



January 27, 2021

Honorable Kimberly D. Bose Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

Re: Turners Falls Project No. 1889
Northfield Mountain Pumped Storage Project No. 2485

Objection to Deficient Amended Final License Application and Request for Additional Information

Dear Secretary Bose,

The Connecticut River Conservancy (CRC) is a nonprofit citizen group that was established in 1952 as the Connecticut River Watershed Council, Inc. (CRWC) to advocate for the protection, restoration, and sustainable use of the Connecticut River and its four-state watershed. CRWC, now as CRC, has been participating in the relicensing of the Turners Falls and Northfield Mountain Pumped Storage Projects since the process began.

CRC has been reviewing the Amended Final License Application (AFLA) for the above-referenced projects submitted to FERC on December 4, 2020. This letter includes our initial identification of deficiencies and requests for additional information based on our review of the AFLA. We note that, because the original Draft License Application dated December 5, 2015 and the Final License Application (FLA) dated April 29, 2016 were completed prior to the relicensing studies being complete, stakeholders have been deprived of the opportunity to comment on a draft set of Protection, Mitigation, and Enhancement measures (PM&Es). The existence of an AFLA is not contemplated in the Integrated Licensing Process (ILP). The AFLA is deficient and should be rejected. 18 C.F.R. § 5.20. Additional information should be required. 18 C.F.R. § 5.21 and ILP generally.

The AFLA and the shortcomings leading to and compounded by the AFLA result from First Light's patently defective Draft License Application submitted in 2015.¹ The continued deficiencies compound and add to previously identified ILP failures that deprive agency and public comment and undermine the ILP. Rather than fine-tuning already-vetted mitigation measures, the vetting of mitigation measures that should have started prior to filing the DLA, may just be starting now.

Our request for additional information follows.

¹ See CRC's Comments on First Light's DLA (Mar. 1, 2016). CRC reasserts those comments and incorporates them as part of these comments.

1. Costs and financing

A. Clarification needed between costs shown in the Executive Summary Table ES-1 and the Exhibit D Tables 4.5-1 for both projects.

Table ES-1 itemizes FirstLight's proposed PM&E measures. This Table ES-1 includes a "total cost" which Footnote 1 defines as energy revenue loss, capital cost, periodic costs, and operation and maintenance costs over a 50-year duration. Table 4.5-1 in Exhibit D for both the Turners Falls and Northfield Mountain Pumped Storage Projects includes these same PM&E projects, broken down by project. Table 4.5-1 has separate columns showing the total capital cost over 50 years, the total periodic capital cost over 50 years, the total O&M costs over 50 years and the average annual cost for each of the 50 years, all in 2019 dollars. CRC requests more information from FirstLight on the differences between these two tables. It appears that the only difference is the energy revenue loss, but it is unclear what assumptions went into the derivation of the estimates. For example, Table ES-1 lists a total cost for the improvements to the existing river access location at Poplar Street at \$1,573,000. Table 4.5-1 lists this same facility as costing \$286,000 in capital costs and \$328,000 in O&M costs over 50 years, for a total of \$614,000. We are seeking an explanation of the basis for the estimate of \$959,000 in revenue loss to build and maintain the Poplar Street facility. Similarly, the installation of the ultrasound array in the Cabot Station tailrace has a \$11.62M total cost in ES-1 but a \$6M total cost (adding up 3 columns) in Table 4.5-1 in Exhibit D, and CRC is requesting information on the assumptions that account for a \$5.6M loss in energy revenue over 50 years in relation to the ultrasound array installation and maintenance. CRC requests this information for all of the PM&E measures listed in the tables.

18 CFR §5.18(b)5(ii)E states that "If a protection, mitigation, and enhancement measure reduces the amount or value of the project's developmental resources, the applicant must estimate the reduction." Does Table ES-1 consider a reduced value of the project, or only reduced energy revenue loss? Have costs to dismantle existing fish passage structures been built into any of the costs presented in the AFLA?

B. Better understanding of operation and maintenance activities and budget desired

Exhibit D for the Turners Falls Project estimates capital costs of \$2M/year, and operation and maintenance costs of \$4.3M/year. Table 4.5-1 of Exhibit D shows the capital costs and the operation and maintenance costs of proposed PM&E measures. CRC requests that FirstLight break down capital and/or O&M costs from Exhibit D to include large categories of maintenance activities (aside from the PM&E measures), such as the following: cost of running and maintaining recreation facilities, cost of annual canal drawdown and maintenance, etc.

Exhibit D for the Northfield Mountain Project estimates capital costs of \$8.22M/year, and operation and maintenance costs of \$24.9M/year (CRC notes that this figure was listed as \$11.02M in the 2016 Final License Application). Table 4.5-1 of Exhibit D shows the capital costs and the operation and maintenance costs of proposed PM&E measures. CRC requests that FirstLight break down capital and/or O&M costs from Exhibit D to include large categories of maintenance activities (aside from the PM&E measures), such as the following: cost of running and maintaining recreation facilities, project lands maintenance/real estate, power equipment maintenance, etc., and CRC recommends that FirstLight remove the periodic dredging of the upper reservoir intake channel that is shown in Table 4.5-

1 and include it as a category under O&M because it is not a PM&E measure. CRC is curious how the O&M budget is more than doubling since the FLA was filed in 2016 because there are two notable things being proposed to be eliminated, as follows:

- Section 3.3.1.4.1 of Exhibit E on page E-74 of the AFLA states that FirstLight is not proposing any PM&Es related to erosion. Under their current license, FirstLight has been expending O&M money on riverbank restoration projects. FirstLight should explain what their budget has been under the existing license, and how that money will be spent under the new license.
- FirstLight, on page E-532, states that it is discontinuing the rental of cross-country ski equipment in part because of "high overhead costs." It is not clear what those costs are, and if money may be shifted to some other recreation activity or if FirstLight is lowering their overall budget for recreational offerings.

