

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Freedom Falls, LLC

Project No. 14421-000 – ME

NOTICE OF AVAILABILITY OF ENVIRONMENTAL ASSESSMENT

(March 25, 2013)

In accordance with the National Environmental Policy Act of 1969 and the Federal Energy Regulatory Commission's regulations, 18 CFR Part 380 (Order No. 486, 52 FR 47879), the Office of Energy Projects has reviewed the application for exemption from licensing for the Freedom Falls Hydroelectric Project, to be located on Sandy Stream, in the Town of Freedom, Waldo County, Maine, and has prepared an Environmental Assessment (EA). In the EA, Commission staff analyzes the potential environmental effects of the project and concludes that issuing an exemption for the project, with appropriate environmental measures, would not constitute a major federal action significantly affecting the quality of the human environment.

A copy of the EA is on file with the Commission and is available for public inspection. The EA may also be viewed on the Commission's website at <http://www.ferc.gov> using the "eLibrary" link. Enter the docket number, excluding the last three digits in the docket number field, to access the document. For assistance, contact FERC Online Support at FERCOnlineSupport@ferc.gov or toll-free at 1-866-208-3676, or for TTY, (202) 502-8659. You may also register online at <http://www.ferc.gov/docs-filing/esubscription.asp> to be notified via email of new filings and issuances related to this or other pending projects. For assistance, contact FERC Online Support.

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Kimberly D. Bose,
Secretary.

ENVIRONMENTAL ASSESSMENT
FOR SMALL HYDROELECTRIC PROJECT
EXEMPTION

Freedom Falls Hydroelectric Project

FERC Project No. 14421-000

Maine

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

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EXECUTIVE SUMMARY

On June 1, 2012, Freedom Falls, LLC (Freedom) filed an application for a small hydroelectric (5 megawatts or less) exemption from licensing to construct, operate, and maintain the proposed 50-kilowatt (kW) Freedom Falls Hydroelectric Project on Sandy Stream, in the Town of Freedom, Waldo County, Maine. The project would not occupy any federal land.

Proposed Action

The Freedom Falls Hydroelectric Project would consist of: (1) the existing 90-foot-long, 12-foot-high concrete-capped stone masonry Freedom Falls dam that includes a 25-foot-long overflow spillway with a crest elevation of 452.5 feet National Geodetic Vertical Datum (NGVD); (2) an existing 2.9-foot-long, 6.1-foot-high trash sluiceway equipped with wooden stoplogs; (3) a new 15.0-foot-long, 0.5-foot-diameter pipe with a bell mouth collar for downstream passage of American eel to be installed at the base of the dam below the trash sluiceway; (4) a new upstream passage facility for American eel; (5) an existing 1.6-acre impoundment with a normal water surface elevation of 453 feet NGVD; (6) an existing 3.7-foot-long, 10.0-foot-high intake structure equipped with wooden stoplogs and a trashrack with 1-inch clear bar spacing; (7) a new 60.0-foot-long, 2.5-foot-diameter penstock; (8) an existing 30-foot-long, 20-foot-wide generating room, located in an existing mill building containing a new 50-kW turbine-generating unit; (9) an existing 20-foot-long, 15-foot-wide tailrace; (10) an existing 30-foot-long, 240-volt transmission line connecting the generating room to the regional grid; and (11) appurtenant facilities. The project would bypass approximately 50 feet of Sandy Stream, but the bypassed reach would remain wetted during project operation due to spill, leakage, proposed minimum flow releases, and flow released from the proposed downstream passage facility. The proposed project would have an average annual generation of approximately 66 megawatt-hours (MWh).

To protect environmental resources, Freedom proposes to: (1) operate the project in a run-of-river mode; (2) construct a downstream passage facility for American eel that would be operated at night from August 1 through October 15;¹ (3) design and construct an upstream passage facility for American eel in consultation with the U.S. Department of the Interior (Interior) and Maine Department of Marine Resources (Maine DMR); and (4) release a minimum flow of 2 cubic feet per second (cfs) through the downstream eel passage facility at night from August 1 through October 15 and release a minimum flow

¹ Neither Freedom nor the agencies define “night” operation; however, staff assume that the downstream American eel passage facility would be operated from sunset to sunrise.

of 3 cfs over the spillway at all other times.

The existing mill building, where the turbine-generator unit would be located, is currently listed on the National Register of Historic Places. In May 2012, Freedom began rehabilitating the existing mill building in consultation with the Maine Historic Preservation Commission (Maine SHPO) and National Park Service and most of the rehabilitation work has been completed.²

Public Involvement and Areas of Concern

Before filing its application for exemption from licensing, Freedom conducted a pre-filing meeting and site visit with the agencies on July 28, 2011, as well as pre-filing meetings on November 10, 2011, and November, 14, 2011, with the Town of Freedom Planning Board and Board of Selectmen. Freedom invited the general public to participate in the meetings held on November 10 and 14, 2011.

On June 1, 2012, Freedom filed its application for exemption from licensing.³ On June 13, 2012, the Commission issued a public notice tendering the final application for exemption from licensing and soliciting additional study requests. On July 31, 2012, the Interior provided comments and requested a study to identify a location to construct an upstream passage facility for American eel.⁴

On August 31, 2012, the Commission issued a notice accepting the application. On October 16, 2012, the Commission issued a public notice of its intent to waive scoping and stating that the application was ready for environmental analysis and requesting comments, terms and conditions, and recommendations.

The primary issue associated with the construction and operation of the Freedom Falls Hydroelectric Project is providing safe and efficient upstream and downstream passage for American eel at Freedom Falls dam.

Alternatives Considered

² See <http://www.millatfreedomfalls.com>.

³ On January 11, 2012, Freedom distributed a draft application for exemption from licensing and requested comments from stakeholders. On March 28, 2012, Commission staff issued a letter that identified potential deficiencies in the draft application and additional information that should be included in any final application.

⁴ On November 15, 2012, Interior filed a section 30(c) condition specifying that the upstream eel passage facility will be located at the base of the project spillway; therefore, the requested study is not needed.

This Environmental Assessment (EA) analyzes the effects of project operation and recommends conditions for any exemption from licensing that may be issued. In addition to Freedom's proposal, we consider two alternatives: (1) the applicant's proposal including the section 30(c) conditions issued by Interior and additional measures recommended by staff and (2) a no-action alternative – denial of the exemption application.

In addition to Freedom's proposed measures, the staff alternative would require Freedom to: (1) develop and implement an operation compliance monitoring plan to ensure compliance with run-of-river operation, impoundment operating elevations, and minimum flow releases; (2) consult with the Maine SHPO prior to implementing any project modifications, including maintenance activities, land-clearing or land-disturbing activities, or changes to project operation or facilities, that do not require Commission approval but could affect cultural resources; and (3) consult with the Maine SHPO if previously unidentified cultural resources are discovered during the course of constructing, maintaining, or developing project works or other facilities.

Staff Alternative

Aquatic Resources – Operating the project in a run-of-river mode would protect aquatic habitat and fisheries in the impoundment and in Sandy Stream downstream of the proposed project. The installed trashrack would protect fish from entrainment, impingement, and potential turbine injury and mortality. Constructing and operating a downstream passage facility would limit turbine entrainment of American eel by providing a safe downstream passage route at the project. Designing and constructing an upstream passage facility, in consultation with Interior and Maine DMR, would provide safe and efficient upstream passage for American eel and provide access to habitat upstream of Freedom Falls dam. Developing and implementing an operation compliance monitoring plan would ensure compliance with run-of-river operation and minimum flow releases.

