

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, D.C. 20426
August 9, 2019

OFFICE OF ENERGY PROJECTS

Project No. 4678-052–New York
Crescent Hydroelectric Project

Project No. 4679-049–New York
Vischer Ferry Hydroelectric Project

New York Power Authority

VIA Electronic Mail

Mr. Robert Daly
Licensing Manager
New York Power Authority
Robert.Daly@NYPA.gov

Reference: Requests for Additional Information and Study Requests

Dear Mr. Daly:

After reviewing the Pre-Application Document (PAD) for the Crescent Hydroelectric Project and the Vischer Ferry Hydroelectric Project, and participating in the July 10 and 11, 2019 scoping meetings, and the July 10, 2019 environmental site review, we have determined that additional information is needed to adequately assess potential effects of the projects on environmental resources. We provide comments on the PAD and our additional information requests in Schedule A, and three study requests in Schedule B. Unless otherwise specified, please file your responses to Schedule A with your proposed study plan, which must be filed by September 23, 2019.

Staff may determine a need for additional studies or information upon receipt and review of scoping comments, study requests, and your proposed study plan. As necessary, we will request additional information or studies or provide additional input on proposed or requested studies after you file the proposed study plan.

Please include a master schedule in your proposed study plan that includes the steps for conducting each proposed study (i.e., data collection, data analysis, consultation,

and report preparation), the distribution of progress reports, and the filing date of the initial study report. If, based on the study results, you are likely to propose any plans or measures to address the effects of the projects, drafts of those plans should be filed with your draft license application (or preliminary licensing proposal).

If you have any questions, please contact Jody Callihan at (202) 502-8278 or jody.callihan@ferc.gov.

Sincerely,

John B. Smith, Chief
Mid-Atlantic Branch
Division of Hydropower Licensing

Enclosures: Schedule A
Schedule B

ADDITIONAL INFORMATION

Lock E-6

1. Currently, the Crescent Hydroelectric Project (Crescent Project) does not include Lock E-6 as part of the project. However, it appears that Lock E-6 and the canal between the dam and the lock should be part of the project because Lock E-6 is needed for impounding the reservoir of the Crescent Project. Please explain why the lock and canal are not included in the project boundary. If it is determined that the lock and canal are needed for project purposes, both features should be enclosed within the project boundary when the draft license application or preliminary licensing proposal is filed.

Dates of Flashboard Installation/Removal and Navigation Season

2. Staff needs additional information regarding the seasonal timing of the fish passage practices that are currently implemented at both projects (notches in the flashboards and navigation lockages) to support our analysis of the effectiveness of these practices for passing migratory blueback herring and American eel. Therefore, please provide the following information for the previous 20 years, to the extent such data are available: (1) the dates the flashboards were installed and removed each year at each project; and (2) the starting and ending dates for the navigation season in the Erie Canal each year. Please note any anomalies in the record, such as late installations of the flashboards or early closing of the navigation season, and if available, the reason for the anomaly.

Flow through Fish Passage Notches

3. At the environmental site review, New York Power Authority (NYPA) was uncertain as to the amount of flow provided through the two fish notches (the adult notch and juvenile notch) at the Vischer Ferry Hydroelectric Project (Vischer Ferry Project) and the dimensions of these notches. Therefore, please provide this information, as well as the depths and substrates of the plunge pools at both the Crescent Project and the Vischer Ferry Project.

Minimum Hydraulic Capacity

4. At the environmental site review, NYPA stated the minimum hydraulic capacity was the same for all turbines—200 cubic feet per second (cfs) for the Kaplan and Francis units at each project. However, Table 3.3-1 of the Pre-Application Document (PAD)

indicates the minimum hydraulic capacities of the Kaplan and Francis units are 350 cfs and 400 cfs, respectively. Please clarify this discrepancy.

Water Withdrawals from the Vischer Ferry Impoundment

5. As indicated in the PAD (Table 4.3-5) and confirmed at the site visit, water withdrawals in excess of 1 million gallons per day (MGD) are made from the Vischer Ferry impoundment at General Electric in Schenectady, New York (4.0 to 11.4 MGD) and the Knolls Atomic Power Laboratory (1.7 to 3.7 MGD). To support staff's analysis of water quantity resources at both projects, please provide additional information regarding these water withdrawals. Specifically, describe how the water that is withdrawn is used and whether it is released back into the impoundment and if so, how it is modified (e.g., increased temperature of the effluent).

