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August 19, 2015

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
Office of Hydropower Licensing
888 First Street, N.E.
Washington, D.C. 20426

Blenheim-Gilboa Pumped Storage Project (FERC No. 2685-026)
Study Progress Report

Dear Secretary Bose:

In accordance with 18 C.F.R. § 5.15(b), the Power Authority of the State of New York (Power Authority) encloses for filing the attached Study Progress Report for the Blenheim-Gilboa Pumped Storage Project (FERC No. 2685) (Project). The existing Project license was issued by the Federal Energy Regulatory Commission (FERC) on June 6, 1969 and will expire on April 30, 2019. The Power Authority is following the Integrated Licensing Process (ILP) as outlined by 18 C.F.R. Part 5 for Project relicensing.

As required by the ILP, the Power Authority filed a Notice of Intent (NOI) and Pre-Application Document (PAD) with the FERC on April 10, 2014. In consultation with agencies and stakeholders, a Proposed Study Plan (PSP) was developed and filed with the FERC on September 22, 2014. Subsequent comments and recommendations obtained during the PSP review period, including during study plan meetings and resource agency meetings, were incorporated into the Revised Study Plan (RSP), which was filed with the FERC on January 20, 2015.

On February 19, 2015, the FERC issued a Final Study Plan Determination approving six relicensing studies. Over the last six months the Power Authority has been implementing the approved study plans. The attached Study Progress Report provides a summary of the current status of each of the Project's relicensing studies. The Study Progress Report will additionally be shared with relicensing participants via posting on the Project's relicensing website (http://www.bg.nypa.gov/pages/home.aspx).

If you have any questions regarding this filing, please contact Robert Daly at 914-681-6564 or rob.daly@nypa.gov.

Sincerely,

Robert Daly
Licensing Manager

BLENHEIM-GILBOA PUMPED STORAGE POWER PROJECT RELICENSING

FERC No. 2685

STUDY PROGRESS REPORT FOR THE BLENHEIM-GILBOA PUMPED STORAGE PROJECT

AUGUST 19, 2015

FERC NO. 2685-026

NEW YORK STATE OF OPPORTUNITY. | NY Power Authority

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1.0 INTRODUCTION

The Power Authority of the State of New York (Power Authority) is relicensing the Blenheim-Gilboa Pumped Storage Project (FERC No. 2685) (Project). The Project is located on Schoharie Creek, a tributary of the Mohawk River, about 40 miles southwest of Albany, New York, in the northern Catskill Mountains. The Power Authority is using the Federal Energy Regulatory Commission's (Commission or FERC) Integrated Licensing Process (ILP) as outlined in 18 C.F.R. Part 5.

In accordance with 18 C.F.R. § 5.5 and 5.6, the Power Authority filed its Notice of Intent (NOI) and Pre-Application Document (PAD) on April 10, 2014, which included the Power Authority's preliminary study plans for the Project. The Commission issued its Scoping Document 1 (SD1) on June 4, 2014, and held scoping meetings on July 7, 2014 at the Gilboa-Conesville Central School in Gilboa, New York, and on July 9, 2014, at the Best Western Inn in Cobleskill, New York, where potential issues were identified by agencies, stakeholders, and the public. Following the scoping meetings, the Commission issued its Scoping Document 2 (SD2) on September 18, 2014.

Subsequently, the Power Authority received comments on the PAD and the study plans as well as requests for additional studies. The Power Authority reviewed these comments and study requests, and developed a Proposed Study Plan (PSP), which served to address and respond to all comments and requests received. The Power Authority filed the PSP with FERC on September 22, 2014. Subsequent to the PSP filing, the Power Authority held a PSP Meeting on October 16, 2014 at the Best Western Inn in Cobleskill, New York and PSP comments were due on December 21, 2014. The Power Authority filed a Revised Study Plan on January 20, 2015. On February 19, 2015, FERC issued a Final Study Plan Determination for the Project.

Per Section 5.11(b) (3) of the Commission's regulations, the Revised Study Plan included a proposal to prepare a progress report for all studies within six months of FERC's final approval of the Revised Study Plan. The Final Study Plan Determination approved this proposal and this document therefore provides a progress report for each of the relicensing studies.

2.0 STUDY STATUS

The February 19, 2015 Final Study Plan Determination approved six studies for Project relicensing:

- Historic Structures Survey
- Phase 1A Archaeological Survey
- Fish Entrainment/Protection Assessment Study
- Recreation Use/User Contact Study and Assessment of Effects the Project has on Recreation Use
- Effect of Project Operations on Downstream Flooding Study
- Socioeconomics Study

The following sections provide the status of the FERC approved relicensing studies, describing: 1) study objectives; 2) study progress; and 3) remaining activities.

