

COVER SHEET

FEDERAL ENERGY REGULATORY COMMISSION

DRAFT ENVIRONMENTAL IMPACT STATEMENT
FOR THE NIAGARA PROJECT

Docket No. P-2216-066

Section 5
Conclusions and Recommendations
Pages 146 to 157
DEIS

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Comprehensive Development and Recommended Alternative

Sections 4(e) and 10(a) of the FPA, 16 U.S.C. 797(e) and 803(a)(1) require the Commission to give equal consideration to developmental and non-developmental uses of the waterway on which a project is located. When we review a hydropower project, we consider the water quality, fish and wildlife, recreational, and other non-developmental values of the waterway equally with the project's electric energy and other developmental values.

This section presents our rationale in balancing the developmental and non-developmental values and our recommendations for the plan best adapted to comprehensive development of the waterway. Our balancing analysis considers the comparative environmental effects of the alternatives (section 3.0, *Environmental Analysis*), their economic effects (section 4.0, *Developmental Analysis*), and their consistency with relevant agency recommendations and comprehensive plans (sections 5.2 and 5.3, respectively).

Based on our independent review and analysis of the project, the measures proposed by the Power Authority, agencies, and other stakeholders, we recommend relicensing the project as proposed which is continued operation of the project as a peaking facility as required by international agreement and the terms of the Settlement's relicensing agreement, with some minor staff modifications (staff alternative).

We are recommending the staff alternative because: (1) issuance of a new license would allow the Power Authority to continue to operate the project as a dependable source of electric energy for its customers; (2) the 2,755-MW project would avoid the need for an equivalent amount of fossil-fuel fired electric generation and capacity elsewhere, continuing to help conserve these non-renewable energy resources while reducing atmospheric pollution; and (3) the recommended environmental protection and enhancement measures would improve water quality, protect or enhance fish and terrestrial resources, improve public use of recreational facilities and resources, and maintain and protect historic and archaeological resources within the area affected by project operation. The overall benefits of this alternative would be worth the cost of proposed environmental measures.

Below, we discuss the basis for our recommended measures, most of which are included in the Power Authority's proposed relicensing agreement. Measures that we are not recommending are addressed separately.

5.1.1 Niagara Falls Water Board Capital Improvement Fund

The project includes 8.6 miles of underground conduits used to transport water from the intakes to the forebay. There are two conduits, each 46 feet wide by 66.5 feet high and 4.3 miles long. When the conduits were constructed, they crossed natural groundwater flow vectors, thus creating new flow dynamics in the area. One of the documented continuing effects of operating the project is the infiltration of the City of Niagara Falls' Falls Street Tunnel by groundwater that follows the conduit drainage system. This infiltration of groundwater into the tunnel significantly increases the water treatment costs for the City of Niagara Falls Water Board because 80 percent of the water entering the tunnel is estimated to be from the conduit drainage system. This fund would pay for the grouting of the tunnel in the vicinity of the conduits and would reduce the infiltration of groundwater by an estimated 70 percent or 4.5 mgd. The annual cost of this measure, which we recommend, would be \$1,465,000. We conclude that the benefits to the public justify the cost.

5.1.2 Habitat Improvement Projects Fund

The project diverts water from the Chippawa-Grass Island Pool in the upper Niagara River, through the conduits to the project forebay, then releases the water at the Robert Moses Plant tailrace in the lower Niagara River. This water diversion, in combination with similar diversions for the Sir Adam Beck Project in Canada, causes project-related water level fluctuations in the upper and lower river of approximately 1.5 feet per day. The fluctuations, in turn, contribute to erosion on the river banks, within tributaries, and along the perimeter of islands. Additionally, the fluctuations reduce the suitability of shallow water and riparian habitat for both aquatic and terrestrial species.

The Power Authority proposes, under the Settlement, to fund 8 HIPs. All 8 of these HIPs are included as conditions of the certification and are also included in Interior's section 10(j) recommendations. Below are our conclusions and recommendations for each proposed HIP. Collectively, these 8 HIPs would have an annual cost of \$869,669.

Strawberry Island Wetland Restoration

The Strawberry Island-Motor Island Shallows is the largest area of riverine littoral zone in the Niagara River. Areas such as this are rare in the Great Lakes Plain ecological region, and they provide important fish habitat. The Strawberry Island-Motor Island Shallows is one of the most important fish spawning areas in the upper Niagara River. This area of the river experiences water level fluctuations and associated erosion due to a number of developmental activities, including water withdrawal for the Niagara Project.

