FINAL ENVIRONMENTAL ASSESSMENT
FOR
HYDROPOWER LICENSE

Shelburne Hydroelectric Project
FERC Project No. 2300-052
New Hampshire

Federal Energy Regulatory Commission
Office of Energy Projects
Division of Hydropower Licensing
888 First Street, NE
Washington, D.C. 20426

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ACRONYMS AND ABBREVIATIONS

ADA	Americans with Disabilities Act of 1990
APE	area of potential effect
BA	Biological Assessment
CEQ	Council for Environmental Quality
CES	Customized Energy Solutions
cfs	cubic feet per second
Commerce	U.S. Department of Commerce
Commission or FERC	Federal Energy Regulatory Commission
CRMP	Cultural Resources Management Plan
CRP	Central Rivers Power, NH LLC
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
DEA	draft Environmental Assessment
DO	dissolved oxygen
EFH	essential fish habitat
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEA	final Environmental Assessment
FPA	Federal Power Act
FWS	U.S. Fish and Wildlife Service
GSU	generator step-up transformer
HPMP	Historic Properties Management Plan
Interior	U.S. Department of Interior
IPaC	Information for Planning and Conservation
MBI	Midwest Biodiversity Institute
MW	megawatt
MWh	megawatt-hour
National Register	National Register of Historic Places
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Corporation
NHCP	New Hampshire Coastal Program
New Hampshire DES	New Hampshire Department of Environmental Services
NHPA	National Historic Preservation Act
NLEB	northern long-eared bat
NMFS	National Marine Fisheries Service
NPCC- New England	Northeast Power Coordinating Council's New England region
OPP	Office of Public Participation
SD1	Scoping Document 1
SD2	Scoping Document 2
SHPO	State Historic Preservation Office

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1.0 INTRODUCTION

1.1 APPLICATION

On August 1, 2022, Great Lakes Hydro America, LLC (GLH) filed an application for a new license for its 3.72-MW Shelburne Hydroelectric Project No. 2300 (Shelburne Project or project).[1] The project is located on the Androscoggin River in Coos County, New Hampshire (figure 1).

[1] A license for the project was issued on August 1, 1994, for a term of 30 years and an expiration date of July 21, 2024. *See James River-New Hampshire Elec., Inc.*, 68 FERC ¶ 61,174 (1994).

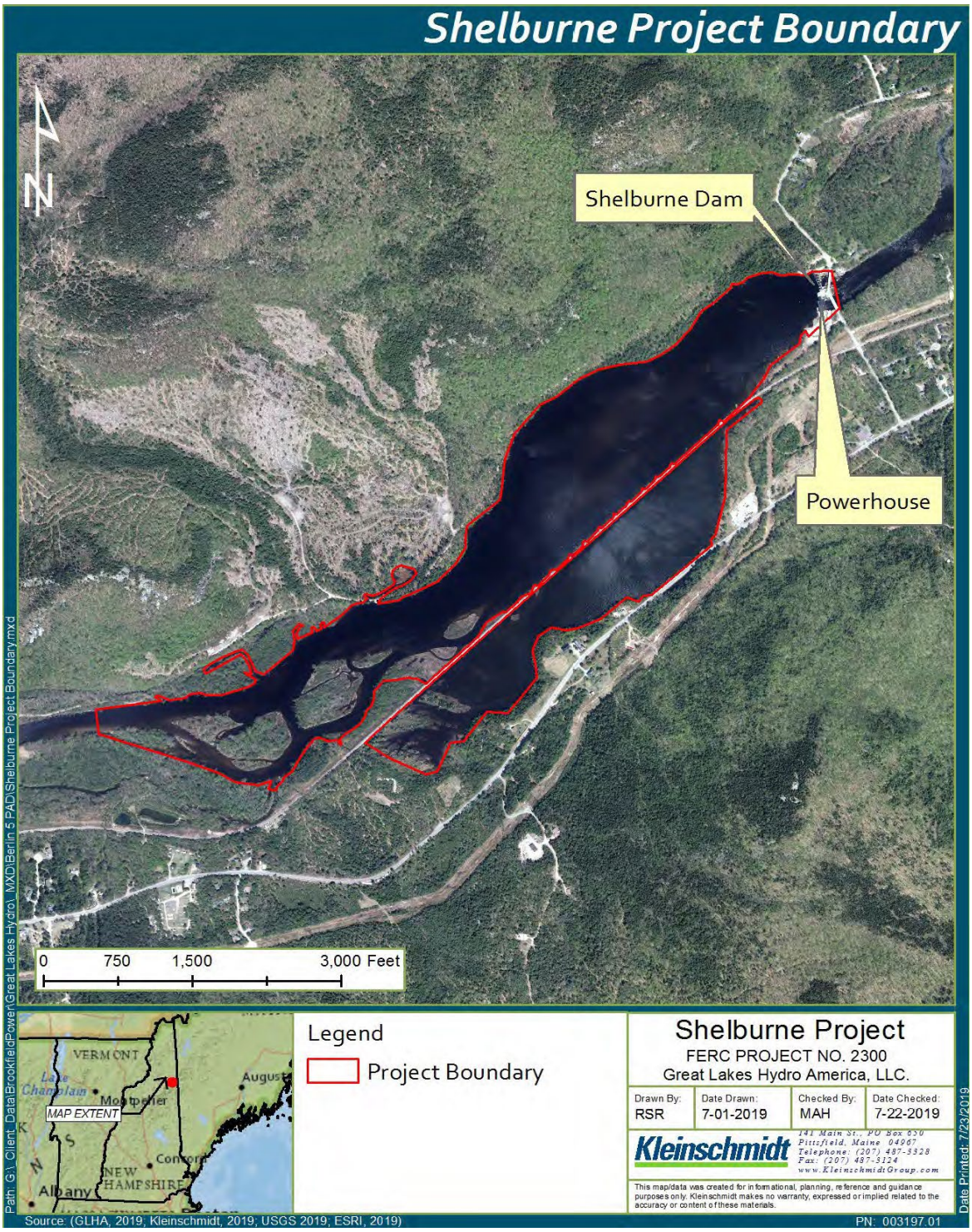

Figure 1. Location of the Shelburne Project (source: application).

1.2 PURPOSE OF ACTION AND NEED FOR POWER

1.2.1 Purpose of Action

The purpose of the Shelburne Project is to provide a source of hydroelectric power. Therefore, under the provisions of the Federal Power Act (FPA), the Commission must decide whether to issue a new license to GLH for the project and what conditions should be placed on any license issued. In deciding whether to issue a license for a hydroelectric project, the Commission must determine that the project would be best adapted to a comprehensive plan for improving or developing a waterway. In addition to the power and developmental purposes for which licenses are issued (such as flood control, irrigation, or water supply), the Commission must give equal consideration to the purposes of: (1) energy conservation; (2) the protection of, mitigation of damage to, and enhancement of fish and wildlife resources; (3) the protection of recreational opportunities; and (4) the preservation of other aspects of environmental quality. Issuing a new license for the Shelburne Project would allow GLH to continue to generate electricity at the project for the term of the new license, making electric power from a renewable resource available to its customers. We prepared this final environmental assessment (FEA) in compliance with the requirements of the National Environmental Policy Act of 1969 (NEPA),[2] the Council on Environmental Quality (CEQ) regulations for implementing NEPA[3], and the Commission's implementing regulations.[4]

In this EA, we assess the environmental and economic effects of: (1) continued project operation and maintenance as proposed by GLH (proposed action), (2) the proposed action with additional or modified measures (staff alternative), and (3) no action. The primary issues associated with relicensing the project are effects to recreational and cultural resources.

1.2.2 Need for Power

The Shelburne Project provides hydroelectric generation to meet part of the region's power requirements, resource diversity, and capacity needs. The Shelburne Project has a generating capacity of 3.72 MW and generates approximately 16,962 MWh per year.

To assess the need for power, we look at the needs in the operating region in which the project is located. The North American Electric Reliability Corporation (NERC) annually forecasts electrical supply and demand nationally and regionally for a 10-year period. The Shelburne Project is located within the Northeast Power Coordinating Council's New England

[2] National Environmental Policy Act of 1969, amended (Pub. L. 91-190. 42 U.S.C. §§ 4321–4347, as amended by Pub. L. 94-52, July 3, 1975, Pub. L. 94-83, August 9, 1975, Pub. L. 97-258, §4(b), September 13, 1982, Pub. L. 118-5, June 3, 2023).

[3] 40 C.F.R. Parts 1500-1508 (2023).

[4] 18 C.F.R. Part 380.

region (NPCC-New England) of the NERC. According to NERC's 2023 Long-Term Reliability Assessment, the net internal demand for this region is projected to increase annually by about 1.32% from 2024 to 2033. The anticipated reserve margin (i.e., the primary metric used to evaluate the adequacy of projected generation resources to serve forecasted peak load) is expected to range from 9.2% in 2033 to 27.2% in 2025. The New England region is forecasted to meet NPCC-New England's reference reserve margin from 2024 to 2033, which ranges from 10.0% in 2030 to 12.9% in 2024 (NERC, 2023).

Power from the Shelburne Project would continue to help meet the need for power in the NPCC-New England region. The project provides power that can displace generation from non-renewable sources and contributes to a diversified generation mix. Displacing the operation of non-renewable facilities may avoid some power plant emissions, thus creating an environmental benefit.

1.3 STATUTORY AND REGULATORY REQUIREMENTS

The licensing process for the Shelburne Project is subject to numerous requirements under the FPA and other applicable statutes. The major regulatory and statutory requirements are described in Appendix A.

1.4 PUBLIC REVIEW AND COMMENT

The Commission's regulations (18 Code of Federal Regulations [C.F.R.] §§ 5.1-5.16) require that an applicant consult with appropriate resource agencies, tribes, and other entities before filing an application for a license. This consultation is the first step in complying with the Fish and Wildlife Coordination Act, Endangered Species Act (ESA), National Historic Preservation Act (NHPA), and other federal statutes. Pre-filing consultation must be complete and documented according to the Commission's regulations.

1.4.1 Scoping

Before preparing this EA, we conducted scoping for the Shelburne Project to determine what issues and alternatives should be addressed. We issued an initial scoping document (SD1) requesting written comments on September 18, 2019. It was noticed in the *Federal Register* on September 24, 2019[5] The following entities filed comments on SD1:

Commenting Entity	Date Filed
Raymond Danforth	November 19, 2019
Appalachian Mountain Club	November 19, 2019
Katherine W. Stuart	November 20, 2019
Hildrith Danforth	November 21, 2019
Tim Buxton	November 22, 2019
Town of Shelburne	November 22, 2019

[5] 84 Fed. Reg. 50,030 (Sept. 24, 2019).

New Hampshire Department of Environmental Services	November 22, 2019
National Park Service	November 22, 2019
Pamela Laflamme	November 25, 2019
Edith Tucker	November 27, 2019

A revised scoping document (SD2), addressing these comments was issued on January 2, 2020.

1.4.2 Interventions

On July 26, 2023, the Commission issued a notice accepting the license application and setting September 25, 2023, as the deadline for filing protests and motions to intervene. The following entities filed motions to intervene (none in opposition to the project):

Entity	Date Filed
City of Berlin	September 22, 2023
Town of Gorham	September 22, 2023

1.4.3 Comments on the Application

The July 26, 2023, notice also solicited comments, recommendations, terms and conditions, and prescriptions. The following entities filed comments, recommendations, and prescriptions:

Entity	Date Filed
U.S. Fish and Wildlife Service - New England Field Office	September 11, 2023
U.S. Department of the Interior - Office of Environmental Policy and Compliance[6]	September 20, 2023

1.4.4 Comments on the Draft Environmental Assessment

Commission staff issued its draft EA (DEA) for the relicensing of the Shelburne Hydroelectric Project on May 1, 2024.[7] Comments on the DEA were due by May 31, 2024. The following entities filed comments on the DEA:

Commenting Entity	Date Filed
GLH	May 29, 2024
Town of Shelburne	May 30, 2024
National Park Service	May 31, 2024

[6] Interior submitted the comments on behalf of the NPS.

[7] A notice was published in the *Federal Register* on May 8, 2024. 89 FR 38890.

Appendix K summarizes the comments that were filed, includes our responses to those comments, and indicates where we made modifications to the EA.

2.0 PROPOSED ACTION AND ALTERNATIVES

2.1 NO-ACTION ALTERNATIVE

Under the no-action alternative, the project would continue to operate under the terms and conditions of the current license, and no new environmental protection, mitigation, or enhancement measures would be implemented. We use this alternative to establish baseline environmental conditions for comparison with other alternatives.

2.1.1 Existing Project Facilities

The Shelburne Hydroelectric project consists of a dam, impoundment, powerhouse, generation equipment, and appurtenant facilities.

The project reservoir is created by a 696-foot-long dam and an integral powerhouse. From north to south the project consists of: (1) a 3-foot-wide, 70-foot-long, concrete retaining wall along the northern shore of the Androscoggin River; (2) a 171-foot-long gated spillway section consisting of an 83-foot-long section with 9-foot-high hinged steel and wood flashboards at an elevation of 724.5 feet[8] and an 88-foot-long section containing three 25-foot-long, 10-foot-high wastegates separated by 5-foot-wide concrete piers; (3) a 27-foot-wide, 143-foot-long sluiceway controlled by a 19-foot-wide screw stem operated sluice gate with a sill elevation of 722.5 feet; (4) a 95-foot-long non-overflow concrete retaining wall; (5) a 150-foot-long powerhouse that extends to the south riverbank; and (6) a 250-foot-emergency spillway dike along the south shore of the impoundment. A 17-foot-long by 14-foot-wide building located on the island adjacent to the sluiceway houses the controllers for the gates. The impoundment is approximately 78 acres and 7,200 feet long at the normal full pond elevation of 734.2 feet.

From the impoundment, water enters a 112-foot-long by 15-foot-high intake that conveys flows to the powerhouse. The intake is fitted with a steel bar trashrack with 3-inch clear spacing. The 112-foot-long, 48.6-foot-wide brick and steel powerhouse contains three turbines and three generators. Two of the turbines, designated Units 1 and 2, are vertical Francis turbines with a hydraulic capacity of 800 cfs. The third turbine, designated Unit 3, is a vertical Kaplan turbine with a hydraulic capacity of 1,800 cfs. The corresponding generators for Units 1 and 2 have an installed capacity of 960 kW, while the generator for Unit 3 has an installed capacity of 1,800 kW. The total installed capacity of the units is 3.72 MW.

The minimum and maximum hydraulic capacities of the turbines are 525 and 3,400 cfs (cubic feet per second) respectively. After passing through the turbine-generator units, flow

[8] All elevations in this document are based on the National Geodetic Vertical Datum of 1929 (NGVD29).

discharges to a 130-foot-long tailrace at an elevation of 717.9 feet. The tailrace conveys flow to the Androscoggin River, creating a 150-foot-long bypass reach. Power from the powerhouse is transmitted to a nearby transformer through a 50-foot-long, 2-phase 2,200-V transmission line.

The project does not provide any formal recreation facilities, however, the project is included in a Comprehensive Recreation Management Plan[9] that was filed with the Commission on March 1, 1995[10].

2.1.2 Current Project Boundary

The current project boundary encloses approximately 78 acres of land (figure 1) and includes the project facilities listed above in section 2.1.1. The project does not occupy federal land.

2.1.3 Project Safety

The Shelburne Project has been operating under the current license issued in 1994. During this time, Commission staff has conducted operational inspections focusing on the continued safety of the structures, identification of unauthorized modifications, efficiency, safety of operations, compliance with the terms of the license, and proper maintenance. In addition, the project has been inspected and evaluated every 5 years by an independent consultant, and a consultant's safety report has been submitted for Commission review.

As part of the relicensing process, Commission staff will evaluate the continued adequacy of the proposed project facilities under a new license. Special articles will be included in any license issued, as appropriate. Commission staff would continue to inspect the project during the new license term to assure continued adherence to Commission-approved plans and specifications, special license articles relating to construction (if any), operation and maintenance, and accepted engineering practices and procedures.

2.1.4 Current Project Operation

The Shelburne project operates in a run-of-river mode by maintaining the impoundment's elevation at the normal full pond elevation of 734.2 feet such that, at any given point in time, all outflow from the project approximates all inflow to the project. GLH releases a minimum flow of 2 cfs or inflow, whichever is less, into the bypassed reach via existing leakage.

