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VIA ELECTRONIC FILING

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E. Room 1-A
Washington, D.C. 20426

Re: Great River Hydro (GRH) Project Nos. 1892-026, 1855-045 and 1904-073
Comments on November 15, 2017-Supplemental Erosion Report for Studies 2 and 3, Riverbank Transect and Riverbank Erosion

April 22, 2018

Dear Secretary Bose,

The Connecticut River Joint Commissions (CRJC) is pleased to offer comments on the supplemental erosion study report (Supplemental Report). CRJC was established by the legislatures of Vermont and New Hampshire almost 30 years ago to advise public agencies in their decisions that affect the Connecticut River.

One of the first actions taken by CRJC was to conduct a survey of all 1300 riverfront landowners between the borders of Massachusetts and Canada. The foremost issue those landowners identified was the prevalence of erosion. Despite our subsequent longstanding campaign to foster riparian buffers, the erosion continues. The first edition of our "River Corridor Management Plan," issued twenty years ago recommended that "dam owners should thoroughly evaluate impacts of impoundment cycling on riverbank erosion as part of relicensing studies."

Today's letter comes to emphasize that erosion continues to be widespread and that the time is NOW for FERC to recognize its public trust responsibilities and ensure that erosion control is among the primary issues addressed in the licenses currently under consideration. One hundred and twenty miles of the lower Connecticut River between New Hampshire and Vermont are affected by the three dams proposed for relicensing. Of this 120-mile reach of the river, 100 miles have been converted to impoundments, essentially lakes, to facilitate power generation.

One of the initial study plan objectives during the relicensing process was to ascertain the likely causes of bank erosion. To assess whether project operational flows are correlated to bank erosion FERC requested a supplemental analysis of the 21 erosion monitoring sites to determine if flow velocities (produce shear stresses that) are sufficient to cause bank erosion. The supplemental study conducted by

GRH only addresses whether operational flows are sufficient to entrain the average-sized sediment particle. Entrainment is defined as the movement of sediment in a riverbed whereas erosion is defined as the movement of soil on a riverbank.

None of the studies has identified the relative causes of erosion and this study does not further that objective. The February 4, 2017-Final Study Report for Studies 2 and 3, Riverbank Transect and Riverbank Erosion concludes that " ... notching at the base of the banks that initiates the cycle of erosion can result from a variety of potential factors" ("Final Report", p. ES-3) and "waves, water level fluctuations, overland flow, groundwater seeps, and tractive forces (e.g., shear stress) generated by river flow" are potential erosive mechanisms (Final Report, p. 60).

The supplemental study only analyzes tractive forces generated by normal project operations. It is our opinion that using entrainment as a surrogate for erosion is problematic and only correlating the entrainment of average-sized sediment particles to operational velocities is insufficient to conclude project operations do not cause bank erosion. Also, it is not clear if the study actually correlates operational flows with erosion (or entrainment) that creates the "notching" on the banks or merely correlates operational flows with entrainment of sediment that accumulates at the toe of slope after bank failures.

GRH concludes that ". . . project operations, while perhaps causing sediment entrainment in isolated incidents[1][footnote added], cannot be responsible for wide spread bank sediment entrainment or **bank erosion** [emphasis added]." (Supplemental Report, p. 13). The methodology utilized to arrive at this conclusion overlooks the fact that other aspects of normal project operations may contribute to erosion such as releases for power generation, which cause fluctuating water levels[2], that even at low velocities inhibit the establishment of vegetation and cause winnowing of fine sediments, collapse of the sediment matrix, and movement of median-sized particles by gravity alone. This process likely results in wide spread bank failures and the creation of "beaches," which are usually inundated.

Also, the accuracy of velocity data estimated from HEC-RAS-modelled flows 20 feet from shore is problematic. Abutters have noted that onsite observations may be more reliable than the HEC-RAS model in determining 1) flow velocities and elevations, and 2) the effect of operational flows on particle movement and bank erosion. Significantly, direct observations by abutters of erosion (bank collapse) during low flows directly contradict the study's conclusion.

CRJC supports study modifications and additional studies that are designed to ascertain the causes of erosion, particularly those designed to identify erosion that is attributable to project operations. GRH did an exemplary inventory of existing bank erosion within the study area. However, its conclusion that project operations cannot be responsible for bank erosion is not supported by the evidence. This is particularly troublesome in light of the fact that GRH's consultant previously observed that fluctuating water levels from normal project operations align with the location of notching at the base of the banks

[1] In fact, the Supplemental Report confirms normal project operations can generate shear stresses that are sufficient to entrain sediment at 5 of the 21 transect locations (monitoring sites).

[2] The Final Report confirms water level fluctuations, generated by normal project operations, are correlated with notching. "Normal project operations result in daily or sub-daily fluctuating water levels that occur within a relatively narrow and consistent band each day. While there are variations within the band, as a whole, the narrow band is consistent from day to day under non-flood conditions. At 8 of the 21 monitoring sites, as would be expected, this consistent band of daily water surface elevations aligns with the location of notching at the base of the bank." (Final Report, p. 53).

that initiates the cycle of erosion. We endorse the erosion peer-review comment letter by Princeton Hydro that critiques the supplemental study. CRJC contributed to this effort and agrees with Princeton Hydro that the supplemental study does not prove project operations do not contribute to bank erosion.

We respectfully request that FERC conduct a robust peer-review of the erosion studies to evaluate GRH's conclusions. The crucial question of the contribution of project operations to erosion needs to be answered so that the projects impact on natural (e.g., endangered species) and human resources (e.g., roads and other infrastructure, farmland, archaeological sites) can be quantified and the economic cost of these impacts can be calculated. This information is essential for informing mitigation measures and making responsible decisions about dam operations over the next forty years.

Last, we invite FERC to work with CRJC and conduct another site review for these projects, this time specifically visiting and examining the riverbank. Though FERC held an environmental site review in October 2012, we believe a follow-up visit can be very informative. As the public entity with the statutory responsibility (under New Hampshire RSA 483:8) to comment on plans and licenses that effect the river, we and our local river subcommittees are willing to help plan your visit.

In summary, we believe that currently, GRH does not have sufficient information to determine the cumulative impact of project operations on public interest factors nor evaluate alternative operational models. We appreciate your consideration of these requests and strongly encourage you to conduct a public meeting and site visit at your convenience. If you have any questions, please feel free to contact either of us via e-mail at Jason Rasmussen (jrasmussen@swcrpc.org) or Jim McClammer (mcclammer@aol.com).

Sincerely,

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