The Strawberry Island HIP would extend protection measures to the remaining downstream shallow-water habitats of the island initiated by New York DEC in 2001 while at the same time creating complex marsh and high-energy wetland habitats for fish and wildlife. Numerous native warmwater and coolwater fish species could benefit from

the enhanced spawning, nursery, and foraging habitat created through this HIP. Therefore, we recommend this measure, which would have an annual cost of \$133,311. We conclude that the potential benefits to the resources justify the cost.

Frog Island Restoration

This project would restore/create approximately 5.5 acres of island and associated habitat using a U-shaped perimeter of breakwater structures in the approximate vicinity of an historic island complex, approximately 15 miles upstream of the project intakes. The resultant aquatic habitats are expected to be beneficial to several fish species common to the Niagara River. This area of the river experiences water level fluctuations and associated erosion due to a number of developmental activities, including water withdrawal for the Niagara Project. Although the effects on Frog Island appear to be due to past dredging activities, rather than a project effect, this HIP would still create additional habitat within a resource category (shallow, riparian) that has been affected by the project. Therefore, we recommend this measure, which would have an annual cost of \$259,682. We conclude that the potential benefits to the resources justify the cost.

Motor Island Shoreline Protection

Motor Island, located approximately 15 miles upstream of the project intakes, is owned by the State of New York and managed by the New York DEC for the protection and enhancement of fish and wildlife. This area of the river experiences water level fluctuations and associated erosion due to a number of developmental activities, including water withdrawal for the Niagara Project. Shoreline erosion processes are currently occurring at various locations along the island's perimeter. This HIP would benefit aquatic habitat by providing shoreline protection measures along the western and eastern shorelines and at the southern tip of Motor Island. Shoreline protection would decrease erosion from the site, thus creating water clarity conducive to nearby aquatic vegetation growth. Aquatic vegetation growth, in turn, would benefit many species of fish and other aquatic biota that use such habitat for spawning, nursery, and feeding. Therefore, we recommend this measure, which would have an annual cost of \$123,596. We conclude that the potential benefits to the resources justify the cost.

Beaver Island Wetland Restoration

This HIP, located approximately 15 miles upstream of the project intakes would result in the restoration of approximately 36 acres of deep emergent marsh habitat. This HIP is aimed at restoring hemi-marsh (marsh interspersed with shallow open water in roughly even proportions) to the northeast shoreline of Beaver Island. Once completed, there would be a surface water connection between these ponds and the upper Niagara River; therefore, Niagara River fish would be able to access these ponds and emergent marsh habitat for potential use as spawning and nursery habitat. This area of the river experiences water level fluctuations and associated erosion due to a number of

developmental activities, including water withdrawal for the Niagara Project. Therefore, we recommend this measure, which would have an annual cost of \$180,806. We conclude that the potential benefits to the resources justify the cost.

Buckhorn and Tiff Marshes – Control of Invasive Species

The removal of invasive species, through implementation of this HIP, would promote the growth of a diverse wetland community of native species. Many species of fish and other aquatic biota use marsh habitat for spawning, nursery areas, and feeding. Therefore, we expect that this HIP would enhance and preserve wetland functions and increase the value of the marsh to native fish. The project's contribution to water level fluctuations in the upper river has likely contributed to the increased abundance of invasive species in riparian wetlands. Both sites are located within the area affected by project-related fluctuations. Therefore, we recommend this measure, which would have an annual cost of \$54,666. We conclude that the potential benefits to the resources justify the cost.

Osprey Nesting Platforms

Osprey are present on the Niagara River during migration (New York DEC and New York OPRHP, 1995), but a local breeding population has not currently been established. This HIP would increase nest site availability for osprey by installing pole-mounted nesting platforms. Although the project does not directly affect osprey, osprey feed on fish which are affected by project-related fluctuations. Given the success of osprey nest platforms in other areas, implementation of this HIP could be an effective way of attracting nesting ospreys to the Niagara River area. To accomplish the proposed osprey enhancements, structures would be placed in existing wetlands and in wetlands created, enhanced, or restored through other HIPs. Therefore, we recommend this measure which would have an annual cost of \$14,485. We conclude that the potential benefits to the resources justify the cost.

