

**STATE OF VERMONT  
PUBLIC UTILITY COMMISSION**

Case No. \_\_\_\_\_

Petition of Green Mountain Power for a Certificate of Public Good pursuant to 30 V.S.A. § 248 authorizing the rebuild of the Lowell Substation and the upgrade of 18.1 miles of the B20 line from Johnson to Lowell, and Joint Petition of GMP, the Village of Morrisville Water and Light Department, and the Village of Johnson Water and Light Department for a CPG pursuant to 30 V.S.A. § 248 to authorize the upgrade of 1.5 miles of the B22 line, in the Towns of Lowell, Eden, Johnson, and Morristown, Vermont	
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**PETITION OF GREEN MOUNTAIN POWER  
AND  
JOINT PETITION OF GMP, THE VILLAGE OF MORRISVILLE WATER AND  
LIGHT DEPARTMENT, AND THE VILLAGE OF JOHNSON WATER AND LIGHT  
DEPARTMENT  
FOR A CERTIFICATE OF PUBLIC GOOD PURSUANT TO 30 V.S.A. § 248**

By this Petition, Green Mountain Power (“GMP”), is requesting a Certificate of Public Good (“CPG”) pursuant to 30 V.S.A. § 248 authorizing 1) the rebuild of its Lowell Substation and 2) the upgrade of 18.1 miles of its B20 transmission line; the Village of Morrisville Water and Light Department (“MWL”) and the Village of Johnson Water and Light Department (“JWL”) are joining GMP in petitioning the Public Utility Commission (the “Commission”) to seek approval to 3) rebuild 1.5 miles of the B22 line (owned by MWL and JWL) (collectively the “Project”) in the Towns of Lowell, Eden, Johnson, and Morristown, Vermont. In support of this Petition, GMP, MWL, and JWL state the following:

**I. DESCRIPTION OF THE PETITIONERS**

1. GMP is a duly organized public service corporation with principal place of business at 163 Acorn Lane, Colchester, Vermont, and is subject to the Commission’s

jurisdiction pursuant to 30 V.S.A. § 203.

2. MWL is a duly organized public service corporation with principal place of business at 857 Elmore Street, Morrisville, Vermont, and is subject to the Commission's jurisdiction pursuant to 30 V.S.A. § 203. MWL is also a duly organized municipal electric utility under Chapter 79 of Title 30, Vermont Statutes Annotated.

3. JWL is a duly organized public service corporation with principal place of business at 293 Lower Main West, Johnson, Vermont, and is subject to the Commission's jurisdiction pursuant to 30 V.S.A. § 203. JWL is also a duly organized municipal electric utility under Chapter 79 of Title 30, Vermont Statutes Annotated.

4. Construction of electric transmission facilities requires the issuance of a CPG pursuant to 30 V.S.A. § 248.

## **II. DESCRIPTION OF THE PROJECT**

5. The Project is intended to improve safety, reliability and efficiency, while also increasing the capacity of a local transmission constraint known as the Sheffield/Highgate Export Interface ("SHEI") limit to enable increased benefits that Vermont electric customers receive from renewable generation in northern Vermont.

6. The Project involves upgrades to two existing transmission lines, the B20 and B22 lines, and the rebuild of GMP's Lowell Substation.

7. The substation upgrade involves the replacement of like-in-kind equipment, as well as the addition of newly added equipment to support the transmission system reconfiguration. The substation rebuild is to occur adjacent to the existing substation. The existing substation is to be retired after the commissioning of the new substation.

8. The Transmission line upgrades involve replacing existing structures and installing new conductor on 18.1 miles of GMP's B20 line and 1.5 miles of the B22 line owned

by MWL and JWL.

9. GMP's Lowell Substation: The Lowell Substation, located in Lowell, Vermont, is a transmission substation that is part of GMP's looped subtransmission network.