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[9] The Comprehensive Recreation Management Plan can be accessed online at https://elibrary.ferc.gov/eLibrary/filelist?accession_number=19950306-0360&optimized=false. The plan covers recreation facilities at the Sawmill Project (FERC No. 2422), Cross Power Project (No. 2326), Cascade Project (No. 2327), Upper Gorham Project (No. 2311), and the Shelburne Project.

[10] On February 13, 1997, the Commission issued an order modifying and approving the 1995 Comprehensive Recreation Management Plan. The modification required a sign providing history of the Shelburne powerhouse.

The Shelburne Project units are started manually onsite. Once online, they can be adjusted remotely from the National System Control Center (NSCC) in Marlborough, MA. The spill gates can be operated manually on site and from the regional control center. The impoundment elevation is monitored via a pond level sensor that is monitored by the NSCC. While maintenance personnel conduct daily inspection, any unusual changes in pond level monitored by the NSCC desk operator are quickly reported to local Operations' staff and the Compliance team.

Under normal circumstances the hydro units are set to maximize generation from available river flow, while still maintaining the minimum flow in the bypass reach. When river flow is less than 1,000 cfs, GLH operates either Unit 1 or Unit 2. Units 1 and 2 are both operated at flows between 1,000 and 1,600 cfs. When the river flows are above 1,600 cfs, GLH operates Units 1,2, and 3 simultaneously.

Flow in excess of the maximum hydraulic capacity passes over the dam. In advance of an anticipated major flood, the licensee attempts to draw the pond down 3-5 feet. The drawdowns are timed to minimize or prevent overtopping of the emergency spillway and capture the peaking flows from the Peabody River, located near the town of Gorham. This flashy river captures the runoff from the northeast quadrant of the Mt. Washington area and can cause flows in the Androscoggin to swell significantly and very quickly, during severe storms. These events historically occur 1 to 3 times per year. The project had an average annual energy production value of approximately 16,962 MWh.

2.2 GLH'S PROPOSAL

2.2.1 Proposed Operation and Environmental Measures

GLH does not propose any new development or changes in project operation from its current license.

GLH proposes to:

- Continue to operate the project as a run-of-river facility by maintaining the impoundment level at the normal full pond level of 734.2 feet such that at any given point in time, all outflow from the project approximates all inflow to the project.
- Continue to provide 2 cfs or inflow, whichever is less, to the project bypassed reach via dam leakage, as measured immediately below the dam.
- Develop and implement an Operations Compliance Monitoring Plan to ensure compliance with any new license issued for the project.
- Continue to provide public access to project reaches.
- Develop and implement a Historic Properties Management Plan (HPMP) for the continued protection of historic properties, in consultation with the New Hampshire State Historic Preservation Officer.

- Revise the 1995 Comprehensive Recreation Management Plan[11] to include: (1) development of a gravel parking area for 4-5 vehicles off North Road, south of the dam, and next to the existing Brookfield access gate; (2) development of a natural approximately 4-foot-wide and approximately 450-foot-long walking path next to the existing fence between the parking area and the impoundment put-in/take-out; (3) installation of a wooden canoe rest at the halfway point between the take-out and the proposed parking area; and (4) improvements to the downstream put-in with gravel or wood crib steps.

2.3 STAFF ALTERNATIVE

Under the staff alternative, any new license would require GHL's proposed measures described above in sections 2.2.1.

The staff alternative also includes the following measures:

- Develop a project-specific Recreation Management Plan (rather than revising the comprehensive recreation plan) that includes GLH's proposed measures, a plan and schedule, developed in consultation with the Town of Shelburne, for installing and maintaining recreational signage near the proposed parking and portage area, and revise the project boundary to include the Shelburne access area as a project recreation facility.
- Avoid removing or trimming of trees greater than or equal to 3 inches in diameter at breast height (dbh) from April 15 through October 31 to protect northern long-eared and tri-colored bats, unless the trees represent a public safety hazard.
- Include in the HPMP, a plan and schedule, developed in consultation with the Town of Shelburne, to install, and maintain interpretive signage regarding the Shelburne dam and powerhouse.

2.4 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS

Certain alternatives to GLH's proposal were considered but eliminated from further analysis because they are not reasonable in this case. These alternatives are discussed in Appendix B.

3.0 ENVIRONMENTAL ANALYSIS

This section includes a general description of the project's vicinity and our analysis of the proposed action and other recommended environmental measures. Tables and Figures that are referred to in this section can be found in Appendix C. Sections are organized by resource area, with historical and current conditions described first. The existing condition is the baseline

[11] The plan covers recreation facilities at the Sawmill Project (FERC No. 2422), Cross Power Project (No. 2326), Cascade Project (No. 2327), Upper Gorham Project (No. 2311), and the Shelburne Project.

against which the environmental effects of the proposed action and alternatives are compared, including an assessment of the effects of proposed mitigation, protection, and enhancement measures. Staff conclusions and recommended measures are discussed in Appendix F, *Comprehensive Development and Recommended Alternative*.[12]

3.1 GENERAL DESCRIPTION OF THE RIVER BASIN

The Androscoggin River begins in northwestern Maine at Umbagog Lake, crosses into northern New Hampshire, then re-enters Maine near Bethel, eventually joining the Kennebec River at Merrymeeting Bay in coastal Maine. The Androscoggin River drops 1000-feet from its headwaters to the Atlantic Ocean, with an average descent of 8-feet per mile. The watershed has a total drainage area of 3,450-square-miles, with 720-square-miles of drainage in New Hampshire. Flows in the Androscoggin River are regulated by large predominately storage reservoirs upstream of Umbagog Lake: Kennebago, Mooselookmeguntic, Upper and Lower Richardson, and Aziscohos. There are eight hydroelectric projects including the Shelburne Project within an 11-mile-long, high gradient reach of the river between Berlin and Shelburne, New Hampshire that are seeking new licenses concurrently.[13] The Androscoggin River Basin contains over 200 dams, most of which are on various tributaries to the mainstem.

3.2 SCOPE OF CUMULATIVE EFFECTS ANALYSIS

According to the Council on Environmental Quality's regulations for implementing the National Environmental Policy Act (40 C.F.R., § 1508.7), a cumulative effect is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over time, including hydropower and other land and water development activities.

Based on our review of the license application and agency and public comments, we have not identified any resources that may be cumulatively affected by the proposed operation and maintenance of the Shelburne Project. During scoping no entity identified any resources that would be cumulatively affected by licensing the Shelburne Project or any of the other 7 projects that are concurrently undergoing relicensing. This is because the projects are operated run-of-river, water quality is good and much improved over historic conditions, the projects are above anadromous fish barriers, and there are no other actions occurring in the basin that would affect these resources. Therefore, cumulative effects are not considered further in the EA.

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[12] Unless noted otherwise, the source of our information is the final license application filed on August 1, 2022, and supplemented on July 10, 2023, and July 14, 2023.

[13] Relicense applications on the upper Androscoggin River pending before the Commission include Central River Power's J. Brodie Smith (P-2287) and Gorham (P-2288) Hydroelectric Projects, and GLH's Upper Gorham (P-2311), Cross Power (P-2326), Cascade (P-2327), Sawmill (P-2422), and Riverside (P-2423) Hydroelectric Projects.

3.3 PROPOSED ACTION AND ACTION ALTERNATIVES

In this section, we discuss the effects of the project alternatives on environmental resources. For each resource, we first describe the affected environment, which is the existing condition and baseline against which we measure effects. We then discuss and analyze the environmental effects of the project alternatives.

Only the resources that would be affected are addressed in this EA. We have not identified any substantive issues related to geology and soils, terrestrial, land use, or aesthetic resources associated with the proposed action, and therefore, these resources are not addressed in this EA. We also consider the effects of the project on environmental justice communities. We present our recommendations in Appendix F, *Comprehensive Development and Recommended Alternative*.

3.3.1 Aquatic Resources

3.3.1.1 Affected Environment

Water Quantity

Five large water storage reservoirs (Rangeley, Aziscohos, Upper and Lower Richardson Lakes, Mooselookmeguntic, and Umbagog) in the Upper Androscoggin watershed are operated to maintain a target flow of 1,550 cfs at Berlin, NH, year-round. The system has a combined storage capacity of approximately 644,000 acre-feet. Flow regulation occurs at the Errol Hydroelectric Project (FERC No. 3133), which impounds Lake Umbagog, approximately 30 river miles upstream of the Shelburne Project area.

River flow data for the Shelburne Project was obtained from USGS gage #01054000 (Androscoggin River near Gorham, New Hampshire). The drainage area at the USGS gage is approximately 1,361 square miles. The data from the USGS gage are considered representative of the flows throughout the project area.

Annual and monthly river flows for the Androscoggin River at USGS gage #01054000 from January 1, 1991, to December 31, 2020, are provided in Table 1. Annual average, minimum, and maximum flows are estimated to be 2,805 cfs; 780 cfs; and 19,900 cfs, respectively. The maximum monthly average flow (4,751 cfs) is typically in April and the minimum monthly average flow is typically in September (1,840 cfs). It should be noted that the peak flows that occur at the Shelburne Project are higher than indicated in Table 1 because USGS gage #01054000 is upstream of the Peabody River and does not include the flashy flows that can occur following large rain events. The maximum recorded daily average flow (19,900 cfs) occurred on April 1, 1998, and the minimum daily average flow (780 cfs) occurred on September 4, 2015.

The Androscoggin River in the area of the projects is used for hydroelectric power generation, recreation, wastewater assimilation, and aquatic and wildlife habitat. There are no current or proposed water withdrawals or consumptive uses of water at any of the Androscoggin Projects.

Water Quality

The Androscoggin River in the 11-mile stretch that includes eight hydroelectric projects (including the Shelburne project) is classified by the state of New Hampshire as a Class B water. The designated uses of Class B surface waters in New Hampshire are aquatic life, fish consumption, potential drinking water supply, swimming and other recreation in and on the water, and wildlife. Class B waters are "considered acceptable for fishing, swimming and other recreational purposes, and, after adequate treatment, for use as water supplies" (NHDES 2020). Water quality criteria for Class B waters in New Hampshire are provided in Table 2.

2020 Water Quality Study

As a part of the re-licensing process, GLH completed a comprehensive water quality study throughout the 11-mile-long multi-project area during late June to October 2020. The goals of the study were to collect contemporary data to evaluate the spatial and temporal effects of operation of the Shelburne Project on water quality in the Androscoggin River and to assess compliance with New Hampshire water quality standards. The objectives of the study were to: (1) collect dissolved oxygen (DO), water temperature, pH, nutrients, chlorophyll-a, and Secchi disk data at the deepest spot in the project impoundment; and, (2) collect DO, water temperature, and pH in a riverine reach upstream of the impoundment, in the bypassed reach of the project, in the tailrace of the project, and downstream of the tailrace and bypass reach confluence at the project.

The average DO concentration, DO percent saturation, and water temperature ranged from 8.5 mg/L to 8.7 mg/L, 97.8 percent to 100.2 percent, and 21.0ºC to 21.5ºC, respectively (Table 10). Overall, the DO concentration exhibited similar temporal variations and was within a similar range (7.4 mg/L to 10.5 mg/L) at the five monitoring sites throughout the Shelburne Project area. The DO concentration was lowest in late July to mid-August and highest on September 21 or 22. The daily average DO percent saturation ranged from 93.3 percent to 107.9 percent. The DO concentration and the daily average DO percent saturation exceeded the Class B standards throughout the study period.

The water temperature was lowest at the five Shelburne monitoring sites on September 22 (12.5ºC to 13.2ºC). The water temperature was highest on July 10 in the impoundment (25.6ºC), bypass reach (25.7ºC), and downstream confluence (25.6ºC) and on August 12 above the impoundment (25.6ºC) and in the tailrace (25.4ºC).

pH was within the limits of the standard throughout the study in the bypass reach and for 98.8 percent, 99.5 percent, 99.6 percent, and 99.1 percent of the time at the above impoundment, impoundment, tailrace, and downstream confluence sites, respectively.

The water temperature, DO concentration and DO percent saturation were uniform throughout the water column at the deep spot in the Shelburne impoundment; the impoundment did not thermally stratify. The average temperature in the water column ranged from 16.7ºC on September 17 to 24.3ºC on July 30 and August 13. The water temperature varied by 0.5ºC or less in each profile. The average temperature in the water column was 0.5ºC to 1.6ºC cooler in

the Shelburne impoundment than the Sawmill, Riverside, Cross, and Cascade impoundments through the August 27 profile. The average DO concentration in the water column ranged from 7.3 mg/L on August 13 to 9.1 mg/L on September 17; the DO concentration varied by 0.2 mg/L or less in each profile. DO exceeded the Class B standard (5 mg/L) in each profile. The average DO percent saturation ranged from 85.7 percent on August 13 to 98.1 percent on July 16. The DO percent saturation varied by 3.4 percent or less throughout the water column in each profile.

Fisheries Resources

Historically, the upper Androscoggin River near Berlin, New Hampshire, was heavily polluted due to point source discharges from municipal, paper mill, and textile effluents (Inglis et al. 2014, Yoder et al. 2006a, Boucher 1997). Pollution from point source discharges, dams, timber drives, land use practices, non-native fish species, and over-fishing all contributed to a decline in the quality of the fishery (AMC 2003, Boucher 1997). Improvements to water quality since the 1970s resulting from regulations, new municipal and industrial treatment facilities, and the establishment of more stringent water quality standards have allowed the reach of the river between Berlin and Shelburne (i.e., near the GLH NH Projects) to improve as a recreational and ecological resource (Inglis et al. 2014). However, NHDES continues to recommend that fish from Berlin, New Hampshire, to the Maine border do not get consumed because of elevated dioxin and mercury levels resulting from past industrial discharges (NHDES 2021).

The upper Androscoggin River supports approximately 30 species of fish, a quarter of which are non-native (AMC 2003). Angling for salmonids is bolstered by trout stocking and wild reproduction in the upper watershed and within tributaries. Cold water inflow from tributaries and regulated water releases from upper storage reservoirs enhances coldwater fisheries habitat in the main stem of the Androscoggin River. The Midwest Biodiversity Institute (MBI) sampled 51 sites in the Androscoggin River in 2003 to document the spatial distribution and relative abundance of fish in large, non-wadeable river systems of the northeastern United States (Yoder et al. 2006a). MBI electrofished nine 0.6-mile-long reaches within or near GLH's six hydropower projects in the upper Androscoggin River (table 4), collecting 3,378 fish representing 18 species (Table 1). MBI's overall catch was dominated by common fish species from the northeastern United States, including fallfish (30.6 percent), smallmouth bass (26.3 percent), white sucker (14.9 percent), and longnose dace (10.7 percent); common shiner (6.4 percent) and spottail shiner (4.2 percent) were also relatively abundant.

Other species, such as rainbow trout, bullhead, and yellow perch were less common (i.e., less than or equal to 2 percent of the total catch). Smallmouth bass and white sucker were the most common species in riverine segments; smallmouth bass and fallfish were the most common species in the impounded segments (Yoder et al. 2006a). Rainbow trout and brown trout were present but not predominant. Species richness ranged from 5 to 12 in sampled reaches. Maine DIFW reports that burbot and chain pickerel also occur in the upper Androscoggin River (Brautigam and Pellerin 2014).

3.3.1.2 Environmental Effects

Run-of-River Operation, Impoundment Levels, and Minimum Flow

Flow fluctuations during the operation of hydropower projects can affect shoreline littoral and riverine habitat in impoundments and downstream reaches by exposing them to periodic dewatering, making them unsuitable for aquatic biota. Flow fluctuations can also increase erosion of project shorelines, particularly in a project's reservoir.

GLH proposes to continue operating the project as a run-of-river facility such that the impoundment level is maintained within 1 foot of the normal full pond level of 734.2 feet. Additionally, GLH proposes to continue to provide a minimum flow of 2 cfs or inflow, whichever is less, to the bypassed reach of the Shelburne Project.

Staff Analysis

Continuing to operate the project in run-of-river mode would continue to minimize fluctuations in the project impoundment and in the Androscoggin River downstream of the project. Maintaining stable impoundment levels would continue to protect shoreline habitat and fish and other aquatic organisms that rely on near-shore habitat in the impoundment for spawning, foraging, and cover. Minimizing flow fluctuations downstream of the project would also continue to protect aquatic habitat and minimize fish stranding potential.

Under GLH's proposal to continue to provide a minimum flow of 2 cfs or inflow, whichever is less, into the bypassed reach, there would be no change to this reach from existing conditions. The amount of aquatic habitat in the bypassed reach would remain the same. Water quality parameters such as temperature and DO would remain consistent with current conditions. There is no evidence of problems with existing aquatic biota and flows are sufficient to maintain aquatic habitat.

