery storage systems and contact information for their representative Mr. Hawari. See my emails of July 7, 2017 and my submission to the Siting Council of July 10, 2017. As a first step I urged you to contact Mr. Hawari of Tesla whose contact information was listed therein. Please advise if anyone has contacted Mr. Hawari to see what Tesla might offer Eversource and the Town of Greenwich, who made the contact and when, and what were the results of that contact.

Response:

In response to a DEEP docket requesting demonstration projects for grid side system enhancements to integrate distributed energy resources, Eversource conducted a RFI (Request for Information) for battery storage systems. Following the PURA approved procurement process for competitive bidding, Eversource contacted 19 vendors to provide information on battery storage systems. Those vendors were:

- Younicos
- RES
- Lockheed Martin
- AES Energy Storage
- Convergent
- Invenergy
- EnSync
- Vionx
- GreenSmith
- Tesla
- ABB
- GE/Alstom Energy Storage
- NEC Energy Solutions
- Schneider Electric
- S&C Electric
- Hecate Energy
- DCO Energy
- Stem Inc.
- Advance Solar Products

Requests were made to Tesla employees Andres Pacheco and Maud Texier. Additionally, a request was sent directly to the e-mail mailbox powerwall@teslamotors.com. Tesla never responded to this RFI.

Witness: Witness Panel
Request from: Parker Stacy

Question:

In the above-referenced submission of July 10, 2017 I forwarded data sheets for the Tesla Powerpack and Powerwall battery storage systems for commercial/industrial and residential use. Included are specifications for each system. In your response to my previous interrogatory, you attached a document titled "Town of Greenwich Meeting Non Transmission Alternative Analysis (Distributed Generation, Energy Storage and Demand Response)". On Page 9 you project that 5MW of energy storage would cost \$15 million plus costs of site development. Using the mix of commercial/industrial and residential users in the Town of Greenwich, project the number of Powerpack and Powerwall systems needed to achieve that same 5MW of energy storage.

Response:

To achieve the 5 MW of energy storage, a total of 2667 units would need to be installed in Greenwich. The total number of units were determined using the following assumptions:

- Powerwall 2 performance : 5.0 kW continuous, 7 kW peak
- 25% capacity reduction with full supply of power for 2.7 hrs (3.75kW for 2.7 hrs)
- To ensure peak coverage , two sets of units would be required to inject 5 MW for a minimum duration of 4 hours

Per Telsa's website, the cost for each unit is \$5,500 for the Powerwall Battery, \$700 for the supporting hardware and installation cost between \$800 and \$2,000 for installation (Not including solar installation, electrical upgrades if necessary, taxes, permit fees, or any retailer / connection charges that may apply). The total cost for installation of 2,667 units is in the range of \$18 -22M. This cost does not include the the replacement of the batteries at the end of their useful life, which would require a similar investment every 10 years and installation of infrastructure to ensure correct operation of the batteries. Additionally, installation of the Powerwall system will also not eliminate the need to install the additional \$184 million investment noted on page 9 of the above reference document.

Witness: Witness Panel
Request from: Parker Stacy

Question:

In his shareholder letter in Eversource's 2016 annual report James J. Judge, President and Chief Executive Officer, wrote about the "...company's commitment to a sustainable energy future for our region", and called Eversource "...the catalyst for change and opportunity in New England." Please explain whether and how this proposed project fits into the company's commitment, and characteristics - catalyst for change and opportunity, which Mr. Judge described.

Response:

Eversource believes that the New England region can build a top-tier energy future that is reliable, affordable and environmentally responsible. To do so, the potential contribution of all solutions needs to be evaluated and applied where most appropriate and effective. Eversource has significantly invested, and continues to invest, in initiatives to increase energy efficiency and demand-side resources, expand access to affordable and renewable energy resources, and reduce dependence on older, less environmentally-friendly power generators. Eversource's investments in electric delivery systems, both distribution and transmission, are designed to help ensure that our future energy supplies are not only cleaner and affordable, but reliable. Without a delivery system that can be relied on to deliver power where and when it's needed, our customers will not be able to take advantage of cost-effective, "green" and/or other energy resources.

The proposed Greenwich Substation and Line project fits with this commitment and Jim Judge's letter to shareholders. For the proposed Greenwich Substation and Line Project, Eversource conducted a thorough non-transmission alternative (NTA) solutions analysis. The analysis found that NTAs do not provide a viable alternate solution to help resolve the Town's electric delivery system reliability challenges. Details on that analysis can be found in the attachment to Eversource's response to Q-STACY-001.

CL&P dba Eversource Energy
Docket No. 461A

Data Request TOWN-02
Dated: 08/11/2017
Q-TOWN-072
Page 1 of 1

Witness: Witness Panel
Request from: Connecticut Siting Council

Question:

For each feeder segment identified in Eversource's Response to Q-TOWN-001, provide the replacement schedule for that feeder segment and the estimated cost of the replacement. For each such feeder segment, identify all of the testing and maintenance protocols and furnish the latest test results for each of the feeders.