Common Tern Nesting

Project-related water level fluctuations can affect the area available to common terns for nesting. Nesting habitat for the common tern would be restored and enhanced by adding appropriate gravel nesting substrate, removing vegetation, installing gull or cormorant exclusion devices, installing perimeter fencing and chick shelters, and the use of tern nesting rafts or barges. These methods should increase tern productivity by increasing hatching success and fledging success. The locations of these nesting sites are to be identified in consultation with New York DEC staff. Potential locations for this project include current (e.g. Buffalo Harbor breakwalls) and historical (e.g. Buckhorn Island Tern Colony SCFWH) tern nesting sites. This HIP would provide nesting habitat for common terns and increase the local population of terns by creating or enhancing nesting sites and increasing tern breeding productivity. Therefore, we recommend this

measure which would have an annual cost of \$ 81,729. We conclude that the potential benefits to the resources justify the cost.

Fish Attraction Structures

Diving observations in the upper Niagara River indicate that the amount of large-object cover where fish can seek shelter from water velocity is limited. It is likely that this lack of cover is largely due to dredging operations that have historically occurred to aid commercial navigation. Dive observations found that the little cover that is available appears to be highly utilized, especially by large predator species such as muskellunge and smallmouth bass. This habitat is important because adult and juvenile fish of numerous species can seek shelter from the current and use these areas to prey on, and/or hide from, other fish. Therefore, this HIP is likely to increase habitat diversity which in turn will increase fish community diversity and ecological functions of the upper Niagara River. Although, this measure does not address a direct project effect, because the abundance and quality of deep water cover and habitat is unaffected by the project, it would nevertheless benefit species (muskellunge and smallmouth bass) whose earlier life stages are affected by water level fluctuations and entrainment. By enhancing habitat for the adult stages of these species, the abundance of juveniles of the species would probably increase as well. Therefore, we recommend this measure which would have an annual cost of \$21,666. We conclude that the potential benefits to the resources justify the cost.

5.1.3 Annual Reports on HIPs

The Power Authority proposes, under the Settlement, to prepare and submit annual reports to FERC describing the activities related to the HIPs fund. These annual reports are not a condition of the CERTIFICATION or one of Interior's section 10(j) recommendations. The reports would, at a minimum, provide progress reports on HIPs, a list of expenditures for each project, a list of planned future expenditures for each project, and a balance sheet.

These annual reports would help staff track the Power Authority's compliance with its obligations under the license. Therefore, we recommend this measure. The cost of this measure is not specified but is included in the O&M cost of the HIPs fund. We expect that the cost of this measure would be minimal.

5.1.4 Recreation Plan

The Power Authority proposes to develop and implement a recreation plan for the project that would govern the continued operation, management, and maintenance of recreation facilities within the project boundary.

The recreation plan would include settlement-proposed and Power Authority-funded recreation-related improvements at the following recreational sites that are owned by the Power Authority and located within the project boundary: (1) Upper Mountain Road Parking Lot/Lewiston Reservoir Fishing Access; (2) Robert Moses Fishing Pier Lower Parking Area; (3) Upper Niagara River Intake Observation Facility; and (4) Reservoir State Park. The plan would also include settlement-proposed and Power Authority-funded facilities at the Earl W. Brydges Art Park (located downstream of the project) and in the Niagara Gorge Area (located within the project boundary in the bypassed reach). These measures would be funded through a Parks and Recreation Fund. Items 1-3 are required in the certification.

Implementing the public access improvements at project recreational facilities, funding the Parks and Recreation Fund, and developing and implementing the proposed recreation management plan would enhance recreational opportunities in the project vicinity.

The proposed improvements would upgrade the facilities, including making the facilities more accessible to the disabled. The annualized cost of implementing the Power Authority's proposed recreation management plan, implementing the improvements at project-related recreational facilities, and funding the Parks and Recreation Fund would be \$714,000. We conclude that the benefits to the public justify the cost.

The Power Authority in its agreement with the Tuscarora Nation proposes, among other things, to develop, implement, and maintain a new exhibit at the Power Vista Visitor Center (see socioeconomics, section 3.3.8.3). The exhibit would be devoted to the Haudenosaunee people and their associations with the project. The Power Authority would contribute up to \$150,000 (NPV 2007) for the development and implementation of the project and would be responsible for ongoing maintenance of the exhibit. The agreement states that the provision to provide the exhibit would not be a license requirement. However, the Power Vista Visitor Center is a project recreation facility that is included in the proposed recreation plan. Thus, we recommend that the proposed exhibit be included in the recreation plan.