Operations Compliance Management Plan

GLH proposes to develop and implement an updated Operations Compliance Plan to confirm the project is operated in compliance with a new FERC license. GLH did not provide additional details as to the content of the plan.

Staff Analysis

It is essential that a licensee be able to demonstrate compliance with all operational requirements of a project. Compliance with the proposed run-of-river operation and proposed minimum flow releases could be achieved through the development and implementation of an over-arching operation compliance monitoring plan. This plan would detail how GLH plans to monitor compliance with the operational requirements of any license that may be issued. This plan would also detail how GLH would notify both the Commission and resource agencies of any non-compliance events.

3.3.2 Terrestrial Resources

3.3.2.1 Affected Environment

The project is located on a largely undeveloped section of the Androscoggin River between two small towns, with an exposed sand bar and small wetland islands occupying a wider area of the river upstream of the dam. Riparian soils within the small floodplain at the bottom of the basin alongside the river are sandy and well drained. The surrounding hillsides are composed of mixed deciduous and evergreen forest. The land area around the dam is largely undeveloped apart from logging roads.

Bald eagles have been observed nearby, and while no recent wildlife survey results are available for the project area, white-tailed deer, moose, and a variety of smaller mammals likely occur. Other avian and herpetofauna are also likely to be present near the river.

In 2020, a botanical survey was conducted near the project which recorded 167 species, none of which were categorized as rare, threatened, or endangered. Seven invasive plant species were found during the survey at low to moderate densities. There is no evidence that terrestrial invasive species are currently affecting project operation or other environmental resources.

3.3.2.2 Environmental Effects

Flow fluctuations during operation of hydropower projects can affect wetland and riparian habitats by exposing them to periodic water level changes, decreasing the area of such habitat and its value to wildlife. The applicant proposes to continue to operate the project in a run-of-river mode with inflow approximating outflow. No recommended measures for terrestrial resources were made by licensing participants or are being proposed.

Staff Analysis

There is no evidence in the project record that the current operational mode adversely affects wildlife habitat. Operating the project in a run-of-river mode minimizes effects to riparian habitat both upstream and downstream of the project. Project operations involving small fluctuations to flow in the river downstream of the powerhouse are not expected to result in large-scale changes in the composition, structure, or function of existing riparian plant and animal communities. Therefore, continuing previous operational procedures would maintain existing terrestrial habitat upstream and downstream of the project.

3.3.3 Threatened and Endangered Species

On April 10, 2024, staff used the U.S. Fish and Wildlife Service's (FWS's) Information for Planning and Consultation (IPaC) database to determine whether any federally listed species could occur in the vicinity of the project.[14] According to the IPaC database, the threatened Canada lynx, the endangered northern long-eared bat (NLEB), the proposed endangered tri-

[14] *See* FWS, IPaC, https://ecos.fws.gov/ipac/ (last visited April 10, 2024).

colored bat, and the candidate monarch butterfly may occur within the project boundary or be affected by the project. Effects on threatened and endangered species are discussed in Appendix D, *Biological Assessment* (BA). In the BA, staff conclude that relicensing the project as proposed with the staff-recommended measure of tree-cutting restrictions from April 15 through October 31, may affect, but is not likely to adversely affect the NLEB. Similarly, we conclude that relicensing the project with tree-cutting restrictions from April 15 through October 31 is not likely to jeopardize the continued existence of the tricolored bat. We also conclude that the project will have no effect on the Canada lynx and the monarch butterfly.

3.3.4 Recreation Resources

3.3.4.1 Affected Environment

The project is located within the Androscoggin Valley in the Great North Woods region of New Hampshire. This region is known for its open wilderness, hiking trails, mountain peaks, and scenic views. The White Mountain National Forest and the Presidential Range of the White Mountains are south and west of the project. State parks within the White Mountain National Forest include Mount Washington State Park, Crawford Notch State Park, and Franconia Notch State Park. Over 100 miles of the Appalachian Trail pass through the White Mountains (ATC, 2024).

The Presidential Rail Trail is a popular 18-mile hike between the town of Gorham and the northern border of the White Mountains; opportunities for horseback riding, biking, snowmobiling, cross-country skiing, and scenic and wildlife viewing are also available along the trail (NHDNCR, 2024a). Popular destinations within approximately 30 miles of the project include the New Hampshire towns of Littleton, Bethlehem, Jefferson, Lancaster, Conway, and Gorham, as well as Bethel, Maine. Several other state parks are located close to the project (Jericho Mountain State Park, Moose Brook State Park, Milan Hill State Park, Mt. Washington State Park, Umbagog Lake State Park, and the Nansen Wayside Park), which provide opportunities for camping, swimming, fishing, hiking, biking, picnicking, scenic viewing, boating, canoeing, kayaking, horseback riding, snowmobiling, and snowshoeing (NHDNCR 2024b, c, d).

Recreation Facilities and Use

The Appalachian Trail crosses the Androscoggin River at the North Road Bridge adjacent to and downstream of the Shelburne dam and powerhouse. Parking at the trailhead is provided by the Appalachian Mountain Club. There are no project recreation facilities within or adjacent to the project boundary; however, there are multiple informal access points to the Androscoggin River off Hogan Road upstream of the Shelburne Dam and on both the northern and southern shore directly downstream of the Shelburne dam. Leadmine State Forest borders much of the northern shore of the impoundment as well as a small portion of the southern shore downstream. These informal access areas are not project facilities and are not within the existing Shelburne project boundary.

On March 31, 2015, GLH filed a Form 80 recreation report for the 2014 season which reported the annual total number of recreation days as 290.[15] The Recreation Use and Facility Assessment Study Report filed April 12, 2023, includes the results of a comprehensive recreation use and assessment study at 14 public access sites along the Androscoggin River in the towns of Berlin, Gorham, and Shelburne, New Hampshire, between May 15 and September 15, 2022. Components of the study included a facility inventory, spot counts, user surveys, and consultation with agencies and stakeholders. The report included the following sites located close to the project boundary: the Shelburne informal access, the Hogan Road informal access, the Reflection Pond informal access, and the Meadow Road informal access. According to the study, no informative signage was reported in the inventory.

Shelburne Informal Access

The informal access area includes a river right and river left access that is unstaffed and open year-round. The informal access area on the river right, is located just before the bridge on North Road and provides access to the impoundment and the river below the dam. There is a gravel pull-off with parking for approximately three vehicles that provides access to a relatively steep, small cobble size riprap hand carry boat launch and informal angling area below the dam. The informal access area on river left is located just past the North Road bridge and the Shelburne dam and includes a gravel parking area with two entrances and space for two vehicles. A short path from the parking area through the woods leads to a bedrock outcrop and informal angling area below the dam. Recreation activities available at the informal access area include canoeing, kayaking, tubing, swimming, shoreline fishing, wade or fly fishing, picnicking and scenic and nature viewing.

According to the survey report,[16] crowdedness at the Shelburne informal access was rated as light. The site also receives little to no use in the winter to early spring. The most popular activity at the Shelburne informal access is bank fishing (67 percent of survey respondents) as well as hiking/walking, kayaking, fly/wade fishing, and photography. The condition of the site was rated as good or excellent[17] and respondents of the survey were overall satisfied with the sites and its features. Although the access area is owned by GLH, the access area is not actively maintained.

Hogan Road Informal Access

[15] Recreation days are defined as each visit by a person to a development (as defined above) for recreational purposes during any portion of a 24-hour period.

[16] 6 total surveys were completed at the Shelburne informal access area.

[17] The mean and median condition ratings were calculated based on ratings of poor=1, fair=2, satisfactory=3, good=4, and excellent=5. GLH defined a good rating as no visible signs of deterioration or damage, functional and safe for its intended purpose.

The road itself is owned by the Town of Shelburne and is classified as a Class 6 Town Road (meaning no public funds can be expended on this road by state law), therefore maintenance of the road is relatively uncommon. The informal access area is owned by both the State of New Hampshire's Shelburne State Forest (near the start of Hogan Road) and the Society for the Protection of New Hampshire Forests (SPNHF) (the remaining area to the Gorham-Shelburne Town Line). According to the recreation report, Hogan Road was in poor condition due to several large potholes. The road is used by ATVs, bikes, and to access the Appalachian Trail and Centennial Trail. Several informal parking areas are located along the road, and each provide parking for one to four vehicles and informal access to the Androscoggin River. The informal access area is not located within the Shelburne project boundary. According to the report, crowdedness at the site was rated as light.

Reflection Pond

The Reflection Pond is a public scenic viewing area located directly off Route 2 and provides views of the mountains and Androscoggin River. The site is not located within the Shelburne project boundary. The site consists of a gravel roadside pull-off with parking for approximately 6 vehicles and is in good condition. The site also provides opportunities for launching a hand carry boat from the bank, tubing, bank or wade/fly fishing, and picnicking. The site is unstaffed and open year-round.

Popular activities at Reflection Pond were scenic viewing (44 percent of respondents), photography (38 percent), and bank fishing (38 percent). Crowdedness at the site was rated as light. Most survey respondents were very satisfied with the site.

Meadow Road informal access

The informal access area is located off Meadow Road and is not located within the Shelburne project boundary. It includes a single paved entrance that leads to an approximately 55-foot by 50-foot gravel parking area with space for approximately 10 vehicles. The parking area is in good condition. A short 60-foot gravel/dirt path leads to a hand carry launch and informal angling area. The path contains some large rocks, roots, and ruts and there is a gentle slope to the water at the cobble/pebble launch area. The site is unstaffed and open year-round. Recreation activities available at this site include canoeing, kayaking, swimming, tubing, shoreline fishing, wade or fly fishing, picnicking, and scenic and nature viewing.

According to the report, kayaking was the major activity participated in at the Meadow Road informal access (75 percent of respondents) followed by hiking/walking, fishing (bank, boat, or fly/wade), canoeing, scenic viewing, and swimming. Crowdedness at the site was rated primarily as light and most survey respondents were satisfied with the site and its amenities.

3.3.4.2 Environmental Effects

GLH proposes to revise the 1995 Comprehensive Recreation Management Plan to include the following enhancements at the Shelburne informal access on the river right: (1) development of a gravel parking area for 4-5 vehicles off North Road, south of the dam, and next to the existing access gate; (2) development of a natural approximately 4-foot wide and

approximately 450-foot long walking path next to the existing fence between the parking area and the impoundment put-in/take-out; (3) installation of a wooden canoe rest at the halfway point between the take-out and the proposed parking area; and (4) improvements to the downstream put-in with gravel or wood crib steps, pending discussion and agreement with the State of New Hampshire.

The proposed parking and portage enhancements are not currently within the current project boundary. However, GLH owns the property where the proposed parking area and majority of the path and river access would be located; the portion of the trail between North Road and the river embankment below the dam where the put-in would be located is owned by the State of New Hampshire.

No one recommended any recreation measures in response to the Commission's ready for environmental analysis notice. However, in comments on the draft EA, the Town of Shelburne requests recreational signage be developed, installed, and maintained at the new portage parking area.

Staff Analysis

It is likely that the Shelburne informal access area was one of the least visited sites of those surveyed because of the relatively steep grading, limited parking, and difficult access to river entry points. GLH's proposed improvements would benefit recreationists by improving access and creating a safe and convenient portage around the Shelburne dam. To ensure that the improvements continue to provide these benefits, they must be regularly maintained. The Commission typically includes within its project boundaries those facilities that provide project-related recreation and for which the licensee is responsible to maintain. Because the enhancements to the Shelburne informal access area are significant and could increase use, the public would benefit from signage providing information on the recreation opportunities, as well as of rules governing the accessibility and use of recreational facilities.

The 1995 Comprehensive Recreation Plan has become dated in that it includes measures that are no longer required (i.e., monitoring via the FERC Form 80) and covers all of GLH's projects on the Androscoggin River in New Hampshire. While revising the 1995 Comprehensive Recreation Plan to include GLH's proposed enhancement measures would provide for a coordinated management of all of GLH's proposed recreation facilities, it could make administering the license difficult if the project was sold and the license transferred.

3.3.5 Cultural Resources

3.3.5.1 Affected Environment

Section 106 of the National Historic Preservation Act (NHPA) requires that the Commission take into account the effects of its actions on historic properties and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on the

undertaking.[18] Historic properties are those that are listed or eligible for listing in the National Register of Historic Places (National Register). The regulations implementing section 106 of the NHPA also require that the Commission seek concurrence with the State Historic Preservation Office (SHPO) on any finding involving effects or no effects on historic properties, and consult with interested Native-American Tribes that attach religious or cultural significance to historic properties that may be affected by an undertaking. In this EA, we also use the term "cultural resources" for properties that have not been determined eligible for listing in the National Register. Cultural resources represent things, structures, places, or archaeological sites that can be either prehistoric or historic in origin. In most cases, cultural resources less than 50 years old are not considered historic.

On September 18, 2019, the Commission designated GLH as the non-federal representative for carrying out day-to-day consultation regarding the licensing efforts, pursuant to section 106 of the NHPA. However, the Commission remains largely responsible for all findings and determinations regarding the effects of the project on any historic property.

Area of Potential Effects (APE)

Pursuant to section 106 of the NHPA, the Commission must take into account whether any historic property could be affected by the issuance of a license within a project's area of potential effects (APE). The APE is determined in consultation with the SHPO and is defined as the geographic area or areas within which an undertaking may directly or indirectly cause alternation in the character or use of historic properties, if any such properties exist. The APE for this project includes all lands within the current project boundary, which encompasses project structures, land necessary for project operations, and the impoundments to the normal water surface elevation. The New Hampshire SHPO concurred on the APE in a letter dated July 7, 2022.[19]

Previous Cultural Investigations

Archaeological assessments in the project area were conducted in 1987 and 1988. The 1987 Phase 0 archaeological survey area extended from the Shelburne dam west to a point at the end of the wetland islands in the river channel, approximately 1.5 miles east of the dam. The original dam and powerhouse were constructed in 1906 to supply electric power for streetcars operating between Berlin and Gorham. Only the Shelburne powerhouse was determined eligible

[18] An undertaking means "a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including those carried out by or on behalf of a Federal agency; those carried out with Federal financial assistance; and those requiring a Federal permit, license, or approval." 36 C.F.R. § 800.16(y). Here, the undertaking is the potential issuance of a new license for the Shelburne Project.

[19] A copy of the letter was filed with the Commission on October 11, 2022.

for National Register listing for its architecturally significant structure.[20] No interpretive signage was recorded at the project for the dam and powerhouse.

There are no known archeological resources within the project boundary.

There are no Native American lands, known Native American TCPs or religious properties, or NRHP-eligible or -listed sites associated with Native American Nations within the project boundary.[21]

3.2.5.2 Environmental Effects

GLH does not propose any new construction, ground disturbing activities, or changes to project operation or maintenance, except for the improvements to the Shelburne informal access area on the river right, which would include a gravel parking area for 4-5 vehicles off North Road. GLH proposes to develop and implement an HPMP, in consultation with the New Hampshire SHPO, for the continued protection of the Shelburne powerhouse and any newly discovered cultural resources.[22] GLH proposes to halt construction or development of project facilities if any previously unrecorded archeological sites are discovered and consult with the New Hampshire SHPO to determine the significance of the sites and to develop a mitigation plan.

No entity filed comments or recommendations regarding the effects of the project on cultural resources. However, in comments on the draft EA, the town of Shelburne recommended that interpretive sign regarding the history of the Shelburne powerhouse be developed, installed, and maintained at the new portage parking area.

Staff Analysis

Continued operation of the Shelburne Project would ensure that the project continues its historical function of generating electricity, which would be considered a beneficial effect.

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[20] In a comment letter filed with the Commission on June 4, 2024, the New Hampshire SHPO states that an updated inventory form (2022) available on their online database states that the following features are now considered contributing to the historic district: 1906/1929 powerhouse; Dam #217.01, ca. 1925/1964/1990; Bridge 075/113, 1920/1959; Bridge 075/110, 1973; setting/landscape features including historic walls, impoundment, reflection pond, ledge etc.; 1906 railroad causeway resulting from plant/dam construction; and remnants of historic power line along causeway. According to the SHPO, the property is eligible for listing in the National Register of Historic Places under Criterion A and C.

[21] Commission staff did not identify Tribes with potential interest in the project.

