

STATE OF VERMONT  
PUBLIC UTILITY COMMISSION

Case No. 19-4464-PET

<p>Petition of Green Mountain Power Corporation for a certificate of public good, pursuant to 30 V.S.A. § 248, authorizing the rebuild of the Lowell Substation and the upgrade of the B20 line in Eden, Johnson, and Lowell, Vermont; and Joint Petition of Green Mountain Power Corporation, the Village of Morrisville Water &amp; Light Department, and the Village of Johnson Water &amp; Light Department authorizing the upgrade of the B22 line in Johnson and Morristown, Vermont</p>	<p>Hearing at Montpelier, Vermont March 9, 2020</p>
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Order entered: 05/21/2020

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**ORDER GRANTING CERTIFICATE OF PUBLIC GOOD**

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In this Order, the Vermont Public Utility Commission (“Commission”) adopts the findings, conclusions, and recommendations made in the Hearing Officer’s proposal for decision.

## **PROPOSAL FOR DECISION**

### **I. INTRODUCTION**

This case involves a petition filed by Green Mountain Power Corporation (“GMP”), requesting a certificate of public good (“CPG”) pursuant to 30 V.S.A. § 248, authorizing the rebuild of the Lowell Substation and the upgrade of 18.1 miles of the B20 transmission line in Eden, Johnson, and Lowell, Vermont (the proposed “B20 Project”). This case also involves a joint petition filed by GMP, the Village of Morrisville Water & Light Department (“Morrisville Water & Light”) and the Village of Johnson Water & Light Department (“Johnson Water & Light”) requesting a CPG pursuant to 30 V.S.A. § 248, authorizing the rebuild of 1.5 miles of the B22 line in Johnson and Morristown, Vermont (the proposed “B22 Project”).

In this proposal for decision, I recommend that the Commission approve the B20 and B22 Projects and issue a CPG, subject to conditions, to GMP, Morrisville Water & Light, and Johnson Water & Light authorizing construction and operation of the B20 and B22 Projects.

Because the B22 Line is owned by Morrisville Water & Light and Johnson Water & Light, the B22 Project is considered “municipal plant” under 30 V.S.A. § 248(c)(1), and is subject to the approval of Morrisville and Johnson voters at a duly warned meeting.

### **II. PROCEDURAL HISTORY**

On November 4, 2019, GMP filed a petition for a CPG authorizing the B20 Project and in that same filing GMP, Morrisville Water & Light, and Johnson Water & Light filed a joint petition for a CPG authorizing the B22 Project.

On December 13, 2019, I held a prehearing conference in this case.

On January 8, 2020, Keith Wooster of Kirby, Vermont filed public comments stating concerns about the costs to ratepayers.

On January 16, 2020, a public hearing was held at the Johnson Town Hall in Johnson, Vermont. No members of the public attended the hearing.

On January 27, 2020, GMP filed supplemental testimony.

On January 29, 2020, the Vermont Division for Historic Preservation (“DHP”) was granted a motion to intervene.

On February 4, 2020, site visits were held at the B20 and B22 Project sites in Lowell, Eden, and Morrisville, Vermont.

On March 4, 2020, GMP, Morrisville Water & Light, Johnson Water & Light, and the Vermont Agency of Natural Resources (“ANR”) filed a Memorandum of Understanding (“ANR MOU”).

On March 5, 2020, GMP, Morrisville Water & Light, Johnson Water & Light, and DHP filed an MOU (“DHP MOU”).

On March 5, 2020, GMP, Morrisville Water & Light, Johnson Water & Light, and the Vermont Agency of Agriculture, Food, and Markets (“AAFM”) filed a stipulation.

On March 6, 2020, the Vermont Department of Public Service (“Department”) filed testimony.

An evidentiary hearing was held on March 9, 2020, in the Commission’s hearing room in Montpelier, Vermont. At the hearing, the prefiled testimony, exhibits, MOUs, and Stipulation were entered into evidence. Parties agreed that additional testimony and an exhibit filed after the hearing should be entered into evidence.

On March 11, 2020, GMP filed an additional exhibit addressing project need.

On March 13, 2020, GMP filed supplemental testimony addressing archeological studies.

On March 20, 2020, GMP, Morrisville Water & Light, and Johnson Water & Light filed a proposed proposal for decision and a proposed CPG.

On March 23, 2020, DHP filed comments stating that it had no objections to supplemental testimony filed on March 13, 2020, and stating that it waived its rights under 3 V.S.A. § 811 to review and comment on the proposal for decision provided that the Commission issues an order consistent with the DHP MOU.

On March 30, 2020, GMP, Morrisville Water & Light, Johnson Water & Light, and AAFM filed a revised stipulation to include an attachment that previously was not appended (“AAFM Stipulation”).

On April 6, 2020, the Department filed comments stating that it waived its rights under 3 V.S.A. § 811 to review and comment on the proposal for decision provided that the Commission issues an order consistent with the petitioners' proposed proposal for decision.

On May 15, 2020, GMP filed an update on the schedule for the town votes.

### **III. FINDINGS**

Based upon the petition and the accompanying record in this proceeding, I have determined that this matter is ready for decision. Based on the evidence of record, I report the following findings to the Commission in accordance with 30 V.S.A. § 8(c).

#### **Description of the Project**

1. GMP is a duly organized public service corporation with a 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. John Fiske, GMP ("Fiske") pf. at 3; Petition at 1-2.

2. Morrisville Water & Light is a duly organized public service corporation with a 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. Morrisville Water & Light is also a duly organized municipal electric utility under 30 V.S.A. §§ 2901 through 2925. Craig Myotte, Morrisville Water & Light ("Myotte") and Meredith Dolan, Johnson Water & Light ("Dolan") supp. pf. at 2; Petition at 2.

3. Johnson Water & Light is a duly organized public service corporation with a 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. Johnson Water & Light is also a duly organized municipal electric utility under 30 V.S.A. §§ 2901 through 2925. Myotte and Dolan supp. pf. at 2; Petition at 2.

4. The B20 Project includes the rebuild of the Lowell Substation and the upgrade of 18.1 miles of the B20 transmission line in Eden, Johnson, and Lowell, Vermont. The B20 line and the Lowell Substation are owned and operated by GMP. Fiske pf. at 5.

5. The B22 Project includes the upgrade of 1.5 miles of the B22 line in Johnson and Morristown, Vermont. The B22 line is owned by both Morrisville Water & Light and Johnson Water & Light. Fiske pf. at 5.

6. Together, the B20 Project and the B22 Project address congestion in the constrained local transmission area known as the Sheffield/Highgate Export Interface (“SHEI”). The B20 and B22 Projects also improve reliability and safety by addressing aging infrastructure and asset management. Kim Jones, GMP (“Jones”) pf. at 5-10.

#### Lowell Substation

7. The Lowell Substation, located in Lowell, Vermont, is part of GMP’s looped sub-transmission network in northern Vermont. A voltage transformation takes place at the substation connecting GMP’s 34.5 kV sub-transmission network (through the B20 line) to the 46 kV transmission network (through the 46 kV Irasburg transmission line). Fiske pf. at 5-6.

8. The B20 Project rebuilds the Lowell Substation in a location adjacent to the existing Lowell Substation. The upgrade involves the replacement of like-in-kind equipment and new additional equipment to support a new transmission system reconfiguration. Fiske pf. at 5-6.

9. The existing Lowell Substation consists of a fenced-in yard (approximately 50 feet by 105 feet in size), a control building, a steel box structure, two 34.5 kV gang operated air-break switches, six single blade circuit breaker disconnect switches, a 1973 vintage 38 kV oil circuit breaker, a 1973 vintage 15/20 MVA, 43.8/34.5 kV autotransformer with associated station class lightning arresters, three potential instrument transformers for protective relaying purposes, and a station service transformer. Fiske pf. at 6; exh. GMP JRF-1.

10. The new Lowell Substation will include the following:

- A new fence with foundations to create a fenced yard approximately 130 feet by 120 feet in area and 8 feet tall;
- New equipment foundations, ground grid, and below-grade trench and conduit systems;
- A new 30/40/50//56 MVA, 46/34.5 kV autotransformer with oil containment including associated station class lightning arresters;
- A new 38 kV vacuum B20 circuit breaker with associated single blade disconnect switches, two-bay steel structure (approximately 18 feet by 18 feet in area and 26.5 feet tall), and 34.5 kV bus work;
- A new 72 kV vacuum B30 circuit breaker with associated single blade disconnect switches, two-bay steel structure (approximately 18 feet by 18 feet in area and 26.5 feet tall), and 46 kV bus work;
- Three-phase to neutral bus potential transformers and a phase-to-phase line potential transformer for 34.5 kV transmission line protective relaying purposes, all with associated fusing;

- Three-phase to neutral bus potential transformers and a phase-to-phase line potential transformer for 46 kV transmission line protective relaying purposes, all with associated fusing;
- A normal 15 kVA station service transformer connected to the bus side of the B20 circuit breaker;
- An alternate 15 kVA station service transformer with associated transfer switch and AC distribution panel connected to a local distribution feeder;
- A control building (approximately 18 feet by 24 feet in area and 15 feet tall at the peak of the roof);
- Relay protection, control panels, SCADA equipment, fiber optic communications equipment, other miscellaneous control devices, DC battery system, and AC/DC distribution panels housed in the control building; and
- A new security system and substation yard lighting, for maintenance and emergency activities, installed on steel poles (approximately 18 feet tall) inside the substation fence.

Fiske pf. at 6-8; exhs. GMP JRF-2, GMP JRF-3, GMP JRF-4, GMP JRF-5, GMP JRF-6, GMP JRF-7, GMP JRF-8, and GMP JRF-9.

11. The modification of the 46 kV sub-transmission circuit (46 kV Irasburg sub-transmission line) entrance into the Lowell Substation will include the removal of an existing structure with associated anchoring and the installation of two new 50-foot structures with associated anchoring. Fiske pf. at 7; exh. JRF-3.

12. The existing Lowell Substation will remain intact and energized during the construction of the new substation and will be retired after the commissioning of the new Lowell Substation. Retirement of the existing Lowell Substation includes the removal of the existing equipment, fencing, and foundations. Fiske pf. at 8-9; Jones pf. at 16.

### B20 Line

13. The B20 Project rebuilds the existing 34.5 kV sub-transmission B20 line with new structures and conductor within the existing right-of-way. Fisk pf. at 9; Jones pf. at 4; exh. GMP JRF-10 (revised), sheets 1-21.

14. The B20 line is part of the looped sub-transmission system in northern Vermont and travels approximately 18.1 miles between the existing Lowell and Johnson Substations. Fiske pf. at 9-10.

15. The existing B20 line consists of 348 T-shaped structures of various vintages: 292 1950-vintage structures; two 1960-vintage structures; one 1980-vintage structure; seven 1990-vintage structures; 13 2000-vintage structures; and 33 2010-vintage structures. Fiske pf. at 9.

16. The B20 Project replaces the existing structures with 355 new structures using horizontal line post insulator construction. The B20 Project also replaces the existing 4/0 ACSR conductor with higher capacity 795 ACSR conductor. Jones pf. at 4; Fiske pf. at 9; Fiske supp. pf. at 2; exh. GMP JRF-10 (revised), sheets 1-21.

17. The locations of the new structures for the B20 Line have been selected to maximize the span lengths and to reduce environmental impacts. The design approach yielded the minimum amount of increased structures. Fiske pf. at 9; Fiske supp. pf. at 2; exh. GMP JRF-10 (revised), sheets 1-21.

18. During B20 Project construction, the existing B20 line conductor will remain in service until the new B20 line structures and conductor are installed. The existing structures and conductor will be retired after the new line is in service. Fiske pf. at 9-10.

#### B22 Line

19. The B22 Project rebuilds a 1.5-mile portion of the existing 34.5 kV sub-transmission B22 line with new structures and conductor within the existing right-of-way. Jones pf. at 4.

20. The existing B22 line travels approximately 6.8 miles between the GMP Johnson Substation and Morrisville Water & Light #3 Substation. The B22 Project upgrades the 1.5-mile portion of the line starting near the vicinity of the Cady's Falls tap, at the intersection of Duhamel Road and Cady's Farm Road, and ending at the #3 Substation. Fiske pf. at 10.

21. Morrisville Water & Light owns 85% of the B22 line, and Johnson Water & Light owns 15% of the line. Fiske pf. at 10; Myotte and Dolan supp. pf. at 3.

22. The existing 1.5-mile portion of the B22 line uses a double-circuit, T-shaped construction, with the B-22 line on an upper crossarm and the 3319 line on a lower crossarm. This portion of the line has 34 structures of various vintages: one 1950-vintage structure; 24 1960-vintage structures; three 1970-vintage structures; two 1980-vintage structures; two 1990-vintage structures; and two 2010-vintage structures. Fiske pf. at 10.

23. The B22 Project replaces the existing structures with 37 new structures using the same double-circuit, T-shaped construction. The B22 Project also replaces the existing 336



MCM ACSR conductor on the B22 line with higher capacity 477 MCM ACSR conductor. The existing B22 line conductor will serve as new conductor for the 3319 line, replacing the existing 3/10 ACSR conductor. Fiske pf. at 10-11; exh. GMP JRF-11, sheets 1-5.

24. The locations of the new structures for the B22 line have been selected to reduce environmental impacts and minimize the number of new structures. Fiske pf. at 11; exh. GMP JRF-11, sheets 1-5.

25. During the B22 Project construction, the existing B22 line conductors will remain in service until the new B22 line structures and conductor are installed. The existing structures and conductor will be retired after the new lines are in service. Fiske pf. at 11.

#### SHEI Area

26. The SHEI refers to an export constraint on the electric transmission system that occurs in northern Vermont. It currently extends from approximately the Vermont/New Hampshire border in northeastern Vermont to Alburgh in northwestern Vermont. Doug Smith, GMP (“Smith”) pf. at 4.

27. The SHEI is often export-constrained. An export constraint occurs when the energy generation resources exceed the electric demand in the area, and the transmission lines leading out of the area are not sufficient to transport out the excess energy without jeopardizing the reliable operation of the grid. This situation tends to be worse in times of high local generation and low local demand, both of which increase the amount of energy that needs to be exported. McNamara, Vermont Department of Public Service (“McNamara”) pf. at 2; Smith pf. at 5.

28. ISO New England demarcated the SHEI as export constrained and established generator operation limits to ensure that the transmission system’s capacity to function reliably remains intact. During certain operational periods, these limits are reached and generation resources in areas of northern Vermont that sell power in the regional energy markets are required to reduce their output due to the lack of transmission system capacity to export power. McNamara pf. at 2; Smith pf. at 5-6.

