

183 FERC ¶ 62,082
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Green Mountain Power Corporation

Project No. 2879-013

ORDER AMENDING LICENSE, REVISING PROJECT DESCRIPTION, REVISING
ANNUAL CHARGES, AND APPROVING REVISED EXHIBIT A AND
EXHIBIT F DRAWING

(Issued May 17, 2023)

1. On February 7, 2023, and supplemented March 8, 2023, Green Mountain Power Corporation (licensee) filed an application for a non-capacity amendment of its license for the Bolton Falls Hydroelectric Project No. 2879.¹ The licensee proposes to replace the two existing turbine-generator units with two new turbine-generator units, and to add an additional steel roof hatch to the powerhouse. The installation of the new units would decrease the authorized installed capacity of the project from 7,500 kilowatts (kW) to 6,962 kW. The licensee included with the application a revised Exhibit A and one revised Exhibit F drawing for Commission approval. The project is located on the Winooski River near the town of Duxbury in Washington County, Vermont, and does not occupy federal land.

I. Background

2. On October 5, 2022, the Commission issued a new license to continue operation and maintenance of the project. The project consists of: (a) a 2.1-mile-long impoundment with a storage capacity of 300 acre-feet at a normal full pool elevation of 397 feet;² (b) a 92-foot-high, 275-foot-long timber crib dam with a maximum crest elevation of 397 feet when the 5-foot-high rubber bladder atop the dam is inflated and a maximum elevation of 392 feet when the rubber bladder is deflated; (c) a 196-foot-long concrete spillway with a crest elevation of 392 feet; (d) a forebay with two concrete intakes, each fitted with 27-foot-wide, 43-foot-high trashracks; (e) two 10-foot-diameter, 120-foot-long steel penstocks encased in concrete; (f) a 73-foot-long, 57-foot-wide powerhouse containing two horizontal, 3,750-kW Kaplan turbines for a total installed capacity of 7,500 kW; (g) a 75-foot-long, 36-inch diameter bypass pipe located on the left side of the spillway base (when looking downstream); (h) a 130-foot long, 5-kilovolt underground transmission line that connects to an adjacent switchyard; (i) a 600-foot-

¹ *Green Mountain Power Corporation*, 181 FERC ¶ 62,006 (2022).

² Unless otherwise noted, all elevations are referenced to the National Geodetic Vertical Datum of 1929.

long, 34.5-kilovolt overhead transmission line connecting to a second switchyard that interconnects with the regional grid; and (j) appurtenant facilities.

3. Other project facilities include: (a) a Day-Use Recreation Area below the dam that contains a picnic area, parking lot, and canoe put-in; (b) a canoe take-out on the impoundment; (c) a portage trail connecting the take-out and put-in; (d) an access road used by the licensee to access project facilities below the dam and by the public to access the Day Use Recreation Area from River Road; and (e) an access road used by the licensee to access the project dam and canoe take-out from River Road.

4. Article 403 of the license requires, in addition to implementing the run-of-river operation and minimum spill flow requirements of condition B of the Vermont Agency of Natural Resources (Vermont ANR) - Department of Environmental Conservation (Vermont DEC) Clean Water Act (CWA) section 401 water quality certification (WQC or certification), the licensee to maintain the impoundment water level at the elevation(s) specified in the flow management plan required by condition C of Vermont DEC's WQC and Article 402 (*Flow Management Plan*). Article 403 also limits any planned, non-emergency maintenance activities that will require the impoundment to be drawn down below the required limits to between November 1 and August 15 to protect Eastern pearlshell mussels in the project impoundment. Finally, Article 403 also details the requirements for the licensee to report planned and unplanned deviations from the operating requirements of the license.

II. Licensee's Proposal

5. In the application, the licensee proposes to replace the two existing turbine-generator units with two new turbine-generator units, and to add an additional steel roof hatch to the powerhouse. The new turbine-generator units would be placed in the same location as the existing turbine-generator units. The approximately 15-foot-wide and 13-foot-long additional steel hatch to the powerhouse roof would facilitate installation of turbine-generator unit number 2. The installation of the new units would result in the authorized installed capacity of the project decreasing from 7,500 to 6,962 kW and the maximum hydraulic capacity decreasing from 2,400 cubic feet per second (cfs) to 2,210 cfs. The increased efficiency of the turbine-generator units would result in an increase in annual energy generation.

6. The licensee does not plan any other structural modifications to the powerhouse or any other project structures. In addition, the licensee states all construction activities associated with the proposed amendment would occur within the existing powerhouse and would be isolated from the river. The licensee would utilize a phased construction approach. The licensee explains that during the replacement of turbine-generator unit number 1, the project would be completely off-line, and all river flow would be passed over the dam. This would ensure that the project meets the operational conditions of the license. During the replacement of turbine-generator unit number 2, the licensee would utilize unit number 1 to control inflows within its operational range to ensure that the run-

of-river and bypass minimum flow conditions are met. The licensee would pass inflow exceeding the unit number 1 hydraulic capacity over the dam. After the replacement of both units is complete, the licensee would resume normal operation and utilize both units to maintain the operational requirements of the license.