[22] GLH proposes to develop one HPMP that covers GLH projects to include Upper Gorham (P-2311-067), Cross Power (P-2326-054), Cascade (P-2327-047), Sawmill (P-2422-058), Shelburne (P-2300-052), and Riverside (P-2423-031) Hydroelectric Projects.

However, operating and maintaining the project throughout the term of any license could result in unanticipated adverse effects to the Shelburne powerhouse, including repairs and modifications that, while necessary for the continued safe and efficient operation, are not in keeping with the project's historic character. Because of the historical character of the project, the public would benefit from interpretive signage that provides information on the project's history.

GLH's proposed access improvements has the potential to cause ground disturbance. However, there are no known archeological resources in this area, and it is unlikely to contain any such resources because previous cultural investigations have yet to identify any archaeological resources or the potential for resources to occur in the area.[23] The improvements would not result in any direct or indirect effects on the powerhouse or significantly alter the historic setting or cause changes in the character of the powerhouse.

GLH's proposed HPMP would contain measures to avoid, lessen, or mitigate for any adverse effects to historic properties during the term of any license, if issued. Developing and implementing a HPMP in consultation with the New Hampshire SHPO, would ensure that measures are in place to protect historic properties in the APE from adverse effects related to the proposed recreation facilities and project operation and maintenance. A HPMP would also ensure that any previously undiscovered archaeological resources within the APE are not adversely affected by the project during the term of any new license.

To meet the requirements of section 106 of the NHPA, the Commission intends to execute a Programmatic Agreement with the New Hampshire SHPO for the Shelburne Project to protect historic properties. The terms of the Programmatic Agreement would require GLH to develop and implement a HPMP to ensure that the proposed project does not adversely affect historic properties in the APE.

3.3.6 Environmental Justice

In conducting NEPA review of proposed hydropower projects, the Commission follows Executive Orders 12898 and 14096, which direct federal agencies to identify, analyze, and address "disproportionate and adverse human health or environmental effects" of their actions on environmental justice communities.[24] Executive Order 14008 also directs agencies to develop

[23] Although no archeological resources were identified, Bolian's Phase 0 archeological survey (1987) identified four areas on the north side of the river with prehistoric potential and two areas on the south side of the river with prehistoric potential. It is staff's understanding that neither of the areas on the south side of the river are in the immediate vicinity of where the recreation enhancements are proposed. Bolin (1987) concluded that all of the remaining sites with archaeological potential were not likely to be affected by operation of the hydropower facilities.

[24] Exec. Order No. 12,898, 59 Fed. Reg. 7629 (Feb. 11, 1994); Exec. Order No. 14,096, 88 Fed. Reg. 25251 (April 21, 2023).

"programs, policies, and activities to address the disproportionate and adverse "human health, environmental, climate-related and other cumulative impacts on disadvantaged communities, as well as the accompanying economic challenges of such impacts."[25] Environmental justice is "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies."[26] The term "environmental justice community" includes disadvantaged communities that have been historically marginalized and overburdened by pollution.[27]

Commission staff used *Promising Practices for EJ Methodologies in NEPA Reviews* (*Promising Practices*) [28] which provides methodologies for conducting environmental justice analyses throughout the NEPA process for this project. Additionally, consistent with EPA recommendations, Commission staff used EPA's Environmental Justice Screening and Mapping Tool (EJScreen) as an initial screening tool to better understand locations that require further review or additional information regarding minority and/or low-income populations; potential environmental quality issues; environmental and demographic indicators; and other important factors.[29]

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[25] Exec. Order No. 14,008, 86 Fed. Reg. 7619, 7629 (Jan. 27, 2021).

[26] *See* EPA, EJ 2020 Glossary (Feb. 2024) https://www.epa.gov/system/files/documents/2024-02/ej-2020-glossary.pdf.. Fair treatment means that no group of people should bear a disproportionate share of the negative environmental consequences resulting from industrial, governmental, and commercial operations or policies. *Id.* Meaningful involvement of potentially affected environmental justice community residents means: (1) people have an appropriate opportunity to participate in decisions about a proposed activity that may affect their environment and/or health; (2) the public's contributions can influence the regulatory agency's decision; (3) community concerns will be considered in the decision-making process; and (4) decision makers will seek out and facilitate the involvement of those potentially affected. *Id.*

[27] Environmental justice communities include, but may not be limited to minority populations, low-income populations, or indigenous peoples. *See* EPA, EJ 2020 Glossary (Feb. 2024), https://www.epa.gov/system/files/documents/2024-02/ej-2020-glossary.pdf.

[28] Federal Interagency Working Group on Environmental Justice & NEPA Committee, *Promising Practices for EJ Methodologies in NEPA Reviews* (Mar. 2016) (*Promising Practices*), https://www.epa.gov/sites/default/-files /2016-08/documents/nepa_promising_practices_document_2016.pdf.

[29] EPA, *Purposes and Uses of EJScreen* (Jan. 9, 2024), https://www.epa.gov/ejscreen/purposes-and-uses-ejscreen ("Screening tools should be used for a 'screening-level' look. Screening is a useful first step in understanding or highlighting locations that may be candidates for further review.").

Consistent with *Promising Practices*, and Executive Orders 12898 and 14096, we reviewed the project to determine if its resulting impacts would be disproportionate and adverse on minority and low-income populations and also whether impacts would be significant.[30] *Promising Practices* provides that agencies can consider any of a number of conditions in this determination and the presence of any of these factors could indicate a potential disproportionate and adverse impact.[31] For this project, a disproportionate and adverse effect on an environmental justice community means the adverse effect is predominantly borne by such population. Relevant considerations include the location of project facilities and the project's human health and environmental impacts on identified environmental justice communities, including direct, indirect, and cumulative impacts.

3.3.6.1 Meaningful Engagement and Public Involvement

In addition to the information provided above, the Council on Environmental Quality's (CEQ) Environmental Justice Guidance Under the National Environmental Policy Act (CEQ, 1997) and *Promising Practices,* recommend that federal agencies provide opportunities for effective community participation in the NEPA decision-making process by, identifying potential effects and mitigation measures in consultation with affected communities; improving accessibility of public meetings, crucial documents, and notices; and using adaptive approaches to overcome potential barriers to effective participation. In addition, Executive Orders 13985 and14096, strongly encourage independent agencies to "consult with members of communities that have been historically underrepresented in the Federal Government and underserved by, or subject to discrimination in, Federal policies and programs, [32] and "provide opportunities for the meaningful engagement of persons and communities with environmental justice concerns who are potentially affected by Federal activities." [33]

The opportunities for public involvement during the Commission's review process are described in section 1.4, *Public Review and Comment*.

All documents that form the administrative record for this proceeding, with the exclusion of privileged or critical energy infrastructure information, are available to the public electronically on FERC's website (https://elibrary.ferc.gov/eLibrary/search). We recognize that

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[30] An agency may determine that impacts are disproportionate and adverse, but not significant within the meaning of NEPA and in other circumstances an agency may determine that an impact is *both* disproportionate and adverse and significant within the meaning of NEPA. *See Promising Practices* at 33.

[31] There are various approaches for determining whether an impact will cause a disproportionate and adverse impact, and one recommended approach is to consider whether an impact would be "predominantly borne by minority populations or low-income populations." *See id.* at 44-46.

[32] Exec. Order No. 13985, 86 Fed. Reg. 7009, 7011 (Jan. 20. 2021).

[33] Exec. Order No. 14,096, 88, Fed. Reg. 252514 (Apr. 21, 2023).

not everyone has internet access or is able to file electronic comments. Anyone may comment to FERC about the proceeding, either in writing or electronically. [34] All substantive environmental comments received prior to issuance of this EA have been addressed within this document. No entity provided comments or recommendations regarding the effects of the project on environmental justice communities in response to the Commission's notice that the application was ready for environmental analysis.

3.3.6.2 Identification of Environmental Justice Communities

According to CEQ's *Environmental Justice Guidance* and *Promising Practices*, minority populations are those groups that include: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic. Following the recommendations set forth in *Promising Practices*, FERC uses the **50 percent** and the **meaningfully greater analysis** methods to identify minority populations. Using this methodology, minority populations are defined in this EA where either: (a) the aggregate minority population of the block groups in the affected area exceeds 50 percent; or (b) the aggregate minority population in the block group affected is 10 percent higher than the aggregate minority population percentage in the county. The guidance also directs low-income populations to be identified based on the annual statistical poverty thresholds from the U.S. Census Bureau. Using *Promising Practices'* **low-income threshold criteria** method, low-income populations are identified as block groups where the percent low-income population in the identified block group is equal to or greater than that of the county. Here, Commission staff selected Coos County, New Hampshire, in which the project action is located, as the comparable reference community to ensure that affected environmental justice communities are properly identified. A reference community may vary according to the characteristics of the particular project and the surrounding communities.

Table 6 identifies the minority populations (by race and ethnicity) and low-income populations within New Hampshire, the county affected by the relicense application (Coos County, New Hampshire), and U.S. census block groups[35] within the vicinity of the project site. For this project, staff chose a 1-mile radius around the project boundary (figure 2). Staff determined that a 1-mile radius is sufficient to encompass and address any potential impacts that may arise from the proposed action given the limited scope of the proposed relicensing, including the concentration of project-related effects within the project boundary. To ensure we

[34] The Office of Public Participation (OPP) provides members of the public, including environmental justice communities, landowners, Tribal citizens, and consumer advocates, with assistance in FERC proceedings—including navigating Commission processes and activities relating to the Project. For assistance with interventions, comments, requests for rehearing, or other filings, and for information about any applicable deadlines for such filings, members of the public are encouraged to contact OPP directly at 202-502-6595 or OPP@ferc.gov for further information.

[35] Census block groups are statistical divisions of census tracts that generally contain between 600 and 3,000 people. U.S. Census Bureau. 2023. Glossary: Block Group. Available online at: https://www.census.gov/programs-surveys/geography/about/glossary.html#par_textimage_4. Accessed February 2023.

are using the most recent available data, we used U.S. Census American Community Survey as the source for race and ethnicity data and poverty data at the census block group level.[36]

Within the study area, staff identified one census block group in which the populations qualify as environmental justice community that met the threshold for both the low-income and minority population criteria.

3.3.6.3 Environmental Effects

The actions and PM&E measures proposed by GLH are described in section 2.2, *Applicant's Proposal*, and staff's recommended alternative is described in section 2.3, *Staff Alternative*.

No entity provided comments or recommendations regarding the effects of the project on environmental justice communities in response to the Commission's notice that the application was ready for environmental analysis.

Staff Analysis

Staff evaluated the effects of continued project operation on aquatic resources, terrestrial resources, threatened and endangered species, recreation, and cultural resources in sections 3.3.1 through 3.3.5 above. GLH proposes no changes to project operations that would adversely affect environmental resources, including water supply, water quality, recreation, or fisheries. As discussed in section 3.3.1.2, *Aquatic Resources, Environmental Effects*, operating the project in a run-of-river mode would continue to maintain stable impoundment levels and minimize effects on environmental resources and land along the shoreline of the impoundment and downstream of the project.

The nearest residence in the one identified environmental justice is approximately 3 miles from where construction for the recreation improvements would occur near Shelburne dam and therefore would not be impacted by construction activities related to the recreation enhancements described in section 3.3.4.2, *Recreation Resources, Environmental Effects*. Continued project operation would not result in substantive changes in the visual setting of the project area where the environmental justice community resides. Based on the foregoing analysis, impacts associated with construction related to the recreation enhancements would be temporary and less than significant.

Therefore, we conclude that re-licensing the Shelburne Project would not adversely affect residents of the identified environmental justice community. In consideration of the limited scope of the proposed project, and the staff-recommended environmental protection and

[36] U.S. Census Bureau, American Community Survey 2022 ACS 5-Year Estimates Detailed Tables, File# B17017, *Poverty Status in the Past 12 Months by Household Type by Age of Householder*, https://data.census.gov/cedsci/table?q=B17017; File #B03002 *Hispanic or Latino Origin By Race*, https://data.census.gov/cedsci/table?q=b03002.

enhancement measures, the project would not result in a disproportionate and adverse impact on the environmental justice community present within the project area.

4.0 DEVELOPMENTAL ANALYSIS

In this section, we look at the project's use of the Androscoggin River for hydropower generation to see what effect various proposed or recommended environmental measures would have on the cost to operate and maintain the project and on the project's power generation. Under the Commission's approach to evaluating the economics of hydropower projects, as articulated in *Mead Corporation*.,[37] the Commission compares the current cost to produce project power to an estimate of the cost to provide the same amount of energy and capacity[38] for the region using the most likely alternative source of power (cost of alternative power). In keeping with the policy described in *Mead Corporation.*, our economic analysis is based on current electric power cost conditions and does not anticipate or estimate changes in fuel costs that could occur during a project's license term.

For each of the licensing alternatives, our analysis includes an estimate of: (1) the annualized cost of providing the individual measures considered in the EA; (2) the cost of the most likely alternative source of project power; (3) the total annual project cost (i.e., for construction, operation, maintenance, and environmental measures); and (4) the difference between the cost of the current alternative source of project power and the total annual project cost. Power and developmental costs for the Shelburne Project can be found in Table 8. A comparison of alternatives can be found in Appendix E.

If the difference between the cost to produce an equivalent amount of power from an alternative source and the total annual project cost is positive, the project produces power at a cost less than the cost of producing power from the most likely least-cost source of alternative power. If the difference between the alternative source of power's annual cost and the total annual project cost is negative, the project costs more to produce power than the cost to produce an equivalent amount of power from the most likely least-cost source of alternative power. This estimate helps support an informed decision concerning what is in the public interest with respect to a proposed license. However, project economics is only one of many public interest factors the Commission considers in determining whether, and under what conditions, to issue a license.

[37] *See Mead Corp.*, 72 FERC ¶ 61,027 (1995). In most cases, electricity from hydropower would displace some form of fossil-fueled generation, in which fuel cost is the largest component of the cost of electricity production.

[38] We use the term "capacity benefit" to describe the benefit a project receives for providing capacity to the grid, which may be in the form of a dependable capacity credit or credit for monthly capacity provided.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 COMPREHENSIVE DEVELOPMENT AND RECOMMENDED ALTERNATIVE

Sections 4(e) and 10(a)(1) of the FPA require the Commission to give equal consideration to the 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. This section contains the basis for, and a summary of, our recommendations for licensing the Shelburne Project. We weigh the costs and benefits of our recommended alternative against other proposed measures.

Based on our independent review of agency and public comments filed on this project and our evaluation of the environmental and economic effects of the proposed action and its alternatives, we selected the staff alternative as the preferred alternative for the Shelburne Project. We recommend this alternative because: (1) issuing a new license for the project would allow GLH to operate the project as a beneficial and dependable source of electric energy; (2) generation from the Shelburne Project, with an installed electric capacity of 3.72-MW, comes from a renewable resource that does not contribute to atmospheric pollution; (3) the public benefits of this alternative would exceed those of the no-action alternative; and (4) the recommended measures would protect and enhance aquatic and cultural resources and threatened and endangered species at the project.

Below, we make recommendations as to which environmental measures proposed by GLH, or recommended by agencies or other entities, should be included in any license issued for the project. In addition to GLH's proposed environmental measures listed below, we recommend additional environmental measures be included in any new license issued for the project.

5.1.1 Measures Proposed by GLH

Based on our environmental analysis of GLH's proposal, as discussed in section 3.0, *Environmental Analysis*, and the costs presented in section 4.0, *Developmental Analysis*, we conclude the following operation and environmental measures proposed by GLH would protect and enhance environmental resources and would be worth the cost. Therefore, we recommend including the following measures in any new license issued for the Shelburne Project:

- Continue to operate the project as a run-of-river facility by maintaining the impoundment at the normal full pond level of 734.2 feet such that at any given point in time, all outflow from the project approximates all inflow to the project.
- Continue to provide a minimum flow of 2 cfs or inflow, whichever is less, to the project's bypassed reach as measured immediately below the dam.
- Develop and implement an Operations Compliance Monitoring Plan to ensure compliance with any new license issued for the project.

- Develop and implement a Historic Properties Management Plan (HPMP) for continued protection of historic properties, in consultation with the New Hampshire State Historic Preservation Officer.