10. The new Lowell Substation will consist of the following:

- A new fence with foundations to create a fenced in yard (approximately 130' x 120' in area, 8' high).
- New equipment foundations, ground grid, and below grade trench and conduit systems.
- One (1) new 30/40/50//56 MVA, 46/34.5 kV autotransformer with oil containment including associated station class lightning arresters.
- One (1) new 38 kV vacuum circuit breaker (B20) with associated single blade disconnect switches (208, 209), two bay steel structure (18 feet wide, 18 feet deep, and 26 feet 6 inches tall) and 34.5 kV bus work.
- One (1) new 72 kV vacuum circuit breaker (B-30) with associated single blade disconnect switches (308, 309), two bay steel structure (18 feet wide, 18 feet deep, and 26 feet 6 inches tall) and 46 kV bus work. The modification of the 46 kV transmission circuit entrance into the substation will include the removal of one (1) existing transmission pole with associated anchoring and the installation of two (2) new 50' transmission poles with associated anchoring.
- Three (3) phase to neutral bus potential transformers and one (1) phase to phase line potential transformer for 34.5 kV transmission line protective relaying purposes, all with associated fusing.
- Three (3) phase to neutral bus potential transformers and one (1) phase to phase

line potential transformers for 46 kV transmission line protective relaying purposes, all with associated fusing.

- A normal 15 kVA station service transformer and an alternate 15 kVA station service transformer with associated transfer switch and AC distribution panel.
- One (1) control building (18 feet wide, 24 feet long, and 15 feet in height at the peak of the roof). The relay protection & control panels will be housed in the control enclosure along with the SCADA equipment, fiber optic communications equipment, and other miscellaneous control devices.
- A new security system and substation yard lighting will be installed on steel poles (18 feet in height) inside the substation fence. The substation yard lighting will be utilized for maintenance and emergency activities.

11. The existing GMP Lowell Substation will remain intact and energized during the construction of the new Lowell Substation, and will be retired after the commissioning of the new Lowell Substation.

12. The B20 Transmission Line: The existing B20 transmission line (Line 133), utilizes standard ‘T’ construction and consists of 348 structures and associated hardware with 4/0 ACSR conductor. The structures range in vintage from 1950 to 2010 but more than 80% are 1950 vintage structures.

13. The B20 transmission line is part of the looped transmission system from Lowell to Johnson. This line serves the Vermont Electric Co-op (“VEC”) Eden Corners and Montgomery Distribution Substations.

14. The proposed B20 line work upgrades approximately 18.1 miles of 34.5 kV transmission line with three hundred fifty five (355) structures utilizing ‘HLP’ vertical

construction and 795 MCM ACSR conductor within the existing transmission line corridor. The locations of the new structures have been selected to maximize the span lengths and to reduce environmental impacts. This design approach yielded the minimum amount of increased structures. All 348 original structures are to be retired.

15. The new B20 conductor is to be installed above the existing B20 line which will remain energized during the construction of the new B20 line. It is necessary to keep the existing B20 line in-service during the construction phase in order to maintain area reliability and minimize impacts to the SHEI limit and avoid generation curtailment in the area. During construction the existing conductor will remain in service until the new structures and conductor are installed. The existing structures and conductor will be retired after the new line is in service.

16. The B22 Transmission Line: The existing B22 transmission line runs from the GMP Johnson Substation to the MWL #3 Substation and is approximately 6.8 miles. The area of the Project is the 1.5 mile portion of line starting near the vicinity of the Cady's Falls tap, at the intersection of Duhamel Rd. and Cadys Farm Rd., and ending at the MWL #3 Substation. This section of the B22 utilizes a double circuit 'T' construction where the B22 line is on an upper crossarm and the 3319 line is on a lower crossarm. This section of the B22 line consists of 34 structures that range in vintage from 1950 to 2010, but are mostly from 1960.

17. The proposed B22 line upgrade is for 1.5 miles of 34.5 kV transmission line with thirty seven (37) new structures utilizing a double circuit 'T' construction and 477 MCM ACSR conductor within the existing transmission line corridor. The proposed B22 span lengths have been modified to minimize the addition of new structures and the structures have been located to minimize environmental impacts resulting in only 3 additional structures. All 34 original

structures are to be retired.