2.1 Historic Structures Survey

2.1.1 Study Objectives

The goal of the survey as described in the FERC-approved Study Plan is to assist FERC in meeting its compliance requirements under Section 106 of the National Historic Preservation Act of 1966, as amended (Section 106) by determining whether relicensing of the Project will affect historic properties. The objective of the survey is to identify cultural resources that are listed in, have been determined eligible for listing, or may be eligible for listing the National Register of Historic Places (NRHP).

2.1.2 Study Progress

Task 1 - Consultation

The Power Authority has initiated consultation with the New York State Historic Preservation Office (New York SHPO) regarding the Project's Area of Potential Effects (APE). After a review of data provided on December 10, 2014, the New York SHPO concluded that it, "has no concerns with the proposed Area of Potential Effects (APE)" for the Project (Herter, 2015).

The Power Authority has initiated consultation with the Schoharie County Historical Society, which operates Lansing Manor House. A meeting was held with Carl Kopecky, Museum Director of the Old Stone Fort Museum Complex, and Daniel Beams, Museum Curator, on June 25, 2015 to establish the requirements to update the 1992 Lansing Manor Historic Structures Report (HSR).

Task 2 - Background Research

Conducted deed, will, and probate record research of Lansing Manor and the "Park Manager's House" at the Schoharie County Courthouse.

Initiated research efforts at the Old Stone Fort Museum and Lansing Manor.

Initiated research subjects with the Schoharie County, Conesville, and Blenheim Town Historians.

Initiated research at the Library of Congress in Washington DC on back issues of engineering journals such as the Engineering News Record to establish a historic context of pumped storage facilities.

Task 3 - Field Work

Initiated the field survey, including digital photography and a windshield survey.

Task 4 - Additional Documentation of Lansing Manor

Initiated the update of the 1992 Historic Structures Report for the Lansing Manor Complex. Records of previous restoration efforts, demolition, and maintenance work are being compiled. Previous inventories and appraisals for the interior furnishings also are being compiled.

Task 5 - Study Report

Data analysis needed to prepare the Historic Structures Survey Report is underway.

2.1.3 Remaining Activities

- Complete Tasks 1 – 5.

2.2 Phase 1A Archaeological Survey

2.2.1 Study Objectives

The objectives of the Phase IA Archaeological Survey as described in the FERC-approved Study Plan are to:

- Identify known archaeological resources listed in, or potentially eligible for listing in the NRHP within the Project's Area of Potential Effect (APE);
- Review archaeological and other related data that are pertinent to the formulation of a sensitivity model for determining where archaeological resources may be located in the Project's APE; and
- Offer a field strategy for archaeological testing to determine whether such properties are present in the Project's APE.

The results of the Phase IA will provide guidance on whether additional archaeological investigations, such as a Phase IA and/or Phase II surveys should be conducted.

2.2.2 Study Progress

Task 1 – Consultation with the New York SHPO and Federally Recognized Tribes

Consultation with the New York SHPO has been conducted to identify both Precontact period and Historic period archaeological sites within the APE. Other data, including regional archaeological review, maps, and geomorphology were also examined.

Four federally recognized tribes were notified to identify their interest in consultation on the Project. The Stockbridge Munsee Band of Mohican Indians responded that the Project is not in Mohican territory. Similarly, the Delaware Tribe of Indians observed that the area was not inhabited by the Delaware Tribe. The Delaware Nation noted a concern for any unanticipated archaeological sites or objects that might be uncovered during construction activities, which has been duly noted. Last, the St. Regis Mohawk Tribe requested consultation on the Project and it will be undertaken as archaeological studies proceed.

Task 2 – Background Research

Background research was conducted in consultation with Dr. Nancy Herter of the New York SHPO at the Office of Parks, Recreation, and Historic Preservation (Pebbles Island, Waterford, NY). The research involved a review of state archaeological files and archives for material relevant to the Precontact period and Historic period archaeology of the Project area. Dr. Herter was also consulted on whether there were other sources of archaeological data that should be examined, but none were identified.

Task 3 – Development of a Sensitivity Model

The construction of a sensitivity model is in progress; the model will identify the areas within the Project's APE that are potentially sensitive for locating archaeological resources.

Task 4 – Field Reconnaissance

The field study to refine the sensitivity model is scheduled to take place in August 2015. The comparison of the desktop review and field reconnaissance will enable fine tuning of the sensitivity model and identifying whether and where investigative fieldwork and analysis should be conducted within the Project's APE.

