Connecticut River Conservancy

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CRC Comment on Section 80 Study, Charging Forward: Energy Storage Toward a Net Zero Commonwealth

Dear Tom, 8.31.2023

Thank you for the opportunity to provide comments on MassCEC and DOER's energy storage study as a requirement of Section 80 of Chapter 179 of the Acts of 2022. The Connecticut River Conservancy (CRC) has been advocating for the restoration and protection of the entire Connecticut River watershed for over 70 years, working to promote the health of communities and the ecosystems across four states. As a part of this work, CRC has been engaged in the relicensing of the only two pumped storage hydropower in the Commonwealth, Bear Swamp Reservoir (owned and operated by Brookfield Renewable) and Northfield Mountain (owned and operated by FirstLight Power). These facilities both have significant impact on the Deerfield and Connecticut Rivers, respectively. As the study evaluates a range of energy storage options, CRC urges MassCEC and DOER to consider not only the role existing pumped storage hydropower may play in energy storage, but the ecosystem impact of these facilities as well. Below, we outline our concerns regarding the operation of these facilities and suggestions for consideration throughout the study and policy recommendation process.

Due to the operations of the Bear Swamp and Northfield Mountain, the river segments in proximity to the facilities on both the Deerfield and Connecticut Rivers are impaired, meaning that these segments fail to meet Massachusetts water quality standards. The Deerfield River segment MA33-01 is considered impaired due to flow regime modification as the result of "impacts from hydrostructure flow,"[1] while the Connecticut River segment MA 34-02 is similarly impaired due to "flow modification" and "stream bank alteration."[2] In alignment with the original goals of the Clean Water Act to improve surface waters for human and aquatic life uses, CRC continues to advocate for operating regimes and policies that are protective of water quality in these rivers. At present, the pumped storage hydropower facilities fail to achieve this goal and increased frequency and volume, specifically at the Northfield Mountain project, will serve to exacerbate these impairments.

Our concerns regarding the Northfield Mountain pumped storage hydropower are two-fold. First, the operations at Northfield Mountain have resulted in rapid and unnatural rates of erosion in the impoundment, the area behind Turner's Falls Dam from which Northfield draws water. The elevation of the impoundment is constantly in flux due to the pumping and generating patterns of the facility. This rapid change of water elevation destabilizes the shoreline leading not only to extreme levels of erosion on the riverbanks, but also destroying riparian habitat and increasing the amount of suspended sediment in the water, which can degrade water quality. A 1991 U.S. Army Corps of Engineers Study found that, "the larger [Turners Falls] pool fluctuations and flow reversals caused by the present hydropower operation all contribute to the documented bank instabilities. It was noted that pool fluctuations, on the order of 5 feet, as experienced in the Turners

[1] https://www.mass.gov/doc/2022-integrated-list-of-waters-appendix-9-deerfield-river-basin-assessment-and-listing-decision-summary/download (page m79)
[2] https://www.mass.gov/doc/20182020-integrated-list-of-waters-appendix-15-connecticut-river-watershed-assessment-and-listing-decision-summary/download (page 23)

Falls pool, are at least twice as destructive to banks as 1 to 3 foot fluctuations in other hydropower pools studied."[3] To further understand the impact of Northfield Mountain on the Connecticut River, we invite you to read CRC's comments on FirstLight's relicensing settlement agreement (page. 10)[4]

Our second concern regarding the operation of Northfield Mountain is the impact that pumping and generating has on migratory fish. As the facility draws water into the upper reservoir, fish, larvae and eggs become entrained and/or killed in the turbines. While the operating company proposes a partial fix to this issue, CRC does not believe they have demonstrated it will fully eliminate or reduce to the furthest extent possible, mortality of fish eggs, larvae and juveniles. Again, CRC's position on this issue can be found on page 16 of our comment on the relicensing settlement agreement (footnote 4).

In the stakeholder sessions, study leaders have indicated that new pumped storage hydropower is not being considered as an option for medium and long-term energy storage given the environmental impacts. CRC is supportive of this approach and recommends that the study leaders consider the following as the study nears completion and DOER prepares policy recommendations:

1. FirstLight is seeking to expand the use of its upper reservoir under its new FERC license. CRC is opposed to this given the concerns above. However, should Northfield Mountain be permitted to expand its capacity, policies should not offer financial incentives that would lead to constant generating and pumping at the facility, which would have devastating impacts on the ecosystem. Additionally, expanded use of this facility should not be considered 'new storage' as there would be little to no capital costs associated with the increase in generation.
2. Policy recommendations should not encourage pumped storage hydropower facilities to generate unless they are profitable under ISO and should generate only when necessary; the facilities should not be funded needlessly by Massachusetts utilities. CRC would also oppose recommendations that incentivize long-term contracts between pumped storage hydropower and public utilities.
3. Consideration of energy storage alternatives should give equal weight to the environmental impacts of the facilities. This should include the impact on water and air quality, migratory species (fish and flying species), habitat disruption and destruction, noise pollution, proximity to Environmental Justice communities and agricultural impacts. Specifically related to water quality in surface waters, it will be important to consider the impact of increasing impervious surfaces, reducing vegetative buffers, exacerbating erosion, fish and fish egg mortality, sedimentation, temperature anf flow alternation, nutrient loading, changes to dissolved oxygen and habitat loss.

CRC recognizes the importance of energy storage as we transition to more renewable sources of power in order to achieve the Commonwealth's climate goals. At the same time, we advocate for a thoughtful and sustainable approach to this transition that considers the localized environmental impacts of energy storage technologies. We appreciate the opportunity to comment on this study and can be reached for follow-up at the contact information below.

Sincerely,

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[3] U.S. Army Corps of Engineers, New England Division (Corps). 1991. General Investigation Study, Connecticut River Streambank Erosion: Connecticut River - Turners Falls Dam to State Line, MA. July 1991.
[4] https://elibrary.ferc.gov/eLibrary/filelist?accession_number=20230525-5090&optimized=false