Terrestrial Resources – Operating the project in a run-of-river mode would protect wetlands and riparian vegetation in the project area. Any adverse effects of project operation on terrestrial resources would be minor.

Threatened and Endangered Species – No federally listed threatened or endangered species or critical habitat are known to occur in the project area; therefore, operation of the project would have no effect on federally listed species.

Land Use, Recreation, and Aesthetic Resources – There is no history of significant

recreational activity in the immediate vicinity of the proposed project. The Town of Freedom owns and maintains a boat launch that provides public access upstream of the project; however, operation of the project would not affect the boat launch or any other recreational resources. Operation of the project will reduce flows over the dam; however, the proposed 3-cfs minimum flow that would be released year-round over the spillway during the day would maintain the visual character of the Freedom Falls dam and the downstream falls.

Cultural Resources – Constructing and operating the project would not alter the historic character of the existing structures, including the existing mill building at Freedom Falls dam.

Consulting with the Maine SHPO prior to implementing any maintenance activities, land-clearing or land-disturbing activities, or changes to project operation or facilities that do not require Commission approval would ensure protection of cultural resources at the project. Consulting with the Maine SHPO if previously unidentified cultural resources are discovered during the course of constructing, maintaining, or operating the project works or other facilities would ensure proper treatment of those resources.

No Action

Under the no-action alternative (denial of the application), the project would not be constructed, it would not generate an annual average of 66 MWh, and environmental resources in the project area would not be affected.

Conclusions

Based on our analysis, we recommend granting an exemption for this project as proposed by Freedom with the section 30(c) conditions provided by Interior and three additional staff-recommended measures. We chose the staff alternative as the preferred alternative because: (1) the project would provide a dependable source of electrical energy for the Freedom Falls mill complex and local area; (2) the 50 kW of electric capacity would come from a renewable resource that would not contribute to atmospheric pollution; and (3) the recommended environmental measures would adequately protect and enhance environmental resources affected by the project.

We conclude that granting an exemption from licensing for the project, with the staff-recommended environmental measures, would not be a major federal action significantly affecting the quality of the human environment.

ENVIRONMENTAL ASSESSMENT

Federal Energy Regulatory Commission
Office of Energy Projects
Division of Hydropower Licensing
Washington, D.C.

FREEDOM FALLS HYDROELECTRIC PROJECT FERC No. 14421-000, Maine

I. APPLICATION

On June 1, 2012, Freedom Falls, LLC (Freedom) filed an application with the Federal Energy Regulatory Commission (Commission) for a small hydroelectric (5 megawatt [MW] or less) exemption from licensing for the proposed 50-kilowatt (kW) Freedom Falls Hydroelectric Project. The project would be located on Sandy Stream, in the Town of Freedom, Waldo County, Maine (figures 1 and 2). The project would not occupy any federal lands.

II. PURPOSE OF ACTION AND NEED FOR POWER

A. Purpose of Action

The Commission must decide whether to grant Freedom an exemption from licensing for the project, and what, if any, conditions should be included in any exemption issued. Issuing an exemption from licensing would allow Freedom to generate electricity, making electric power from a renewable resource available to the Freedom Falls mill complex and local area. In this Environmental Assessment (EA), we assess the effects of constructing and operating the project as proposed by Freedom, alternatives to the proposed project, a no-action alternative, and recommend conditions to become a part of any exemption from licensing issued.

B. Need for Power

Under section 213 of the Public Utility Regulatory Policies Act (PURPA), the authority of the Commission to grant an exemption from licensing is not limited by a determination of the need for power. See Briggs Hydroelectric, 32 FERC ¶ 61,399 (1985). See also David Cereghino, 35 FERC ¶ 61,067 (1986).

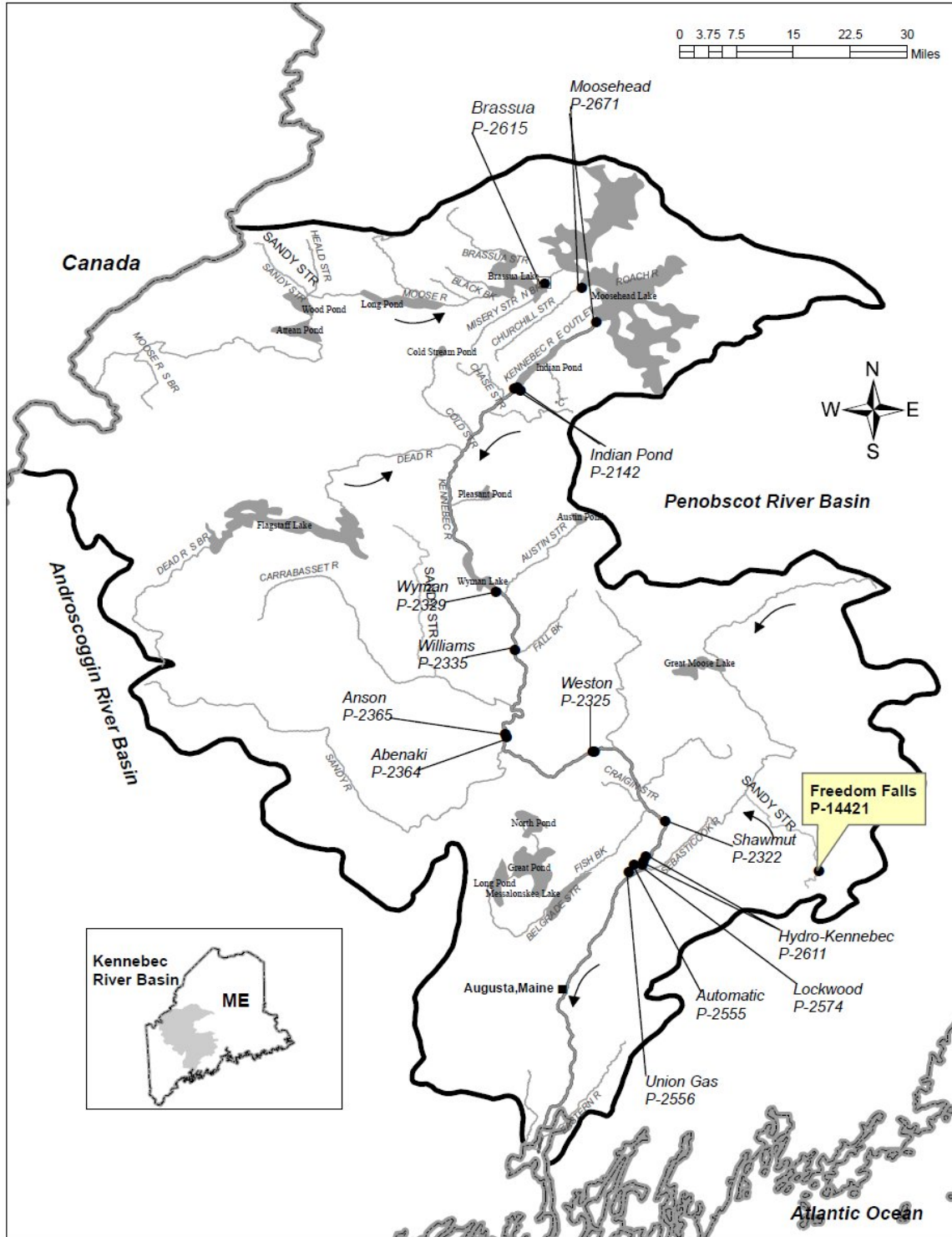


Figure 1. Location of the Freedom Falls Project and other hydroelectric dams in the Kennebec River Basin. (Source: staff)

