

In Re: Petition of New England Power Company  
d/b/a National Grid for Licenses to Construct and  
Maintain Electric Lines Over and Across Public  
Waters in the Towns of Walpole and Surry,  
New Hampshire

## **EXHIBIT E**

### **J-136N CONNECTICUT RIVER CROSSING**

#### **1. Statement of Need**

The J-136N Line is a part of NEP's electric transmission system in southwestern New Hampshire, and is operated in conjunction with the I-135N Line between Bellows Falls Substation and Flagg Pond Substation to serve loads in New Hampshire, Massachusetts, and Vermont. The J-136N Line, approximately 80 years old, will continue to be operated as currently configured. The I-135N line is being reconductored.

#### **2. National Electric Safety Code**

The existing crossing meets or exceeds the 2007 Edition of the National Electrical Safety Code, (NESC) C2-2007.

#### **3. Specific Electrical and Physical Description**

Voltage: 115kV, 3-phase, 60 Hertz

Conductor: 4/0 Copper, 7 strand

Structures: Reuse existing double circuit lattice steel towers with the conductors in a horizontal configuration

Shieldwires: Located above the conductors consist of one 7/16" HS Galvanized steel.

Horizontal Distance between conductors: 12 feet

Vertical Distance at the tower between the conductors and the shieldwire: 10 feet

#### **4. Elevation of Water Level**

The water surface elevation of the Connecticut River at the existing crossing is 227.0 feet (August 20, 2003) above MSL based on NGVD of 1929. The 100-year flood elevation, at the same location is 257.0 based on FERM Maps dated May 23, 2006.

5. **Rounding**

All elevations have been rounded to the nearest one-tenth of a foot.

6. **Applicable Area of Water Body**

The applicable water crossing area is not suitable for sailboats because it is upstream of the tailrace and downstream of the Bridge Street Bridge.

7. **Maximum Sag and Clearance (each span)**

The governing case is maximum sag and clearance to both water and land with phase conductors at maximum operating temperature.

8. **Condition Producing Minimum Clearance for Phase Conductors – expected and NESC clearance**

The governing case is maximum sag and clearance to both water and land with phase conductors at maximum operating temperature.

With the conductor at maximum sag, which occurs at the maximum operating temperature of 212°F, the NESC clearance requirement to the water is 18.6 feet, based on water areas not suitable for sailboating or where sailboating is prohibited.

The minimum clearance at the existing crossing is 40.0 feet at 212°F.

9. **Conductor Producing Minimum Clearance for Neutral/Static Conductors – expected and NESC clearance**

- a. Expected Clearance: 40.0 feet at maximum conductor sag
- b. NESC Clearance Requirement: 18.6 feet at maximum conductor sag  
Based on the NESC clearance requirement to the water areas not suitable for sailboating or where sailboating is prohibited.

10. **Combinations of Conditions Between Phase and Neutral/Static Conductors**

Governing condition: Shieldwire at NESC Heavy, and conductor at 0F bare.

- Expected clearance: 30.0 feet
- NESC clearance requirement: 4.8 feet  
Based on the NESC clearance for span wires parallel to the line

11. **Minimum Clearance for Phase Conductors to Both Water and Land**

The minimum clearance at the crossing is designed to be 40 feet at 284°F.

**12. Permits and Approvals**

None required.

**13. Maintenance and Operation of Crossing**

The Crossing will be maintained and operated in compliance with NESC at all times.

**14. Easement Rights**

The lines is located within an existing easement.