Response:

CL&P dba Eversource does not currently have a schedule and estimate of the cost of replacement for the feeders identified in response to Q-TOWN-001. CL&P continuously inspects its distribution facilities, replaces elements found to require replacement, and reports these activities to PURA annually. Please refer to PURA Docket No. 86-12-03, attached hereto as Appendix 27.

Appendix 27

2016 Inspection and Maintenance Report

The Connecticut Light and Power Company Inspection and Maintenance System Report									
January 1 Through December 31, 2016									
System Report						Number of scheduled and completed inspections, tests, or major maintenances			
Ref. No	I&M Program Description	Group Responsible	Procedure Number	Unit Description	Total Number of Units	Scheduled for 2016	Completed by 12/31/2016	% Completed by 12/31/2016	Notes
1	DB Facilities	Operations	EMP 5.11	Switch/Transformer	71,997	7,243	7,243	100%	1
2	Capacitor Banks	Maintenance	EMP 5.05	Capacitor Bank	1,761	1,761	1,761	100%	4
3	Automatic Voltage Regulators	Maintenance	EMP 5.01	Regulator	895	895	895	100%	4
4	Reclosers	Maintenance	EMP 5.44 - Inspections	Recloser	2673 (ALL)	2673 (I)	2,673	100%	2, 4
			EMP 5.44 - Major		1225 (OIL)	0 (M)	0	N/A	3, 4
5	UG System Network Transformers	Maintenance	EMP 5.29, 5.30 - Routine Inspection	Transformer/Protector	651	651 (I)	651	100%	4
			EMP 5.29, 5.30 - Major Maintenance			304 (M)	304	100%	4
6	UG Plant	Operations	EMP 5.59	UG Structure (Manholes & Vaults)	10,578	2,266	2,294	101%	7
7	Subway-Street Lights	Operations	EMP 5.52	Pole	5,108	1,178	2,372	201%	
8	Infrared Inspection	Maintenance	EMP 5.22	Circuit	14	14	14	100%	

NOTES

- 1 - Number of units to be done in a given year may vary from the quantities called for in the Frequency Table in Appendix #4 of CL&P's Line Maintenance Plan due to anticipated changes to the units of equipment in service at any time due to upgrades, conversions, retirements, and other adjustments.
- 2 - Electronic reclosers are inspected Bi-Monthly. Hydraulic reclosers and reclosers with DSCADA are inspected once per year.
- 3 - With regard to reclosers, "The Company" is transitioning from a years-based major maintenance cycle to an operational-based maintenance cycle (i.e. in the future these units will be maintained based upon their number of operations, fault duty, or diagnostic tests rather than once every six years).
- 4 - This work may be performed by a combination of Company and contractor crews depending on work load and available resources.
- 5 - (NOT USED)
- 6 - The cumulative staffing levels allocated and necessary for the implementation of these inspection and maintenance programs is equivalent to 72 people working full time, including contractor resources.
- 7 - Total units inspected include company owned manholes and vaults only.

CL&P dba Eversource Energy
Docket No. 461A

Data Request TOWN-02
Dated: 08/11/2017
Q-TOWN-073
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Witness: Witness Panel
Request from: Connecticut Siting Council

Question:

Reference Eversource's Response to Q-TOWN-001. For each feeder segment for which Eversource identified the Installation Date as "Various," please complete the attached spreadsheet entitled "Existing 27.6-kV Feeders – Greenwich" attached hereto as Exhibit 73 identifying the segments of cables that were installed in each of the following time periods:

- a. On or before December 31, 1959;
- b. Between January 1, 1960 and December 31, 1969 (inclusive);
- c. Between January 1, 1970 and December 31, 1979 (inclusive); Between January 1, 1980 and December 31, 1989 (inclusive); and
- d. On or after January 1, 1990.

Response:

The Applicant objects to this question because it does not seek relevant and material information and because the provision of the information requested, to the extent it exists, would be unduly burdensome

CL&P dba Eversource Energy
Docket No. 461A

Data Request TOWN-02
Dated: 08/11/2017
Q-TOWN-074
Page 1 of 1

Witness: Witness Panel
Request from: Connecticut Siting Council

Question:

For each feeder segment identified in response to Eversource's Response to QTOWN- 001, identify by date and time each and every failure that has occurred on those feeders since 2013. In addition, for each failure, identify the following:

- a. The load on the feeder segment before failure;
- b. The duration the feeder was out of service;
- c. The number of customers who lost power as a result of each failure, and the length of time they were out of service; and
- d. The specific segment of cable of the feeder that failed and the date that that specific segment of cable was installed.