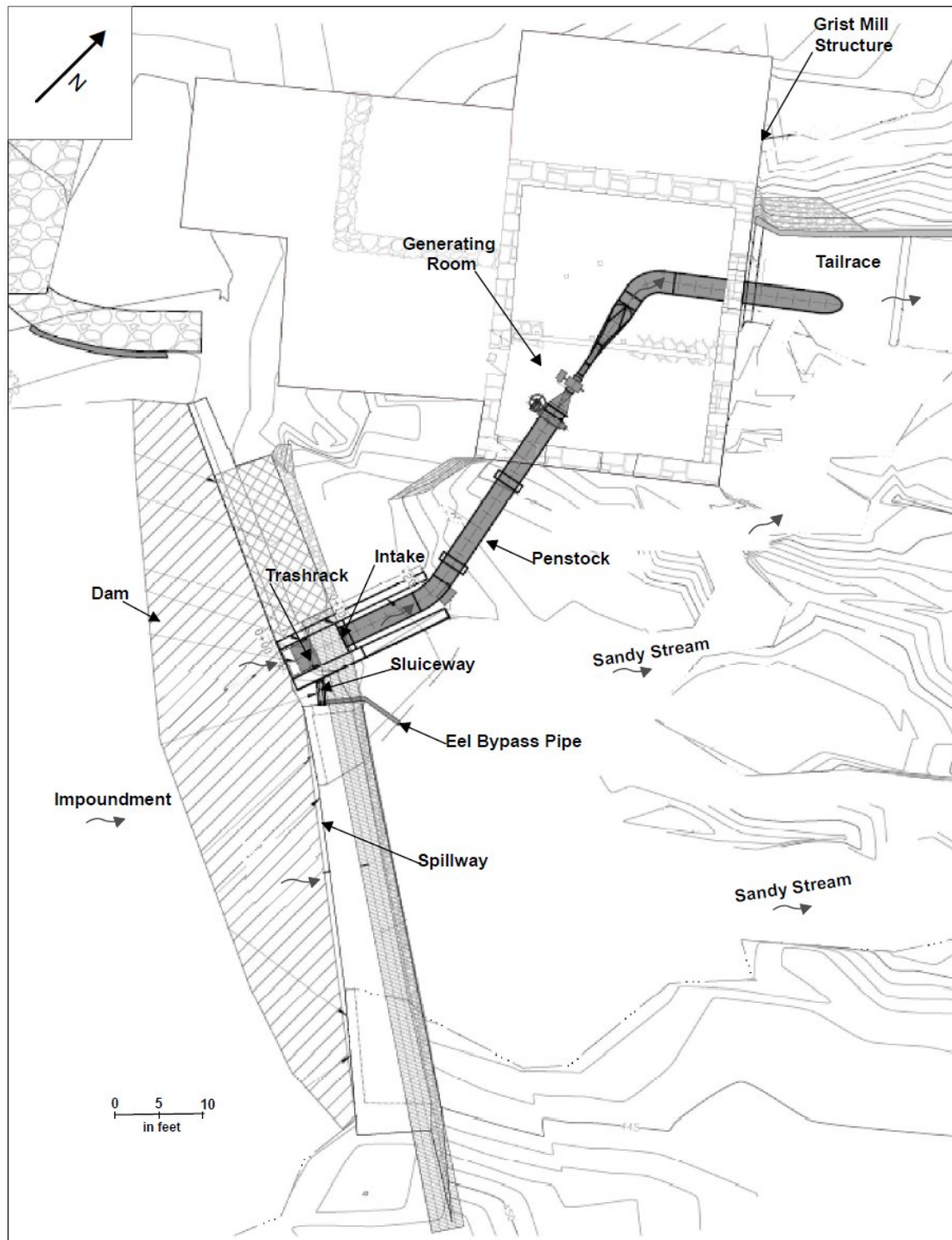


Figure 2. Freedom Falls Project site plan (does not show upstream passage facility because design and specific location were not known at time this drawing was prepared). (Source: Exemption application, as modified by staff)

III. PROPOSED ACTION AND ALTERNATIVES

A. Proposed Action

1. Project Description

The Freedom Falls Hydroelectric Project would consist of: (1) the existing 90-foot-long, 12-foot-high concrete-capped stone masonry Freedom Falls dam that includes a 25-foot-long overflow spillway with a crest elevation of 452.5 feet National Geodetic Vertical Datum (NGVD); (2) an existing 2.9-foot-long, 6.1-foot-high trash sluiceway equipped with wooden stoplogs; (3) a new 15.0-foot-long, 0.5-foot-diameter pipe with a bell mouth collar for downstream passage of American eel to be installed at the base of the dam below the trash sluiceway; (4) a new upstream passage facility for American eel; (5) an existing 1.6-acre impoundment with a normal water surface elevation of 453 feet NGVD; (6) an existing 3.7-foot-long, 10.0-foot-high intake structure equipped with wooden stoplogs and a trashrack with 1-inch clear bar spacing; (7) a new 60.0-foot-long, 2.5-foot-diameter penstock; (8) an existing 30-foot-long, 20-foot-wide generating room, located in the existing mill building containing a new 50-kW turbine-generating unit; (9) an existing 20-foot-long, 15-foot-wide tailrace; (10) an existing 30-foot-long, 240-volt transmission line connecting the generating room to the regional grid; and (11) appurtenant facilities. The project would bypass approximately 50 feet of Sandy Stream, but the bypassed reach would remain wetted during project operation due to spill, leakage, proposed minimum flow releases, and flow released from the proposed downstream passage facility. The proposed project would have an average annual generation of approximately 66 megawatt-hours (MWh).

2. Proposed Project Operation

Freedom proposes to operate the project in a run-of-river mode, where outflow from the project would equal inflow. Freedom indicates that it would maintain the impoundment between 452.5 feet (0.5 foot below normal water surface elevation) and 453 feet NGVD (normal water surface elevation) during normal operations. The 50-kW turbine would have a minimum hydraulic capacity of 8 cfs and a maximum hydraulic capacity of 30 cfs.

From October 16 through July 31, and during the day⁵ from August 1 through October 15, the project would release a continuous minimum flow of 3 cfs or inflow (whichever is less) over the spillway. At flows less than 11 cfs (the minimum operating

⁵ Freedom did not define “day;” however, staff assume that “day” is the period from sunrise to sunset.

capacity of the project plus the minimum flow), the project would not operate and all flow would be released over the spillway. At flows between 11 and 33 cfs (the minimum and maximum operating capacities of the project plus the minimum flow), the project would operate and 3 cfs would be released over the spillway. At flows greater than 33 cfs, the project would operate at its 30-cfs maximum capacity and all remaining flow would pass over the spillway.

During the night from August 1 through October 15, the project would release 2 cfs or inflow (whichever is less) through the downstream passage facility for American eel.⁶ At flows less than 10 cfs (the minimum operating capacity of the project plus the downstream eel passage facility flow), the project would not operate, 2 cfs would be released through the downstream passage facility, and all remaining flow would be released over the spillway. At flows between 10 and 32 cfs (the minimum and maximum operating capacities of the project plus the downstream eel passage facility flow), the project would operate and 2 cfs would be released through the downstream eel passage facility. At flows greater than 32 cfs, the project would operate at its maximum capacity, 2 cfs would be released through the downstream eel passage facility, and all remaining flow would pass over the spillway.