Period of Record for Hydrology Data

6. Hydrology statistics presented in the PAD are based on an 8-year period of record (from 2011 through 2018, encompassing Hurricane Irene), which likely biases (upwards) flow estimates at the projects, especially given the short period of record (only 8 years). Therefore, in your draft license application or preliminary licensing proposal, please provide a description of the hydrology at both projects and updated flow statistics (tables 4.3-1 and 4.3-2 of the PAD) and flow duration curves (figures 4.3-1 and 4.3-2; Appendix D) that are based on a longer period of record—at least 30 years of pro-rated flow data from the nearby United States Geological Survey (USGS) gages at Little Falls (USGS Gage No. 01347000, data available from 1927 to present) or Cohoes Falls (USGS Gage No. 01357500, data available from 1917 to present).

Fisheries Reports

7. In section 4.4 of the PAD, you cite several fisheries reports that staff was not able to locate. Therefore, please file the following reports/references as supplemental information as part of the public record for the projects: Chas T. Main, Inc. (1984); Curtis and Associates (1987), McBride (1985), and McBride (1994).

Project Facilities

8. In section 3.3 of the PAD, project facilities are identified as a dam, powerhouse, impoundment, and appurtenant facilities. In the existing license, switchyards, generator

leads, and transformer banks are also mentioned as existing project facilities. Please describe in greater detail the switchyards, generator leads, transformer banks, and other appurtenant facilities not previously mentioned as part of the project facilities. Please include the approximate dimensions of the switchyard, length and voltage of the generator leads, and location of each facility, including the point of inter-connection with the grid.

Vegetation Management

9. In section 3.3 of the PAD, project facilities are identified, and section 3.4 references the scope of operations for those identified facilities. Also, in section 4.8.1.1, formal project recreation sites are identified for the Crescent and Vischer Ferry Projects; and section 4.8.2.1 states that, generally, project operations and maintenance, and recreation are the primary activities that occur on project lands. Please describe the details (e.g., frequency and method) of any vegetation management that occurs at either project, their formal recreation sites, and any appurtenant facilities to support operations and maintenance. Examples of vegetation management may include activities such as mowing, trimming, and turf management; hazard or risk tree removal; clearing to maintain overlooks; herbicide treatments; and others.

STUDY REQUESTS

After reviewing the information in the PAD, we have identified a gap between the information in the PAD and the information needed to assess project effects. As required in section 5.9 of the Commission's regulations, we have addressed the seven study request criteria for each of the study requests that follow.

Entrainment and Impingement Study

Criterion (1) – Describe the goals and objectives of each study proposal and the information to be obtained.

The goal of this study is to evaluate the potential for trash rack impingement, turbine entrainment, and related survival for migratory (blueback herring and American eel) and resident game fishes (smallmouth bass, walleye, and yellow perch) at the Crescent Project and Vischer Ferry Project in the Mohawk River. The objectives of this study, at a minimum, are to: (1) estimate the minimum sizes of each target species¹ that would be excluded from the trash racks at each project based on body size alone; (2) provide the burst speeds (with source information cited) for juveniles and adults of each target species;² (3) provide the expected intake approach velocities at the maximum hydraulic capacity of each project; and (4) use a blade strike model (e.g., Franke et al. 1997)³ to estimate the turbine mortality of each target species. The blade strike models should be based on the specifications of the Kaplan and Francis turbines (rotational speed, blade spacing and number, etc.) installed at each project; separate mortality estimates (model runs) should be conducted for the Francis and Kaplan units, with

¹ NYPA should consult with the United States Fish and Wildlife Service and New York State Department of Environmental Conservation to determine if there are species of interest other than the target species listed here; if so, include those additional species in its entrainment analysis.

² Surrogate fish species with a similar swimming mode and body shape may be used if lifestage- and/or species-specific information on burst speeds is not available for the target species.

³ Franke, G.F., D.R. Webb, R.K. Fisher, Jr., D. Mathur, P.N. Hopping, P.A. March, M.R. Haedrick, I.T. Laczó, Y. Ventikos, and F. Sotiropoulos. 1997. Development of environmentally enhanced hydropower turbine system design concepts. Prepared for U.S. Department of Energy, Idaho Operations Office, Contract DE-AC07-94ID13223.

mortality estimates reported for each 1-inch size bin across the entire size range of fish used in the models.

Criterion (2) – If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resources to be studied.

Not applicable.

Criterion (3) – If the requester is not a resource agency, explain any relevant public interest considerations in regard to the proposed study.