Response:

The Applicant objects to this question because it does not seek relevant and material information and because the provision of the information requested, to the extent it exists, would be unduly burdensome

CL&P dba Eversource Energy
Docket No. 461A

Data Request TOWN-02
Dated: 08/11/2017
Q-TOWN-075
Page 1 of 1

Witness: Witness Panel
Request from: Connecticut Siting Council

Question:

For each feeder segment identified in Eversource's Response to Q-TOWN-001, provide the actual load factor for each feeder segment.

Response:

Please refer to the last column of the table of Q-TOWN-001 response. This column illustrates each feeder Normal Rating in MVA. Eversource uses a 75% load factor for all cable rating calculations. These values are based on summer parameters since they are the most limiting conditions under which the distribution system is required to operate .

Witness: Witness Panel
Request from: Connecticut Siting Council

Question:

For each of the loads identified below, identify the 27.6-kV feeders) that normally supply it, and the 27.6-kV feeders) that are designated as the alternate supply, under both current conditions and after completion of the Alternate Modified Project by completing the spreadsheet attached hereto as Exhibit 76 entitled "Normal and Alternate 27.6-kV Feeder Supplies –Greenwich":

- a. Tomac Substation;
- b. Mianus Substation;
- c. Greenwich Secondary Network;
- d. Prospect Substation;
- e. North Greenwich Substation;
- f. Byram Substation; and
- g. 11 commercial customers referenced in response to Q-TOWN-011. For confidentiality purposes, please list those customers as, "Customer 1," "Customer 2," etc.

Response:

See attached table.

Exhibit 76 - TOWN OF GREENWICH INTERROGATORY 76

Normal and Alternate 27.6-kV Feeder Supplies - Greenwich

Load	27.6-kV Feeder Supply			
	Current		Alternate Modified Project	
	Normal	Alternate	Normal	Alternate
Tomac	N/A	11R50	N/A	11R50
Mianus	12H59	11R50 + 11R56	12H59	11R50 + 11R56
Greenwich Secondary Network	11R51 + 11R52 + 11R55 + 11R56 + 11R58	11R51 + 11R52 + 11R55 + 11R56 + 11R58	11R51 + 11R52 + 11R55 + 11R56 + 11R58	11R51 + 11R52 + 11R55 + 11R56 + 11R58
Prospect	11R51 + 11R52 + 11R55 + 11R58	11R51 + 11R52 + 11R55 + 11R58	11R51 + 11R52 + 11R55 + 11R58	11R51 + 11R52 + 11R55 + 11R58
North Greenwich	11R53 + 11R54 + 22E36	11R53 + 11R54 + 22E36	11R53 + 11R54 + 22E36	11R53 + 11R54 + 22E36
Byram	11R56 + 22E35	11R56 + 22E35 + 22E36	11R56 + 22E35	11R56 + 22E35 + 22E36
Customer 1	11R58	11R52	11R52	11R58
Customer 2	22E32	22E36	22E32	22E36
Customer 3	22E32	22E36	22E32	22E36
Customer 4	22E36+ 22E32	22E36+ 22E32	22E36+ 22E32	22E36+ 22E32
Customer 5	22E36	11R53 + 11R54	22E36	11R53 + 11R54
Customer 6	22E36	11R53 + 11R54	22E36	11R53 + 11R54
Customer 7	22E36	11R53 + 11R54	22E36	11R53 + 11R54
Customer 8	22E36	11R53 + 11R54	22E36	11R53 + 11R54
Customer 9	11R52+11R56+11R58	11R52+11R56+11R58	11R52+11R56+11R58	11R52+11R56+11R58
Customer 10	11R56	11R55	11R56	11R55
Customer 11	11R56	11R55	11R56	11R55

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Data Request TOWN-02
Dated: 08/11/2017
Q-TOWN-077
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Witness: Witness Panel
Request from: Connecticut Siting Council

Question:

For each year since 2010, quantify the distribution of the actual peak load (in MVA) among the feeders identified in Eversource's Response to Q-TOWN-001 by completing the spreadsheet attached hereto as Exhibit 77 entitled "Peak Load Distribution on 27.6-kV Feeders –Greenwich."

Response:

The Applicant objects to this question because it does not seek relevant and material information and because the provision of the information requested, to the extent it exists, would be unduly burdensome

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Data Request TOWN-02
Dated: 08/11/2017
Q-TOWN-078
Page 1 of 1

Witness: Witness Panel
Request from: Connecticut Siting Council

Question:

Reference Figure 1 on page 4 of the Pre-Filed Testimony. Please provide a corrected figure of the current Greenwich electrical system by including a line showing the 22E35 feeder and how the 11 commercial customers referenced in response to Q-TOWN-011 are currently fed, and by making all other necessary corrections in order to accurately depict the current Greenwich electrical system.

Response:

Refer to substitute pre-file testimony pages submitted to the CT Siting Council on August 4, 2017 for an updated Figure 1. Refer to response to Q-TOWN-76 on how the 11 commercial customers are currently fed.