29. ISO-New England imposes limits on generation resources in the SHEI through a Do-Not-Exceed dispatch rule. Under the Do-Not-Exceed dispatch rule, ISO New England manages the generation in an export-constrained interface (constraint that limits the amount of power that

can be moved from one region to another) by scheduling and dispatching generation through the energy markets based on energy bid price. McNamara pf. at 2; Smith 5-6.

30. Under the Do-Not-Exceed dispatch rule, during times when the SHEI is export-constrained, locational marginal prices at generation nodes in the SHEI are reduced compared to the rest of Vermont and New England. In addition, existing generation resources in the SHEI that sell output in the electricity markets receive dispatch instructions from ISO New England to reduce output. These occurrences reduce the net energy revenues that the generator receives. McNamara pf. at 2-3; Smith pf. at 6.

31. The SHEI includes multiple large energy resources (greater than 5 MW), including: imports from Hydro-Quebec across the Highgate converter station (Vermont utilities purchase approximately 225 MW under a long-term contract with Hydro-Quebec); the Kingdom Community Wind project (approximately 63 MW); the Sheffield Wind project (approximately 40 MW); the Sheldon Springs hydroelectric project (approximately 27 MW), and the Highgate Falls hydroelectric project (approximately 12 MW). These generation resources sell their energy output in the ISO New England electricity markets and are subject to ISO-New England dispatch rules. McNamara pf. at 2-3; Smith pf. at 11-12.

32. GMP owns the Kingdom Community Wind project. GMP is entitled to 55 MW of that project's output, and the remaining 8 MW of its output is sold to VEC under a cost-based power purchase agreement. Smith pf. at 11.

33. The SHEI area also includes multiple small (less than 5 MW) hydroelectric, solar, and farm methane generators. These generators do not sell their energy output in the electricity market, but instead operate as load reducers in the ISO New England settlement system, reducing the distribution utility's obligation to purchase electricity that matches its customers' use. Smith pf. at 5-6 and 11-12.

#### Construction Timeline

34. GMP expects to begin construction of the B20 Project as soon as possible after receiving the required permits and approvals. The estimated B20 Project construction schedule extends from the second quarter of 2020 through the fourth quarter of 2020. Fiske pf. at 13.

35. Construction of the B22 Project is expected to start after completion of the B20 Project. The estimated B22 Project construction schedule extends from the first quarter of 2021 through the second quarter of 2021. Fiske pf. at 13.

36. Before construction can begin on the B22 Project, pursuant to 30 V.S.A. § 248(c)(1), Morrisville Water & Light and Johnson Water & Light must seek approval through a town vote. The votes will approve the construction of the B22 line and the costs that the Morrisville Water & Light and Johnson Water & Light will incur for the B22 Project. Fiske pf. at 13; Myotte pf. at 5; Myotte and Dolan supp. pf. at 4.

37. Construction hours for the B20 Project and B22 Project will be from 7:00 a.m. to 7:00 p.m. Monday through Friday, 8:00 a.m. to 5:00 p.m. on Saturday, and shall cease on Sundays and state and federal holidays except where construction activities must be performed during required outages needed to maintain system reliability. Fiske pf. at 13.

38. No outages to customers are expected to complete the B20 Project or the B22 Project. The sub-transmission lines and substation affected by the B20 and B22 Projects do not directly serve distribution customers. Fiske pf. at 11-12.

39. Two lay-down areas will be used during construction of the B20 Project. The lay down areas are located on a one-acre lot in the Eden Sand and Gravel Quarry in Eden, Vermont and a one-acre lot directly accessed from Locke Ave in Hyde Park, Vermont. Fiske pf. at 12; exh. GMP-JRF-10 sheet 21.

40. The lay-down area for construction of the B22 Project is located on the cleared area directly east of the Morrisville Water & Light #3 substation. Fiske pf. at 12; exh. GMP-JRF-11 sheet 4.

### Discussion

GMP requests that construction on B20 Project be allowed to begin in advance of the B22 Project receiving all its pre-construction approvals. In particular, pursuant to 30 V.S.A. § 248(c)(1), the B22 Project requires the municipalities of Morrisville and Johnson to schedule a vote seeking authorization to construct the B22 line and approval of the costs that the Morrisville Water & Light and Johnson Water & Light will incur for the B22 Project. The votes in Morrisville and Johnson were initially scheduled to take place in April 2020. In March 30, 2020, and May 15, 2020, letters, GMP represented that due to the COVID-19 pandemic, the Johnson

annual meeting has been rescheduled for June 2, 2020. To date, the Morrisville meeting has not been rescheduled.

I recommend that the Commission allow GMP to begin construction of the B20 Project in advance of the B22 Project. The B20 Project has separate components and locations from the B22 Project and can be constructed in advance of the B22 Project. I further recommend that the CPG include two conditions allowing the separate construction timelines. The first CPG condition would require Morrisville Water & Light and Johnson Water & Light to seek voter approval of the B22 Project, pursuant to the requirements of 30 V.S.A. § 248(c)(1), in advance of any construction. The second CPG condition would allow GMP to begin construction of the B20 Project before the municipal vote provided that the pre-construction requirements that pertain to the B20 Project have been met.

### **Review of Project Under the Section 248 Criteria**

#### **Orderly Development of the Region**

[30 V.S.A. § 248(b)(1)]

41. The B20 and B22 Projects will not unduly interfere with the orderly development of the region. In making this finding, due consideration has been given to the recommendations of the municipal and regional planning commissions, the recommendations of the municipal legislative bodies, and the land conservation measures contained in the plan of any affected municipality. Substantial deference has been given to any applicable land conservation measures and specific policies contained in the duly adopted regional plan. This finding is supported by findings 42 through 48, below.

42. The B20 and B22 Projects involve the reconstruction and upgrade of existing transmission facilities in Johnson, Eden, Lowell, and Morristown. Upton pf. at 4.

43. Regular maintenance, improvements, and upgrades support land-use planning efforts in each affected municipality and in the surrounding region. The B20 and B22 Project upgrades will not negatively affect the orderly development of the region. Timothy Upton, GMP (“Upton”) pf. at 4-5; exh. GMP TOU-4.

44. The Johnson Municipal Development Plan, the Eden Town Plan, the 2014 Lowell Town Plan, and the 2015 Morristown Municipal Plan contain no applicable land conservation measures. Upton pf. at 5-9; exh. GMP TOU-4.

45. The 2018 Northeast Kingdom Regional Plan and the 2018 Lamoille County Regional Plan contains no applicable land conservation measures. Upton pf. at 9-11; exh. GMP TOU-4.

46. The required 45-day-notices of the B20 and B22 Projects were provided to the selectboards and planning commissions of the Village and Town of Johnson, the Town of Eden, Morristown, Morrisville, the Town of Lowell, the Lamoille County Planning Commission, and the Northeastern Vermont Development Association. Upton pf. at 12.

47. The Lamoille County Planning Commission reviewed the 45-day notice materials and concluded that the portion of the B20 and B22 Projects in Lamoille County conforms to the 2015-2023 regional plan. Upton pf. at 12; exh. GMP TOU-5.

48. GMP intends to use a property adjacent to Route 100 in Hyde Park as a laydown area. A 45-day notice was also provided to the Town and Village of Hyde Park. Upton pf. at 12.

#### **Need for Present and Future Demand for Service**

[30 V.S.A. § 248(b)(2)]

49. The B20 and B22 Projects will 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 and energy efficiency and load management measures. This finding is supported by findings 50 through 72, below.

50. The B20 and B22 Projects are needed to address aging infrastructure and asset management, to address reliability, and to reduce curtailment of existing generation due to the SHEI constraint. Jones pf. at 7-10; Myotte pf. at 3-4.

51. The B20 line and B22 line are part of the looped sub-transmission system in northern Vermont. The Lowell Substation is an important component of Vermont's distribution grid because the substation integrates the area's 46 kV and 34.5 kV networks, providing greater connectivity and strength. GMP, VEC, Johnson Water & Light, Morrisville Water & Light, and the towns of Hyde Park, Stowe, and Hardwick have customers fed directly or indirectly from the Lowell Substation and B20 and B22 lines. Jones pf. at 6-7; Fiske pf. at 9-10.

52. The B20 and B22 Projects are needed to replace aging poles and conductor on existing sub-transmission and to replace aging and obsolete equipment in the Lowell Substation, including a 1973-vintage transformer and circuit breaker. The upgrades are needed to improve system reliability in the northern Vermont area. Jones pf. at 4-9; Myotte pf. at 3-4.

53. The B20 Project includes a new 795 ACSR conductor with a load carrying capacity that is equivalent with the 30/40/50//56 MVA transformer being placed at the Lowell Substation. The 795 ACSR conductor experiences very low loss under normal loads and can carry the post-contingency thermal loadings of the area system. The conductor can be supported with single pole vertical construction and avoid the expense of excessively robust structures or short spans. Jones pf. at 9.

54. The B20 Project is part of GMP's asset management plan for addressing aging infrastructure. Under the plan GMP systematically upgrades transmission lines in a manner that maintains safety and reliability and spreads out reconstruction of identified projects for replacement within a realistic timeframe to manage the construction. Projects that have overlapping benefits for customers are usually given higher priority over other projects. Jones pf. at 7-8.

55. Because the B20 Project secures additional benefits for customers by reducing SHEI congestion, GMP determined that it should be a higher priority than other aging transmission projects. The B20 Project raises the SHEI voltage and thermal limit and represents a unique opportunity to meaningfully reduce SHEI congestion with modest incremental costs above those incurred to address the reliability issues associated with aging infrastructure and asset management. Jones pf. at 6-12.

56. The B22 Project is part of Morrisville Water & Light's plans to address aging infrastructure. The B22 line would need to be rebuilt by the 2024-2028 period. Construction of the B22 Project now will provide the benefit of reducing SHEI congestion and will obviate the need for some future investments by Morrisville Water & Light. Myotte pf. at 4-5; Myotte supp. pf. at 3; Smith pf. at 52.

57. The B20 and B22 Projects are the most cost-effective option to meet present and projected future demand for service within the affected area. The needed upgrades to address aging infrastructure and improve system reliability cannot be deferred or avoided with the introduction of conservation, efficiency measures, load management, or distributed generation resources. Jones pf. at 13; Myotte pf. at 3-4; Smith pf. at 52.

58. The SHEI area is export constrained. Rules implemented by ISO New England have resulted in reductions of output from existing generators and reductions in the locational marginal prices at SHEI nodes. McNamara pf. at 2-3; Smith pf. at 5-6.

59. VEC, the City of Burlington Electric Department (“BED”), GMP, and Washington Electric Cooperative, Inc. (“WEC”) own or purchase the output of generation that operates in the SHEI. The energy output of each of these sources is sold in the ISO New England energy markets, with the associated revenues reflected in the power supply costs of the purchasing/owning utility. Transmission constraints in the SHEI cause the output of local generation sources to be reduced or lower the locational marginal price revenues that these sources receive. McNamara pf. at 2-3; Smith pf. at 5-11.

60. The locational marginal price reductions that result when the SHEI is constrained reduce the net energy revenues that GMP receives for the output of the Kingdom Community Wind project in the regional energy market, increasing GMP’s net power supply costs. In addition, when the SHEI is constrained, the Kingdom Community Wind project often receives dispatch instructions from ISO New England to reduce output. When this occurs, GMP loses the market value of the Kingdom Community Wind energy that could have been produced, along with renewable energy credits and federal production tax credits associated with that project’s output. Smith pf. at 4-6; McNamara pf. at 2-3.

61. The B20 and B22 Projects are needed to increase the capacity of the sub-transmission system and allow for greater export of electricity from the SHEI area. The increase in capacity will reduce transmission congestion in the area and limit the number of hours per year that the ISO New England Do-Not Exceed dispatch rule imposes constraints on output of existing generation in the SHEI area. McNamara pf. at 3; Jones pf. at 6; Smith pf. at 5-11.

62. The B22 Project will be helpful during transmission outage conditions, helping to reduce the frequency of congestion and the depth of lost generation. Smith pf. at 27.

63. Under the implementation of the Do-Not Exceed dispatch rules, during the study period of June 2016 through December 2018, the SHEI has been congested approximately 11% of the time in the real-time energy market and approximately 8% of the time in the day-ahead energy market. Smith pf. at 9.

64. When the SHEI was constrained, during the study period of June 2016 through December 2018, Kingdom Community Wind was usually the marginal resource in the energy market whose output was limited to manage the constraint. On a monthly basis, Kingdom Community Wind generation lost to SHEI-driven curtailments is estimated to range from under 100 MWh in some summer months to several thousand MWh in other months, with a maximum monthly volume of over 6,000 MWh. Smith pf. at 9-10.

65. During the study period of June 2016 through December 2018, when all lines were in operation, there were approximately 1,900 hours that the SHEI limit resulted in some amount of lost generation. The amount of lost generation per hour ranged between approximately 1 MW and 60 MW, with the majority of lost generation being 25 MW or less. Smith pf. at 25-26.

66. GMP and other Vermont distribution utilities, with the assistance of VELCO, engaged in an evaluation of the options available to help mitigate the current SHEI constraint. Smith pf. at 44.

67. The Northern Vermont Export Study, developed by VELCO and a consultant, examined a range of potential steps expected to raise the export limit in the SHEI area. The study included detailed electrical modeling of the Vermont electric grid to estimate the extent to which each of a wide range of potential steps (including the B20 and B22 Projects) would affect the SHEI limit. Smith pf. at 14; exh. Petitioners-1.

68. The alternatives considered to address the SHEI constraint included new bulk transmission lines, energy efficiency, load management, beneficial electrification, distributed generation, and battery storage. Smith pf. at 44-52; Jones pf. at 11; McNamara pf. at 4-5; exh. Petitioners-1.

69. The B20 and B22 Projects are one of three anticipated steps (along with the installation of Automatic Voltage Regulators at the Sheffield Wind facility and the Sheldon Springs hydroelectric facility) estimated to raise the SHEI export limit sufficiently to address most congestion associated with current levels of load and generation in the area. Jones pf. at 12; Smith pf. at 16-18; exh. Petitioners-1.

70. During the study period of June 2016 through December 2018, the B20 and B22 Projects (along with the already installed Automatic Voltage Regulator at the Sheldon Springs hydroelectric facility) are estimated to reduce the hours of congestion and the associated lost



generation from approximately 1,900 hours to 250 hours. With addition of the Automatic Voltage Regulator at the Sheffield Wind facility, the B20 and B22 Projects are estimated to reduce the hours of lost generation to approximately 200 hours (an average of less than 100 hours per year). The amount of lost generation per hour is estimated to range between approximately 1 MW and 40 MW, with the majority of lost generation being 10 MW or less. Smith pf. at 25-28.

71. The B20 and B22 Projects, in conjunction with the Automatic Voltage Regulator projects, represent—by a substantial margin—the most cost-effective option for significantly reducing SHEI congestion and securing value for Vermont customers through associated increases in existing renewable energy generation output, tax credits, renewable energy credits, and increased locational marginal price values. Smith pf. at 44.

