

143 FERC ¶ 62,058  
UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

Carbon Zero, LLC

Project No. 14308-001

ORDER ISSUING ORIGINAL MINOR LICENSE

(April 25, 2013)

**INTRODUCTION**

1. On February 17, 2012, Carbon Zero, LLC (Carbon Zero) filed, pursuant to Part I of the Federal Power Act (FPA),<sup>1</sup> an application for an original license to construct, operate, and maintain its proposed Vermont Tissue Mill Dam Hydroelectric Project No. 14308 (Vermont Tissue Mill Project or project).<sup>2</sup> The 360-kilowatt (kW) project will be located on the Walloomsac River, near the towns of Bennington and North Bennington, in Bennington County, Vermont.<sup>3</sup> The project will not occupy any federal lands.

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<sup>1</sup> 16 U.S.C. §§ 791(a) - 825(r) (2006).

<sup>2</sup> Carbon Zero filed an application for a small hydropower project exemption from licensing on October 24, 2011. Because Carbon Zero does not have adequate property rights for the project site, the project does not qualify for a small hydropower exemption. As a result, Carbon Zero revised its application, and on February 12, 2012, it filed an application for a minor license.

<sup>3</sup> The Vermont Tissue Mill Project will be located on the Walloomsac River, a tributary to the Hoosic River, a navigable waterway. *See Niagara Mohawk Power Corp.*, 83 FERC ¶ 62,202 (1998). Headwaters and tributaries of navigable waterways are Commerce Clause streams within the meaning of FPA section 23(b)(1). *See F.P.C. v. Union Electric Co.*, 381 U.S. 90, 94-96 (1965). Since the project is located on a tributary over which Congress has jurisdiction under the Commerce Clause, affects interstate commerce through its connection to an interstate power grid, and will be constructed after 1935, it is required to be licensed pursuant to section 23(b)(1) of the FPA. *See* 16 U.S.C. § 817(1) (2006).

Project No. 14308-001

- 2 -

2. As discussed below, this order issues an original minor license for the Vermont Tissue Mill Project.

## BACKGROUND

3. On April 24, 2012, the Commission issued a public notice that was published in the *Federal Register* accepting the application for filing; indicating the Commission intended to waive scoping; soliciting competing applications, comments, terms and conditions, recommendations, and prescriptions; and establishing an expedited schedule for processing.<sup>4</sup> The notice set June 25, 2012, as the deadline for filing competing applications, notices of intent to file a competing application, motions to intervene, comments, recommendations, terms and conditions, and prescriptions.<sup>5</sup> On June 25, 2012, the Vermont Agency of Natural Resources filed a timely motion to intervene.<sup>6</sup>

4. On June 21, 2012, the U.S. Department of the Interior (Interior) filed comments, recommendations, and prescriptions. On July 17, 2012, Carbon Zero filed reply comments stating that it has no comments or objections to Interior's recommendations and prescriptions.

5. An Environmental Assessment (EA) was prepared by Commission staff and issued on December 18, 2012, analyzing the impacts of the proposed project and alternatives to it. On January 17, 2013, the Vermont Department of Environmental Conservation (Vermont DEC) filed a letter stating it has no specific comments on the EA.

6. The comments, recommendations, and prescriptions have been fully considered in determining whether, and under what conditions, to issue this license.

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<sup>4</sup> 77 *Fed. Reg.* 25,998 (May 2, 2012).

<sup>5</sup> The Commission's Rules of Practice and Procedure provide that, if a filing deadline falls on a Saturday, Sunday, holiday, or other day when the Commission is not open for business, the filing deadline does not end until the close of business on the next business day. 18 C.F.R. § 385.2007(a)(2) (2012). The filing deadline was 60 days from issuance of the notice (i.e., June 23, 2012), which fell on a Saturday, thus the filing deadline was the close of business Monday, June 25, 2012.

<sup>6</sup> Timely, unopposed motions to intervene are granted by operation of Rule 214(c) of the Commission's Rule of Practice and Procedure. 18 C.F.R. § 385.214(c) (2012).

## PROJECT DESCRIPTION

### A. Project Facilities

7. The Vermont Tissue Mill Project will be located at the existing Vermont Tissue Mill dam, which is comprised of two separate concrete, gravity sections (i.e., a primary dam and a secondary dam) separated by a 500-foot-wide, 600-foot-long island. The 15-foot-high, 85-foot-long primary dam includes a spillway with a crest elevation of 555.0 feet mean sea level (msl) and an existing 6-foot-high, 8-foot-wide flood gate at its south end. Carbon Zero proposes to install new 4-inch-high flashboards with a crest elevation of 555.33 feet msl on the spillway of the primary dam. An existing 25-foot-long, 35-foot-wide powerhouse is located at the base of the primary dam on its downstream side. The secondary dam is 6 feet high and 80 feet long and includes a spillway with a crest elevation of 555.33 feet msl. The primary and secondary dams create the existing 2,400-foot-long, 6.4-acre impoundment that Carbon Zero proposes to maintain at a normal water surface elevation of 555.41 feet msl.

8. The island located between the dams extends downstream and separates the Walloomsac River into two channels. The channel downstream of the primary dam (i.e., primary channel) is approximately 50 feet wide and 450 feet long. The channel downstream of the secondary dam (i.e., secondary channel) is approximately 40 feet wide and 200 feet long. The confluence of the primary and secondary channels is at the downstream end of the island. An existing 35-foot-wide, 225-foot-long tailrace runs parallel to the primary channel and is partially separated from the primary channel by a breached retaining wall and another island that is 180 feet long and 35 feet wide (i.e., tailrace island). Carbon Zero proposes to replace the breached retaining wall with a new 8-foot-high, 2-foot-wide, 45-foot-long retaining wall that will connect the powerhouse to the tailrace island.

9. Carbon Zero proposes to install two new 12-foot-high, 16-foot-wide trashracks in an existing intake structure at the primary dam that includes two 12-foot-high, 16-foot-wide flume openings. Carbon Zero also proposes to install two new Kaplan turbine-generating units in the existing powerhouse. A 215-kW turbine-generating unit will discharge into the existing tailrace and a 145-kW turbine-generating unit will discharge into the primary channel at the base of the primary dam. The project will have a total installed capacity of 360 kW. Power from the project will be transmitted from the powerhouse to the regional grid through a new buried 480-volt, 125-foot-long transmission line. The project will have an estimated annual generation of 1,447.5 megawatt-hours (MWh).

Project No. 14308-001

- 4 -

10. The proposed project boundary encloses all the facilities above, including the primary and secondary dams, the flood gate, impoundment, intake structure and flumes, powerhouse, tailrace, retaining wall, and the transmission line. The project has no existing or proposed recreational facilities.

### B. Proposed Project Operation and Environmental Measures

11. Carbon Zero will operate the project in a run-of-river mode. The 215-kW unit will use flows from 24 to 185 cubic feet per second (cfs) and the 145-kW unit will use flows from 21 to 162 cfs.

12. The project will bypass approximately 225 feet of the primary channel (i.e., primary bypassed reach) and the entire 200 foot length of the secondary channel (i.e., secondary bypassed reach). To protect aquatic habitat and water quality in the bypassed reaches and tailrace, Carbon Zero proposes to provide minimum flows that vary based on inflow to the impoundment and time of year. Carbon Zero also proposes to provide a year-round minimum flow of 6 cfs over the primary spillway to protect aesthetic resources. The proposed minimum flows are presented in Table 1 below.

Table 1. Proposed minimum flows.

Location	Minimum Flows	
	June 1 through September 30	October 1 through May 31
Primary bypassed reach	Inflow $\leq$ 72 cfs: 1/3 of inflow Inflow $>$ 72 and $<$ 108 cfs: inflow minus 48 cfs Inflow $\geq$ 108 cfs: 60 cfs	Inflow $\leq$ 72 cfs: 1/3 of inflow Inflow $>$ 72 and $<$ 162 cfs: inflow minus 48 cfs Inflow $\geq$ 162 cfs: 114cfs
Primary spillway	6 cfs or 1/3 of inflow, whichever is less	
Secondary bypassed reach	Inflow $\leq$ 72 cfs: 1/3 of inflow Inflow $>$ 72 cfs: 24 cfs	
Tailrace	Inflow $\leq$ 72 cfs: 1/3 of inflow	

<b>Minimum Flows</b>	
	Inflow > 72 cfs: 24 cfs

13. To provide the minimum flow to the tailrace, Carbon Zero will install a new 1.5-foot-diameter valve in the powerhouse. To provide minimum flows to the secondary bypassed reach, Carbon Zero will install a new 2.5-foot-high, 2.5-foot-wide weir in the spillway of the secondary dam. Minimum flows in the primary bypassed reach will be released as spill over the primary dam or discharged through the 145-kW turbine-generating unit.

14. In addition to the operational measures described above, Carbon Zero proposes to: (1) install an electronic programmable logic controller to automate project operation and minimum flow releases; (2) use cofferdams to dewater the tailrace and a portion of the impoundment upstream of the intake to allow for sediment removal; (3) properly dispose of sediment removed from the tailrace and impoundment; (4) install trashracks that have a clear spacing of 1.25 inches and an estimated maximum approach velocity of 0.96 feet per second (fps) to limit fish entrainment and impingement; (5) develop a plan to monitor and report compliance with run-of-river and minimum flow requirements; (6) implement impoundment refill procedures to protect habitat and water quality downstream of the dams; (7) develop a monitoring plan to identify any project effects on dissolved oxygen (DO); and (8) install warning buoys for boaters upstream of the primary dam.

## **SUMMARY OF LICENSE REQUIREMENTS**

15. As described below, this license, which authorizes 360 kW of renewable energy, requires a number of measures to protect and enhance environmental resources at the project. These measures include: installing an electronic programmable logic controller to automate project operation and minimum flow releases (Article 402); installing cofferdams for sediment removal from the tailrace and the impoundment (Article 302); maintaining run-of-river operation and minimum flows in the bypassed channels and tailrace (ordering paragraph (E)); implementing impoundment refilling procedures (ordering paragraph (E)); developing and implementing a flow and water level compliance monitoring, recording, and reporting plan (ordering paragraph (E)); water quality monitoring (ordering paragraph (E)); installing trashracks designed to limit fish entrainment and impingement (ordering paragraph (E)); implementing tailrace and impoundment dredging procedures (Article 302 and ordering paragraph (E)); implementing sediment disposal procedures (Article 302); developing a public safety

Project No. 14308-001

- 6 -

plan (Article 307); developing an erosion and sediment control plan (Article 302); and consulting if previously unidentified archaeological or historic properties are discovered during the course of constructing, operating, or maintaining project works (Articles 404 and 405).