CL&P dba Eversource Energy
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Data Request TOWN-02
Dated: 08/11/2017
Q-TOWN-079
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Witness: Witness Panel
Request from: Connecticut Siting Council

Question:

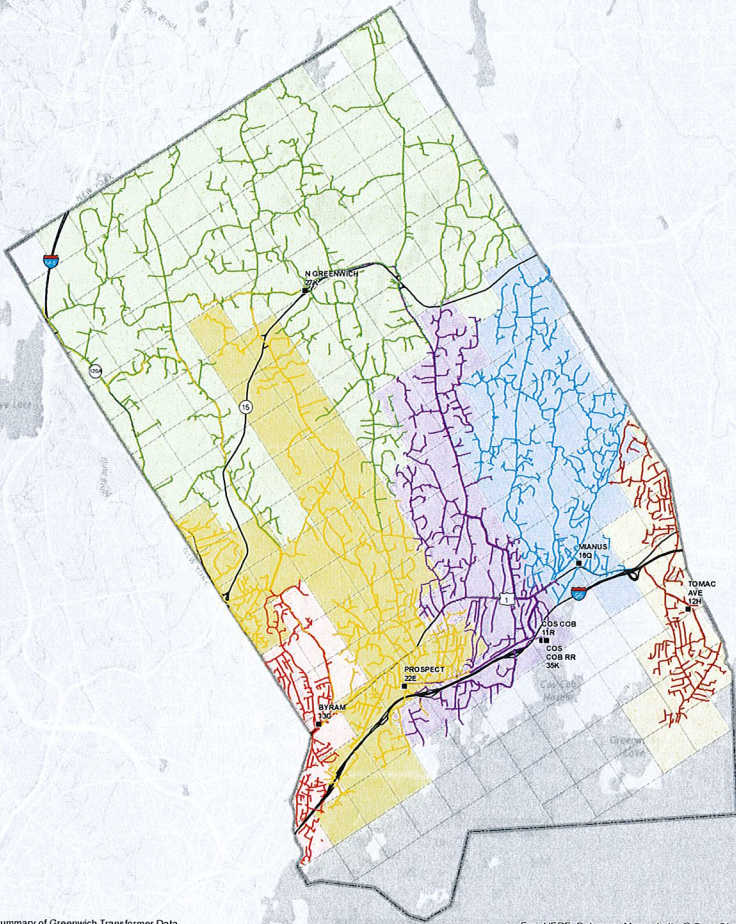
Reference the Town of Greenwich Building Zone Regulations Map attached hereto as Exhibit 79 (the "Greenwich Map"). ~ On the Greenwich Map, please identify graphically the sections of Greenwich served primarily by each of the Cos Cob, Byram, North Greenwich, Prospect, Mianus and Tomac Substations under normal operations.

Response:

See attached Greenwich map.

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 JJDated 08/11/2017
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- Town of Greenwich**
- Substations
 - Circuits' Substation Codes
 - 27K
 - 22E
 - 13C
 - 16Q
 - 12H
 - 11R/35K
 - Area of Dominance
 - 13C
 - 22E
 - 27K
 - 16Q
 - 12H
 - 11R/35K



PROPRIETARY INFORMATION: The material contained on the Overhead Distribution Circuit Map shall be considered proprietary to EVERSOURCE, and users thereof shall be defined as any person or entity who has received the Map through sale, purchase, exchange gift, or otherwise shall keep it in confidence and shall not furnish or disclose it to any third party without the prior written permission of EVERSOURCE.

Date: 07/13/2016

Witness: Witness Panel
Request from: Connecticut Siting Council

Question:

Reference Page 104 of the July 25, 2017 hearing transcript. Provide a list of Connecticut municipalities ranked by average customer outage time and identify the 13.2-kV circuits in Greenwich that rank in the top 500 state-wide for average customer outage time.

Response:

Please refer Appendix 11 and 12 of the Applicant's Transmission And Distribution Reliability Performance Report filed with PURA in its Docket No. 86-12-03-, which is also attached hereto. Appendix 11 shows the 100 Worst SAIDI (System Average Interruption Duration Index) Circuits in CT. There are a total of 16 circuits highlighted in yellow; 14 of these circuits emanate in Greenwich and are dedicated to Greenwich customers and two are Stamford circuits that feed Greenwich customers. Appendix 12 shows the 100 Worst SAIFI (SAIFI is the System Average Interruption Frequency Index) Circuits in CT. There are a total of 13 circuits highlighted in yellow; 11 circuits emanate in Greenwich and are dedicated to Greenwich customers and two are Stamford circuits that feed Greenwich customers.

To the extent this interrogatory asks the Applicant to identify more circuits than these, which are identified in the regular course of business, the Applicant objects to it as overly burdensome and not seeking relevant and material documents or information.