72. The B20 and B22 Projects, in conjunction with the Automatic Voltage Regulator projects, do not completely resolve the existing constraints in the SHEI area. The Projects mitigate the existing economic impacts associated with the SHEI by reducing the number of hours per year that curtailment of existing renewable generation occurs and the amount of congestion that exists in the area. However, if new generation is added in the area, or if there is a noticeable decrease in the amount of load, the export limit will become a significant concern for the existing generation in the area. McNamara pf. at 3; Smith pf. at 25-28.

### **Impact on System Stability and Reliability**

[30 V.S.A. § 248(b)(3)]

73. The B20 and B22 Projects will not have an adverse effect on system stability and reliability. This finding is supported by findings 74 through 76, below.

74. The B20 and B22 Projects will improve system reliability by addressing aging infrastructure and increasing system capacity. Jones pf. at 14; Bill Jordan, Vermont Department of Public Service (“Jordan”) pf. at 2.

75. The B20 Project will include new technologies and equipment at the Lowell Substation and along the B20 line. The new technologies will allow for identification of fault location, enhancing response time for outages on the B20 line. The addition of the B-30 breaker at the Lowell Substation will provide high-speed transformer protection. Jones pf. at 14.

76. The B20 and B22 Projects will raise the export limit in the SHEI area imposed by ISO New England and will not adversely affect system stability and reliability. Jones pf. at 14.

**Economic Benefit to the State**

[30 V.S.A. § 248(b)(4)]

77. The B20 and B22 Projects will result in an economic benefit to the State and its residents. This finding is supported by findings 78 through 97, below.

78. The asset management issues addressed by the B20 and B22 Projects will prevent equipment failure and increase the reliability of the 34.5 kV sub-transmission network that serves GMP customers and other distribution utilities' customers. Jones pf. at 14.

79. The B20 and B22 Projects will benefit the State and its residents by improving the reliability of the electrical system in the area and lowering the risk of outages due to equipment failure. Jones pf. at 14.

80. The B20 and B22 Projects will improve the efficiency of the sub-transmission system in the affected area. The reconductoring of the B20 and B22 lines will produce state-wide loss savings of approximately 1 MW at peak load. Jones pf. at 10.

81. The B20 and B22 Projects will increase municipal tax revenues based on the capital investment required for the upgrades and provide local economic benefits associated with engaging local businesses and contractors during the construction phase of the B20 and B22 Projects. Jones pf. at 14.

82. The B20 and B22 Projects provide an economic benefit to GMP ratepayers and other Vermont electricity ratepayers by reducing congestion in the SHEI area. Jones pf. at 14-15; Smith pf. at 30-32; McNamara pf. at 2-4.

83. The B20 and B22 Projects will raise the SHEI export limit established by ISO New England and reduce the transmission constraints in the SHEI area that cause the output of local generation sources that participate in the energy markets to be reduced or lower the locational marginal price revenues that these sources receive. GMP and other Vermont distribution utilities own or purchase the output of generation that operates in the SHEI. The increases in output and locational marginal price revenues are reflected in their power supply costs. The increases in revenues reduce net power costs for GMP and other Vermont distribution utilities, which in turn benefits ratepayers. McNamara pf. at 2-4; Smith pf. at 5-11 and 30-32.

84. The total costs for both the B20 and B22 Projects are estimated to be approximately \$15,455,719 (in 2019 dollars), and include: \$3,903,371 for materials, \$478,093 for labor; \$5,752,679 for contractor costs; \$2,526,624 for indirect costs; \$218,999 for allowance for funds used during construction; and \$2,575,953 for contingency. Jones pf. at 17; exh. GMP KLJ-1.

85. The total costs of the B20 Project are approximately \$14,435,838. The B22 line components are approximately \$10,734,001, and the Lowell Substation components are approximately \$3,701,837. Jones pf. at 17; exh. GMP KLJ-1.

86. The total cost of the B22 Project is estimated to be \$1,019,880. Although GMP will initially fund the construction of the B22 Project, Morrisville Water & Light and Johnson Water & Light will pay approximately \$211,591, or 20.7% of the overall cost. Because Johnson Water & Light owns 15% of the B22 line, it will pay approximately \$31,739, and Morrisville Water & Light will pay approximately \$179,852.35. Johnson Water & Light will pay in five annual installments. Myotte and Dolan supp. pf. at 3; exh. GMP KLJ-1.

87. The costs of the B20 and B22 Projects are estimated to have a net present value of approximately \$22.2 million (in 2021 dollars) over the project life and include approximately \$10.4 million for the asset condition upgrades and approximately \$11.8 million for the SHEI upgrades. Smith pf. 30-36.

88. The total benefits of the SHEI portion of the B20 and B22 Projects to GMP and its ratepayers are estimated to have a net present value of approximately \$23.5 million (in 2021 dollars) over the project lifetime and include approximately \$6.3 million in increased renewable generation, approximately \$12.7 million in decreased congestion, and approximately \$4.4 million in reduced B20 transmission losses. The estimate of benefits is conservative because it does not account for benefits for energy sources in the SHEI area that GMP does not own or purchase the energy output. Smith pf. at 30-36.

89. The net benefits of the SHEI portion of the B20 and B22 Projects to GMP and its ratepayers are estimated to have a net present value of approximately \$11.7 million (in 2021 dollars) over the project lifetime. This represents a lifetime benefit-to-cost ratio of approximately 2 to 1. Smith pf. at 35-36.

90. The B20 and B22 Projects reduce the costs associated with the SHEI curtailments and congestion in a cost-effective manner. The benefits are on the order of \$1 million to \$1.5 million a year. McNamara pf. at 4; Tr. 3/9/20 (Smith) at 96-99.

91. GMP is the largest holder of generation (through power purchase agreements and owned capacity) that is adversely affected by SHEI congestion. Most of the economic benefits of the SHEI portion of the B20 and B22 Projects will flow to GMP ratepayers. Smith pf. at 36.

92. The SHEI portion of the B20 and B22 Projects is cost-effective for GMP ratepayers regardless of whether the other Vermont distribution utilities that benefit from the upgrades share in paying the costs. GMP ratepayers would receive a significant benefit even if the full costs were borne by GMP. McNamara pf. at 4-7; Tr. 3/9/20 (Smith) at 93; Tr. 3/9/20 (McNamara) at 74.

93. Vermont distribution utilities support the implementation of the SHEI solution steps provided by the B20 and B22 Projects and the Automatic Voltage Regulators projects at the Sheffield Wind facility and the Sheldon Springs hydroelectric facility. The distribution utilities benefiting from the reductions in SHEI congestion agree to conduct discussions to develop a methodology for allocating the costs of the SHEI portion of the B20 and B22 Projects. The Department agrees to assist in these discussions if warranted. Smith pf. at 36-37; McNamara pf. at 7.

94. While most Vermont distribution utilities will benefit from the reductions in SHEI congestion, allocating costs in advance of the completion of the B20 and B22 Projects would be based on estimates of the changes to the SHEI export limit and associated impacts on generation output and locational marginal prices. A more equitable allocation of costs could be determined once the change to the SHEI export limit is known. McNamara pf. at 6-7.

95. The process for increasing the export limit for generation resources in the SHEI is not automatic or straightforward. The upgrades that allow for increased flow of energy from the SHEI area are first presented to ISO New England for review. ISO New England then conducts modeling and testing to measure the effects of the upgrades and to determine the extent to which the export limit of SHEI can be raised and under which conditions. McNamara pf. at 6-7.

96. The economic effects of the changes to the SHEI export limit will be better understood approximately 18 months after the issuance of a CPG for the B20 and B22 Projects

when a new SHEI export limit should be in place. GMP and other distribution utilities will then be able to assess how changes to SHEI export limit affect generation output (the Kingdom Community Wind facility and other generation units participating in the energy markets) and locational marginal prices. This assessment would be difficult without some period of operation under the new limit. McNamara pf. at 7.

97. Based on its share of benefits, GMP expects that its share of the costs of the SHEI portion of the B20 and B22 Projects (overall costs less the asset condition costs) would be approximately 80%. Tr. 3/9/20 (Smith) at 96-99.

### Discussion

As discussed further below, I am recommending that the Commission allow the B20 and B22 Projects to proceed with construction in advance of developing a methodology for allocating costs among the affected distribution utilities.

The economic benefits of the B20 and B22 Projects to the State and its residents are two-fold. First, the B20 and B22 Projects upgrade aging infrastructure and benefit the State and its residents by improving the reliability of the electrical system in the area and lowering the risk of outages due to equipment failure. Other economic benefits include those associated with the construction work and increased municipal tax payments. Second, the B20 and B22 Projects provide economic benefits to GMP ratepayers and other Vermont electricity ratepayers by reducing congestion in the SHEI area. These economic benefits include reductions in net power costs of the affected distribution utilities that result from the increases in output of generation that operates in the SHEI and the increases in locational marginal price revenues.

Because GMP is the largest holder of generation that is adversely affected by SHEI congestion, most of the economic benefits of the SHEI portion of the B20 and B22 Projects will flow to GMP ratepayers. The net economic benefits to GMP and its ratepayers are estimated to have a net present value of approximately \$11.7 million, which represents a lifetime benefit-to-cost ratio of approximately 2 to 1. The estimate of benefits is conservative because it does not account for benefits for energy sources in the SHEI area that GMP does not own or purchase the energy output.

For the asset management portion of the B20 and B22 Projects, the cost allocation has been determined based on the owner of the assets. GMP will bear that portion of the B20 Project

costs that represents an asset condition that GMP would have to incur even if the SHEI congestion did not exist. Likewise, Johnson Water & Light and Morrisville Water & Light agree to pay a portion of the B22 Project costs that represent their asset condition costs.

For the SHEI portion of the B20 and B22 Projects, GMP will initially pay the costs of the SHEI upgrades. GMP represents that the distribution utilities economically benefiting from the reductions in SHEI congestion have agreed to develop a methodology for allocating the costs of the SHEI upgrades among themselves once the B20 and B22 Projects are operational. While GMP is confident that SHEI upgrades will result in economic benefits to Vermont ratepayers, a more equitable allocation of costs could be determined once the change to the SHEI export limit are known. The change to the SHEI export limit will go into effect after the B20 and B22 Projects are operational. At that point in time, GMP and other distribution utilities will be able to assess how the change to SHEI export limit affect generation output (the Kingdom Community Wind facility and other generation units participating in the energy markets) and locational marginal prices. These assessments would be difficult without some period of operation under the new limit. Waiting for the SHEI upgrades to become operational allows GMP and the affected distribution utilities to reach a cost allocation agreement that fairly distributes the SHEI portion of B20 and B22 Project costs.

In past Commission decisions, in advance of the issuance of the CPG, cost allocation has been determined based on the customer or utility driving the need for the project. For example, the Commission has previously approved the allocation of costs to customers whose load growth creates the need for the proposed project.<sup>1</sup> However, given the unique circumstance of this case, I recommend that the Commission not determine the cost allocation in advance of the issuance of the CPG. Unlike other cost allocation determinations, here the distribution utilities that would contribute under an ultimate cost allocation agreement are not causing new project costs or SHEI congestion. Instead, the SHEI congestion is caused by existing system constraints and changes to the ISO New England Do-Not-Exceed dispatch rules that affect utility revenues. The determination of cost allocation will be based on the economic benefit of the upgrades in

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<sup>1</sup> See e.g., *Petition to Expand the Stratton Substation*, Docket 7101, Order of 3/8/06 at 6; *Petition to Upgrade the Dover Substation*, Docket 7429, Order of 8/26/08 at 5-7; and *Petition to Expand the Jay Peak Substation*, Docket 7816, Order at 6/22/12 at 15-16 and 23-25.

reducing SHEI congestion and not based on the affected distribution utilities driving incremental changes to the size (and cost) of the B20 and B22 Projects. Further, the determination of each affected utility's portion of economic benefit cannot be made equitably in advance of the operation of the SHEI upgrades.

Further, the B20 and B22 Projects will result in an economic benefit to GMP and its ratepayers even if GMP incurs the full cost of the SHEI upgrades. When operational, the B20 and B22 Projects are estimated to provide net power benefits of over \$1 million per year for GMP ratepayers. Moreover, GMP and its ratepayers are expected to receive most of the benefits of the SHEI upgrades (expected to be approximately 80%) and, without cost sharing, GMP estimates a lifetime benefit-to-cost ratio of approximately 2 to 1. Delaying implementation, to allow the distribution utilities to develop a cost allocation agreement, would undermine the economic value of the B20 and B22 Projects to ratepayers.

Because of the substantial economic benefits, the Department supports moving ahead with the proposed SHEI upgrades before a full agreement is in place regarding the cost allocation among GMP and the other affected Vermont distribution utilities. The Department also recommends that the CPG include a condition that tracks the progress toward developing a cost allocation agreement. The Department recommends that GMP file updates, at six-month increments for a period of 18 months after the issuance of the CPG. The updates would include: (1) any necessary actions taken to raise the SHEI export limit, including any test or analysis conducted by ISO New England; (2) a representation of the extent to which the SHEI export limit has been raised; and (3) any progress toward a cost allocation agreement among the affected electric distribution utilities. GMP has agreed to the inclusion of this CPG condition.

Given the estimated economic benefits to GMP ratepayers and because a cost allocation cannot be easily determined in advance of operating the SHEI upgrades, I recommend that the Commission issue a CPG without a cost sharing allocation among distribution utilities. GMP represents that it will work with the distribution utilities to develop a cost allocation agreement for the SHEI portion of the costs. The Department has also agreed to support these efforts. In addition, I recommend that the CPG include the condition recommended by the Department, and agreed to by GMP, that requires GMP to file updates on its progress toward developing a cost allocation agreement.

**Aesthetics, Historic Sites, Air and Water Purity, the Natural Environment,  
the Use of Natural Resources, and Public Health and Safety**

[30 V.S.A. § 248(b)(5)]

98. Subject to the conditions described below, the B20 and B22 Projects will not have an undue adverse effect on aesthetics, historic sites, air and water purity, the natural environment, the use of natural resources, or public health and safety, with due consideration having been given to the criteria specified in 10 V.S.A. §§ 1424a(d) and 6086(a)(1) through (8) and (9)(K), and greenhouse gas impacts. This finding is supported by findings 99 through 226, below, which give due consideration to the criteria specified in 10 V.S.A. §§ 1424a(d) and 6086(a)(1) through (8) and (9)(K).

**Outstanding Resource Waters**

[10 V.S.A. § 1424a; 30 V.S.A. § 248(b)(8)]

99. The B20 and B22 Projects will not affect any outstanding resource waters as defined by 10 V.S.A. § 1424a(d) because there are no outstanding resource waters in the Project areas. Upton pf. at 26; exh. GMP TOU-3 at 7-8.