18. The new B22 conductor is to be installed above the existing B22 and 3319 lines which will remain energized during the construction of the new B22 line. It is necessary to keep the existing B22 and 3319 lines in-service during the construction phase in order to maintain area reliability and minimize impacts to the SHEI limit and avoid generation curtailment in the area. During construction, the existing B22 energized conductor will be transferred from the existing structures to the new structure and become the new 3319 line conductor (336 MCM ACSR). The existing structures will be retired and the existing 3319 3/0 ACSR conductor will be retired.

### **III. PROJECT COST AND CONSTRUCTION TIMING**

19. The estimated cost of the Project is approximately \$15,455,719, which includes a 20% contingency.

20. Because the B22 portion of the Project is owned by MWL and JWL (the “Municipalities”), it is considered “municipal plant” under 30 V.S.A. § 248(c)(1). Accordingly, the B22 component of the overall Project is subject to the approval of MWL and JWL voters at a duly warned meeting.

21. The Municipalities are expected to vote on the B22 portion of the Project at their respective annual meetings, which occur on April 9, 2020, for JWL and April 13, 2020, for MWL. Accordingly, GMP and the Municipalities are requesting that the Commission issue a final order and CPG in this matter by April 1, 2020 in order to allow the Municipalities to proceed with a vote on the B22 at the regularly scheduled annual meetings. This will avoid the need to call a special meeting in either Municipality.

22. The overall cost of the B22 portion of the Project is expected to be approximately \$1,019,880. The primary purpose of the B22 upgrade is its role in mitigating adverse impacts of

SHEI transmission congestion. However, MWL has determined that it and JWL would have paid \$211,591 to maintain the B22 line absent the upgrades to address the SHEI transmission congestion. MWL owns 85 percent of the B22 line and JWL owns 15 percent of the B22 line.

23. Assuming receipt of Commission approval for the Project by April 1, 2020, it is expected that construction of the Lowell Substation and the B20 line will take place between May 2020 and December 2020. Construction on the B22 line is expected to commence January or February 2021.

#### **IV. NOTICE REQUIREMENTS**

24. GMP satisfied Rule 5.402(A) by providing 45-day advance notice to the Select Boards and Planning Commissions in the Towns of Eden, Lowell, Johnson, Morristown/Morrisville, and to the Northeastern Vermont Development Association and Lamoille County Planning Commission. A copy of the 45-day notice packet was also provided to the Town of Hyde Park officials, given the proposed Project laydown area in that Town. There are no material changes to the Project from the description contained in the 45-day notice.

25. GMP satisfied Rule 5.402(B) by providing notice to each of the adjoining landowners contemporaneously with the filing of this Petition. GMP has satisfied the requirements of Commission Rule 5.402(B)(3) by identifying the adjoining landowners using the certified grand lists as they existed no more than 60 days prior to the date notice was provided to the landowners. GMP reviewed the following grand lists on September 26, 2019: Town of Eden (grand list certified on July 15, 2019); Town of Lowell (grand list certified on July 31, 2019); and Town of Johnson (grand list certified on July 9, 2019). The grand list for the Town of Morristown was certified on April 1, 2019, and reviewed by MWL on September 11, 2019.

26. Copies of this filing will also be provided to the parties specified in 30 V.S.A. §

248(a)(4)(C) by mail and electronic service through ePUC as appropriate.

## V. COMPLIANCE WITH SECTION 248 CRITERIA

27. As demonstrated below, and supported by prefiled testimony, the Project meets all Section 248 criteria.

### **Orderly Development of the Region – 30 V.S.A. § 248(b)(1)**

28. The Project will not unduly interfere with the orderly development of the region. The Project involves the in-place reconstruction and upgrade of existing transmission facilities in Johnson, Eden, Lowell, and Morristown, along with the rebuild of an existing substation on an adjacent lot. The Project is consistent with Town Plans for Eden, Lowell, Johnson, and Morristown, as well as the Northeast Kingdom Regional Plan and Lamoille County Regional Plan.

