UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Erie Boulevard Hydropower, L.P. Project No. 7387-019

NOTICE OF AVAILABILITY OF ENVIRONMENTAL ASSESSMENT

(June 23, 2005)

In accordance with the National Environmental Policy Act of 1969 and Part 380 of the Federal Energy Regulatory Commission's (Commission) regulations, 18 CFR Part 380, FERC Order No. 486, and 52 Fed. Reg. 47,897, the Office of Energy Projects has reviewed the application for a new license for the Piercefield Hydroelectric Project, located on the Raquette River, in St. Lawrence and Franklin Counties, New York, and has prepared a single environmental assessment (EA) for the project. The project does not use or occupy any federal facilities or lands. In the EA, Commission staff analyzes the potential environmental effects of the existing project and concludes that licensing the project, with staff's recommended measures, would not constitute a major federal action significantly affecting the quality of the human environment.

A copy of the EA is available for review at the Commission in the Public Reference Room or may 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.

Please file any comments (an original and 8 copies) within 30 days from the date of this letter. The comments should be addressed to Magalie R. Salas, Secretary, Federal Energy Regulatory Commission, 888 First Street, NE, Washington, D.C. 20426. Please affix "Piercefield Hydroelectric Project No. 7387-019" to all comments. Comments may be filed electronically via the Internet in lieu of paper (see 18 CFR 385.2001(a)(1)(iii) and the instructions on the Commission's website at www.ferc.gov under the "e-filing" link. The Commission strongly encourages electronic filings.

Please contact Janet Hutzel at (202) 502-8675, or by e-mail at janet.hutzel@ferc.gov if you have any questions.

Magalie R. Salas
Secretary

# PUBLIC

**Environmental Assessment**
Erie Boulevard Hydropower, L.P.
Piercefield Hydroelectric Project
Project No. 7387-019

# ENVIRONMENTAL ASSESSMENT FOR HYDROPOWER LICENSE

## Piercefield Hydroelectric Project

FERC Project No. 7387-019

New York

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

June 2005

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## ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| ADK | Adirondack Mountain Club |
| APA | Adirondack Park Agency |
| APE | Area of Potential Effect |
| AW | American Whitewater |
| cfs | cubic feet per second |
| CWA | Clean Water Act |
| Commission | Federal Energy Regulatory Commission |
| DO | Dissolved oxygen |
| EA | environmental assessment |
| ESA | Endangered Species Act |
| Erie Boulevard | Erie Boulevard Hydropower, L.P. |
| FERC | Federal Energy Regulatory Commission |
| FPA | Federal Power Act |
| fps | feet per second |
| FWS | U.S. Fish and Wildlife Service |
| HCC | Hydro Control Center |
| Interior | U.S. Department of the Interior |
| kV | kilovolt |
| kW | kilowatt |
| kWh | kilowatt-hour |
| National Register | National Register of Historic Places |
| New York SHPO | New York State Office of Parks, Recreation, and Historic Preservation |
| MW | megawatt |
| MWh | megawatt-hours |
| msl | mean sea level |
| MVA | Megavolt-Ampere |
| NERC | North American Electric Reliability Council |
| NYDS | New York Department of State, Division of Coastal Resources and Waterfront Revitalization |
| NYRU | New York Rivers United |
| NYS | New York State |
| NYSCC | New York State Conservation Council |
| NYSDEC | New York State Department of Environmental Conservation |
| RM | river mile |
| ROR | Run of River |
| Settlement | Piercefield Project Settlement Agreement |
| sq. mi. | square miles |
| WQC | Water Quality Certification |
| V | Volts |

## SUMMARY

On October 20, 2003, Erie Boulevard Hydropower, L.P. (Erie Boulevard) filed an application for a new license to continue operating its existing Piercefield Hydroelectric Project (Project No. 7387-019). The Piercefield Project has a total installed generating capacity of 2.7 megawatts (MW) and generates an average of 15,000 megawatt-hours (MWh) annually. The Piercefield Project is located on the Raquette River below the outlet of Tupper Lake, in the towns of Piercefield and Altamont, St. Lawrence and Franklin Counties, New York. The project does not occupy any federal lands.

Also on October 20, 2003, Erie Boulevard filed with their application the Piercefield Project Settlement Agreement (Settlement) for proposed protection, mitigation, and enhancement measures at the Piercefield Project. Signatories of the Settlement are Erie Boulevard, Adirondack Council, Adirondack Mountain Club, American Rivers, American Whitewater, New York Rivers United, New York State Conservation Council, the New York State Department of Environmental Conservation, St. Lawrence County, the town of Altamont, the town of Piercefield, the U.S. Fish and Wildlife Service, and the National Park Service.

In this Environmental Assessment (EA), we analyze the effects of continued operation of the project and recommend conditions for a new license. Based on our analysis, we recommend licensing the project as proposed by Erie Boulevard, with additional staff-recommended measures. Our staff recommendations include or are based, in part, on recommendations made by federal and state resource agencies that have an interest in the resources that may be affected by continued operation of the project.

Erie Boulevard proposes to continue operating the project as run-of-river with pondage and to implement environmental enhancement measures, including: (1) replacing the two-foot seasonal flashboards with year-round two-foot flashboards; (2) limiting daily impoundment fluctuations to 1.0 foot measured in a downward direction from the top of the flashboard [1,542.0 feet mean sea level (msl)] or the crest of the dam (1,540.0 feet msl); (3) providing a 20 cubic feet per second (cfs) downstream fish movement release from the project's retrofitted stanchion spillway[1]; (4) replacing the existing trashracks with 1-inch clear spacing trashracks by December 31, 2012, or when the existing trashracks are replaced, whichever is sooner; (5) maintaining a baseflow of 150 cfs, or inflow to the Piercefield impoundment, whichever is less, from the tailrace pond downstream of the Piercefield Project; (6) modifying the flow notification system established for the Middle Raquette River Project (P-2320) to include discharge

[1] The downstream fish movement release is a 20 cfs flow released from the project's spillway stanchions to enable downstream fish passage.

information for the Piercefield Project; (7) replacing flagging along the project canoe portage with more permanent signage and/or blazes; (8) maintaining the canoe portage; (9) providing an annual scheduled recreational flow release on the last Saturday of June; (10) developing a stream-flow and water-level monitoring plan; and (11) developing a Historic Properties Management Plan.

Under Erie Boulevard's proposal, implementation of the measures at the project would have a net annual cost of about $810,760. The project would generate 15,335 MWh of electricity annually and would have a net annual benefit of $111,180.

The additional environmental measures we recommend for the project include: develop a recreation management plan and expand the project boundary to include the canoe portage.

Implementing Erie Boulevard's proposal with these additional staff-recommended measures at the project would cost about $811,530 annually. Annual generation would be 15,335 MWh. The project with additional staff measures would have a net annual benefit of $110,410.

We recommend relicensing the proposed project with these additional measures to protect and enhance water quality, fisheries, terrestrial, recreational, and cultural resources. In addition, the electricity generated from the project would be beneficial because it would continue to reduce the use of fossil-fueled, electric generating plants; conserve nonrenewable energy resources; and reduce atmospheric pollution.

On the basis of our independent analysis, we conclude that issuing a new license for the project, with the environmental measures that we recommend, 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.

Piercefield Hydroelectric Project
FERC Project No. 7387-019, New York

## I. APPLICATION

On October 20, 2003, Erie Boulevard Hydropower, L.P. (Erie Boulevard) filed an application for a new license under, Part I of the Federal Power Act (FPA), to continue operating its existing 2.7-megawatt (MW) Piercefield Hydroelectric Project (Project No. 7387-019). The Piercefield Project is located on the Raquette River below the outlet of Tupper Lake, in the towns of Piercefield and Altamont, in respectively, St. Lawrence and Franklin Counties, New York (see figure 1). The project does not occupy any federal lands.

Also on October 20, 2003, Erie Boulevard filed with their application the Piercefield Project Settlement Agreement (Settlement) for proposed protection, mitigation, and enhancement measures at the Piercefield Project. Signatories of the Settlement are Erie Boulevard, Adirondack Council, Adirondack Mountain Club (ADK), American Rivers, American Whitewater (AW), New York Rivers United (NYRU), New York State Conservation Council (NYSCC), the New York State Department of Environmental Conservation (NYSDEC), St. Lawrence County, the town of Altamont, the town of Piercefield, the U.S. Fish and Wildlife Service (FWS), and the National Park Service (NPS).

**Figure 1.** General location of the Piercefield Project. (Source: Staff)

Public access for the above information is available only through the Public Reference Room, or by e mail at public.referenceroom@ferc.gov.

# II. PURPOSE AND NEED FOR ACTION

## A. Purpose of Action

The Federal Energy Regulatory Commission (Commission or FERC) must decide if it is going to issue a license for the Piercefield Project and what, if any, conditions should be placed in any license issued. Issuing a new license would allow Erie Boulevard to continue generating electricity at the project for the term of the new license, making electric power from a renewable source available to its customers.

In this Environmental Assessment (EA), we assess the effects associated with the continued operation of the project and alternatives to the proposed project and make recommendations to the Commission on whether to issue a new license, and if so, recommend terms and conditions to become a part of any license issued. In deciding whether to issue a license for a hydroelectric project, the Commission must determine that the project will be best adapted to a comprehensive plan for improving or developing the waterway. In addition to the power and developmental purposes for which licenses are issued (e.g., flood control, irrigation, and water supply), the Commission must give equal consideration to the purposes of energy conservation; the protection, mitigation of damage to, and enhancement of fish and wildlife (including related spawning grounds and habitat); the protection of recreational opportunities; and the preservation of other aspects of environmental quality.

## B. Need for Power

The Piercefield Project generates an average of 15,000 megawatt-hours (MWh) of power annually and has an installed capacity of 2.7 MW (2,700 kW). All energy generated at the site is sold to Niagara Mohawk (a National Grid Company) pursuant to a power purchase agreement between Erie Boulevard (licensee and wholesale electric generation company).

To assess the need for power, we reviewed the power needs of the operating region in which the project is located. The Piercefield Project is located in the Northeast Power Coordinating Council region of the North American Electric Reliability Council (NERC). NERC annually publishes public information relative to projected increases in capacity and energy demand. According to NERC's 2004 Long-Term Reliability Assessment,[2] summer peak demand in the region is expected to increase at an average rate of 1.2 percent per year during the period from 2004 through 2013.

[2] 2004 Long-Term Reliability Assessment, The Reliability of Bulk Electric Systems in North America, NERC, December 2004.

We conclude that the region has a need for power over the near term, and that the continued operation of the Piercefield Project would be useful in meeting a small part of the regional need for power. Power generated from the project would displace non-renewable, fossil-fueled generation and contribute to a diversified generation mix.

## III. PROPOSED ACTION AND ALTERNATIVES

### A. Applicant's Proposal

Erie Boulevard proposes to continue to operate and maintain the Piercefield Hydroelectric Project to provide electric generation capacity and energy for its customers and to provide a number of environmental protection and enhancement measures to benefit non-power uses of the Raquette River resources. Erie Boulevard does propose modifications to the project features but does not plan to increase capacity.