III. Pre-filing Consultation

7. Before filing the application with the Commission, the licensee sent a draft application by email dated January 5, 2023, to the following agencies: the U.S. Fish and Wildlife Service (FWS), the Vermont DEC, the Vermont Department of Fish and Wildlife, the Vermont Division for Historic Preservation (Vermont DHP),³ the U.S. Army Corps of Engineers, the Commission's New York Regional Office, and the Nulhegan Abenaki Tribe. Comments were provided by: (1) the Vermont ANR's Vermont DEC on January 18, 2023; (2) the FWS on January 18, 2023; and (3) the Vermont SHPO on February 6, 2023. The licensee responded to comments provided by the Vermont DEC and the FWS on January 26, 2023. The agencies responded that they have no comments except for the Vermont ANR requesting additional information on the trashrack velocities. On January 26, 2023, the licensee provided the requested information to the Vermont ANR and also includes the information in the amendment application filed with the Commission. The licensee also includes documentation of its communications with the agencies as Attachment 4 of its February 7, 2023 amendment application filing. Commission staff references correspondence regarding statutory consultation and certain resource areas in the appropriate sections, below.

IV. Public Notice

8. On March 23, 2023, the Commission issued a public notice for the proposed amendment, which was published in the Federal Register, accepting the application for filing and soliciting comments, motions to intervene, and protests.⁴ The notice established April 24, 2023, for filing responses to the notice. On April 20, 2023, the Vermont ANR filed a motion to intervene.⁵ No other comments or motions to intervene were received.

³ Vermont DHP acts as the State's Historic Preservation Office (Vermont SHPO).

⁴ 88 *Fed. Reg.* 18533-18534 (2023).

⁵ Timely, unopposed motions to intervene are granted by operation of Rule 214(c)(1) of the Commission's Rules of Practice and Procedure. 18 C.F.R. § 385.214(c)(1) (2022).

V. Statutory Requirements

A. Clean Water Act

9. Under section 401(a) of the CWA,⁶ the Commission may not authorize construction or operation of a hydroelectric project that may result in a discharge from the project unless the state water quality certifying agency either has issued a WQC for the project or has waived certification by failing to act on a request for certification within a reasonable period of time, not to exceed one year. Section 401(d) of the CWA provides that the certification shall become a condition of any federal license that authorized construction or operation of the project.⁷ On January 19, 2022, the Vermont DEC issued a WQC for the project.⁸

10. By email dated January 5, 2023, the licensee provided the Vermont DEC with the proposed amendment to the license. On January 18, 2023, the Vermont DEC responded that it does not have any comments as the amendment application to replace the units does not propose to modify the conditions of the WQC. The Vermont DEC requested clarification as to whether the licensee had calculated the trashrack velocities with the new units. The Vermont DEC anticipated that the trashrack velocities for the proposed units would decrease with the decrease in the maximum hydraulic capacity of the project. On January 26, 2023, the licensee responded to the Vermont DEC and the FWS, stating that the trashrack velocities would decrease from 2.07 feet per second (fps) to 1.90 fps, and that this information would be added to the amendment application.

B. Endangered Species Act

11. Section 7(a)(2) of the Endangered Species Act (ESA) of 1973⁹ requires federal agencies to ensure that their actions are not likely to jeopardize the continued existence of federally listed threatened and endangered species, or result in the destruction or adverse modification of critical habitat of such species.

12. On April 21, 2022, Commission staff issued a final Environmental Assessment (2022 EA) on licensing the project. The EA identified one federally-listed species, the

⁶ 33 U.S.C. § 1341(a).

⁷ 33 U.S.C. § 1341(d).

⁸ The WQC is incorporated into the license by ordering paragraph (D) and attached to the license as Appendix A.

⁹ 16 U.S.C. § 1536(a).

threatened northern long-eared bat (*Myotis septentrionalis*),¹⁰ and the candidate monarch butterfly (*Danaus plexippus*), with the potential to occur in the project area. There were no proposed or designated critical habitats in the project area.

13. By email dated January 5, 2023, the licensee provided the FWS with a draft of the amendment application. On January 18, 2023, the FWS notified the licensee that it had no comments, beyond those previously provided by Vermont ANR.