Sections 4(e) and 10(a) of the Federal Power Act require that the Commission give equal consideration to all uses of the waterway on which a project is located. When reviewing a proposed action, the Commission must consider the environmental, recreational, fish and wildlife, and other non-developmental values of the project, as well as power and developmental values.

Fish populations in the Mohawk River support a sustainable riverine ecosystem that is critical in providing public opportunities, including recreational fishing. Ensuring that the effect of the projects' operations pertaining to this resource are considered in a reasoned way is relevant to the Commission's public interest determination.

Criterion (4) – Describe existing information concerning the subject of the study proposal and the need for additional information.

Although a turbine mortality study (utilizing balloon tagging)⁴ was previously conducted at the projects for juvenile blueback herring,⁵ no entrainment or turbine mortality data are available for other species present in the vicinity of the projects, including American eel and resident gamefish such as smallmouth bass, walleye, and

⁴ In the balloon tagging study, juvenile blueback herring equipped with inflatable (balloon) tags were released into the penstock, passed through the Kaplan turbines at the Crescent Project, and were recovered downstream in the tailrace, thereby providing a field-based estimate of turbine mortality.

⁵ RMC Environmental Services, Inc. 1992. Juvenile blueback herring (*Alosa aestivalis*) survival in powerhouse/turbine passage and spillage over the dam at the Crescent Hydroelectric Project, New York. Filed on July 28, 1992; Accession No. 19920729-0355.

yellow perch. Staff needs this information to assess project effects on important fishery resources occurring in the vicinity of the project.

Criterion (5) – Explain any nexus between project operations and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements.

Fish utilizing this portion of the Mohawk River are susceptible to impingement on the projects' trash racks and entrainment through the projects' turbines when the projects are operating. Results from the study would provide insight into the magnitude of such project effects and inform the need for license measures to protect fishery resources.

Criterion (6) – Explain how any proposed study methodology (including any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration) is consistent with generally accepted practice in the scientific community or, as appropriate, considers relevant tribal values and knowledge.

Desktop studies of impingement and entrainment, such as the study requested here, are commonly conducted to support the Commission's hydropower licensing proceedings. Sufficient literature should be available to describe the life history characteristics, swimming speeds, and avoidance behaviors of the target species. In addition, an extensive entrainment and survival database (EPRI, 1997)⁶ is available to aid desktop entrainment studies.

Criterion (7) – Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

We expect the desktop study (literature review, analysis, and report writing) would take 1 to 2 months to complete and cost about \$20,000, unless a day or two of fieldwork is necessary in order to obtain approach velocity measurements; in that case the cost would likely be higher. The specific methodology and scope of the study can be refined during the study planning phase and upcoming proposed study plan meeting.

Bald Eagle Study

⁶ Electric Power Research Institute (EPRI). 1997. Turbine survival and entrainment database – Field tests. EPRI Report No. TR-108630. Prepared by Alden Research Laboratory, Inc. Holden, MA.

Criterion (1) – Describe the goals and objectives of each study proposal and the information to be obtained.

The goal of the study is to verify existing and identify new bald eagle nest, foraging, and roost locations; and to monitor bald eagle activity levels at the identified locations at both projects. The study objective is to collect data and information to inform Commission staff's analysis of the effects of continued operation and maintenance of the projects on bald eagles and their habitat.

Criterion (2) – If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resources to be studied.

Not applicable.

Criterion (3) – If the requester is not a resource agency, explain any relevant public interest considerations in regard to the proposed study.

Sections 4(e) and 10(a) of the Federal Power Act require that the Commission give equal consideration to all uses of the waterway on which a project is located. When reviewing a proposed action, the Commission must consider the environmental, recreational, fish and wildlife, and other non-developmental values of the project, as well as power and developmental values.

The bald eagle is federally protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. It is also classified as Threatened by the State of New York under the New York State Environmental Conservation Law and State of New York regulations. Additionally, detailed State of New York resource management goals can be found in the *Conservation Plan for Bald Eagles in New York State*.⁷

Criterion (4) – Describe existing information concerning the subject of the study proposal and the need for additional information.

⁷ New York Department of Environmental Conservation (New York DEC). 2016. Conservation Plan for Bald Eagles in New York State. Available: https://www.dec.ny.gov/docs/wildlife_pdf/nybaldeagleplan.pdf. Accessed: August 1, 2019.