### WATER QUALITY CERTIFICATION

16. Under section 401(a)(1) of the Clean Water Act (CWA),<sup>7</sup> the Commission may not issue a license authorizing the construction or operation of a hydroelectric project unless the state water quality certifying agency either has issued water quality certification (certification) 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 authorizes construction or operation of the project.<sup>8</sup>

17. On April 24, 2012, Carbon Zero applied to Vermont DEC for water quality certification for the Vermont Tissue Mill Project, which Vermont DEC received April 27, 2012. On February 27, 2013, Vermont DEC issued the water quality certification for the Vermont Tissue Mill Project. The certification contains 22 conditions. Seven of the conditions (A and Q-V) are general or administrative and are not discussed further.

18. Condition B requires the licensee to operate the project in an instantaneous run-of-river mode and to release minimum flows to the primary bypassed reach, secondary bypassed reach, and tailrace essentially as proposed by the applicant and as specified below:

Location	Minimum Flows	
	June 1 through September 30	October 1 through May 31
Primary bypassed reach	Inflow $\leq$ 72 cfs: 1/3 of inflow Inflow 73 to 107 cfs: inflow minus 48 cfs	Inflow $\leq$ 72 cfs: 1/3 of inflow Inflow 73 to 161 cfs: inflow minus 48 cfs

<sup>7</sup> 33 U.S.C. § 1341(a)(1) (2006).

<sup>8</sup> 33 U.S.C. § 1341(d) (2006).

Project No. 14308-001

- 7 -

	Minimum Flows	
	Inflow $\geq$ 108 cfs: 60 cfs	Inflow $\geq$ 162 cfs: 114cfs
Secondary bypassed reach	Inflow $\leq$ 72 cfs: 1/3 of inflow Inflow $>$ 72 cfs: 24 cfs	
Tailrace	Inflow $\leq$ 72 cfs: 1/3 of inflow Inflow $>$ 72 cfs: 24 cfs	

19. The certification does not specify a minimum flow for the primary bypassed reach for June 1 through September 30 when inflows are between 72 and 73 cfs or between 107 and 108 cfs. Based on the other information included in the certification, this requirement should read “Inflow  $>$  72 and  $<$  108 cfs: inflow minus 48 cfs.” The table in Appendix A is modified accordingly.

20. The certification also does not specify a minimum flow for the primary bypassed reach for October 1 through May 31 when inflows are between 72 and 73 cfs or between 161 and 162 cfs. Based on the other information included in the certification, this requirement should read “Inflow  $>$  72 and  $<$  162 cfs: inflow minus 48 cfs.” The table in Appendix A is modified accordingly.

21. Condition C requires the licensee to maintain a 1.0-inch-deep spill flow over the primary dam at all times, except during approved drawdowns or for safety-related emergencies.<sup>9</sup>

22. Condition D requires the licensee to release 90 percent of project inflow to the impoundment when refilling the impoundment after drawdowns for maintenance or emergencies.

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<sup>9</sup> The 1-inch-deep flow over the primary spillway required by condition C is consistent with and equal to the 6-cfs minimum primary dam spill flow proposed by Carbon Zero.

Project No. 14308-001

- 8 -

23. Condition E requires the licensee to develop a flow and water level management plan, in consultation with Vermont DEC, that will describe how the project will be operated.
24. Condition F requires the licensee to develop a plan, in consultation with Vermont DEC and the U.S. Fish and Wildlife Service (FWS), for continuously monitoring and reporting inflow, impoundment level, and project releases and for reporting deviations from the operating requirements.
25. Condition G requires the licensee to develop a plan, in consultation with Vermont DEC, to monitor DO and implement project modifications if monitoring indicates that DO concentrations are being degraded by the project.
26. Condition H requires the licensee to design and install trashracks that extend to the full depth of the intake opening and have a 1.25-inch clear spacing and less than 1 foot per second approach velocity prior to the start of project operation.
27. Condition I requires the licensee to design, construct, operate, and maintain upstream and downstream fish passage facilities, in consultation with Vermont DEC and the FWS, within four years of being notified by the FWS or Vermont Department of Fish and Wildlife that such facilities are needed.
28. Condition J requires the licensee to provide Vermont DEC with a copy of the turbine rating curves that show flow versus power generation.
29. Condition K requires the licensee to develop a plan, in consultation with Vermont DEC, describing the methods for dredging the project forebay and impoundment during project construction.
30. Condition L requires the licensee to allow public access to project lands.
31. Condition M requires the licensee to construct and maintain river access consistent with a recreational plan that would be developed in consultation with and approved by Vermont DEC.
32. Condition N requires the licensee to develop a plan, in consultation with Vermont DEC, to dispose of debris associated with project operation, including debris collected on the project trashracks.
33. Condition O requires that the licensee receive prior review and approval from Vermont DEC for any construction, maintenance, or repair activities that may have a material adverse effect on water quality.

Project No. 14308-001

- 9 -

34. Condition P requires that the licensee notify the Vermont DEC within two weeks of project completion and commencement of operation.

35. Recreational use in the project area is low and there are no formal recreation facilities or portage routes at the project. Construction and operation of the project would not adversely affect any existing recreation activities, other than to potentially exclude recreationists from some areas that could pose a threat to public safety (see Article 307 below).<sup>10</sup> Therefore, condition M is unnecessary and the licensee should not be required to develop a plan to construct and maintain river access facilities. However, because Vermont DEC's certification is mandatory, condition M is required by ordering paragraph (E) of this license.

36. All 22 conditions of the certification are set forth in Appendix A of this order and incorporated into the license by ordering paragraph (E). Article 401 requires the licensee to file, for Commission approval, plans and reports required by the certification conditions, notify the Commission of emergencies and other activities, and file amendment applications, as appropriate.

#### **COASTAL ZONE MANAGEMENT ACT**

37. Under section 307(c)(3)(A) of the Coastal Zone Management Act (CZMA),<sup>11</sup> the Commission cannot issue a license for a project within or affecting a state's coastal zone unless the state CZMA agency concurs with the license applicant's certification of consistency with the state's CZMA program, or the agency's concurrence is conclusively presumed by its failure to act within 6 months of its receipt of the applicant's certification. The State of Vermont does not have a Coastal Zone Management Program. Therefore, a CZMA consistency certification is not required.

#### **SECTION 18 FISHWAY PRESCRIPTION**

38. Section 18 of the FPA<sup>12</sup> provides that the Commission shall require the construction, maintenance, and operation by a licensee of such fishways as may be prescribed by the Secretary of the Interior or the Secretary of Commerce, as appropriate.

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<sup>10</sup> EA at 27-28.

<sup>11</sup> 16 U.S.C. § 1456(c)(3)(A) (2006).

<sup>12</sup> 16 U.S.C. § 811 (2006).

39. By letter filed June 21, 2012, Interior requested that the Commission reserve its authority to prescribe fishways. Consistent with Commission policy, Article 403 of this license reserves the Commission's authority to require fishways that may be prescribed by Interior for the Vermont Tissue Mill Project.

### **THREATENED AND ENDANGERED SPECIES**

40. Section 7(a)(2) of the Endangered Species Act of 1973<sup>13</sup> 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 their designated critical habitat.

41. The EA<sup>14</sup> found that no federally listed threatened or endangered species or critical habitat are known to occur in the project area. Therefore, the project will not affect federally listed threatened or endangered species or adversely modify any critical habitat, and no further action under the Endangered Species Act is required.

### **NATIONAL HISTORIC PRESERVATION ACT**

42. Under section 106 of the National Historic Preservation Act<sup>15</sup> and its implementing regulations,<sup>16</sup> federal agencies must take into account the effect of any proposed undertaking on properties listed or eligible for listing in the National Register (defined as historic properties) and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on the undertaking. This generally requires the Commission to consult with the State Historic Preservation Officer (SHPO) to determine whether and how a proposed action may affect historic properties, and to seek ways to avoid or minimize any adverse effects.

43. In a letter filed on March 12, 2012, the Vermont SHPO made a determination of "no historic properties affected." In the EA, staff determined that the proposed action

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<sup>13</sup> 16 U.S.C. § 1536(a) (2006).

<sup>14</sup> EA at 6-7.

<sup>15</sup> 16 U.S.C. § 470 *et seq.* (2006).

<sup>16</sup> 36 C.F.R. Part 800 (2012).

would not affect historic properties.<sup>17</sup> However, it is possible that unknown archaeological or cultural resources could be discovered during project construction or operation; therefore, staff recommended that Carbon Zero consult with the Vermont SHPO if any unidentified archaeological or cultural resources are discovered. Specifically, Article 404 requires Carbon Zero to stop work and consult with the Vermont SHPO if previously unidentified archaeological or cultural resources are discovered during initial project construction or operation.

44. Article 405 requires Carbon Zero to consult with the Vermont SHPO prior to conducting any maintenance activities, land-clearing or land-disturbing activities, or changes to project operation or facilities that may occur during the term of this license that are not authorized by this license but could affect cultural resources.

#### **RECOMMENDATIONS OF STATE AND FEDERAL FISH AND WILDLIFE AGENCIES PURSUANT TO SECTION 10(j) OF THE FPA**

45. Section 10(j)(1) of the FPA<sup>18</sup> requires the Commission, when issuing a license, to include conditions based on recommendations submitted by federal and state fish and wildlife agencies pursuant to the Fish and Wildlife Coordination Act,<sup>19</sup> to "adequately and equitably protect, mitigate damages to, and enhance fish and wildlife (including related spawning grounds and habitat)" affected by the project.

46. In response to the April 24, 2012, public notice that the project was ready for environmental analysis, Interior filed, on behalf of FWS, six recommendations under section 10(j) on June 21, 2012. Interior's six recommendations are within the scope of section 10(j) and this license includes conditions consistent with each of the six recommendations. Specifically, Interior recommends that the licensee: (1) operate the project operate in a run-of-river mode (certification condition B); (2) provide minimum flows in the tailrace and bypassed reaches of the project that vary based on time of year and inflow to the impoundment (certification condition B); (3) release 90 percent of inflow when refilling the impoundment after drawdowns for maintenance or emergencies (certification condition D); (4) install trashracks that extend to the full depth of the intake opening and have an approach velocity less than 2 fps and a clear spacing of 1.25 inches

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<sup>17</sup> EA at 29.

<sup>18</sup> 16 U.S.C. § 803(j)(1) (2006).

<sup>19</sup> 16 U.S.C. § 661 *et seq.* (2006).

or less (certification condition H); (5) conduct a water quality monitoring survey (certification condition G); and (6) develop and implement a plan for maintaining and monitoring run-of-river operation at the project (certification conditions E and F).

### **SECTION 10(a)(1) OF THE FPA**

47. Section 10(a)(1) of the FPA<sup>20</sup> requires that any project for which the Commission issues a license be best adapted to a comprehensive plan for improving or developing a waterway or waterways for the use or benefit of interstate or foreign commerce; for the improvement and utilization of waterpower development; for the adequate protection, mitigation, and enhancement of fish and wildlife; and for other beneficial public uses, including irrigation, flood control, water supply, recreation, and other purposes.