3. Proposed Measures

In addition to operating the project in a run-of-river mode and releasing flows for aesthetics and downstream American eel passage, Freedom proposes the following environmental measures.

- Construct a downstream eel passage facility and operate the facility at night from August 1 through October 15 each year.
- Design and construct an upstream eel passage facility in consultation with the U.S. Department of the Interior (Interior) and Maine Department of Marine Resources (Maine DMR).

B. Section 30(c) Conditions

Pursuant to section 30(c) of the FPA, 16 U.S.C. § 823a(c), federal and state fish and wildlife agencies have mandatory conditioning authority on exempted projects. The

⁶ Neither Freedom nor the agencies define “night” operation; however, staff assume that the downstream American eel passage facility would be operated from sunset to sunrise.

Interior filed such conditions on November 15, 2012, (see Appendix A). The conditions are summarized below.

- Operate the project in a run-of-river mode with inflow equal to outflow.
- Maintain the impoundment at normal pool level with no more than 0.5-foot of fluctuation during normal operation.⁷
- Install a permanent trashrack on the intake structure with 1-inch or less clear-bar spacing or install trashrack overlays with 1-inch clear spacing from August 1 through October 15 each year.
- Install a gated bypass pipe for downstream American eel passage and operate the facility nightly from August 1 through October 15 each year.
- Install an upstream fish passage facility for juvenile American eel at the base of the project spillway and operate the facility annually from May 15 through August 31.
- Allow the agencies to inspect the project area at any time while the project operates to monitor compliance with agency terms and conditions.
- Reserves the right to revise and add terms and conditions of the exemption to carry out agency responsibilities with respect to fish and wildlife resources.
- Include the above terms and conditions in any conveyance (by lease, sale, or otherwise) of the exemptee's interests.

⁷ This condition is consistent with Freedom's proposal to maintain the impoundment between 452.5 feet (0.5 foot below normal water surface elevation) and 453 feet NGVD (normal water surface elevation) during normal operation.

C. Recommendations

On October 16, 2012, the National Marine Fisheries Service (NMFS) filed a recommendation that any exemption order issued for the project include standard Article 2 and reserve authority for NMFS to require fish passage in the future. This recommendation is administrative and would have no environmental effects; therefore, it is not addressed in this EA.

D. Additional Staff-Recommended Measures

In addition to Freedom's proposed measures and the 30(c) conditions filed by Interior, we recommend that Freedom: (1) develop and implement an operation compliance monitoring plan to ensure compliance with run-of-river operation, impoundment operating elevations, and minimum flow releases; (2) consult with the Maine Historic Preservation Commission (Maine SHPO) prior to implementing any project modifications, including maintenance activities, land-clearing or land-disturbing activities, or changes to project operation or facilities, that do not require Commission approval but could affect cultural resources; and (3) consult with the Maine SHPO if previously unidentified cultural resources are discovered during the course of constructing, maintaining, or operating project works or other facilities.

E. No-Action Alternative

Under the no-action alternative (denial of the application), the project would not be constructed and it would not annually generate an estimated average of 66 MWh and environmental resources in the project area would not be affected.

IV. CONSULTATION AND COMPLIANCE

A. Agency Consultation

The Commission's regulations require that applicants consult with appropriate state and federal agencies, tribes, and the public before filing an exemption application. This consultation is required to comply with the Endangered Species Act, the National Historic Preservation Act, and other federal statutes. Pre-filing consultation must be completed and documented in accordance with Commission regulations.

B. Public Outreach and Scoping

As part of their pre-filing consultation, Freedom held a pre-filing meeting and site

visit with the agencies on July 28, 2011. Freedom also conducted two pre-filing meetings on November 10 and November, 14, 2011, with the Town of Freedom Planning Board and Board of Selectmen and the general public. On January 11, 2012, Freedom distributed a draft application for exemption from licensing and requested comments from stakeholders. On March 28, 2012, Commission staff issued a letter that identified potential deficiencies and additional information needed in the application.⁸ Freedom addressed these comments in the final application filed on June 1, 2012, and in additional information filed on September 28, 2012, and February 27, 2013.

Before preparing this EA, the Commission solicited additional study requests by public notice on June 13, 2012. Comments were filed by Interior and NMFS, and Interior requested a study to identify a location to construct an upstream passage facility for American eel.⁹

On October 16, 2012, the Commission issued a public notice of its intent to waive scoping. No comments were filed on the intent to waive scoping.

C. Interventions

On August 31, 2012, the Commission issued a public notice accepting the application and soliciting motions to intervene.¹⁰ A notice of intervention was filed by the NMFS on October 16, 2012.

D. Comments and Recommendations

On October 16, 2012, the Commission issued a public notice stating the application was ready for environmental analysis and requesting final comments, recommendations, and terms and conditions.¹¹ The following entities filed comments and final terms and conditions:

⁸ A copy of the Commission staff's March 28, 2012, letter is included in the final exemption application.

⁹ Interior's section 30(c) condition 5 filed on November 15, 2012, specifies that the upstream eel passage facility will be located at the base of the project spillway; therefore, the requested study is not needed.

¹⁰ The notice established October 30, 2012, as the deadline to file motions to intervene and comments.

¹¹ The notice established November 15, 2012, as the deadline to file comments, recommendations, and terms and conditions.

<u>Commenting Entity</u>	<u>Date Filed</u>
Interior	November 15, 2012
NMFS	October 16, 2012

Freedom did not file any response to the Interior and the NMFS comment letters.

E. Compliance

1. Endangered Species Act

Section 7 of the Endangered Species Act requires federal agencies to ensure that their actions are not likely to jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of the critical habitat of such species. In a letter to Freedom dated May 30, 2012 (included in the exemption application), the U.S. Department of the Interior's Fish and Wildlife Service (FWS) stated that there are no federally listed, or proposed for listing, threatened or endangered species or critical habitat known to occur within the project area. Thus, staff concludes that issuing an exemption from licensing for the Freedom Falls Project would have no effect on threatened or endangered species or critical habitat and no further action under the Endangered Species Act is required.

2. Section 106 of the National Historic Preservation Act

Section 106 of the National Historic Preservation Act requires that federal agencies "take into account" how the agency's 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).

In a letter dated August 4, 2011, the Maine SHPO recommended that the Commission conclude that the proposed project would have no adverse effect on historic properties, including the existing mill building at the Freedom Falls dam. In a letter dated September 7, 2011, the National Park Service (NPS) stated that it had reviewed the Historic Preservation Certification Application for the existing mill at the Freedom Falls dam, and determined that the property appears to meet the National Register Criteria for Evaluation and would likely be listed in the National Register if nominated by the Maine

SHPO. In a letter dated May 11, 2012, the Maine SHPO stated that the mill at the Freedom Falls dam was entered into the National Register on April 19, 2012, by NPS.¹²

In May 2012, Freedom began rehabilitating the existing mill building in consultation with the Maine SHPO and NPS and most of the rehabilitation work has been completed.¹³

V. ENVIRONMENTAL ANALYSIS

In this section, the general environmental setting in the project area and cumulative effects are described. An analysis of the environmental effects of the proposed action and action alternatives is also included. Sections are organized by resource area (aquatic resources, cultural resources, etc.). Under each resource area, historic and current conditions are first described. The existing condition is the baseline 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 section VI of the EA.

