



February 5, 2021

Shannon Ames, Executive Director
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Arlington, MA 02476

Submitted electronically to: comments@lowimpacthydro.org

Re: Comments on the Deerfield Hydroelectric Project LIHI Certification Application

Dear Ms. Ames,

The Connecticut River Watershed Council, Inc., doing business as the Connecticut River Conservancy (CRC), is a nonprofit watershed organization that was established in 1952 as a citizen group to advocate for the protection, restoration, and sustainable use of the Connecticut River and its four-state watershed. CRC has an interest in protecting environmental values that directly and indirectly support the state, regional, and local economies and quality of life of the Connecticut River and its tributaries. In that capacity, we routinely participate in hydropower proceedings under the Federal Energy Regulatory Commission (FERC) and Low Impact Hydropower Institute (LIHI) certification of the multiple hydroelectric facilities that exist in the Connecticut River watershed.

CRC assumes that the recertification of the Deerfield Hydroelectric Project is being examined under a Stage II recertification process since there has been a material change in the certification process with the implementation of the 2nd Edition Handbook since the last certificate was issued.

Multiple agencies and organizations commented on the LIHI certification application for the Deerfield Project in 2010-2012. All of them argued against Low Impact Certification at that time. Given the changes to the LIHI handbook, including one of the most substantive differences being, “a new emphasis on the scientific basis for agency recommendations and mitigation”¹ it is our expectation that the LIHI reviewer will place particular importance on the comments provided by our fish and wildlife agencies.

Based on the comments below, CRC contends that the Deerfield Project does not meet standards required to be considered for the Low Impact Hydro Certification.

Facility Information

The Deerfield River is highly manipulated by 10 dams and one pumped storage project, with Great River Hydro (GRH) being the owner of 8 of these dams of which seven generate power. Excel Table 1b provides information on the installed capacity of the Deerfield project (86MW) and the 10-year average net generation for the period 2010-2019. CRC notes that, compared to the 10-year average provided in

¹ Low Impact Hydropower Certification Handbook. 2nd Edition. Revision 2.03: December 20, 2018. Low Impact Hydropower Institute.. Page v.

the LIHI certification for the same project in 2010, that the average generation for Deerfield #4 and Deerfield #2 has been reduced by 34% and 30%, respectively. This is much lower than the other facilities, which show a slight drop that may be due to three years of drought in the last ten years. The application indicates that there have been no major infrastructure changes at these facilities. We do know that Hurricane Irene disrupted generation at some locations, but we are not sure if this is an ongoing impact or if it was temporary for a period of months or years. CRC would like some clarity on the reason for the reduction in generation at Deerfield #4 and Deerfield #2.

3.2.1 Criterion A - Ecological Flow Regimes

The LIHI Goal for ecological flow regime criterion is to ensure that, “The flow regimes in riverine reaches that are affected by the facility support habitat and other conditions suitable for healthy fish and wildlife resources.”² GRH says in its application that they meet Standard A-1 or A-2 for their facilities in the Deerfield Project.

GRH has listed 22 zones of effect at their 9 facilities (one dam is located on a tributary to the Deerfield River at Dunbar Brook). For each of the impoundment zones, the application indicates that they meet Standard A-1. The LIHI Handbook requires that for all impoundments meeting this standard that they “explain water management (e.g., fluctuations, ramping, refill rates) and how fish and wildlife habitat within the zone is evaluated and managed.... All impoundment zones can apply Criterion A-1 to pass this criterion.”³

The application contains some details in an Excel sheet called Table 1b, with facility information. This table includes the impoundment elevation ranges, but other than license restrictions at Somerset, there appear to be no ramping rate or refill rate or drawdown restrictions. There is no explanation of how fish and wildlife habitat within each of the impoundments are evaluated or managed. Stakeholders have raised concerns about very warm and very cold water temperatures above and below some of the dams affecting temperature sensitive species, but there has been no effective response to address concerns.