48. In its June 21, 2012, letter, Interior recommended under section 10(a) that Carbon Zero notify Interior of any request it makes for amendment of the license, amendment or appeal of any fish and wildlife-related license condition, or any request for extension of time to complete project construction or implement a license requirement. This license does not require the licensee to notify Interior as requested under its section 10(a) recommendation. For material amendments related to fish and wildlife resources, the licensee would consult with Interior in preparing an amendment application.<sup>21</sup> For other matters relating to this project, Interior can receive notification of any filings and issuances through the Commission's eSubscription service.<sup>22</sup>

### **EXEMPTION OF THE FERC FORM 80 RECREATION REPORT**

49. The FERC Form 80 Recreation Report (Form 80) collects recreation usage data on recreation facilities at projects through the term of their licenses. Condition M of the water quality certification could result in the construction of recreation facilities associated with this license (i.e., river access). If the recreation plan, as approved by

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<sup>20</sup> 16 U.S.C. § 803(a)(1) (2006).

<sup>21</sup> To the extent that the licensee files a request to amend its license or amend or appeal of any fish and wildlife-related license condition, the licensee may need to consult with Interior pursuant to sections 4.38(a)(6) and 4.201(c) of the Commission's regulations. 18 C.F.R. §§ 4.38(a)(6) and 4.201(c) (2012).

<sup>22</sup> The Commission's eSubscription service can be accessed at <http://www.ferc.gov/docs-filing/esubscription.asp>.

Vermont DEC, does not result in the construction of river access facilities, the licensee may request a waiver of this requirement.

## **ADMINISTRATIVE PROVISIONS**

### **A. Annual Charges**

50. The Commission collects annual charges from licensees for administration of the FPA. Article 201 provides for the collection of funds for administration of the FPA. Under the regulations currently in effect, projects with authorized installed capacity of less than or equal to 1,500 kW, like this project, will not be assessed an annual charge.

### **B. Exhibit F and G Drawings**

51. The Commission requires licensees to file sets of approved project drawings on microfilm and in electronic file format. The Exhibit F and G drawings filed on April 6, 2012, are approved and made part of this license by ordering paragraph (C); however, the April 6, 2012, filings are color images and must be refiled as black and white raster images.<sup>23</sup> Article 202 requires the filing of these drawings as black and white images.

### **C. Project Land Rights Progress Report**

52. The Exhibit G-1 filed on April 6, 2012, identifies land adjacent to the project impoundment that would be within the project boundary but not owned by Carbon Zero. Standard Article 5 set forth in Form L-15 requires the licensee to acquire title in fee or the right to use in perpetuity all lands, other than lands of the United States, necessary or appropriate for the construction, maintenance, and operation of the project, within five years. In order to monitor compliance with Article 5, Article 203 requires the licensee to file, no later than four years after license issuance, a report detailing its progress on acquiring title in fee or the necessary rights to all lands within the project boundary, including the lands adjacent to the project impoundment. The report shall include specific documentation on the status of the rights that have been acquired as of the filing date of the progress report, and a plan and schedule to acquire all remaining land prior to the five-year deadline.

### **D. Project Financing**

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<sup>23</sup> Black and white raster images minimize computer storage space while maximizing the quality of the drawing features.

53. To ensure that there are sufficient funds available for project construction, operation, and maintenance, Article 204 requires the licensee to file for Commission approval, documentation of project financing for project construction, operation, and maintenance of the project at least 90 days before starting any construction associated with the project.

#### **E. Use and Occupancy of Project Lands and Waters**

54. Requiring a licensee to obtain prior Commission approval for every use or occupancy of project land would be unduly burdensome. Therefore, Article 406 allows the licensee to grant permission, without prior Commission approval, for the use and occupancy of project lands for such minor activities as landscape planting. Such uses must be consistent with the purposes of protecting and enhancing the scenic and environmental values of the project.

#### **F. Start of Construction**

55. Article 301 requires the licensee to commence construction of the project works within two years from the issuance date of this license and complete construction of the project within five years from the issuance date of the license.

#### **G. Review of Final Plans and Specifications**

56. Article 302 requires the licensee to provide the Commission's Division of Dam Safety and Inspection New York Regional Office (D2SI-NYRO) with final contract plans and specifications—together with a supporting design report consistent with the Commission's engineering guidelines. The submittal shall include a temporary construction emergency action plan, a quality control and inspection program, and a soil erosion and sediment control plan.

57. Article 303 requires the licensee to provide the Commission's D2SI-NYRO with cofferdam and deep excavation construction drawings.

58. Where new construction or modifications to the project are involved, the Commission requires licensees to file revised drawings of project features as-built. Article 304 provides for the filing of these drawings.

59. Article 305 requires the licensee to provide the Commission's D2SI-NYRO with an inflow design flood and hazard classification study to confirm that the project's hazard potential classification is low.

60. Article 306 requires the licensee to provide the Commission's D2SI-NYRO with a stress and stability analysis for the project's water retaining features.

61. Article 307 requires the licensee to provide the Commission's D2SI-NYRO with a public safety plan.

62. Where project modifications are proposed as a result of environmental requirements, the Commission requires licensees to file a plan and schedule of any proposed modifications to project operation or to the water retaining and/or conveyance features of the project. Article 308 provides for the filing of this plan and schedule.

#### **H. Commission Approval of Resource Plans, Reports, Notifications, and Filing of Amendments**

63. In Appendix A there are certain certification conditions that either do not require the licensee to file plans with the Commission for approval; do not provide for consultation with the appropriate agencies during plan development; or require agency, but not Commission, notification of emergencies and other activities. Therefore, Article 401 requires the licensee to: consult with appropriate agencies during plan development; file the plans with the Commission for approval; notify the Commission of emergencies and other activities; and file amendment applications, as appropriate.

#### **STATE AND FEDERAL COMPREHENSIVE PLANS**

64. Section 10(a)(2)(A) of the FPA<sup>24</sup> requires the Commission to consider the extent to which a project is consistent with federal or state comprehensive plans for improving, developing, or conserving a waterway or waterways affected by the project.<sup>25</sup> Under section 10(a)(2)(A), federal and state agencies filed 32 comprehensive plans that address various resources in Vermont. Of these, the staff identified and reviewed nine comprehensive plans that are relevant to this project.<sup>26</sup> No conflicts were found.

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<sup>24</sup> 16 U.S.C. § 803(a)(2)(A) (2006).

<sup>25</sup> Comprehensive plans for this purpose are defined at 18 C.F.R. § 2.19 (2012).

<sup>26</sup> The list of applicable plans can be found in section 5.5 of the EA for the project.

## **SAFE MANAGEMENT, OPERATION, AND MAINTENANCE OF THE PROJECT**

65. Staff reviewed Carbon Zero's preliminary plans to build the project as described in the license application. The project will be safe when constructed, operated, and maintained in accordance with the Commission's standards and provisions of this license.

## **NEED FOR POWER**

66. To assess the need for power, staff looked at the needs in the operating region in which the project is located. The project will be located in the Northeast Power Coordinating Council, Inc. (NPCC) region of the North American Electric Reliability Council (NERC). NERC annually forecasts electrical supply and demand in the nation and the region for a ten-year period. NERC's most recent report on annual supply and demand projections indicates that, for the period 2011 – 2020, summer peak demand in the NPCC region is projected to grow at an annual rate of 1.4 percent per year. The project's power and contribution to the region's diversified generation mix will help meet a need for power in the region.

## **PROJECT ECONOMICS**

67. In determining whether to issue a license for a hydroelectric project, the Commission considers a number of public interest factors, including the economic benefits of project power. Under the Commission's approach to evaluating the economics of hydropower projects, as articulated in *Mead Corp.*,<sup>27</sup> the Commission uses current costs to compare the costs of the project and likely alternative power with no forecasts concerning potential future inflation, escalation, or deflation beyond the license issuance date. The basic purpose of the Commission's economic analysis is to provide a general estimate of the potential power benefits and the costs of a project, and of reasonable alternatives to project power. The estimate helps to support an informed decision concerning what is in the public interest with respect to a proposed license.

68. In applying this analysis to the Vermont Tissue Mill Project, Commission staff considered two options: Carbon Zero's proposal and the project as licensed herein. As proposed by Carbon Zero, the levelized annual cost of operating the Vermont Tissue Mill Project is \$161,620, or \$111.65/MWh. The proposed project would generate an average of 1,447.5 MWh of electricity annually. When the estimated average annual generation

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<sup>27</sup> 72 FERC ¶ 61,027 (1995).

is multiplied by the alternative power cost of \$53.92/MWh,<sup>28</sup> the total estimated value of the project's power is \$78,049 in 2013 dollars. To determine whether the proposed project is currently economically beneficial, the project's cost is subtracted from the value of the project's power.<sup>29</sup> Therefore, the project costs \$83,571, or \$57.73/MWh, more to produce power than the likely alternative cost of power.

69. As licensed herein with mandatory conditions and staff measures, the levelized annual cost of operating the project would be about \$161,930, or \$111.87/MWh. Based on the same amount of estimated average generation of 1,447.5 MWh as proposed, the project would produce power valued at \$78,049 when multiplied by the \$53.92/MWh value of the project's power. Therefore, in the first year of operation, project power would cost \$83,881, or \$57.95/MWh, more than the likely cost of alternative power.

70. In considering public interest factors, the Commission takes into account that hydroelectric projects offer unique operational benefits to the electric utility system (ancillary service benefits). These benefits include the ability to help maintain the stability of a power system, such as by quickly adjusting power output to respond to rapid changes in system load; and to respond rapidly to a major utility system or regional blackout by providing a source of power to help restart fossil-fuel based generating stations and put them back on line.

71. Although the analysis of project economics shows that the project as licensed herein would cost more to operate than our estimated cost of alternative power, it is the applicant who must decide whether to accept this license and any financial risk that entails.

72. Also, although the analysis does not explicitly account for the effects inflation may have on the future cost of electricity, the fact that hydropower generation is relatively insensitive to inflation compared to fossil-fueled generators is an important economic consideration for power producers and the consumers they serve. This is one reason project economics is only one of the many public interest factors the Commission considers in determining whether or not, and under what conditions, to issue a license.

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<sup>28</sup> The alternative power cost of \$53.92 per MWh is based on information obtained from the Energy Information Administration fuel cost data for natural gas.

<sup>29</sup> Details of staff's economic analysis for the project as licensed herein and for various alternatives are included in the EA issued December 2012.

## COMPREHENSIVE DEVELOPMENT

73. Sections 4(e) and 10(a)(1) of the FPA<sup>30</sup> require the Commission to give equal consideration to power development purposes and to the purposes of energy conservation; the protection, mitigation of damage to, and enhancement of fish and wildlife; the protection of recreational opportunities; and the preservation of other aspects of environmental quality. Any license issued shall be such as in the Commission's judgment will be best adapted to a comprehensive plan for improving or developing a waterway or waterways for all beneficial public uses. The decision to license this project, and the terms and conditions included herein, reflect such consideration.