5.1.2 Additional Measures Recommended by Staff

In addition to GLH's proposed measures noted above, we recommend including the following additions or modifications:

- Develop a project-specific Recreation Management Plan that includes GLH's proposed measures to (1) develop a gravel parking area for 4-5 vehicles off North Road, south of the dam, and next to the existing Brookfield access gate; (2) develop a natural approximately 4-foot wide and approximately 450-foot long walking path next to the existing fence between the parking area and the impoundment put-in/take-out; (3) install a wooden canoe rest at the halfway point between the take-out and the proposed parking area; and (4) improve the downstream put-in with gravel or wood crib steps, and revise the project boundary to include the Shelburne informal access area, river right as a project recreation facility, as well as a plan and schedule, developed in consultation with the Town of Shelburne, for installing and maintaining recreational signage near the proposed parking and portage area, and revise the project boundary to include the Shelburne access area as a project recreation facility. .
- Avoid removing and trimming of trees ≥ 3 inches from April 15 through October 31 to protect the northern long-eared bat and tri-colored bat, unless the trees represent a public safety hazard.
- Include in the HPMP, a plan and schedule, developed in consultation with the Town of Shelburne, to install, and maintain interpretive signage regarding the Shelburne dam and powerhouse.

In Appendix F, we discuss the basis for recommending the additions or modifications to GLH's proposal.

5.2 UNAVOIDABLE ADVERSE EFFECTS

Continued project operation would continue to impede passage of some fish species and result in some unavoidable injury or mortality to fish species. Impoundment fluctuations associated with project operation could affect near-shore aquatic habitat; however, GLH's proposal to continue to operate in a run-of-river mode with limited impoundment fluctuations would result in infrequent and minimal disturbances to aquatic and riparian habitat.

5.3 CONSISTENCY WITH COMPREHENSIVE PLANS

Section 10(a)(2)(A) of the FPA, 16 U.S.C. § 803(a)(2)(A), 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. We reviewed 6 comprehensive plans that are applicable to the Shelburne Project, located in New Hampshire which can be found in Appendix H. No inconsistencies were found.

6.0 FINDING OF NO SIGNIFICANT IMPACT

If the Shelburne Project is relicensed with our recommended measures, the project would operate while providing enhancements and protective measures for aquatic, recreational, and cultural resources in the project area.

Based on our independent analysis, issuance of a new license for the Shelburne Project with additional staff-recommended measures, would not constitute a major federal action significantly affecting the quality of the human environment.

7.0 LITERATURE CITED

The literature cited is in Appendix I.

8.0 LIST OF PREPARERS

The list of preparers of this EA is in Appendix J.

APPENDIX A- STATUTORY AND REGULATORY REQUIREMENTS

Federal Power Act

Section 18 Fishway Prescription

Section 18 of the FPA, 16 U.S.C. § 811, states that the Commission is to require construction, operation, and maintenance by a licensee of such fishways as may be prescribed by the Secretaries of the U.S. Department of Commerce (Commerce) or the U.S. Department of the Interior (Interior). Interior, by letter filed with the Commission on September 11, 2023, requests that a reservation of authority to prescribe fishways under section 18 be included in any license issued for the project.

Section 10(j) Recommendations

Under section 10(j) of the FPA, 16 U.S.C. § 803(j), each hydroelectric license issued by the Commission must include conditions based on recommendations provided by federal and state fish and wildlife agencies for the protection, mitigation, or enhancement of fish and wildlife resources affected by the project. The Commission is required to include these conditions unless it determines that they are inconsistent with the purposes and requirements of the FPA or other applicable law. Before rejecting or modifying an agency recommendation, the Commission is required to attempt to resolve any such inconsistency with the agency, giving due weight to the recommendations, expertise, and statutory responsibilities of such agency. No agencies filed 10(j) recommendations for the Shelburne Project.

Clean Water Act

Under section 401(a)(1) of the Clean Water Act, 33 U.S.C. § 1341(a)(1), a license applicant must obtain either a water quality certification (certification) from the appropriate state pollution control agency verifying that any discharge from a project would comply with applicable provisions of the Clean Water Act, or a waiver of the certification by the appropriate state agency. The failure to act on a request for certification within a reasonable period of time, not to exceed one year, after receipt of the request constitutes a waiver.

On September 22, 2023, GLH applied to the New Hampshire Department of Environmental Services (New Hampshire DES) for certification for the Shelburne Project. New Hampshire DES received the application on the same day.[39] New Hampshire DES filed its water quality certification on September 19, 2024.

Endangered Species Act

Section 7 of the Endangered Species Act (ESA), 16 U.S.C. § 1536, requires federal agencies to ensure that their actions are not likely to jeopardize the continued existence of any

[39] GLH filed a copy of the receipt of delivery of the application to New Hampshire DES on September 22, 2023.

endangered or threatened species or result in the destruction or adverse modification of the critical habitat of such species. According to the IPaC database, the federally endangered northern long-eared bat (NLEB; *Myotis septentrionalis*), the federally threatened Canada lynx (*Lynx canadensis*), the proposed endangered tri-colored bat (*Perimyotis subflavus*) and the candidate species monarch butterfly (*Danaus plexippus*) could occur in vicinity of the project.

Our analysis of project impacts on the NLEB, tri-colored bat, Canada lynx, and monarch butterfly is presented in Appendix D, *Biological Assessment*. Avoiding the removal of trees from April 15 through October 31 would reduce the likelihood of harassing or harming NLEB and their newly born pups. We conclude that licensing the project under the staff alternative, would have no effect on the Canada lynx or the monarch butterfly, and that relicensing the project with tree-cutting restrictions from April 15 through October 31 may affect, but is not likely to adversely affect the NLEB and is not likely to jeopardize the continued existence of the tricolored bat. No further action is required under the ESA after making a determination of no effect or not likely to jeopardize. We requested concurrence from FWS with our determination of not likely to adversely affect NLEB in a letter issued May 10, 2024. On October 1, 2024, FWS filed a letter with the Commission concurring with our determination.

Coastal Zone Management Act

Under section 307(c)(3)(A) of the Coastal Zone Management Act (CZMA), 16 U.S.C. §1456(3)(A), the Commission cannot issue a license for a project within or affecting a state's coastal zone unless the state's coastal zone management 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.

On January 18, 2022, GLH requested confirmation from the New Hampshire Coastal Program (NHCP) that the Shelburne Project is not included within the jurisdiction of the NHCP. NHCP confirmed that the project is outside the New Hampshire coastal zone and the relicensing of the Shelburne Project is not subject to CZMA Federal consistency review by the New Hampshire Coastal Program.[40]

National Historic Preservation Act

Section 106 of the National Historic Preservation Act (NHPA), 54 U.S.C. § 306108, requires that a federal agency "take into account" how its undertakings could affect historic properties. Historic properties are districts, sites, buildings, structures, traditional cultural properties, and objects significant in American history, architecture, engineering, and culture that are eligible for inclusion in the National Register of Historic Places (National Register).

Commission staff designated GLH as its non-federal representative for the purposes of conducting section 106 consultation under the NHPA on September 18, 2019. Pursuant to section 106, and as the Commission's designated non-federal representative, GLH initiated

[40] NHCP's confirmation email is included in Appendix A of Exhibit E of the FLA.

consultation with the New Hampshire State Historic Preservation Office (SHPO) to assess potential adverse effects on historic properties within the project's area of potential effects (APE). The Shelburne Project APE includes lands enclosed within the current project boundary. The New Hampshire SHPO concurred on the APE in a letter dated July 7, 2022.[41]

There are no known archeological resources within the project boundary. The project powerhouse is the only historic property that exists at the Shelburne Project.[42]

To meet the requirements of section 106, the Commission intends to execute a Programmatic Agreement (PA) with the New Hampshire SHPO for the protection of historic properties from the effects of operating the Shelburne Project. There are no plans for modifying project facilities or operations that could affect the project powerhouse. The terms of the PA would require GLH to address and treat all historic properties identified within the project's APE by implementing a Historic Properties Management Plan (HPMP). A draft PA was issued for review and comment on May 20, 2024. On June 4, 2024, the New Hampshire SHPO filed a letter to the record stating they reviewed the draft PA and did not have any comments. To date, no other comments have been filed on the draft PA. A final PA will be issued following the issuance of the final EA.

[41] A copy of the letter was filed with the Commission on October 11, 2022.

[42] In a comment letter filed with the Commission on June 4, 2024, the New Hampshire SHPO states that an updated inventory form (2022) available on their online database states that the following features are now considered contributing to the historic district: 1906/1929 powerhouse; Dam #217.01, ca. 1925/1964/1990; Bridge 075/113, 1920/1959; Bridge 075/110, 1973; setting/landscape features including historic walls, impoundment, reflection pond, ledge etc.; 1906 railroad causeway resulting from plant/dam construction; and remnants of historic power line along causeway. According to the SHPO, the property is eligible for listing in the National Register of Historic Places under Criterion A and C.

APPENDIX B- ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS

Issuing a Non-power License

A non-power license is a temporary license that the Commission would terminate when it determines that another governmental agency will assume regulatory authority and supervision over the lands and facilities covered by the non-power license. At this time, no agency has suggested a willingness or ability to take over the project. No party has sought a non-power license, and we have no basis for concluding that the Shelburne Project should no longer be used to produce power.

Federal Government Takeover

Federal takeover and operation of the Shelburne Project would require congressional approval. While that fact alone would not preclude further consideration of this alternative, there is currently no evidence to indicate that federal takeover should be recommended to Congress. No party has suggested that federal takeover would be appropriate, and no federal agency has expressed interest in operating the project.

Project Retirement

As the Commission has previously held, decommissioning is not a reasonable alternative to relicensing in most cases.[43] Decommissioning can be accomplished in different ways depending on the project, its environment, and the particular resource needs.[44] For these reasons, the Commission does not speculate about possible decommissioning measures at the time of relicensing, but rather waits until an applicant actually proposes to decommission a project, or a participant in a relicensing proceeding demonstrates that there are serious resource concerns that cannot be addressed with appropriate license measures and that make decommissioning a reasonable alternative.[45]

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[43] *See, e.g., Eagle Crest Energy Co*., 153 FERC ¶ 61,058, at P 67 (2015); *Public Utility District No. 1 of Pend Oreille County*, 112 FERC ¶ 61,055, at P 82 (2005); *Midwest Hydro, Inc*., 111 FERC ¶ 61,327, at PP 35-38 (2005).

[44] In the event that the Commission denies relicensing a project or a licensee decides to surrender an existing project, the Commission must approve a surrender "upon such conditions with respect to the disposition of such works as may be determined by the Commission." 18 C.F.R. § 6.2. This can include simply shutting down the power operations, removing all or parts of the project (including the dam), or restoring the site to its pre-project condition.

[45] *See generally Project Decommissioning at Relicensing*; Policy Statement, FERC Stats. & Regs., Regulations Preambles (1991-1996), ¶ 31,011 (1994); *see also City of Tacoma, Washington,* 110 FERC ¶ 61,140 (2005) (finding that unless and until the Commission has a

GLH does not propose decommissioning, nor does the record to date demonstrate there are serious resource concerns that cannot be mitigated if the project is relicensed; as such, there is no reason, at this time, to include decommissioning as a reasonable alternative to be evaluated and studied as part of staff's NEPA analysis.

specific decommissioning proposal, any further environmental analysis of the effects of project decommissioning would be both premature and speculative).

APPENDIX C- FIGURES AND TABLES

Table 1. Monthly minimum, maximum, and average flow, USGS Gage # 01054000 Androscoggin River near Gorham, New Hampshire (January 1, 1991, to December 31, 2020). (source: application).

Month	Minimum (cfs)	Maximum (cfs)	Average (cfs)
January	1,250	6,300	2,641
February	1,270	6,950	2,769
March	1,260	14,200	3,064
April	1,270	19,900	4,751
May	1,380	16,200	4,118
June	1,140	12,800	2,862
July	944	10,300	2,309
August	1,090	10,000	1,957
September	780	9,730	1,840
October	1,020	15,000	2,290
November	1,140	10,000	2,552
December	1,160	9,790	2,528
Annual	**780**	**19,900**	**2,805**

Table 2. Water Quality Criteria for Class B Waters in New Hampshire (source: application).

Parameter	Criteria
Dissolved Oxygen (DO)	Instantaneous minimum concentration of 5 mg/L At least 75% saturation (daily average)[1]
Nutrients	Shall contain no phosphorus or nitrogen in such concentrations that would impair any existing or designated uses, unless naturally occurring
Total Phosphorous	For the protection of aquatic life: < 8 µg/L in oligotrophic waters ≤ 12 µg/L in mesotrophic waters ≤ 28 µg/L in eutrophic waters (median based on a least 5 independent samples collected between May 24 and September 15)
Chlorophyll-a	≤ 15 µg/L for protection of recreational uses in freshwater. For the protection of aquatic life: < 3 µg/L in oligotrophic waters ≤ 5 µg/L in mesotrophic waters ≤ 11 µg/L in eutrophic waters (median based on a least 5 independent samples collected between May 24 and September 15).
pH	6.5 to 8

Temperature	Any stream temperature increase associated with the discharge of treated sewage, waste or cooling water, water diversions, or releases shall not be such as to appreciably interfere with the uses assigned to this class

[1] Unless naturally occurring or subject to (a), above, surface waters within the top 25 percent of depth of thermally unstratified lakes, ponds, impoundments, and reservoirs or within the epilimnion shall contain a dissolved oxygen content of at least 75 percent saturation, based on a daily average and an instantaneous minimum dissolved oxygen content of at least 5 mg/l. Unless naturally occurring, the dissolved oxygen content below those depths shall be consistent with that necessary to maintain and protect existing and designated uses.

Table 3. DO (mg/L and percent saturation), daily average DO percent saturation, water temperature, and pH statistics at the Shelburne Project (source: application).

	Site 27 Shelburne Above Impoundment				
	DO (mg/L)	DO % saturation	Daily average DO % saturation	Water temperature (°C)	pH
Avg	8.6	99.3	99.2	21.5	6.9
Min	7.6	90.9	95.7	12.8	5.0
Max	10.3	105.7	103.6	25.6	7.2
	Site 28 Shelburne Impoundment				
	DO (mg/L)	DO % saturation	Daily average DO % saturation	Water temperature (°C)	pH
Avg	8.6	98.9	98.9	21.0	6.8
Min	7.4	88.9	95.3	12.6	6.3
Max	10.4	110.6	102.5	25.6	7.1
	Site 29 Shelburne Bypassed Reach				
	DO (mg/L)	DO % saturation	Daily average DO % saturation	Water temperature (°C)	pH
Avg	8.7	100.2	100.2	21.3	7.1
Min	7.4	90.4	95.9	13.2	6.7
Max	10.5	111.1	107.9	25.7	7.4
	Site 30 Shelburne Tailrace				
	DO (mg/L)	DO % saturation	Daily average DO % saturation	Water temperature (°C)	pH
Avg	8.6	99.1	99.1	21.0	6.7
Min	7.4	88.6	95.7	12.9	6.3
Max	10.3	107.0	103.5	25.4	7.0

	Site 31 Shelburne Downstream Confluence				
	DO (mg/L)	DO % saturation	Daily average DO % saturation	Water temperature (°C)	pH
Avg	8.5	97.8	97.9	21.0	6.8
Min	7.4	88.9	93.3	12.5	6.2
Max	10.2	108.1	102.6	25.6	7.0

Table 4. Fisheries Assemblage Documented Within and Near the Shelburne Project 2003 (source: application)

Species	Sawmill Impoundment	Cross Power Impoundment	Cascade Impoundment	Downstream of Cascade Dam	Gorham Impoundment	Gorham Bypassed Reach	Downstream of Gorham Dam	Shelburne Impoundment	Total by Species	Relative Percent
Fallfish	22	16	8	200	314	149	279	44	1,032	30.54
Smallmouth bass	65	132	189	125	160	32	91	95	889	26.31
White sucker			4	89	102	214	88	7	504	14.92
Longnose dace				124		203	36		363	10.74
Common shiner	1		1	3	183	1	12	14	215	6.36
Spottail shiner					61	1	3	78	143	4.23
Yellow perch		3		4	1		38	23	69	2.04
Largemouth bass	12	11	14	4	3				44	1.30
Rainbow trout	1			1		21	11		34	1.01
Lake chub						22	2		24	0.71
Golden shiner	3				2			14	19	0.56
Brown bullhead					2			10	12	0.36
Rock bass	3	1	1		6				11	0.33
Blacknose dace						6	1		7	0.21
Brown trout	2		1	1			1		5	0.15
Longnose sucker				1		2	1		4	0.12
Creek chub				1		2			3	0.09
Landlocked salmon				1					1	0.03
Total catch	**109**	**163**	**218**	**554**	**834**	**653**	**563**	**285**	**3,379**	**100**
No. of Species	**8**	**5**	**7**	**12**	**10**	**11**	**12**	**8**	**18**	

Table 5. Cost of environmental measures considered in assessing the environmental effects of operating the Shelburne Project (Source: GLH and staff).