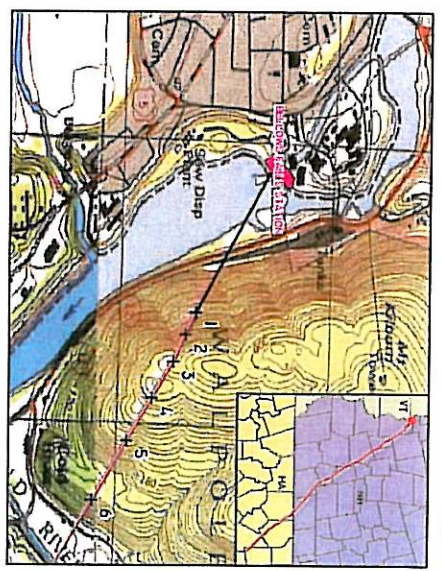
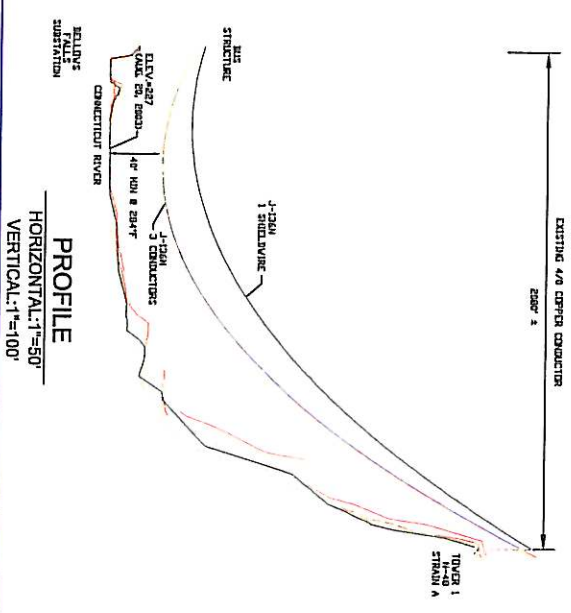
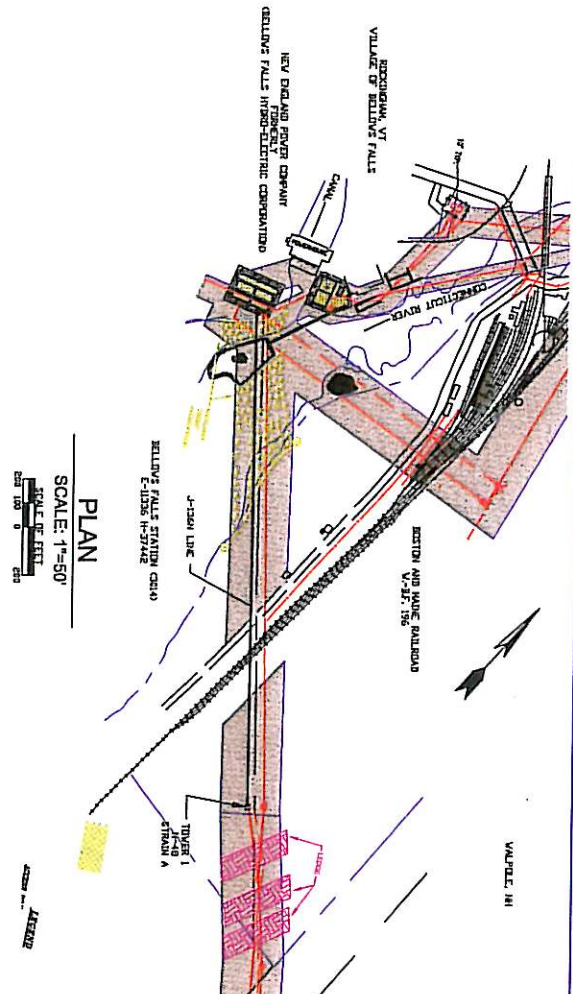
**15. Public Rights on Public Water or Lands**

The public's use and enjoyment of the Connecticut River will not be diminished in any material respect as the result of the J-136 crossing subject to this Petition.

**16. Plan Requirements**

Please see attached Plan of J-136N Connecticut River Crossing.





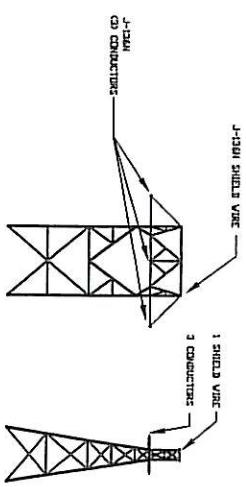
(August 20, 2003) = Date Flown

**LEGEND**

● Tower Location

— Existing Conductor to be Replaced

**New England Power Company**  
Plan Showing Location of  
J-136N Transmission Line  
Over and Across  
Connecticut River  
Walpole, New Hampshire  
Scale: As Shown  
Date: October 2007



115KV LINE  
LINE CROSSING OF CONNECTICUT RIVER  
IN WALPOLE, NH  
PLAN & PROFILE  
SCALE : 1:50

ORIGINAL	DATE
1/7/07	
2/7/07	
3/7/07	
4/7/07	
5/7/07	
6/7/07	
7/7/07	
8/7/07	
9/7/07	
10/7/07	
11/7/07	
12/7/07	

**nationalgrid**

REV	DATE	REVISION DESCRIPTION	REVISION DATE	BY	CHKD
1	1/7/07				
2	2/7/07				
3	3/7/07				
4	4/7/07				
5	5/7/07				
6	6/7/07				
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