Task 5 – Report Development

A Phase IA archaeological report will be drafted after completion of the field work and refinement of the sensitivity model.

2.2.3 Remaining Activities

- Complete ongoing activities for Tasks 1 – 4. These include a field reconnaissance walkover of the Project's APE to compare with results obtained from the desktop review and refinement of the sensitivity model.

2.3 Fish Entrainment/Protection Assessment Study

2.3.1 Study Objectives

In its Study Plan Determination, FERC approved the Power Authority conducting a literature-based fish entrainment assessment that will be supplemented with field data collection of velocity and depth information in the area of the intake structures. The primary goal of this study is to provide a qualitative analysis of potential fish entrainment at the Project.

The specific objectives of this study are to:

- Characterize the physical and operational characteristics of the Francis type pump-turbines and intake structures of the Project;
- Summarize the fish species present in the Upper and Lower Reservoir based on existing data;
- Evaluate water quality conditions, specifically dissolved oxygen (DO) and temperature, at the intake locations to determine how these factors could affect the potential for fish entrainment;
- Qualitatively evaluate which fish species and life stages have the potential to be entrained during generation and pumping phases of operation, based on habitat preferences and behavior;
- Review entrainment studies conducted at similar pumped storage or large hydroelectric projects for relevance to potential entrainment and turbine passage survival at the Project; and
- Develop an estimate of turbine passage survival based on available information.

2.3.2 Study Progress

<u>Task 1. Describe Intake and Turbine Configurations</u>

The Power Authority has gathered engineering drawings, turbine/pump information, construction photos of the project intakes, and bathymetric survey data of the reservoirs. This information is being used to calculate intake depths and velocities for pumping and generation flows and to determine substrate near the intakes.

Task 2. Field Collection of Intake Velocities

The Power Authority collected velocity and water depth data using an Acoustic Doppler Current Profiler (ADCP) near the intakes in the Lower Reservoir when four units were pumping on May 24, 2015 between 02:06 and 03:15 hours and near the intakes in the Upper Reservoir when four units were generating on July 29, 2015 between 15:06 and 17:21 hours.

The Power Authority is currently processing this data.

Task 3. Water Level and Water Quality Data Analysis

The Power Authority has collected hourly water level and operations data for the 2002-2014 period. These data are currently being checked for accuracy prior to analysis. The Power Authority is evaluating the 2012 bi-weekly reservoir water quality data. These data are being used to support the entrainment analysis.

Task 4. Entrainment Analysis

The Power Authority has selected species/lifestages for the entrainment analysis based on the fish assemblages for both reservoirs. From the literature, the Power Authority is compiling a summary of life history traits, habitat requirements, and behavior of the selected fish species as they relate to entrainment. The Power Authority is also compiling information on entrainment studies at comparable projects.

Task 5. Assessment of Turbine Passage Survival

This task is currently in progress.

Task 6. Prepare the Entrainment Study Report

The report will be completed after analyses required by Tasks 2 – 5 is complete.

2.3.3 Remaining Activities

- Complete ongoing activities for Tasks 1 – 6

2.4 Recreation Use/User Contact Study and Assessment of Effects the Project has on Recreation Use

The following Project recreation sites located within the Project boundary are included in this study: Lansing Manor Complex, including the Visitors Center; Minekill State Park; the downstream fishing access; and the three access areas on the Upper Reservoir.

2.4.1 Study Objectives

The goal of the study is to evaluate recreational use at the Project and to determine the adequacy of existing Project recreation sites and facilities in meeting recreation needs and demand at the Project. In its Study

Plan Determination, FERC approved the study goals and objectives and added a requirement to conduct a whitewater feasibility study as further described below.

The objectives of the study are to:

- Determine the amount and types of recreation use at the Project;
- Interview the recreating public to determine users' perceptions with regard to their use of Project recreation sites and facilities;
- Evaluate recreational demand at the Project and determine if the existing Project recreation sites and facilities are meeting the current demand; and
- Evaluate the effects of Project operation and maintenance on recreation use at the Project and the usability of Project recreation sites and facilities, including the effects of debris accumulation on recreational access.

2.4.2 Study Progress

Task 1 - Background Research

Existing information was reviewed to verify Project recreation sites, determine appropriate survey routes, and identify traffic counter locations. Initial contact has been made with Office of Parks, Recreation, and Historic Preservation (OPRHP) to obtain available recreation use and facility data for Minekill State Park.