### **Need for the Project – 30 V.S.A. § 248(b)(2)**

29. The Project is required to meet the need for present and future demand for service which could not otherwise be provided in a more cost-effective manner through energy conservation programs and measures, energy-efficiency, load management measures, the introduction of distributed generation or energy storage. The transmission line upgrades and new substation will address both asset management concerns and increase reliability. This Project is the most cost-effective option for significantly reducing SHEI congestion and securing benefits that Vermont electric customers receive from renewable generation in northern Vermont.

### **System Stability and Reliability – 30 V.S.A. § 248(b)(3)**

30. The Project will not have an undue adverse impact on system stability and reliability. The proposed Project will improve system reliability by addressing aging infrastructure. New technologies will allow for identification of fault location, enhanced



response times for outages, and substation improvements will enable high-speed transformer protection. Additionally, the Project is expected to enable ISO-New England to increase the export limits on the SHEI, resulting in economic benefits associated with increased output of existing renewable resources, without adversely effecting systems stability and reliability.

**Economic Benefit to the State – 30 V.S.A. § 248(b)(4)**

31. The Project will provide an economic benefit to the state and its residents. The asset management issues addressed by the Project will prevent equipment failure and will ensure that the 34.5 kV network stays intact to serve GMP customers as well as other utilities. In addition, the Project also benefits Vermont electricity customers by mitigating adverse impacts created by the existing SHEI constraints.

**Aesthetics, Historic Sites, Environmental - 30 V.S.A. § 248(b)(5)**

32. The Project will not have any undue adverse impacts on aesthetics, historic sites, air and water purity, the natural environment, the use of natural resources, and the public health and safety with due consideration having been given to the criteria specified in 10 V.S.A. §§ 1424(d) and 6086(a)(1) through (8) and (9)(K), impacts to primary agricultural soils as defined in 10 V.S.A. § 6001, and greenhouse gas impacts.

**Public Health and Safety – 30 V.S.A. § 248(b)(5)**

33. The Project will not have any adverse effects on the safety of the public or adjoining landowners. The line rebuilds and substation upgrades of the Project call for new equipment and technologies which will be designed and constructed in accordance with current National Electric Safety Code (“NESC”) requirements. GMP will use quality materials and adhere to careful construction practices throughout the construction phase. As well, the Project will not restrict or divert the flow of floodwaters or endanger the health, safety, and welfare of

the public, riparian, or downstream landowners during flooding or from potential erosion.

**Air Pollution – 10 V.S.A. § 6086(a)(1)**

34. The Project will not result in undue air pollution.

**Water Pollution 10 V.S.A. § 6086(a)(1)**

35. The Project will not result in undue adverse impacts to water resources.

**Headwaters – 10 V.S.A. § 6086(a)(1)(A)**

36. The Project will have no undue, adverse effect on headwater resources.

**Waste Disposal – 10 V.S.A. § 6086(a)(1)(B)**

37. The Project will be in compliance with DEC regulations related to the disposal of wastes. Retired and unused materials will be recycled or disposed of as appropriate and in compliance with all applicable regulations. The proposed substation design will include oil containment sufficient to accommodate the volume of all oil-filled equipment in the facility.

**Water Conservation– 10 V.S.A. § 6086(a)(1)(C)**

38. The Project will not require the use of water.

**Floodways – 10 V.S.A. § 6086(a)(1)(D)**

39. The Project does not involve any construction within floodways. The Lowell Substation is not located within a designated floodway or Special Flood Hazard Area (“SFHA”). There will be no new structures located within SFHAs.

**Streams – 10 V.S.A. § 6086(a)(1)(E)**

40. The Project will maintain the existing natural stream channel conditions, and will not endanger the health, safety, or welfare of the public or adjoining landowners.

**Shorelines – 10 V.S.A. § 6086(a)(1)(F)**

41. Part of the Project is located on a shoreline. Between the Johnson and Lowell

substations, Line B20 crosses the Missisquoi and Gihon Rivers. Along Line B22, there are two poles adjacent to the shoreline of the Lamoille River. The transmission lines will be reconstructed in their existing alignments. In Shoreline areas, poles will either be replaced in-place, or farther from the shoreline if practicable. There will be no adverse impact on shorelines.