#### 1. Project Description

The Piercefield Project consists of the following features: (1) a dam comprising a 495-foot-long concrete retaining wall/dike on the right shoreline with a crest elevation of 1549.0 feet and 1550.0 feet mean sea level (msl), a 620-foot-long concrete and masonry stone retaining wall located along the left shoreline, a 118-foot-long stanchion type stop log spillway, and a 294-foot-long, 22-foot-high ogee spillway section with a crest elevation of 1540.0 feet msl, and surmounted by 2-foot- high flashboards; (2) a 110-foot-long concrete masonry forebay; (3) a reservoir having a surface area of 370 acres and a net storage capacity of 370 acre-feet at normal pool elevation of 1542.0 feet ms1; (4) a powerhouse containing 3 turbine/generating units having a total installed capacity of 2,700 kW; (5) a 3.84-mile-long, 46-kV transmission line; and (6) appurtenant facilities.

#### 2. Proposed Project Facilities

Erie Boulevard proposes the following modifications to the project features:

- remove the 3.84-mile-long, 46-kV transmission line (Exhibit A and G-labeled Piercefield-Tupper Lake No. 39 transmission line) from the Piercefield Project features because it belongs to Niagara Mohawk and delivers power to the Niagara Mohawk electric substation[3];

[3] On April 23, 2004, Erie Boulevard filed sufficient information that demonstrates that the 3.84-mile-long transmission line belongs to Niagara Mohawk, and is not a primary transmission line for the Piercefield Project. The 3.84-mile-long transmission line delivers power to the Niagara Mohawk electric substation via the Piercefield-Tupper Lake No.39 transmission line.

- revise Exhibit F to include the existing 305-foot-long underground primary transmission line that transmits power from generator number 3 to the Niagara Mohawk Power Corporation (Niagara Mohawk) substation;
- revise Exhibit F to include the existing 210-foot-long overhead primary transmission line that transmits power from generators numbers 1 and 2 to the Niagara Mohawk substation; and
- retrofit a section of the stanchion spillway currently equipped with wooden stoplog sections, with slide gates in order to reduce the likelihood of flashboard failure and retrofit gate bays number 2 and 3 with automated gates.

3. Project Boundary

Project boundaries should enclose only those lands necessary for operation and maintenance of a project and for other project purposes, such as recreation, shoreline control, or protection of environmental resources.

The current project boundary incorporates lands occupied by project structures including the Piercefield impoundment up to the 1,542-foot contour elevation and some recreational facilities, but does not include a canoe portage.

The project boundary should be expanded to include a canoe portage directly northeast of the powerhouse because it is a recreation facility necessary to accomplish a project purpose (i.e., recreation access). Expanding the boundary to include the canoe portage would ensure that the Commission would have the necessary jurisdiction to ensure the operation and maintenance of the portage for public use.

4. Existing Project Operations

The Piercefield Hydroelectric Project is operated in a run-of-river (ROR) mode with pondage. Erie Boulevard's remote Hydro Control Center (HCC) is located in Liverpool, New York, and monitors the headpond level and discharge through the units. A traveling operator performs operational and maintenance duties on a daily basis. Any operational changes are reported and coordinated through HCC. The power plant consists of three generating units and is operated semi-automatically using manual and float controls. The intake gates are operated with a portable electric drill, with a hand crank as manual back-up.

Piercefield's current operation includes:

- maintaining either a minimum flow of 150 cfs, or inflow, whichever is less, into the tailrace at all times, for protection and enhancement of the fish and wildlife resources and recreational opportunities;

- maintaining a minimum flow of 8 cfs in the reach between the stanchion spillway at the east end of the dam and the powerhouse;
- maintaining operational drawdowns of no greater than one foot below the normal maximum reservoir elevations [1,542.0 feet msl in the summer, with flashboards in place and 1,540.0 feet msl in the winter (mid-October through mid-May), with flashboards removed].

The Piercefield Project is upstream of the Carry Falls Project (FERC No. 2060) which serves as the headwater control for the other hydroelectric projects found on the Raquette River. Erie Boulevard coordinates Piercefield operation in conjunction and coordination with a system-wide river management of flows and generation for the Raquette River. There are no ramping rates or a reservoir rule curve associated with the project.

5. Proposed Project Operation

Erie Boulevard proposes to continue operating Piercefield as noted above with the following modifications:

- discontinue the minimum flow release of 8 cfs in the reach between the stanchion spillway at the east end of the dam and the powerhouse; and
- reduce seasonal fluctuation by replacing seasonal flashboards with year-round two-foot flashboards.

6. Proposed Environmental Measures

As proposed under the Settlement, Erie Boulevard would provide the following environmental enhancements and measures:

- limit daily impoundment fluctuations to 1.0 foot measured in a downward direction from the top of the flashboard (1,542.0 feet msl) or the crest of the dam (1,540.0 feet msl);
- construct and place into operation a 20-cfs downstream fish movement release from the project's retrofitted stanchion spillway[4];
- replace the existing 2 1/8-inch trashracks (in front of unit 1) and the 2 ½-inch trashracks (in front of Units 2 and 3) with 1-inch clear-spaced trashracks by December 31, 2012, or when the existing trashracks are replaced, whichever is sooner;
- maintain a baseflow of 150 cfs, or inflow to the Piercefield impoundment,

[4] The downstream fish movement release is a 20 cfs flow released from the project's spillway stanchions to enable downstream fish passage.

whichever is less, from the tailrace pond downstream of the Piercefield Project;
- modify the flow notification system established for the Middle Raquette River Project (P-2320) to include discharge information for the Piercefield Project;
- replace flagging along the project's canoe portage with more permanent signage and/or blazes;
- maintain the canoe portage;
- provide an annual scheduled recreational release on the last Saturday of June;
- develop a stream-flow and water-level monitoring plan;
- develop a Historic Properties Management Plan;
- provide a one-time fund of $10,000 to the town of Piercefield[5];
- establish a Piercefield Fund[6] which may be used for projects, studies, or services within the Raquette River Basin between river miles (RM) 10 and 93; and
- establish a Piercefield Project Subcommittee to oversee the disbursements of the Piercefield Fund[7].

## B. Proposed Action with Additional Staff-Recommended Measures

Staff considered what, if any, additional enhancement measures would be beneficial to those resources affected by the project and its operation. In addition to proposed Settlement measures, we recommend the following project facility modifications and environmental enhancements:

- develop a recreation management plan; and
- expand the project boundary to include the canoe portage.

## C. No-Action

The no-action alternative would result in no change to the existing environment. The project would continue to operate as required by the existing project license. If the project were allowed to operate as it has in the past, there would be continued energy

[5] The signatories of the Settlement agreed that the one-time fund to the town of Piercefield would not be included in any new license, if granted.

[6] Erie Boulevard would annually contribute $500 to the Piercefield Fund. The signatories of the Settlement agreed that the Piercefield Fund would not be included in any new license, if granted.

[7] The signatories of the Settlement agreed that the creation of the Piercefield Project Subcommittee would not be included in any new license, if granted.

production, but no new environmental protection, mitigation, or enhancement measures would be implemented. Any ongoing effects of the project would continue. We use this alternative to establish baseline environmental conditions for comparison with other alternatives.

## D. Alternatives Considered but Eliminated from Detailed Study

We considered three other alternatives to Erie Boulevard's relicensing proposal, but eliminated them from detailed study because they are not reasonable in the circumstances of this case. The alternatives considered were: (1) federal government takeover and operation of the project; (2) issuance of a non-power license upon expiration of the original project license; and (3) project decommissioning.

### 1. Federal Government Takeover

Federal takeover and operation of the project would require congressional approval. Although that fact alone would not preclude further consideration of this alternative, there is no evidence to indicate that federal takeover should be recommended to Congress. This alternative has not been recommended by any entity, nor has any federal agency expressed an interest in operating the project. Thus, we do not, in this case, consider federal takeover to be a reasonable alternative.

### 2. Non-power License

A non-power license is a temporary license the Commission would terminate whenever it determines that another governmental agency is authorized and willing to 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 do so. No party has sought a non-power license, and we have no basis for concluding that the project should no longer be used to produce power. Thus, we do not consider issuing a non-power license to be a realistic alternative to relicensing in this circumstance.

### 3. Project Decommissioning

Project decommissioning could be accomplished with or without dam removal. Either alternative would involve: (1) denial of the relicense application, (2) cessation of power generation, and (3) surrender or termination of the existing license with appropriate conditions. At a minimum, project decommissioning would have the following effects:

- the energy generated by the project would be lost (15,000 MWh annually);
- there would be significant costs associated with dam removal, or decommissioning the project powerhouse and appurtenant facilities; and

- the environmental enhancements currently proposed by Erie Boulevard would be foregone.

No participant has suggested that dam removal would be appropriate in this case, and we have no basis for recommending it. Thus, dam removal is not considered a reasonable alternative to relicensing the project with appropriate protection and enhancement measures.

## IV. CONSULTATION AND COMPLIANCE

### A. Consultation

The Commission's regulations contained in the Code of Federal Regulations (CFR) (18 CFR Section 4.38 and 16.8) require that applicants consult with appropriate resource agencies 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, the Endangered Species Act (ESA), the National Historic Preservation Act, and other federal statutes.

1. Scoping

Before preparing this EA, staff conducted scoping for the Piercefield Project to determine what issues and alternatives should be addressed. We distributed a scoping document to interested agencies and others on May 26, 2004. The recipients were given 60 days to provide comments and identify additional issues, if any, to be addressed in the EA. The following entities provided written comments:

| Commenting Entities | Filing Date |
|---|---|
| ADK | July 26, 2004 |

The comments provided by ADK raised no new issues or supported compelling changes to the scope of the document. Therefore, no revised scoping document was issued.

2. Interventions

On May 28, 2004, the Commission issued a notice accepting Erie Boulevard's application for a new license for the Piercefield Project and for soliciting motions to intervene and protest. This notice set July 27, 2004, as the deadline for filing protests and motions to intervene. In response to the notice, the following entities filed motions to intervene; none of the interventions were in opposition:

| Interveners | Filing Date |
|---|---|
| NYSDEC | July 26, 2004 |
| ADK | July 27, 2004 |
| US Department of the Interior (Interior) | July 27, 2004 |

3. Comments on the Application

The Commission issued a public notice on August 12, 2004, indicating that the application for the Piercefield Project was ready for environmental analysis, and that all comments should be filed within 60 days of the notice. The following entities provided comments:

| Commenting Entities | Filing Date |
|---|---|
| Interior | October 6, 2004 |
| NYSDEC | October 7, 2004 |
| ADK | October 12, 2004 |

By the letter filed November 26, 2004, Erie Boulevard replied to the recommendations, terms, and conditions. Interior, NYSDEC, and ADK filed comments that were in supportive of the Settlement.

## B. Mandatory Requirements

1. Water Quality Certification

Under Section 401(a) of the Clean Water Act (CWA)[8], the Commission may not issue a license for a hydroelectric project unless the state certifying agency has either issued water quality certification for the project or has waived certification by failing to act on a request for certification within a reasonable period of time, not to exceed one year.

On October 14, 2003, Erie Boulevard applied to the NYSDEC for a Water Quality Certification (WQC) for the Piercefield Project, as required by Section 401 of the CWA. NYSDEC issued a WQC for the project on April 7, 2004. The WQC contains 17 special conditions. Administration conditions include: (1) a statement that the WQC includes and incorporates the Settlement; (2) procedures for compliance inspections; (3) responses to emergencies; and (4) modification and revocations of the WQC.