74. The EA for the project contains background information, analysis of effects, and support for related license articles. Based on the record of this proceeding, including the EA and the comments thereon, licensing the Vermont Tissue Mill Project as described in this order would not constitute a major federal action significantly affecting the quality of the human environment. The project will be safe if operated and maintained in accordance with the requirements of this license.

75. Based on my independent review and evaluation of the Vermont Tissue Mill Project, recommendations from the resource agencies, and the no-action alternative, as documented in the EA, I have selected the proposed Vermont Tissue Mill Project, with the staff-recommended measures, and find that it is best adapted to a comprehensive plan for improving or developing the Walloomsac River.

76. I selected this alternative because: (1) issuance of an original license will serve to provide a beneficial and dependable source of electric energy; (2) the required environmental measures will protect and enhance fishery resources, water quality, and historic properties; and (3) the 360 kW of electric capacity comes from a renewable resource that does not contribute to atmospheric pollution.

## LICENSE TERM

77. Section 6 of the FPA<sup>31</sup> provides that original licenses for hydropower projects shall be issued for a period not to exceed 50 years. The Commission's general policy is to establish 30-year terms for projects with little or no redevelopment, new construction,

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<sup>30</sup> 16 U.S.C. §§ 797(e) and 803(a)(1) (2006).

<sup>31</sup> 16 U.S.C. § 799 (2006).

Project No. 14308-001

- 19 -

new capacity, or environmental mitigation and enhancement measures; 40-year terms for projects with a moderate amount of such activities; and 50-year terms for projects with extensive measures.<sup>32</sup> This license requires a minor amount of new construction and environmental measures. Consequently, a 30-year license for the Vermont Tissue Mill Project is appropriate.

78. The Director orders:

(A) This license is issued to Carbon Zero, LLC (licensee), for a period of 30 years, effective the first day of the month in which this order is issued, to construct, operate, and maintain the Vermont Tissue Mill Dam Hydroelectric Project. This license is subject to the terms and conditions of the Federal Power Act (FPA), which is incorporated by reference as part of this license, and subject to the regulations the Commission issues under the provisions of the FPA.

(B) The project consists of:

(1) All lands, to the extent of the licensee's interests in those lands, enclosed by the project boundary shown by Exhibit G-1 filed April 6, 2012:

<u>Exhibit G Drawing</u>	<u>FERC No. 14308-</u>	<u>Description</u>
G-1	1	Project Boundary Map

(2) Project works consisting of: (1) an existing 15-foot-high, 85-foot-long primary dam and spillway with a crest elevation of 555.0 feet mean sea level (msl) and new 4-inch-high flashboards; (2) an existing 6-foot-high, 8-foot-wide flood gate at the south end of the primary dam; (3) an existing 6-foot-high, 80-foot-long secondary dam and spillway with a crest elevation of 555.33 feet msl and a new 2.5-foot-high, 2.5-foot-wide minimum flow weir; (4) an existing 2,400-foot-long, 6.4-acre impoundment with a normal water surface elevation of 555.41 feet msl; (5) an existing intake structure with two 12-foot-high, 16-foot-wide trashracks; (6) two existing flumes, one 72-foot-long, 12-foot-high, 16-foot-wide and one 56-foot-long, 12-foot-high, 16-foot-wide; (7) an existing powerhouse with two new Kaplan turbine generating units, one 215-kilowatt (kW) unit and one 145-kW unit, for a total installed capacity of 360 kW; (8) an existing 35-foot-

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<sup>32</sup> See *City of Danville, Virginia*, 58 FERC ¶ 61,318 at 62,020 (1992).

Project No. 14308-001

- 20 -

wide, 225-foot-long tailrace; (9) a new 1.5-foot-diameter minimum flow valve; (10) a new 8-foot-high, 2-foot-wide, 45-foot-long retaining wall connecting the existing powerhouse to an existing island located on the south side of the tailrace; (11) a new buried 480-volt, 125-foot-long transmission line; and (12) appurtenant facilities.

The project works generally described above are more specifically shown and described by those portions of Exhibits A and F shown below:

Exhibit A: Pages 1 through 17 of Exhibit A, entitled “Project Description,” describing the project’s structural, mechanical, electrical, and transmission equipment within the application for license filed on February 17, 2012, and pages 6 and 7 of the response to deficiencies, entitled “Project Description” describing the project impoundment filed on April 6, 2012.

Exhibit F: The following Exhibit F drawings filed on April 6, 2012.

<u>Exhibit F Drawing</u>	<u>FERC No. 14308-</u>	<u>Description</u>
Sheet F-1	2	Title Sheet
Sheet F-2	3	Existing Plan
Sheet F-3	4	Existing Section
Sheet F-4	5	Existing Upstream & Downstream Elevation
Sheet F-5	6	Proposed Plan
Sheet F-6	7	Proposed Section
Sheet F-7	8	Section E-E Turbine No. 2
Sheet F-8	9	Proposed Upstream Elevation
Sheet F-9	10	Proposed Downstream Elevation
Sheet F-10	11	Secondary Dam – Existing & Proposed Plans

Project No. 14308-001

- 21 -

<u>Exhibit F Drawing</u>	<u>FERC No. 14308-</u>	<u>Description</u>
Sheet F-11	12	Proposed Environmental Protection Construction Phase – Plan

(3) All of the structures, fixtures, equipment or facilities used to operate or maintain the project, all portable property that may be employed in connection with the project, and all riparian or other rights that are necessary or appropriate in the operation or maintenance of the project.

(C) The Exhibits A, F, and G described above are approved and made part of this license.

(D) The following sections of the FPA are waived and excluded from the license for this minor project:

4(b), except the second sentence; 4(e), insofar as it relates to approval of plans by the Chief of Engineers and the Secretary of the Army; 6, insofar as it relates to public notice and to the acceptance and expression in the license of terms and conditions of the Act that are waived here; 10(c), insofar as it relates to depreciation reserves; 10(d); 10(f); 14, except insofar as the power of condemnation is reserved; 15; 16; 19; 20; and 22.

(E) This license is subject to the conditions submitted by the Vermont Department of Environmental Conservation under section 401(a)(1) of the Clean Water Act, 33 U.S.C. § 1341(a)(1) (2006), as those conditions are set forth in Appendix A to this order.

(F) This license is also subject to the articles set forth in Form L-15 (Oct. 1975), entitled “Terms and Conditions of License for Unconstructed Minor Project Affecting the Interests of Interstate or Foreign Commerce” (*see* 54 F.P.C. 1799 *et seq.*), as reproduced at the end of this order, and the following additional articles:

Article 201. Administrative Annual Charges. The licensee shall pay the United States the following annual charges, as determined in accordance with provisions of the Commission's regulations in effect from time to time: effective as of the date of commencement of project construction, to reimburse the United States for the cost of administration of Part 1 of the Federal Power Act. The authorized installed capacity for that purpose is 360 kilowatts (kW). Under the regulations currently in effect, projects

Project No. 14308-001

- 22 -

with authorized installed capacity of less than or equal to 1,500 kW will not be assessed an annual charge.

Article 202. Exhibit Drawings. Within 45 days of the date of issuance of this license, the licensee shall file the approved exhibit drawings in aperture card and electronic file formats.

(a) Three sets of the approved exhibit drawings shall be reproduced on silver or gelatin 35mm microfilm. All microfilm shall be mounted on type D (3-1/4" X 7-3/8") aperture cards. Prior to microfilming, the FERC Project-Drawing Number (i.e., P-14308-1 through P-14308-12) shall be shown in the margin below the title block of the approved drawing. After mounting, the FERC Drawing Number shall be typed on the upper right corner of each aperture card. Additionally, the Project Number, FERC Exhibit (i.e., F-1, G-1, etc.), Drawing Title, and date of this license shall be typed on the upper left corner of each aperture card.

Two of the sets of aperture cards shall be filed with the Secretary of the Commission, ATTN: OEP/DHAC. The third set shall be filed with the Commission's Division of Dam Safety and Inspections (D2SI) New York Regional Office.

(b) The licensee shall file two separate sets of exhibit drawings in electronic raster format with the Secretary of the Commission, ATTN: OEP/DHAC. A third set shall be filed with the D2SI New York Regional Office. Exhibit F drawings must be separated from other project exhibits and identified as Critical Energy Infrastructure Information material under 18 C.F.R. § 388.113(c) (2012). Each drawing must be a separate electronic file, and the file name shall include: FERC Project-Drawing Number, FERC Exhibit, Drawing Title, date of this license, and file extension in the following format [P-14308-1, G-1, Project Boundary, MM-DD-YYYY.TIF]. Electronic drawings shall meet the following format specification:

IMAGERY – black & white raster file  
 FILE TYPE – Tagged Image File Format, CCITT Group 4  
 RESOLUTION – 300 dpi desired, (200 dpi min)  
 DRAWING SIZE FORMAT – 24" X 36" (min), 28" X 40" (max)  
 FILE SIZE – less than 1 MB desired

Each Exhibit G drawing that includes the project boundary must contain a minimum of three known reference points (i.e., latitude and longitude coordinates, or state plane coordinates). The points must be arranged in a triangular format for GIS georeferencing the project boundary drawing to the polygon data, and must be based on a standard map coordinate system. The spatial reference for the drawing (i.e., map

projection, map datum, and units of measurement) must be identified on the drawing and each reference point must be labeled. In addition, each project boundary drawing must be stamped by a registered land surveyor.

(c) The licensee shall file two separate sets of the project boundary data in a geo-referenced electronic file format (such as ArcView shape files, GeoMedia files, MapInfo files, or a similar GIS format) with the Secretary of the Commission, ATTN: OEP/DHAC. The filing shall include both polygon data and all reference points shown on the individual project boundary drawings. An electronic boundary polygon data file(s) is required for each project development. Depending on the electronic file format, the polygon and point data can be included in a single file with multiple layers. The geo-referenced electronic boundary data file must be positionally accurate to  $\pm 40$  feet in order to comply with National Map Accuracy Standards for maps at a 1:24,000 scale. The file name(s) shall include: FERC Project Number, data description, date of this license, and file extension in the following format [P-14308, boundary polygon/or point data, MM-DD-YYYY.SHP]. The data must be accompanied by a separate text file describing the spatial reference for the geo-referenced data: map projection used (i.e., UTM, State Plane, Decimal Degrees, etc.), the map datum (i.e., North American 27, North American 83, etc.), and the units of measurement (i.e., feet, meters, miles, etc.). The text file name shall include: FERC Project Number, data description, date of this license, and file extension in the following format [P-14308, project boundary metadata, MM-DD-YYYY.TXT].

Article 203. *Project Land Rights Progress Report.* No later than four years after license issuance, the licensee shall file a report with the Commission describing the status of acquiring title in fee or the rights for all the lands within the project boundary. The report must provide an overview map of each parcel and summary table identifying the licensee's rights over each parcel within the project boundary. The report shall also include specific supporting documentation showing the status of the land rights on all parcels of land within the project boundary that: (1) have been acquired up to the date of filing of the report, including pertinent deeds, lease agreements, and/or bill of sale information that specifically verify the licensee's rights; and (2) the licensee's plan and schedule for acquiring all remaining project lands prior to the five-year deadline, including a history of actions taken, current owner information, the type of ownership to be acquired whether in fee or by easement, and the timeline for completing property acquisition.