**Air Pollution and Greenhouse Gas Impacts**

[30 V.S.A. § 248(b)(5); 10 V.S.A. § 6086(a)(1)]

100. The B20 and B22 Projects will not result in undue air pollution or greenhouse gas emissions. This finding is supported by findings 101 through 106, below.

101. Construction and maintenance of the B20 and B22 Projects will include limited vehicle emissions from the use of diesel- and gasoline-powered vehicles and equipment. Emissions from construction vehicles will be small in scale and limited to the duration of construction. Upton pf. at 25.

102. Dust from construction activities will be suppressed in accordance with the Vermont Department of Environmental Conservation Standards and Specifications for Erosion Prevention and Sediment Control. Upton pf. at 13.

103. There will be no sustained releases of greenhouses gases associated with the operation of the B20 and B22 Projects. The rebuilt Lowell Substation will not involve any equipment containing sulfur hexafluoride (SF<sub>6</sub>) gas. Upton pf. at 25.

104. The sound level of the new transformer at the Lowell Station is designed to be 10 dBA below the National Electrical Manufacturers Association TR-1 standard. The new



transformer will be approximately 3 dBA quieter than the existing transformer it replaces. Fiske pf. at 6-8; Upton pf. at 13; exh. GMP-TOU-6 at 1-2.

105. Based on modeling and background sound measurements, sound levels at the rebuilt Lowell Substation are predicted to result in an overall reduction in noise of 3 to 4 dBA. Sound levels, which include the new transformer with cooling fans running and the existing transformer at the adjacent VEC substation, are predicted to be no greater than 37 dBA at the nearest residence. Upton pf. at 13-14; exh. GMP TOU-6.

106. Sound from construction equipment for the B20 and B22 Projects will be limited to the duration and hours of construction. Upton pf. at 1.

### **Water Pollution**

[10 V.S.A. § 6086(a)(1)]

107. The B20 and B22 Projects will not result in undue water pollution. This finding is supported by findings 108 through 111, below, and the findings under the criteria of 10 V.S.A. §§ 6086(a)(1) through (4), below.

108. The new transformer at the Lowell Substation will be constructed with an oil containment system. The oil containment will be sufficient to accommodate a volume no less than 110% of the transformer oil capacity plus five inches of freeboard rain. The Lowell Substation yard will be surrounded by a six-inch oil containment berm that feeds to an oil/water filter and passive filtration media. Fiske pf. at 6-8; Upton pf. at 15; exh. GMP-TOU-3 at 10; exh. GMP JRF-9.

109. The B20 and B22 Projects will result in less than one acre of impervious surfaces. The B20 and B22 Projects will not require an operational stormwater discharge permit. Upton pf. at 14; exh. GMP TOU-3.

110. Earth disturbance associated with construction and improvement of access routes for the B20 and B22 Projects will be greater than one acre. The B20 and B22 Projects will require a Vermont Stormwater Construction Discharge Permit. Upton pf. at 15; exh. GMP-TOU-3.

111. Under the terms of the ANR MOU, a Construction Stormwater Discharge Permit from the Stormwater Program in the Vermont Department of Environmental Conservation will

be obtained for the B20 and B22 Projects. The B20 and B22 Projects will comply with the provisions of the permit. Exh. Petitioners-ANR-1 at 2.

### Discussion

Under the terms of the ANR MOU, GMP, Morrisville Water & Light, and Johnson Water & Light agree to comply with the requirements of the Vermont Stormwater Program. To ensure no undue water pollution or stormwater impacts in the B20 and B22 Project areas, ANR, GMP, Morrisville Water & Light, and Johnson Water & Light propose that the requirement for a Construction Stormwater Discharge Permit be included as a CPG condition. I recommend that the Commission accept the terms of the ANR MOU with respect to the stormwater permit requirements and adopt the proposed CPG condition.

### Headwaters

[10 V.S.A. § 6086(a)(1)(A)]

112. The B20 and B22 Projects will not have an undue adverse effect on a headwaters area. This finding is supported by findings 113 through 116, below.

113. The B20 and B22 Project sites are located in headwaters areas because the sites contain steep slopes and shallow soils and are located in a watershed of less than 20 square miles. The B20 line area is also in watersheds of a public water supply as designated by ANR, including the Lowell Graded School GPA Zone 2, Eden Central School GPA Zone 2, and Hyde Park Fire District 1 Zone 3. Upton pf. at 14; exh. GMP-TOU-3 at 9-10.

114. The B20 and B22 Projects are not characterized by other features that define headwaters as set forth in 10 V.S.A. § 6086(a)(1)(A). They are not above 1,500 feet in elevation and are not in an area that supplies significant amounts of recharge water to aquifers. Upton pf. at 14; exh. GMP-TOU-3 at 9-10.

115. There will be no reduction in ground or surface water quality of headwaters from the construction and operation of the B20 and B22 Projects. Upton pf. at 13-15; exh. GMP TOU-3 at 7-11.

116. The B20 and B22 Projects will meet all applicable health and Vermont Department of Environmental Conservation regulations regarding reduction of the quality of the ground or surface waters in a headwaters area. Upton pf. at 13-15; exh. GMP TOU-3 at 9-11.

**Waste Disposal**

[10 V.S.A. § 6086(a)(1)(B)]

117. The B20 and B22 Projects will meet all applicable health and Vermont Department of Environmental Conservation regulations regarding the disposal of wastes and will not involve the injection of waste materials or any harmful or toxic substances into groundwater or wells. This finding is supported by findings 118 through 124, below.

118. Retired and unused materials associated with the B20 and B22 Projects will be recycled or disposed of as appropriate and in compliance with all applicable regulations. Upton pf. at 15.

119. Under the terms of the ANR MOU, the Lowell Substation site will be assessed for potential soil contamination in accordance with GMP's Environmental Management and Sampling Plan for Decommissioning and Reclamation of Electrical Facilities approved by the Waste Management and Prevention Division of the Department of Environmental Conservation. Upton pf. at 15-16; exh. Petitioners-ANR-1 at 3-4.

120. Under the terms of the ANR MOU, any remediation activities at the Lowell Substation site will be completed in accordance with the Investigation and Remediation of Contaminated Properties Rule (dated July 6, 2019), and a Corrective Action Plan approved by the Waste Management and Prevention Division. Upton pf. at 15-16; exh. Petitioners-ANR-1 at 3-4.

121. Under the terms of the ANR MOU, the existing Lowell Substation transformer and oil-filled circuit breakers scheduled for retirement will be sampled and tested for the presence and concentration of polychlorinated biphenyls. These tests will determine the appropriate methods of handling, transportation, and disposal. The retirement, marking, storage, transportation, and disposal of the transformer, breakers, and mineral oil dielectric fluid will be performed in accordance with all applicable regulations. Upton pf. at 15-16; exh. Petitioners-ANR-1 at 4.

122. Under the terms of the ANR MOU, a hazardous materials inventory for the existing control building at the Lowell Substation site will be conducted. The inspection will include lead, asbestos, and hazardous and universal wastes. Disposal of wastes, including

demolition debris, will be performed in accordance with all applicable regulations. Upton pf. at 16; exh. Petitioners-ANR-1 at 4.

123. Under the terms of the ANR MOU, GMP shall update the Spill Prevention, Control, and Countermeasure Plan to reflect the Lowell Substation upgrades within six months of completing the B20 Project. Exh. Petitioners-ANR-1 at 2.

124. Under the terms of the ANR MOU, the installation of all new B20 and B22 line poles and the retirement and disposal of all existing poles will be conducted in accordance with the best management practices for penta-poles established in Docket No. 8310. Upton pf. at 15; exh. Petitioners-ANR-1 at 4.

### Discussion

Under the terms of the ANR MOU, GMP, Morrisville Water & Light, and Johnson Water & Light agree to certain waste management practices. These practices include assessing the Lowell Substation for potential soil contamination and implementing any needed Corrective Action Plan. In addition, installation of all new B20 and B22 line poles and the retirement and disposal of all existing poles will include best management practices for penta-poles. To ensure no undue water pollution and that wastes are properly managed in the B20 and B22 Project areas, ANR, GMP, Morrisville Water & Light, and Johnson Water & Light propose that the waste control, management, and disposal requirements be included as CPG conditions. I recommend that the Commission accept the terms of the ANR MOU with respect to the waste control, management, and disposal requirements and adopt the proposed CPG conditions.

### **Water Conservation**

[10 V.S.A. §§ 6086(a)(1)(C)]

125. The B20 and B22 Projects will not have an undue adverse effect on water conservation because the B20 and B22 Projects will not involve the use of water. Upton pf. at 16 and 19-20.

### **Floodways**

[10 V.S.A. § 6086(a)(1)(D)]

126. The B20 and B22 Projects will not have an undue adverse effect on floodways or floodway fringes. This finding is supported by findings 127 through 137, below.

127. The Lowell Substation is not located within a designated floodway or special flood hazard area. Upton pf. at 16.

128. The B20 line upgrade will replace eight structures located within special flood hazard areas. Fifteen structures will be installed or replaced within mapped river corridors and four structures will be installed or replaced within 50 feet of streams that are subject to a 50-foot river corridor. There will be four fewer structures located within river corridors than in the existing configuration. Upton pf. at 16.

129. The B20 line upgrade has been designed to locate replacement structures when feasible in locations less affected during a flooding event, either farther from the source of flooding or at a higher elevation within the floodplain. Upton pf. at 16; exh. GMP-TOU-3, Appendix D at 2.

130. The B22 line has no new or existing structures located within a special flood hazard area. Two structures will be replaced within a river corridor in their existing locations. Upton pf. at 16; Upton supp. pf. (1/27/20) at 4.

131. The installation of structures on the B20 and B22 lines will occur with minimal ground disturbance and will not change the floodplain capacity. Upton pf. at 16; exh. GMP-TOU-3, Appendix D at 2.

132. Under the terms of the ANR MOU, encroachment into river corridors or flood hazard area in the B20 and B22 Project areas will be avoided. If encroachment is needed, a Flood Hazard Area and River Corridor General Permit or an Individual Permit, as determined by the Rivers Program in the Department of Environmental Conservation, will be obtained. The B20 and B22 Projects will comply with the provisions of the permit. Upton pf. at 16; exh. Petitioners-ANR-1 at 3.

133. Under the terms of the ANR MOU, all new structures and associated infrastructure placed within any special flood hazard area will be designed and installed using sound engineering and construction practices in order to protect against scour and prevent flotation, collapse, or lateral movement during flooding. All structures and infrastructure will be constructed with materials resistant to flood damage. Exh. Petitioners-ANR-1 at 3.

134. Under the terms of the ANR MOU, there will be no armoring or channelization of any stream or river to solely protect the structures and anchors from channel migration or stream erosion within a river corridor. Exh. Petitioners-ANR-1 at 3.

135. Under the terms of the ANR MOU, all laydown areas and temporary equipment pads will be located outside of a river corridor and special flood hazard area unless allowed under a Flood Hazard Area and River Corridor General Permit or Individual Permit. Exh. Petitioners-ANR-1 at 3.

136. Under the terms of the ANR MOU, upon the completion of construction, all laydown areas, access routes, and temporary equipment pads located within a river corridor or special flood hazard area will be restored to pre-construction conditions. Exh. Petitioners-ANR-1 at 3.

137. The B20 and B22 Projects will not restrict or divert the flow of flood waters, significantly increase the peak discharge of a river or stream within or downstream from the B20 and B22 Projects, or endanger the health, safety, or welfare of the public or of riparian owners during flooding. Upton pf. at 16; exh. GMP TOU-3 at 12-13.

### Discussion

Under the terms of the ANR MOU, GMP, Morrisville Water & Light, and Johnson Water & Light agree to avoid or minimize impacts in river corridors and special flood hazard areas when installing structures along the B20 and B22 lines. If needed to install certain structures, a Flood Hazard Area and River Corridor General Permit or Individual Permit will be obtained for the B20 and B22 Projects. To ensure no undue adverse effects on floodways or floodway fringes in the B20 and B22 Project areas, ANR, GMP, Morrisville Water & Light, and Johnson Water & Light propose that the avoidance and minimization measures be included as CPG conditions. I recommend that the Commission accept the terms of the ANR MOU with respect to floodways and floodway fringes and adopt the proposed CPG conditions.

### Streams

[10 V.S.A. § 6086(a)(1)(E)]

138. The B20 and B22 Projects will not have an undue adverse effect on streams. This finding is supported by findings 139 through 142, below.

139. There are no streams in the Lowell Substation area. There are 66 identified stream segments in the B20 line area. There are two identified intermittent streams and one ditch in the B20 line area. Upton pf. at 17; exh. GMP TOU-3 at 13-15.

140. The B20 and B22 Projects will avoid construction within the 50-foot riparian stream buffers. No construction activities will occur within the delineated stream channels. Upton pf. at 17; exh. GMP TOU-3 at 13-15.

141. Stream crossings for the B20 and B22 Projects will be accomplished using existing culverted road crossings that will not require upgrades or through the use of temporary construction mat bridges. Upton pf. at 17; exh. GMP TOU-3 at 13-15.

142. The B20 and B22 Projects will maintain the natural condition of all streams and will not endanger the health, safety, or welfare of the public or adjoining landowners because no work is required or proposed in any streams. Upton pf. at 17; exh. GMP TOU-3 at 13-15.

#### **Shorelines**

[10 V.S.A. § 6086(a)(1)(F)]

143. The B20 and B22 Projects will not have an undue adverse effect on any shorelines. This finding is supported by findings 144 through 149, below.

144. The Lowell Substation is not located within or adjacent to a shoreline. The B20 line crosses the Missisquoi and Gihon Rivers. There are two structures on the B22 line located adjacent to the shoreline of the Lamoille River, between the river and Cady's Falls Road, south of the hydroelectric plant. Upton pf. at 18; exh. GMP TOU-3 at 15-16.

145. Construction activities for the B20 and B22 lines will occur within the existing rights-of-way. There will be no change in the current shoreline character. Structures will either be replaced in-place, or farther from the shoreline if practicable. Structures will remain centered in the existing alignment. Upton pf. at 18; exh. GMP TOU-3 at 15-16.

146. All necessary approvals under the Vermont Flood Hazard and River Corridor Rule will be obtained before construction of the B20 and B22 Projects. Upton pf. at 18; exh. GMP TOU-3 at 15-16.

147. There will be no additional tree clearing required for the B20 and B22 Projects. Existing vegetative cover adjacent to the Missisquoi and Gihon Rivers will be maintained in

accordance with GMP's Vegetation Management Plan. Upton pf. at 18; exh. GMP TOU-3 at 15-16.

148. The B20 and B22 Projects must of necessity be located on the shorelines of the Missisquoi, Gihon, and Lamoille Rivers. The B20 and B22 lines must cross the rivers to connect to substation facilities and other existing lines in the area. Upton pf. at 18; exh. GMP TOU-3 at 15-16.