Unless noted otherwise, the sources of our information are Freedom's exemption application (Freedom, 2012a) and additional information filed by Freedom (Freedom, 2012b, and 2013).

A. General Description of the Area

The project would be located on Sandy Stream in the Town of Freedom, Maine at the site of the existing Freedom Falls dam. The Freedom Falls dam was originally built in 1834 and rebuilt in 1927. The existing mill building was constructed in 1834 and originally operated as a gristmill using mechanical hydropower from the dam. The gristmill was converted into a wood turning mill in 1894 and operated in this capacity until around 1962. The dam and existing mill building have been unoccupied since the 1960s. As part of the proposed project, the existing mill building would be rehabilitated to provide hydroelectric generation to mill tenants, with the excess power diverted to the regional grid on a net metering basis.

Sandy Stream is a tributary of the Kennebec River in the Kennebec River Basin. The headwaters of Sandy Stream begin at the outlet of Sandy Pond, located immediately upstream of Freedom Falls dam. From the dam, Sandy Stream flows north to Unity Pond

¹² Copies of the Maine SHPO's August 4, 2011, and May 11, 2012, letters, and NPS's September 7, 2011, letter are included in the final exemption application.

¹³ See <http://www.millatfreedomfalls.com>.

where it flows into Twenty-Five Mile Stream. Twenty-Five Mile Stream flows northwest to its confluence with the Sebasticook River which is tributary to the Kennebec River (see figure 1).

Land use in the watershed is primarily rural with the majority of land consisting of forested areas and some agricultural, municipal, industrial, and residential areas.

There are no other hydroelectric projects located on Sandy Stream.

B. Cumulative Effects Analysis

According to the Council on Environmental Quality's regulations for implementing NEPA (40 C.F.R., section 1508.7), an action may cause cumulative impacts on the environment if its impacts overlap in time and/or space with the impacts of other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time, including hydropower and other land and water development activities.

Based on our review of Freedom's application for an exemption from licensing and agency and public comments, staff has not identified any resources as potentially being cumulatively affected by constructing and operating the project.

C. Proposed Action and Action Alternatives

Only resources that would be affected, or about which comments have been received, are addressed in detail in this EA and discussed in this section. Commission staff has not identified any substantive geology and soils or socioeconomic issues associated with the proposed action; therefore, we do not assess effects on these resources in this EA. Additionally, because no federally listed threatened or endangered species or critical habitat are known to occur in the project area, Commission staff does not assess environmental effects on this resource.

1. Aquatic Resources

Affected Environment

The drainage area of Sandy Stream at the location of the proposed project is approximately 7.8 square miles. The impoundment created by Freedom Falls dam has a surface area of 1.6 acres at a normal water surface elevation of 453 feet NGVD.

Upstream of the Freedom Falls dam is Sandy Pond, a 435-acre impoundment formed by an earthen dam. Water flows out of Sandy Pond into a 14-acre pond, also impounded by an earthen dam, and then flows downstream into the 1.6-acre Freedom Falls impoundment. Sandy Stream generally exhibits high flows during the spring (March through May) and low flows during the summer (July through September). To estimate stream flow at the project, the flow data for United States Geological Survey gage no. 01049130 on Johnson Brook in South Albion, Maine, located about nine miles downstream from the Freedom Falls dam, was adjusted based on the ratio of the drainage areas of Sandy Stream at the Freedom Falls dam and the gage location. Flows in Sandy Stream at the project location meet or exceed the hydraulic capacity of the proposed project (30 cfs) eight percent of the time (see figure 1 of Exhibit A). Flows in Sandy Stream would exceed the minimum generating capacity of 11 cfs of the project (8 cfs minimum hydraulic capacity of the project, plus 3 cfs minimum flow) approximately 25 percent of time.¹⁴

Water Quality

There are no site-specific water quality data; however, water quality monitoring upstream of the project indicated that Sandy Pond is eutrophic based on concentrations of chlorophyll-a and total phosphorous. Sandy Pond is shallow and well mixed from wind action; therefore, dissolved oxygen (DO) levels in Sandy Pond did not change with depth. In August 2003, water temperature in Sandy Pond ranged from 24.2 to 27.2 degrees Celsius and DO ranged from 7.3 to 8.2 milligrams per liter.

Fishery Resources

No site-specific information on aquatic resources is available; however, it is likely to be similar to upstream Sandy Pond. Sandy Pond has a warmwater fishery that primarily includes brown bullhead, chain pickerel, golden shiner, largemouth bass, white sucker, white perch, and yellow perch. Two species of mussels have been documented in Sandy Pond: Eastern elliptio and Eastern floater.

Presently, there are no anadromous fish in the project vicinity.¹⁵ Historically, anadromous fish, such as American shad, alewife, blue back herring and Atlantic salmon were present in Sandy Stream. Maine DMR has initiated an anadromous fish restoration

¹⁴ During the night from August 1 through October 15, the minimum generating capacity would be 10 cfs (8 cfs minimum hydraulic capacity of the project, plus 2 cfs minimum flow through the downstream eel passage facility) instead of 11 cfs.

¹⁵ An anadromous fish is a fish that is born in freshwater, spends much of its life in saltwater, and returns to freshwater to spawn.

plan for the Kennebec River Basin, which includes Sandy Stream. The plan calls for restoring migratory populations of American shad, blueback herring, alewife, Atlantic sturgeon, shortnose sturgeon, rainbow smelt, Atlantic salmon, striped bass, sea lamprey, and American eel. There are multiple dams downstream of the project that do not have fish passage facilities and currently block upstream passage for anadromous fish.

American eel, a catadromous species, occur upstream of the project site in Sandy Pond.¹⁶ Juvenile American eel migrate upstream into Sandy Stream, passing a variety of dams and obstructions along the way. Sandy Stream serves as rearing habitat for both juvenile and adult American eel. Mature adult American eel (5 – 40 years in age) typically migrate out of freshwater rearing habitat, such as Sandy Stream, in the late summer and fall and migrate to the Sargasso Sea to spawn and die (FWS, 2013).

Environmental Impacts and Recommendations

Mode of Operation

Freedom proposes to operate the project in a run-of-river mode, with inflow equal to outflow, and to maintain the impoundment water surface elevation between 452.5 and 453 feet NGVD. The project would generate electricity using 8 cfs (i.e. the minimum hydraulic capacity of the project) to 30 cfs (i.e. the maximum hydraulic capacity of the project). When the project is not operating, all flow would be passed over the Freedom Falls dam spillway and/or through the downstream eel passage facility.

Interior's 30(c) condition 1 would require Freedom to operate the project in a run-of-river mode with a 0.5-foot impoundment fluctuation limit during normal operations to maintain existing aquatic habitat and water quality downstream of the project.

Staff Analysis

Operating the proposed hydroelectric project in a run-of-river mode would result in no change in the amount, schedule, or duration of flow released to Sandy Stream downstream of the project. Run-of-river mode would also minimize the length of time water is retained in the impoundment and help avoid increasing water temperatures in the upper levels of the impoundment from solar heating. Also, this measure would limit fluctuating water levels which influence the reproductive success of fishes that spawn in near-shore areas (Sammons and Bettoli, 2000). By operating the project in a run-of-river mode, habitat in the project impoundment and habitat in Sandy Stream downstream of the

¹⁶ A catadromous fish is a fish that is born in saltwater, spends much of its life in freshwater, and returns to saltwater to spawn.

project tailrace would essentially be unchanged compared to current conditions, and aquatic organisms, including fish and benthic macroinvertebrates, would be unaffected.