14. On April 18, 2023, Commission staff accessed the FWS's Information for Planning and Consultation (IPaC) database to determine federally-listed species that may occur in the vicinity of the project. According to the IPaC database, the endangered northern long-eared bat remains the only federally-listed species with the potential to occur within the vicinity of the project.¹¹ The potential effects to the northern long-eared bat are discussed further in the *Environmental Review* section, below.

C. National Historic Preservation Act

15. Section 106 of the National Historic Preservation Act (NHPA)¹² and its implementing regulations¹³ require federal agencies to take into account the effect of any proposed undertaking¹⁴ on properties listed or eligible for listing in the National Register of Historic Places (National Register) and afford the Advisory Council on Historic

¹⁰ At the time of project licensing, the northern long-eared bat was classified as threatened under the ESA. On November 30, 2022, the FWS published a final rule reclassifying the northern long-eared bat as endangered, and removing its species-specific rule issued under section 4(d) of the ESA (87 Fed. Reg. 73,488 (2022)). On January 26, 2023, the FWS delayed the effective date of the final rule reclassifying the bat to endangered to March 31, 2023 (88 Fed. Reg. 4,908 (2023)).

¹¹ As of April 18, 2023, the monarch butterfly remains a candidate species for listing under the ESA.

¹² 54 U.S.C. § 306108 et seq. The National Historic Preservation Act was recodified in Title 54 in December 2014.

¹³ 36 C.F.R. pt. 800.5(a)(2)(vii) (2022).

¹⁴ An undertaking means “a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including those carried out by or on behalf of a Federal agency; those carried out with Federal financial assistance; and those requiring a Federal permit, license, or approval.” 36 C.F.R. § 800.16(y). Here, the undertaking is the proposed replacement of the two existing turbine-generator units with two new turbine-generator units, and the addition of a steel roof hatch to the powerhouse.

Preservation a reasonable opportunity to comment on any undertaking. This generally requires the Commission to consult with the SHPO, to determine whether and how a proposed action may affect historic properties and to seek ways to avoid or minimize any adverse effects.

16. By email dated January 5, 2023, the licensee provided the Vermont SHPO with a draft of the amendment application. On February 6, 2023, the Vermont SHPO informed the licensee that, because the work is limited to the non-contributing building, it does not have any comments.

VI. Environmental Review

17. The National Environmental Policy Act (NEPA) requires federal agencies to consider the environmental impacts of their actions in the decision-making process, and provide a detailed statement on proposals for major federal actions significantly affecting the quality of the human environment. The purpose and function of NEPA is satisfied if federal agencies have considered relevant environmental information, and the public has been informed regarding the decision-making process.¹⁵ In assessing whether NEPA applies or is otherwise fulfilled, federal agencies should determine whether the proposed activity or decision is a major federal action.¹⁶

18. The actions considered in this proposed license amendment would not include any ground disturbance and do not rise to the level of a major federal action. Commission staff invited agency and public participation in our decision-making process, and examined environmental issues related to the proposed action.

19. To satisfy the requirements of the NEPA,¹⁷ Commission staff reviewed the proposed amendment and found it would have no effect on geology and soils, terrestrial resources, recreation, and aesthetic resources. As proposed, all construction activities associated with the amendment would occur within the existing powerhouse and would be isolated from the river. The licensee proposes no changes in project operations following the installation of the new units. The licensee states that access to the powerhouse area for delivery of the turbine-generator units and construction equipment and vehicles would be via the existing access road, which would not require any improvements or modifications to accommodate access during the mobilization or demobilization phases of the work. Further, access to the project recreation facilities

¹⁵ 40 C.F.R. §1500.1.

¹⁶ 40 C.F.R. §1501.1(a)(4).

¹⁷ 42 U.S.C. §§ 4321 *et seq.* (2018); *see also* 18 C.F.R. pt. 380 (2021) (Commission's regulations implementing NEPA).

(i.e., day use area and portage trail) would not be interrupted during the mobilization or demobilization phases of the work or during replacement of the units.

A. Aquatic Resources

20. The State of Vermont assigns classification to all of its surface waters, which determine the criteria that apply to a specific water. As addressed in the 2022 EA, the Winooski River in the vicinity of the project is designated as a Class B(2) water,¹⁸ and is also classified as a cold-water fishery.¹⁹ The dissolved oxygen (DO) standard for Class B(2) water with the cold-water fish habitat designation is not less than 6 milligrams per liter (mg/l) and 70% saturation at all times. Class B(2) water criteria further stipulates that the total increase from the ambient temperature due to all discharges and activities must not exceed 1.0 degrees Fahrenheit (°F).