GRH says that their downstream reaches all meet Standard A-2. To meet standard A-2, the applicant must either explain the scientific or technical basis for the agency recommendation, including methods and data used; explain how the recommendation relates to agency management goals and objectives for fish and wildlife; and explain how this provides fish and wildlife protection, mitigation and enhancement.⁴

There is no explanation of the methods and data used for any of the goals and objectives. A technical basis was not given for the minimum flows at each facility, although there is a general mention of an IFIM study. The Settlement Agreement or FERC order on the license does not provide this justification. The peaking flows at each facility are not explained at all in the application. The issue of converting any facilities to run of river was not “on the table” during the negotiation for the Deerfield River Settlement Agreement, but that does not mean there is no impact or concern about the impacts of peaking to the entire river system. We especially do not see how Zone No. 14, Dunbar Brook downstream reach, could

² Low Impact Hydropower Certification Handbook. 2nd Edition. Revision 2.03: December 20, 2018. Low Impact Hydropower Institute. Page 6.

³ Ibid. Page 56.

⁴ Ibid. Page 56.

possibly meet standard A-2, since there is no minimum flow provided below that impoundment and the stream channel is completely dry unless the dam is full enough to spill.

Comment letters on LIHI Re-certification for the Deerfield Project submitted by the Massachusetts Division of Fisheries and Wildlife dated January 26, 2021 and the Vermont Fish and Wildlife Department on January 29, 2021 argue against re-certification based on flows. CRC agrees with both comment letters. We will also add that Yellen and Bout (2015)⁵ looked at the effect of groundwater interactions with hydropeaking patterns on the Deerfield River in Massachusetts, and one of the conclusions of their study was: “The combination of hydropeaking and resultant water table mounding adjacent to dam-controlled rivers may mean that even in humid areas, licensed minimum flow requirements may be insufficient to meet desired goals if substantial losses occur within the reach of concern.”

It is CRC’s continued belief that a river broken up by 10 dams (8 under GRH’s ownership) that all operate under some form of peaking, whether it is seasonal storage, weekly storage, or daily peaking, can not be considered “low impact.”

3.2.2 Criterion B - Water Quality

The stated goal for the water quality criterion is that, “Water quality is protected in waterbodies directly affected by the facility, including downstream reaches, bypassed reaches, and impoundments above dams and diversions.”⁶

GRH’s application says that they satisfy this criterion under Standard B-2. In order to satisfy this standard they must show that, “The facility is in compliance with all water quality conditions contained in a recent Water Quality Certification or science-based resource agency recommendation providing reasonable assurance that water quality standards will be met for all waterbodies that are directly affected by the facility.”⁷ Additionally, the Standards indicate, “In all cases, if any waterbody directly affected by the facility has been defined as being water quality limited (for example, included on a state list of impaired waters that do not fully support designated uses), *the applicant must demonstrate* [emphasis added] that the facility has not contributed to the substandard water quality in that waterbody.”⁸

The Lower Deerfield River below Harriman Reservoir is listed on the Vermont 303(d) list for Low temperature hypolimnetic water release from the reservoir.⁹ Additionally, the East Branch Deerfield River, Below Somerset Dam is on the Vermont 303(d) list for low temperature dam releases.¹⁰ GRH fails to demonstrate in their application that the facilities do not contribute to the substandard water quality as identified in these 303(d) listings.

⁵ Yellen and Bout (2015). Hydropeaking induces losses from a river reach: observations at multiple spatial scales. HYDROLOGICAL PROCESSES.

⁶ Low Impact Hydropower Certification Handbook. 2nd Edition. Revision 2.03: December 20, 2018. Low Impact Hydropower Institute. Page 7.

⁷ Ibid. Page 8.

⁸ Ibid. Page 7.

⁹ State of Vermont 2020 List of Priority Surface Waters. Part F. Surface Waters Altered by Flow Regulation. Page 8.

¹⁰ State of Vermont 2020 303(d) List of Impaired Waters. PART A. Impaired Surface Waters in Need of TMDL. Vermont Department of Environmental Conservation. Watershed Management Division. Page 9.