During project operation, flow diverted to the powerhouse would bypass approximately 50 feet of Sandy Stream; however, the bypassed reach would remain wetted during project operation due to spill, leakage, the proposed minimum flows, flow released from the downstream eel passage facility, and/or inundation from flows released from the powerhouse.

Trashrack Design

To protect downstream out-migrating adult American eel from entrainment and mortality, Interior's 30(c) condition 2 would require Freedom to install a permanent trashrack with a 1-inch or less clear bar spacing or install a trashrack overlay with a 1-inch clear bar spacing from August 1 through October 15.

To limit the entrainment of fish during project operation, Freedom installed a trashrack with 1-inch clear bar spacing and an estimated approach velocity of 1.81 feet per second (fps).¹⁷

Staff Analysis

Fish species residing in the project impoundment or migrating past the project could be entrained at the proposed project's intake and, consequently, be injured or killed while passing through the proposed project's turbine during operation. Fish could also be impinged on the project's trashrack during project start-up and operation, resulting in injury or death.

The 1-inch clear bar spacing of the installed trashrack is consistent with the trashrack that would be required by Interior's 30(c) condition 2 and would prevent most adult and some juvenile fish, including American eel, from passing into the intake. In addition, the approach velocity should limit entrainment and impingement because most fish in the project area are likely to have a burst swimming speed greater than 1.81 fps. Further, some resident fish, especially open-water species such as yellow perch, may move downstream with spilled flows and avoid the area near the project's intake.

¹⁷ Freedom estimated the approach velocity based on the trashrack area (17 square feet below normal water surface elevation at 453 feet NGVD) and the maximum hydraulic capacity of the project (30 cfs).

Downstream Eel Passage

Freedom proposes to construct a downstream eel passage facility and operate the facility at night from August 1 through October 15 each year. Interior's 30(c) condition 3 would require Freedom to install a gated bypass pipe with a bell mouth collar immediately adjacent to the turbine intake and operate the facility at night from August 1 through October 15 each year to provide safe and effective downstream passage for American eel.

Staff Analysis

American eel occur in the proposed project impoundment and migrate downstream through the project area in the fall. Under existing conditions, American eel likely move downstream of the Freedom Falls dam by passing over the spillway with stream flow. During proposed project operation, most of the flow passing over the spillway would be diverted into the project's intake; therefore, American eel could be attracted to the intake instead of passing over the spillway. While the installed trashrack would likely limit entrainment and impingement of migrating American eel, some fish could still be injured or killed due to flow diversions during the fall migration period.

To protect American eel, Freedom proposes and Interior's 30(c) condition 3 would require construction of a downstream eel passage facility that would be operated at night from August 1 through October 15 each year. Installing a downstream eel passage facility would provide American eel a safe means of passage downstream of the project and would limit entrainment and impingement of American eel. Operating the facility at night during the fall migration would protect a significant portion of the out-migrating run since fall nights are the times when downstream American eel movements tend to be highest. American eel attracted to the proposed project intake flow during their downstream movements would enter the downstream eel passage facility upstream of the trashrack and safely would pass downstream of the dam.

Upstream American eel Passage

Freedom proposes to design and construct an upstream eel passage facility in consultation with Interior and Maine DMR.

Interior's 30(c) condition 4 would require Freedom to provide an upstream fish passage facility for juvenile American eel at the base of the project spillway and operate the facility from May 15 through August 31 each year. The design and specific location of the upstream passage facility would be determined in consultation with Interior and Maine DMR.

Staff Analysis

American eel occur upstream of Freedom Falls dam; however, it is not known how they move upstream over the dam. It is possible that they pass upstream by using wetted portions of the spillway. Operation of the project would reduce spill and may reduce the ability of American eel to pass upstream of Freedom Falls dam. Installing a permanent upstream passage facility would provide safe, volitional passage for any American eel that are attracted to the spillway area and provide access to rearing habitat upstream of the project. The location and design of the upstream passage facility would be determined in consultation with the resource agencies after the project begins operation.

Operation Compliance Monitoring Plan

Freedom proposes and Interior's section 30(c) condition 1 requires that Freedom operate the project in a run-of-river mode and to maintain the impoundment water surface elevation between 452.5 and 453 feet NGVD. Freedom also proposes to release a minimum flow of 2 cfs through the downstream eel passage facility at night from August 1 through October 15, and release a minimum flow of 3 cfs over the spillway at all other times. However, no measures are proposed to monitor compliance these operations.

Staff Analysis

Development of an operation compliance monitoring plan that includes descriptions of all procedures for operating the project would provide the Commission with a means to verify compliance with all operational requirements.

2. Terrestrial Resources

Affected Environment

The developed land immediately northwest of Sandy Stream in the proposed project area consists of Mill Street, a gravel parking area, and two private residences. A band of broad-leaved deciduous trees and shrubs borders the impoundment and separates the shoreline from the adjacent developed areas. The land southeast of Sandy Stream in the project area was previously cleared for a sawmill operation and consists of small wetland pockets and early successional vegetation. A variety of herbaceous plants and deciduous shrubs cover a few granite outcroppings within Sandy Stream downstream of the dam.

Environmental Impacts and Recommendations

Freedom proposes to operate the project in a run-of-river mode and to maintain the impoundment at normal water surface elevation with no more than 0.5 foot of fluctuation during normal operations. Interior 30(c) condition 1 requires run-of-river operation and the impoundment water level to be maintained at normal pool elevation with no more than 0.5 foot of fluctuation during normal operations.

Staff Analysis

At inflows greater than 10 cfs, flows could be diverted for generation and released from the tailrace on the northwestern side of Sandy Stream; therefore, proposed project operation would change the amount, schedule, and duration of flow released to the channel on the northwestern side of Sandy Stream. However, because the northwestern side of Sandy Stream includes steep stream banks, granite outcroppings, and an existing retaining wall the existing riparian vegetation would be protected from any increases in flows.

Operating the project in a run-of-river mode with no more than 0.5 foot of impoundment fluctuation during normal operations would result in a relatively stable impoundment and maintain downstream flows in Sandy Stream; therefore, any effects of project operation on wetlands or riparian vegetation would be minor.

3. Land Use, Recreation, and Aesthetic Resources

Affected Environment

Land Use and Recreation

Land use in the project area is primarily rural with forested, agricultural, municipal, industrial, and residential areas. The 4.5-acre parcel where the proposed project would be located has not been occupied since 1962 when hydropower operation ceased at the existing mill building at the Freedom Falls dam. The project site is located in the limits of Freedom Village and is surrounded by private residences, Town of Freedom municipal buildings, and open space owned by the Town of Freedom. Additionally, an organic farm operation, consisting of a 40-acre field and 80-acre woodlot, borders the western end of the Freedom Falls impoundment and Sandy Pond. Immediately upstream, the shoreline of Sandy Pond is predominately forested with a few scattered private properties. Three large commercial wind turbines of the Beaver Ridge wind project are located on the ridgeline northwest of Sandy Pond.