5.1.5 Land Management Plan

The project boundary includes about 1,269 acres of land not inundated by water. This land includes project facilities, recreation facilities, roads, transmission lines, and open space. The Power Authority manages these lands in cooperation with New York OPRHP and New York DOT. Under the relicensing agreement, the Power Authority proposes a land management plan that would include policies and guidelines for the protection and enhancement of terrestrial resources, including (1) road maintenance practices; (2) vegetation management; (3) invasive species control; (4) nuisance wildlife;

(5) use of project lands; (6) aesthetic enhancements; and (7) provision for a customary use plan for the people of the Tuscarora Nation.

The land management plan would include standards and guidelines for the protection and enhancement of land uses, and terrestrial and aesthetic resources. Having a land management plan for the project would avoid misunderstanding about how project land are to be managed and provide a coordinated approach to all the land management-related activities under the same plan. We estimate that the annual cost of the land management plan would be \$2,340. We conclude that the potential benefits to the resources justify the cost.

Project Boundary

The Power Authority proposes to remove 8 parcels of land from the project boundary. None of the 8 parcels, except Area 6, appear to be needed for recreational access or for other project purposes, including operation and maintenance of the project. Area 6 is situated in the bypassed reach between the intake towers and the tailrace. The Discovery Center, a portion of the Great Gorge Railway Right-of-Way Trail, and portions of the Robert Moses Parkway are located in this area. In addition to the recreation facilities, the area provides for public access to the bypassed reach of the Niagara River with views of Horseshoe Falls and the river. The relicensing agreement includes funding improvements to some of these facilities. Keeping area 6 in the project boundary would allow the Commission to ensure continued public access and maintenance of facilities during a new license term. Thus, we recommend that Area 6 remain in the project boundary. We also note that because under the relicensing agreement the Power Authority's funding of the HIPs would included operation and maintenance, the Commission may decide, for compliance purposes, to draw a project boundary around these areas.

5.1.6 Historic Properties Management Plan

Continuing to operate the Niagara Project may affect historic properties included in or eligible for inclusion in the National Register.

A Phase 1A survey has identified a total of 201 archaeological sites in the project area. These sites consist of villages and camps, earthworks, middens, burials, and "traces of occupation". Among the sites identified, 37 precontact period and historic period sites are believed to be either located or possibly located in the project vicinity. In addition, the remains of the former Schoellkopf Hydroelectric Project and the current Niagara Project facilities are likely eligible for listing in the National Register of Historic Places.

The Power Authority is currently in the process of completing cultural resource surveys, and as part of these surveys is proposing to evaluate all buildings and structures in the APE for eligibility for the National Register. The Power Authority also proposes

to implement the provisions of a programmatic agreement, which would include a provision to develop and implement an historic properties management plan (HPMP) in consultation with the SHPO, the ACHP, and the Nations.

To ensure that effects on known and potential historic properties, and to any as-yet unidentified archaeological resources, are satisfactorily resolved over the term of the new license, we recommend executing a programmatic agreement (PA) with the SHPO and the ACHP for the project and that the Nations be invited to be concurring parties.

The PA would require the Power Authority to file an HPMP, for Commission approval, within one year of a license issuance. The HPMP should include: (1) completion of a Phase 1A literature search and sensitivity study for Lewiston Reservoir; (2) a mechanism, including consulting with the SHPO, to evaluate buildings listed on or eligible for the National Register whenever an activity is undertaken in the APE that may have an impact on such structures; and (3) when appropriate when maintaining project facilities, follow the Secretary of the Interior's *Guidelines for Rehabilitating Historic Buildings* (revised 1990), which contains the procedures and measures to address the proposed continued use, and protection of historic properties; mitigation of unavoidable adverse effects; compliance with laws and regulations governing human remains; and discovery of previously unidentified resources over the term of any license issued.

The Power Authority's proposal to evaluate all the buildings and structures in the APE for eligibility for the National Register may not be necessary as all the structures might not be affected by project operations. We recommend that only those buildings or structures that may be affected in the future by project operations be further evaluated for their eligibility to the National Register and any effects be evaluated only as needed. We estimate that the annual cost of the HPMP would be \$3,860. We conclude that the potential benefits to the resources justify the cost.

Mesures not recommended

5.1.7 Fish and Wildlife Habitat Enhancement and Restoration Fund

The Power Authority, under the Settlement, proposes this fund, which would be administered by an Ecological Standing Committee (ESC) to fund ESC-approved projects. This fund is also a condition of the CERTIFICATION and is included in Interior's section 10(j) recommendations. The types of projects funded through the HERF could include but would not necessarily be limited to future HIPs; land acquisition; habitat improvements; habitat research; fish, wildlife, indigenous plant species restoration; and stewardship activities throughout the Niagara Basin. There are 12 criteria for approval, which are listed in section 3.3.1.2. Among the criteria is that the project "address a demonstrated project impact"; however, a project would not necessarily have to meet this or all the criteria to be funded.