[8] 33 U.S.C. § 1341(a)(1).

Operating conditions include requirements for: (1) maintenance of a baseflow in accordance with the Settlement; (2) development of a stream flow and water level monitoring plan consistent with the Settlement; (3) operation of the project reservoir consistent with the Settlement; and (4) provision of fish protection and downstream fish movement measures in accordance with the Settlement.

Project maintenance and construction conditions provide for: (1) appropriate turbidity control structures while conducting any maintenance dredging in the intake/forebay area of the project; (2) testing of any sediments to be removed, and prior approval of disposal locations of any contaminated sediments; (3) implementation of erosion control measures prior to commencing any activities that could adversely affect water quality; (4) approval of the design for any temporary structures that could encroach on the river bed or bank; (5) maintenance of flows to maintain water quality standards throughout any construction period; (6) limitations on drawdowns and refill rates; (7) monitoring of potential turbidity during any construction activity and taking corrective action when turbidity occurs; and (8) notifying NYSDEC at least 2 weeks prior to any project maintenance or construction work performed under the authority of the WQC.

Public access conditions include a provision for providing public access and recreational opportunities in conformance with the Settlement.

2. Section 18 Fishway Prescription

Section 18 of the FPA states that the Commission shall require the construction, maintenance, and operation, by a licensee, of such fishways as may be prescribed by the Secretary of the Interior. In a letter filed October 6, 2004, pursuant to Section 18 of the Federal Power Act, Interior seeks to reserve authority for the term of the license and any annual licenses to require the licensee to construct, operate, and maintain such fishways as may be prescribed by the Secretary of the Department of the Interior, including measures to determine, ensure, or improve the effectiveness of such fishways.

The Commission recognizes that future fish passage needs and management objectives cannot always be determined at the time of project licensing. Under these circumstances, we recommend the Commission follow its practice of reserving the Commission's authority to require such fishways as may be prescribed by the Secretary of the Interior.

3. Section 10(j) Recommendations

Under Section 10(j) of the FPA, each 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.

Interior included 10(j) recommendations in their comment letter filed on October 6, 2004. The agency-recommended measures included: (1) the limitation of the daily impoundment fluctuations as described in the Settlement; (2) the replacement of the existing seasonal flashboards with year-round flashboards as described in the Settlement; (3) continuance of a base flow of 150 cfs (or inflow to the Piercefield impoundment, whichever is less) as described in the Settlement); (4) the implementation of the fish protection measures as described in the Settlement; (5) the implementation of the downstream fish movement measures as described in the Settlement; and (6) the development a flow monitoring plan as described in the Settlement.

4. Coastal Zone Management Act

Section 307(c)(3) of the Coastal Zone Management Act requires that all federally licensed and permitted activities be consistent with approved state Coastal Zone Management Programs. If a project is located within a coastal zone boundary or if a project affects a resource located in the boundaries of the designated coastal zone, the applicant must certify that the project is consistent with the state Coastal Zone Management Program.

The New York Department of State, Division of Coastal Resources and Waterfront Revitalization (NYDS) administers the Coastal Zone Program in New York. Erie Boulevard requested a coastal zone consistency determination for the Piercefield Project from the NYDS on January 20, 2004. In a letter filed March 15, 2004, the NYDS concluded that project is located outside the State's designated coastal area and is not likely to affect land and water uses and natural resources within the State's coastal area. Therefore, the proposed relicensing of the Piercefield Project is not subject to the consistency provisions of the New York State Coastal Management Program and a coastal zone consistency certification is not needed.

5. Endangered Species Act

Section 7 of ESA 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. By letter filed October 20, 2003, the U.S. Fish and Wildlife Service (FWS) stated that, except for occasional transient individuals, no threatened or endangered species are known to exist in the in the vicinity of the project. Also, no critical habitat was designated or proposed

in the vicinity of the project. The FWS stated that no further ESA coordination or consultation with them is required. In a subsequent letter filed May 12, 2004, the FWS stated that the bald eagle is a Federally-listed threatened species known to occur at or in the vicinity of the project. However, there are no know bald eagle observations and no potential for loss of habitat; therefore, we conclude that the proposed project would have no effect on bald eagles.

## V. ENVIRONMENTAL ANALYSIS

In this section, we first describe the general environmental setting of the project area. We also discuss the environmental resources subject to cumulative effects from the project when considered in combination with other actions affecting the resources. Then, for each resource, we describe the affected environment, the environmental effects and recommendations, cumulative effects (where applicable), and the unavoidable adverse effects of the proposed action and additional staff-recommended measures.

### A. General Description of the Raquette River Basin

The Raquette River drainage flows through a four-county area in northern New York State with a drainage basin of 1,269 square miles. The Raquette River is more than 120 miles long and is the second longest river in the state. The headwaters of the river originate from a mountainous plateau region of Blue Mountain Lake, located in the central Adirondack Mountains, at about 1,800 feet above msl. The Raquette River flows generally north-northwest and ultimately drains into the St. Lawrence River near Massena, New York.

The climate in this region is characterized by cold, snowy winters and cool, wet summers. This area is high in both elevation and latitude. Temperatures range from an average of 15 $^{o}$F in January and an average of 65 $^{o}$F in July. Annual precipitation averages more than 35 inches, and snowfall averages are between 90 to 165 inches. Vegetation in the vicinity is classified predominantly as forested and brushland, which is characteristic of steep foothill topography. Small hamlets and villages make up the residential development of the surrounding region.

There are 19 hydroelectric developments and one storage reservoir regulating flow along the Raquette River's length. The southernmost and furthest upstream licensed project is the Piercefield Project located at RM 88. The Raymondville Development of the Lower Raquette Project (P-2330), located at RM 20 in the town of Norfolk, is the furthest north and furthest downstream licensed project. The projects are operated for downstream flow regulation, flood control, recreation, water supply, water quality management, and power generation.

**Table 1.** Hydroelectric developments on the Raquette River (Source: Erie Boulevard)

| Project name | FERC No. | Installed capacity (kW) | Drainage area (sq. mi.) | Reservoir surface area (acres) | Approx. RM |
|---|---|---|---|---|---|
| Piercefield | 7387 | 2,700 | 721 | 370 | 88 |
| Carry Falls | 2060 | 0 | 877 | 3,000 | 68 |
| Stark | 2084 | 23,872 | 877 | 641 | 66 |
| Blake | 2084 | 13,913 | 907 | 660 | 62 |
| Rainbow Falls | 2084 | 22,828 | 929 | 710 | 56 |
| Five Falls | 2084 | 22,828 | 932 | 120 | 54 |
| South Colton | 2084 | 18,948 | 937 | 225 | 52 |
| Higle | 2320 | 4,972 | 979 | 742 | 47 |
| Colton | 2320 | 30,101 | 981 | 195 | 45 |
| Hannawa | 2320 | 7,200 | 993 | 204 | 39 |
| Sugar Island | 2320 | 4,800 | 994 | 29 | 38 |
| Potsdam | 2869 | 800 | 1,031 | 300 | 35 |
| Sissonville | 9260 | 2,300 | 1,025 | 30 | 33 |
| Hewittville | 2498 | 2,600 | 1,036 | 90 | 32 |
| Unionville | 2499 | 3,000 | 1,036 | 35 | 31 |
| Norwood | 2330 | 2,000 | 1,045 | 350 | 28 |
| Yaleville | 9222 | 700 | 1,046 | 70 | 25 |
| East Norfolk | 2330 | 3,500 | 1,063 | 135 | 23 |
| Norfolk | 2330 | 4,500 | 1,066 | 10 | 22 |
| Raymondville | 2330 | 2,000 | 1,125 I | 50 | 20 |

## B. Scope of Cumulative Effects Analysis

According to the Council on Environmental Quality's regulations for implementing the National Environmental Policy Act (§1508.7), an action may cause cumulative effects on the environment if its effects overlap in time and/or space with the effects of other past, present, and reasonably foreseeable future actions, regardless of what agency 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.

We reviewed all the environmental resources to see whether they could be affected in a cumulative manner by hydroelectric development and other non-hydroelectric activities. Based on the information in the license application, agency comments, and other filings in the proceeding we have identified aquatic resources as potentially cumulatively affected by the proposed continued operation and maintenance of the Piercefield Project in combination with other activities.

1. Geographic Scope

Our geographic scope of analysis for cumulatively affected resources is defined by the physical limits or boundaries of: (1) the proposed action's effect on the resources; and (2) contributing effects from other hydropower and non-hydropower activities within the Raquette River Basin.

The geographic scope of analysis for the cumulatively affected resource includes from Setting Pole Dam, located less than one mile upstream of the Piercefield Project, downstream to Sols Island, located about 2 miles downstream. We chose this geographic scope because the effects of project operations and mitigative measures are limited to this area, and this resource is directly and indirectly affected by project operations. For all other resources, we confine our analysis to the immediate project area.

2. Temporal Scope

The temporal scope of our cumulative effects analysis in the EA will include a discussion of past, present, and future actions and their effects on each resource that could be cumulatively affected. Based on the potential term of a new license, the temporal scope will look 30-50 years into the future, concentrating on the effect on the aquatic resources from reasonably foreseeable future actions. The historical discussion will, by necessity, be limited to the amount of available information for each resource. The quality and quantity of information, however, diminishes as we analyze resources further away in time from the present.

## C. Proposed Action and Action Alternatives

We have reviewed the proposed project in relation to the environmental resources in the project area and have concluded that there would be no direct or indirect environmental effects on geology and soils resources and socioeconomic resources. We have excluded geology and soils resources and socioeconomic resources from our detailed analysis because the proposed action would not involve any major new construction activity.

1. Water Resources

a. Affected Environment

*Water Quantity*

The headwaters of the Raquette River originate in the Blue Mountain Lake region of the Adirondack mountain range in New York. The river flows 120 miles northward to its confluence with the St. Lawrence River near Massena. The drainage area of the

Raquette River at the Piercefield Project is approximately 721 square miles, 88.5 river miles from the confluence. The project reservoir is 340 acres with a gross storage capacity of 2,757 acre-feet. The bypassed reach is 500 feet in length, the lower half is backwatered.

Table 2 shows the annual summary streamflow statistics for the Raquette River. Table 3 shows the monthly summary streamflow statistics for the project as calculated from the closest U.S. Geological Survey (USGS) stream gage, located 0.5 miles downstream, the Piercefield gaging station (no. 04266500). The highest daily average flows occur in April; the lowest flows occur in August. The 7Q10 flow[9] at the project is 73 cfs.