The shoreline around the 1.6-acre project impoundment is owned by Freedom and

is accessible to the public. There are no formal recreation facilities at the project and there is no history of any significant recreational use of the impoundment or immediate downstream areas. Immediately upstream, Sandy Pond is used for boating and fishing, as well as snowmobiling on the ice in the winter. Boating access to the 435-acre pond is available from a public boat launch, owned and maintained by the Town of Freedom, located on the northeastern end of Sandy Pond. Hunting also occurs in the project area.

Aesthetics

Sandy Stream is not designated as a Wild and Scenic River, but the project site is considered scenic. The existing mill building and Freedom Falls dam are the predominate features within Town of Freedom and can be viewed looking upstream from the Pleasant Street Bridge, which crosses Sandy Stream approximately 150 feet downstream of Freedom Falls dam. Photographs of the existing mill building and Freedom Falls dam taken from Pleasant Street are featured in the Town of Freedom Grange and the Freedom Historical Society's publication, *Historical Scrapbook: Freedom, Maine 1794-1976*.

Environmental Impacts and Recommendations

Land Use and Recreation

Freedom does not propose any measures for recreational use at the project due to limited public use of the impoundment, if any.

Staff Analysis

There is no history of significant recreational use at the project, nor any interest in establishing recreational facilities at the project. Nearby, boating and fishing access is provided by the public boat launch located upstream of the project on Sandy Pond. The boat launch is owned and operated by the Town of Freedom; therefore, it is reasonable to assume the town would continue to operate the facility and maintain public access to Sandy Pond and the area upstream of the project. The proposed project would not affect access or recreational use in the project and the shoreline around the project impoundment would continue to be accessible to the public.

Aesthetics

Freedom proposes a run-of-river mode of operation and to release a year-round minimum flow of 3 cfs over the spillway during daylight hours for aesthetics. Further, all restoration activities to the existing mill building and surrounding landscape would be consistent with the historic appearance of the site.

Staff Analysis

As discussed above, the existing mill building and Freedom Falls dam are the primary aesthetic features within the Town of Freedom. Restoring the mill building and clearing the surrounding landscape would improve the existing view from the Pleasant Street Bridge. The proposed project would reduce flows over the dam when the project is operating. Releasing a minimum flow of 3 cfs over the spillway during daylight hours (i.e., sunrise to sunset) would maintain the visual aesthetics of the dam and downstream falls.

4. Cultural Resources

Affected Environment

Area of Potential Effect

The Advisory Council on Historic Preservation defines an area of potential effect (APE) as the geographic area or areas in which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The APE for the Freedom Falls Hydroelectric Project includes: (a) lands enclosed by the project boundary; and (b) lands or properties outside the project boundary in which project operations or project-related actions may cause changes in the character or use of historic properties, if any exist.

Historical background

Freedom, Maine was founded in 1794 by Stephen Smith. Originally known as Smithtown, the town assumed the name Freedom in 1813 and became a well-established manufacturing community with several thriving mills and businesses throughout the 19th and early 20th centuries. During the mid-19th century, five mechanical water mills powered two gristmills, one sawmill, a carding mill, and a tannery in the area. The town's population peaked in 1840 with 1,153 residents, dropping to around 450 residents through most of the 20th century. The current population is approximately 700.

The Freedom Falls dam was originally built in 1834 and rebuilt in 1927. The existing mill building was constructed in 1834 and originally operated as a gristmill using mechanical hydropower from the dam. The gristmill was converted into a wood turning mill in 1894 and operated in this capacity until around 1962. The dam and existing mill building have been unoccupied since the 1960s. The mill structure consists of a traditional timber frame that housed operating equipment, with a high dry-laid granite

foundation that housed the hydropower system adjacent to the stream. This general layout exemplifies mills built in the 19th century throughout the state of Maine. These mills often made use of locally available raw materials, both in their construction and their production. Although several other mill sites operated in the project area historically, this particular mill was the dominant industrial structure in the Town of Freedom throughout its years of operation due to its height and location (Maine, 2012).

Historic Properties

In August 2011, Freedom submitted a request to NPS for a preliminary determination for individual listing in the National Register for the mill at Freedom Falls, thereby initiating the nomination process. In a letter dated September 7, 2011, NPS stated that it had reviewed the Historic Preservation Certification Application for the mill at the Freedom Falls dam, and determined that the property appears to meet the National Register Criteria for Evaluation and would likely be listed in the National Register if nominated by the Maine SHPO. In a letter dated May 11, 2012, the Maine SHPO stated that the mill at the Freedom Falls dam was entered into the National Register on April 19, 2012 by NPS.

The existing mill building was listed on the National Register at the local level of significance under both Criterion A, Industry, as “a property associated with events that have made a significant contribution to the broad patterns of our history”, and Criterion C, Architecture, as “a property that embodies the distinctive characteristics of a type, period or method of construction.” The period of significance for this historic property includes both the period of operation as a gristmill, 1834 to 1894, and the period of operation as a wood turning mill, from 1894 to 1962 (Maine, 2012).

Environmental Effects and Recommendations

In its exemption application, Freedom states that the primary goal of the project is to preserve the existing mill building and it states it will continue to consult with the Maine SHPO and NPS to rehabilitate the existing mill building according to state and federal historic preservation standards.

In a letter dated August 4, 2011, the Maine SHPO recommended that the Commission conclude that the proposed project would have no adverse effect on historic properties, including the existing mill building at the Freedom Falls dam, which at that time, was eligible for listing in the National Register.

In an email to Freedom dated February 1, 2011, included in the exemption application, the Penobscot Indian Nation’s Tribal Historic Preservation Officer

(THPO) indicated that based on the THPO's review of the information provided in the draft application, the project does not appear to have any impact to potentially significant religious or cultural resources for the Penobscot Indian Nation. In a letter issued on June 13, 2011, Commission staff formally invited the participation of the Penobscot Indian Nation in the exemption from licensing proceeding for the Freedom Falls Hydroelectric Project. No responses were received.

Staff Analysis

The construction and operation of the proposed project would not alter the historic character of the existing structures. Rehabilitating the existing mill building at the Freedom Falls dam, in consultation with the Maine SHPO and NPS, will preserve an important piece of the Town of Freedom's history. Staff reviewed the information provided by Freedom and concluded that the proposed project would have no adverse effect on historic, archaeological, or traditional cultural properties.

During the term of any exemption, Freedom would occasionally need to implement project modifications that would not require Commission approval but could affect cultural resources at the project. These modifications could include activities such as replacement of broken windows, roof or siding repairs, or general landscaping. Including a condition in any exemption that would require Freedom to consult with the Maine SHPO prior to conducting any maintenance activities, land-clearing or land-disturbing activities, or changes to project operation or facilities would ensure that cultural resources are not adversely affected.

Additionally, ground-disturbing activities associated with rehabilitation of the powerhouse and project facilities would not be likely to disturb known cultural resources because Freedom proposes to rehabilitate the mill building according to state and federal historic preservation standards, in consultation with the Maine SHPO and NPS, given that the structure is listed on the National Register. It is possible, however, that unknown cultural resources could be discovered during the course of constructing or operating the project. Including a condition in any exemption that would require Freedom to consult with the Maine SHPO if previously unidentified cultural resources are encountered would ensure the proper treatment of these resources. In the event of any such discovery, Freedom would discontinue all exploratory or construction-related activities until the proper treatment of any potential cultural resources is established.

D. No-Action Alternative

Under the no-action alternative, the project would not be issued an exemption, the project would not generate electricity, and there would be no effects on environmental resources.