Article 204. *Documentation of Project Financing.* At least 90 days before starting construction, the licensee shall file with the Commission, for approval, three copies of the licensee's documentation for the project financing. The documentation must show that the licensee has acquired the funds, or commitment for funds, necessary

Project No. 14308-001

- 24 -

to construct the project in accordance with this license. The documentation must include, at a minimum, financial statements, including a balance sheet, income statement, and a statement of actual or estimated cash flows over the license term which provide evidence that the licensee has sufficient assets, credit, and projected revenues to cover project construction, operation, and maintenance expenses, and any other estimated project liabilities and expenses.

The financial statements must be prepared in accordance with generally accepted accounting principles and signed by an independent certified public accountant. The licensee shall not commence project construction associated with the project before the filing is approved.

Article 301. Start of Construction. The licensee shall commence construction of the project works within two years from the issuance date of the license and shall complete construction of the project within 5 years from the issuance date of the license.

Article 302. Contract Plans and Specifications. At least 90 days prior to the start of any construction, the licensee shall submit one copy of its plans and specifications and supporting design document to the Commission's Division of Dam Safety and Inspections (D2SI)-New York Regional Engineer, and two copies to the Commission (one of these shall be a courtesy copy to the Director, D2SI). The submittal to the D2SI-New York Regional Engineer must also include as part of preconstruction requirements: a Quality Control and Inspection Program, and Temporary Construction Emergency Action Plan, and Soil Erosion and Sediment Control Plan. The licensee may not begin construction until the 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.

In addition to addressing the requirements of the forebay and impoundment dredging plan specified in condition K in Appendix A of this order, the Soil Erosion and Sediment Control Plan shall describe: best management practices, including descriptions of all erosion and sediment control measures; the location(s) for refueling and maintenance of equipment; procedures for revegetating disturbed land; installation of cofferdams in the impoundment and tailrace prior to sediment removal and construction of the tailrace retaining wall; procedures and location(s) for sediment disposal; and an implementation schedule.

Article 303. Cofferdam and Deep Excavation Construction Drawings. Before starting project construction, including dredging the impoundment and tailrace, the licensee shall review and approve the design of contractor-designed cofferdams and deep excavations prior to the start of construction and shall ensure that construction of

Project No. 14308-001

- 25 -

cofferdams and deep excavations are consistent with the approved design. At least 30 days before starting construction of any cofferdams or deep excavations, the licensee shall submit one copy to the Commission's Division of Dam Safety and Inspections (D2SI) - New York Regional Engineer and two copies to the Commission (one of these copies shall be a courtesy copy to the Commission's Director, D2SI), of the approved cofferdam and deep excavation construction drawings and specifications, and the letters of approval.

Article 304. *As-built Drawings.* Within 90 days of completion of construction of the facilities authorized by this license, the licensee shall file for Commission approval, revised Exhibits A, F, and G, as applicable, to describe and show those project facilities as built. A courtesy copy shall be filed with the Commission's Division of Dam Safety and Inspections (D2SI)-New York Regional Engineer, the Director, D2SI, and the Director, Division of Hydropower Administration and Compliance.

Article 305. *Inflow Design Flood and Hazard Classification Study.* Within six months of the issuance date of the license, the licensee shall submit one copy to the Commission's Division of Dam Safety and Inspections (D2SI) – New York Regional Engineer and two copies to the Commission (one of these copies shall be a courtesy copy to the Commission's Director, D2SI) of an Inflow Design Flood and Hazard Classification study. The study should be performed according to Chapter 2 of the Commission's Engineering Guidelines. The study should include: (1) an incremental hazard evaluation to determine the effects on downstream structures in the event of a dam failure, (2) a recommendation for the project's hazard potential classification, (3) a determination of the project's Inflow Design Flood, and (4) an assessment of the adequacy of the project's spillway capacity.

Article 306. *Structural Analysis.* Within six months of the issuance date of the license, the licensee shall submit one copy to the Commission's Division of Dam Safety and Inspections (D2SI) – New York Regional Engineer and two copies to the Commission (one of these copies shall be a courtesy copy to the Commission's Director, D2SI) of a Stress and Stability Analysis for the project's water retaining features. The study should be performed according to Chapter 3 of the Commission's Engineering Guidelines.

Article 307. *Public Safety Plan.* Within 60 days from the issuance date of this license, the licensee shall submit one copy to the Commission's Division of Dam Safety and Inspections (D2SI)-New York Regional Engineer and two copies to the Commission (one of these copies shall be a courtesy copy to the Commission's Director, D2SI) of a Public Safety Plan. The plan shall include an evaluation of public safety concerns at the project site and assess the need for the installation of safety devices or other safety

Project No. 14308-001

- 26 -

measures. The submitted plan should include a description of all public safety measures, including signage and installation of boater warning buoys upstream of the dam, and a map showing the locations of all public safety measures. For guidance on preparing public safety plans the licensee should review the *Guidelines for Public Safety at Hydropower Projects* on the FERC website.

Article 308. Project Modification Resulting from Environmental Requirements. The planning and design of any permanent or temporary modification which may affect the project works or operations shall be coordinated with the Commission's Division of Dam Safety and Inspections (D2SI)-New York Regional Engineer. This includes those modifications resulting from license environmental requirements. The licensee shall notify the D2SI-New York Regional Engineer of the proposed modification at the beginning of the planning and design phase. This schedule is to allow sufficient review time for the Commission to insure that the proposed work does not adversely affect the project works, dam safety or project operation.

Article 401. Commission Approval, Notification, and Filing of Amendments.

a) Requirement to File Plans for Commission Approval

Various conditions of this license found in Vermont Department of Environmental Conservation's (Vermont DEC) section 401 Water Quality Certification (certification) conditions (Appendix A) require the licensee to prepare plans in consultation with other entities for approval by Vermont DEC but without submittal to or approval by the Commission. Each such plan shall also be submitted to the Commission for approval. These plans are listed below.

Vermont DEC certification conditions	Plan name	Due date
E	Flow and Water Level Management Plan	Within 2 years of the issuance date of this license and at least 90 days prior to commencing project operation
F	Impoundment and Flow Management Monitoring Plan	Within 2 years of the issuance date of this license and at least 90 days prior to commencing project operation

Vermont DEC certification conditions	Plan name	Due date
G	Dissolved Oxygen Study Plan	Within 2 years of the issuance date of this license and at least 90 days prior to commencing project operation
M	Recreational Access Plan	Within 1 year of license issuance and updated every 10 years thereafter
N	Debris Disposal Plan	Within 2 years of the issuance date of this license and at least 60 days prior to commencing project operation

The licensee shall include with each plan filed with the Commission documentation that the licensee developed the plan in consultation with the Vermont DEC and the U.S. Fish and Wildlife Service (for condition F only) and has received approval from Vermont DEC. The Commission reserves the right to make changes to any plan submitted. Upon Commission approval, the plan becomes a requirement of the license, and the licensee shall implement the plan or changes in project operation or facilities, including any changes required by the Commission.

(b) Requirement to File Reports

Condition G of Vermont DEC's certification requires the licensee to conduct dissolved oxygen monitoring and report the results to Vermont DEC. This report may have a bearing on future actions. This report shall also be submitted to the Commission.

The licensee shall submit to the Commission documentation of any consultation, and copies of any comments and recommendations made by any consulted entity in connection with the report. The Commission reserves the right to require changes to project operations or facilities based on the information contained in the report and any other available information.

(c) Requirement to Notify Commission of Emergencies and Other Activities

Certain conditions of Vermont DEC's certification in Appendix A require the licensee to notify Vermont DEC of modifications to project operation for emergencies or other activities. The Commission shall be notified prior to implementing such modifications, if possible, or in the event of an emergency, as soon as possible but no

Project No. 14308-001

- 28 -

later than 10 days after each such incident. The conditions that discuss events requiring notification are listed below.

Vermont DEC certification conditions	License requirement
C	Within 24 hours of drawing the impoundment down below the fixed crest
P	Within 2 weeks of project completion and commencement of operation

(d) Requirement to File Amendment Applications

Some of the conditions in Appendix A appear to contemplate Vermont DEC ordering unspecified long-term changes to project operations or facilities based on new information or results of studies or monitoring required by the certification, but do not appear to require Commission approval for such changes (e.g., operational changes to mitigate for low dissolved oxygen, construction of recreation facilities). Such changes may not be implemented without prior Commission authorization granted after the filing of an application to amend the license.

Article 402. Automated Project Operation. In addition to the requirements of condition E in Appendix A of this order, the flow and water level management plan required by ordering paragraph (E) shall describe the installation and operation of an electronic programmable logic controller to automate project operation, including minimum flow releases.

Article 403. Reservation of Authority to Prescribe Fishways. Authority is reserved to the Commission to require the licensee to construct, operate, and maintain, or to provide for the construction, operation, and maintenance of such fishways as may be prescribed by the Secretary of the Interior pursuant to section 18 of the Federal Power Act.

Article 404. Protection of Undiscovered Cultural Resources. If the licensee discovers previously unidentified cultural resources during the course of constructing, maintaining, or developing project works or other facilities at the project, the licensee shall stop all land-clearing and land-disturbing activities in the vicinity of the resource and consult with the Vermont State Historic Preservation Officer (Vermont SHPO) to determine the need for any cultural resource studies or measures. If no studies or measures are needed, the licensee shall file with the Commission documentation of its consultation with the Vermont SHPO immediately.

If a discovered cultural resource is determined to be eligible for the National Register of Historic Places (National Register), the licensee shall file for Commission approval a historic properties management plan (HPMP) prepared by a qualified cultural resource specialist after consultation with the Vermont SHPO. In developing the HPMP, the licensee shall use the Advisory Council on Historic Preservation and the Commission's *Guidelines for the Development of Historic Properties Management Plans for FERC Hydroelectric Projects*, dated May 20, 2002. The HPMP shall include the following items: (1) a description of each discovered property, indicating whether it is listed in or eligible to be listed in the National Register; (2) a description of the potential effect on each discovered property; (3) proposed measures for avoiding or mitigating adverse effects; (4) documentation of consultation; and (5) a schedule for implementing mitigation and conducting additional studies. The Commission reserves the right to require changes to the HPMP.

The licensee shall not resume land-clearing or land-disturbing activities in the vicinity of a cultural resource discovered during construction, until informed by the Commission that the requirements of this article have been fulfilled.

Article 405. Protection of Cultural Resources. Prior to implementing any project modifications not specifically authorized by this license, including but not limited to maintenance activities, land-clearing or land-disturbing activities, or changes to project operation or facilities, the licensee shall consult with the Vermont State Historic Preservation Office (Vermont SHPO) to determine the effects of the activities and the need for any cultural resource studies or measures. If no studies or measures are needed, the licensee shall file with the Commission documentation of its consultation with the Vermont SHPO.