**Table 2.** USGS stream flow gaging data summary statistics for the Raquette River (Source: Erie Boulevard)

| Gage | Drainage Area (sq mi) | Period of Record | Average Daily Discharge | Minimum Daily Discharge | Maximum Daily Discharge |
|---|---|---|---|---|---|
| Piercefield 04266500 | 721 | 1908-2002 | 1,331 cfs | 4.1 cfs 10/12/1947 | 8,500 cfs 4/27/1993 |
| South Colton 04267500 | 937 | 1953-2002 | 1,818 cfs | 4.6 cfs 6/2/1954 | 9,060 cfs 5/14/1971 |
| Raymondville 04268000 | 1,125 | 1943-2002 | 2,126 cfs | 7.0 cfs 10/15/1951 | 11,600 cfs 4/9/2000 |

**Table 3.** Monthly flow summary at the Piercefield Project (Source: Staff)

| Month | Minimum Daily Flow (cfs) | Average Daily Flow (cfs) | Maximum Daily Flow (cfs) |
|---|---|---|---|
| January | 86 | 1,111 | 7,190 |
| February | 65 | 945 | 4,740 |
| March | 57 | 1,293 | 7,030 |
| April | 88 | 3,129 | 8,500 |
| May | 366 | 2,903 | 8,310 |
| June | 85 | 1,299 | 5,810 |
| July | 44 | 747 | 3,790 |
| August | 24 | 584 | 2,710 |
| September | 9 | 611 | 3,610 |
| October | 4 | 872 | 4,190 |
| November | 28 | 1,178 | 4,680 |

[9] A 7Q10 flow is the lowest stream flow for seven consecutive days that would be expected to occur once in ten years.

| Month | Minimum Daily Flow (cfs) | Average Daily Flow (cfs) | Maximum Daily Flow (cfs) |
|---|---|---|---|
| December | 90 | 1,259 | 5,530 |

The project has a maximum hydraulic capacity of 1,400 cfs and operates in a run-of-river with pondage. Operation is semi-automatic, using a float control to adjust project operations, but manual adjustment is possible. The project operates as follows:

- inflows above 1,400 cfs, all units generate and excess flow is spilled at the dam,
- inflows between 740 and 1,440 cfs, Unit 1 operates continuously, Units 2 and 3 operate intermittently, and
- inflows less than 740 cfs, Unit 1 operates at a flow of 740 cfs in a cycle mode to maintain an attenuated base flow of 150 cfs downstream of the tailrace ponded area.

The Village of Tupper Lake withdraws up to 2 million gallons per day from Tupper Lake above Setting Pole Dam, upstream of the project impoundment, and discharges a like amount of treated effluent into the upstream Raquette Pond. There are no consumptive (industrial, steam electric, irrigation) users of the Raquette River within the river reach affected by the project. Further downstream in the Lower Raquette River, there are three sewage treatment plants that discharge to the river at Norwood, Norfolk, and Unionville. None of these uses has a significant effect on river flow.

*Water Quality*

The NYSDEC classifies streams using an N, AA, A, B, C, rating system.[10] NYSDEC classifies the waters of the Piercefield Project reservoir as Class B. For Class B waters the designated best usages are primary and secondary contact recreation and fishing. These waters also are suitable for fish propagation and survival. (NYSDEC, 1999). The Raquette River is classified as Class C downstream from the New York State (NYS) Route 3 bridge, which is located 0.5 miles upstream of the Piercefield dam, to tributary 74. At tributary 74, the rating is changed to Class B. Upstream of the NYS Route 3 bridge to the railroad bridge, which is located about 3.5 miles upstream of the Piercefield dam, the river is classified as Class A. Class A waters have designated best usages for drinking or culinary waters, Class C for fishing, fish propagation, and fish survival.

[10] See also Water Quality Regulations: Surface Water and Groundwater Classifications and Standards, 6NYCRR Parts 700-706, effective August 4, 1999, NYSDEC, Albany, New York. http://www.dec.state.ny.us/website/dow/305b00.pdf

Water quality was monitored at the project in 1996, including parameters such as water temperature, dissolved oxygen levels (DO), pH, conductivity, and total dissolved solids. The data are typical of an Adirondack mountain headwater stream. Temperatures ranged from 0 (March) to 25°C (August), DO ranged from 7.1 to 14 milligrams per liter (mg/l), and, pH and Total Dissolved Solids reflected a stream with little buffering or conductive capacity. DO values follow typical seasonal trends with declining levels during the summer as water temperatures increase and increasing levels during the fall as water temperatures drop. Summer DO levels remained above 7 mg/l, well above the NYSDEC water quality standard of 5 mg/l average for non-trout waters.

The NYSDEC collected water quality data in the downstream project area in 1991 and 1992 and rated the water quality in the river as "good". The lack of buffering and conductivity capacity results in waters that can be acidic due to many atmospheric factors. Acidic waters tend to dissolve some metals such as lead and copper, both of which were at "concern" levels during the NYSDEC monitoring. However, NYSDEC's assessment of the microinvertebrate community was such that they rated the water quality of the river as "non-impacted".

b. Environmental Recommendations

As described in the Settlement, Erie Boulevard proposes changes to current project operation or facilities which could affect water quantity or quality. Erie Boulevard proposes to reduce the two-foot seasonal fluctuation of the reservoir by replacing seasonal flashboards with year-round two-foot flashboards, retrofit the project's stanchion spillway section with one or more automated operated gates, and limit daily impoundment fluctuations to 1.0 foot measured in a downward direction from the top of the flashboards (1,542.0 feet msl) or the crest of the dam (1,540.0 feet msl). Erie Boulevard also proposes to discontinue the minimum flow release of 8 cfs in the reach between the stanchion spillway at the east end of the dam and the powerhouse, and instead, construct and place into operation a 20-cfs downstream fish movement release from the project's retrofitted stanchion spillway. In addition, Erie Boulevard proposes to maintain a baseflow of 150 cfs, or inflow to the Piercefield impoundment, whichever is less, from the tailrace pond downstream of the Piercefield Project and develop a stream-flow and water-level monitoring plan.

NYSDEC's WQC, issued on April 9, 2004, requires the same reservoir drawdown limits and flashboard replacement as the Settlement, and further allows for temporary modification due to emergencies or for short periods upon agreement with NYSDEC and FWS. In a letter filed October 5, 2004, Interior recommends limiting daily reservoir

fluctuations at the project and implementing the replacement of the seasonal flashboards as proposed in the Settlement[11].

As proposed under the Settlement, Erie Boulevard would develop a stream flow and water level monitoring plan in consultation with the NYSDEC and FWS that would include procedures for determining headpond elevations and project flows. The streamflow and water level monitoring plan would include all necessary gages and equipment to: (1) monitor the bypassed reach flow release; (2) monitor headpond elevation; and (3) provide an appropriate means of independent verification of water levels by the NYSDEC and the FWS. The plan would also include provisions for the installation of permanent staff gages to provide verification of headpond levels to the nearest 0.1 foot. The location of the gages would be determined in consultation with the FWS and NYSDEC. The staff gages would be visible to the general public, with access to the gages provided to the FWS and NYSDEC. Erie Boulevard would also keep accurate and sufficient records of reservoir elevations and instream flows to the satisfaction of the NYSDEC, and would make the data available in a format, and at intervals, as required by the NYSDEC.

*Our Analysis*

Water Quality

The proposed actions to replace the seasonal flashboards with year-round flashboards would result in reduced reservoir fluctuations of up to 2 feet during the winter. These reduced fluctuations would likely result in less potential for shoreline erosion as a result of the reduced reservoir fluctuations. The project would continue to operate in run-of-river mode with pondage, and would be restricted to 1.0-foot fluctuation from the top of the flashboards.

Maintaining the reservoir at this height would benefit emergent and submergent aquatic macrophytes which would in turn maintain a vegetative buffer around the lake. A vegetative buffer would diminish the possibility of shoreline sediment erosion and reduce the impact of any upland erosion that does occur.

The flashboard replacement includes the installation of a downstream fish flow release device that would ensure that a 20-cfs discharge is consistently maintained in the project bypassed reach. Erie Boulevard would also maintain an aquatic base flow of 150 cfs, or inflow to the project, which ever is less, downstream of the tailrace pond.

[11] The WQC also requires limiting daily fluctuations and replacing the seasonal flashboards with year-round flashboards.

Downstream water quality (DO and water temperature) may be positively affected by ensuring these minimum releases.

Our recommendations for water resources are found in Section VII, (Comprehensive Development and Recommended Alternative).

c. Cumulative Effects

The Piercefield Project does not have the capacity to affect the quantity of water in the Raquette River. Currently, the project operations do not have any affect on the water quality of the Raquette River, and the proposed action may have a minor beneficial effect.

The next project downstream, the Carry Falls Project (FERC No. 2060) has a reservoir that is large and deep and becomes thermally stratified in the summer, sufficiently to affect DO. Oxygen levels at the bottom of this reservoir temporarily drop to 0.3 to 2.5mg/l, typical for a mesotrophic reservoir during the critical summer months. (FERC, 2001). Any effect on to water quality and quantity resulting from the operation of the Piercefield Project would be insignificant in comparison to the water quantity and quality conditions of the Carry Falls Reservoir.

d. Unavoidable Adverse Effects: None.

2. Aquatic Resources

a. Affected Environment

The Piercefield impoundment drains about 721 sq. mi., and has a surface area of 370 acres, with a gross storage capacity of 2,757 acre-feet at normal water surface elevation of 1,542 feet msl and an operational storage capacity of about 370 acre-feet. The area around the reservoir is undeveloped, or developed as public recreation facilities. The shoreline is mostly forested and supports an established emergent aquatic vegetation community.

Invertebrates found in the impoundment and bypassed reach include freshwater sponge, bryozoa, crayfish and freshwater mussels. Aquatic insect larvae in the Raquette River include representatives of the insect orders Ephemeroptera (mayfly) Plecoptera (stonefly), Trichoptera (caddis fly), and Odonata (dragonfly). Other insect larvae found in the project area include several families within the order Diptera, including the Simuliidae (blackfly) and Tipulidae (cranefly). Members of the Hemiptera (true bugs) are also found in the project area.

The upper Raquette River once supported a fish community characterized by coldwater species, such as brook trout, lake trout, round whitefish, longnose sucker, slimy sculpin, and lake chub. During the late 1800s, species such as northern pike, chain pickerel, walleye, and smallmouth bass were introduced into the upper watershed, displacing this native fauna. By 1934, the Raquette River mainstem supported few trout, and forage species were greatly reduced. Due to natural downstream waterfalls and water features there are no anadromous fish species found in the project area.

The Raquette River in the project area currently supports a fish community that includes yellow perch, walleye, rock bass, smallmouth bass, lake whitefish, fallfish, and golden shiners. In surveys conducted by the NYSDEC, yellow perch were the most abundant species. Walleye are most abundant in the project area during the spring spawning congregation (Erie Boulevard, 2003a.). The NYSDEC fish community surveys found that the impoundment populations were similar to those found in the downstream Carry Falls Project reservoir.

The downstream riverine reaches of the Raquette River has a fish community that also includes, central mudminnow, white sucker, northern pike, brown bullhead, tessellated darters, and occasional salmonids. The overall structure of the fish community and strength of the species populations is consistent with what should be found in an oligotrophic mountain stream. Large gamefish are rare, populations consist of small to medium sized individuals. Low basin fertility keeps baitfish populations small, limiting the availability of forage for gamefish. There are no threatened or endangered fish species in the river reach.

b. Environmental Recommendations

As described in the Settlement, Erie Boulevard proposes changes to current project operation or facilities which could affect aquatic resources. Erie Boulevard proposes to reduce seasonal fluctuation of the reservoir by replacing seasonal flashboards with year-round two-foot flashboards, limit daily impoundment fluctuations to 1.0 foot measured in a downward direction from the top of the flashboard (1,542.0 feet msl) or the crest of the dam (1,540.0 feet msl), and maintain a baseflow of 150 cfs, or inflow to the Piercefield impoundment, whichever is less, from the tailrace pond downstream of the Piercefield Project. Erie Boulevard also proposes to discontinue the minimum flow release of 8 cfs construct, and instead, place into operation a 20-cfs downstream fish movement release from the project's retrofitted stanchion spillway. In addition, Erie Boulevard proposes to replace the existing 2 1/8-inch trashracks (in front of unit 1) and the 2 ½-inch trashracks (in front of Units 2 and 3) with 1-inch clear-spaced trashracks by December 31, 2012, or when the existing trashracks are replaced, whichever is sooner.