As the application states, several GRH impoundments on the Deerfield system are listed as impaired for mercury in fish tissue. Though the mercury itself comes primarily from atmospheric sources outside of New England, the impoundments do contribute to the problem. Rising and falling water levels in impoundments have been shown to promote the conversion of inorganic mercury compounds to methylated mercury, which is absorbed up the food chain. This phenomenon is well known enough that there has even been research to strategize ways to lower methylmercury concentrations from hydroelectric reservoirs and lakes.¹¹

Additionally, the continued use of plastic to line the flash boards at Dam No. 3 (and possibly elsewhere) are a concern, although the river below this dam is not considered impaired because of this, and CRC does not know if the issue came up when the 401 Water Quality Certificate was issued by MassDEP. When the river runs high, the flash boards are designed to fail and the plastic along with the boards are washed downstream. This seems to be wasteful and a potentially harmful addition of plastics into the Deerfield and Connecticut Rivers, as well as the Long Island Sound and Atlantic Ocean downstream.

3.2.8 Criterion H - Recreational Resources

The goal of this criterion is that, “The facility accommodates recreation activities on lands and waters controlled by the facility and provides recreational access to its associated lands and waters without fee or charge.”¹²

One of the strengths of the Deerfield River project license and Settlement Agreement is the number and variety of recreational offerings along the entire system. GRH claims to satisfy this criterion under Standard H-2. In order to meet this criterion the facility must, “demonstrate[s] compliance with resource agency recommendations for recreational access or accommodation (including recreational flow releases), or any enforceable recreation plan in place for the facility.”¹³

GRH says that recreation facilities are in place and maintained as described in the Final Completion Status Report for Deerfield River Project dated March 31, 2010. The 2010 status report provides updates as to the installation and maintenance of all facilities described in the 1993 Deerfield Project Recreation Plan. GRH also cites a 2018 FERC Environmental Compliance Inspection and report. GRH’s predecessor owners, TransCanada and U.S. Gen, did install new and upgrade existing facilities. CRC believes that, in order to meet the criterion, citing a report from 10 years ago and a FERC inspection report that seems to indicate that FERC did not even visit all the recreation facilities, is not sufficient for “demonstrating compliance.” GRH should have a list or table of all the recreation facilities associated with each of the hydro facilities that make up P-2323 and then have either a checklist or a series of photos (or preferably both) showing that each of the facilities is, in fact, still there, the signage is still in place, and the facilities are well maintained. [CRC adds as a note to LIHI, that the lack of information demonstrating compliance here makes us less confident in LIHI’s proposed recertification process we commented on recently. If a full re-certification effort like this one does not provide complete information about recreation facility

¹¹ Mailman, Stepnuk, Cicek, Bodaly (2006). Strategies to lower methyl mercury concentrations in hydroelectric reservoirs and lakes: A review. *Science of the Total Environment*. Sep 1;368(1):224-35. Available online at <https://pubmed.ncbi.nlm.nih.gov/16343602/>.

¹² Low Impact Hydropower Certification Handbook. 2nd Edition. Revision 2.03: December 20, 2018. Low Impact Hydropower Institute. Page 12.

¹³ Ibid. Page 13.

status, how will the proposed yearly notice possibly provide enough information that the public can respond to?]

CRC is glad to see that GRH finally has a public website that lists their facilities (<https://www.greatriverhydro.com/facilities/>). But, the information available on recreation amenities on this site is very minimal. For example, for Deerfield No. 4 Station, under "Available Recreation Facilities," the web page states associated recreations sites are, "A picnic grounds and a fisherman's access with gravel boat ramp are located along the river." Where are these facilities located? How can you find them? As for the boat ramp associated with the Deerfield #4 impoundment, diagrams and photos from the 2010 Status Report indicate that this boat ramp shares a driveway with a private home, with signage located at the ramp area rather than located on Route 2 -- it's not clear to the public that the boat ramp is open to the public unless you make the choice to drive down what looks like a private area. If signage on Route 2 is not desirable, then information on the website would help clarify.