Appendix 11

100 Worst SAIDI Circuits

Criteria	Scheduled, Forced Trans./Power Supply, Customer, and Major Storms Excluded
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Section III.C.

Connecticut Light & Power Company
 dba Eversource Energy
 SAIDI Worst 100 Circuit List - 2016**

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Division	Circuit Number	SAIDI	Ranking					Total Occurrences for Five Year Period
			2016	2015	2014	2013	2012	
WESTERN	13A2	5214	1	0	0	0	0	1
CENTRAL	359A	2157	2	0	0	0	0	1
WESTERN	12H5	1136	3	0	0	0	27	2
WESTERN	23R1	1040	4	0	26	0	5	3
WESTERN	146C2	1025	5	0	0	0	0	1
EASTERN	24K2	986	6	0	0	0	0	1
WESTERN	128C1	924	7	0	0	0	0	1
CENTRAL	300B2	814	8	0	0	0	0	1
WESTERN	4R15	780	9	0	0	0	0	1
WESTERN	28M3	738	10	91	0	0	0	2
WESTERN	14R31	665	11	0	13	0	100	3
WESTERN	116M1	660	12	0	0	77	0	2
WESTERN	12H4	594	13	0	0	0	16	2
EASTERN	15D1	519	14	0	37	0	53	3
EASTERN	16J	507	15	0	0	0	0	1
WESTERN	20U1	488	16	0	0	19	49	3
CENTRAL	302Q1	469	17	0	0	0	0	1
CENTRAL	303U1	469	18	42	0	0	0	2
CENTRAL	303U2	469	19	28	0	0	0	2
CENTRAL	304F1	469	20	0	0	0	0	1
CENTRAL	304F2	469	21	0	0	0	0	1
CENTRAL	305Z2	467	22	0	0	0	0	1
CENTRAL	301P1	464	23	0	0	0	0	1
CENTRAL	301P2	464	24	0	0	0	0	1
CENTRAL	305Z1	464	25	0	0	0	0	1
CENTRAL	320P3	464	26	0	0	0	0	1
WESTERN	31A9	424	27	0	0	0	42	2
WESTERN	22M10	416	28	0	0	0	0	1
WESTERN	13C2	414	29	0	0	0	41	2
WESTERN	21K7	414	30	0	0	0	0	1
WESTERN	27K9	409	31	0	0	30	0	2
WESTERN	13C3	402	32	0	58	0	0	2
WESTERN	20U2	402	33	0	0	45	0	2
CENTRAL	322G3	387	34	0	0	0	0	1
EASTERN	12S5	386	35	100	0	90	35	4
CENTRAL	322G1	386	36	0	0	0	47	2
EASTERN	12S3	379	37	58	0	0	0	2
CENTRAL	2N14	372	38	0	0	32	0	2
WESTERN	37J1	367	* 39	59	8	68	94	5

* Customer count decline greater than or equal to 20%

Includes Secondaries and Services

** Excludes the following:

- Outages caused by power supply or transmission problems
- Scheduled outages
- Outages due to major storms
- Outages caused by customer equipment connected to our lines

Section III.C.

Connecticut Light & Power Company
 dba Eversource Energy
 SAIDI Worst 100 Circuit List - 2016**

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Division	Circuit Number	SAIDI	Ranking					Total Occurrences for Five Year Period
			2016	2015	2014	2013	2012	
CENTRAL	16S2	364	40	0	0	0	0	1
CENTRAL	304J1	363	41	0	0	0	0	1
WESTERN	28M13	360	42	0	0	55	0	2
CENTRAL	301F3	358	43	0	0	97	50	3
WESTERN	16Q1	349	44	0	0	0	78	2
WESTERN	16Q2	349	45	0	33	63	48	4
WESTERN	11M3	344	46	54	15	56	10	5
CENTRAL	7A76	327	47	0	56	0	0	2
WESTERN	4R11	324	48	0	0	0	92	2
WESTERN	19U1	323	49	0	5	0	0	2
EASTERN	26E9	317	50	85	0	0	0	2
CENTRAL	13H91	309	51	0	0	0	0	1
WESTERN	14N3	308	52	0	34	92	0	3
EASTERN	25C1	308	53	0	0	0	0	1
WESTERN	22N4	307	54	0	0	0	0	1
EASTERN	30Y8	300	55	55	0	0	34	3
EASTERN	14M9	299	56	80	32	0	0	3
WESTERN	31A6	299	57	0	0	0	0	1
CENTRAL	23N3	296	58	0	0	0	0	1
WESTERN	4R17	296	59	0	0	0	0	1
EASTERN	435Q1	286	60	0	0	0	0	1
WESTERN	12N17	281	61	0	0	98	0	2
WESTERN	146C1	278	62	0	0	0	0	1
CENTRAL	4C12	272	63	0	0	71	0	2
WESTERN	12M4	270	64	0	0	0	0	1
WESTERN	22N5	267	65	20	0	61	0	3
EASTERN	12S4	264	66	0	0	0	0	1
CENTRAL	2A11	263	67	0	0	0	0	1
WESTERN	16Q7	260	68	0	21	0	60	3
EASTERN	15C8	259	69	0	0	0	0	1
WESTERN	12H19	257	70	0	0	0	40	2
EASTERN	14M39	255	71	0	0	0	0	1
WESTERN	12Y9	253	72	0	0	44	0	2
EASTERN	14L5	249	73	0	0	35	0	2
EASTERN	23U1	249	74	95	0	0	0	2
WESTERN	13C4	246	75	0	0	0	45	2
WESTERN	28M6	243	76	0	0	0	0	1
WESTERN	14H4	240	77	0	0	0	0	1
EASTERN	16M2	239	78	0	0	79	0	2