VI. RECOMMENDED ALTERNATIVE

Based on our independent review and evaluation of the environmental effects of the proposed action, section 30(c) conditions filed by Interior, and a no-action alternative, we recommend the proposed action, including all of the section 30(c) conditions with additional staff-recommended measures as the preferred alternative. Additional measures recommended by staff include: (1) developing and implementing an operation compliance monitoring plan to ensure compliance with run-of-river operation, impoundment operating elevations, and minimum flow releases; (2) consulting with the Maine SHPO prior to implementing any project modifications, including maintenance activities, land-clearing or land-disturbing activities, or changes to project operation or facilities, that do not require Commission approval but could affect cultural resources; and (3) consulting with the Maine SHPO if previously unidentified cultural resources are discovered during the course of constructing, maintaining, or developing project works or other facilities.

We recommend this alternative because: (1) issuing an exemption from licensing would allow Freedom to construct and operate the project as a beneficial and dependable source of electric energy; (2) the 50 kW of electric capacity would come from a renewable resource that would not contribute to atmospheric pollution; and (3) the recommended environmental measures would protect water quality, aquatic resources, terrestrial resources, aesthetic resources, existing historic resources, and any previously unidentified cultural resources.

Freedom proposes and we recommend the following environmental measures for any exemption that would be issued for the proposed project:

- Operate the project in a run-of-river-mode and maintain the impoundment between 452.5 feet (0.5 foot below normal water surface elevation) and 453 feet NGVD (normal water surface elevation) during normal operations.
- Construct and operate a downstream eel passage facility and operate the facility at night from August 1 through October 15 each year.
- Design and construct an upstream eel passage facility in consultation with Interior and Maine DMR.

- Release a minimum flow of 2 cfs through the downstream eel passage facility at night (i.e., sunset to sunrise) from August 1 through October 15, and release a 3-cfs minimum flow over the spillway at all other times.

We discuss our basis for additional recommended measures below.

Cultural Resources

During the term of any exemption, Freedom would occasionally need to implement project modifications that would not require Commission approval but could affect cultural resources at the project. These modifications could include activities such as replacement of broken windows, roof or siding repairs, or general landscaping. To ensure that cultural resources are not adversely affected from project modifications, we recommend that Freedom consult with the Maine SHPO prior to conducting any maintenance activities, land-clearing or land-disturbing activities, or changes to project operation or facilities that could affect cultural resources.

Unknown cultural resources could be discovered during the course of constructing or operating the project. Therefore, we recommend that Freedom consult with the Maine SHPO if previously unidentified cultural resources are encountered to ensure the proper treatment of these resources. In the event of any such discovery, Freedom would discontinue all exploratory or construction-related activities until the proper treatment of any potential cultural resources is established.

Operation Compliance Monitoring Plan

Freedom proposes and Interior's section 30(c) condition 1 requires that Freedom operate the project in a run-of-river mode and to maintain the impoundment water surface elevation between 452.5 and 453 feet NGVD. Freedom also proposes to release a minimum flow of 2 cfs through the downstream eel passage facility at night from August 1 through October 15, and release a minimum flow of 3 cfs over the spillway at all other times. However, no measures are proposed to monitor compliance these operations.

Development of an operation compliance monitoring plan would provide a means to verify compliance with all operation requirements. An operation compliance monitoring plan would include descriptions of project operation and descriptions of any mechanisms or structures that would be used to monitor project operation. To provide the Commission with a means to verify compliance with project operation requirements, staff recommends that Freedom develop and implement an operation compliance monitoring plan.

Unavoidable Adverse Effects

Even with the installed trashrack, some entrainment of small fish may occur. We would not expect any long-term effects to the fish community associated with the project operation.

VII. FINDING OF NO SIGNIFICANT IMPACT

If the Freedom Falls Hydroelectric Project is exempted from licensing as proposed with the additional staff-recommended measures, the project would be constructed and operated while protecting water quality, aquatic resources, terrestrial resources, aesthetic resources, existing historic resources, and any previously unidentified cultural resources in the project area.

Based on our independent analysis, issuance of an exemption from licensing for the Freedom Falls Hydroelectric Project, as proposed with the additional staff-recommended measures, would not constitute a major federal action significantly affecting the quality of the human environment.

VIII. LITERATURE CITED

- Freedom Falls LLC. 2012a. Final Application for Exemption of a Small Hydroelectric Project from Licensing: Freedom Falls Hydroelectric Project. Filed June 1, 2012.
- Freedom Falls LLC. 2012b. Response to Request for Additional Information: Freedom Falls Hydroelectric Project. Filed September 28, 2012.
- Freedom Falls LLC. 2013. Exhibit G-1 Project Boundary Drawing: Freedom Falls Hydroelectric Project. Filed February 27, 2013.
- Maine Historic Preservation Commission. 2012. National Register of Historic Places: The Mill at Freedom Falls, Freedom, 1834-1962.
http://www.maine.gov/tools/whatsnew/index.php?topic=mhpc_recent_listings&id=378923&v=article.
- Sammons, S.M. and Bettoli, P.W. 2000. Population dynamics of a reservoir sport fish community in response to hydrology. *North American Journal of Fisheries Management* 20:791-800.

United States Fish and Wildlife Service (FWS). 2013. American eel (*Anguilla rostrata*) fish facts. http://www.fws.gov/r5crc/Fish/zj_anro.html.

United States Fish and Wildlife Service (FWS). 1951. A Survey of Former Shad Streams in Maine. 40 pp.

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APPENDIX A

U.S. DEPARTMENT OF THE INTERIOR
SECTION 30(c) CONDITIONS OF THE FEDERAL POWER ACT
FILED ON NOVEMBER 15, 2012

1. The project shall be operated in a run-of-river mode with inflow to the project reservoir equal to outflow from the project (turbine and spillage). Impoundment water levels shall be maintained at the normal pond level with no more than 0.5 foot of fluctuation during normal operations.
2. In order to protect downstream migrating adult American eels from entrainment and mortality, the turbine intake structure should be fitted with trash racks having one inch clear spacing between vertical elements. The one inch trash racks may consist of a permanent trash rack structure or trash rack overlays may be used for the period of 1 August through 15 October annually.
3. Provide a safe and effective passage route for downstream migrating American eels by installing a bypass pipe immediately adjacent to the turbine intake. The bypass shall consist of a gated pipe (minimum diameter six inches) fitted with a bell mouth collar. The pipe opening shall be located close to the bottom of the turbine intake. The pipe should discharge to the stream channel below the dam. This bypass must be operated at night from 1 August through 15 October annually.
4. Install an upstream fishway for juvenile American eel at the base of the project spillway. The location and design of the fishway should be determined in consultation with the Service and the Maine Department of Marine Resources. The upstream eel fishway should be operated from 15 May through 31 August, annually.
5. The Fish and Wildlife Service shall be allowed to inspect the project area at any time while the project operates under a license exemption in order to monitor compliance with its terms and conditions.
6. The Fish and Wildlife Service is reserved the right to revise and add mandatory terms and conditions for this exemption as appropriate to carry out its responsibilities with respect to fish and wildlife resources. Should the Service notify the Exemptee of revised or additional terms and conditions, then the Exemptee shall, within thirty (30) days of receipt, file a copy of these additional terms and conditions with the Federal Energy Regulatory Commission.

7. The Exemptee shall incorporate the aforementioned terms and conditions in any conveyance (by lease, sale or otherwise) of its interests so as to legally assure compliance with said conditions for as long as the project operates under an exemption.

Document Content(s)

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