149. The B20 and B22 Projects will retain the shorelines and waters of the Missisquoi, Gihon, and Lamoille Rivers in their natural conditions. The B20 and B22 Projects will allow continued access to the waters and the recreational opportunities provided by the river waters. Shoreline vegetation will screen the B20 and B22 Project structures from the river waters. Existing shoreline vegetation will be retained and will stabilize the bank from erosion. Upton pf. at 18; exh. GMP-TOU-3 at 15-16.

#### **Wetlands**

[10 V.S.A. § 6086(a)(1)(G)]

150. The B20 and B22 Projects will not have an undue adverse effect on wetlands. This finding is supported by findings 151 through 159, below.

151. There are no wetlands in the Lowell Substation area. There are 139 Class II and Class III wetlands identified along the B20 and B22 lines. Upton pf. at 19; exh. GMP TOU-3 at 19-20.

152. The B20 and B22 Projects will avoid and minimize impacts on significant wetlands and their associated upland buffers. Best management practices will be employed in wetland areas. Upton pf. at 19; GMP TOU-3 at 19-20.

153. Most work in wetlands and wetland buffers for the B20 and B22 Projects will be considered maintenance of an existing overhead utility line. This is an Allowed Use under the Vermont Wetland Rules provided that best management practices are properly applied. Changes in some individual structure locations will be considered as new overhead utility structures. This will require a Vermont Wetland Permit under the Vermont Wetland Rules and adherence to the terms of the Army Corps of Engineers Vermont General Permit. Upton pf. at 19; GMP TOU-3 at 19.



154. The B20 and B22 Projects will employ best management practices to protect the functions of the onsite wetlands. These include: no permanent or temporary fill from soil fill or excavation within Class II wetlands or buffers; no tree clearing in wetlands or buffers during construction; existing structures to be removed will be flush-cut thus minimizing soil disturbance that would result from larger machinery to pull poles; the demarcation, non-native invasive species protections, and the Erosion Prevention and Sediment Control procedures for low-risk sites or the site-specific Erosion Prevention and Sediment Control and general conditions. Upton pf. at 19; exh. GMP TOU-3 at 19-20.

155. To avoid soil disturbance in wetland and buffer areas, equipment access for the B20 and B22 Projects will occur using existing right-of-way access roads and cleared upland areas. Access through wetlands will use the following sequence: work under frozen ground conditions to the greatest extent practicable; work under dry ground conditions to the greatest extent practicable, or work from construction matting. Upton pf. at 19; exh. GMP TOU-3 at 19.

156. Under the terms of the ANR MOU, the B20 and B22 Projects will avoid impacts on Class II wetlands and 50-foot wetland buffer zones. If impacts are unavoidable, a Vermont Wetlands Permit for any activity that is not an Allowed Use designated in Section 6 of the Vermont Wetland Rules will be obtained. The B20 and B22 Projects will comply with the provisions of the permit. Exh. Petitioners-ANR-1 at 2-3.

157. Under the terms of the ANR MOU, the B20 and B22 Projects will protect areas that are within 100 feet of any Class II wetland buffer zone boundary. Before site preparation, construction, or maintenance that involves earth disturbance, a continuous line of flagging outside the wetland buffer zone boundary will be installed to identify wetland buffer zones as protected areas. Exh. Petitioners-ANR-1 at 2-3.

158. Under the terms of the ANR MOU, the B20 and B22 Projects will comply with the best management practices developed for Section 6.08 and 6.22 of the Vermont Wetland Rules. Exh. Petitioners-ANR-1 at 2-3.

159. The B20 and B22 Projects will not violate the ANR rules relating to significant wetlands. Upton pf. at 19; Upton supp. pf. (1/27/20) at 3; exh. GMP TOU-3 at 17-20 exh. Petitioners-ANR-1 at 2-3.

### Discussion

Under the terms of the ANR MOU, GMP, Morrisville Water & Light, and Johnson Water & Light agree to avoid or minimize impacts to wetlands and wetland buffer zones in the B20 and B22 Project areas. If needed to install certain structures, a Vermont Wetlands Permit will be obtained for the B20 and B22 Projects. To ensure no undue adverse effects on wetlands in the B20 and B22 Project areas, ANR, GMP, Morrisville Water & Light, and Johnson Water & Light propose that the avoidance and minimization measures should be included as CPG conditions. I recommend that the Commission accept the terms of the ANR MOU with respect to wetlands and adopt the proposed CPG conditions

#### **Sufficiency of Water and Burden on Existing Water Supply**

[10 V.S.A. §§ 6086(a)(2) and (3)]

160. The B20 and B22 Projects will not cause an unreasonable burden on an existing water supply or affect the sufficiency of water. Upton pf. at 16 and 19-20.

#### **Soil Erosion**

[10 V.S.A. § 6086(a)(4)]

161. The B20 and B22 Projects will not cause unreasonable soil erosion or reduce the capacity of the land to hold water so that a dangerous or unhealthy condition may result. This finding is supported by findings 162 and 163, below.

162. The earth disturbance for the B20 and B22 Projects is estimated to be approximately three acres. The earth disturbance includes substation construction, structure installation, and creating stable access for construction vehicles. Upton pf. at 20; exh. GMP TOU-3 at 20-21.

163. The B20 and B22 Projects will be constructed in accordance with ANR's Low Risk Site Handbook for Erosion Prevention and Sediment Control, the Vermont Standards & Specifications for Erosion Prevention and Sediment Control, and site-specific erosion prevention and sediment control plans. Upton pf. at 20; exh. GMP TOU-3 at 20-21.

#### **Transportation**

[10 V.S.A. § 6086(a)(5)]

164. The B20 and B22 Projects will not cause unreasonable congestion or unsafe conditions with respect to the use of highways, waterways, railways, airports, airways, or other

means of transportation, existing or proposed. This finding is supported by findings 165 through 168, below.

165. The B20 and B22 Projects will cause temporary, minor increases in traffic during construction. Upton pf. at 20.

166. Appropriate traffic-control measures will be employed, as needed, during construction of the B20 and B22 Projects. Construction work within the rights-of-way near Vermont Route 100 or 100C will not be performed without approval of the Vermont Agency of Transportation. Upton pf. at 21

167. Operation of the B20 and B22 Projects will result in minimal traffic. Traffic to the Lowell Substation will continue to be minimal, consisting primarily of periodic inspection and maintenance visits. Upton pf. at 20-21.

168. The B20 line crosses the Missisquoi and Gihon Rivers. Two poles on the B22 line are adjacent to the shoreline of the Lamoille River. Access to the rivers will be unchanged and unimpeded by the B20 and B22 Projects. Upton pf. at 18.

#### **Educational Services**

[10 V.S.A. § 6086(a)(6)]

169. The B20 and B22 Projects will not place an unreasonable burden on the ability of a municipality to provide educational services because the Projects will not require or affect educational services. Upton pf. at 21.

#### **Municipal Services**

[10 V.S.A. § 6086(a)(7)]

170. The B20 and B22 Projects will not place an unreasonable burden on the ability of the affected municipality to provide municipal or government services because the Project will not require or affect local services. Upton pf. at 21.

#### **Aesthetics, Historic Sites, and Rare and Irreplaceable Natural Areas**

[10 V.S.A. § 6086(a)(8)]

171. The B20 and B22 Projects will not have an undue adverse impact on aesthetics or on the scenic or natural beauty of the area, nor will the Project have an undue adverse effect on historic sites or rare and irreplaceable natural areas. This finding is supported by findings 172 through 207, below.

### Aesthetics

172. The B20 Project involves the reconstruction of the existing Lowell Substation and the existing B20 sub-transmission line that runs approximately 18.1 miles through the towns of Eden, Lowell, and Johnson. The B22 Project upgrades approximately 1.5 miles of the B22 sub-transmission line that runs through Johnson and Morrisville. Upton pf. at 22.

173. The Lowell Substation will be rebuilt on an adjacent lot immediately north of the existing substation. The existing substation will be retired and removed after the commissioning of the rebuilt substation. Upton pf. at 22; exh. GMP TOU-4 at 2.

174. The upgrades to the B20 and B22 lines will occur within each line's existing right-of-way and will maintain the existing pole alignments. The upgrades will not require any additional tree clearing. Upton pf. at 22; exh. GMP TOU-4 at 2.

175. The B20 line rebuild will replace the existing T-shaped structures with structures that are horizontal line post insulator construction. The rebuild will increase on average the above-ground height of the structures by approximately 12 feet. Upton pf. at 22; exh. GMP TOU-4 at 2.

176. The B22 line rebuild will replace the existing structures using the same double-circuit T-shaped construction. The rebuild will increase on average the above-ground height of the structures by approximately 9 feet. Upton pf. at 22; exh. GMP TOU-4 at 2-3.

177. The existing Lowell Substation is currently visible from Vermont Route 100. Route 100 passes approximately 85 feet west of the new substation fence. This area of Route 100 is characterized by low-density residential, commercial, and agricultural uses. VEC and GMP have overhead electric lines in the immediate area that connect to the Lowell Substation or the VEC substation adjacent to the Lowell Substation. Upton pf. at 22; exh. GMP TOU-4 at 9.

178. When traveling south on Route 100 and approaching from the north, intervening evergreen vegetation along the north and west sides of the existing VEC substation will significantly limit visibility of the rebuilt Lowell Substation until travelers are approximately 1,000 feet north of the site. Starting at this location, visibility of the substation elements may be possible through small gaps in the intervening vegetation for a distance of approximately 900 feet, after which the existing evergreen screening that will remain along the east side of Route

100 will significantly screen the rebuilt substation for southbound travelers. Upton pf. at 22; exh. GMP-TOU-4 at 9.

179. When traveling north on Route 100 and approaching from the south, intervening vegetation along the south side of the substation will significantly limit visibility of the rebuilt Lowell Substation until travelers are approximately 200 feet southeast of the site. From this location, the substation elements will be intermittently visible for a distance of approximately 250 feet, after which the existing evergreens that will remain along the east side of Route 100 will screen the reconstructed substation for northbound travelers. Upton pf. at 22; exh. GMP TOU-4 at 9.

180. The rebuilt Lowell Substation will not be a new element in the landscape. The substation rebuild will be well screened by existing vegetation for much of the surrounding area. The substation rebuild will not create a substantial increase in electrical infrastructure that is visible from Route 100 or the surrounding area. Upton pf. at 22; exh. GMP TOU-4 at 9-10.

181. Starting in Johnson and continuing north through Eden and Lowell, the B20 line crosses approximately 30 roadways, some of which are private drives. In many cases, views into and down the length of the corridor from these roadways are already screened by existing vegetation within the right-of-way. In other areas, the existing structures are either close to the roadway or rise above adjacent vegetation, and therefore are visible to roadway travelers. Portions of the roadways from which the B20 line is visible are considered by the underlying town to be scenic roadways (Vermont Route 100C, Vermont Route 100, Vermont Route 118, Vermont Route 58, and Shover Road). Upton pf. at 22; exh. GMP TOU-4 at 10-11.

182. The rebuilt B20 line will not result in a new element in the landscape. The existing B20 line structures and conductors are currently visible in approximately the same area as the proposed changes. However, because the new structures will be higher than the replaced structures, the reconstructed B20 line may be noticeably different from the existing conditions, particularly to those who live and work along the B20 line corridor. Upton pf. at 22; exh. GMP TOU-4 at 10-11.

183. The upgraded portion of the B22 line crosses over approximately three roadways. In some areas, the existing poles are either close to the roadway or rise above adjacent vegetation, and therefore are easily visible to roadway travelers. The B22 line crosses over a

cemetery near its northern terminus. One roadway from which the B22 line is visible is considered by the underlying town to be a scenic roadway (Stagecoach Road). Upton pf. at 22; exh. GMP TOU-4 at 12.

184. The rebuilt B22 line will not be a new element in the landscape. The existing B22 line structures and conductors are currently visible in approximately the same area as the visibility of the proposed changes. However, because the new structures will be higher than the replaced structures, the proposed changes may be noticeably different from the existing conditions, particularly to those who live and work along the B22 line corridor. Upton pf. at 22; exh. GMP TOU-4 at 12.

185. There are many private residences and other private land uses around and along the B20 and B22 Projects. Because the rebuilds are directly adjacent to or within the footprint of the existing infrastructure, involve only moderately taller structures, and propose extremely limited vegetation clearing, the B20 and B22 Projects are not expected to significantly change the existing character of views from private properties in the area. Upton pf. at 22; exh. GMP TOU-4 at 13.

186. The B20 and B22 Projects include the same materials and colors as the electrical infrastructure that will be replaced. These materials include metal fencing, metal substation equipment, wooden pole structures, and metallic conductors. Upton pf. at 22; exh. GMP TOU-4 at 13.

187. The B20 and B22 Projects will have an adverse effect on aesthetics. The rebuilt B20 and B22 lines will result in increased structure heights, will traverse residential areas, and will be visible from roadways that are considered scenic in the underlying towns. The Lowell Substation will be rebuilt on an adjacent lot and the footprint of the substation will substantially increase. Upton pf. at 22; Upton supp. pf. at 4; Ben Oxender, Vermont Department of Public Service (“Oxender”) pf. at 2-4; exh. GMP TOU-4 at 13-14.

188. The B20 and B22 Projects will not violate a clear, written community standard intended to preserve the aesthetics or scenic beauty of the area. Based on a review of community standards described in the regional plans and town plans, electrical infrastructure that suits the present and future needs of the regions is desired and the existing substations and transmission

lines are accepted as part of the landscape. Upton pf. at 22; Oxender pf. at 2-4; exh. GMP TOU-4 at 26-27.

189. The B20 and B22 Projects will not be considered shocking or offensive. The rebuilds are located immediately adjacent to existing substations or within existing corridors that have historically been used for substation and transmission infrastructure. Visibility will not be significantly greater than the existing visibility of substation and transmission infrastructure. The materials and colors of the proposed rebuilds will be consistent with the existing conditions. Upton pf. at 22; Oxender pf. at 2-4; exh. GMP TOU-4 at 27.

190. The B20 and B22 Projects have been adjusted to include mitigating elements that help reduce adverse aesthetic impacts. Mitigation includes: (1) the rebuild of the Lowell Substation will use a site immediately adjacent to the existing substation; (2) the rebuild of the B20 and B22 lines will use existing rights-of-way; (3) the structure heights of the B20 line have been reduced, within safety limits, in areas near residences and in sensitive areas along scenic roadways; and (4) the structure heights of the B20 line have been reduced, within safety limits, in sensitive areas visible from a scenic road. Upton pf. at 22; Oxender pf. at 2-4; exh. GMP TOU-4 at 27.