**Wetlands – 10 V.S.A. § 6086(a)(1)(G)**

42. The Project avoids and minimizes impacts to significant wetlands and their associated upland buffers. The Project will comply with all applicable wetland regulations, based on receipt of state and federal permit approvals and adherence to required best management practices for maintenance activities.

**Sufficiency of Water/Burden on Existing Water Supply – 10 V.S.A. §§ 6086(a)(2), (3)**

43. The Project will not require a water supply.

**Soil Erosion – 10 V.S.A. § 6086(a)(4)**

44. The Project will not cause unreasonable soil erosion or reduction in the capacity of the land to hold water so that a dangerous or unhealthy condition may result. GMP will ensure that construction is performed in accordance with a stormwater construction permit issued by the DEC Water Quality Division, including adherence to the DEC Low Risk Site Handbook for Erosion Prevention and Sediment Control, or a site-specific EPSC plan as required.

**Transportation Systems, Education and Government Services**  
**10 V.S.A. §§ 6086(a)(5), (6), (7)**

45. The Project will not cause unreasonable congestion or unsafe conditions with respect to the use of highways, waterways, railways, airports, or airways.

46. Educational services will not be affected by the Project.

47. The Project is not anticipated to have any impact on municipal or governmental services.

**Historic Sites – 10 V.S.A. § 6086(a)(8)**

48. The Project will not have an undue adverse impact on historic sites. Based on review by its archeology consultant, one site has been identified along the B20 Line for which Phase II testing is proposed. Results of all surveys will be provided to the Vermont Division for Historic Preservation (“DHP”). Should the surveys identify significant historic sites, GMP will employ measures to avoid or appropriately mitigate any potential impacts based on recommendations of its consultant and only with DHP approval.

**Rare and Irreplaceable Natural Areas – 10 V.S.A. § 6086(a)(8)**

49. The Project will not have an undue adverse impact on rare and irreplaceable natural areas (“RINAs”). Based on its database review and detailed field natural resource assessments, GMP’s consultant determined that there are no RINA in the Project areas.

**Aesthetics and Scenic or Natural Beauty – 10 V.S.A. § 6086(a)(8)**

50. The Project will not have an undue adverse impact on aesthetics or the scenic and natural beauty of the area. The line work primarily consists of the reconstruction of existing lines in their current location, with moderate increases in average pole heights in some locations. The new Lowell Substation will be built adjacent to the existing substation with only minor changes in terms of public views.

**Necessary Wildlife Habitat and  
Endangered Species – 10 V.S.A. § 6086(a)(8)(A)**

51. The Project will not unduly adversely impact necessary wildlife habitat or endangered species.

**Development Affecting Public Investments – 10 V.S.A. § 6086(a)(9)(K)**

52. The Project will not unnecessarily or unreasonably endanger any public or quasi-public investment in the facility, service, or lands, or materially jeopardize or interfere with the

function, efficiency, or safety of, or the public's use or enjoyment of or access to the facility, service, or lands.

**Outstanding Resource Waters– 10 V.S.A. § 1424a(d); 30 V.S.A. § 248(b)(8)**

53. The Project is not located within the vicinity of any Outstanding Resource Waters.

**Greenhouse Gas Impacts - 30 V.S.A. § 248(b)(5)**

54. The Project does not involve equipment that will emit or store greenhouse gases including sulfur hexafluoride. Emissions from construction vehicles will be small in scale and temporary in nature.

**Primary Agricultural Soils – 30 V.S.A. § 248(b)(5)**

55. The Project will not have an undue adverse impact on primary agricultural soils.

**Consistency with Principles of Resource Selection Contained in GMP's IRP – 30 V.S.A. § 248(b)(6)**

56. The construction of the Project is consistent with least-cost principles and consistent with GMP's approved Integrated Resource Plan ("IRP"). GMP seeks to serve projected customer loads in a reliable and efficient manner as outlined in its approved 2018 IRP. The Project will enable the company to satisfy its obligation to serve and to meet the needs of its customers in a reliable and efficient manner consistent with the resource selection criteria outlined in that plan and with the orders issued by the Commission relating to transmission and distribution planning. In addition, this Project is also a strategic renewable energy project designed to increase the output and usefulness of renewable generation resources in the SHEI. As such, the Project supports GMP's renewable goals set forth in the Plan.