The replacement flashboards would decrease the seasonal impoundment fluctuations and stabilize the near shore aquatic habitat of the impoundment. This stabilization of the habitat will reduce the over winter effects of project operation on aquatic macrophytes. Aquatic macrophytes are important as nursery habitat for young of the year gamefish and forage species in the impoundment. The Raquette River in general is an oligotrophic system with little nutrient input. Fertile zones of emergent and submergent aquatic vegetation provide primary production areas that are lacking elsewhere.

*Our Analysis*

The Settlement indicates that fish mortality is a limited issue at the project. As described in the Settlement, when the project trashracks require replacement Erie Boulevard would replace them with 1-inch-clear bar racks. During project operation, juvenile resident fish may be drawn through the project turbines; however, adult fish are precluded from entrainment. The juvenile fish either suffer turbine-related mortality or survive and contribute to the fish community below the project. The project doesn't have upstream passage facilities.

The settlement agreement also called for a replacement of the bypass pipe which provided an 8 cfs minimum flow to the upper bypassed reach with a 20-cfs downstream fish movement flow structure. The upper bypassed reach is a cobble boulder habitat which was not providing any fish habitat with the current 8 cfs minimum flow. Onsite consultations between Erie Boulevard and the NYSDEC and the USFWS resulted in the design and location of the fish movement flow structure being situated away from the upper bypassed reach, closer to the backwatered section of the lower bypassed reach. This location was chosen to provide an attraction flow away from the project intakes and because the bypassed reach could be dredged to provide a plunge pool and access channel to the backwater.

The 20-cfs downstream fish movement flow would allow fish to move downstream without passing through the turbines, eliminating some of the potential fish entrainment at the project in conjunction with the replacement trashrack. The downstream fish movement flow also protects fish from stranding in the upper half of the bypassed reach. The 150 cfs baseflow (or inflow) will continue to support the fish community of the downstream Raquette River. However, it is unknown if the downstream fish movement flow or the baseflow would have a positive effect on the downstream fish populations.

Our recommendations for aquatic resources are found in Section VII, (Comprehensive Development and Recommended Alternative).

c. Cumulative Effects

Fisheries resources are a focus of this summary because of the regional and local importance of resident gamefish to recreational fishing, and the potential for cumulative adverse effects on these species and non-game species. The resident fish community described in the affected environment section is similar throughout the cumulative effects discussion area.

The analysis of the proposed project shows that Erie Boulevard, through the Settlement, has proposed measures to lessen the effects of the existing operations. Enhancement measures the applicant proposes would improve the aquatic resources and guard against future degradation from continued operation of the Piercefield Project. Further, the lack of any other human induced influence on the aquatic environment limits the cumulative effects to those of this project.

d. Unavoidable Adverse Effects: None.

3. Terrestrial Resources

a. Affected Environment

The NYSDEC has identified several zones within the Adirondack Region as ecological zones due to their physical and wildlife characteristics. The Adirondack Transition Zone encompasses the project area.

*Vegetative and Wetland Resources*

The Piercefield Project area supports a variety of deciduous and coniferous species. Dense stands of maple-beech-birch forest types, interspersed with softwoods such as spruce and fir, surround the project. Cedar, hemlock, black cherry, basswood, and arrowwood are also present. Ground cover includes wild lily-of-the-valley, various species of ferns, goldthread, bunchberry, and common wood sorrel. Scattered home sites occur along the river and in the immediate vicinity of the project. Typically these sites consist of lawns and landscaped areas. Along the 210-foot-long transmission line right-of-way, a variety of herbaceous plant and immature woody plant species are common.

In the vicinity of the Piercefield Project, from the outlet of Tupper Lake to Sols Island, wetland communities are limited by the relatively steep slopes associated with the Piercefield impoundment and the Raquette River. Along the Raquette River, wetland communities are confined to narrow bands immediately adjacent to the river. National Wetlands Inventory maps are not available for the project area; however, Adirondack Park Agency (APA) maps indicate the presence of three wetland cover types: palustrine emergent wetland, palustrine scrub-shrub wetland, and palustrine forested wetlands. Plant species associated with palustrine emergent wetlands include cattail, pickerelweed,

wool grass, sensitive fern, royal fern, tall meadow rue, and marsh St. Johns wort.

The scrub-shrub wetland cover type includes woody vegetation such as willows, alder, winterberry, red-osier dogwood, cranberry virburnum, sweetgale, northern wild raisin, steeplebush, meadowsweet, and arrowwood. Herbaceous species include sensitive fern, royal fern, marsh fern, marsh St. Johns wort, jewelweed, water horehound, and cattail.

Relatively limited in abundance, the palustrine forested wetlands in the vicinity of the project consist of red maple, northern white cedar, yellow birch, and elm. Characteristic understory species primarily include alder, winterberry, willow, sensitive fern, royal fern, meadowsweet, and water horehound.

*Wildlife Resources*

The vegetative cover in the project area provides a rich habitat for a variety of wildlife species. Wildlife species typical of the project area include white-tailed deer, black bear, red and gray fox, shorttail and longtail weasel, mink, river otter, beaver, bobcat, skunk, raccoon, porcupine, woodchucks, and beaver. Small mammals such as rabbits, red and gray squirrels, chipmunk, moles, voles, mice, and shrews also occur within the project area.

Avian species commonly observed in the area include mallard, wood duck, hooded merganser, killdeer, great horned owl, red-shouldered hawk, swallows, warblers, woodpeckers, crow, ruffled grouse, blue jays, common grackle, red-wing blackbird, rose-breasted grosbeak, and chickadees. These species are found throughout the project area. By the letter filed October 20, 2003, the NYSDEC stated that the common loon, which is a state species of concern, may exist in the vicinity of the project.

Numerous reptile and amphibian species can also be found around the vicinity of the project. Turtles, eastern garter snakes, northern water snakes, spring peeper, American toad, frogs, and salamanders are common.

*Rare, Threatened, and Endangered Species*

The FWS indicate that, except for possible transient individuals, no threatened or endangered species are known to exist in the in the vicinity of the project (letter from D. Stilwell, Field Supervisor, FWS, Cortland, New York, to Jerry Sabattis, Erie Boulevard, dated September 24, 2003). The FWS stated that no further ESA coordination or consultation is required. In a subsequent letter filed May 12, 2004, the FWS stated that the bald eagle is a federally-listed threatened species known to occur at or in the vicinity of the project.

b. Environmental Effects and Recommendations

The Settlement does not include any environmental recommendations specifically for terrestrial resources. However, Erie Boulevard proposes to continue limiting daily fluctuations to one foot, and proposes to reduce the two-foot seasonal fluctuations through the installation of permanent flashboards. In the Settlement, Erie Boulevard also proposes to eliminate the current release of 8 cfs into the bypassed reach, but would provide a 20-cfs downstream fish movement release at the dam.

*Our Analysis*

Reservoir Fluctuations

Erie Boulevard, in conjunction with NYSDEC, FWS, APA, and NYRU, conducted an impoundment fluctuation Delphi assessment to determine the effects of the 1.0-foot daily fluctuation. Based on visual observations, the report concluded that the 1.0-foot daily fluctuation would have minimal effects on the surrounding wetlands and littoral habitats. The littoral habitat would remain wetted and terrestrial habitat, such as bird nesting areas, would not be disturbed by the minimal fluctuation.

The impoundment fluctuation assessment was also conducted to assess the effects of the seasonal fluctuations within the impoundment. Currently, two-foot flashboards are installed and removed every spring and fall, respectively. The study concluded that the seasonal fluctuations resulted in the dewatering of adjacent wetlands, reptile and amphibian habitat, invertebrate habitat, and submerged aquatic vegetation within the shallow portions of the impoundment.

With the installation of year-round two-foot-high flashboards, the impoundment would become more stable, which would reduce the frequency of dewatered wetlands and reduce the loss of vegetation from seasonal erosion. The installation of year-round flashboards would also provide a beneficial effect on shoreline habitat. Bird nesting areas, such as those used by the common loon, would be less prone to flooding and wintering amphibians or invertebrates would not be exposed.

To reduce the risk of ice build-up, the permanent flashboards would be designed to fail when overtopping in excess of 2 feet occurs, which is estimated to occur once every five to seven years. Though the failure will result in sporadic flooding of downstream wetlands and adjacent terrestrial habitat, the flooding frequency would resemble the natural flood regime of the river.

Bypassed Reach Flows

The bypassed reach is less than 500 feet in length and consists of an upper and

lower section. The upper section of the bypassed reach is quite narrow and steep, and the substrate includes large boulders, exposed bedrock, and cobble. The lower section (approximately 250 feet in length) is wider with a lower gradient, and contains a pool that is 75 feet wide. The proposed elimination of the 8 cfs would result in the upper section of the bypassed reach being dewatered. However, the upper section does not provide suitable habitat for most wildlife. In addition, when the current 8 cfs is released into the bypassed reach, the water moves very rapidly through this section, and as a result, amphibians and macrovertebrates are unable to benefit from the flows.

While the proposed release of 20 cfs at the dam would cause the upper section being dewatered, the lower section of the reach would remain wetted due to backwater effect. This area currently provides the terrestrial habitat for amphibians and other macrovetebrates, and since the area would remain wetted, the proposed release should not adversely affect the existing habitat.

Threatened and Endangered Species

Though the FWS state that bald eagles may be in the vicinity of the project, there have been no confirmed observations within or near the project. The nearest known nesting site is on the reservoir of the Upper Raquette River Project's Blake development, which is 26 RMs from the project. In addition, Erie Boulevard does not propose to construct any facilities that would result in the loss of potential perch trees or nest sites for bald eagles. Since there are no confirmed observations of bald eagles within or near the project and none of the proposed actions would result in the loss of potential habitat, we conclude that the continued project operation, with our staff-recommended measures, would have no effect on the bald eagle or any threatened or endangered transient individuals.

Our recommendations for terrestrial resources are found in Section VII, (Comprehensive Development and Recommended Alternative).

c. Unavoidable Adverse Effects: None.

4. Recreational Resources

a. Affected Environment

The project is located directly downstream of Tupper Lake and Raquette Pond, which are major recreation attractions that serve the regional and local population. Camping, fishing, swimming, and boating are popular recreation activities, and hiking and snowmobile trails, golf, and cross-country skiing are also available to the public. In addition, Tupper Lake and Raquette Pond are part of the Adirondack Canoe Route, an APA designated route that links over 90 miles of rivers and lakes in the Adirondacks.

