Northeast Utilities System		Northeast Utilities Service Company 107 Selden Street Berlin, CT 06037-1651 Allen Scarfone Manager Transmission Planning phone: 860-665-2519 email: scarfaw@nu.com
The United Illuminating Company		The United Illuminating Company 157 Church Street New Haven, CT 06506-0901 Alex Boutsioulis Principal Engineer, Transmission Planning Program Management phone: 203-926-4630 email: Alex.Boutsioulis@uinet.com

February 24, 2010

Mr. Stephen Rourke
Vice President, System Planning
ISO New England, Inc.
One Sullivan Road
Holyoke, MA 01040-2841

Re: TCA Application NU-08-TCA-01/ UI -08-TCA-01 Middletown – Norwalk Project

Dear Mr. Rourke,

Attached please find responses to the ISO-NE data request submitted to us via your letter dated December 17, 2009. The responses are attached.

If you have any questions, we can be reached via the information listed above.

Sincerely,

Allen Scarfone
Allen Scarfone

Alex Boutsioulis
Alex Boutsioulis

c: C. Sedlacek
M. Drzewianowski

Witness: **NO WITNESS**
Request from: **ISO New England**

Question:
Submit an amended (not a revision to) TCA application to reflect actual costs of the project that were shown at the August 19, 2009 Reliability Committee Meeting. Also, adjust all alternatives (A, B & C) to be in 2008 dollars given the project was completed in 2008.

Response:
Attached is an amended TCA application that reflects the actual costs for the Middletown – Norwalk Project, as presented at the August 19, 2009 Reliability Committee Meeting.

The Companies have not adjusted the cost of the alternatives in the amended TCA to be in 2008 dollars because the fact that the Project was completed in 2008 does not necessarily lead to the conclusion that any of the alternatives (A, B, or C) could have been completed approximately one year ahead of schedule, as was the Project. In fact, the Companies do not believe that any of the alternatives could have been completed by the end of 2009. The three factors that were instrumental in the Companies' ability to complete the Project in 2008 ahead of schedule – no significant environmental permitting delays, no condemnation of homes, and the ability to construct the new lines without having to remove pre-existing 115-kV lines from service – do not apply to the three alternatives. Therefore, the Companies do not feel that they can accurately submit an estimate in 2008 dollars for the alternatives because they have no basis whatsoever for believing that siting and construction of any of the alternatives could have been completed on the same expedited timetable achieved by the Project. Each of these factors is discussed in detail below.

Although the Companies have included references to "Alternative C" in the response below, they note that this routing option was first raised by ISO-NE in the context of this cost allocation proceeding and it has never been investigated or reviewed in depth by either ISO-NE or the Companies to determine if it in fact is a "practical and feasible" alternative from a technical perspective or a routing perspective. By providing information regarding Alternative C below, the Companies do not imply that they consider Alternative C to be a practical or feasible alternative.

<u>1. Environmental Permitting for the Alternatives would have taken longer than for the Project given the higher level of impacts and the likely need for a hearing before the ACOE:</u>

The Middletown – Norwalk Project was permitted by numerous agencies, including the Connecticut Siting Council ("Siting Council"), the U.S. Army Corps of Engineers ("ACOE"), and the Connecticut Department of Environmental Protection ("CTDEP"). When these agencies analyzed the environmental impacts of the Project, each agency considered the overall impact of the Project on natural resources, such as vernal pools and wetlands and watershed resources. No review was conducted by any of these agencies on a segment-by-segment basis, and no detailed inventory or surveying of these resources was performed on Alternatives A, B, or C. Therefore the Companies cannot predict whether Alternatives A, B or C would have received the required permits from the Siting Council, ACOE, or CTDEP. In fact, as outlined in the Application (see pp. 45-46, 51), the Companies believed there was a significant risk that none of the alternatives would have received the requisite permits. However, even assuming all required

permits could have been obtained for the alternatives, the Companies do not believe that they could have received those permits in the same time frame as they did for the Project.

The Siting Council issued its Certificate for the Project on April 7, 2005, and the ACOE and CTDEP permits were not issued until January of 2007. Alternatives A, B, and C have more significant environmental impacts than the M-N Project and would have required additional environmental mitigation. As a result, there is a substantial likelihood that greater scrutiny would have been given to the more significant environmental impacts associated with each of the alternatives, and the Project would not have been completed in 2008. Although it is difficult to estimate approximately how much longer it would have taken to obtain environmental permits for the alternatives, the Companies believe that the ACOE and CTDEP permits would have been delayed substantially.