Enhancement / Mitigation Measure	Entity	Capital Cost[a] (2024$)	Annual Cost[a] (2024$)	Levelized Annual Cost[b] (2024$)
Aquatic Resources				
1. Continue to operate the project as a run-of-river facility.	GLH Staff	$0	$0[c]	$0
2. Continue to provide minimum flows of 2 cfs or inflow, whichever is less, to the bypassed reach of the Shelburne Project.	GLH Staff	$0	$0[d]	$0
3. Develop and implement an updated Operations Compliance Plan.	GLH Staff	$5,000[c]	$2,500[c]	$2,944
Threatened and Endangered Species				
4. Avoid tree-trimming and the removal of trees with diameters that are equal to or greater than 3 inches at breast height within the project boundary between April 15 and October 31 to protect northern long-eared and tricolored bats.	Staff	$0	$0	$0
Recreation Resources				

Enhancement / Mitigation Measure	Entity	Capital Cost[a] (2024$)	Annual Cost[a] (2024$)	Levelized Annual Cost[b] (2024$)
5a. Revise the 1995 Comprehensive Recreation Management Plan within one year of license issuance to include the following measures: (1) improve the existing Shelburne informal access area that includes a gravel parking area for 4-5 vehicles off North Road, south of the dam; (2) develop a natural approximately 4-foot wide and approximately 450-foot long walking path next to the existing fence between the parking area and the impoundment put-in/take-out; (3) install a wooden canoe rest at the halfway point between the take-out and the proposed parking area; and (4) improve to the downstream put-in with gravel or wood crib steps.	GLH	$66,492	$2,045	$7,951
5b. Develop a project specific recreation plan that includes the provisions in 5a and implementation schedule.	Staff	$66,492	$2,045	$7,951[e]

Enhancement / Mitigation Measure	Entity	Capital Cost[a] (2024$)	Annual Cost[a] (2024$)	Levelized Annual Cost[b] (2024$)
5c. Include in the recreation management plan, a plan and schedule, developed in consultation with the Town of Shelburne, for installing, and maintaining recreational signage near the proposed parking and portage area to inform the public of the recreational opportunities at the project, as well as of rules governing the accessibility and use of its recreational facilities.	Staff	$3,500[c]	$500[c]	$811
Cultural Resources				
6. Develop and implement a Historic Properties Management Plan.	GLH Staff	$2,557[f]	$169[f]	$396
6a. Include in the HPMP, a plan and schedule to develop, install, and maintain interpretive signage regarding the Shelburne dam and powerhouse in consultation with the Town of Shelburne.	Staff	$3,500[c]	$500[c]	$811

[a] Unless otherwise noted, all cost estimates are from GLH and escalated to 2024 dollars. Commission staff reviewed these costs and determined that they are reasonable estimates.

[b] All capital and annual costs are converted to equal costs over a 30-year period to give a uniform basis for comparison.

[c] Cost estimated by staff.

[d] Under current operation, GLH provides a minimum bypassed reach flow of 2 cfs or inflow, whichever is less, which decreases electricity production by 1.2 MWh per year under the No-Action Alternative. Using an energy cost of $71.42/MWh from Table 7 as a proxy for the value of lost generation, 1.2 MWh of lost generation results in an opportunity cost of $85/year.

[e] The administrative costs to prepare a project-specific recreation plan that includes GLH's proposed measures should be no different than revising the comprehensive plan.

[f] Costs provided by GLH of $15,000 to develop and $1,000 to implement GLH Historic Property Management Plans for six projects currently in relicensing. Staff divided these costs by six for each project.

Table 6. Minority and low-income populations within one mile of the project boundary (source: U.S. Census Bureau, as modified by staff).

Geographic Area	Total Population	White (%) [a]	African American/ Black (%) [a]	American Indian/ Alaska Native (%) [a]	Asian (%) [a]	Native HI & Other Pacific Islander (%) [a]	Some Other Race (%) [a]	Two or More Races (%)[a]	Hispanic Origin (any race) (%) [a]	Total Minority Population (%) [a]	Households in Poverty (%) [b]
NEW HAMPSHIRE	1,379,610	88.3%	1.3%	<0.1%	2.6%	<0.1%	0.3%	3.1%	4.3%	11.7%	7.7%
Coos County*	31,430	94.2%	1.8%	<0.1%	0.5%	<0.1%	0.1%	1.6%	1.9%	5.8%	12.0%
Census Tract 950900, Block Group 4	754	85.5%	0.0%	0.0%	7.6%	0.0%	0.0%	6.4%	0.5%	14.5%	12.8%
Census Tract 950900, Block Group 1	927	95.0%	0.0%	0.0%	0.8%	0.0%	0.0%	3.8%	0.4%	5.0%	0.2%

* Reference Community

[a] Percent of Total Population (Table B03002 – Hispanic or Latino Origin by Race. 2022 ACS 5-Year Estimates Detailed Tables. U.S. Census Bureau, 2018-2022 American Community Survey 5-Year Estimates. Accessed December 11, 2023. https://data.census.gov/table?d=ACS+5-Year+Estimates+Detailed+Tables&tid=ACSDT5Y2022.B03002).

[b] Percent of Households (Table B17017 – Poverty Status in the Past 12 Months by Household Type and Age of Householder. 2022 ACS 5-Year Estimates Detailed Tables. U.S. Census Bureau, 2018-2022 American Community Survey 5-Year Estimates. Accessed December 11, 2023. https://data.census.gov/cedsci/table?d=ACS%205-Year%20Estimates%20Detailed%20Tables&tid=ACSDT5Y2022.B17017).

Gray shading denotes an Environmental Justice community.

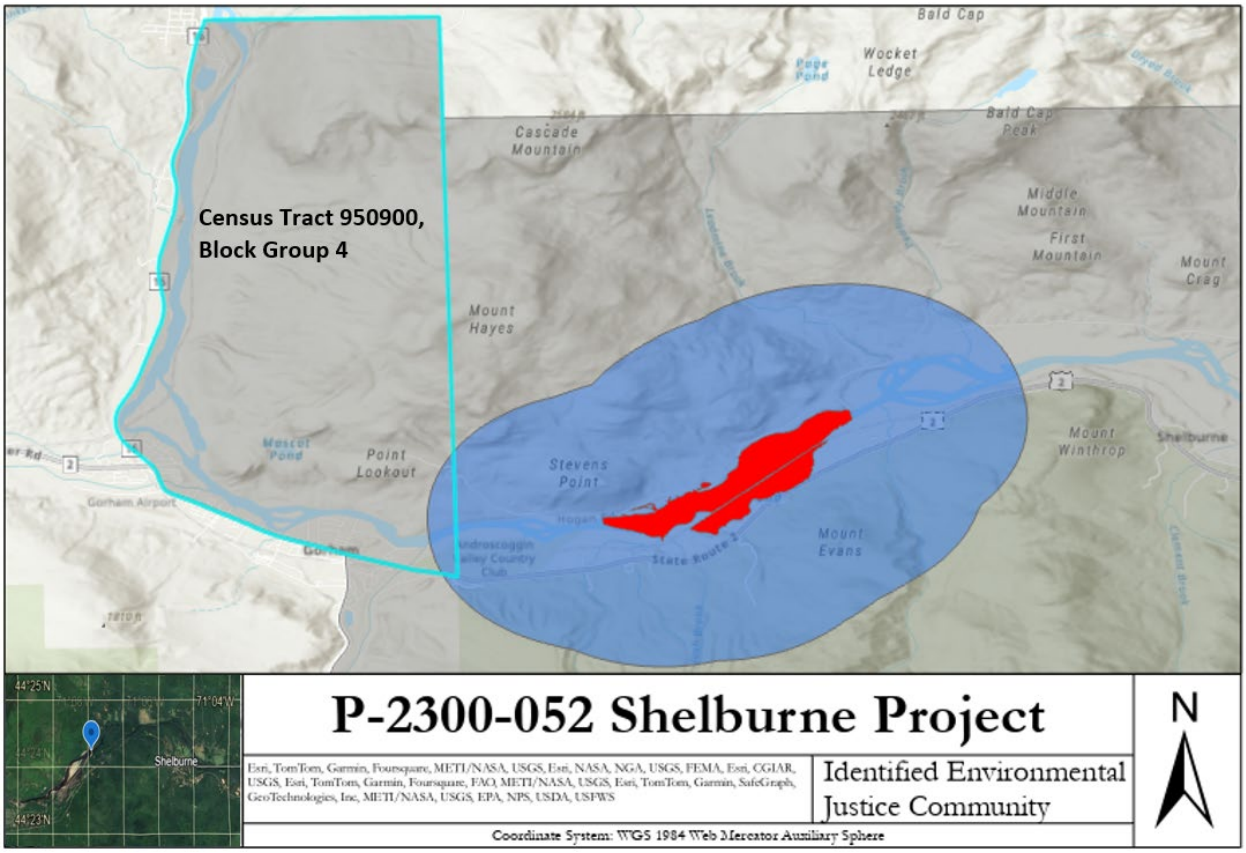

Figure 2. Identified Environmental Justice Community (Census Tract 950900, Block Group 4) located within the one-mile radius of the project boundary (source: staff).

APPENDIX D- BIOLOGICAL ASSESSMENT

Affected Environment

The FWS Information for Planning and Consultation (IPaC) database indicates that the threatened Canada lynx (*Lynx canadensis*), the endangered northern long-eared bat (*Myotis septentrionalis*), the proposed endangered tricolored bat (*Perimyotis subflavus*), and candidate monarch butterfly (*Danaus plexippus*) have the potential to occur within the project boundary.[46] There are no proposed or designated critical habitats in the project area.

Northern Long-eared Bat

The northern long-eared bat (NLEB) was listed by the FWS as threatened on May 4, 2015 (FWS, 2015). In January 2016, the FWS finalized the ESA section 4(d) rule for this species, which focuses on preventing effects on bats in hibernacula associated with the spread of white-nose syndrome[47] and effects of tree removal on roosting bats or maternity colonies (FWS, 2016a). As part of the 4(d) rule, take incidental to certain activities conducted in accordance with the following habitat conservation measures, as applicable, would not be prohibited: (1) occurs more than 0.25-mile from a known, occupied hibernacula; (2) avoids cutting or destroying known, occupied maternity roost trees during the pup season (June 1 – July 31);[48] and (3) avoids cutting or destroying any tree within a 150-foot radius of a known, occupied maternity tree during the pup season. On January 5, 2016, FWS developed an optional streamlined consultation framework that allows federal agencies to rely on a programmatic biological opinion on FWS's final 4(d) rule to fulfill section 7(a)(2) consultation requirements for northern long-eared bat (FWS, 2016b).

On November 30, 2022, FWS reclassified the NLEB from a threatened species to an endangered species, effective January 30, 2023.[49] FWS extended the effective date of the final reclassification by 60 days, from January 30, 2023, to March 31, 2023.[50] The final rule removes the 4(d) rule for this species, because 4(d) rules apply only to species listed as threatened species under the ESA. In March 2023, FWS released a new range-wide NLEB determination key (Dkey), available through the IPaC website, to streamline the review of routine, predictable

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[46] *See* Interior's list of threatened and endangered species, last accessed by staff using the IPaC database (https://ipac.ecosphere.fws.gov) on April 10, 2024.

[47] A hibernaculum is where a bat hibernates over the winter, such as in a cave. White-nose syndrome is a fungal infection that agitates hibernating bats, causing them to rouse prematurely and burn fat supplies. Mortality results from starvation or, in some cases, exposure.

[48] Pup season refers to the period when bats birth their young.

[49] 87 Fed. Reg. 73,488 (November 30, 2022).

[50] 88 Fed. Reg. 4908-4910 (January 26, 2023).

projects and receive automatic verification or concurrence for some actions (FWS, 2023b). This Dkey replaces the previous key that was based on the 4(d) rule biological opinion.

Traditional ranges for NLEB include most of the central and eastern U.S., as well as the southern and central provinces of Canada, coinciding with the greatest abundance of forested areas. NLEB, whose habitat includes large tracts of mature, upland forests, typically feeds on moths, flies, and other insects. These bats are flexible in selecting roost sites, choosing roost trees that provide cavities and crevices, and trees with a diameter of 3 inches or greater at breast height.[51] Human-made structures, such as buildings, barns, bridges, and bat houses can be considered potential summer habitat. However, trees found in highly developed urban areas (e.g., street trees, downtown areas) are unlikely to be suitable NLEB habitat (FWS, 2014). NLEB are generally active from April through October (FWS, 2015, FWS, 2016c), and hibernate over the winter season. Winter hibernation typically occurs in caves and areas around them, and hibernacula can also be used for fall-swarming[52] and spring-staging.[53]

The project is located within the white-nose syndrome buffer zone for NLEB,[54] but no critical habitat has been designated for the species. Although there is no documentation of NLEB use of habitat at or near the project, forests near the project boundary may provide suitable habitat for NLEB summer roosting and foraging activities.

Tricolored Bat

FWS proposed on September 14, 2022, to list the tricolored bat as endangered,[55] based upon the range-wide impacts of white-nose syndrome which have caused estimated declines of more than 90 percent in affected colonies. No critical habitat is being designated because current or threatened destruction, modification, or curtailment of the species' habitat or range is not having large range wide effects on the species.

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[51] Diameter at breast height refers to the tree diameter as measured about 4 to 4.5 feet above the ground.

[52] Fall-swarming fills the time between summer and winter hibernation. The purpose of swarming behavior may include: introduction of juveniles to potential hibernacula; copulation; and gathering at stop-over sites on migratory pathways between summer and winter regions.

[53] Spring-staging is the time period between winter hibernation and migration to summer habitat. During this time, bats begin to gradually emerge from hibernation and exit the hibernacula to feed, but re-enter the same or alternative hibernacula to resume daily bouts of torpor (i.e., a state of mental or physical inactivity).

[54] The white-nose syndrome buffer zone encompasses counties within 150 miles of a U.S. county or Canadian district in which white-nose syndrome or the fungus that causes white-nose syndrome is known to have infected bat hibernacula.

[55] 87 Fed. Reg. 56,381 (Sep.14, 2022).

Tricolored bats are known to occur in 39 states, including all of the central and eastern United States.[56]

Male and female tricolored bats converge at cave and mine entrances between mid-August and mid-October to swarm and mate. During the winter, tricolored bats hibernate in caves and mines, although in the southern U.S., where caves are sparse, tricolored bats often hibernate in road-associated culverts and sometimes tree cavities and abandoned water wells.

During the spring, summer, and fall (i.e., non-hibernating seasons), tricolored bats disperse and primarily roost among live and dead leaf clusters of live or recently dead deciduous hardwood trees (FWS, 2021b). Female tricolored bats exhibit high site fidelity, returning year after year to the same summer roosting locations. Female tricolored bats form maternity colonies and switch roost trees regularly (e.g., between 1.2 days and 7 days at roost trees in Indiana). Females typically give birth to two young between May and July. Limited reproductive potential severely limits the ability of bat populations to respond quickly to perturbations. Upland forests near the project boundary contain suitable habitat for tricolored bat summer roosting and foraging activities.

Canada Lynx

The Canada lynx was listed as a threatened species under the ESA on March 24, 2000, with its critical habitat and a boundary revision of a distinct population segment listed on October 14, 2014.[57] All critical habitat within New England is in northern Maine, none of which is near the project in New Hampshire. According to the species listing, only 2 reports of lynx occurred in New Hampshire in the 1990s. Lynx are adapted to undisturbed higher elevation boreal forest with deep snow where it preys on snowshoe hare, none of which exist near the project.

Monarch Butterfly

The monarch butterfly was listed as a candidate species under the ESA on December 17, 2020.[58] The monarch butterfly exclusively uses milkweed (*Asclepias* spp.) as its larval host plant. Adults drink nectar from milkweed and other species' flowers, while trees and shrubs are used for shade and roosting. Monarchs are not known to overwinter near the project area. Common milkweed is not commonly found at higher elevation areas within northern New Hampshire and monarch butterflies are unlikely to be attracted to the project area specifically.

Environmental Effects

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[56] FWS. 2021. Species Status Assessment Report for the Tricolored Bat (Perimyotis subflavus), Version 1.1. December 2021. Hadley, MA., https://www.fws.gov/sites/default/files/documents/Tricolored_Bat_SSA.pdf.