*Recreation Facilities*

The portion of the Raquette River that flows within the project boundary is known as the Piercefield Flow. The Piercefield Flow, designated as a Recreational River under the New York State Wild, Scenic, and Recreation Rivers System Act, provides boating, swimming, and fishing opportunities. Several formal recreation facilities are located along the reservoir. A boat launch is located south of Route 3, near the NYS Route 3 bridge, which bisects the impoundment, while a canoe put-in/take-out and portage are located on the north side of the Piercefield Dam. Two fishing area are also located near the dam. One is an American with Disabilities Act-compliant fishing platform with a 4-car parking area located east of the NYS Route 3 bridge, while the other is an informal site with a parking area located off of the access road to the powerhouse. In addition, picnic tables are located adjacent to fishing platform and boat launch, while the Piercefield Town beach is located approximately 0.5-miles downstream of the dam.

The town of Piercefield owns and maintains the fishing platform and associated 4-car parking area, the town beach, and the boat launch. Erie Boulevard owns and maintains the canoe portage and associated canoe put-in and take-out, and the angler parking facility. With the exception of the angler parking facility, all of the recreation facilities are located outside of the project boundary.

*Whitewater Boating*

Between the Piercefield Project and the Carry Falls Project (P-2060), approximately 17 of the total 20 river miles are suitable for whitewater boating when the Piercefield Project is generating. Though this stretch of river is quite remote and river access and parking are limited, it is quite popular with paddlers because the approximately eight rapids provide a varied degree of difficulty. Intermediate boaters take advantage of Class II-III rapids, while experts with advance skills can experience Class V-VI rapids. The rapids between the two projects are nationally known, and in 1988 this area was used for Olympic whitewater training.

b. Environmental Effects and Recommendations

Erie Boulevard, in conjunction with recreation stakeholders[12], conducted a Recreation and Whitewater Study to identify and review the project's existing recreation, evaluate the need for additional recreation, review the adequacy of whitewater opportunities downstream of the project, evaluate the need for whitewater releases, and evaluate the need for additional whitewater access downstream.

[12] The recreation stakeholders, who met throughout 2001 and 2002, consisted of Erie Boulevard, APA, ADK, AW, NPS, NYRU, NYSCC, NYSDEC, and FWS.

As a result of the Recreation and Whitewater study and subsequent Settlement discussion, Erie Boulevard proposes to maintain the canoe portage, replace the flagging along the project's canoe portage with more permanent signage and/or blazes, and modify the existing flow notification system established for the Middle Raquette River Project (P-2320) to include the Piercefield Project. Also, in the Settlement, Erie Boulevard and the parties agreed that scheduled whitewater releases would not be established. However, Erie Boulevard proposes to provide a regular annual recreational release of 750 cfs on the last Saturday of June. The release, which would last five hours, would provide boatable flows between the Piercefield Project and the Carry Falls Reservoir. The annual release would not occur and would not be rescheduled if the inflow to the project falls below 350 cfs during the 24 hours prior to the day of the scheduled release.

By the letter filed on October 5, 2004, Interior recommends that all the recreational measures included in the Settlement should be implemented by dates required in the Settlement. Interior also comments that the recreational measures included in the Settlement are compatible with fish and wildlife and their associated habitats. By the letter filed on October 12, 2004, ADK recommends that all measures agreed to in the Settlement should be adopted as license conditions. In the WQC, dated April 7, 2004, NYSDEC requires that public access and recreation opportunities be provided in accordance with the Settlement.

*Our Analysis*

Canoe Portage

The proposed maintenance and improve trail marking of the canoe portage should improve the recreational experience for paddlers. The canoe portage for the project tends to meander because Erie Boulevard does not own all the property between the portage and the river. In addition, the portage was initially designed to avoid wetlands in the area. By replacing the current survey ribbons with more permanent signs and/or blazes, the portage would be more obvious to boaters, thus increasing the likelihood that boaters would stay on the established portage. Recreationists who create their own trails tend to adversely affect the surrounding vegetation and increase the potential for trespassing on private property.

Erie Boulevard proposes to enhance and maintain the portage for the duration of any license issued. The fact that Erie Boulevard owns the land the portage is located on does help ensure that boaters would have long-term access portage. However, the Commission does not have jurisdiction over the canoe portage since it located outside of the project boundary, and therefore, does not have the means to ensure that the canoe portage would be maintained or available for public use during the term of any new

license. Expanding the project boundary to include the canoe portage would ensure that public recreational use of the portage would be maintained over the term of any new license issued.

Whitewater Boating

Currently, 92% of the Raquette River between the Piercefield Project and the Carry Falls Project is boatable during normal project operations. The proposed annual scheduled whitewater release of 750 cfs for five hours would enable recreationists to canoe or boat the entire length of the segment. Because the impoundment has limited available storage (about 370 acre-feet), there is a potential that the reservoir drawdown needed for whitewater flows would result in the littoral habitat being dewatered for an extended period of time until recharge occurred. Also there is a potential that whitewater release could result in the downstream Lower Raquette Project (P-2330) Raymondville Development's baseflow target not being met. The Raquette River Settlement Offer, approved by the Commission on February 13, 2002, requires that during wet and normal conditions, the Raymondville Baseflow must be at least 560 cfs and in dry conditions at least 290 cfs.

Based on flow evaluations, if the inflow to the project remains above 350 cfs one day prior to the scheduled release, then the reservoir would not need to be drawndown to where it may adversely affect the terrestrial habitat or the downstream Raymondville Baseflow. Therefore, the Parties agreed that if the inflow falls below 350 cfs during the 24 hours prior to the scheduled release, then the scheduled release would be canceled. With the flow release caveat, the establishment of an annual whitewater release should not adversely affect the terrestrial habitat surrounding the reservoir, and should be a benefit to recreationists who want to experience the entire segment of the Raquette River.

After the Recreation and Whitewater study was conducted, the participants determined that the existing access sites to the Raquette River are adequate for whitewater opportunities. We conclude that the existing access site are adequate. There are nine sites between the Piercefield Project and the Carry Falls Project by which boaters can access the river. Though three of those access sites are private, the remaining six access points enable recreationists to put in above most of the rapids. Between the project and the Carry Falls Project, the only stretch of the river that lacks public access is between Childwold on NYS Route 3 and north of Sevey along New York State Route 56, which is approximately 6 RMs. However any additional river access in this section of the river would be of minimal benefit to boaters. Flatwater and/or quickwater dominate most of that section of the river, with only two Class III-VI rapids located near Route 56. If a boater wanted to experience this degree of difficulty, there are public access sites downstream that provide access to similar waters. In addition, this section of the river contains many wetlands, and if boaters were given easier access, the increase usage could potentially degrade the vegetation along the banks of the river.

The major effect on whitewater recreationists is not knowing when flows are high enough to warrant paddling in the Raquette River. Erie Boulevard's proposed expansion of the flow notification system would ensure that information is available to help recreationists determine if flows are suitable for boating.[13] The flow notification system would also be useful to inform boaters if the annual recreational release would occur. Seventy-two hours before the annual release, Erie Boulevard proposes to inform participants of the status of the scheduled flow. If the scheduled flow must be cancelled, the notification system would serve as an effective way to notify potential participants.

c. Unavoidable Adverse Effects: None.

Our recommendations for recreational resources are found in Section VII, (Comprehensive Development and Recommended Alternative).

5. Land Use and Aesthetics

The Piercefield Project, which is located in the towns of Piercefield and Altamont, lies completely within the Adirondack State Park boundary. The area surrounding the project is predominately undeveloped woodlands. The few developed areas consist of the recreation sites along the shoreline of the project, the two towns, and in the vicinity of NYS Route 3. Downstream of the project, the shoreline along the Raquette River is essentially undeveloped with a few cottages located near Sols Island. In contrast, the Raquette Pond and Tupper Lake, which are directly upstream of the project, are more developed and support residential and moderately intensive seasonal recreational uses.

Since the project is located within the Adirondack State Park, the project is subject to APA's shoreline zoning, and any development must be conducted in accordance with APA's zoning. The majority of the project lands are zoned as Resource Management and Low Intensity Use. Lands zoned as Resource Management areas permit residential uses, agriculture, and forestry, but the natural open space character of lands are to remain after development. Lands zoned as Low Intensity Use have very little restrictions, and residential use, recreation, and forestry are all potential uses. Within the project boundary, Erie Boulevard generally permits the development of piers, docks, boat landings, retaining walls, and other shoreline facilities.

b. Environmental Effects and Recommendations

The Settlement does not include any environmental recommendations specifically

[13] Though there are no daily or weekly scheduled whitewater releases, the operational flow regime provides boaters with whitewater flows.

for land use or aesthetic resources. However, Erie Boulevard proposes to continue limiting daily fluctuations to one foot and to reduce the two feet seasonal fluctuations through the installation of permanent flashboards. In the Settlement, Erie Boulevard also proposes to eliminate the current release of 8 cfs into the bypassed reach, but would provide a 20-cfs downstream fish movement release at the dam.

*Our Analysis*

The proposed continuation of a daily one-foot fluctuation and the reduction of the two-foot seasonal fluctuation would result in a more stable reservoir throughout the year. With less shoreline area being exposed, growth of shoreline vegetation would occur. All of this would slightly enhance the aesthetics of the shoreline and reservoir.

The elimination of the 8 cfs would result in the upper section of the bypassed reach being dewatered. Without the flow, large boulders, bedrock, and cobble would be exposed, which would have a minimal negative effect on aesthetics. However due to backwater effect, the proposed release of 20 cfs at the dam would result in the lower section of the bypassed reach remaining wetted. Since the public would still be able to see water in this section of the bypassed reach, no adverse effects on aesthetics would occur in the lower section of the reach.

c. Unavoidable Adverse Effects: The elimination of the 8 cfs would result in a minimal adverse effect on the aesthetics of the upper section of the bypassed reach.

6. Cultural Resources

a. Affected Environment

Section 106 of the National Historic Preservation Act of 1966 (Section 106), as amended, requires that the Commission evaluate the potential effects on properties listed or eligible for listing on the National Register of Historic Places (National Register). Such properties listed or eligible for listing on the National Register are called historic properties. In this case, the Commission must take into account whether any historic property could be affected within the project's area of potential effects (APE).[14] The APE for the Piercefield Project encompasses all of the lands within the project boundary.

*Historic Project Properties*

[14] The area of potential effects is defined in the Advisory Council on Historic Preservation's regulations (36 CFR 800.16[d]) as "geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of Historic Properties, if any such properties exist."

The Piercefield Project, originally known as Mill #17, was constructed by International Paper Company in 1899 to produce newsprint. Several modifications have occurred since the mill was constructed. The project's powerhouse is located in a section that was built as the mill's pulp grinder room, and the project was electrified in 1923. A new boiler house and steam turbine-generator sets were installed in 1923 and three horizontal shaft generators were connected to the original turbines in the grinder room between 1924 and 1925. Also, the original turbine runners were replaced by Leffel wheels in 1946. Extensive modifications to the powerhouse substructure and operating floor occurred in 1957 when generating Unit 1 was replaced with a vertical generating unit.

*Archeological Sites*

There are no known archeological sites within the APE for the Piercefield Project.

b. Environmental Effects and Recommendations

In the Settlement, Erie Boulevard proposes to develop a Historic Properties Management Plan (HPMP) that would preserve and protect identified historic properties within the project's APE for the term of a new license. Erie Boulevard proposes to develop the HPMP in consultation with the New York State Office of Parks, Recreation, and Historic Preservation (New York SHPO), the St. Regis Band of Mohawk Indians of New York, and the Oneida Indian Nation. On March 29, 2004, Anthony Wanderley, Nation Historian of the Oneida Indian Nation, stated that the project lies outside of the Nation's aboriginal territory and is beyond its purview. Therefore, the Oneida Indian Nation would not participate in the Section 106 process and the development of the HPMP for the project.