21. During the relicensing process, the licensee collected DO and water temperature data within the project waters. Analysis of this data within the 2022 EA indicated DO concentrations on average met or exceeded the State of Vermont standard at all seven monitoring locations the majority of the time, although there were several days in late August and early September when DO conditions fell below the state standard levels both above and below the dam. The low DO periods coincided with periods when the project was shut down due to low flows and DO subsequently met the minimum levels established by the state's DO standards after river flows increased and the project began generating again.²⁰ Water temperatures during the study ranged from 10.9 degrees Celsius (°C) to 28.6°C (or 51.6°F to 83.4°F), averaging between 19.1°C to 20.1°C (or 66.4°F to 68.2°F). The temperatures remained similar and fluctuated in sync upstream and downstream of the project during the study period.²¹

22. The Winooski River has a diverse fishery, influenced by the presence of Lake Champlain at the mouth of the river. The project is in the upper portion of the Lower Winooski River watershed. Common resident fish species found in project waters include rainbow trout, brown trout, brook trout, fallfish, smallmouth bass, longnose dace, golden shiner, white sucker, smallmouth bass, slimy sculpin, bullhead catfish, and

¹⁸ Class B(2) waters are managed to support the following designated and existing uses: aquatic biota and wildlife; aquatic habitat; aesthetics; public water supply, with filtration and disinfection or other required treatment; irrigation of crops and other agricultural uses; swimming and other primary contact recreation; and boating, fishing, and other related recreational uses.

¹⁹ 2022 EA at 17.

²⁰ 2022 EA at 18.

²¹ 2022 EA at 19.

panfish. Vermont ANR stocks rainbow trout in the Winooski River upstream of the project dam, and stocks brown trout in the Winooski River both upstream and downstream of the project dam. Additionally, landlocked Atlantic salmon and steelhead trout migrate from Lake Champlain into the Winooski River to spawn.²² However, due to management activities at upstream fish passage facilities on the lower Winooski River dams, steelhead trout are prevented from moving upstream to the project. Therefore, only landlocked Atlantic salmon are present in the project area. While no salmon spawning habitat or redds have been identified in the project bypassed reach or tailrace areas, suitable spawning habitat may occur in the Winooski River downstream of the project.²³ The project is located upstream of the extent of the natural range for lake sturgeon.

23. Under the current license, the total maximum hydraulic capacity of the project is 2,400 cfs (1,200 cfs per unit). The minimum hydraulic capacity of Units 1 and 2 are approximately 365 cfs and 435 cfs, respectively. At the minimum hydraulic capacity of 365 cfs, the approach velocity would be about 0.30 fps. At the maximum hydraulic capacity of 2,400 cfs, the approach velocity would be about 2.07 fps. As fish reach the trashrack, velocities increase as water is forced to pass through a smaller surface area. At the minimum hydraulic capacity of 365 cfs, the through velocity for water passing between the trashrack bars would be about 0.4 fps, while at the maximum hydraulic capacity of 2,400 cfs, the through velocity would be about 2.54 fps.²⁴

24. As addressed in the 2022 EA, to assess the potential for entrainment and impingement of resident fish found in the project impoundment, the licensee conducted a desktop evaluation comparing the body size of target fish (i.e., rainbow trout, brown trout, brook trout, fallfish, longnose dace, golden shiner, white sucker, smallmouth bass, and slimy sculpin²⁵) to the spacing in the existing trashrack as well as the relative swim speeds of the target fish to the estimated approach velocities expected to be experienced by fish as they approach the trashrack. Based on the review of fish sizes and relative body widths, all target fish species assessed (both adult and juveniles) would be expected to fit the 3-inch trashrack openings. Therefore, Commission staff concluded in the 2022 EA that the risk of impingement on the existing trashrack at the project is expected to be very low.²⁶ Additionally, burst swim speeds for juvenile and adult resident fish suggest

²² 2022 EA at 20.

²³ 2022 EA at 21.

²⁴ 2022 EA at 34.

²⁵ The licensee used mottled sculpin as a surrogate for slimy sculpin in its desktop entrainment and impingement analysis study.

²⁶ 2022 EA at 33.

that most fish could overcome the maximum approach and through velocities at the trashrack and swim away. Commission staff stated in the 2022 EA that fish species and life-stages with a greater likelihood of entrainment (i.e., golden shiners, juvenile white sucker, juvenile smallmouth bass, and juvenile sculpin) are expected to exhibit high turbine survival (greater than 90%) through the project's Kaplan turbines due to their small size. Further, Commission staff found no information to suggest entrainment is adversely affecting resident fish populations residing in the project impoundment, or that the trashrack would need to be replaced.²⁷

25. The licensee states that the proposed turbine runners would have a similar design to the existing runners (e.g., Kaplan-type design, diameter, number of blades, placement location within the turbine pit). As such, DO in the project tailrace area with the proposed new turbine generators would be similar to present values, and would continue to meet state water quality standards, as specified in the WQC. Further, the licensee states that installation of the proposed new turbine-generator units would decrease the overall hydraulic capacity at the project, from 1,200 cfs per unit to 1,105 cfs per unit. Therefore, any entrainment at the project would be expected to decrease given the smaller volume of water passing through the turbines and the decreased approach velocity at the intake, from 2.07 fps to 1.90 fps. Additionally, the proposed turbine runners would have the same number of blades and a lower rated speed (240 rotations per minute (rpm) versus the current 277 rpm). As the number of turbine blades and rated speed are directly correlated with turbine survival, Commission staff anticipates that turbine survival estimates under the proposed amendment would be slightly better than the project as currently licensed, and as reviewed in the 2022 EA.