Task 2 - Field Work

Field work (spot counts and calibration counts) was initiated on March 8, 2015 and will be completed in February 2016. Traffic counters were installed on May 22, 2015 and will be removed at the end of the fall recreation season (by October 31, 2015).

Task 3 - User Contact Survey

The survey was revised to incorporate modifications from FERC's Study Plan Determination dated February 19, 2015. Contact surveys were initiated March 8, 2015 and will be completed in February 2016.

Task 4 – Study Report

Field data entry and processing is underway. Statistical analysis of field data and development of the study report will occur after field work has been completed.

2.4.3 Remaining Activities

- Complete on-going activities in Tasks 1 - 4.

2.4.4 Recreation Boating Desktop Feasibility Assessment

In its Study Plan Determination Letter, FERC recommended that the Power Authority conduct a desktop analysis concerning the feasibility of releasing recreation flows from the Blenheim-Gilboa Project Lower Dam (Lower Dam). Subsequently, the Power Authority developed a Recreation Boating Desktop Feasibility Assessment study plan, which it transmitted to American Whitewater in May 2015.

The geographic scope of this study extends approximately 8 miles downstream the Schoharie Creek from the Lower Dam, to Max V. Shaul State Park. The desktop analysis utilizes the methodological options, as applicable, for a Level 1 boating analysis as outlined in Whitaker et al. (2005).

2.4.4.1 Study Objectives

The goal of the study is to assess the feasibility of releasing recreation flows in Schoharie Creek downstream of the Lower Dam.

The objectives of the study are to:

- Characterize recreational boating on that portion of Schoharie Creek in the study area;
- Characterize the existing physical and hydrologic characteristics of that portion of Schoharie Creek in the study area; and
- Characterize the operational and hydrologic constraints of the Blenheim-Gilboa Project related to the release of flows from the Lower Dam to Schoharie Creek.

2.4.4.2 Study Progress

Task 1 – Literature Review

The Power Authority has initiated collection of literature and literature review.

Task 2 – Hydrology Assessment

The Power Authority has collected USGS gage information and initiated the hydrologic analysis.

Task 3 – Structured Interviews

To the extent necessary, interviews will occur the third and fourth quarters of 2015.

Task 4 – Study Report

A report will be developed following the completion of Tasks 1-3.

2.4.4.3 Remaining Activities

- Complete on-going activities in Tasks 1 - 4.

2.5 Effect of Project Operations on Downstream Flooding Study

2.5.1 Study Objectives

In its Study Plan Determination, FERC approved the study goals and objectives. The primary goal of this study is to provide an analysis of the potential effect of the Project on downstream flooding, if any, and provide information on the potential operational measures that could alleviate downstream flooding.

The specific objectives of this study are to:

- Estimate streamflows, water surface elevations, and extent of flooding along Schoharie Creek downstream of the Lower Dam for the 10-year, 50-year, 100-year, and 500-year precipitation events for three scenarios, as follows: a.) current operations; b.) instantaneous run-of-river operations (as if the project didn't exist); and c.) alternative operations of the upper and lower reservoirs in anticipation of a flood event.
- Identify the impact of existing operations on downstream water surface elevations, depths, and extent of flooding through a comparison of alternatives (a) and (b).
- Identify a range of reasonable, credible and prudent operational measures, if any, that potentially could reduce downstream flooding during high-flow events, taking into account: a.) the primary purpose of the Project as a pumped storage facility; b.) the Project's availability, purpose, value and public benefit to NYISO and the transmission grid in terms of resiliency, reliability, voltage support and black start capability c) the need to establish and maintain clear and consistent operating protocols; d.) prudent utility practices and the fundamental requirements to maintain Project integrity and public safety; and e.) the ability, as a practical matter, to quickly adapt to dynamic and unpredictable circumstances, such as the accuracy of forecast data, real time precipitation measurements, and other factors.
- For any operational measures determined to be feasible from an operations, engineering, and safety perspective, conduct an operations and hydraulic analysis to determine their effect on flooding on the Schoharie Creek both upstream and downstream of the BG lower reservoir dam.

2.5.2 Study Progress

Task 1. Hydrologic Model

The Power Authority is in the process of gathering observed precipitation, flow and operations data for the Tropical Storm Irene event for purposes of running this information through the existing HEC-HMS model. The Power Authority also is working on a statistical analysis of historic precipitation data to determine hypothetical storm events.

Task 2. Operations Model

The Power Authority is in the process of developing a HEC-ResSim Operations Model for the Lower Reservoir, as well as model logic for current operating rules.

