THE STATE OF NEW HAMPSHIRE
BEFORE THE
PUBLIC UTILITIES COMMISSION

Docket No. _____

PETITION OF GREEN MOUNTAIN POWER CORPORATION FOR LICENSE TO CONSTRUCT AND MAINTAIN ELECTRIC LINES OVER AND ACROSS THE SUGAR RIVER IN THE CITY OF CLAREMONT, NEW HAMPSHIRE.

TO THE PUBLIC UTILITIES COMMISSION:

Green Mountain Power Corporation ("GMP"), a public utility engaged in the transmission of electricity in the State of New Hampshire, hereby petitions the Public Utilities Commission ("Commission"), pursuant to RSA 371:17, for a license to construct and maintain electric lines over and across the public waters of the Sugar River in Claremont, New Hampshire, and in support of its petition states as follows:

1. In order to meet the reasonable requirements of service to the public, GMP has previously constructed and currently operates and maintains 46 kV transmission lines in Claremont, New Hampshire. One approximately 1.17 mile transmission line segment, Line 102, runs between GMP's Lafayette Street Substation and GMP's Maple Avenue Substation. Another approximately 2.35 mile transmission line segment, Line 92, runs between GMP's Highbridge Substation and its Lafayette Street substation. These transmission line segments are an integral part of the GMP's transmission system and the overall New England transmission grid.

2. The Lafayette Substation to Maple Avenue Substation transmission line (Line 102), as presently constructed, crosses over the public waters of the Sugar River at one location within the City of Claremont, New Hampshire. This existing overhead crossing has been in existence since at least 1965. The Highbridge Substation to Lafayette Substation transmission

line (Line 92), as presently constructed, crosses over the public waters of the Sugar River at two locations within the City of Claremont, New Hampshire. These existing overhead crossings have been in existence since at least 1965.

3. In order to continue to meet the reasonable requirements of service to the public, GMP has determined that it is necessary to upgrade these lines' conductors to increase the power transfer capability of the lines.

4. The work on the Lafayette Street Substation to Maple Avenue Substation line (Line102) will involve the replacement of the existing 2/0 Copper and 4/0 ACSR conductor with new 477 ACSR conductor that will increase the conductors capacity by approximately 100% and 55%, respectively. This work will require the replacement of approximately 3 structures, with no pole height increase greater than five feet. None of the work will involve the development of a new line or route. All work will take place in the existing lines corridor.

5. The work on the Highbridge Substation to Lafayette Street Substation line (Line 92) will involve the replacement of the existing 336 ACSR conductor with 795 ASCR conductor resulting in an approximately 69% increase in capacity. This work will require the replacement of approximately 54 poles with no pole height increase greater than five feet. None of the work will involve the development of a new line or route. All work will take place in the existing lines corridor.

6. This work is driven by the need to address thermal constraints identified in the VELCO Long Range Transmission Plan. Upgrading these transmission line segments will allow GMP to continue to provide reliable electric service to customers in this area of the State and regionally.

7. The existing crossing of the Sugar River on Line 102 is accomplished in the span between structures 3 and 4. *See* Exhibit 1. The existing crossings of the Sugar River on Line 92 are accomplished in the spans between structures 38 and 39 and between structures 73 and 74. *See* Exhibit 1. The structures used to support both of the transmission lines are typical single wood pole structures.

8. Reconductoring the Lafayette to Maple Street transmission line (Line102) will require the modification of the existing overhead crossing of the Sugar River. The present transmission line structures on the north and south sides of the existing Sugar River crossing (Structures 3 and 4), which are of Single Pole Dead End Bell Structure type (DE1) construction, will be replaced in kind. *See* Exhibit 3c. Structures 3 and 4 will remain the same height. The size and design for the new structures is based on the requirements for NESC 2012 [Grade B Construction].

9. Reconductoring the Highbridge to Lafayette Street transmission line (Line 92) will require the modification of two existing overhead crossings of the Sugar River. The present transmission line structures on the north and south sides of the existing Sugar River crossing (Structures 38 and 39), which are of H-Frame Dead End Structure type (HFDE) construction, will be replaced in kind and Structure 38 will increase by five feet to accommodate the increased sag into the substation and Structure 39 will be decreased in height by ten feet. *See* Exhibit 3a.