26. In 2018, the licensee conducted a mussel survey within the impoundment and approximately 0.2-mile downstream of the project dam. Surveyors identified high quality mussel habitat throughout the impoundment, especially in more stable areas with deeper water (more than 3 feet deep) that contained moderate flow velocities, a streambed with a mix of both fine and coarse rocky substrates, and stable streambanks. Forty-two state-listed threatened Eastern pearlshell mussel individuals were found in depths ranging from 2.5 feet to 11 feet.^{28,29} The licensee's mussel survey found that half of the Eastern pearlshell mussels were within water depths of 5 feet or less, which would be within the zone of fluctuation for maintenance drawdowns. Commission staff determined that including a license requirement to avoid drawing down the impoundment for planned maintenance during the mussel breeding season (August 16 to October 31)

²⁷ 2022 EA at 34-35.

²⁸ The licensee additionally identified one common Eastern elliptio in the upper reach of the impoundment.

²⁹ 2022 EA at 21.

would limit dewatering of sensitive reproductive or larval mussel stages, and provide the licensee with nine months to conduct planned drawdowns, including during the low flow months of June, July, and the first half of August.³⁰ Therefore, Article 403 requires the licensee to limit any planned, non-emergency maintenance activities that would require the impoundment to be drawn down below the reservoir elevation limits specified in the license to the period between November 1 and August 15. As proposed, during and following the replacement of the turbine-generators, the licensee would continue to operate the project under the requirements of the existing license, and would continue to meet the conditions specified in the WQC. Therefore, Commission staff concludes that effects to the Eastern pearlshell mussel resulting from the proposed amendment should not vary significantly from the effects of the project under the current license, and as addressed in the 2022 EA.

B. Threatened and Endangered Species

27. As addressed in the 2022 EA, maintenance activities at the project during the term of the license would require periodic mowing and tree trimming, but no information suggests that tree removal occurring at the project would have the potential to affect the northern long-eared bat maternity roost habitat. Commission staff concluded that, although relicensing the project may affect the northern long-eared bat, it would not result in the prohibited incidental take of the species under the final ESA section 4(d) rule.^{31,32} On September 12, 2022, the FWS concurred with this determination. Therefore, no other action under the ESA was required at the time of licensing for the northern long-eared bat.

28. As proposed in the amendment application, all construction activities associated with the turbine-generator replacement would occur within the existing powerhouse, and would not require the removal of trees that could affect the northern long-eared bat or its habitat. After reviewing the proposed amendment, its affects, and agency comments, Commission staff concludes that the proposed amendment would have no effect on the northern long-eared bat.

29. Commission staff notes that, as addressed in the project license, on September 14, 2022, the FWS proposed to list the tricolored bat (*Perimyotis subflavus*) as

³⁰ 2022 EA at 68.

³¹ 2022 EA at 42.

³² The 4(d) rule prohibited incidental take of northern long-eared bats that may occur from tree removal activities within 150 feet of a known occupied maternity roost tree during the pup season (June 1 through July 31) or within 0.25 miles of a hibernation site, year-round. 50 C.F.R. § 17.40(o).

endangered,³³ based upon the range-wide impacts of white-nose syndrome, which have caused estimated declines of more than 90 percent in affected colonies. No critical habitat is being proposed for the species. Tricolored bats are known to occur in 39 states, including Vermont. In the project license, Commission staff concluded that project maintenance activities that may affect the tricolored bat are the same as those noted for the northern long-eared bat. Because the proposed amendment would not require any removal of trees that could affect the bat or its habitat, Commission staff does not anticipate any effects to the tricolored bat.

C. Cultural and Historic Resources

30. As addressed in the 2022 EA, the licensee conducted a cultural resources assessment in December 2018 and an archaeological resources assessment in November 2019 as part of the relicensing process. In addition, the licensee conducted a targeted Phase I archaeological survey from May to July 2020, followed by phase II archaeological investigations in August and September of 2020.³⁴

31. The Bolton Falls Dam, constructed in 1900, is the only historic architectural resource within the project's area of potential effect (APE) that is eligible for listing in the National Register.³⁵ Three pre-Contact era Native American archaeological sites within the project's APE are eligible for listing in the National Register.³⁶ To protect cultural resources during the term of the license, the licensee filed a Historic Properties Management Plan (HPMP) on March 31, 2022, that includes a process and procedures to address any potential adverse effects to the Bolton Falls Dam, the three archaeological sites, and any other historic properties that may be found at the project for the term of the license. The mitigation measures included in the HPMP would minimize effects to archaeological resources from ongoing maintenance and recreation.