Task 3. Update Hydraulic Model

The Power Authority is in the process of gathering observed water surface elevation and flow data for the Tropical Storm Irene and January 1996 flood events. This information will be used for calibration and verification of the updated HEC-RAS hydraulic model.

The Power Authority is collecting and processing bridge survey information for the 15 bridges that transverse Schoharie Creek for updating the HEC-RAS hydraulic model.

The USGS has delayed the release of the Light Detection and Ranging (LiDAR) data for the Schoharie Creek basin from the end of May 2015 until an estimated timeframe of mid-September 2015. This data is needed to update the topography in the existing HEC-RAS hydraulic model and will also be used for the inundation mapping. The Power Authority is actively working with the USGS to obtain the 2014 LiDAR data.

2.5.3 Remaining Activities

Task 1. Hydrologic Model

Verification Analysis of HEC-HMS model with Irene data

Production Runs of HEC-HMS model for hypothetical storm events

Task 2. Operations Model

Identification and Development of HEC-ResSim model logic of Alternative Operations to Alleviate Downstream Flooding

Run the Operations Model for Alternative Operations

Task 3. Update Hydraulic Model

Updating of HEC-RAS model with USGS 2014 LiDAR data;

Calibration of HEC-RAS model with Tropical Storm Irene event and Verification with January 1996 event;

Production Runs of the HEC-RAS model for existing conditions and without the dam for hypothetical storm events; and

Production Runs of the HEC-RAS model for Alternative Operations.

Task 4. Prepare the Flooding Study Report

The Study Report will be developed following the completion of Tasks 1 – 3.

2.6 Socioeconomics Study

2.6.1 Study Objectives

The goal of the Socioeconomics Study as described in the FERC-approved Study Plan is to evaluate the socioeconomic effects of the Blenheim-Gilboa Project on the local and neighboring communities, as well as on the region and State.

The study's specific objectives are to:

- Develop a demographic and economic profile of the current conditions of the Local and Neighboring Communities and to describe the socioeconomic character of those communities.
- Evaluate potential socioeconomic effects on the Local and Neighboring Communities resulting from the Project's operations and the Power Authority's tax-exempt status.
- Evaluate potential economic effects associated with the Local and Neighboring Communities providing first responder services.
- Evaluate potential socioeconomic effects on the Local and Neighboring Communities, the region, and the State resulting from the operation of the Project.

2.6.2 Study Progress

Task 1. Analyze the Economic Effects of the Blenheim-Gilboa Project

The Power Authority has initiated collection of data, such as Project employment and expenditures, needed for input to the REMI model.

The Power Authority developed and distributed a Request for Proposals (RFP) to develop a REMI model as a component of the Socioeconomics Study. A sub-consultant has been hired to develop the REMI model and is currently developing the REMI model.

The Power Authority has initiated analysis of the impact of the Project on New York electricity market prices for input to the REMI model.

Task 2. Establish the Baseline: Demographic, Housing, and Economic Profile

The Power Authority has initiated collection of demographic, housing, and economic data (e.g., labor force, unemployment rates) required for establishment of the baseline socioeconomic condition.

Task 3. Analyze the Impact of the Power Authority's Tax-Exempt Status on the Local Communities

The Power Authority has initiated collection of data such as Project acreage in each of the Host Communities, and tax rates and tax rolls needed for the analysis of the impact of the Project's tax-exempt status.

Task 4. Analyze the Impacts Related to Providing First Responders

The Power Authority has initiated collection of data pertaining to Local and Neighboring Communities that have provided first responder services to the Project.

Task 5. Prepare the Socioeconomic Study Report

The Initial Study Report will be developed following the completion of Tasks 1-4.

2.6.3 Remaining Activities

- Complete Tasks 1 – 5.

3.0 CONCLUSION

The Project's six FERC approved studies have been initiated and are underway with varying degrees of completion. The Project's Initial Study Report (ISR) is currently on schedule for filing with the Commission by February 19, 2016. An Initial Study Report Meeting will be held with resource agencies and stakeholders for the purpose of reviewing individual study methods, results, and conclusions. An Updated Study Report will be filed with the Commission by February 18, 2017, prior to filing the Final License Application due April 30, 2017.

4.0 LITERATURE CITED

Herter, N. (2015). Letter to Robert Panepinto. 10 January 2015.

Whitaker, D., B. Shelby, and J. Gangemi. 2005. Flow and Recreation; A Guide to Studies for River Professionals. Hydro Reform Coalition, Washington, DC. 52