The U.S. Army Corp of Engineers reviews projects under a "least environmentally damaging practical alternative" (LEDPA) standard. The ACOE invoked the "LEDPA" standard in requiring the Companies to change their original plans for the crossing of the Norwalk River. (Application, p. 45) The ACOE also raised a "LEDPA" issue as to the Royal Oak Bypass in Durham, where a new ROW approximately 1-mile long was created to avoid a residential area. Despite the relatively minimal marginal environmental impacts associated with the Royal Oak Bypass, the Companies had significant difficulty convincing the ACOE that the Royal Oak Bypass was consistent with the LEDPA standard. There is a significant risk that the ACOE would have concluded that none of the alternatives satisfied the "LEDPA" standard.

If the Companies had attempted to construct any of the alternatives, they would have likely faced a much more protracted timeline for obtaining the ACOE permit for several reasons. First, the Companies believe that the ACOE would have required production of detailed information regarding the expected environmental impacts of construction of the alternatives (due to both the new construction and the significant temporary construction needed to keep the 115-kV circuit in operation while building the new 345-kV system) along existing overhead ROWs in Segments 3 and 4. Second, given (i) the level of opposition to the use of the alternatives that was expressed by municipalities and residents during the pre-siting consultation stage, and (ii) the level of ACOE concern about the application of the "LEDPA" standard to the use of the relatively short Royal Oak Bypass and to the Companies' original proposal for the Norwalk River crossing, the Companies believe the ACOE would have conducted a longer, more time-consuming review, before permitting any of the alternatives. Moreover, given the level of public concern about the alternatives, the ACOE would likely have conducted public hearings for any of the alternatives, which it did not require for the Project.

2. The Project, unlike the Alternatives, did not require the condemnation of any homes, and thereby avoided any delays associated with litigation over home acquisitions:

The Project did not require the acquisition of any homes. In contrast, Alternatives A, B, and C would have required the acquisition or condemnation of many homes (two homes for Alternative A, thirty-one for Alternative B, and nine for Alternative C.) By avoiding any home takings, the Companies eliminated the significant risk of the issuance of any injunctions that could have halted construction while litigation over the need for the condemnation ensued in trial courts. In addition, the lack of any home takings enabled the Companies to avoid having any administrative proceedings over condemnation issues.

3. There were significant Constructability Issues associated with the Alternatives that would have precluded the completion of construction in 2008:

As discussed in the Application (pp. 44-45, 51), each of the alternatives would have required the use of the existing ROW between Hawthorne Substation and Norwalk Junction (as well as additional overhead construction for Alternatives B and C), on which there are existing 115-kV circuits that are critical to ensuring the reliability of power supply to Southwest Connecticut. In

order to build any of the alternatives, the Companies would have needed to construct temporary transmission lines in the existing ROWs to allow construction to proceed while still keeping the existing 115-kV lines in service. Specifically, prior to the construction of the overhead 345-kV line, the existing overhead 115-kV lines west of East Devon Substation would have to be augmented with temporary transmission lines that would be capable of electrically serving the Old Town, Hawthorne and Weston substations during construction. In addition, the alternatives would have required the scheduling of several outages of these lines, and scheduling of such outages often requires months of lead time. (See Application at pp. 44-45 for detailed discussion of outages required for alternatives.) Finally, the alternatives would have required extensive upgrading to existing 115-kV substations, adding another layer of scheduling complexities associated with the alternatives. In contrast, construction of segments 3 and 4 of the Project did not involve any outage complexity or any need to build temporary transmission lines. These constructability issues and the scheduling complexities flowing from these issues provide yet another reason for the Companies' conclusion that they could not have completed construction of the alternatives in 2008.