32. To satisfy its responsibilities under section 106 of the NHPA, the Commission executed a Programmatic Agreement (PA) with the Vermont SHPO.³⁷ The licensee was

³³ 87 *Fed. Reg.* 56,381 (2022).

³⁴ 2022 EA at 52.

³⁵ The Bolton Falls Dam was determined by the Vermont SHPO to be eligible for listing in the National Register in 1981. The Secretary of the Department of the Interior determined that the property was eligible on March 19, 1981, as an early representative example of a hydroelectric generating facility.

³⁶ 2022 EA at 53.

³⁷ Programmatic Agreement Between the Federal Energy Regulatory Commission and the Vermont State Historic Preservation Officer for Managing Historic Properties

invited to concur with the stipulations of the PA. On May 25, 2022, the Vermont SHPO signed the PA, and the licensee concurred on May 27, 2022. The PA requires the licensee to implement the HPMP, filed on March 31, 2022. Article 407 requires the licensee to implement the PA and the HPMP.

33. The proposed amendment does not involve modification to the project dam or disturbance of the previously identified archaeological sites. Further, the licensee states that the proposed steel roof hatch, which would facilitate installation of the turbine-generator unit 2, would be similar in design to the existing three roof hatches. No other structural modifications to the powerhouse or other project features are planned. Pursuant to the stipulations contained in Section 3.2 of the HPMP, the proposed amendment at the project powerhouse is considered exempt from Historic Architectural Review.³⁸ The proposed amendment would not affect any of the three previously identified archaeological properties within the project area, and does not include any ground disturbing activities. During project construction, maintenance, or operation, including the changes addressed in this order, previously unidentified historic, archaeological sites, or human remains would be protected by the requirements set forth in Sections 3.5.3³⁹ and 3.5.4⁴⁰ of the HPMP. Therefore, Commission staff does not anticipate any adverse effects related to cultural and historic resources from the proposed amendment.

that May be Affected by Issuance of a New License to Green Mountain Power for the Continued Operation of the Bolton Falls Hydroelectric Project in Washington County, Vermont (FERC No. 2879-012).

³⁸ Section 3.2 of the HPMP serves as a guide for maintenance and preservation activities associated with the project. Activities and issues described in Section 3.2 may be required during the term of the license in order to maintain the project as an active hydroelectric facilities, including periodic maintenance and repair activities. As stated in Section 3.2.1, including the powerhouse, which was reconstructed in the 1980s, are too new to be eligible in the National Register. Pursuant to Section 3.2.1 of the HPMP, undertakings on the powerhouse and other non-National Register project structures are exempt from Historic Architectural Review. As these project facilities become 50 years of age during the term of the license, the licensee must consult with Vermont SHPO regarding the facility's eligibility for the National Register, and the exempt status may change.

³⁹ Section 3.5.3 of the HPMP sets forth policies the licensee must follow in the event of an inadvertent discovery of a potential historic property during ground disturbing undertaking (in an area previously cleared by an archaeological survey).

⁴⁰ Section 3.5.4 of the HPMP sets forth procedures the licensee must follow for the treatment of human remains, including consultation with Native American Tribes.

VII. Administrative Provisions

A. Installed Capacity and Annual Charges

34. According to 18 C.F.R. § 11.1(i) (2022), the authorized installed capacity means “the lesser of the ratings of the generator or turbine units.” The rating of a turbine is the product of the turbine’s capacity in horsepower (hp) at best gate opening under the manufacturer’s rated head times a conversion factor of 0.75 kilowatt (kW)/hp. The rating of a generator is the product of the continuous-load capacity rating of the generator in kilovolt-amperes (kVA) and the system power factor in kW/kVA.

35. The licensee’s proposal to replace the turbine and generating units would result in each turbine having an installed capacity of 3,481 kW and each generator having an installed capacity of 4,050 kW (4,500 kVA*0.9 power factor). The authorized installed of each unit is 3,481 kW limited by the turbine rating. The authorized installed capacity of the project is 6,962 kW. Ordering paragraph (B) of this order revises the project description in ordering paragraph (B)(2) of the license to reflect this amendment and consistent with the revised exhibits described below.