* Customer count decline greater than or equal to 20%

Includes Secondaries and Services

** Excludes the following:

- Outages caused by power supply or transmission problems
- Scheduled outages
- Outages due to major storms
- Outages caused by customer equipment connected to our lines

Section III.C.

Connecticut Light & Power Company
 dba Eversource Energy
 SAIDI Worst 100 Circuit List - 2016**

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Division	Circuit Number	SAIDI	Ranking					Total Occurrences for Five Year Period
			2016	2015	2014	2013	2012	
WESTERN	5L04	238	79	0	93	27	0	3
WESTERN	22E12	235	80	94	0	0	3	3
WESTERN	22E4	233	81	0	0	0	17	2
CENTRAL	11H76	231	82	0	0	0	0	1
WESTERN	28M9	230	83	0	0	0	0	1
EASTERN	36A1	227	84	63	0	6	0	3
CENTRAL	11F12	226	85	0	29	0	0	2
CENTRAL	47N8	223	86	0	0	0	0	1
WESTERN	12N19	221	87	0	0	0	0	1
WESTERN	37F3	221	88	0	0	0	0	1
EASTERN	11Y1	216	89	0	0	0	0	1
CENTRAL	23L4	214	90	0	0	0	0	1
WESTERN	117C1	213	91	44	0	0	0	2
WESTERN	127L1	213	92	0	0	0	0	1
EASTERN	13K8	212	93	0	0	78	91	3
WESTERN	26F1	212	94	0	14	0	0	2
EASTERN	14M7	210	95	0	0	36	0	2
WESTERN	24A13	208	96	0	46	0	0	2
CENTRAL	39M2	206	97	0	0	0	0	1
EASTERN	13B9	205	98	0	0	0	0	1
WESTERN	31C2	205	99	78	10	0	0	3
WESTERN	48C6	202	100	0	0	0	0	1

* Customer count decline greater than or equal to 20%

Includes Secondaries and Services

** Excludes the following:

- Outages caused by power supply or transmission problems
- Scheduled outages
- Outages due to major storms
- Outages caused by customer equipment connected to our lines

Appendix 12

100 Worst SAIFI Circuits

Criteria	Scheduled, Forced Trans./Power Supply, Customer, and Major Storms Excluded
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Section III.C.

Connecticut Light & Power Company
 dba Eversource Energy
 SAIFI Worst 100 Circuit List - 2016**

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Division	Circuit Number	SAIFI	Ranking					Total Occurrences for Five Year Period
			2016	2015	2014	2013	2012	
WESTERN	23R1	4.69	1	0	0	0	2	2
WESTERN	146C2	4	2	0	55	0	0	2
EASTERN	23U1	3.96	3	0	0	0	0	1
EASTERN	15D1	3.84	4	0	40	0	0	2
WESTERN	11M3	3.62	5	27	8	39	11	5
WESTERN	22M10	3.57	6	0	0	0	0	1
WESTERN	28M3	3.44	7	82	0	0	0	2
WESTERN	16Q2	3.38	8	0	16	0	0	2
WESTERN	23K11	3.32	9	0	0	27	0	2
WESTERN	20U1	3.31	10	0	0	32	3	3
WESTERN	22M6	3.24	11	0	76	0	0	2
EASTERN	14M9	3.17	12	78	82	0	0	3
EASTERN	12S5	3.16	13	0	43	0	12	3
CENTRAL	20H2	3.15	14	69	0	0	0	2
CENTRAL	23N3	3.03	15	0	0	0	0	1
CENTRAL	11F12	2.98	16	0	0	0	0	1
EASTERN	24K2	2.96	17	0	0	0	0	1
WESTERN	21K7	2.95	18	76	0	0	0	2
CENTRAL	7A76	2.92	19	0	0	0	10	2
WESTERN	4R15	2.76	20	0	0	0	0	1
EASTERN	32P1	2.76	21	0	0	5	62	3
EASTERN	13B25	2.75	22	0	0	0	70	2
CENTRAL	22R4	2.75	23	0	88	0	81	3
EASTERN	12S3	2.69	24	77	36	0	0	3
WESTERN	22E12	2.68	25	40	0	0	5	3
EASTERN	13B21	2.67	26	0	0	0	0	1
EASTERN	1Q01	2.66	27	0	33	0	0	2
EASTERN	26E9	2.59	28	71	0	0	0	2
EASTERN	36A1	2.59	29	0	0	7	0	2
WESTERN	35A7	2.57	30	56	95	0	0	3
WESTERN	27K9	2.55	31	0	0	11	0	2
CENTRAL	13H91	2.41	32	0	0	0	0	1
CENTRAL	2A11	2.41	33	0	0	0	0	1
EASTERN	32P5	2.41	34	0	0	0	0	1
WESTERN	14R31	2.4	35	87	32	0	92	4
EASTERN	20Q1	2.4	36	0	0	0	0	1
WESTERN	19U1	2.39	37	0	2	0	0	2
EASTERN	16M2	2.37	38	0	0	44	88	3
EASTERN	12S4	2.36	39	0	0	0	0	1