Attachment(s):

TCA application 2 of 2 2 24 10 Amended to reflect Actual Costs to ISO 2010.doc

Attachment B
TCA Application Form

Project Name:

1.	Applicant: Northeast Utilities (The Connecticut Light & Power Company) 107 Selden Street Berlin, CT 06037-1651 Allen Scarfone Manager Transmission Planning phone: 860-665-2519 email: scarfsw@nu.com and The United Illuminating Company 157 Church Street New Haven, CT 06506-0901 Alex Boutsioulis Principal Engineer, Transmission Planning Program Management phone: 203-926-4630 email: Alex.Boutsioulis@uinet.com	Application #: NU-08-TCA-01 / UI-08-TCA-01 If revision to a prior Application, please attach a copy of the prior Application. The revision was required because of: ☐ a material change in design ☐ a cost increase greater than 10%	Date: February 2010

2.		Project Description:		In Service Date:
	a.	Summary of PTF-related work for Project:	Construction of a 345-kV line from Middletown to Norwalk, Connecticut and associated work.	Final segments in 2009
	b.	Summary of Non-PTF-related work for Project:	None	

3.	Was a transmission Proposed Plan Application required for this work?	Yes X	No ☐
4.	Has a transmission Proposed Plan Application been approved? If yes, attach a copy and reference Proposed Plan Application # and approval date. Note: Proposed Plan Application provided under a separate filing.	Yes X No ☐ N/A ☐	Approval Date: NU-05-T23 through T44, NU-05-X02, and UI-05-T01 through T05. ISO-NE approved on January 20, 2006.

Need For Project:

5.	Need Based On		**Yes**		**No**
	a.	Reliability	X		☐
	b.	Economic	☐		☐
	c.	Service to new load	☐		☐
	d.	New generator interconnection	☐		☐
		If yes, Category of Generator (See Schedule 11 of Section II of the Tariff):	'A'☐	'B'☐	'C'☐
		Generator Proposed Plan Application Number			
		Generator Proposed Plan Application Date			
		(Attach copy of cover letter & Generator Proposed Plan Application)			
	e.	Other (specify in line 6)	☐		☐

6. Provide a narrative description of the need for this Project.
(Include available documentation relative to the need for this Project. If this is a revision to a previously submitted TCA application explain the cost and/or material change difference here)

See attached report titled Middletown-Norwalk Project dated April 2008 (Section 2.0).

Cost of Project:

		Original Application	Amended Application
7.	Total Proposed PTF Cost of this Project:	$1,370,397,665	$1,245,529,160
	a. Requested PTF Costs associated with this Project:	$1,337,428,665 345-kV Project	$ 926,829,160 NU 345-kV Project
			$ 318,700,000 UI 345-kV Project
		$ 32,969,000 Ancillary Projects	$ 29,042,000 NU Ancillary Projects
	b. Generator Supported PTF Costs*:	$	$
	If the costs in 7.a. plus 7.b. do not equal the total PTF cost, please explain and indicate who is responsible for the remaining costs.		
8.	Costs introduced as a result of local, state or other regulatory/legislative requirements, including costs identified pursuant to Section 1.6.3 of this PP-4.	$ 23,743,397	$ 25,548,840 NU Local Costs
9.	Total Non-PTF Cost associated with this Project (if any)	$	$

10. Total PTF Cost based on: (check one)

Actual Costs	X	**OR**
Estimated Costs*	☐	

11. Valuation Year of dollar amounts submitted above: in-service year

12. Provide a breakdown of the total costs consistent with Table 1. If applicable, explain how the cost of common facilities was allocated between PTF and Non-PTF.

See attached report titled Middletown-Norwalk Project dated April 2008(Section 4.0).

13. Does this Project result in a change of existing Non-PTF facilities to PTF? Yes ☐ No X

14. Describe the major transmission alternatives that were considered and why the preferred alternative was selected. (Include available documentation relative to the major transmission alternatives analysis and selection.)

See attached report titled Middletown-Norwalk Project dated April 2008(Section 3.0).

* Pool-Supported PTF costs were determined pursuant to Schedule 11 of Section II of the Tariff.

Witness: **NO WITNESS**
Request from: **ISO New England**

Question:
Describe the work that was done to re-interconnect Bridgeport Energy generating plant to the new Singer Substation. Provide a breakdown of these costs (valuation year 2008) by completing Table 1 below. Were there any other generator interconnects that were changed during this project? If so, provide a cost breakdown of this work and indicate if it was included in the requested PTF amount as described in question 1 above.

Response:
The construction associated with moving the Bridgeport Energy (BE) generating plant interconnection from the Pequonnock 115-kV Substation to the Singer 345-kV Substation includes the installation of a 345/115-kV autotransformer, 115-kV GIS switches and underground XLPE conductors. The total cost associated with this BE re-interconnection work is $16.1 million. The cost associated with this work could not be broken out into the categories identified in Table 1 of ISO-NE's correspondence dated December 17, 2009, since the services were performed by a contractor in accordance with a lump-sum contract.