36. In addition, the annual charges under Article 201 of the license for the purpose of reimbursement to the United States Government for the costs of administration of Part I of the Federal Power Act should be revised to reflect the capacity decrease. The authorized installed capacity for that purpose is 6,962 kW. Based on the Commission’s current regulations, the effective date for the change in annual charges will be the date on which the licensee is required to start the proposed work, or two years from the issuance date of this order, as that day may be extended.⁴¹ Ordering paragraph (C) of this order revises annual charges pursuant to Article 201 of the license to reflect the revised authorized installed capacity.

B. Revised Exhibits

37. The licensee included a revised Exhibit A for Commission approval, describing the entire project, in two forms, a strikethrough and final clean copy. The Exhibit A conforms to the Commission’s rules and regulations and should be approved, superseding any previous Exhibit A. Ordering paragraph (D) of this order approves the revised Exhibit A.

38. In addition, the licensee included, a revised Exhibit F-8 drawing for Commission approval. Our review of the exhibit found that the drawing provides acceptable representation of the project features. The Exhibit F drawing conforms to the Commission’s rules and regulations and should be approved. Ordering paragraph (E) of this order approves the revised Exhibit F drawing. Ordering paragraph (F) requires the

⁴¹ 18 C.F.R. § 11.1(c)(5) (2022).

licensee to file the approved exhibit drawing in electronic file format. The licensee's March 8, 2023 filing confirms that no additional changes are necessary to the approved Exhibit F and G drawings for the project.

39. Order paragraph (I) requires the licensee to file revised Exhibits A, F, and G, as applicable, to reflect as-built conditions. The filing shall also include photographs of the turbine-generator units' nameplates.

C. Dam Safety

40. Commission staff reviewed the amendment application and concluded that the proposed modifications would have no adverse effect on dam safety for this project when constructed, operated, and maintained in accordance with the Commission's standards and oversight. The licensee plans to install the new units starting in 2023 and to complete installation by the end of 2024. Ordering paragraph (G) of this order requires the licensee to start and complete the upgrades within two and four years, respectively, from the issuance date of this order. The licensee may not begin construction until the Commission's D2SI – New York Regional Engineer has reviewed and commented on the plans and specifications, determined that all preconstruction requirements have been satisfied, and authorized start of construction. Ordering paragraph (H) of this order requires the licensee to submit Final Design Documents prior to receiving approval to start construction from the Commission's D2SI – New York Regional Engineer.

VIII. Discussion and Conclusion

41. The licensee proposes to replace the two existing turbine-generator units with two new turbine-generator units, and to add an additional steel roof hatch to the powerhouse. The replacement of the turbines and generators would allow the licensee to benefit from better efficiency of those units. Commission staff finds that the licensee's amendment request would not result in any significant adverse environmental effects to geology and soils, terrestrial resources, threatened and endangered species, recreation, aesthetics, cultural and historic resources, and would not result in disproportionately high and adverse impacts on the identified environmental justice community. During and following completion of the turbine-generator replacement, the licensee would continue to operate the project as currently licensed, and would continue to meet the conditions specified in Vermont DEC's WQC. The licensee has incorporated design elements, including a decrease in the overall hydraulic capacity from 2,400 to 2,210 cfs, and a decrease in the approach velocity from 2.07 fps to 1.90 fps, which would further reduce impingement or entrainment of fishery resources at the project, and would, therefore, improve turbine survival estimates from those considered in the current license and addressed in the 2022 EA. Accordingly, the licensee's application for amendment of the license should be approved.

The Director orders:

(A) Green Mountain Power Corporation's non-capacity amendment application for the Bolton Falls Hydroelectric Project No. 2879, to replace the turbine-generator units, and to add an additional steel roof hatch to the powerhouse, filed February 7, 2023, and supplemented March 8, 2023, is approved.

(B) This order revises ordering paragraph (B)(2) of the license to read as follows:

(2) Project works consisting of: (a) a 2.1-mile-long impoundment with a storage capacity of 300 acre-feet at a normal full pool elevation of 397 feet;⁴² (b) a 92-foot-high, 275-foot-long timber crib dam with a maximum crest elevation of 397 feet when the 5-foot-high rubber bladder atop the dam is inflated and a maximum elevation of 392 feet when the rubber bladder is deflated; (c) a 196-foot-long concrete spillway with a crest elevation of 392 feet; (d) a forebay with two concrete intakes, each fitted with 27-foot-wide, 43-foot-high trash racks; (e) two 10-foot diameter, 120-foot-long steel penstocks encased in concrete; (f) a 73-foot-long, 57-foot-wide powerhouse containing two horizontal, 3,481-kilowatt Kaplan turbines for a total installed capacity of 6,962 kilowatts; (g) a 75-foot-long, 36-inch diameter bypass pipe located on the left side of the spillway base (when looking downstream); (h) a 130-foot long, 5-kilovolt underground transmission line that connects to an adjacent switchyard; (i) a 600-foot-long, 34.5-kilovolt overhead transmission line connecting to a second switchyard that interconnects with the regional grid; and (j) appurtenant facilities.

