

Vermont Department of Environmental Conservation*Agency of Natural Resources*

Watershed Management Division

1 National Life Drive

[phone] 802-490-6180

Montpelier, Vermont 05620-3522

watershedmanagement.vt.gov

DISTRIBUTED ELECTRONICALLY

January 6, 2017

Shannon Ames
Low Impact Hydropower Institute
PO Box 194
Harrington Park, New Jersey 07640

RE: Dog River Project Comments
Comments on LIHI Pending Application

Dear Ms. Ames,

Thank you for this opportunity to comment on Gravity Renewables Inc.'s (Gravity) application to the Low Impact Hydropower Institute (LIHI) for certification of the Dog River Project as a low impact hydroelectric project. It is the Agency's understanding that this application is being reviewed under LIHI's 2014 Certification Handbook. Accordingly, the Agency's comments do not address LIHI's newly revised criteria.

Background

The Dog River Hydroelectric Project received a Water Quality Certification (Certification) from the Department of Water Resources and Environmental Engineering (now the Department of Environmental Conservation – herein the Department) in 1983. In 1985, the certification was amended to reflect the transference of development rights to the Nantana Mill Dam Partnership and to modify the turbine and generator units proposed for the project. By condition of the certification, the project is required to operate in instantaneous run-of-river mode, maintain a minimum flow of 5 cfs (0.08 csm) or instantaneous inflow in the bypassed reach, and maintain a minimum instantaneous flow of 17 cfs (0.28 csm) or instantaneous inflow below the tailrace when hydrologic modification is required for maintenance activities.

Since acquiring the project in 2015, Gravity has proactively engaged the Department in discussions regarding planned improvements at the project to improve efficiency, ensure compliance with the existing water quality certification, and support an application to LIHI for low impact certification. Feedback on specific criteria are included, herein.

Flows

The Dog River is an important coldwater fishery resource that supports wild trout including brook, brown, and rainbow trout populations. As conditioned by the water quality certification, instantaneous run-of-river operations are necessary to maintain aquatic habitat below the tailrace. While the certification requires a minimum flow of 5 cfs in the approximately 130-foot bypassed reach, this value is below the current 7Q10 value and is likely not adequate to maintain dissolved oxygen, nor aquatic habitat at the base of the dam. Gravity voluntarily maintains a bypass flow of 20 cfs through the use of an adjustable gate located by the intake, permanent flashboard notching, spillage, and leakage. The additional flow provided to the bypass and the diversity of means in which it is provided are more likely to maintain adequate dissolved oxygen levels and aquatic habitat at the base of the dam.

If the project is certified as a low impact project, the Agency recommends the voluntarily released bypass flow of 20 cfs, or inflow if less, be included as a condition of certification.

Adherence to strict run-of-river operations has been a long-standing Department concern at the project. To ensure compliance and optimize performance, Gravity recently rebuilt the turbines and upgraded the control and automation system. These investments will allow the project to operate in full compliance with the flow schedule. The Department recognizes that refining the new control system to reflect the work done at the site, as well as understanding how the river responds to the watershed will require adjustments to ensure compliance. The Department is confident in Gravity's commitment to ensure compliance and the Department hopes to continue to work cooperatively with Gravity to ensure instantaneous run-of-river operations are maintained. To ensure the flow regime below the tailrace is appropriately protective of fish, wildlife, and water quality, the Agency recommends that documentation of operations over a range of flow conditions and an opportunity for consultation be included as a condition of certification.

Water Quality

The Department is not currently aware of information to suggest that the waters in the area of the Dog River project or downstream reaches are not in compliance with the state's quantitative water quality standards. The Dog River in the vicinity of the project and downstream to the confluence with the Winooski River are not listed on Vermont's list of impaired streams and rivers pursuant to section 303(d) of the Clean Water Act, nor on the state's listing of priority streams and river outside the scope of 303(d).

Fish Passage

As discussed, the Dog River is an important wild trout fishery supporting brook, brown and rainbow trout populations. The Dog River hydroelectric project is located 1.8 miles above an impassable falls, Northfield Falls, and 0.4 miles below a remnant dam, which acts as a barrier. While the Department has no current prescriptions or plans to require fish passage in the immediate future, the Department could revisit the need for passage at the project if fisheries management objectives were to change. For example, if removal of the remnant dam were to occur, fish passage at the facility would open up the Dog River from the falls to its headwaters in Roxbury and to several tributaries, including Cox Brook where the Agency partnered in a dam removal a few years ago. To ensure the facility remains in compliance with LIHI's fish passage criteria, the Agency recommends notification of LIHI if a resource agency requests passage measures be implemented, be included as a condition of certification. Due to the quality of the fishery resource, the certification required the Vermont Department of Fish and Wildlife to approve the thrashrack design at the time of construction. The Department does not have current plans to require additional entrainment protection for riverine fish.

Given the lack of a connection of the basin to the sea, diadromous species are not present in the project area, nor have they been present historically. Land-locked Atlantic salmon, a potadromous species, are present in the Winooski River basin, though access to the Dog River is blocked by downstream dams as well as the natural barrier at Northfield Falls.

Recommendations

To ensure compliance with LIHI criteria, the Agency recommends the following conditions be included in a certification of the project as low impact:

- A. A flow of 20 cfs, or inflow if less, shall be maintained in the bypass reach at all times.
- B. By no later than October 31, 2017, the applicant shall supply operating records from October 1, 2016 to September 30, 2017 to the Vermont Agency of Natural Resources. The parties shall evaluate operations to ensure run-of river operations are reliably maintained.

- C. The applicant shall notify LIHI within 14 days of a resource agency request to implement passage measures for riverine fish, provide LIHI with a copy of the request, and provide LIHI with the applicant's response.

Thank you for the opportunity to comment.

Sincerely yours,



Eric Davis
River Ecologist

c: Jeff Crocker, VTDEC
Rich Kirn, VTDFW
Jon Petrillo, Gravity Renewables
Jonathan Miller, Gravity Renewables
Clark Amadon, MDTU
Jared Carpenter, MDTU
Pat McIlvaine, LIHI