**Compliance with DPS Electric Plan – 30 V.S.A. § 248(b)(7)**

57. The Project is in compliance with the 2016 Vermont Comprehensive Energy Plan

which incorporates the Vermont Electric Plan (the “Plan”). The Plan identifies the basic objectives that must be satisfied in serving the public interest. Utilities are required to serve their customers at the lowest life-cycle costs, including environmental and economic costs. These objectives call for the provision of electric service that is the most efficient and cost-effective. The Project supports these objectives by improving the reliability of the power delivery system in the affected area at least cost.

**Can be Served Economically by Existing or Planned Transmission Facilities – 30 V.S.A. § 248(b)(10)**

58. The Project can be served economically by existing or planned transmission facilities. The Project will not have an adverse effect on other Vermont utilities or customers. The Project will improve the reliability of the Lowell Substation. In addition, the increased capacity of the SHEI will increase the economic benefits that Vermont electric customers receive from renewable generation in northern Vermont.

**VI. SUMMARY OF TESTIMONY**

In support of this Petition, GMP submits prefiled testimony and exhibits sponsored by the following witnesses:

<u>Witnesses</u>	<u>Subject</u>
John R. Fiske	Mr. Fiske describes the overall Project. He also describes the proposed construction schedule and introduces the other witnesses offering testimony in support of this Project.
Kim L. Jones	Provides evidence in support of the issuance of a Certificate of Public Good authorizing the rebuild of the Lowell Substation and the upgrade of 18.1 miles of the B20 line from Johnson to Lowell and 1.5 miles of the B22 line in the Towns of Lowell, Eden, Johnson, and Morristown, Vermont. She also addresses system stability and reliability, need, least-cost planning, consistency with Vermont’s electric energy plan, economic benefit, and impacts on existing or planned transmission facilities. Witness Jones also sponsors the project cost estimate.

Douglas C. Smith	Mr. Smith discusses how this Project, in addition to being a key asset condition and reliability project, is part of a least-cost package of solution steps that will cost-effectively reduce current congestion of the SHEI, resulting in a significant economic benefit to Vermont electric customers. Mr. Smith provides a detailed description of the current SHEI transmission constraint, describes the robust process that GMP and others have engaged in to explore potential ways to mitigate the SHEI constraint, explains why this Project is expected to reduce congestion, and provides an assessment of the net economic benefits that will flow to customers as a result of increasing the benefits that Vermont electric customers receive from renewable generation in northern Vermont.
Timothy O. Upton	Discusses the potential environmental and land-use impacts of the Project and the associated criteria under 30 V.S.A. § 248.
Craig Myotte	Explains how the B22 upgrade component of the overall Project, which is owned by Morrisville Water and Light and the Village of Johnson Water and Light Department, will provide asset condition and reliability benefits to municipal customers. He also discusses the risks and benefits that will be considered by municipal voters under 30 V.S.A. § 248(c)(1).

## **VII. CONCLUSION**

WHEREFORE, GMP, MWL and JWL respectfully request that the Commission:

- (1) Hold a scheduling conference as soon as reasonably possible, establish a schedule for this case, and issue an Order approving the Project under 30 V.S.A. § 248.
- (2) Issue the Order approving the Project under 30 V.S.A. § 248 by April 1, 2020, in order to allow the Village of Johnson and Village of Morrisville to hold a vote on the B22 portion of the Project at the regularly scheduled annual meetings to be held in April 2020 and, in any event, to permit construction to commence on the B20 portion of the Project in May 2020.
- (3) Find that the proposed Project will promote the general good of the State of Vermont, and authorize GMP to undertake the actions as described herein and in its testimony and exhibits, and issue a Certificate of Public Good to that effect.
- (4) Issue any further relief as the Commission deems just and proper.


DATED at Burlington, Vermont this 1<sup>st</sup> day of November, 2019.

RESPECTFULLY SUBMITTED,


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