191. The rebuild of the Lowell Substation will include no additional landscape plantings. The rebuilt substation will be well screened by existing vegetation for much of the surrounding area. The substation will be rebuilt on the lot adjacent to the current substation and will not create a substantial increase in electrical infrastructure visible from Route 100 or the surrounding area. Upton pf. at 22; GMP TOU-4 at 10.

### Discussion

Although the B20 and B22 Projects will have an adverse effect on aesthetics, this adverse effect is not undue because: (1) the Projects will not be shocking or offensive to the average person; (2) the Projects will not violate any clear, written community standard; and (3) the Projects include mitigation strategies that help to reduce potential adverse aesthetic impacts, including using an adjacent site for the substation rebuild, using the existing corridors for the line rebuilds, and reducing total pole heights (within the safety limits) near residences and in sensitive areas along identified scenic roadways.

### Historic Sites

192. The B20 and B22 Projects will not have an undue adverse effect on nearby above-ground historic properties and structures. The upgrades to the B20 and B22 lines will occur within each line's existing right-of-way, and the Lowell substation will be rebuilt in a lot adjacent to the substation. Upton pf. at 23; exh. GMP TOU-4.

193. The Northeast Archaeology Research Center conducted an archaeological resource assessment for the B20 and B22 Projects. Upton supp. pf. (3/13/20) at 2-3; exh. VDHP-1 at 1-2; exh. GMP TOU-1-Confidential; exh. GMP TOU-2-Confidential; exh. GMP TOU-7-Confidential.

194. The archaeological resource assessment for the Lowell Substation rebuild identified no archaeologically sensitive areas. Upton pf. at 23.

195. The archaeological resource assessment for the B22 line identified 12 archaeologically sensitive areas. Phase I archaeological studies confirmed that no additional study was needed for 11 of the 12 sensitive areas. A Phase II site evaluation remains to be completed for the one other sensitive area. Upton pf. at 23; exh. VDHP-1 at 2-3.

196. The archaeological resource assessment for the B20 line identified 59 archaeologically sensitive areas along the 18-mile line corridor. Phase I archaeological studies were conducted for 57 of these areas. Phase I studies remain to be completed for two archeologically sensitive areas encompassing eight structure locations. Upton supp. pf. (3/13/20) at 3; exh. VDHP-1 at 2-3.

197. The 57 archeologically sensitive areas along the B20 line contained five areas with Native American sites. Phase I studies confirmed that four of the five areas were isolated finds with no additional study needed. One area was identified as potentially significant, but Phase II testing found that the area was not significant, requiring no mitigation measures. Upton supp. pf. (3/13/20) at 3-4; exh. VDHP-1 at 2-3.

198. The two remaining archeological investigations on the B20 line are within the existing utility corridor and any potential disturbance in these areas will be limited to the installation of structures and anchors. If Native American sites are found in the two areas, mitigation and avoidance measures can and will be implemented. Mitigation and avoidance measures include moving a structure a few feet within the existing right-of-way to avoid a



sensitive area. Other measures include avoiding operation of vehicles within the sensitive area or protecting the ground surface with construction matting. Upton supp. pf. (3/13/20) at 4-5.

199. If Native American sites are found in the two unstudied archeologically sensitive areas on the B20 line, their presence and protection will not require significant changes to the B20 Project design or construction. Any necessary mitigation and avoidance measures will not change the structure alignment plan for the B20 line and will not result in significant aesthetic or natural resource impacts. Upton supp. pf. (3/13/20) at 5.

200. Under the terms of the DHP MOU, GMP, Morrisville Water & Light, and Johnson Water & Light agree to conditions that will protect any archaeological resources identified in the B20 and B22 Project locations. Exh. VDHP-1 at 2-4.

201. Under the terms of the DHP MOU, three remaining archaeologically sensitive areas will be investigated. The remaining archaeological investigations include a Phase II site evaluation on a specific Native American site on the B22 line and a Phase I site identification survey and any further recommended investigations on two archaeologically sensitive areas on the B20 line. Upton supp. pf. (3/13/20) at 3; exh. VDHP-1 at 2.

202. Under the terms of the DHP MOU, before the completion of all relevant archaeological investigations, the specific B20 and B22 Project locations and temporary staging areas where study is needed will be identified as not-to-be-disturbed archaeological buffer zones. Topsoil removal, grading, scraping, cutting, filling, stockpiling, logging, or any other type of ground disturbance will not be conducted within an archaeological buffer zone before the completion of all relevant archaeological investigations. Exh. VDHP-1 at 2.

203. Under the terms of the DHP MOU, all relevant outstanding archaeological studies to identify, evaluate, or mitigate impacts to archaeological sites will be carried out by a qualified consulting archaeologist. All such studies and associated reports will follow DHP Guidelines for Conducting Archaeological Studies in Vermont. Exh. VDHP-1 at 3.

204. Under the terms of the DHP MOU, the remaining three archaeological investigations on the B20 and B22 lines will be scheduled to allow mitigation measures, if any are determined to be necessary, to be planned and accomplished before construction. Construction of the B20 and B22 lines near the three remaining archeologically sensitive areas will not begin until all necessary archaeological investigations are completed. Construction will

only proceed after the Northeast Archaeology Research Center completes its investigation and any necessary mitigation or avoidance measures are implemented. Exh. VDHP-1 at 3.

205. Under the terms of the DHP MOU, any archaeological sites in the B20 and B22 Project areas that are discovered during the investigations at the three remaining archeologically sensitive areas will not be disturbed until mitigation measures have been completed. Proposed mitigation measures will be approved by the DHP before implementation. Mitigation may include but is not limited to further site evaluation, data recovery, redesign of project components, or modification of the buffer zone boundaries. Exh. VDHP-1 at 3-4.

206. The B20 and B22 Projects will not have an undue adverse effect on archaeological resources provided that the conditions identified in the DHP MOU are implemented. Upton supp. pf. (3/13/20) at 2-5; exh. VDHP-1 at 2-4.

### Discussion

The archaeological resource assessment completed for the B20 and B22 Projects identified archaeologically sensitive areas along the B20 and B22 lines. For the B22 line, Phase I archaeological studies confirmed that no additional study was needed for 11 of 12 archaeologically sensitive areas. A Phase II site evaluation remains to be completed for the one remaining sensitive area. For the B20 line, Phase I archaeological studies confirmed that no additional study was needed for 57 of 59 archaeologically sensitive areas. Due to ongoing discussion with property owners, GMP was delayed in completing the Phase I study for the two remaining archeologically sensitive areas.

Under the terms of the DHP MOU, GMP, Morrisville Water & Light, and Johnson Water & Light agree to complete the archaeological investigations on the three archaeologically sensitive areas before starting construction in those areas of the B20 and B22 lines. The DHP MOU also identifies mitigation and avoidance measures to protect any archaeological resources identified in the B20 and B22 Project locations. To ensure protection of any identified archeological resources in the B20 and B22 Project areas, DHP, GMP, Morrisville Water & Light, and Johnson Water & Light propose that the terms of the DHP MOU be included as CPG conditions. I recommend that the Commission accept the MOU and adopt the proposed CPG conditions.

In addition, GMP requests that the Commission approve the B20 and B22 Projects and issue the CPG before the completion of the Phase I archaeological studies in the two archaeologically sensitive areas along the B20 line. GMP also requests, consistent with the DHP MOU, that construction on other areas of the B20 line be allowed while the archaeological studies are completed. I recommend that the Commission issue the CPG and allow construction on other areas of the B20 line to proceed. The two remaining archeological investigations on the B20 line are within the existing right-of-way and potential disturbance in these areas will be limited to the installation of pole structures and anchors. If Native American sites are found in the two areas, mitigation and avoidance measures can and will be implemented. Mitigation and avoidance measures include moving the structures within the existing right-of-way, avoiding the operation of vehicles within the sensitive area, or protecting the ground surface with construction matting. If Native American sites are found in the two unstudied archeologically sensitive areas on the B20 line, their presence and protection will not require significant changes to the B20 Project design or construction. Any necessary mitigation and avoidance measures will not result in adverse findings pursuant to 30 V.S.A. § 248(b)(5) and 10 V.S.A. § 6086(a)(8).

#### Rare and Irreplaceable Natural Areas

207. The B20 and B22 Projects will not have an undue adverse effect on rare and irreplaceable natural areas because there are no rare and irreplaceable natural areas within the B20 and B22 Project areas. Upton pf. at 24; exh. GMP TOU-3 at 22-24.

#### Necessary Wildlife Habitat and Endangered Species

[10 V.S.A. § 6086(a)(8)(A)]

208. The B20 and B22 Projects will not destroy or significantly imperil necessary wildlife habitat or any endangered species. This finding is supported by findings 209 through 217, below.

209. No necessary wildlife habitats were identified in the B22 Project area or the Lowell Substation area. Necessary wildlife habitats include deer wintering areas, black bear forage habitat or travel corridors, and moose overwintering areas. Upton pf. 24; exh. GMP-TOU-3 at 24-25.

210. Deer wintering areas were identified in the B20 line area. The B20 Project will have no direct impacts on necessary wildlife habitat. Potential indirect impacts to deer wintering

areas along the B20 line will be limited through a stepwise plan to reduce the duration of worker presence in the right-of-way. Upton pf. 24; exh. GMP-TOU-3 at 24-25.

211. There are no rare, threatened, or endangered animal species within the B20 and B22 Project areas, except the potential for the federally threatened and Vermont-endangered northern long-eared bat. Upton pf. at 24-25; exh. GMP TOU-3 at 26-28.

212. The B20 and B22 Project areas are within the range of the northern long-eared bat, but there are no known occurrences of the bat within one mile of these areas. No tree clearing will occur for the B20 and B22 line upgrades. Therefore, under ANR's Regulatory Review Guidance for Protecting Northern Long-Eared Bats and Their Habitats, there is no need or requirement to impose seasonal restrictions on tree clearing. Upton pf. at 24-25; exh. GMP TOU-3 at 26-28.

213. Plant surveys conducted along the B22 line area and the Lowell Substation area identified no rare, endangered, or threatened plant species. Upton pf. at 24; exh. GMP TOU-3 at 25-28 and Appendix C.

214. Plant surveys conducted along the B20 line area identified several rare, endangered, or threatened plant species, including Green Mountain maidenhair fern, Aleutian maidenhair fern, few-nerved cottongrass, Case's ladies'-tresses, Yellow ladies'-tresses, and several individuals exhibiting intermediate traits between *S. casei* and *S. ochroleuca*. Upton pf. at 24; exh. GMP TOU-3 at 25-28.

215. The B20 Project will use construction practices designed to minimize or avoid impacts on rare, threatened, and endangered plants. Construction measures include soil-disturbance avoidance measures and structure-removal practices that ensure that the B20 Project does not destroy or significantly imperil rare, threatened, and endangered plants. Upton pf. at 24; exh. GMP TOU-3 at 25-27 and Appendix B.

216. Under the terms of the ANR MOU, the B20 and B22 Projects will avoid impacts to rare, threatened and endangered species by complying with the resource avoidance, impact minimization, and best management practices for rare, threatened and endangered plant species described in Exhibit GMP TOU-3, Appendix B. Exh. Petitioners-ANR-1 at 4.

217. The B20 and B22 Projects will not destroy or significantly imperil any rare, threatened, or endangered plant species provided that the resource avoidance, impact

minimization, and best management practices identified in the ANR MOU are implemented. Upton pf. at 25; exh. GMP TOU-3 at 25-28 and Appendix B; exh. Petitioners-ANR-1 at 4.

### Discussion

Under the terms of the ANR MOU, GMP, Morrisville Water & Light, and Johnson Water & Light agree to comply with the resource avoidance, impact minimization, and best management practices for rare, threatened and endangered species described in Exhibit GMP TOU-3, Appendix B. To ensure no undue adverse effects on rare, threatened, or endangered plant species in the B20 and B22 Project areas, ANR, GMP, Morrisville Water & Light, and Johnson Water & Light propose that the avoidance, minimization, and management practices identified in the ANR MOU be included as a CPG condition. I recommend that the Commission accept the terms of the ANR MOU with respect to rare, threatened, or endangered species and adopt the proposed CPG condition.

### **Development Affecting Public Investments**

[10 V.S.A. § 6086(a)(9)(K)]

218. The B20 and B22 Projects will not unnecessarily or unreasonably endanger any public or quasi-public investment in a 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 any such facility, service, or lands. This finding is supported by findings 219 through 222, below.

219. The public investments or facilities affected by the B20 and B22 Projects include roadways, utility infrastructure, and park recreation area. Upton pf. at 25.

220. Access to all substation and line facilities from public highways will be unchanged by the B20 and B22 Projects. Upton pf. at 25.

221. Construction work within the right-of-way near Vermont Route 100 or 100C will not be performed without approval of the Vermont Agency of Transportation. Upton pf. at 25.

222. The Vermont Department of Forests, Parks, and Recreation holds development and access rights to a parcel of land crossed by the B20 line in Eden. The B20 Project will not affect the public's use of or access to the property. Upton pf. at 25.

**Public Health and Safety**

[30 V.S.A. § 248(b)(5)]

223. The B20 and B22 Projects will not have any undue adverse effects on the health, safety, and welfare of the public. This finding is supported by findings 224 through 226, below.

224. The B20 and B22 Projects will be designed and constructed in accordance with appropriate industry standards including the National Electrical Safety Code. Fiske pf. at 12-13; Jordan pf. at 2.

225. The B20 and B22 Projects will use appropriate materials and adhere to careful construction practices throughout the construction phase. Fiske pf. at 12-13.

226. The Lowell Substation perimeter will be fenced, and security cameras installed to prevent unauthorized access. Fiske pf. at 8; exh. GMP-JRF-5.

**Primary Agricultural Soils**

[30 V.S.A. § 248(b)(5)]

227. The B20 and B22 Projects will not have any undue adverse effects on primary agricultural soils as defined in 10 V.S.A. § 6001. This finding is supported by findings 228 through 238, below.

228. The B20 line area contains approximately 165 acres of primary agricultural soils. The B22 line area contains approximately 19 acres of primary agricultural soils. The rebuilt Lowell Substation will be situated in an area entirely composed of primary agricultural soils. Upton pf. at 26; exh. GMP TOU-3 at 28-32 and Appendix C.

229. Ground-disturbing activities for the construction of the B20 and B22 lines will occur within primary agricultural soils. The activities include off-right-of-way accesses, the removal and replacement of structures, and some land leveling to create approximately 16-foot-by-20-foot pads for construction equipment placement at eight structure locations. Upton pf. at 26; exh. GMP TOU-3 at 28-32 and Appendix C.

230. The soil disturbance for the B20 and B22 lines will not reduce the capacity of the land to support agriculture or silviculture. There will be no change in land cover or land form within primary agricultural soils in the B20 and B22 line areas. There will be no undue adverse effects to farming, farming potential, or primary agricultural soils as a result of the line upgrades. Upton pf. at 26; exh. GMP TOU-3 at 28-32.