On January 18, 2005, a Programmatic Agreement (PA) for managing historic properties that may be affected by the issuance of a project license was executed among the Commission and the New York SHPO[15]. The PA requires Erie Boulevard to develop a HPMP specifying how historic properties would be managed in the project's APE, and address the eligibility of the Piercefield powerhouse and dam in the HPMP. The eligibility of the Piercefield powerhouse and dam for the National Register has not yet been conclusively determined.

*Our Analysis*

[15] The St. Regis Band of Mohawk Indians of New York, Erie Boulevard, and the Bureau of Indian Affairs also participated in the development of the PA.

Issuing a license for the Piercefield Project may affect properties included in or eligible for inclusion in the National Register.

Inasmuch as the dam and powerhouse may be eligible for the National Register, issuing Erie Boulevard a new license to continue operating the project under the protection afforded by Section 106 would generally to be considered a beneficial effect. However, operating the project under the protections afforded by Section 106 does not ensure that no adverse effects would ensue. Adverse effects could occur to licensed historic project features due to repairs and modifications that may be necessary during the course of project operation. Also, adverse effects could also inadvertently occur during routine daily activities of the project facilities. To take into account any potential adverse effects, the HPMP requires Erie Boulevard to develop principles and procedures to address the continued use and maintenance of properties that are listed or may be eligible for listing on the National Register.

*Archeological Sites*

Because the project has not been evaluated for its archeological potential, there is a possibility that undiscovered historic properties could be adversely affected by future project-related ground-disturbing activities or changes in project operation. The HPMP would require Erie Boulevard to develop principles and procedures to address project-related ground-disturbing activities and the discovery of previously unidentified properties.

Our recommendations for a HPMP are found in Section VII, (Comprehensive Development and Recommended Alternative).

c. Unavoidable Adverse Effects: With the implementation of the executed PA and the HPMP over the term of a new license, all potential adverse effects to historic properties should be mitigated, lessened, or avoided.

## VI. DEVELOPMENTAL ANALYSIS

In previous sections of this EA, we assess the effects on the environment of the operation of the Piercefield Project. In this section, we look at the effect of the proposed and recommended environmental measures on the project's power benefits and summarize the cost of environmental and developmental measures considered in our analysis.

### A. Power and Economic Benefits of the Project

To calculate the economic benefits of continuing to operate a project, we compare the project costs with the cost of obtaining the same amount of capacity and energy from

an alternative generating source. Under the Commission's approach to evaluating the economics of hydropower projects, as articulated in Mead Corporation, Publishing Paper Division,[16] the Commission employs an analysis that uses current costs to compare the costs of the project and likely alternative power with no forecasts concerning potential future inflation, escalation, or deflation beyond the license issuance date. The Commission's economic analysis provides a general estimate of the potential power benefits and costs of a project and reasonable alternatives to project power. The estimate helps to support an informed decision concerning what is in the public interest with respect to a proposed license.

For any alternative, a positive net annual power benefit indicates how much less project power would cost than power from an alternative source; a negative net annual benefit indicates how much more project power would cost than power from an alternative source.

Wherever possible, values used in the developmental analysis are derived from filings made by the Erie Boulevard Hydropower, L.P. When such information was not available, we made assumptions regarding the financial parameters or developed cost estimates for implementation of the various environmental measures.

We used the parameters in Table 4 to analyze the economics of the proposed project, the proposed project with additional staff recommended measures, and no-action.

[16] 72 FERC ¶ 61,027 (July 13, 1995).

**Table 4.** Parameters for economic analysis of the Piercefield Hydroelectric Project. (Source: Staff and Erie Boulevard)

| Parameter | Value | Source |
|---|---|---|
| Net investment (capital costs) | $1,065,900[17] | Erie Boulevard |
| Operation and maintenance cost | $459,380[18] per year | Erie Boulevard |
| Relicensing cost | $273,980[19] | Erie Boulevard |
| Period of analysis | 30 years | Staff |
| Term of financing | 20 years | Staff |
| Cost of Money | 8 percent | Staff |
| Discount rate | 8 percent | Staff |
| Federal tax rate | 34 percent | Staff |
| Local tax rate | 5 percent | Staff |
| Energy value | 43.22 mills/kWh[20] | Staff |
| Capacity value | $96/kW-yr[21] | Staff |

[17] In the additional information response filed April 28, 2004, the applicant provided a 2004 dollar net investment of $1,122,000. Staff adjusted the net investment cost to 2005 dollars.

[18] The applicant listed $180,000 (2004 dollars) as the administrative and overhead cost, $60,000 (2004 dollars) for property taxes, and $200,000 (2003 dollars) for operation and maintenance cost for the project. These values have been adjusted to reflect costs in 2005 dollars.

[19] The applicant listed $266,000 (2004 dollars) as the cost for preparing the license application. Staff adjusted this cost to reflect 2005 dollars.

[20] The estimate of the cost of alternative power is based on the projected cost of energy generation in fossil-fueled electric generating plants in the Middle Atlantic Region of the country. Our estimate of the cost of fuel is based on the Energy Information Administration's Annual Energy Outlook for 2005, and its supplemental data on the EIA Internet Homepage.

[21] Total annual cost of hydro-equivalent combined-cycle capacity is estimated to be

In the following sections, we analyze the project's power development benefits for three alternatives: (1) the proposed project; (2) the project with additional staff-recommended measures; and (3) No-Action.

1. Economics of the Proposed Project

Measures proposed by Erie Boulevard, agencies, and staff could affect project economics through costs (capital, operation and maintenance, plan development, etc.) or effects on power generation. Table 5 provides the annual value of lost generation due to flow releases and Table 6 summarizes the costs associated with all proposed or recommended non-operation measures.

Project generation would be increased by a net total of 335 MWh with the 20 cfs fish movement release (replacing the 8 cfs release) and installing flashboards to maintain the water surface elevation within 1 foot or less to ensure the downstream flow release of at least 150 cfs as proposed by Erie Boulevard. With the measures proposed by Erie Boulevard, the Piercefield Project would have a net annual cost of $810,760 (52.87 mills/kWh). We estimate that the annual power value from the project would be about $921,940 (60.12 mills/kWh), thereby yielding an annual net benefit of approximately $111,180 (7.25 mills/kWh).

**Table 5.** Annual value of generation due to flow releases and year-round flashboards for the Piercefield Project in 2005 dollars (Source: Staff)

| Environmental Enhancement Measure | Proposed By | Generation MWh | Annual Value of Generation ($) |
|---|---|---|---|
| Operate such that reservoir drawdown is no more than 1 foot below the normal maximum reservoir level to maintain ROR with pondage. | Erie Boulevard, 401 WQC | + 500[22] | 21,610.00 |
| Release 20 cfs through a downstream fish movement structure which would replace the current 8 cfs minimum flow through the bypassed reach. | Erie Boulevard, 401 WQC | - 165[23] | -7,131.30 |
| NET TOTAL | | 335 | 14,479.70 |

$96/kW-yr.

[22] "+" Generation would increase by the listed amount.

[23] "-" Generation would decrease by the listed amount.

2. Economics of Proposed Project with Additional Staff-Recommended Measures

Project generation would be increased by a net total of 335 MWh with the 20-cfs downstream fish movement release (replacing the 8 cfs release) and installing flashboards to maintain the water surface elevation within 1 foot or less to ensure the downstream flow release of at least 150 cfs as proposed by Erie Boulevard. Staff also proposed that Erie Boulevard develop a recreation plan and expand the project boundary to include the existing canoe portage. With the measures proposed by staff and Erie Boulevard, the existing project has an annual cost of $811,530 (52.92 mills/kWh). We estimate that the annual power value from the project would be about $921,940 (60.12 mills/kWh), thereby yielding an annual net benefit of $110,410 (7.20 mills/kWh).

3. No Action

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

The annual cost of the no-action alternative due to project operations and maintenance and relicensing under the existing license would be approximately $779,850 (51.99 mills/kWh). The annual power value would be $907,500 (60.50 mills/kWh) for the estimated annual generation of 15.0 GWh. The resulting annual net benefit for the no-action alternative would be $173,850 (11.59 mills/kWh).

## B. Economic Comparison of Alternatives

Table 6 gives the cost of each of the enhancement measures considered in our analysis. Table 7 presents a comparison of the various alternatives.

**Table 6.** Annual costs of proposed and recommended enhancement measures for the Piercefield Hydroelectric Project in 2005 dollars (Source: Erie Boulevard and Staff)

| Enhancement Measures | Proposed By | Capital Cost[24] ($) | Annual O&M Cost ($) | Levelized Annual Cost ($) |
|---|---|---|---|---|
| Retrofit stanchion spillway section | Erie Boulevard, 401 WQC | 265,225 | | 25,012 (1.63 mills/kWh) |
| Install downstream fish movement structure | Erie Boulevard, 401 WQC | 53,045 | | 5,002 (0.33 mill/kWh) |
| Install year-round flashboards | Erie Boulevard, 401 WQC | 15,914 | | 1,500 (0.10 mills/kWh) |
| Replace existing trashracks with 1-inch clear spacing | Erie Boulevard, 401 WQC | 265,225 | | 25,012 (1.63 mills/kWh) |
| Develop a stream-flow and water-leveling monitoring plan | Erie Boulevard, 401 WQC | 1,135 | | 107 (0.01 mills/kWh) |
| Modify flow monitoring system to include Piercefield Project data | Erie Boulevard, 401 WQC | 5,305 | 1,060 | 1,561 (0.10 mills/kWh) |
| Canoe portage (signage/blazes) | Erie Boulevard, 401 WQC | 530 | 106 | 156 (0.01 mills/kWh) |
| Annual recreational release | Erie Boulevard, 401 WQC | NA | 2,120 | 2,120 (0.14 mills/kWh) |
| Historic Properties Management Plan (HPMP) | Erie Boulevard, New York SHPO, Staff | 2,000 | 0 | 190 (0.01 mills/kWh) |
| Modify project boundary to include canoe portage[25] | Staff | 0 | 0 | 0 |
| Develop a recreation management plan | Staff | 5,000 | 0[26] | 472 (0.03 mills/kWh) |

[24] The applicant provided costs in 2003 dollars which staff adjusted to 2005 dollars.

[25] There are no significant costs associated with expanding the project boundary because the applicant owns the lands involved in expansion.

[26] This is the cost to prepare the recreation management plan. The costs for recreation enhancements are accounted for separately.