In addition to relocating the BE interconnection, the Milford Power (MP) generating plant interconnection was also relocated. The construction associated with relocating the Milford Power (MP) generating plant interconnection included the installation of 115-kV terminal structure, line disconnect switches, multiple sections of 115-kV 954 ACSR quad bundled conductor, structures and foundations. The cost associated with this work could not be broken out into the categories identified in Table 1 of ISO-NE's correspondence dated December 17, 2009, but the total cost for this work was $6.1 million for line costs and $1.2 million for substation costs.

The Companies are seeking regional support for these costs associated with the BE and MP interconnections as part of the Middletown-Norwalk Project. These costs are associated with:

- moving the BE Generating Station interconnection from the Pequonnock 115-kV Substation to the Singer 345-kV Substation; and
- moving the MP generating station interconnection from the Devon 115-kV Substation to the East Devon 345-kV/115-kV Substation.

The SWCT Working Group (SWCT WG), which consisted of ISO-NE, NU and UI Transmission Planners, considered many different alternatives to address thermal overloads and short circuit over duty conditions in the area. The SWCT WG considered the following options: (i) adding additional series reactors at Bridgeport or Milford generators; (ii) relocating other existing Bridgeport or Milford generators to the 345-kV system and/or relocating Bridgeport or Milford generators to a reconfigured 115-kV grid; and (iii) introducing higher impedance 115-kV paths.

The SWCT WG decided that the most economical approach that mitigated both the thermal contingency overloads and short circuit equipment over duty issues at Bridgeport and Milford transmission facilities was to relocate BE to the Singer 345-kV Substation and move the MP interconnection from the Devon 115-kV Substation to the East Devon 345/115-kV Substation.

Therefore, because the Companies provided the most economical means for sufficiently addressing all reliability issues - including short circuit equipment interrupting capabilities - the facilities described above, including the relocation of the BE interconnection to the Singer 345-kV Substation and MP interconnection to the East Devon 345/115-kV Substation, should be classified as PTF, included in the RNS Rates, and paid by RNS customers that use the PTF.

At the August 18, 2009 NEPOOL Reliability Committee (RC) meeting, it was emphasized that relocating the interconnections was the most economical method for sufficiently addressing the short circuit equipment over duty issues at both Pequonnock and East Devon 115-kV Substations. UI has investigated future transmission projects that would provide additional short circuit equipment over duty margin at both Bridgeport and Milford transmission facilities. UI's Pequonnock 115-kV Fault Duty Mitigation Project (PFDM Project), presently in the ISO-NE Regional System Plan, is considering various conceptual alternatives that considerably reduce the short circuit available at Pequonnock and East Devon Substations by removing a generator interconnection from Pequonnock and/or increasing 115-kV impedance paths in the greater Bridgeport area.

As part of the PFDM project, which presently has a projected 2015 In Service Date, an additional 115-kV GIS switching station and/or major 115-kV reconfigurations are likely required in order to introduce additional 115-kV paths. The proposed PFDM project could have been an alternative to the BE interconnection relocation to Singer 345-kV Substation. However, the PFDM project was not considered as part of the Project because of the substantial additional cost. Although each project provided similar results with regard to short circuit mitigation, the "PTF" PFDM project conceptual alternatives currently being evaluated are in the order of magnitude 5 to 10 times the cost of the BE interconnection relocation to Singer 345-kV Substation. Therefore, even if the relocation of a radial generation interconnection has generally not been considered classified as PTF in the past, the facilities described above, including the relocation of the BE interconnection to the Singer 345-kV Substation, should be classified as a PTF asset based on the Companies' desire to provide the most economical means for sufficiently addressing all reliability issues, including short circuit equipment interrupting capabilities.

Witness: **NO WITNESS**
Request from: **ISO New England**

Question:
Approximately $100 million in savings was realized for the project as compared to the original TCA application estimates. Could this same cost savings have been realized if one of the alternatives was constructed? If not, please explain.

Response:
The reason the Project was able to realize cost savings of approximately $100 million was that it was completed approximately one year ahead of schedule. The predominant source of these savings was a reduction in financing/AFUDC costs incurred during the shortened construction period. These savings could not have been achieved if one of the alternatives had been constructed because none of the alternatives could have been completed within the expedited time frame in which the Project was constructed. See response to ISONE-06, Q-ISO-001.