231. The Lowell Substation area has been previously developed for electric substation and sub-transmission infrastructure and on-site soils do not retain primary agricultural soil value. Rebuilding the Lowell Substation will not result in an impact to farming, farming potential, or the value of primary agricultural soils. Upton pf. at 26; exh. GMP TOU-3 at 32.

232. Under the terms of the AAFM Stipulation, GMP, Morrisville Water & Light, and Johnson Water & Light agree to conditions that will protect any primary agricultural soils in the B20 and B22 Project areas. Exh. Petitioners-AAFM-1 at 2-3.

233. Under the terms of the AAFM Stipulation, primary agricultural soils includes soils that are agriculturally important due to their present or recent use for agricultural activities and that have not been identified by the Natural Resources Conservation Service as important farmland soil map units. Exh. Petitioners-AAFM-1 at 3.

234. Under the terms of the AAFM Stipulation, measures will be implemented to minimize impacts on the primary agricultural soils located at the pads that will hold construction equipment at eight structure locations along the B20 and B22 lines. These pads will be 16-foot-by-20-foot in size and are generally located in areas of sloped terrain. The measures to minimize impacts include:

- a. Any excavation that is needed in these eight equipment pad locations will solely be to move soil from the high side of the slope to the low side to allow for safe installation of the equipment pad;
- b. The soil in these eight equipment pad locations will not be graded any more than necessary to install the equipment pads in order to provide safe access and operating conditions during construction;
- c. When excavating/moving the soil to install the eight equipment pads, best judgment and efforts in the field will be used to not mix soil layers to keep the organic layer and topsoil layer separate from the subsoil; and
- d. Once the eight equipment pads are no longer needed and to the extent that excavation encounters more than one soil horizon, the sites will be restored to pre-construction ground contour and cover condition, including removing any imported fill material and geotextile, and replacing soils by layer, ending with organic layer and topsoil, to complete reclamation.

Exh. Petitioners-AAFM-1 at 2.

235. Under the terms of the AAFM Stipulation, no trees will be cleared in areas of primary agricultural soil for the construction of the B20 and B22 Projects. GMP, Morrisville

Water & Light, and Johnson Water & Light will continue routine vegetation maintenance as required to maintain the right-of-way for the B20 and B22 lines. Exh. Petitioners-AAFM-1 at 2.

236. Under the terms of the AAFM Stipulation, to reduce impacts from soil compaction during construction, no vehicle or equipment with an axle load of over 12,000 pounds will be used on wet primary agricultural soils. This prohibition will not apply to the use of any existing access road in their current condition, or new on-site gravel roads that are constructed with geotextile fabric or crushed aggregate. Wet soils exist when the site has seen higher than average rainfall for a trailing 30-day period, based on National Weather Service or similar state or federal rainfall data. Exh. Petitioners-AAFM-1 at 2.

237. Under the terms of the AAFM stipulation, the B20 and B22 Projects will not include any grading of primary agricultural soils, except to the extent necessary for the installation of the construction equipment pads. Exh. Petitioners-AAFM-1 at 2-3.

238. The B20 and B22 Projects will not have undue adverse effect on primary agricultural soils provided that the conditions identified in the AAFM Stipulation are implemented. Upton pf. at 26; exh. Petitioners-AAFM-1 at 3; exh. GMP-TOU-3.

### Discussion

Under the terms of the AAFM Stipulation, GMP, Morrisville Water & Light, and Johnson Water & Light agree to implement measures to minimize impacts to primary agricultural soils during the construction of the B20 and B22 Projects. To minimize impacts to any primary agricultural soils in the B20 and B22 Project areas, AAFM, GMP, Morrisville Water & Light, and Johnson Water & Light propose that the protective measures identified in the AAFM Stipulation be included as CPG conditions. I recommend that the Commission accept the AAFM Stipulation and adopt the proposed CPG conditions.

### **Consistency With Least Cost Integrated Plans**

[30 V.S.A. § 248(b)(6)]

239. The B20 and B22 Projects are consistent with the principles for resource selection expressed in the approved least-cost integrated plans of GMP, Morrisville Water & Light, and Johnson Water & Light. This finding is supported by findings 240 through 245, below.

240. The B22 Project is consistent with the least-cost integrated plans of Morrisville Water & Light and Johnson Water & Light. Myotte pf. at 6.



241. The B20 and B22 Projects will enable GMP to serve projected customer loads in a reliable and efficient manner consistent with the resource selection criteria identified in GMP's 2018 least-cost integrated plan. Jones pf. at 15.

242. GMP's least-cost integrated plan provides specific transmission reliability recommendations, including goals for replacing aging structures. Replacing the aging structures on the B20 line is consistent with those recommendations. Jones pf. at 15.

243. GMP's least-cost integrated plan identifies several objectives that guide its infrastructure investments, including the goal of pursuing projects for the cost-effective reduction of system losses. The B20 and B22 Projects meet these objectives. Smith pf. at 53.

244. The SHEI benefits associated with the B20 and B22 Projects are consistent with GMP's least-cost integrated plan, which includes a focus on planning and outcomes that increase the capacity to generate and rely on renewable energy sources. The B20 and B22 Projects increase the output and usefulness of renewable generation resources in the SHEI area. Smith pf. at 53.

245. GMP's least-cost integrated plan identifies the challenges associated with the SHEI area and discusses an initiative to explore potential steps to cost-effectively mitigate current SHEI congestion and provide relief for affected customers as quickly as possible. The B20 and B22 Projects are potential steps identified in GMP's least-cost integrated plan to address challenges in the SHEI area. Smith pf. at 53.

### **Compliance with Twenty-Year Electric Plan**

[30 V.S.A. § 248(b)(7)]

246. The B20 and B22 Projects are consistent with the 2016 Comprehensive Energy Plan approved by the Department under 30 V.S.A. § 202(f). This finding is supported by findings 247 through 250, below.

247. The Department has determined pursuant to 30 V.S.A. § 202(f) that the B20 and B22 Projects are consistent with the 2016 Comprehensive Energy Plan. Determination Under 30 V.S.A. § 202(f) signed by Bill Jordan, dated March 5, 2020.

248. The Comprehensive Energy Plan identifies objectives that call for the provision of electric service that is the most efficient and cost-effective. Utilities are required to serve their customers at the lowest life-cycle costs, including environmental and economic costs. The B20

and B22 Projects support these objectives by improving the reliability of the power delivery system in the affected area at least cost. Jones pf. at 15-16; Smith pf. at 54.

249. The Comprehensive Energy Plan sets ambitious targets for renewable energy. The B20 and B22 Projects support these targets by reducing the congestion in the SHEI and increasing the output of existing renewable sources that deliver energy in the SHEI area. Smith pf. at 54; McNamara pf. at 6.

250. The Comprehensive Energy Plan provides that Vermont should “[p]lan carefully to meet all three tiers of the [Renewable Energy Standard] in a least-cost manner,” and “strive to lower both energy bills and electric rates.” The B20 and B22 Projects supports this goal by cost-effectively increasing the production of renewable energy from existing generation resources and lowering costs for ratepayers by reducing the amount of congestion and curtailments associated with the SHEI. The B20 and B22 Projects provide over \$12 million in projected net benefits to Vermont customers. McNamara pf. at 6; Smith pf. at 54.

#### **Waste-to-Energy Facility**

[30 V.S.A. §248(b)(9)]

251. The B20 and B22 Projects do not involve a waste-to-energy facility; therefore, this criterion is not applicable.

#### **Existing or Planned Transmission Facilities**

[30 V.S.A. § 248(b)(10)]

252. The B20 and B22 Projects can be served economically by existing or planned transmission facilities without undue adverse effects on Vermont utilities or customers. This finding is supported by findings 253 through 255, below.

253. The B20 and B22 Projects will upgrade existing transmission facilities, and the improved reliability and efficiency will benefit Vermont utilities and customers in northern Vermont. The B20 and B22 Projects do not result in expansion of the transmission system. Jones pf. at 16; Smith pf. at 55; Jordan pf. at 2.

254. The B20 Project will improve the reliability of the Lowell Substation and will benefit the distribution utilities and customers fed off the 34.5 kV network that originates from the substation. This includes VEC, the Villages of Johnson, Morrisville, and Hyde Park, and the Towns of Stowe and Hardwick. Jones pf. at 16.

255. The B20 and B22 Projects will benefit GMP ratepayers and other Vermont electricity ratepayers by reducing congestion in the SHEI area. Jones pf. at 16; Smith pf. at 55.

#### **IV. MUNICIPALITIES' APPROVAL**

256. Pursuant to 30 V.S.A. § 248 (c)(1), the municipalities of Morrisville and Johnson will schedule a vote seeking approval of the B22 Project. The vote will approve the construction of the B22 line and the costs that Morrisville Water & Light and Johnson Water & Light will incur for the B22 Project. Myotte pf. at 5.

257. The municipalities of Morrisville and Johnson are expected to vote on the B22 Project at their respective annual meetings. Myotte pf. at 5; Myotte and Dolan supp. pf. at 4.

#### **Discussion**

Pursuant to 30 V.S.A. § 248(c)(1), any proposed investment, construction, or contract by a municipal department must be approved by a majority of the voters of a municipality “voting upon the question at a duly warned annual or special meeting to be held for that purpose.” In addition, pursuant to Section 248(c)(2), the municipal department must provide to the voters a “written assessment of the risks and benefits of the proposed investment, construction, or contract that were identified by the Public Utility Commission” in the issuance of a CPG.

Section 248(c)(2) requires the municipal departments in Morrisville and Johnson to provide the voters with a written assessment of the risks and benefits of the B22 Project. As discussed above, the upgrades to the B22 line will improve safety, reliability, and efficiency of the electric distribution system for the residents in Morrisville and Johnson. The B22 Project will also help increase the capacity of a local transmission constraint in the SHEI area, which will benefit Morrisville and Johnson electric customers. Morrisville Water & Light and Johnson Water & Light will pay for a portion of the B22 Project that reflects the benefits that accrue due to avoided future asset-condition-related work. GMP will initially fund the construction of the B22 Project and plans to be reimbursed for approximately 20% of the costs. As discussed above, Johnson Water & Light, which owns 15% of the B22 line, would pay approximately \$31,739. Morrisville Water & Light would pay approximately \$179,852.

Pursuant to Section 248(c)(1), construction will not begin on the B22 Project until voters in Morrisville and Johnson approve the construction and costs of the B22 line upgrades in annual meetings. The votes in Morrisville and Johnson were initially scheduled to take place in April

2020. In March 30, 2020, and May 15, 2020, letters, GMP represented that due to the COVID-19 pandemic, the Johnson annual meeting has been rescheduled for June. To date, the Morrisville meeting has not been rescheduled.

## V. CONCLUSION

Based upon the evidence in the record, I recommend that the Commission conclude that the B20 and B22 Projects, subject to conditions:

(a) will not unduly interfere with the orderly development of the region with due consideration having been given to the recommendations of the municipal and regional planning commissions, and the recommendations of the municipal legislative bodies;

(b) will meet a 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 and energy efficiency and load management measures, including those developed pursuant to the provisions of subsection 209(d), section 218c, and subsection 218(b) of Title 30;

(c) will not adversely affect system stability and reliability;

(d) will result in an economic benefit to the state and its residents;

(e) will not have an undue adverse effect on aesthetics, historic sites, air and water purity, the natural environment, the use of natural resources, and public health and safety, with due consideration having been given to the criteria specified in 10 V.S.A. §§ 1424a(d) and 6086(a)(1) through (8) and (9)(K), and greenhouse gas impacts;

(f) are consistent with the principles for resource selection expressed in the approved least cost integrated plans of GMP. Morrisville Water & Light, and Johnson Water & Light;

(g) are consistent with the *Vermont Twenty-Year Electric Plan*;

(h) do not involve a facility affecting or located on any segment of the waters of the State that has been designated as outstanding resource waters by the Secretary of Natural Resources;

(i) do not involve a waste-to-energy facility;

(j) can be served economically by existing or planned transmission facilities without undue adverse effect on Vermont utilities or customers;

(k) do not involve an in-state generation facility that produces electric energy using woody biomass.

This proposal for decision has not been circulated to the parties pursuant to 3 V.S.A. § 811 because all parties to this proceeding have waived their right to comment on this proposal for decision provided that the Commission issues an order consistent with the petitioners' proposed proposal for decision and the terms of the ANR MOU, the DHP MOU, and the AAFM Stipulation.

*Mary Jo Krolewski*

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Mary Jo Krolewski  
Hearing Officer

**VI. ORDER**

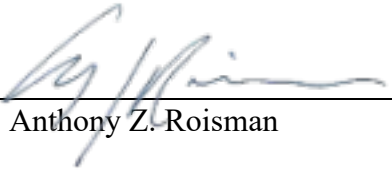
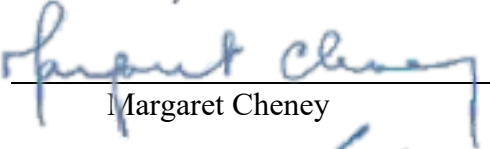
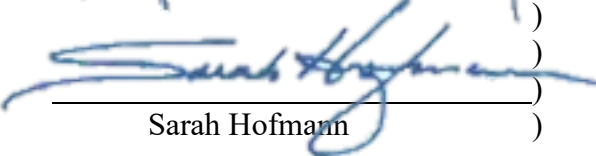
IT IS HEREBY ORDERED, ADJUDGED, AND DECREED by the Public Utility Commission (“Commission”) of the State of Vermont that:

1. The findings, conclusions, and recommendations of the Hearing Officer are adopted. All other findings proposed by parties, to the extent that they are inconsistent with this Order, were considered and not adopted.

2. In accordance with the evidence and plans submitted in this proceeding, the construction and operation of (1) the rebuilding of the substation in Lowell, Vermont, and the rebuilding of a B20 sub-transmission line in Eden, Johnson, and Lowell, Vermont (the “B20 Project”), by Green Mountain Power Corporation, and (2) the rebuilding of 1.5 miles of the B22 sub-transmission line in Johnson and Morristown, Vermont (the “B22 Project”), by Green Mountain Power Corporation, the Village of Morrisville Water & Light Department, and the Village of Johnson Water & Light Department (“CPG Holders”) will promote the general good of the State of Vermont pursuant to 30 V.S.A. § 248, and a certificate of public good to that effect shall be issued in this matter.

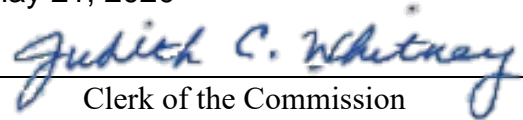
3. As a condition of this Order, the CPG Holders shall comply with all terms and conditions set out in the CPG issued in conjunction with this Order.

Dated at Montpelier, Vermont, this 21st day of May, 2020.