**Table 7.** Cost comparison of alternatives for the Piercefield Hydroelectric Project. (Source: Staff and Erie Boulevard)

| Alternative | No-Action Alternative | Erie's Proposed Alternative (with 20-cfs downstream fish movement release and additional 1 foot of head due to flashboard installation) | Proposed Alternative with additional staff-recommended measures |
|---|---|---|---|
| Installed capacity (MW) | 2.7 | 2.7 | 2.7 |
| Annual generation (MWh) | 15,000 | 15,335 | 15,335 |
| Annual power value ($) | $907,500 (60.50 mills/kWh) | $921,940 (60.12 mills/kWh) | $921,940 (60.12 mills/kWh) |
| Annual cost ($) | $779,850 (51.99 mills/kWh) | $810,760 (52.87 mills/kWh) | $811,530 (52.92 mills/kWh) |
| Annual net benefit ($) | $173,850 (11.59 mills/kWh) | $111,180 (7.25 mills/kWh) | $110,410 (7.20 mills/kWh) |

### C. Pollution Abatement

The Piercefield Project generates approximately 15,335 MWh per year. This amount of hydropower generation, when contrasted with the generation of an equal amount of energy by a fossil-fueled facility, avoids the emission of atmospheric pollutants. Assuming that the 15,335 MWh of hydropower generation would be replaced by an equal amount of natural gas-fired generation, generating electrical power equivalent to what would be produced at the Piercefield Project would require combustion of about 158 million cubic feet of natural gas annually. Removal of pollutants (N0x and S0x) from the emissions produced by burning fossil fuels to those levels presently achievable by state-of-the-art technology would cost about $7,567 annually.

## VII. COMPREHENSIVE DEVELOPMENT AND RECOMMENDED ALTERNATIVE

Sections 4(e) and 10(a)(1) of the FPA require the Commission to give equal consideration to all uses of the waterway on which a project is located. When we review a proposed project, we equally consider the environmental, recreational, fish and wildlife, and other non-developmental values of the project, as well as power and developmental

values. Accordingly, any license issued shall be best adapted to a comprehensive plan for improving or developing a waterway or waterways for all beneficial public uses.

## A. Recommended Alternative

Based on our independent review and evaluation of the proposed action, the proposed action with the additional staff-recommended measures, and no action, we select the proposed action with additional staff-recommended measures as the recommended alternative.

We recommend this option because: (1) issuance of a new hydropower license by the Commission would allow Erie Boulevard to operate the project as an economically beneficial and dependable source of electrical energy for its customers; (2) the 2.7-MW project would eliminate the need for an equivalent amount of fossil-fuel derived energy and capacity, which helps conserve these nonrenewable resources and limits atmospheric pollution; (3) the public benefits of this alternative would exceed those of the no-action alternative; and (4) the recommended mitigation and enhancement measures would protect and enhance fishery, cultural and terrestrial resources, and provide improved recreation opportunities at the project.

The following summarizes the basis for the measures we recommend be included in any license the Commission issues for the Piercefield Project.

### Measures Proposed by Erie Boulevard as described in the Settlement

Erie Boulevard proposes to continue to operate the project as run-of-river with pondage and to limit daily impoundment fluctuations to 1.0 foot measured in a downward direction from the top of the flashboard (1,542.0 feet msl) or the crest of the dam (1,540.0 feet msl). There would be no additional annual cost to continue run-of-river with pondage, and the proposed daily fluctuations would result in an annual value of generation of $21,610. The proposed project operations would result in the littoral habitat remaining wetted, and terrestrial habitat, such as bird nesting areas, would not be disturbed by the minimal fluctuation. In addition, the project operation would help maintain a stable vegetative buffer around the reservoir. We recommend that these measures be included in any license issued since the benefits to water quality and terrestrial resources exceed the costs to implement the measures.

Erie Boulevard proposes to replace the two-foot seasonal flashboards with year-round two-foot flashboards and retrofit the project's stanchion spillway section to reduce the likelihood of flashboard failure. The capital cost to implement the year-round flashboards would be $15,914 and to construct the spillway would be $265,225. By installing year-round flashboards, the impoundment would become more stable, which would reduce the frequency of dewatered wetlands and reduce the loss of vegetation from

seasonal erosion. The installation of year-round flashboards would also provide a beneficial effect on shoreline habitat. By retrofitting the spillway section, flashboard failure is likely to occur once every 5 to 7 years. We recommend that these measures be included in any license issued since the benefits to water quality and terrestrial resources exceed the costs to implement the measures.

Erie Boulevard proposes to place into operation a 20-cfs downstream fish movement flow from the project's retrofitted stanchion spillway[27] and maintain a baseflow of 150 cfs, or inflow to the Piercefield impoundment, whichever is less, from the tailrace pond downstream of the Piercefield Project. The capital cost to operate the downstream fish movement release would be $53,045, while there would be no additional annual cost to continue the baseflow release. The implementation of the 20-cfs downstream fish movement flow would result in the lower section of the bypassed reach, which provides habitat for amphibians and other macrovetebrates, remaining wetted. The flow would also reduce the potential for fish entrainment because fish could move downstream without passing through the turbines. The baseflow would contribute to the protection and enhancement of the fish community downstream of the project. We recommend that these measures be included in any license issued since the benefits to water quality, aquatics, and terrestrial resources exceed the costs to implement the measures.

Erie Boulevard proposes to replace the existing 2 1/8-inch trashracks (in front of unit 1) and the 2 ½-inch trashracks (in front of Units 2 and 3) with 1-inch clear-spaced trashracks by December 31, 2012, or when the existing trashracks are replaced, whichever is sooner. The capital cost to replace the trashracks would be $265,225. The 1-inch trashracks would reduce the potential for adult fish entrainment. We recommend that these measures be included in any license issued since the benefits to aquatics resources exceed the costs to implement the measure.

Erie Boulevard also proposes to develop a stream-flow and water-level monitoring plan. The capital cost to develop the plan would be $1,135. The proposal to monitor headpond levels and stream flows will help ensure that Erie Boulevard operates the project consistent with any license issued by the Commission.

Erie Boulevard also proposes to modify the existing flow notification system to include discharge information for the Piercefield Project, maintain the canoe portage and install with more permanent signage and/or blazes along the portage, and provide an annual scheduled recreational flow release on the last Saturday of June. The estimated annual cost to provide these recreational enhancements would be $1060, $106, and

[27] The downstream fish movement release is a 20 cfs flow released from the project's spillway stanchions to enable downstream fish passage.

$2,120, respectively. These measures would improve the recreational experience for boaters by ensuring a way to traverse the dam, providing accurate information on boatable flows, and enabling boaters to paddle the entire Raquette River between Carry Falls Project and the Piercefield Project once a year. We recommend that these measures be included in any license issued since the benefits to recreation resources exceed the costs to implement the measures.

In addition, Erie Boulevard proposes to develop a Historic Properties Management Plan in consultation with the New York SHPO and the St. Regis Band of Mohawk Indians of New York. The capital cost to develop the plan would be $2,000. The HPMP would include guidelines for continued use and maintenance of any National Register-eligible property and for the discovery of previously unidentified properties, which would preserve and protect any such properties within the project's APE. We recommend that these measures be included in any license issued since the benefits to cultural resources exceed the costs to implement the measures.

**Additional Measures Recommended by Staff**

Staff recommends that in addition to the environmental measures described in the Settlement, that Erie Boulevard develop a recreation management plan and expand the project boundary to include the canoe portage.

Recreation Management Plan

Erie Boulevard proposes to maintain the canoe portage, replace the flagging along the project's canoe portage with more permanent signage and/or blazes, and modify the existing flow notification system to include the Piercefield Project. Also Erie Boulevard proposes to provide an annual recreational release of 750 cfs on the last Saturday of June. However, the Settlement does not provide a schedule for when the more permanent signage for the canoe portage would implement and when the existing flow notification system would include the Piercefield Project. Also the Settlement does not describe the measures to maintain the canoe portage over the period of any license issued.

To ensure that the proposed recreational enhancements become finalized or implemented we recommend that Erie Boulevard develop a recreation plan for submittal to the Commission for its approval. The capital cost to develop the plan would be $5,000. We recommend that the recreation plan include the following components: (1) a schedule for the improving the signage along the canoe portage; (2) a schedule for the implementation of the flow phone system; (3) description of measures to manage the facilities over the term of any new license issued; and (4) a description of how the needs of the disabled were considered. The plan should be developed in consultation with the NYSDEC and ADK.

Project Boundary

Erie Boulevard proposes to continue to maintain the canoe portage. However, because the portage is outside the project boundary, the Commission does not have jurisdiction over it, and would not have the means to ensure that Erie Boulevard provides for the upkeep of the portage over the term of any new license issued. Therefore, we recommend that the project boundary be expanded to include the canoe portage to ensure that it would be maintained for public use. There would be no additional annual cost to include the canoe portage inside the project boundary.

## B. Conclusion

From our evaluation of the environmental effects and public benefits of the project, we conclude that licensing the Piercefield Project as proposed by Erie Boulevard, with staff-recommended environmental protection measures would provide for the best comprehensive development of the Raquette River.

# VIII. CONSISTENCY WITH FISH AND WILDLIFE RECOMMENDATIONS

Under the provisions of the FPA, each hydroelectric license issued by the Commission shall 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.

Section 10(j) of the FPA states that, whenever the Commission believes that any fish and wildlife agency recommendation is inconsistent with the purposes and the requirements of the FPA or other applicable law, the Commission and the agency shall attempt to resolve any such inconsistency, giving due weight to the recommendations, expertise, and statutory responsibilities of such agency.

The State of New York did not file any terms and conditions pursuant to section 10(j) of the FPA. Interior's October, 6, 2004, letter provided terms and conditions that are consistent with the Settlement. Under section 10(j) of the FPA, we conclude that our recommended fish and wildlife measures are consistent with those filed by the Interior.

# IX. CONSISTENCY WITH COMPREHENSIVE PLANS

Section 10(a)(2) of the FPA 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. Under Section 10(a)(2), federal, and state agencies filed comprehensive plans that address various resources in New York. Of these, we identified and reviewed nine plans relevant

to the project[28]. No inconsistencies were found.

## X. FINDING OF NO SIGNIFICANT IMPACT

We prepared this environmental assessment for the Piercefield Project pursuant to NEPA requirements. Implementing the protection measures described in this environmental assessment would ensure that the environmental effects of the project would remain insignificant. There would be no significant unavoidable adverse effects.

Based on this analysis, issuing licenses for each project would not be a major federal action significantly affecting the quality of the human environment. With our recommended measures, water, aquatic, and terrestrial resources and any cultural resources that would be found during project maintenance or operation would be protected.

[28] (1)Adirondack Park Agency, 1985. Adirondack Park State Land Master Plan. Ray Brook, New York. January 1985. 68pp.; (2) Adirondack Park Agency. Undated. New York State Wild, Scenic, and Recreational Rivers System Field Investigation Summaries. Albany, New York. 21 Reports; (3) Fish and Wildlife Service. Canadian Wildlife Service. 1986. North American Waterfowl Management Plan. Department of the Interior. May 1986. 19 pp.; (4) Fish and Wildlife Service. Undated. Fisheries USA: The Recreational Fisheries, Policy of the United States Fish and Wildlife Service; (5) Fish and Wildlife Service. New York State Department of Environmental Conservation. 1994. Fisheries enhancement plan for the Raquette River, New York. Department of the Interior, Amherst, New York. March 1994. 58 pp; (6) New York State Department of Environmental Conservation. 1985. New York State Wild, Scenic, and Recreational River System Act. Albany, NY. March 1985. 22 pp; (7) New York State Executive Law. 1981. Article 27 - Adirondack Park Agency Act. Albany, New York. July 15, 1981. 65 pp; (8) New York State Office of Parks, Recreation, and Historic Preservation. 1983. People, Resources, Recreation. Albany, NY. March 1983. 353 pp. and appendices; and (9) National Park Service. 1982. The Nationwide Rivers Inventory. Department of the Interior, Washington, DC. January 1982. 432 pp.

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