

**STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL**

**ISO New England Inc.
Docket 370**

**Witness: Frank Mezzanotte
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Additional CSC Interrogatories – CSC-1

CSC-1: Assuming that the present 345 kV Manchester to North Bloomfield to Ludlow 3-terminal line is replaced by 2-terminal lines:

a. Quantify the import capability of the interface between Connecticut and the rest of New England:

- i. under normal conditions;**
- ii. under N – 1 conditions; and**
- iii. under N – 1 – 1 conditions.**

Compare the values with the comparable transfer capability as proposed in the application.

Response: The ISO typically defines transmission interface limits under two scenarios – “all lines in” and “line out”. “All lines in” means that the pre-contingency system has all lines in service. This is referred to as the “normal” transfer limit, the “N-1” transfer limit, or the “1st contingency” transfer limit. “Line out” means that the system under study has a line out-of-service to start. This is referred to as the “emergency” transfer limit, the “N-1-1” transfer limit, or the “2nd contingency” transfer limit.

The GSRP, and to some degree the Barbour Hill project, tend to move the Connecticut Import limiting lines and associated contingencies away from the North Bloomfield-Manchester-Barbour Hill circuit. The significant limiting elements to the north are those 345-kV lines into and out of the Ludlow Substation. These are the two lines that typically supply the Ludlow Substation today – Millbury to Carpenter Hill to Ludlow and Northfield to Ludlow – and the two lines that will typically supply load in the Springfield area and the north- central Connecticut area post-GSRP – Ludlow to Agawam and Ludlow to Barbour Hill. The significant limiting elements to the south have also been pushed deeper into Connecticut and appear to the south of the North Bloomfield and Manchester Substations.

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Eliminating the three-terminal line between Barbour Hill, Manchester, and North Bloomfield, which is not really limiting post-GSRP, would only have a very modest impact. Detailed analysis would have to be completed to determine the actual numbers, but a gain as high as 100 MW would probably be an optimistic outcome.

As an aside, the Interstate Reliability component of NEEWS eliminates the northern limits in the Ludlow area and the Central Connecticut Reliability component eliminates the southern limits, allowing much higher imports into Connecticut.

b. Would any changes to the 115 kV system be necessary to accomplish these 345 kV connections? If so, please explain.

Response: From a planning perspective, the 1448 115-kV line between Manchester and Rood Avenue has to be maintained regardless of whether or not the three-terminal line is eliminated. The ISO is not specifically familiar with the physical configuration of the lines in this right-of-way and what would have to be done to maintain the 1448 line if the three-terminal elimination project is pursued.

c. How would the system stability be affected by this assumed configuration? Please qualitatively explain.

Response: System stability would more than likely not be affected. Past studies have shown that clearing times for faults on this three-terminal line have not been a problem, even for the closest plant, Berkshire Power. While faster clearing times would be possible in a two two-terminal line configuration, a need for this has not been identified.

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d. Are there other benefits and liabilities associated with the assumed change? (ex. reduced line losses, avoidance or delay in construction of other facilities.) Explain.

Response: There would probably not be any liabilities and very little change in line losses. One benefit might be a greater availability for maintenance outages of the line(s).

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Additional CSC Interrogatories – CSC-2

CSC-2: Given the assumed change to the 345 kV lines to North Bloomfield and Ludlow, is there still a need to separate the existing 115 kV and 345 kV circuits between Manchester and Meekville Junction? Explain.

Response: Reviewing CL&P's analysis, there would be no planning need to separate those circuits.

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Additional CSC Interrogatories – CSC-3

CSC-3: Given the assumed 345 kV reconfiguration and testimony that there is no record of any double-circuit outage on this existing 115 kV and 345 kV line of structures, do NERC and/or NPCC criteria allow for exceptions from separating circuits where only a few structures are involved? If so, describe in detail.

Response: In cases where relatively short, double circuit conditions exist (substation exits or river crossings) NERC currently delegates the ability to grant an exemption from testing as a double-circuit contingency upon the regional authority. NERC's latest draft of TPL-001, however, speaks to automatic exclusions for double circuit tower lines less than one mile.

NPCC, New England's regional authority, grants an automatic exemption for five towers or less exiting or entering a substation, and will grant other exemptions on the basis of acceptable risk, provided its Reliability Coordinating Committee accepts such a request. The ISO does not grant automatic exemptions, but will review requests and receive advisory input from its Reliability Committee and Planning Advisory Committee.

It is important to note that exemptions do not preempt double circuit tower outages from occurring, no matter how small the risk.

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Additional CSC Interrogatories – CSC-4

CSC-4: Would rebuilding still be required if both the 115 kV circuit and the 345 kV circuit were ordered to be placed as new structures to “clean up the right of way?” Is there a cost at which such a requirement becomes unjustifiable?

Response: Projects to rehabilitate transmission lines and substations in New England have been and are being proposed. These are handled on a case-by-case basis. Examples include: a circuit breaker replacement program; antiquated Gas-Insulated Substation equipment where parts are unavailable and leaks are getting too numerous to handle effectively; aging wood poles ravaged by woodpeckers. Any project over \$5 Million is required to submit an application for a Transmission Cost Allocation review and proceeds through a rather vigorous review.

Separating circuits to eliminate the cause of thermal problems (criteria violations) on other facilities is a valid need. Rehabilitating or replacing equipment that has become impossible to maintain due to the unavailability of parts, that has decayed, that has been damaged or that has failed, that, if retired, would cause the system to be non-compliant with applicable criteria in its absence, is also a valid need. It is likely that expenditures of this type would be recoverable through the regional rate structure; other expenditures might be required to be recovered through the local rate recovery process.