If a project modification is determined to affect an historic property, the licensee shall file for Commission approval an historic properties management plan (HPMP) prepared by a qualified cultural resource specialist after consultation with the Vermont SHPO. In developing the HPMP, the licensee shall use the Advisory Council on Historic Preservation and the Commission's *Guidelines for the Development of Historic Properties Management Plans for FERC Hydroelectric Projects*, dated May 20, 2002. The HPMP shall include the following items: (1) a description of each historic property; (2) a description of the potential effect on each historic property; (3) proposed measures for avoiding or mitigating adverse effects; (4) documentation of the nature and extent of consultation; and (5) a schedule for implementing mitigation and conducting additional studies. The Commission reserves the right to require changes to the HPMP.

The licensee shall not implement any project modifications, other than those specifically authorized in this license, until informed by the Commission that the requirements of this article have been fulfilled.

Article 406. Use and Occupancy. (a) In accordance with the provisions of this article, the licensee shall have the authority to grant permission for certain types of use and occupancy of project lands and waters and to convey certain interests in project lands and waters for certain types of use and occupancy, without prior Commission approval. The licensee may exercise the authority only if the proposed use and occupancy is consistent with the purposes of protecting and enhancing the scenic, recreational, and other environmental values of the project. For those purposes, the licensee shall also have continuing responsibility to supervise and control the use and occupancies for which it grants permission, and to monitor the use of, and ensure compliance with the covenants of the instrument of conveyance for, any interests that it has conveyed, under this article. If a permitted use and occupancy violates any condition of this article or any other condition imposed by the licensee for protection and enhancement of the project's scenic, recreational, or other environmental values, or if a covenant of a conveyance made under the authority of this article is violated, the licensee shall take any lawful action necessary to correct the violation. For a permitted use or occupancy, that action includes, if necessary, canceling the permission to use and occupy the project lands and waters and requiring the removal of any non-complying structures and facilities.

(b) The type of use and occupancy of project lands and waters for which the licensee may grant permission without prior Commission approval are: (1) landscape plantings; (2) non-commercial piers, landings, boat docks, or similar structures and facilities that can accommodate no more than 10 water craft at a time and where said facility is intended to serve single-family type dwellings; (3) embankments, bulkheads, retaining walls, or similar structures for erosion control to protect the existing shoreline; and (4) food plots and other wildlife enhancement. To the extent feasible and desirable to protect and enhance the project's scenic, recreational, and other environmental values, the licensee shall require multiple use and occupancy of facilities for access to project lands or waters. The licensee shall also ensure, to the satisfaction of the Commission's authorized representative, that the use and occupancies for which it grants permission are maintained in good repair and comply with applicable state and local health and safety requirements. Before granting permission for construction of bulkheads or retaining walls, the licensee shall: (1) inspect the site of the proposed construction, (2) consider whether the planting of vegetation or the use of riprap would be adequate to control erosion at the site, and (3) determine that the proposed construction is needed and would not change the basic contour of the impoundment shoreline. To implement this paragraph (b), the licensee may, among other things, establish a program for issuing permits for the specified types of use and occupancy of project lands and waters, which

Project No. 14308-001

- 31 -

may be subject to the payment of a reasonable fee to cover the licensee's costs of administering the permit program. The Commission reserves the right to require the licensee to file a description of its standards, guidelines, and procedures for implementing this paragraph (b) and to require modification of those standards, guidelines, or procedures.

(c) The licensee may convey easements or rights-of-way across, or leases of project lands for: (1) replacement, expansion, realignment, or maintenance of bridges or roads where all necessary state and federal approvals have been obtained; (2) storm drains and water mains; (3) sewers that do not discharge into project waters; (4) minor access roads; (5) telephone, gas, and electric utility distribution lines; (6) non-project overhead electric transmission lines that do not require erection of support structures within the project boundary; (7) submarine, overhead, or underground major telephone distribution cables or major electric distribution lines (69-kV or less); and (8) water intake or pumping facilities that do not extract more than one million gallons per day from a project impoundment. No later than January 31 of each year, the licensee shall file three copies of a report briefly describing for each conveyance made under this paragraph (c) during the prior calendar year, the type of interest conveyed, the location of the lands subject to the conveyance, and the nature of the use for which the interest was conveyed.

(d) The licensee may convey fee title to, easements or rights-of-way across, or leases of project lands for: (1) construction of new bridges or roads for which all necessary state and federal approvals have been obtained; (2) sewer or effluent lines that discharge into project waters, for which all necessary federal and state water quality certification or permits have been obtained; (3) other pipelines that cross project lands or waters but do not discharge into project waters; (4) non-project overhead electric transmission lines that require erection of support structures within the project boundary, for which all necessary federal and state approvals have been obtained; (5) private or public marinas that can accommodate no more than 10 water craft at a time and are located at least one-half mile (measured over project waters) from any other private or public marina; (6) recreational development consistent with an approved report on recreational resources of an Exhibit E; and (7) other uses, if: (i) the amount of land conveyed for a particular use is five acres or less; (ii) all of the land conveyed is located at least 75 feet, measured horizontally, from project waters at normal surface elevation; and (iii) no more than 50 total acres of project lands for each project development are conveyed under this clause (d)(7) in any calendar year. At least 60 days before conveying any interest in project lands under this paragraph (d), the licensee must file a letter with the Commission, stating its intent to convey the interest and briefly describing the type of interest and location of the lands to be conveyed (a marked Exhibit G map may be used), the nature of the proposed use, the identity of any federal or state agency

Project No. 14308-001

- 32 -

official consulted, and any federal or state approvals required for the proposed use. Unless the Commission's authorized representative, within 45 days from the filing date, requires the licensee to file an application for prior approval, the licensee may convey the intended interest at the end of that period.

(e) The following additional conditions apply to any intended conveyance under paragraph (c) or (d) of this article:

(1) Before conveying the interest, the licensee shall consult with federal and state fish and wildlife or recreation agencies, as appropriate, and the State Historic Preservation Officer.

(2) Before conveying the interest, the licensee shall determine that the proposed use of the lands to be conveyed is not inconsistent with any approved report on recreational resources of an Exhibit E; or, if the project does not have an approved report on recreational resources, that the lands to be conveyed do not have recreational value.

(3) The instrument of conveyance must include the following covenants running with the land: (i) the use of the lands conveyed shall not endanger health, create a nuisance, or otherwise be incompatible with overall project recreational use; (ii) the grantee shall take all reasonable precautions to ensure that the construction, operation, and maintenance of structures or facilities on the conveyed lands will occur in a manner that will protect the scenic, recreational, and environmental values of the project; and (iii) the grantee shall not unduly restrict public access to project waters.

(4) The Commission reserves the right to require the licensee to take reasonable remedial action to correct any violation of the terms and conditions of this article, for the protection and enhancement of the project's scenic, recreational, and other environmental values.

(f) The conveyance of an interest in project lands under this article does not in itself change the project boundaries. The project boundaries may be changed to exclude land conveyed under this article only upon approval of revised Exhibit G drawings (project boundary maps) reflecting exclusion of that land. Lands conveyed under this article will be excluded from the project only upon a determination that the lands are not necessary for project purposes, such as operation and maintenance, flowage, recreation, public access, protection of environmental resources, and shoreline control, including shoreline aesthetic values. Absent extraordinary circumstances, proposals to exclude lands conveyed under this article from the project shall be consolidated for consideration when revised Exhibit G drawings would be filed for approval for other purposes.

Project No. 14308-001

- 33 -

(g) The authority granted to the licensee under this article shall not apply to any part of the public lands and reservations of the United States included within the project boundary.

(G) The licensee shall serve copies of any Commission filing required by this order on any entity specified in the order to be consulted on matters related to that filing. Proof of service on these entities must accompany the filing with the Commission.

(H) 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 section 313(a) of the FPA, 16 U.S.C. § 8251 (2006), and section 385.713 of the Commission's regulations, 18 C.F.R. § 385.713 (2012). The filing of a request for rehearing does not operate as a stay of the effective date of this license 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.

Jeff C. Wright  
Director  
Office of Energy Projects

Project No. 14308-001

34

**Form L-15**  
(October, 1975)

**FEDERAL ENERGY REGULATORY COMMISSION**

**TERMS AND CONDITIONS OF LICENSE FOR UNCONSTRUCTED  
MINOR PROJECT AFFECTING THE INTERESTS  
OF INTERSTATE OR FOREIGN COMMERCE**

**Article 1.** The entire project, as described in this order of the Commission, shall be subject to all of the provisions, terms, and conditions of the license.

**Article 2.** No substantial change shall be made in the maps, plans, specifications, and statements described and designated as exhibits and approved by the Commission in its order as a part of the license until such change shall have been approved by the Commission: Provided, however, That if the Licensee or the Commission deems it necessary or desirable that said approved exhibits, or any of them, be changed, there shall be submitted to the Commission for approval a revised, or additional exhibit or exhibits covering the proposed changes which, upon approval by the Commission, shall become a part of the license and shall supersede, in whole or in part, such exhibit or exhibits theretofore made a part of the license as may be specified by the Commission.

**Article 3.** The project works shall be constructed in substantial conformity with the approved exhibits referred to in Article 2 herein or as changed in accordance with the provisions of said article. Except when emergency shall require for the protection of navigation, life, health, or property, there shall not be made without prior approval of the Commission any substantial alteration or addition not in conformity with the approved plans to any dam or other project works under the license or any substantial use of project lands and waters not authorized herein; and any emergency alteration, addition, or use so made shall thereafter be subject to such modification and change as the Commission may direct. Minor changes in project works, or in uses of project lands and waters, or divergence from such approved exhibits may be made if such changes will not result in a decrease in efficiency, in a material increase in cost, in an adverse environmental impact, or in impairment of the general scheme of development; but any of such minor changes made without the prior approval of the Commission, which in its judgment have produced or will produce any of such results, shall be subject to such alteration as the Commission may direct.

Upon the completion of the project, or at such other time as the Commission may

direct, the Licensee shall submit to the Commission for approval revised exhibits insofar as necessary to show any divergence from or variations in the project area and project boundary as finally located or in the project works as actually constructed when compared with the area and boundary shown and the works described in the license or in the exhibits approved by the Commission, together with a statement in writing setting forth the reasons which in the opinion of the Licensee necessitated or justified variation in or divergence from the approved exhibits. Such revised exhibits shall, if and when approved by the Commission, be made a part of the license under the provisions of Article 2 hereof.