The PAD identified the bald eagle as having the potential to occur at both projects, and Scoping Document 1 preliminarily identified the bald eagle as a resource issue in need of analysis under the National Environmental Policy Act. Staff found that an active nest was documented within the Crescent Project boundary and other bald eagle activity was documented at and adjacent to both projects.⁸

Applicable guidelines and planning documents^{9, 10} recommend activity restrictions, or other measures, based on knowing the locations of bald eagle nests, foraging, and roost locations. The information would assist staff in analyzing possible resource affects by project activities and determine the need for resource protection measures, if any.

Criterion (5) – Explain any nexus between project operations and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements.

Project operation and maintenance have the potential to directly affect bald eagle nesting, foraging, and roosting. Study results would inform the need for and location(s) of resource protection measures, if needed.

Criterion (6) – Explain how any proposed study methodology (including any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration) is consistent with

⁸ Morgan, C. 2019. eBird Checklist: <http://ebird.org/ebird/view/checklist?subID=S57453805>. eBird: An online database of bird distribution and abundance [web application]. eBird, Ithaca, New York. Available: <http://www.ebird.org>. Accessed: August 1, 2019.

⁹ U.S. Fish and Wildlife Service (FWS). 2007. National Bald Eagle Management Guidelines. Available: <https://www.fws.gov/northeast/ecologicalservices/pdf/NationalBaldEagleManagementGuidelines.pdf>. Accessed: August 1, 2019.

¹⁰ New York DEC, 2016.

generally accepted practice in the scientific community or, as appropriate, considers relevant tribal values and knowledge.

The proposed study methodology should include an existing literature and data review, field surveys, and a study report. The study should be conducted at both projects and be completed in 1 year.

Bald eagle use studies are commonly conducted to support the Commission's hydropower licensing proceedings. Sufficient information to inform study design is available in the *National Bald Eagle Management Guidelines*¹¹ and the *Conservation Plan for Bald Eagles in New York State*.¹² Additional information is also available on applicable U.S. Fish and Wildlife Service¹³ and New York Department of Environmental Conservation¹⁴ websites.

Criterion (7) – Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

The proposed study should take about 1 year to complete with an estimated cost of about \$20,000. No alternative studies have been proposed at this time.

Recreation Study

Criterion (1) – Describe the goals and objectives of each study proposal and the information to be obtained.

The goal of this study is to gather information on recreation use, recreation access, and potential project effects to determine existing and future recreation use and capacity at the projects.

¹¹ FWS, 2007.

¹² New York DEC, 2016.

¹³ FWS. 2016. Bald Eagle Management Guidelines and Conservation Measures. Available: <https://www.fws.gov/northeast/ecologicalservices/eagle.html>. Accessed: August 1, 2019.

¹⁴ New York DEC. 2019. Bald Eagle Management. Available: <https://www.dec.ny.gov/animals/7068.html>. Accessed: August 1, 2019.

The objectives of the study are to, at a minimum: (1) identify and describe each formal and informal recreation site and facility at the project in relation to the projects' boundaries; (2) identify the condition of all formal and informal recreation sites and facilities within and adjacent to the projects' boundaries, including any erosion that may exist due to recreational use; and (3) conduct visitor surveys during the recreation season to determine the adequacy of project recreation facilities and if changes or upgrades to the sites would be needed to meet current or future recreation needs.

Criterion (2) – If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied.

Not applicable.

Criterion (3) – If the requester is not a resource agency, explain any relevant public interest considerations in regard to the proposed study.

Sections 4(e) and 10(a) of the Federal Power Act require that the Commission give equal consideration to all uses of the waterway on which a project is located. When reviewing a proposed action, the Commission must consider the environmental, recreational, fish and wildlife, and other non-developmental values of the project, as well as power and developmental values.

There are a number of public recreational opportunities within and adjacent to the Crescent and Vischer Ferry Projects. Understanding the condition of the existing project recreation sites and facilities, the amount of current and projected future use, and how these sites and facilities are managed is essential in determining the adequacy of project recreation facilities to meet current and future recreation needs; and therefore, is relevant to the Commission's public interest determination.

Criterion (4) – Describe existing information concerning the subject of the study proposal, and the need for additional information.