We typically do not recommend open-ended funding mechanisms for unidentified projects when it is unclear whether the funds would be used to address a project effect. Some of the ESC-approved projects funded through the HERF may address a demonstrated project effect, but others might not. Given the broad stated purpose of this fund, and the fact that a nexus to a project effect is not a mandatory selection criterion for project funding, we are not recommending the HERF, although we acknowledge that it is a mandatory condition of the CERTIFICATION and would become a condition of any license issued for the project. This fund would have an annual cost of \$1,247,000.

5.1.8 Ecological Standing Committee

The ESC would primarily be responsible for administration of the HERF. Since we do not recommend the HERF, we do not see the need for the ESC and, therefore, do not recommend adopting this measure. The ESC is not a condition of the CERTIFICATION or one of Interior's section 10(j) recommendations.

5.1.9 Parks and Recreation Fund

The Power Authority, under the Settlement, proposes, through the Parks and Recreation Fund, to fund capital improvements at the Earl W. Brydges Art Park, which is owned and operated by the New York OPRHP. Although this facility provides some access for fishing, it is primarily a performing arts area and is located outside the project boundary. Therefore, we do not recommend adopting this measure.

5.1.10 Land Acquisition Fund

The Power Authority proposes a land acquisition fund although it is not intended to be in the project license. This fund, however, is a mandatory condition of the certification. There is very little in the record to describe what this fund would be used for, other than it would be in the amount of \$1 million and would be used for the acquisition of parcels selected by the New York DEC. Because there appears to be no guidelines on what parcels might be acquired, and therefore no demonstrated link to project-affected resources, we do not recommend this measure. This measure would have an annual cost of \$77,103.

5.2 Recommendations of Fish and Wildlife Agencies

Under the provisions of section 10(j) 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.

In response to our REA notice, Interior submitted recommendations for the project by letter filed March 24, 2006. 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. Table 5-1 lists the federal and state recommendations filed under section 10(j), and whether the recommendations are adopted under the staff alternative. Environmental recommendations that we consider outside the scope of section 10(j) have been considered under section 10(a) of the FPA and are addressed in the specific resource sections of this document. Of the 8 recommendations that we consider to be within the scope of section 10(j), we recommend adopting all 8.

Table 5-1. Fish and wildlife agency recommendations for the Niagara Project.
(Source: Staff).

Recommendation	Agency	Within the scope of 10(j)?	Annualized cost	Staff recommendation
Implement Section 4.1.2 of Settlement – Habitat Improvement Project Fund, including:				
Strawberry Island Wetland Restoration	Interior	Yes	\$133,311	Adopted
Frog Island Restoration	Interior	Yes	\$259,682	Adopted
Motor Island Shoreline Protection	Interior	Yes	\$123,596	Adopted
Beaver Island Wetland Restoration	Interior	Yes	\$180,806	Adopted
Invasive Species-Buckhorn and Tifft Marsh	Interior	Yes	\$709,000	Adopted
Osprey Nesting Platforms	Interior	Yes	\$14,495	Adopted
Common Tern Nesting	Interior	Yes	\$81,729	Adopted
Fish Attraction Structures	Interior	Yes	\$21,666	Adopted

Recommendation	Agency	Within the scope of 10(j)?	Annualized cost	Staff recommendation
Implement Section 4.1.3 of Settlement – Habitat Enhancement and Restoration Fund	Interior	No. Not a specific fish and wildlife measure	\$1,247,000	Not adopted

5.3 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 waterways affected by the project. Under Section 10(a)(2), federal, state and local agencies filed 20 comprehensive plans that address various resources in New York. Three of those plans address resources applicable to the project (Table 5-2). The proposed action is consistent with these plans.

Table 5-2. Comprehensive plans considered for the Niagara Project.

Comprehensive Plan	Contact Agency
People, resources, recreation. 1983.	New York State Office of Parks, Recreation, and Historic Preservation. Albany, NY.
Niagara River Remedial Action Plan. 1994.	New York State Department of Environmental Conservation. Albany, NY.
Niagara River Corridor Important Bird Area Conservation Plan. 2002.	U.S. Fish and Wildlife Service. Cortland, NY