* Customer count decline greater than or equal to 20%

Includes Secondaries and Services

** Excludes the following:

- Outages caused by power supply or transmission problems
- Scheduled outages
- Outages due to major storms
- Outages caused by customer equipment connected to our lines

Section III.C.

Connecticut Light & Power Company
 dba Eversource Energy
 SAIFI Worst 100 Circuit List - 2016**

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Division	Circuit Number	SAIFI	Ranking					Total Occurrences for Five Year Period
			2016	2015	2014	2013	2012	
CENTRAL	32R1	2.34	40	0	97	22	0	3
WESTERN	20U2	2.28	41	0	0	0	19	2
CENTRAL	3805	2.24	42	0	53	0	0	2
EASTERN	15M2	2.24	43	0	0	0	0	1
CENTRAL	12A4	2.22	44	0	0	0	0	1
WESTERN	13C2	2.2	45	0	0	0	64	2
WESTERN	27K5	2.19	46	0	0	0	31	2
WESTERN	22N5	2.18	47	16	78	0	0	3
WESTERN	12Y9	2.18	48	0	0	16	0	2
EASTERN	11Y1	2.18	49	0	0	99	0	2
WESTERN	128C1	2.16	50	0	0	0	82	2
WESTERN	28M13	2.14	51	0	0	37	0	2
EASTERN	30Y8	2.12	52	29	0	0	60	3
EASTERN	11C10	2.11	53	6	20	34	0	4
EASTERN	15L68	2.1	54	0	0	0	0	1
WESTERN	21J4	2.1	55	0	23	9	32	4
CENTRAL	11H62	2.09	56	0	87	0	0	2
CENTRAL	20H3	2.07	57	0	0	0	0	1
CENTRAL	322G1	2.06	58	0	0	0	98	2
CENTRAL	23L4	2.06	59	0	0	0	0	1
EASTERN	15M1	2.06	60	61	0	30	49	4
WESTERN	37J1	2.05 *	61	0	9	0	29	3
WESTERN	12H16	2.04	62	0	0	0	46	2
WESTERN	4R11	2.03	63	0	0	0	0	1
WESTERN	116M1	2	64	0	0	24	0	2
EASTERN	13B9	2	65	0	0	0	0	1
CENTRAL	11W45	2	66	0	0	0	0	1
WESTERN	171B1	2	67	0	0	0	93	2
EASTERN	418A1	2	68	0	0	0	0	1
EASTERN	418A3	2	69	0	0	0	0	1
EASTERN	418A4	2	70	0	0	0	0	1
EASTERN	426M1	2	71	0	0	0	0	1
EASTERN	426M2	2	72	0	0	0	0	1
EASTERN	426M3	2	73	0	0	0	0	1
WESTERN	12H5	1.99	74	0	0	0	23	2
WESTERN	4R17	1.99	75	0	41	0	0	2
WESTERN	22E6	1.98	76	0	0	0	0	1
EASTERN	11B1	1.98	77	70	17	89	74	5
EASTERN	12J6	1.94	78	0	0	95	0	2

* Customer count decline greater than or equal to 20%

Includes Secondaries and Services

** Excludes the following:

- Outages caused by power supply or transmission problems
- Scheduled outages
- Outages due to major storms
- Outages caused by customer equipment connected to our lines

Section III.C.