 _____ Anthony Z. Roisman	)	PUBLIC UTILITY
	)	
 _____ Margaret Cheney	)	COMMISSION
	)	
 _____ Sarah Hofmann	)	OF VERMONT

OFFICE OF THE CLERK

Filed: May 21, 2020

Attest:   
Clerk of the Commission

*Notice to Readers: This decision is subject to revision of technical errors. Readers are requested to notify the Clerk of the Commission (by e-mail, telephone, or in writing) of any apparent errors, in order that any necessary corrections may be made. (E-mail address: [puc.clerk@vermont.gov](mailto:puc.clerk@vermont.gov))*

*Appeal of this decision to the Supreme Court of Vermont must be filed with the Clerk of the Commission within 30 days. Appeal will not stay the effect of this Order, absent further order by this Commission or appropriate action by the Supreme Court of Vermont. Motions for reconsideration or stay, if any, must be filed with the Clerk of the Commission within 28 days of the date of this decision and Order.*

PUC Case No. 19-4464-PET - SERVICE LIST

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STATE OF VERMONT  
PUBLIC UTILITY COMMISSION

Case No. 19-4464-PET

Petition of Green Mountain Power Corporation for a certificate of public good, pursuant to 30 V.S.A. §248, authorizing the rebuild of the Lowell Substation and the upgrade of the B20 line in Eden, Johnson, and Lowell, Vermont; and Joint Petition of Green Mountain Power Corporation, the Village of Morrisville Water & Light Department, and the Village of Johnson Water & Light Department authorizing the upgrade of the B22 line in Johnson and Morristown, Vermont	
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Entered: 05/21/2020

**CERTIFICATE OF PUBLIC GOOD (“CPG”) ISSUED**  
**PURSUANT TO 30 V.S.A. SECTION 248**

IT IS HEREBY CERTIFIED that the Vermont Public Utility Commission (“Commission”) this day found and adjudged that the site preparation, construction, operation, and maintenance of (1) the rebuilding of the substation in Lowell, Vermont, and the rebuilding of a B20 sub-transmission line in Eden, Johnson, and Lowell, Vermont (the “B20 Project”), by Green Mountain Power Corporation, and (2) the rebuilding of 1.5 miles of the B22 sub-transmission line in Johnson and Morristown, Vermont (the “B22 Project”), by Green Mountain Power Corporation, the Village of Morrisville Water & Light Department, and the Village of Johnson Water & Light Department (“CPG Holders”), in accordance with the evidence and plans submitted in this proceeding, will promote the general good of the State, subject to the following conditions:

1. Site preparation, construction, operation, and maintenance of the B20 Project or the B22 Project shall be in accordance with the plans and evidence submitted in this proceeding. Any material deviation from these plans or a substantial change to the B20 Project and the B22 Project must be approved by the Commission. Failure to obtain advance approval from the Commission for a material deviation from the approved plans or a substantial change to the B20

Project or the B22 Project may result in the assessment of a penalty pursuant to 30 V.S.A. §§ 30 and 247.

2. Before beginning site preparation, construction, operation, or maintenance of the B20 Project and B22 Project, the CPG Holders shall obtain all other necessary permits and approvals. Site preparation, construction, operation, and maintenance of the B20 Project and the B22 Project shall be in accordance with such permits and approvals, and with all other applicable regulations, including those of the Vermont Agency of Natural Resources, except as provided in conditions 3 and 5, below.

3. Construction on the B22 Project shall not begin until voter approval is received pursuant to 30 V.S.A. § 248(c)(1).

4. The Village of Morrisville Water and Light Department and the Village of Johnson Water and Light Department shall report to the Commission the results of the votes pursuant to 30 V.S.A. § 248(c)(1) within thirty days of each meeting held for the vote.

5. The CPG Holders are authorized to begin construction of the B20 Project before the municipal vote required by 30 V.S.A. § 248(c)(1), provided that the pre-construction requirements that pertain to the B20 Project have been met and upon satisfaction of any other pre-construction CPG conditions.

6. The CPG Holders shall not begin any site preparation, construction, or other activity on the B20 and B22 Project sites that violates Governor Scott's Executive Order 01-20 or any addenda to that order. These orders are further described in guidance issued by the Agency of Commerce and Community Development, available at <https://accd.vermont.gov/covid-19/business/stay-home-stay-safe-sector-specific-guidance>.

7. The CPG Holders shall restrict construction activities and related deliveries to the hours between 7:00 A.M. and 7:00 P.M. Monday through Friday and between 8:00 A.M. and 5:00 P.M. on Saturdays. No construction activities shall occur on Sundays or state or federal holidays except where construction activities must be performed during required outages needed to maintain system reliability.

8. The CPG Holders shall comply with all of the terms of the Memorandum of Understanding between the CPG Holders and the Vermont Agency of Natural Resources filed on March 4, 2020.

9. The CPG Holders shall comply with all of the terms of the Memorandum of Understanding between the CPG Holders and the Vermont Division for Historic Preservation filed on March 5, 2020.

10. The CPG Holders shall comply with all of the terms of the Stipulation between the CPG Holders and the Vermont Agency for Agriculture, Food & Markets filed on March 30, 2020.

11. At six-month increments for a period of 18 months after issuance of this CPG, Green Mountain Power Corporation shall provide updates on the cost allocation agreement for the Sheffield/Highgate Export Interface portion of the B20 and B22 Projects. The updates shall include: (a) any necessary actions taken, including any tests or analysis conducted by ISO New England, to increase the export limit as a result of the B20 and B22 Projects or as a result of any installation of Automatic Voltage Regulation at the Sheffield Wind Facility; (b) a representation of the extent to which the Sheffield/Highgate Export Interface export limit has been increased as a result of the B20 and B22 Projects or as a result of any installation of Automatic Voltage Regulation at the Sheffield Wind Facility; and (c) any progress toward a cost allocation agreement among Green Mountain Power Corporation and the other affected electric distribution utilities. The updates shall be filed in the compliance portion of this case.

12. The CPG Holders shall complete all archaeological studies recommended by the Northeast Archaeological Resource Center at the two identified archeologically sensitive areas along the B20 line and the one identified archeologically sensitive area along the B22 line. The studies include Phase I archaeological studies for the two archeologically sensitive areas along the B20 line and a Phase II site evaluation for the one archeologically sensitive area along the B22 line.

13. Before the completion of all relevant archaeological investigations, the CPG Holders, in consultation with the Vermont Division for Historic Preservation, shall identify the specific B20 and B22 Project areas and temporary staging areas where archaeological study is needed as a not-to-be-disturbed archaeological buffer zone. Topsoil removal, grading, scraping, cutting, filling, stockpiling, logging, and any other type of ground disturbance shall be prohibited within an archaeological buffer zone before the completion of all relevant archaeological investigations.

14. The archaeological investigations conducted for the B20 and B22 Projects shall be scheduled so that mitigation measures, if any are determined to be necessary, can be satisfactorily planned and accomplished before construction begins in the archeologically sensitive areas. Construction of the B20 and B22 lines near the three archeologically sensitive areas shall only proceed after the CPG Holders complete the archaeological investigations recommended by the Northeast Archaeological Resource Center and implement any necessary mitigation or avoidance measures. Construction on other portions of the B20 and B22 lines may proceed before completion of the archaeological investigations at the three archeologically sensitive areas.

15. Any archaeological sites in the B20 and B22 Project areas that are discovered during archaeological investigations shall not be disturbed until mitigation measures have been completed. Before implementation, proposed mitigation measures shall be approved by the Vermont Division for Historic Preservation. Mitigation may include but is not limited to further site evaluation, data recovery, redesign of one or more B20 and B22 Project components, or modification of the buffer zone boundaries.

16. All archaeological studies to identify, evaluate, or mitigate impacts to archaeological sites shall be carried out by a qualified consulting archaeologist. All such studies and associated reports shall follow the Vermont Division for Historic Preservation's Guidelines for Conducting Archaeological Studies in Vermont. A digital copy of the final archaeological report for the B20 and B22 Projects shall be submitted to the Vermont Division for Historic Preservation. Any archaeological reports submitted to the Commission shall have specific archaeological site locational information redacted in accordance with 1 V.S.A. § 317(c)(20) and 22 V.S.A. § 761(b).

17. The CPG Holders shall obtain and comply with the provisions of a Construction Stormwater Discharge Permit from the Stormwater Program in the Vermont Department of Environmental Conservation.

18. Green Mountain Power Corporation shall update its Spill Prevention, Control, and Countermeasure Plan to reflect the B20 Project upgrades within six months of completing the B20 Project.

19. The CPG Holders shall avoid impacts to Class II wetlands and 50-foot wetland buffer zones, or the CPG Holders shall obtain and comply with the provisions of a Vermont Wetlands Permit for any activity that is not an Allowed Use designated in Section 6 of the Vermont Wetland Rules.

20. Wherever the B20 and B22 Projects are within 100 feet of any Class II wetland buffer zone boundary, prior to site preparation, construction, or maintenance that involves earth disturbance, the CPG Holders shall install a continuous line of flagging outside the buffer zone boundary to identify wetland buffer zones as protected areas.

21. The CPG Holders shall comply with the best management practices developed for Section 6.08 and 6.22 of the Vermont Wetland Rules.

22. The CPG Holders shall avoid any encroachment into a River Corridor or Flood Hazard Area, or the CPG Holders shall obtain and comply with the provisions of either the Flood Hazard Area and River Corridor General Permit or an Individual Permit, as determined by the Rivers Program in the Vermont Department of Environmental Conservation.

23. The CPG Holders shall ensure that all new poles and associated infrastructure for the B20 and B22 Projects placed within any Special Flood Hazard Area are designed and installed using sound engineering and construction practices in order to protect against scour and prevent flotation, collapse, or lateral movement during flooding and are be constructed with materials resistant to flood damage.

24. Armoring or channelization of any stream or river to solely protect the poles and anchors of the B20 and B22 Projects from channel migration or stream erosion within a River Corridor shall be prohibited.

25. All laydown areas and temporary equipment pads for the B20 and B22 Projects shall be located outside of the River Corridor and Special Flood Hazard Area, as shown on the most current River Corridor maps and FEMA Flood Insurance Rate Maps, unless authorized under the Flood Hazard Area and River Corridor General Permit or Individual Permit.

26. Upon the completion of construction, the CPG Holders shall restore to pre-construction conditions all laydown areas, access routes, and temporary equipment pads located within the River Corridor or Special Flood Hazard Area.

27. Green Mountain Power Corporation shall assess its Lowell Substation site for potential soil contamination in accordance with its Environmental Management and Sampling Plan for Decommissioning and Reclamation of Electrical Facilities approved by the Waste Management and Prevention Division of the Vermont Department of Environmental Conservation. Green Mountain Power Corporation shall complete any remediation activities at the Lowell Substation site in accordance with the Investigation and Remediation of Contaminated Properties Rule (dated July 6, 2019) and a Corrective Action Plan approved by the Waste Management and Prevention Division of the Vermont Department of Environmental Conservation.

28. When the existing Lowell Substation power transformer and oil-filled circuit breakers are scheduled for retirement, Green Mountain Power Corporation shall sample and test for the presence and concentration of polychlorinated biphenyls. These tests shall determine the appropriate methods of handling, transportation, and disposal. Green Mountain Power Corporation shall ensure that the retirement, marking, storage, transportation, and disposal of the transformer, breakers, and mineral oil dielectric fluid are performed in accordance with all applicable regulations.

29. Green Mountain Power Corporation shall complete a hazardous materials inventory for the existing control building at the Lowell Substation site. The inspection shall include lead, asbestos, and hazardous and universal wastes. Disposal of wastes, including demolition debris, shall be performed in accordance with all applicable regulations.

30. The installation of all new poles and the retirement and disposal of all existing poles for the B20 and B22 Projects shall be conducted in accordance with the best management practices for penta-poles established in Docket No. 8310.

31. The CPG Holders shall comply with the resource avoidance, impact minimization, and best management practices for rare, threatened, and endangered species described in Exhibit GMP TOU-3, Appendix B.

32. To minimize impacts on primary agricultural soils located at eight 16-foot-by-20-foot construction equipment pads along the B20 and B22 lines, the CPG Holders shall comply with the following:

- a. As shown in detail attached to Exhibit Petitioners-AAFM-1, any excavation that is needed in these eight equipment pad locations shall solely be to move soil from the high side of the slope to the low side to allow for safe installation of the equipment pad;
- b. The soil in these eight equipment pad locations shall not be graded any more than necessary to install the equipment pads in order to provide safe access and operating conditions during construction;
- c. When excavating/moving the soil to install the eight equipment pads, best judgment and efforts in the field shall be used by the CPG Holders (and any contractors) to not mix soil layers, to keep the organic layer and topsoil layer separate from the subsoil; and
- d. Once the eight equipment pads are no longer needed and to the extent that excavation encounters more than one soil horizon, the sites shall be restored to pre-construction ground contour and cover condition, including removing any imported fill material and geotextile, and replacing soils by layer, ending with organic layer and topsoil, to complete reclamation.

33. No trees shall be cleared in areas of primary agricultural soil for the construction of the B20 and B22 Projects. The CPG Holders shall continue routine vegetation maintenance as required to maintain the right-of-way for the B20 and B22 lines.

34. To reduce impacts from soil compaction during construction, the CPG Holders shall not use any vehicle or equipment with an axle load of over 12,000 pounds on wet primary agricultural soils. This prohibition shall not apply to the use of any existing access road in its current condition, or new on-site gravel roads that are constructed with geotextile fabric, a minimum of 12 to 18 inches of gravel, and a 1 inch or thicker cap of crushed aggregate. Wet soils exist when the site has seen higher than average rainfall for a trailing 30-day period, based on National Weather Service or similar state or federal rainfall data.

35. The B20 and B22 Projects shall not include any grading of primary agricultural soils, except to the extent necessary for the installation of the construction equipment pads, in which case primary agricultural soil will be handled as described in condition 32 above.



36. Before beginning site preparation of the B20 Project or the B22 Project, the CPG Holders shall file with the Commission, the parties, and the Towns of Eden, Johnson, Lowell, and Morrisville, letters stating that they have fulfilled all pre-site preparation CPG conditions, and that they intend to commence site preparation for the B20 Project or B22 Project.

37. Before operating the B20 Project or the B22 Project, the CPG Holders shall file with the Commission, the parties, and the Towns of Eden, Johnson, Lowell, and Morrisville a letter confirming that they have fulfilled all pre-operation CPG conditions and that they intend to commence operation of the B20 Project or B22 Project.

38. The CPG Holders shall pay all invoices (if any) from any State agency that (a) are related to this proceeding and (b) are not still under review by the Commission.

39. This Certificate of Public Good shall not be transferred without prior approval of the Commission.



PUC Case No. 19-4464-PET - SERVICE LIST

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