[57] 79 Fed. Reg. 54,782 (Oct. 14, 2014).

[58] 85 Fed. Reg. 81,813 (Dec. 17, 2020).

The following discussion addresses environmental effects on threatened and endangered species that would result from relicensing the project under the Staff Alternative. This alternative includes relicensing the project with all staff recommended environmental measures and modifications to CRP's proposal as outlined in section 2.3 of this draft EA.

No entity has proposed any measures for the protection of Canada lynx or monarch butterfly. Staff are proposing a time of year restriction for tree trimming to protect bat species.

Our Analysis

Northern Long-eared Bat

The applicant is not proposing any large-scale land clearing, but developing the recreation site may require removing a small number of trees and maintenance activities along the transmission line right of way during the term of a new license would likely require periodic tree cutting and other vegetation management.

In the absence of protocol-level surveys indicating the NLEB is not present in the project area, we assume the species may be present and could be adversely affected by tree cutting and trimming during the bats' active summer period. Placing seasonal limits on planned tree-clearing and trimming activity for trees that are equal to or greater than 3 inches at breast height (dbh) would reduce the likelihood of harassing and harming NLEB and their newly born pups during their active season at the project. It is unknown whether there are or would be any live or dead trees greater than 3 inches dbh that have exfoliating bark, cracks, crevices and/or cavities that could be subject to removal or trimming. Regardless, given the small area where such activities may take place, the effect of the removing or trimming of any such trees would be minimal and would not significantly impair an essential behavior pattern such that it is likely to result in the death or injury of NLEB if it is conducted during the hibernation period.[59]

The FWS states that inactive season dates for NLEB in summer habitat outside of swarming/staging areas in New Hampshire are November 1 to April 14.[60] Because no surveys for maternity roosts have been conducted within 1.5 miles of the project, limiting non-hazardous

[59] Endangered and Threatened Wildlife and Plants: Endangered Species Status for northern Long-eared Bat Final Rule, 87 Fed. Reg. 73,488 (Nov. 30, 2022). The following actions are unlikely to result in a violation of section 9, if these activities are carried out in accordance with existing regulations and permit requirements; this list is not comprehensive. (2) Insignificant amounts of suitable forested/wooded habitat removal provided it occurs during the hibernation period and the modification of habitat does not significantly impair an essential behavior pattern such that it is likely to result in the actual killing or injury of northern long-eared bats after hibernation.

[60] FWS. 2023. Available at: https://www.fws.gov/sites/default/files/documents/Inactive%20Season%20Dates%20for%20Areas%20Outside%20of%20Swarming%20and%20Staging%20Areas_0.pdf

tree removal and trimming to the period of November 1 through April 14 (inactive season) would protect the northern long-eared bat in a manner consistent with section 7 of the ESA. With the implementation of a cutting restriction for non-hazardous trees that are equal to or greater than 3 inches dbh from April 1 through October 31, we conclude that relicensing the Shelburne Project may affect, but is not likely to adversely affect NLEB.

Tricolored Bat

Project maintenance activities that may affect the tricolored bat are the same as those noted above for the NLEB. Project maintenance is not expected to require the removal of any trees that could affect the bat or its habitat but could require tree trimming that could remove leaf clusters that provide roosting habitat. Unless they represent a public or project safety hazard, limiting trimming and removal of trees greater than or equal to 3 inches dbh within the project boundary to the period of November 1 through April 14 to protect NLEB would also avoid cutting or destroying any potential maternity roost trees that may be occupied by tricolored bats during the tricolored bat pup season, which generally overlaps with that of NLEB. Therefore, we conclude that relicensing the project with tree-cutting restrictions from April 15 through October 31 is not likely to jeopardize the continued existence of the tricolored bat.

Canada Lynx

Canada lynx are not known, nor are they expected, to occur in the project area. There is little suitable habitat for the lynx near the project area and its main prey species, snowshoe hare, is also unlikely to occur there. Because Canada lynx are not expected to occur within the project area, even as a possible transient, we conclude the project will have no effect on the species.

Monarch Butterfly

Current maintenance activities at the project that could affect monarch butterflies include minor clearing and trimming of brush and other vegetation management, but there is no information to suggest that these activities would potentially remove or degrade monarch butterfly habitat. Therefore, any project effects to the monarch butterfly and its habitat would likely be minimal, and continued operation of the project will have no effect and is not likely to jeopardize the continued existence of the species.

APPENDIX E- POWER AND DEVELOPMENT BENEFITS OF THE PROJECT

POWER AND DEVELOPMENTAL BENEFITS OF THE PROJECTS

Table 5 in Appendix C summarizes the assumptions and economic information used in the analysis. Most of this information is provided by the applicant in its license application. Some is developed by Commission staff, as noted below. Cost items common to all alternatives include taxes and insurance; estimated capital investment required to develop the project or major modifications for relicensing; licensing costs; normal operation and maintenance cost; and Commission fees. All costs are adjusted to current year dollars.

Table 7. Parameters for economic analysis of the project (Source: license application; staff).

Parameter	Value
Installed Capacity	3.72 MW
Average annual generation (under no action alternative)	19,962 MWh
Period of analysis	30 years
Federal income tax rate	Included in the O&M cost
Local Tax Rate	Included in the O&M cost
Insurance	Included in the O&M cost
Interest rate	8%
Net Investment	$11,114,346
Application cost	$ 81,048
Operation and maintenance[a]	$409,994/year
Estimated Commission annual charges[b]	$17,000
Cost of Alternative Power (2022)[c]	
1) Dependable Capacity Cost (2022)	$71.42/MWh
2) C Dependable Capacity Cost (2022)	$179.08/kw-year

[a] GLH's value for the project's operation and maintenance cost includes insurance, interim replacements, and administrative and general expenses.

[b] The Commission collects an annual administration charge for all licensed projects which is based on the authorized installed capacity of the project.

[c] The alternative source of power cost is based on the current cost of providing the same amount of generation and capacity benefit from a natural gas-fired combined cycle plant, as reported by the most recent publication of The U.S. Energy Information Administration (EIA), Annual Energy Outlook. This analysis is based on The U.S. Energy Information Administration (EIA), Annual Energy Outlook 2023, for the Division 1, New England Region. The alternative source

of power cost is reported in Table 5 and is a combination of the cost of energy and capacity benefit.

Table 8. Summary of the annual cost of alternative power and annual project cost for three alternatives for the Shelburne Project (Source: staff).

	No Action	Applicant's Proposal	Staff Alternative
Installed capacity	3.72 MW	3.72 MW	3.72 MW
Annual generation	19,962 MWh	19,962 MWh	19,962 MWh
Capacity benefit[a]	2.8	2.8	2.8
Current alternative source of power cost[b]	$1,927,110	$1,927,110	$1,927,110
Total annual project cost (2023)[c]	$1,569,929	$1,581,220	$1,582,842
Difference between the alternative source of power cost and total annual project cost	$357,181	$345,890	$344,268

[a] Staff estimated the capacity benefit based on the ratio of the mean annual flow available for generation for each of 12 months, and the hydraulic capacity of the project. This ratio is multiplied by the authorized installed capacity to determine the capacity benefit.
[b] The value of power for the Shelburne Project is based on the alternative source of power cost in the New England Region, as identified in table 7 above.
[c] Project costs include the cost of environmental measures listed in table 5 in Appendix C, and the costs identified in table 7. All project costs were adjusted to 2024 dollars.

COMPARISON OF ALTERNATIVES

Table 8 summarizes the installed capacity, annual generation, capacity benefit, alternative source of power's cost, estimated total project cost, and difference between the alternative source of power's cost and total project cost for each of the alternatives considered in this EA: no-action, the applicant's proposal, and the staff alternative.

No-Action Alternative

Under the No Action alternative, the project has an installed capacity of 3.72 MW, a capacity benefit of 2.8 MW, and an average annual generation of 19,962 MWh. The alternative source of power's current cost to produce the same amount of energy and provide the same capacity benefit is $1,927,110. The total annual project cost is $1,569,929. Subtracting the total annual project cost from the alternative source of power's current cost, the project's cost to produce power and capacity is $357,181 less than that of the alternative source of power's cost.

Applicant's Proposal

Under the applicant's proposal, the project has an installed capacity of 3.72 MW, a capacity benefit of 2.8 MW, and an average annual generation of 19,962 MWh. The alternative source of power's current cost to produce the same amount of energy and provide the same capacity benefit is $1,927,110. The total annual project cost is $1,581,220. Subtracting the total annual project cost from the alternative source of power's current cost, the project's cost to produce power and capacity is $345,890 less than that of the alternative source of power's cost.

Staff Alternative

Under the staff-recommended alternative, the project has an installed capacity of 3.72 MW, a capacity benefit of 2.8 MW, and an average annual generation of 19,962 MWh. The alternative source of power's current cost to produce the same amount of energy and provide the same capacity benefit is $1,927,110. The total annual project cost is $1,582,842. Subtracting the total annual project cost from the alternative source of power's current cost, the project's cost to produce power and capacity is $344,268 less than that of the alternative source of power's cost.

Cost of Environmental Measures

Table 5 in Appendix C presents the cost of each of the environmental enhancement measures considered in our analysis for the Shelburne Project. All costs are in 2024 dollars. We convert all costs to equal annual (levelized) values over a 30-year period of analysis to give a uniform basis for comparing the benefits of a measure to its cost.

APPENDIX F- COMPREHENSIVE DEVELOPMENT

Additional Measures Recommended by Staff

Below, we discuss the basis for staff's recommended additions or modifications to GLH's proposal.

Time of Year Restrictions for Tree Removal

The NLEB may occur in the project area because project lands and adjacent areas support forests that may provide opportunities for summer roosting and foraging activities. The applicant is not proposing any large-scale land clearing activities, but constructing the parking area and improving the put-in and take-out at the Shelburne river access may require removing a small number of trees. Maintenance activities along the transmission line right of way during the term of a new license may require periodic tree cutting and other vegetation management. To protect NLEB, FWS recommends state-specific dates that suggest avoiding tree removal in New Hampshire between April 15 and October 31. Under FWS's recommendation, it states that the time-of-year restriction would not apply under public safety or other emergencies, and in those instances, the applicant should notify FWS within two business days of the unplanned safety/emergency action and provide details of the action and response.

NLEB are not known to use trees less than 3 inches in diameter at breast height; therefore, there would be little benefit to NLEB by prohibiting the removal of trees 3 inches in diameter or less. Avoiding any tree clearing or trimming between April 15 and October 31 would protect the NLEB.

The tri-colored bat may also occur in the project area and may use similar hardwood habitats for summer roosting. Prohibiting the removal of trees 3 inches or greater or the trimming of trees between April 15 and October 31 would also protect the tri-colored bat.

Accordingly, we recommend that the license include a license requirement that prohibits removal and trimming of trees greater than or equal to 3 inches in diameter at breast height between April 15 and October 31, unless required for public or project safety. If trees are removed during this time period, the licensee must notify FWS within two business days of the unplanned safety/emergency action and provide details of the action and response. The costs to prohibit tree removal between April 15 and October 31 should be negligeable or zero.

Recreation Plan and Project Boundary Modification

GLH proposes to revise the 1995 Comprehensive Recreation Management Plan to include the following enhancements at the Shelburne informal access on the river right: (1) development of a gravel parking area for 4-5 vehicles off North Road, south of the dam, and next to the existing access gate; (2) development of a natural approximately 4-foot wide and approximately 450-foot long walking path next to the existing fence between the parking area and the impoundment put-in/take-out; (3) installation of a wooden canoe rest at the halfway point between the take-out and the proposed parking area; and (4) improvements to the downstream

put-in with gravel or wood crib steps, pending discussion and agreement with the State of New Hampshire. The proposed parking and portage enhancements are not currently within the current project boundary. However, GLH owns the property where the proposed parking area and majority of the path and river access would be located.

It is likely that the Shelburne informal access area was one of the least visited recreation sites according to the recreation report because of the relatively steep grading, limited parking, and difficult access to river entry points. GLH's proposed improvements would benefit recreationists by improving access and creating a safe and convenient portage around the Shelburne dam; therefore, we recommend that they should be implemented as proposed. Because the enhancements to the Shelburne informal access area are significant and could increase use, the public would benefit from signage providing information on the recreation opportunities, as well as of rules governing the accessibility and use of recreational facilities. The public would also benefit from adding interpretative signage at the parking area explaining the history of the Shelburne powerhouse. We estimate that providing the cultural and recreation interpretative signage would have annualized cost ($1,062) and find that the benefits are worth the cost. Because the improvements are necessary to fulfill the project's recreation purposes, we do not recommend that implementing the improvements to the downstream put-in be conditioned upon discussion and agreement from the State of New Hampshire.

The 1995 Comprehensive Recreation Management Plan has become dated and includes monitoring measures that are no longer required by the Commission (FERC Form 80). It also addresses recreation measures at all six of GLH's projects on the Androscoggin River in New Hampshire that are currently undergoing relicensing. While revising the 1995 Comprehensive Recreation Plan to include GLH's proposed enhancement measures would provide for coordinated management of all of GLH's proposed recreation facilities, it could make administering the license difficult if the project was sold and the license transferred to a new owner during the term of any license issued for the project.

Therefore, we recommend that GLH prepare a separate project-specific recreation management plan that includes GLH's proposed measures and implementation schedule.

If any license issued for the project would require GLH to maintain the parking area, portage trail, and put-in/take-out at the Shelburne access area on the river right, they should be identified as project recreation facilities and brought into the project boundary. Therefore, we recommend revising the project boundary to incorporate the site of the proposed recreation facilities and file revised Exhibit G drawings for the site within one year of license issuance.

APPENDIX G- DRAFT LICENSE CONDITIONS RECOMMENDED BY STAFF

Draft Article 001. *Project Modification Resulting from Environmental Requirements*. If environmental requirements under this license require modification that may affect the project works or operations, the licensee must consult with the Division of Dam Safety and Inspections – Regional Engineer. Consultation must allow sufficient review time for the Commission to ensure that the proposed work does not adversely affect the project works, dam safety, or project operation.

Draft Article 002. *Public Safety Plan*. Within 60 days prior to opening new recreation features authorized in draft Article 008, the licensee must file a Public Safety Plan with the Commission by eFiling to the New York Regional Office. The plan must include a description of all safety devices and signage needed to warn the public of fluctuations in flow from the project or otherwise protect the public in the use of project lands and waters. The plan must also include a map showing the location of all public safety measures. For guidance on preparing public safety plans the licensee can review the Guidelines for Public Safety at Hydropower Projects on the FERC website.

Draft Article 003. *Project Operation*. The licensee must operate the project as follows:

(1) operate the project in a run-of-river mode by maintaining the impoundment within 1 foot of the headwater elevation of 734.2 feet NGVD 29 such that, at any point in time, the sum of all outflows from the project approximates the sum of all inflows to the project;

(2) provide a minimum flow of 2 cubic feet per second or inflow, whichever is less, to the project's bypassed reach.

Reporting of Planned Deviations

Run-of-river operation, impoundment level, and minimum flow requirements of this article may be temporarily modified for short periods, of up to 3 weeks, after mutual agreement among the licensee and the U.S. Fish and Wildlife Service and the New Hampshire Department of Environmental Services (collectively, resource agencies). After concurrence from the resource agencies, the licensee must file a report with the Secretary of the Commission as soon as possible, but no later than 14 days after the onset of the planned deviation. Each report must include: (1) the reasons for the deviation and how project operations were modified; (2) the duration and magnitude of the deviation; (3) any observed or reported environmental effects and how potential effects were evaluated; and (4) documentation of consultation with the resource agencies. For planned deviations exceeding 3 weeks, the licensee must file an application for a temporary amendment of the operational requirements and receive Commission approval prior to implementation.

Reporting of Unplanned Deviations

Run-of-river operation, impoundment level, and minimum flow requirements may be temporarily modified if required by operating emergencies beyond the control of the licensee

(i.e., unplanned deviations). For any unplanned deviation from run-of-river operation or impoundment level and minimum flow requirements that lasts longer than 3 hours or results in visible environmental effects such as a fish kill, the licensee must notify the resource agencies within 24 hours and the Commission within 14 days, and file a report with the Commission as soon as possible, but no later than 30 days after each such incident. The report must include: (1) the cause of the deviation; (2) the duration and magnitude of the deviation; (3) any pertinent operational and/or monitoring data; (4) a timeline of the incident and the licensee's response, (5) any comments or correspondence received from the resource agencies, or confirmation that no comments were received from the resource agencies; (6) documentation of any observed or reported environmental effects and how potential effects were evaluated; and (7) a description of measures implemented to prevent similar deviations in the future.