**Article 4.** The construction, operation, and maintenance of the project and any work incidental to additions or alterations shall be subject to the inspection and supervision of the Regional Engineer, Federal Energy Regulatory Commission, in the region wherein the project is located, or of such other officer or agent as the Commission may designate, who shall be the authorized representative of the Commission for such purposes. The Licensee shall cooperate fully with said representative and shall furnish him a detailed program of inspection by the Licensee that will provide for an adequate and qualified inspection force for construction of the project and for any subsequent alterations to the project. Construction of the project works or any features or alteration thereof shall not be initiated until the program of inspection for the project works or any such feature thereof has been approved by said representative. The Licensee shall also furnish to said representative such further information as he may require concerning the construction, operation, and maintenance of the project, and of any alteration thereof, and shall notify him of the date upon which work will begin, as far in advance thereof as said representative may reasonably specify, and shall notify him promptly in writing of any suspension of work for a period of more than one week, and of its resumption and completion. The Licensee shall allow said representative and other officers or employees of the United States, showing proper credentials, free and unrestricted access to, through, and across the project lands and project works in the performance of their official duties. The Licensee shall comply with such rules and regulations of general or special applicability as the Commission may prescribe from time to time for the protection of life, health, or property.

**Article 5.** The Licensee, within five years from the date of issuance of the license, shall acquire title in fee or the right to use in perpetuity all lands, other than lands of the United States, necessary or appropriate for the construction, maintenance, and operation of the project. The Licensee or its successors and assigns shall, during the period of the license, retain the possession of all project property covered by the license as issued or as later amended, including the project area, the project works, and all franchises, easements, water rights, and rights of occupancy and use; and none of such properties shall be

voluntarily sold, leased, transferred, abandoned, or otherwise disposed of without the prior written approval of the Commission, except that the Licensee may lease or otherwise dispose of interests in project lands or property without specific written approval of the Commission pursuant to the then current regulations of the Commission. The provisions of this article are not intended to prevent the abandonment or the retirement from service of structures, equipment, or other project works in connection with replacements thereof when they become obsolete, inadequate, or inefficient for further service due to wear and tear; and mortgage or trust deeds or judicial sales made thereunder, or tax sales, shall not be deemed voluntary transfers within the meaning of this article.

**Article 6.** The Licensee shall install and thereafter maintain gages and stream-gaging stations for the purpose of determining the stage and flow of the stream or streams on which the project is located, the amount of water held in and withdrawn from storage, and the effective head on the turbines; shall provide for the required reading of such gages and for the adequate rating of such stations; and shall install and maintain standard meters adequate for the determination of the amount of electric energy generated by the project works. The number, character, and location of gages, meters, or other measuring devices, and the method of operation thereof, shall at all times be satisfactory to the Commission or its authorized representative. The Commission reserves the right, after notice and opportunity for hearing, to require such alterations in the number, character, and location of gages, meters, or other measuring devices, and the method of operation thereof, as are necessary to secure adequate determinations. The installation of gages, the rating of said stream or streams, and the determination of the flow thereof, shall be under the supervision of, or in cooperation with, the District Engineer of the United States Geological Survey having charge of stream-gaging operations in the region of the project, and the Licensee shall advance to the United States Geological Survey the amount of funds estimated to be necessary for such supervision, or cooperation for such periods as may be mutually agreed upon. The Licensee shall keep accurate and sufficient records of the foregoing determinations to the satisfaction of the Commission, and shall make return of such records annually at such time and in such form as the Commission may prescribe.

**Article 7.** The Licensee shall, after notice and opportunity for hearing, install additional capacity or make other changes in the project as directed by the Commission, to the extent that it is economically sound and in the public interest to do so.

**Article 8.** The Licensee shall, after notice and opportunity for hearing, coordinate the operation of the project, electrically and hydraulically, with such other projects or power systems and in such manner as the Commission may direct in the interest of power and other beneficial public uses of water resources, and on such conditions concerning the equitable sharing of benefits by the Licensee as the Commission may order.

**Article 9.** The operations of the Licensee, so far as they affect the use, storage and discharge from storage of waters affected by the license, shall at all times be controlled by such reasonable rules and regulations as the Commission may prescribe for the protection of life, health, and property, and in the interest of the fullest practicable conservation and utilization of such waters for power purposes and for other beneficial public uses, including recreational purposes, and the Licensee shall release water from the project reservoir at such rate in cubic feet per second, or such volume in acre-feet per specified period of time, as the Commission may prescribe for the purposes hereinbefore mentioned.

**Article 10.** On the application of any person, association, corporation, Federal agency, State or municipality, the Licensee shall permit such reasonable use of its reservoir or other project properties, including works, lands and water rights, or parts thereof, as may be ordered by the Commission, after notice and opportunity for hearing, in the interests of comprehensive development of the waterway or waterways involved and the conservation and utilization of the water resources of the region for water supply or for the purposes of steam-electric, irrigation, industrial, municipal or similar uses. The Licensee shall receive reasonable compensation for use of its reservoir or other project properties or parts thereof for such purposes, to include at least full reimbursement for any damages or expenses which the joint use causes the Licensee to incur. Any such compensation shall be fixed by the Commission either by approval of an agreement between the Licensee and the party or parties benefiting or after notice and opportunity for hearing. Applications shall contain information in sufficient detail to afford a full understanding of the proposed use, including satisfactory evidence that the applicant possesses necessary water rights pursuant to applicable State law, or a showing of cause why such evidence cannot concurrently be submitted, and a statement as to the relationship of the proposed use to any State or municipal plans or orders which may have been adopted with respect to the use of such waters.

**Article 11.** The Licensee shall, for the conservation and development of fish and wildlife resources, construct, maintain, and operate, or arrange for the construction, maintenance, and operation of such reasonable facilities, and comply with such reasonable modifications of the project structures and operation, as may be ordered by the Commission upon its own motion or upon the recommendation of the Secretary of the Interior or the fish and wildlife agency or agencies of any State in which the project or a part thereof is located, after notice and opportunity for hearing.

**Article 12.** Whenever the United States shall desire, in connection with the project, to construct fish and wildlife facilities or to improve the existing fish and wildlife facilities at its own expense, the Licensee shall permit the United States or its designated agency to

use, free of cost, such of the Licensee's lands and interests in lands, reservoirs, waterways and project works as may be reasonably required to complete such facilities or such improvements thereof. In addition, after notice and opportunity for hearing, the Licensee shall modify the project operation as may be reasonably prescribed by the Commission in order to permit the maintenance and operation of the fish and wildlife facilities constructed or improved by the United States under the provisions of this article. This article shall not be interpreted to place any obligation on the United States to construct or improve fish and wildlife facilities or to relieve the Licensee of any obligation under this license.

**Article 13.** So far as is consistent with proper operation of the project, the Licensee shall allow the public free access, to a reasonable extent, to project waters and adjacent project lands owned by the Licensee for the purpose of full public utilization of such lands and waters for navigation and for outdoor recreational purposes, including fishing and hunting: Provided, That the Licensee may reserve from public access such portions of the project waters, adjacent lands, and project facilities as may be necessary for the protection of life, health, and property.

**Article 14.** In the construction, maintenance, or operation of the project, the Licensee shall be responsible for, and shall take reasonable measures to prevent, soil erosion on lands adjacent to streams or other waters, stream sedimentation, and any form of water or air pollution. The Commission, upon the request or upon its own motion, may order the Licensee to take such measures as the Commission finds to be necessary for these purposes, after notice and opportunity for hearing.

**Article 15.** The Licensee shall consult with the appropriate State and Federal agencies and, within one year of the date of issuance of this license, shall submit for Commission approval a plan for clearing the reservoir area. Further, the Licensee shall clear and keep clear to an adequate width lands along open conduits and shall dispose of all temporary structures, unused timber, brush, refuse, or other material unnecessary for the purposes of the project which results from the clearing of lands or from the maintenance or alteration of the project works. In addition, all trees along the periphery of project reservoirs which may die during operations of the project shall be removed. Upon approval of the clearing plan all clearing of the lands and disposal of the unnecessary material shall be done with due diligence and to the satisfaction of the authorized representative of the Commission and in accordance with appropriate Federal, State, and local statutes and regulations.

**Article 16.** If the Licensee shall cause or suffer essential project property to be removed or destroyed or to become unfit for use, without adequate replacement, or shall

abandon or discontinue good faith operation of the project or refuse or neglect to comply with the terms of the license and the lawful orders of the Commission mailed to the record address of the Licensee or its agent, the Commission will deem it to be the intent of the Licensee to surrender the license. The Commission, after notice and opportunity for hearing, may require the Licensee to remove any or all structures, equipment and power lines within the project boundary and to take any such other action necessary to restore the project waters, lands, and facilities remaining within the project boundary to a condition satisfactory to the United States agency having jurisdiction over its lands or the Commission's authorized representative, as appropriate, or to provide for the continued operation and maintenance of nonpower facilities and fulfill such other obligations under the license as the Commission may prescribe. In addition, the Commission in its discretion, after notice and opportunity for hearing, may also agree to the surrender of the license when the Commission, for the reasons recited herein, deems it to be the intent of the Licensee to surrender the license.

**Article 17.** The right of the Licensee and of its successors and assigns to use or occupy waters over which the United States has jurisdiction, or lands of the United States under the license, for the purpose of maintaining the project works or otherwise, shall absolutely cease at the end of the license period, unless the Licensee has obtained a new license pursuant to the then existing laws and regulations, or an annual license under the terms and conditions of this license.

**Article 18.** The terms and conditions expressly set forth in the license shall not be construed as impairing any terms and conditions of the Federal Power Act which are not expressly set forth herein.

## APPENDIX A

### Water Quality Certificate Conditions for Vermont Tissue Mill Dam Hydroelectric Project issued by the Vermont Department of Environmental Conservation (Vermont DEC) on February 27, 2013.

The text in bold font are the Commission's revisions to Vermont DEC's certification.

- A. **Compliance with Conditions.** The Applicant shall provide notice to the Department of any proposed change to the project that would have a significant or material effect on the findings, conclusions or conditions of this Certification, including any changes to operation of the project. The Applicant shall not make any such change without approval of the Department.
- B. **Flow Management.** Except as allowed in Condition C below, the facility shall be operated in a true run-of-the-river mode where instantaneous flows below the tailrace shall equal instantaneous inflow to the impoundment at all times. When the facility is not operating, all flows shall be spilled at the primary and secondary dams. The following conservation flow requirements shall be maintained at all times except during drawdowns conducted in accordance with Condition C below.

Conservation Flows		
Channel	June 1 through September 30	October 1 through May 31
Primary Bypass	Inflow $\geq$ 108 cfs: 60 cfs	Inflow $\geq$ 162 cfs: 114 cfs
	Inflow <b>&gt; 72 and &lt; 108</b> cfs: inflow minus 48 cfs	Inflow <b>&gt;72 and &lt;162</b> cfs: inflow minus 48 cfs
	Inflow $\leq$ 72 cfs: 1/3 of inflow	Inflow $\leq$ 72 cfs: 1/3 of inflow
Secondary Bypass	Inflow $>$ 72 cfs: 24 cfs	
	Inflow $\leq$ 72 cfs: 1/3 of inflow	
Tailrace	Inflow $>$ 72 cfs: 24 cfs	
	Inflow $\leq$ 72 cfs: 1/3 of inflow	

- C. **Impoundment Water Level Management.** Crest spillage of 1.0-inch depth shall be maintained at the primary dam at all times. The impoundment shall not be drawn below the fixed crest of the primary dam unless special approval is granted by

Project No. 14308-001

41

the Department under Condition O below, or for a safety-related emergency. In the latter case, the Department shall be notified within 24 hours.

