

Vermont Department of Environmental Conservation

Watershed Management Division

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Low Impact Hydropower Institute Office

329 Massachusetts Ave, Suite 6

Lexington, MA 02420

Re: Vernon Hydroelectric Project (FERC No. 1904)
Comments on Low Impact Hydropower Certification

Dear LIHI Governing Board,

With the time extension to comment on the recertification of the Vernon Hydroelectric Project (Vernon) by Great River Hydro (GRH), the Vermont Agency of Natural Resources (Agency) would like to take the opportunity to provide additional comments and clarification regarding Criteria C and D, as well as measures that the project could undertake to facilitate movement towards meeting LIHI's low impact standards, drawing on specific examples of language from the LIHI handbook (second edition) as well as the GRH Application. We respectfully request that these comments be included in our Agency letter. The Agency would also like to take the opportunity to note its support of comments submitted from other natural resource agencies.

Zone 1: Tailrace – Criteria Upstream Fish Passage and ProtectionHandbook Criteria:

Goal: The facility allows for the safe, timely, and effective upstream passage of migratory fish. This criterion is intended to ensure that migratory species can successfully complete their life cycles and maintain healthy, sustainable fish and wildlife resources in areas affected by the facility.

Introduction to Standards: The applicant shall list all migratory fish species (for example, anadromous, catadromous, and potamodromous species) that occur now or have occurred historically at the Facility. Maintenance of upstream passage sufficient to support sustainable populations of these migratory species will be demonstrated by compliance with one of the fish passage standards. To pass the upstream fish passage criterion for LIHI certification, the applicant shall demonstrate compliance with at least one of the following standards (C-1 through C-4):

STANDARD C-1. Not Applicable/De Minimis Effect: The facility does not meet the Not Applicable/De Minimis Effect standard because the dam blocks fish movement. American eel, sea lamprey, and American shad are all diadromous species that occur at the project and require fish passage to complete their life cycle.

STANDARD C-2. Agency Recommendation: The facility partially meets the Agency Recommendation standard because there is an existing fish ladder at the facility. The ladder was designed to pass Atlantic salmon but has been modified to accommodate American shad. American eel also utilize the fish ladder,

but provisions for appropriate monitoring and effectiveness determinations is lacking. Monitoring of the fish ladder to enumerate American shad, American eel and sea lamprey is conducted by VTFWD. However, efficiencies are unknown for American eel and Sea lamprey, and monitoring indicates substantial fallback of American eel. Moreover, the ladder is not operated during the full migration period for American eel. While the goal of upstream fish passage is specific to migratory species, other species such as Walleye and White suckers are known to make spawning migrations in the early spring and have been documented utilizing the ladders outside of the regular operational dates.

STANDARD C-3. Best Practice/Best Available Technology: The Vernon Project does not meet the “Best Practice/Best Available Technology” standard because it does not include well-designed, well-operated upstream fish passage methods or technologies that are appropriate for all migratory fish species that occur in the area affected by the facility including American eel. Safe, timely, and effective fish passage has not been demonstrated for American shad, American eel or Sea Lamprey and provisions for appropriate monitoring and effectiveness determinations are lacking. FERC studies 17, 18, and 21 demonstrate that more work is needed to adequately meet this standard.

STANDARD C-4. Acceptable Mitigation: The Vernon Project does not meet the “Acceptable Mitigation” standard because it does not employ approved, alternative fish passage mitigation measures that support migratory fish species affected by the facility. As noted above, the project does have an upstream fish ladder, but currently it is not designed and operated to provide safe, timely and effective passage for the full suite of migratory fishes in the vicinity of the facility.

Zone 2: Impoundment – Criteria Downstream Fish Passage and Protection

Handbook Criteria

Goal: The facility allows for the safe, timely, and effective downstream passage of migratory fish. For riverine (resident) fish, the facility minimizes loss of fish from reservoirs and upstream river reaches affected by Facility operations. All migratory species are able to successfully complete their life cycles and to maintain healthy, sustainable fish and wildlife resources in the areas affected by the Facility.

STANDARD C-1. Not Applicable/De Minimis Effect: The Vernon Project does not meet the “Not Applicable/De Minimis Effect” standard because the dam and hydropower turbines associated with the project create a barrier to downstream passage, delay downstream passage, cause impingement and entrainment to diadromous and riverine species, and are known to cause mortality of out-migrating American eel.

STANDARD C-2. Agency Recommendation: The Vernon Project partially meets the “Agency Recommendation” standard. There are existing downstream fish passage facilities at the site and previous studies had suggested the facilities were effective at passing juvenile Atlantic salmon and American shad. Results of directed studies (FERC studies 19, and 22) on passage route, timing, and survival of juvenile shad, post-spawned adult shad, and adult silver-phase American eels indicate that existing downstream passage facilities are inadequate. Passage through the turbines is not an acceptable means to pass out-migrating species. It is not known if current downstream fish passage conveyance structures are safe, timely, and effective for out-migrating juvenile sea lamprey, and provisions for ongoing monitoring are lacking.

STANDARD C-3. Best Practice/Best Available Technology: The Vernon Project does not meet the “Best Practice/Best Available Technology” standard because it does not include well-designed, well-operated downstream fish passage methods or technologies that are appropriate for all migratory fish species that occur in the area affected by the facility. The technologies do not minimize the loss of riverine species and provisions for ongoing monitoring and effectiveness determinations are lacking.

STANDARD C-4. Acceptable Mitigation: The Vernon Project does not meet the “Acceptable Mitigation” standard because it does not employ approved, alternative fish passage mitigation measures that support migratory fish species affected by the facility. As noted above, the project does have downstream passage facilities, but currently they are not designed and operated to provide safe, timely and effective passage for the full suite of migratory fishes in the vicinity of the facility, and do not minimize the loss of riverine species.

Recommendation

“A LIHI-certified hydropower facility is one that is sited, designed, and operated to be compatible with environmental resources”. Based on its review of the filed application and related pertinent information, the Agency does not believe the Vernon hydroelectric project complies with LIHI’s criteria and goals, as set forth in the 2nd edition Handbook. As such the Agency would recommend the Vernon Hydroelectric Project not be certified as “low impact”. While the project may not adequately meet LIHI criteria at this time, we anticipate changes will occur as a result of FERC relicensing. These changes may result in the project qualifying for LIHI recertification. In the meantime, the Agency recommends the following measures be implemented if the facility aims to work towards compliance with the LIHI standards.

- A. GRH continue to work with Agency to develop a flow regime which will adequately protect aquatic resources and meet state water quality standards.
- B. The fishway should be operated at a minimum from early April to late October to allow passage of resident and diadromous species including American eel.
- C. GRH should continue to work to provide safe, timely and effective upstream and downstream passage of American eel, American shad, and sea lamprey.
- D. Any repair work that could cause negative impacts to aquatic biota should utilize techniques to minimize or avoid impacts such as time of year constraints, the use of coffer dams etc. Any repair and or maintenance work which may cause negative impacts to aquatic biota should occur in consultation and be approved by the Agency.

Thank you for consideration of our comments.

Yours truly,
Lael Will Elizabeth Simard
Fisheries Biologist Rivers Ecologist

CC.

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