For unplanned deviations from run-of-river operation or impoundment level and minimum flow requirements lasting 3 hours or less that do not result in visible environmental effects, the licensee must file an annual report, by March 1, describing each incident that occurred during the prior January 1 through December 31 time period. The report must include for each 3 hours or less deviation: (1) the cause of the deviation; (2) the duration and magnitude of the deviation; (3) any pertinent operational and/or monitoring data; (4) a timeline of the incident and the licensee's response to each deviation; (5) any comments or correspondence received from the resource agencies, or confirmation that no comments were received from the resource agencies; and (6) a description of measures implemented to prevent similar deviations in the future.

Draft Article 004. *Operation Compliance Monitoring Plan*. Within six months of license issuance, the licensee must file, for Commission approval, an Operation Compliance Monitoring Plan. The Operation Compliance Monitoring Plan must include, at a minimum, descriptions of how the licensee will meet the project operation requirements included in Draft Article 002 (Project Operation) and the following:

(1) a detailed description of how the licensee will monitor and document compliance with the operational requirements of Draft Article 003;

(2) a description of each gage or other measuring device that will be used to monitor compliance with Draft Article 003, including gage or measuring device location;

(3) a description of the procedures for maintaining and calibrating all monitoring equipment;

(4) standard operating procedures to be implemented outside of normal operating conditions, including during: (a) scheduled facility shutdowns and maintenance; and (b) emergency conditions such as unscheduled facility shutdowns and maintenance; and

(5) an implementation schedule.

The licensee must prepare the plan after consultation with the U.S. Fish and Wildlife Service and New Hampshire Department of Environmental Services (collectively, resource agencies). The licensee must include with the plan documentation of consultation, copies of

comments and recommendations on the completed plan after it has been prepared and provided to the resource agencies, and specific descriptions of how the resource agencies' comments are accommodated by the plan. The licensee must allow a minimum of 30 days for the resource agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing must include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. The licensee must not begin implementing the plan until the Commission notifies the licensee that the plan is approved. Upon Commission approval the licensee must implement the plan, including any changes required by the Commission.

Draft Article 005. *Exhibit G Drawings*. Within 90 days of the issuance date of this license, the licensee must file, for Commission approval, a revised Exhibit G drawing enclosing within the project boundary the Shelburne Access Area. The Exhibit G drawing must comply with sections 4.39 and 4.41(h) of the Commission's regulations.

Draft Article 006. *Reservation of Authority to Prescribe Fishways*. Authority is reserved to the Commission to require the licensee to construct, operate, and maintain fishways as may be prescribed by the Secretary of the Interior pursuant to section 18 of the Federal Power Act.

Draft Article 007. *Northern Long-Eared Bat and Tricolored Bat Protection.* The licensee must not remove trees on project lands equal to or greater than 3 inches diameter at breast height or conduct tree-trimming from April 15 to October 31 to protect northern long-eared bats and tricolored bats. Tree removal during this period is not prohibited to ensure public or project safety (e.g., removing dead fall trees). If trees are removed during this period on an emergency basis, the licensee must notify the U.S. Fish and Wildlife Service within two business days of the unplanned safety/emergency action and provide details of the action and response.

Draft Article 008. *Recreation Management Plan.* Within one year of license issuance, the licensee must file with the Commission for approval, a Recreation Management Plan that designates the Shelburne Access Area as a project recreation facility. The Recreation Management Plan must include a plan and schedule for (1) operating and maintaining the project recreation facility; and (2) completing the following measures at the access area: (a) development of a gravel parking area for 4-5 vehicles off North Road, south of the dam, and next to the existing GLH access gate; (b) development of a natural approximately 4-foot wide and approximately 450-foot long walking path next to the existing fence between the parking area and the impoundment put-in/take-out; (c) installation of a wooden canoe rest at the halfway point between the take-out and the proposed parking area; (d) improvements to the downstream put-in with gravel or wood crib steps; and (e) a plan and schedule, developed in consultation with the Town of Shelburne, for installing, and maintaining recreational signage on river right near the proposed parking and portage area to inform the public of the recreational opportunities at the project, as well as of rules governing the accessibility and use of its recreational facilities.

The licensee must prepare the plan after consultation with the New Hampshire Department of Natural and Cultural Resources, the New Hampshire Department of Transportation, and the Town of Shelburne. The licensee must include with the plan

documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific documentation of how the agencies' comments are accommodated by the plan. The licensee must allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing must include the licensee's reasons, based on specific information.

The Commission reserves the right to require changes to the plan. The licensee must not begin implementing the plan until the Commission notifies the licensee that the plan is approved. Upon Commission approval the licensee must implement the plan, including any changes required by the Commission.

Draft Article 009. *Programmatic Agreement and Historic Properties Management Plan.* The licensee must implement the "Programmatic Agreement Between the Federal Energy Regulatory Commission and the New Hampshire State Historic Preservation Officer (New Hampshire SHPO) for Managing Historic Properties that May be Affected by Issuance of a License to Great Lakes Hydro America, LLC (GLH) for the Continued Operation of the Shelburne Project in Coos County, New Hampshire FERC No. P-2300-052," executed on (*date*), and including, but not limited to, the historic properties management plan (HPMP) for the project. Pursuant to the requirements of this programmatic agreement, the licensee must file, for Commission approval, a HPMP within one year of issuance of this order. The HPMP must 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; (5) a schedule for implementing mitigation and conducting additional studies; and (6) a plan and schedule for developing, installing, and maintaining interpretive signage regarding the history of the Shelburne dam and powerhouse, developed in consultation with the Town of Shelburne. As-built photographs of the signage should be filed with the Commission upon completion.

The Commission reserves the authority to require changes to the HPMP at any time during the term of the license. If the programmatic agreement is terminated prior to the Commission approval of HPMP, the licensee must obtain approval from the Commission and the New Hampshire SHPO before engaging in any ground-disturbing activities or taking any other action that may affect any historic properties within the project's area of potential effects.

Draft Article 010. *Use and Occupancy*. (a) In accordance with the provisions of this article, the licensee must 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 must 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 must 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 must require multiple use and occupancy of facilities for access to project lands or waters. The licensee must also ensure that, to the satisfaction of the Commission's authorized representative, 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 must: (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 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-kilovolts 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 must file with the Commission a copy 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. No report filing is required if no conveyances were made under paragraph (c) during the previous calendar year.

(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 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 must 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 must 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 must not endanger health, create a nuisance, or otherwise be incompatible with overall project recreational use; (ii) the grantee must 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 must not unduly restrict public access to project lands and 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 must be consolidated for consideration when revised Exhibit G drawings would be filed for approval for other purposes.

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

APPENDIX H- COMPREHENSIVE PLANS

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APPENDIX J- LIST OF PREPARERS

Federal Energy Regulatory Commission

Jeff Ackley – Terrestrial Resources, Threatened and Endangered Species (Wildlife Biologist; M.S./Ph.D. Biology)

Ryan Hansen – Project Coordinator, Aquatic Resources (Environmental Biologist; M.S., Environmental Science and Public Policy; and B.S., Biology).

Lauren Townson – Recreation and Cultural Resources, Environmental Justice (Outdoor Recreation Planner; Ph.D., Parks, Recreation, and Tourism Management).

Maryam Zavareh – Geologic and Soil Resources, Developmental Analysis (Civil and Environmental Engineer; Ph.D. Civil and Environmental Engineering)

APPENDIX K- STAFF RESPONSE TO COMMENTS ON DRAFT ENVIRONMENTAL ASSESSMENT

Commission staff issued its draft environmental assessment (DEA) for the relicensing of the Shelburne Hydroelectric Project on May 1, 2024. Staff requested comments on the DEA to be filed by May 30, 2024. The following entities filed comments pertaining to the DEA.

Commenting Entity	**Date Filed**
GLH	May 29, 2024
Town of Shelburne	May 30, 2024
National Park Service	May 31, 2024
New Hampshire State Historic Preservation Office	June 4, 2024

Below, we summarize the comments that pertain to our analysis; respond to those comments; and indicate, where appropriate, how we modified the EA. The comments are grouped by topic for convenience. We do not summarize and respond to comments that request legal determinations or other associated authorizations, only express general opinions either for or against the proposed project or the staff alternative, or simply reiterate a stakeholder's position or recommendation.

Water Quantity

Comment: The Town of Shelburne requests that GLH be required to produce a model which shows the depth and extent of possible flooding upstream of Shelburne Dam based on a revised Inflow Design Flood (IDF) of 43,400 cfs.

Response: The hazard classification and IDF were evaluated through a dam break study included in a report titled "Shelburne Dam Hazard Classification and Design Flood Analysis" filed on October 29, 2018. The model geometry extended along the Androscoggin River from a point 2.8 miles upstream of Shelburne Dam and concluded that the IDF for the project was the 100-year flood equaling 43,400 cfs and corresponding to a headwater elevation of 742.4 feet. The hydraulic model provided the estimated depth and extent of upstream flooding from the confluence of the Peabody River with the Androscoggin River to the Shelburne Dam.

Terrestrial Resources

Comment: The Town of Shelburne suggests that existing data on plant species in and around the project are inadequate and requests a wetland inventory of the project area be conducted and addressed in the FEA. They note that the 2020 survey referenced in the draft EA was conducted in a more urbanized area and likely included a smaller percentage of wetlands than is present at the project. They also note that a different survey from 2020 that included a

larger percentage of wetland habitat found state listed plant species in the region (large lady's slipper, ginseng, and sweet goldenrod_, and that these species could occur in the project area.

Response: The FEA describes the available information on wetlands and species of concern. Because there are not proposed changes in the project's operation or new construction that would affect existing wetlands, the available information is sufficient to characterize existing wetlands and potential project effects on wetlands and any associated state listed plants.

Threatened and Endangered Species

Comment: The Town of Shelbourne states that nighttime lighting from the dam could have negative effects on the federally endangered norther long-eared bat (NLEB) as well as the federal candidate monarch butterfly, and that these effects are not considered within the FEA.

Response: The staff alternative would result in no changes to the installed lightning installed at the project. There is no information on the record to suggest that NLEBs nor monarch butterflies are being affected by the current project lighting. On October 1, 2024, the FWS concurred with staff's determination that re-licensing the project with the measures in the staff alternative would not be likely to affect the NLEB and would have no effect on the monarch butterfly.

Recreation Resources

Comment: The Town of Shelburne requests that recreational signage be developed, installed, and maintained at the new portage parking area.

Response: We agree that the public would benefit from the signage and the benefits are worth the cost. Therefore, we have revised draft article 008 to include a plan and schedule, developed in consultation with the Town of Shelburne, for installing and maintaining recreational signage near the proposed parking and portage area to inform the public of the recreational opportunities at the project, as well as of rules governing the accessibility and use of its recreational facilities.

Comment: The Town of Shelburne provides information on the ownership and maintenance of the Hogan Road and its informal access area. According to the Town, the State of New Hampshire does not maintain the road. The road is owned by the Town and is classified as a Class 6 Town Road (meaning no public funds can be expended on this road by state law), which explains why maintenance of the road is relatively uncommon. Further, the informal access area is owned by both the State of New Hampshire's Shelburne State Forest (near the start of Hogan Road) and the Society for the Protection of New Hampshire Forests (SPNHF) (the remaining area to the Gorham-Shelburne Town Line). The Town of Shelburne also states that the Hogan Road area is not authorized for ATV use.

Response: Staff used information about Hogan Road that was available on the record at the time of the analysis. The additional information filed by GLH on July 14, 2023, states in Table 2 that Hogan Road and its access sites are maintained by the State of New Hampshire as a

trail for hiking and ATV use and owned by "multiple parties." Section 3.3.4, Recreation Resources, has been updated to reflect the new information provided by the Town.

According to section 3.1.9, Hogan Road Informal Access, of the Recreation Use and Facility Assessment Study Report, the road is used by ATVs. Whether or not ATV use is authorized or not, it may be occurring informally at the site, as reflected in the study report. Regardless, this information does not affect our analysis and therefore no changes to the FEA have been made regarding ATV use at the Hogan Road informal access area.

Comment: The Town of Shelburne states that it is illogical not to provide recreation access to the impoundment from the Hogan Road informal access area since this is the easiest access to "quiet water" above the dam. In addition, the Town of Shelburne states that their staff met with GLH on November 10, 2022, and requested large boulders be placed at the primary launching area so campers would not block the access to the impoundment's flat water. The Town requests large boulders to manage the rustic access and limit "de facto" camping immediately adjacent to the impoundment that is a recent and developing problem.

Response: Hogan Road informal access area is owned and maintained by entities other than GLH and is located outside of the project boundary. No specific recommendations or comments regarding the need for additional recreational resources at the Hogan Road informal access were filed in response to the REA notice. Therefore, no additional measures were considered in the EA. Although not on river left, GLH proposed significant enhancements to the put-in/take-out location above the dam on river right, which will provide improved access to the impoundment, as discussed in section 3.3.4, *Recreation Resources*, of this FEA. As for the "de facto" camping, the Town does not provide enough information to justify an additional analysis. According to the recreation study report, only one person was reported camping at the Hogan Road informal access area. Therefore, it is unclear the extent of the "developing problem" and how large boulders would prevent or limit camping.

Comment: The Town of Shelburne disagrees with the descriptions provided for the Reflection Pond and the Meadow Road informal access, specifically regarding the sites' use, capacity, and condition. The Town requests GLH (1) work with the landowner of the reflection pond, Portland Pipeline Corp, to develop a small parking area further back from U.S. Route 2 to create a safer access for viewing the pond, a picnic area, and a canoe launch; and (2) a "landing that is more user friendly with a gentle slope to the water".

Response: Staff used information that was available on the record at the time of the analysis (i.e., the license application and the recreation study report) to describe these recreation areas. The condition of both non-project recreation areas was described by GLH in the recreation study report as "good", which they defined as no visible signs of deterioration or damage, functional and safe for its intended purpose. The varying descriptions of these areas by both the Town and GLH do not change the conclusions of this analysis. These two areas are not located within the project boundary and are privately owned and maintained by entities other than GLH. The Commission has no reason to believe that these areas will not continue to be maintained in "good" condition for the foreseeable future and therefore do not believe an additional analysis is needed at this time.

Comment: The Town of Shelburne requests that the project boundary be modified to include the Hogan Road informal access and the Reflection Pond, even if they are maintained in "rustic condition".

Response: The Reflection Pond is privately owned and there is no information on the record that gives Commission staff reason to believe it won't continue to be maintained in "good" condition for the foreseeable future. Therefore, staff do not recommend the non-project site be brought into the project boundary. Similarly, the Hogan Road informal access is owned and maintained by entities other than GLH. Moreover, we are recommending similar access to the impoundment via the Shelburne access area. For these reasons, there is no justification for including the Hogan Road access as a project facility.

Comment: The National Park Service is concerned that the scheduled bridge replacement by the Department of Transportation may impact GLH's proposal to add parking and restore the portage trail around the dam on river right and requested that this be considered in the recreation management plan.

Response: We have revised draft article 008 to include consultation with the New Hampshire Department of Transportation in the development of the recreation management plan.

Cultural Resources

Comment: The Town of Shelburne requests an interpretive sign regarding the history of the Shelburne powerhouse be developed, installed, and maintained at the new portage parking area.

Response: We agree that the public would benefit from the signage and the benefits are worth the cost. Therefore, we have revised draft article 009 to include a plan and schedule, developed in consultation with the Town of Shelburne, for installing and maintaining interpretive signage regarding the history of the Shelburne dam and powerhouse.

Comment: In addition to the Shelburne powerhouse, The New Hampshire State Historic Preservation Office (SHPO) states that an updated inventory form (2022), available on their EMMIT online database, considers the following features, in addition to the powerhouse, as eligible under Criterion A and C and should be considered in the development of the Historic Properties Management Plan: 1906/1929 powerhouse; Dam #217.01, ca. 1925/1964/1990; Bridge 075/113, 1920/1959; Bridge 075/110, 1973; setting/landscape features including historic walls, impoundment, reflection pond, ledge etc.; 1906 railroad causeway resulting from plant/dam construction; and remnants of historic power line along causeway.

Response: Section 3.3.5, Cultural Resources, and Appendix A have been updated to reflect this finding. As noted in this FEA, the terms of the programmatic agreement would require GLH to address and treat all historic properties identified within the project's APE by implementing a Historic Properties Management Plan (HPMP).