10. The present transmission line structures on the north and south sides of the existing Sugar River crossing (Structures 73 and 74), which are of single pole crossarm type construction, will be replaced with single pole horizontal line post type construction. *See* Exhibit 3b. Structure 73 will decrease in height by ten feet and structure 74 will remain the same height. The size and design for the new structure is based on the requirements for NESC 2012 [Grade B

Construction].

11. The modification of the crossing is limited to the poles, conductor, and associated hardware. The spans of these crossings are 372 feet on Line 102 (Structure 3 to 4), 408 feet on Line 92 (Structure 38 to 39) and 270 feet on Line 92 (Structure 73 to74). The location map, and proposed construction plan and profile drawings, and structure details are attached to this petition in Appendix A as Exhibit 1 (Location Plan), Exhibit 2 (Plan and Profile, Line 92 Rebuild) and Exhibit 3 (Plan and Profile, Line 102 Rebuild).

12. The required technical information provided in this petition is based on the 2012 National Electrical Safety Code (NESC) [C2-2012].

13. The Sugar River crossing on Line 102 and Line 92 will be spanned using two round wood pole structures. These structures will be single pole and double pole structures. Details for the proposed structures are attached to this petition as Exhibits 3a, 3b and 3c.

14. Flood water elevations for the crossing utilized in the design and presented in the Appendix were based on information contained in flood insurance rate maps and Flood Insurance Study Map 33019C0144E and 33019C0165E for Line 92 and Map 33019C0280E for Line 102, obtained from FEMA.

15. Table 232-1, note 18 of the NESC states that the minimum clearance over a water body must be based on a 10-year flood elevation. For the purpose of the design of this crossing, the 100-year flood elevation was used. It should be noted that the 100-year elevation would be well above the 10-year flood elevation. 100 year flood elevation for the crossings was based on the FEMA Flood Insurance Maps. The maps showing the project areas are included as Exhibits 2a, 2b and 2c. The 100-yr water elevation at the crossing for Line 92 is 320' at the structure 38

and 39 crossing and 382' at the structure 73 and 74 crossing. The 100-yr water elevation for Line 102 is approximately 418'.

16. Based on Table 232-1.7 of the NESC, for open supply conductors 750 V to 22 kV to ground, the minimum clearance to the water surface during normal flood level (10-year flood for the purpose of this petition) is 17.0feet. NESC [Rule 232.C.1.a] states that an additional clearance of 1.6 feet or [(69.7 kV-22 kV) x 0.4] is needed for 46 kV, which brings the total required minimum clearance to 18.6' Based on Table [232-1.2] of the NESC, for open supply conductors [750 V to 22kV] to ground, the minimum clearance to roads subject to truck traffic is 18.5'. With the additional 1.6' of clearance required for 46 kV, the total required clearance to roads subject to truck traffic is 20.1'.

17. The proposed crossings have been designed and will be constructed, maintained and operated by GMP in accordance with the applicable requirements of the NESC.

18. For the transmission line 102 crossing of the Sugar River, GMP owns a permanent easement for a transmission line with "no defined width" that was granted by Dartmouth Woolen Mills in 1946. For transmission line 92, at the first Sugar River crossing between Structures 38 and 39, GMP owns a permanent easement that is 150' wide on both sides of the river. For transmission line 92, at the second Sugar River crossing between Structures 73 and 74, GMP owns a permanent easement on the north side of the river that is 90' wide and a permanent easement on the south side of the river that is 150' in width. The crossings will be constructed within the limits of those easements.

19. GMP submits that the license petitioned for herein may be exercised without substantially affecting the rights of the public in the public waters of the Sugar River. Minimum safe line clearances above all water surfaces and affected shorelines will be maintained at all

times. The use and enjoyment by the public will not be diminished in any material respect as a result of the overhead line crossings.

WHEREFORE, GMP respectfully requests that the Commission:

a. Find that the license petitioned for herein may be exercised without substantially affecting the public rights in the public waters which are the subject of this petition;

b. Grant GMP a license to construct and maintain electric lines over and across the public waters of the Sugar River as specified in the petition; and

c. Issue an Order Nisi and orders for its publication.

DATED at RUTLAND, VERMONT this 4th day of January, 2016.

Respectfully submitted,

GREEN MOUNTAIN POWER CORPORAION

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