D. Flow Management During Impoundment Refill. During refilling of the project impoundment after an approved dam maintenance operation or an emergency drawdown, at least 90 percent of instantaneous inflow shall be released below the project.

E. Flow and Water Level Management Plan. The Applicant shall develop and file with the Department a flow and water level management plan detailing how the project will be operated to achieve compliance with Conditions B, C and D of this Certification. The flow and water level management limitations described in Finding 30 will be followed and the ramping protocols described in Finding 31 shall be incorporated into the plan. The plan shall include information on how the project will be managed to control lag times and avoid related non-compliance with the conservation flow and ramping requirements, including during planned and unplanned unit shutdowns and startups. The plan shall be subject to Department review and approval. The Department reserves the right of review and approval of any material changes made to the plan.

Finding 30: Flows will be managed as described in the following schedules.

June 1 through September 30	
River Inflow (cfs)	Description of Operations
0 - 72	Inflow is less than minimum operating range of turbines, 1/3 of inflow is released to each of three channels.
73 - 74	Minimum capacity of tailrace turbine is reached and flow is routed through that unit. Conservation flow is discharged at secondary dam. Remainder of inflow is spilled over primary dam.
75 - 108	Primary channel turbine minimum capacity is reached and the turbine discharge is increased until the conservation flow in the main channel is reached through a combination of turbine discharge and flow over the primary dam spillway.
109 - 269	Flow through the tailrace turbine is increased until its maximum capacity is reached. All conservation flow requirements are reached.
270 - 377	Flow through the primary channel turbine is increased until its maximum capacity is reached.
378+	Both turbines are operating at maximum capacity and all additional flow is passed over the two spillways.
Flow Distribution	

Project No. 14308-001

42

River Inflow (cfs)	Tailrace Valve (cfs)	Tailrace Turbine (cfs)	Primary Dam Spillway (cfs)	Primary Channel Turbine (cfs)	Secondary Dam Spillway and Stoplogs (cfs)
0 - 72	0-24	0	0 - 24	0	0-24
73 - 74	0	24	25 - 26	0 - 0	24
75 - 108	0	24	6	21 - 54	24
109 - 269	0	25 - 185	6	54	24
270 - 377	0	185	6	55 - 162	24
378+	0	185	6+	162	24+

October 1 through May 31					
River Inflow (cfs)	Description of Operations				
0 - 72	Inflow is less than minimum operating range of turbines, 1/3 of inflow is released to each of three channels.				
73 - 74	Minimum capacity of tailrace turbine is reached and flow is routed through that unit. Conservation flow is discharged at secondary dam. Remainder of inflow is spilled over primary dam.				
75 - 162	Primary channel turbine minimum capacity is reached and the turbine discharge is increased until the conservation flow in the main channel is reached through a combination of turbine discharge and flow over the primary dam spillway.				
163 - 323	Flow through the tailrace turbine is increased until its maximum capacity is reached. All conservation flow requirements are reached.				
324 - 377	Flow through the primary channel turbine is increased until its maximum capacity is reached.				
378+	Both turbines are operating at maximum capacity and all additional flow is passed over the two spillways.				
Flow Distributions					
River Inflow (cfs)	Tailrace Valve (cfs)	Tailrace Turbine (cfs)	Primary Dam Spillway (cfs)	Primary Channel Turbine (cfs)	Secondary Dam Spillway and Stoplogs (cfs)
0 - 72	0 - 24	0	0 - 24	0	0 - 24
73 - 74	0	24	25 - 26	0 - 0	24
75 - 162	0	24	6	21 - 108	24

Project No. 14308-001

43

163 - 323	0	25 - 185	6	108	24
324 - 377	0	185	6	109 - 162	24
378+	0	185	6+	162	24+

Finding 31: Ramping rates (up and down) of 100 cfs/hr for Unit 1 and 81 cfs/hr for Unit 2 will be implemented. These rates will apply to planned unit shutdowns and startups, as well as unplanned shutdowns (e.g., station trips). In addition, only one unit will be brought on-line or taken off-line at a time during planned operations. Ramping rates and limits on operating both units will not apply during emergencies.

F. Monitoring Plan for Impoundment and Flow Management. The Applicant shall develop a plan for continuous monitoring and reporting of flow releases at the project (spillage and turbine discharge), impoundment levels and inflows. The plan shall include procedures for reporting deviations from prescribed operating requirements to the Department, explaining the reasons for those deviations and indicating measures to be taken to avoid recurrences. The Applicant shall maintain continuous records of flows and impoundment levels and provide such records upon request by the Department. The plan shall be developed in consultation with the Department and the U.S. Fish and Wildlife Service. The plan shall be subject to Department review and approval. The Department reserves the right of review and approval of any material changes made to the plan.

G. Dissolved Oxygen. The Applicant shall conduct a study to determine if project operation is degrading downstream D.O. concentrations. The study shall be conducted following commencement of project operation in accordance with a study plan. The study plan shall be developed in consultation with the Department and shall include a schedule. The study plan shall be subject to Department review and approval. Project operation shall not commence prior to approval of the plan by the Department. If the study documents that D.O concentrations are being degraded, the Applicant shall propose, subject to Department review and approval, changes in project design or operation to mitigate the impact. The Applicant shall implement any project design and operation changes approved by the Department within the timeframes specified by the Department. Failure to implement any required changes may result in a reopening of this Certification.

H. Trashracks. Prior to initial operation of the project, trashracks shall be installed on the intake that meet the specifications described in Finding 14 of this Certification. Design for any trashrack replacement is subject to prior review and written approval by the Department, after consultation with the Vermont Department of Fish and Wildlife and the U.S. Fish and Wildlife Service.

Finding 14: A 2½-foot by 2½-foot minimum flow stoplog or gate structure would be installed in the secondary spillway. The opening will convey 30 cfs at the minimum impoundment elevation and will be adjustable to provide conservation flows to the secondary bypass. New trashracks with ¼-inch clear spacing (matching the existing spacing) will be fabricated using 3/8-inch steel. The racks will be angled to the river flow and will extend to full depth. The approach area of each opening is 192 sq. ft. and flow area between bars will be 148 sq. ft. Approach velocities for the shore side and river side turbines will be 0.96 fps and 0.84 fps respectively. The downstream training wall will be repaired in the original location and extend from the current reinforced concrete section at the toe of the tailrace to the stone wall portion approximately 45 feet downstream. It will be constructed of reinforced concrete in the same dimensions as the existing sections, approximately 2 feet wide and 8 feet high. The repair work will be conducted in the dry.

I. Fish Passage. Within four years after being notified by the U.S. Fish and Wildlife Service or the Vermont Department of Fish and Wildlife that upstream or downstream fish passage facilities, or both, are needed, the Applicant shall construct, operate and maintain such facilities. The agencies will determine the need for passage based on the status of fish populations in the Walloomsac River and management objectives that call for implementation of upstream or downstream passage measures at the project for resident or migratory species. Upon such time that fish passage implementation is required, the design shall be subject to approval by the Department and the U.S. Fish and Wildlife Service. The annual period for operation must be included in the proposed design. Once passage facilities are operational, the Department may request, at any time, adjustment to the annual period for operation based on new information about movement periods for the target species.

J. Turbine Rating Curves. The Applicant shall provide the Department with a copy of the turbine rating curves, accurately depicting the flow/production relationship, for the record within one year of commencement of project operation.

K. Forebay and Impoundment Dredging. The Applicant shall develop a detailed plan describing the methods to be used to remove sediment from the forebay and impoundment. The plan shall be developed in consultation with the Department and shall be subject to Department approval prior to commencement of dredging operations. The Department approved sediment removal plan and all amendments thereto as approved by the Department shall be incorporated by reference as conditions of this Certification.

L. Public Access. The Applicant shall allow public access to the project lands

for utilization of public resources, subject to reasonable safety and liability limitations. Such access should be prominently and permanently posted so that its availability is made known to the public. Any proposed limitations of access to State waters to be imposed by the Applicant shall first be subject to written approval by the Department. In cases where an immediate threat to public safety exists, access may be restricted without prior approval; the Applicant shall so notify the department and shall file a request for approval, if the restriction is to be permanent or long term, within 14 days of the restriction of access.

M. **Recreational Facilities.** The Applicant shall construct and maintain river access consistent with a recreation plan approved by the Department. The plan shall be filed with the Department within one year of license issuance and shall include an implementation schedule. Where appropriate, the recreation plan shall include details on erosion control. The plan shall be updated at intervals not exceeding ten years or a written statement provided that indicates the basis for there being no need to upgrade the facilities or otherwise modify the plan. Modifications to the recreation plan shall also be subject to Department approval over the term of the license. The Department approved recreation plan and all amendments thereto as approved by the Department shall be incorporated by reference as conditions of this Certification.

N. **Debris Disposal.** The Applicant shall develop a plan for proper disposal of debris associated with project operation, including trashrack debris. The plan shall be developed in consultation with the Department, and a draft shall be submitted to the Department for review at least 60 days prior to commencement of project operation. The final plan shall be subject to Department approval. The Department reserves the right of review and approval of any material changes made to the plan at any time.

O. **Construction, Maintenance and Repair Work.** Any proposals for project construction, maintenance or repair work, including drawdowns below the fixed dam crest to facilitate these activities, shall be filed with the Department for prior review and approval, if said work may have a material adverse effect on water quality or cause less-than-full support of a designated use of State waters. An erosion prevention and sediment control plan shall be included in the filing.

P. **Commencement of Operation.** The Applicant shall notify the Department within two weeks of project completion and commencement of operation.

Q. **Record Drawings.** The Applicant shall provide the Department with a set of as-built plans for the record within one year of the completion of construction.

R. **Compliance Inspection by Department.** The Applicant shall allow the Department to inspect the project area at any time to monitor compliance with

Certification conditions.

S. Posting of Certification. A copy of this Certification shall be prominently posted within the project powerhouse.

T. Approval of Project Changes. Any change to the project that would have a significant or material effect on the findings, conclusions or conditions of this Certification, including project operation, must be submitted to the Department for prior review and written approval where appropriate and authorized by law and only as related to the change proposed.

U. Reopening of License. The Department may request, at any time, that FERC reopen the license to consider modifications to the license as necessary to assure compliance with the Standards.

V. Continuing Jurisdiction. The Department reserves the right to alter or amend this Certification over the life of the project when such action is necessary to assure compliance with the Standards and to respond to any changes in classification or management objectives for the affected waters.

Document Content(s)

P-14308-001Order.DOC.....1-46