

**STATE OF VERMONT
PUBLIC SERVICE BOARD**

Joint Petition of Vermont Transco, LLC,)
Vermont Electric Power Company, Inc.)
("VELCO"), City of Burlington Electric)
Department ("BED") and Green Mountain)
Power Corporation for a certificate of public)
good, pursuant to 30 V.S.A. Section 248,)
authorizing the construction of the so-called)
East Avenue Loop Project in Williston, South)
Burlington, Colchester, Winooski and)
Burlington, Vermont, which consists of: (1))
the replacement of 4.8 miles of an existing)
single 115 kV line between VELCO's Essex)
Substation and its East Avenue Substation)
with two new 115 kV lines within the same)
corridor; (2) expansion of the East Avenue)
Substation; (3) installation of a new 1.5-mile)
34.5 kV line from the East Avenue Substation)
to BED's McNeil Substation; (4) construction)
of a new substation at the McNeil Generating)
Station; (5) installation of new and relocated)
equipment from BED's Lake Street)
Substation to the McNeil Substation; and (6))
removal of several circuits connected to)
BED's Lake Street Substation)

Docket No. 7314

**PREFILED REBUTTAL TESTIMONY OF
BRAD FOSSUM
ON BEHALF OF
PETITIONERS**

November 26, 2007

Summary: The purpose of the Mr. Fossum's testimony is to discuss the design of a single-pole, double-circuit structure for portions of the 115 kV line of the so-called East Avenue Loop Project ("Project").

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EXHIBITS

Exhibit PET REB.4.1 Sketch of Proposed Structures

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- 1 **1. Introduction**
- 2 Q1. Please state your name.
- 3 A1. Brad Fossum.
- 4
- 5 Q2. Have you previously filed testimony in this proceeding?

1 A2. Yes, I submitted testimony and introduced exhibits with the Original Petition.

2 **2. Overview**

3 Q3. What is the purpose of your testimony?

4 A3. This testimony responds to the prefiled testimony of Juli Beth Hinds concerning
5 the City of South Burlington proposal to employ a single-pole, double-circuit
6 design for structures 26 through 30 and 49 through 53 along the 115 kV portion of
7 the Project.

8
9 Q4. Have Petitioners analyzed, from a design perspective, the effect of changing to a
10 single-pole, double-circuit design?

11 A4. Yes – please see Exhibit PET REB.4.1, which is a sketch prepared by Ulteig
12 Engineers contrasting a typical single-pole, single-circuit design with the single-
13 pole, double-circuit design conceptualized by the City of South Burlington.

14

15 **3. Comparison of Structure Designs**

16 Q5. What is the minimum additional height of the structures that would be required to
17 accommodate the additional circuit?

18 A5. The double-circuit structure requires about an additional 14 feet in height above
19 the single-circuit structure. When the one foot height above ground of the
20 concrete foundation is added to the structure, the total height increase will be 15
21 feet above the proposed single-circuit structure.

22

1 Q6. Is it possible to design the single-pole, double-circuit structures to reduce height,
2 similar to what Petitioners did with the original single-pole, single-circuit design?

3 A6. As in the recommended design, the required spacing between davit arms on the
4 same side of the pole is 12 feet. This is required to avoid galloping concerns of
5 the conductor at midspan and provide adequate spacing for line maintenance.
6 Therefore, a “staggered” design is not feasible on a double-circuit structure.

7

8 Q7. How much thicker would the structures be at the base?

9 A7. The diameter of the double-circuit pole at the base will be approximately 19
10 inches larger than the single-circuit pole.

11

12 Q8. Is more foundation work required to build the single-pole, double-circuit
13 structures compared with the single-pole, single-circuit structures?

14 A8. The single-pole, double-circuit structure will require a concrete foundation
15 compared to the single-pole, single-circuit which can be direct embedded. This
16 foundation is required because the loading on the single-pole, double-circuit
17 structure is approximately twice the loading on the single-circuit structure,
18 resulting in the need for a steel pole and a concrete foundation.

19

20

21

22

1 **4. Conclusion**

2 Q9. Does this conclude your testimony at this time?

3 A9. Yes, it does.

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