Connecticut Light & Power Company
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 SAIFI Worst 100 Circuit List - 2016**

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Division	Circuit Number	SAIFI	Ranking					Total Occurrences for Five Year Period
			2016	2015	2014	2013	2012	
CENTRAL	12F51	1.94	79	0	0	0	0	1
CENTRAL	16S2	1.89	80	0	0	0	55	2
EASTERN	23Q9	1.89	81	88	0	0	0	2
CENTRAL	39M2	1.86	82	0	0	0	0	1
CENTRAL	304J2	1.85	83	0	0	0	0	1
WESTERN	31A6	1.83	84	0	0	0	0	1
WESTERN	12N16	1.83	85	13	0	0	0	2
CENTRAL	11W42	1.81	86	0	0	0	0	1
CENTRAL	322G3	1.8	87	0	0	0	0	1
CENTRAL	47N8	1.79	88	0	0	0	0	1
WESTERN	4R14	1.78	89	0	0	0	0	1
WESTERN	14N3	1.77	90	0	31	0	0	2
WESTERN	13C4	1.77	91	0	0	0	0	1
EASTERN	30R10	1.77	92	0	0	58	0	2
WESTERN	24A14	1.74	93	0	85	0	0	2
EASTERN	1Q6	1.74	94	0	66	0	0	2
WESTERN	16Q1	1.73	95	0	0	0	0	1
WESTERN	12N19	1.72	96	0	63	65	44	4
CENTRAL	301F3	1.71	97	0	0	0	0	1
WESTERN	37F1	1.7	98	0	0	0	0	1
WESTERN	26F1	1.68	99	0	18	0	0	2
WESTERN	22E10	1.68	100	0	0	0	0	1

* Customer count decline greater than or equal to 20%

Includes Secondaries and Services

** Excludes the following:

- Outages caused by power supply or transmission problems
- Scheduled outages
- Outages due to major storms
- Outages caused by customer equipment connected to our lines

CL&P dba Eversource Energy
Docket No. 461A

Data Request TOWN-02
Dated: 08/11/2017
Q-TOWN-081
Page 1 of 1

Witness: Witness Panel
Request from: Connecticut Siting Council

Question:

Is it possible to feed 13.2-kV circuits that normally originate in Stamford, from 13.2-kV circuits that normally originate in Greenwich? Please describe the circumstances under which this would be desirable, and for those circuits capable of this transfer, list the circuits and their normal points of origin.

Response:

No it is not possible to feed 13.2kV circuits that normally originate in Stamford (at Waterside) from 13.2 circuits that normally originate in Greenwich, under any present circumstances because the Greenwich transformers do not have available capacity.

CL&P dba Eversource Energy
Docket No. 461A

Data Request TOWN-02
Dated: 08/11/2017
Q-TOWN-082
Page 1 of 1

Witness: Witness Panel
Request from: Connecticut Siting Council

Question:

Reference Page 60 of the July 25, 2017 hearing transcript. Please identify all of the differences between the proposed fully-enclosed indoor substation and the proposed open-air substation that cause you to conclude that the fully-enclosed indoor design is more "robust."

Response:

Mr. Bowes' use of the term "robust", as noted on Page 60 of the July 25, 2017 hearing transcript, was in response to a question about a fully-enclosed indoor substation as compared with a concrete wall, not a fully-enclosed substation as compared with an open-air substation. As a clarification of Mr. Bowes' answer to the question that was asked, please note that a fully-enclosed indoor substation would be more effective in reducing sound levels from substation equipment, would provide a higher level of physical security, and would have less visual impact.

CL&P dba Eversource Energy
Docket No. 461A

Data Request TOWN-02
Dated: 08/11/2017
Q-TOWN-083
Page 1 of 1

Witness: Witness Panel
Request from: Connecticut Siting Council

Question:

During the 2016 outage of the single, 4.8-kV transformer at the Tomac Substation, it became necessary to employ a temporary mobile transformer. At the time it was needed, where was the temporary mobile transformer stored and how much time transpired from the outage until the temporary unit was put into service?

Response:

Eversource stores all mobile transformers in a common central location, in this case in Berlin, CT. The company initiated the installation of the mobile and also continued to make temporary fixes to the Tomac transformer. In this case, the temporary fixes were completed before the mobile was installed. It took approximately 9 hours to restore power to customers. We continued to install the mobile and it was used to facilitate the replacement of damaged equipment.

CL&P dba Eversource Energy
Docket No. 461A

Data Request TOWN-02
Dated: 08/11/2017
Q-TOWN-084
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Witness: Witness Panel
Request from: Connecticut Siting Council

Question:

Other than the outage of the single, 4.8-kV transformer at the Tomac Substation described in response to Interrogatory 83, and the mobile transformer used during construction at the North Greenwich Substation, please identify by date, duration, and location each instance since 2000 in which a temporary mobile transformer was used in Greenwich. Please list the circumstances necessitating the use of such a unit.

Response:

Below is a list of location and installation date since 2000 and if the data was available, the circumstance for the use of the unit.

Byram 13C - June 2000
Cos Cob 11R - Oct. 2001
Byram 13C – June 2005
Tomac 12H – April 2009 (transformer maintenance)
Cos Cob 11R – Jul 2011
Tomac 12H Oct 2012
Tomac 12H – April 2016 (replace failed switch)
Byram 13C – May 2017 (replace switch and transformer maintenance)