Section 4.8 of the PAD (pages 4-80 – 4-88) provides a general discussion of recreation demand in the region and a summary of recreation at each project. It also includes a brief discussion of recreation use estimates compiled every 6 years as part of the Licensed Hydropower Recreation Report Form 80 (Form 80) required by the projects' current FERC licenses. However, while NYPA proposes to conduct a project recreation

site facility inventory at both projects,¹⁵ it does not propose to gather any recreation use data. Although NYPA provides a brief summary of recreation use based on its last three Form 80 filings, most data compiled for Form 80 filings are derived from informal surveys and estimates of use. The PAD also provides no project-specific information regarding visitor perceptions of recreation at the projects. A study that gathers information on visitor perceptions of the adequacy of public access and facilities, current use, and whether existing access facilities in the area are meeting recreation demand, in addition to the already proposed facility inventory, would inform future license conditions related to public access and recreation facilities.

Criterion (5) – Explain any nexus between project operations and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements.

Each project includes a reservoir that provides boating and fishing opportunities and a tailrace that provides informal fishing access. Continued operation of the projects could affect recreational resources through disruption or displacement of activities, changes to the recreational experience, increased use, changes in the types of recreation activities in the area, or by other means. The results of the study would inventory existing recreation facilities and activities, detect current use patterns, and help to determine recreational demand and the potential need for new recreation facilities.

Criterion (6) – Explain how any proposed study methodology (including any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration) is consistent with generally accepted practice in the scientific community or, as appropriate, considers relevant tribal values and knowledge.

The specific methodology and scope of the recreation study can be refined during the study planning phase and upcoming proposed study plan meeting, but the study should include, at a minimum, the following provisions:

1. Inventory all formal and informal public and private recreational sites/facilities within and adjacent to each project's boundary.

¹⁵ In the PAD, NYPA identifies two project recreation sites at the Crescent Project (a picnic area near the powerhouse and an informal tailrace bank fishing area) and three project recreation sites at the Vischer Ferry Project (a scenic overlook at the project forebay, a tailrace parking area, and a boat ramp at Lock E-7 also known as the Town of Niskayuna Boat Ramp).

2. Administer a recreation use survey that addresses all recreation activity types known to occur or potentially occur at each project. Specific methods should include visitor observations and on-site visitor intercept surveys at formal and informal public recreation areas at each projects' reservoir and tailrace, as well as spot counts.
 - Visitor observations should capture information such as location, date, time, weather, number of vehicles, watercraft (if any), number of recreation users or party size, and recreation activity.
 - The visitor survey sampling should be based on a stratified random sample that includes all seasons, various locations, and various times of week and day to enable representative responses from the visitors, while ensuring interview coverage during key times (e.g., holiday and weekend days, shoulder seasons, fishing and hunting seasons).
 - The survey instrument should include items to assess visitor perceptions of crowding, recreational conflict, conflicts between the public and adjacent property owner(s), adequacy and placement of signage, adequacy of recreation facilities and access to the projects, and effects of project operation and management on recreation and recreation opportunities at the projects (e.g., fluctuating reservoir levels).
 - Spot counts should be conducted on survey days. The spot counts represent short-term counts (approximately 5 minutes per site) and should record the number of vehicles parked at a site/facility and the number of users observed. This information should be statistically analyzed to develop the recreational use figures for each project. Final recreation use for the recreation facilities and sites at each project should be summarized by season and activity type for each site.
3. Prepare a report that includes information on the number of recreation days spent at project recreation sites, average number of persons per party, and a determination of the percent of the each facility's capacity that is currently being utilized. The above information should be entered into spreadsheets for statistical analysis. The collected information should be used to project changes to project recreation demand over the term of any new license that may be issued. The report also should include: (1) identification of all project and non-project recreation sites at each project, including informal recreation sites, and who owns each site; (2) the location of the recreation sites in relation to the project boundary, including facilities/amenities that may straddle the project boundary; (3) the types

and number of amenities provided at each site; (4) the condition of the facility/amenities; (5) identification of any erosion at each recreation site; (6) entities responsible for the operation and maintenance of the sites; (7) hours/seasons of operation, if applicable; (8) photographs of each site; (9) use figures for each recreation site, overall recreational use figures, and projected use figures; and (10) a compilation of responses to the recreation use survey.

Two or three technicians would be needed to review existing data sources, survey sites in the field from the end of May through the beginning of October (or through the Erie Canal navigation season, whichever is longer), develop the inventory, evaluate past and current use, evaluate potential effects of the project on area recreation resources, and draft and finalize maps and reports.

Criterion (7) – Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

The estimated cost of the Recreation Study at both projects is \$100,000, including study plan development, field data collection, reservoir surface area modeling and mapping, and study report preparation. One field season should be sufficient to collect the required data and prepare the study report.