Other project facilities include: (a) a Day-Use Recreation Area below the dam that contains a picnic area, parking lot, and canoe put-in; (b) a canoe take-out on the impoundment; (c) a portage trail connecting the take-out and put-in; (d) an access road used by the licensee to access project facilities below the dam and by the public to access the Day Use Area from River Road; and (e) an access road used by licensee to access the project dam and canoe take-out from River Road.

The project works generally described above are more specifically described and shown in project Exhibits A and F.

(C) Article 201 of the license is revised, effective the date of this order, to read:

Article 201. Administrative Annual Charges. The licensee must pay the United States annual charges, effective two years from the issuance of this order, and as determined in accordance with provisions of the Commission's regulations in effect from

⁴² Unless otherwise noted, all elevations are referenced to the National Geodetic Vertical Datum of 1929.

time to time, for the purposes of reimbursing the United States for the cost of administration of Part I of the Federal Power Act. The authorized installed capacity for that purpose is 6,962 kilowatts.

(D) The revised Exhibit A filed on March 8, 2023, conforms to the Commission's rules and regulations and this order approves the Exhibit A and makes it part of the license. The previous Exhibit A is eliminated from the license.

(E) The following Exhibit F drawing filed March 8, 2023, conforms to the Commission's rules and regulations, and this order approves the drawing and makes it part of the license. This order supersedes the previous Exhibit F-8 (FERC Drawing No. P-2879-1010) and deletes it from the license.

Exhibit No.	FERC Drawing No.	Drawing Title
F-8	P-2879-1011	Powerhouse Section Thru Unit 2

(F) Within 45 days of the date of issuance of this order, as directed below, the licensee must file the approved exhibit drawing in electronic file format.

The licensee must prepare digital images of the approved exhibit drawing in electronic format. Prior to preparing each digital image, the licensee must add the FERC Project-Drawing Number (i.e., P-2879-1011) in the margin below the title block of the corresponding approved drawing. The licensee must **label and file the Exhibit F drawings as Critical Energy Infrastructure Information (CEII) material under 18 C.F.R. § 388.113** (The submission should consist of: 1) a public portion consisting of a cover letter; and 2) a CEII portion containing only the Exhibit F drawings). Each drawing must be a separate electronic file, and the file name must include: FERC Project-Drawing Number, FERC Exhibit Number, Filename Title, date of this order, and file extension in the following format [P-2879-1011, F-8, Powerhouse Section Thru Unit 2, MM-DD-YYYY.TIFF]. All digital images of the exhibit drawings must meet the following format specification:

IMAGERY:	black & white raster file
FILE TYPE:	Tagged Image File Format, (TIFF) CCITT Group 4 (also known as T.6 coding scheme)
RESOLUTION:	300 dots per inch (dpi) desired, (200 dpi minimum)
DRAWING SIZE:	22" x 34" (minimum), 24" x 36" (maximum)
FILE SIZE:	less than 1 megabyte desired

(G) The licensee shall start construction of the proposed work authorized in this order within two years and complete all construction within four years from the issuance date of this order.

(H) *Final Design Documents.* At least 60 days prior to the start of any construction, the licensee must file final design documents with the Commission by eFiling to the appropriate Regional Office. The design documents must include: final plans and specifications, supporting design report, Quality Control and Inspection Program, Temporary Construction Emergency Action Plan, and Soil Erosion and Sediment Control Plan. The licensee may not begin construction until the Division of Dam Safety and Inspections - Regional Engineer has reviewed and commented on the documents, determined that all preconstruction requirements have been satisfied, and authorized start of construction.

(I) Within 90 days of completion of construction of the improvements authorized by this amendment, the licensee must file for Commission approval, revised Exhibits A, F and G, as applicable, to reflect as-built conditions. If the licensee determines the previously approved exhibits reflect the as-built facilities and no revisions are necessary, the licensee must file a letter stating the approved exhibits reflect the as-built project facilities. The filing must include photographs of the nameplates for the turbines and generators.

(J) This order constitutes final agency action. Any party may file a request for rehearing of this order within 30 days from the date of its issuance, as provided in § 313(a) of the Federal Power Act, 16 U.S.C. § 825~~l~~, and the Commission's regulations at 18 C.F.R. § 385.713 (2022). The filing of a request for rehearing does not operate as a stay of the effective date of this order, or of any other date specified in this order. The licensee's failure to file a request for rehearing shall constitute acceptance of this order.

Kelly Houff
Chief, Engineering Resources Branch
Division of Hydropower Administration
and Compliance