Additionally, the website indicates that, "No overnight camping is allowed. Vehicles left after closing will be towed at the owners expense." When is closing? Is there any way to accommodate cars left at any of the sites who are staying in the area multiple days for hiking, camping, or otherwise? What ever happened to the 5 primitive camping sites contemplated for Somerset in the 1993 Deerfield River Recreation Plan?

GRH indicates that "an annual schedule is published by April 1" of each year of whitewater releases, but it is not clear, based on the application, where that schedule is published. This schedule should be added to the GRH website outlining the release date and time and estimated time that the releases will reach each access area.

In terms of allowing recreational access to its lands, there are a couple of locations in which GRH has recently restricted access to the river on its lands. One is the land along the river near the station to Deerfield No. 3. Fencing was put up in response to people allowing dogs to swim in the forebay (an obvious safety problem), but instead of placing fencing just around the forebay or the roadway around the forebay, they restricted access to the entire area, blocking all informal routes to the river. Unfortunately, this roughly coincided with new ownership of the adjacent Lamson & Goodnow buildings and that owner (who, according to tax maps, owns a portion of the forebay area) also blocked access to the river. This means there is no access to a beautiful section of the Deerfield River below the Number 3 dam within easy walking distance to Shelburne Falls village residents on the Buckland side, until you get to the Gardner Falls station recreation trail, which is owned by a different hydropower company and already has LIHI certification. [As of this writing, we understand and appreciate that GRH is willing to discuss access issues in this area or other areas of Buckland]. Additionally, GRH owns lands along the Deerfield River in the town of Deerfield near the Stillwater Bridge, where there were plans for a dam that was never built. Recently, guard rails were put up at that location, reducing the available parking at that location by more than half. As far as we know, this was not done in coordination with the town. In the 2010 status report on the recreation facilities, the area was listed saying there were no planned changes to that parking and access area.

These two actions may not be in keeping with the goals of the Outdoor Recreation Management Policy articulated in the 1993 Recreation Management Plan: "Providing access to the water and to all areas within the ownership, where it is safe to do so."

Conclusions

It is CRC's position that a multi-dam system like this, and one that includes at least one seasonal storage reservoir, **does not meet standards required to be considered for Low Impact Hydro Certification.**

If the LIHI staff and board disagree, CRC would encourage the following recommendations and conditions for re-certification.

Ecological Flow Regimes

- GRH should work with MA state fisheries staff to determine if a minimum flow at Dunbar Brook below the dam is desired and then willingly release that flow even if not required in a license.
- Increase GRH's contribution to the Deerfield River Environmental Fund (DREF) to mitigate for impacts to the system, potentially providing enough funding to take out unneeded dams or fix problematic culverts in the Deerfield River watershed.

Water Quality

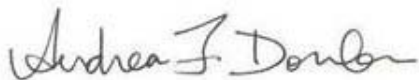
- GRH should make some accommodation to monitor and adjust for extreme temperatures above and below the facilities.
- GRH should evaluate if there are ways to operate their reservoirs that would reduce mercury methylation.

Recreation

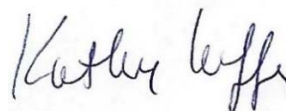
- GRH should provide more information on the status of all recreation amenities provided in this license as part of the application.
- GRH should provide maps of all lands under its ownership and provide information regarding public accessibility on each parcel or groups of parcels.
- GRH should continue to participate in community and regional meetings related to river access along the Deerfield River.
- GRH should improve the information available on its website so that people can learn about and access the vast amount of recreational offerings provided under this license.
- GRH should provide more information on flows from each facility than is currently provided in the outdated Waterline forecast. Users should be able to find out not just the current flow but flows from the previous 8 hours and a forecast of the next 8 hours. In addition, it should be easy to find the whitewater release schedule.

CRC is very grateful for the opportunity to comment. CRC is strongly supportive of the Low Impact Hydropower Institute's certification program and feels strongly that certified facilities should go above and beyond what is required to satisfy the FERC licensing process in order to earn this certification. Those efforts will inspire continued innovation in the hydropower sector.

Sincerely,



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Kathy Urffer
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ATTACHMENTS

Yellen and Bout (2015)

Cc:

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