CRC requests information from FirstLight on maintenance dredging of Barton Cove to maintain navigation and reservoir storage for Northfield Mountain. During the scoping phase of the relicensing, the siltation of Barton Cove was identified as an issue currently affecting navigation to various boat access locations within the Cove. Although Section 3.3.1.2 of the AFLA on page E-72 mentions that cross-sections in Barton Cove showed net deposition, there is no assessment of net volume accumulation of sediment in Barton Cove, or in areas of Barton Cove. CRC requests information from FirstLight as to the expected rate of siltation and at what point it may impact (or has impacted) the storage capacity of Northfield Mountain's lower reservoir or the operation of Turners Falls dam and gatehouse, and at what point they anticipate needing to dredge Barton Cove over the next 50 years to either maintain navigation or for operational reasons.

C. Additional revenues for the Project should be estimated

Annual revenues from recreational facility programs (rentals, tickets, etc.), nonproject use of project land including the solar energy facility and re-imbursement by private uses of camps and private clubs should be included in Exhibit D, just as expenses not specifically tied to energy generation, such as taxes, were included. After all, these revenues occur because of the project's existence and operation.

2. Operational changes to Great River Hydro's facilities upstream should now be modeled

In the AFLA submitted by Great River Hydro on December 7, 2020, they propose to operate the Wilder, Bellows Falls, and Vernon Projects "fundamentally different" than current operation. In FirstLight's AFLA in Section 3.3.2.1.1.1, FirstLight requests certain information about Great River Hydro's operations. CRC requests that FirstLight provide commentary and/or model runs on how Great River Hydro's proposed operation, if implemented, would impact the operation of the Turners Falls Project, and possibly Northfield Mountain. As part of this request, CRC specifically requests how flows below the Turners Falls Dam and Cabot Station may or may not change from current/proposed operations, given the proposed Great River Hydro operations.

3. Explanation of PM&E measures not adopted is deficient

The ILP regulations at 18 CFR §5.18(b)5(ii)C require that if an applicant does not adopt a preliminary environmental measure proposed by a resource agency, Indian tribe, or member of the public, it must include its reasons, based on project-specific information. CRC notes again that normally this would take place in a FLA after stakeholders have proposed preliminary measures in comments on a DLA. FirstLight was required to submit their DLA and FLA before the relicensing studies were complete, and now FERC has required an Amended Final License Application with no comment period, further denying the public the opportunity to comment on still deficient PM&E measures and plans. FirstLight's AFLA has only a list of commenters on their DLA, but no part of Exhibit E reflects stakeholder input, either through comments on the DLA or otherwise. Though FirstLight conducted settlement negotiations with stakeholders, including CRC, for two years, those discussions focused only on flows and fish passage before they ended.

More information is needed on why the following measures were not adopted:

- FirstLight in Exhibit C on page C-3 for the Turners Falls Project says that it considered but eliminated installing a minimum flow turbine. What assumptions were made as to size and amount of water and costs of installing?
- On June 8, 2018, CRC filed with FERC a request for a full alternatives analysis to mitigate the environmental effects of Northfield Mountain. CRC suggested an analysis of full or partial closed loop, a retrofit to adjustable speed units, widening the tailrace, and a request for thinking of other alternatives not contemplated by CRC. FirstLight has only described building a lower reservoir for Northfield Mountain as an alternative identified but not adopted in Section 2.3 in Exhibit E. This is insufficient.
- CRC's comments on FirstLight's DLA dated March 1, 2016 contained a series of recreation recommendations. FirstLight's FLA included a Draft Recreation Management Plan with no response to specific comments on the DLA. On July 30, 2019, CRC filed with FERC a detailed set of additional recreation recommendations put together by CRC and the Appalachian Mountain Club (AMC). The AFLA does not contain a reason for not adopting many of these proposed PM&E's. Somehow, FirstLight has gone from a deficient Draft Recreation Management Plan in 2016 to a Final Plan in 2020, with no consideration or response to comments received.

4. Information lacking on flows and river levels needed for paddling and boat navigation

Section 3.3.6.2 in Exhibit E lacks an analysis of navigability in and out of all current and proposed river access locations based on the proposed flows and operations, both in the Turners Falls impoundment and below the Turners Falls Dam (especially under the proposed minimum flows at the new put-in below the dam, 650 and 500 cfs, for August and September 1 to November 30, respectfully). And, if average river elevations in the Turners Falls Impoundment (TFI) will be changed under proposed increase upper reservoir capacity as it has under temporary amendment conditions in the past, that information needs to be highlighted in the AFLA and included in this requested analysis.

5. Having no comment period on a true draft license application undermines the ILP

FirstLight's continuing failures compound the issues identified in CRC's March 1, 2016 comments and further undermine the ILP. A critical part of the ILP was to better allow for public input and response, and to front-load this input. Now that the studies are in, and FirstLight has proposed PM&E's that the public can react to, these are being offered as "final" elements of their application. **This wholly circumvents the required public input and undermines the ILP.** Indeed, FirstLight has made no attempt to respond to some of the recommendations that have been submitted since the DLA and the present. FERC staff have said that there are plenty of opportunities for public comment later in the process, but that has yet to happen and does not excuse clear ILP violations. CRC requests FERC to require significant additional information and clarification of the details and a formal public comment period before it deems the application complete. FERC must do so without additional delays to this long-delayed relicensing process.

I can be reached at adonlon@ctriver.org or (413) 772-2020 x.205.

Sincerely,



Andrea F. Donlon
River Steward

ATTACHMENT: CRWC's 2016 comments on the Draft License Application



CONNECTICUT RIVER WATERSHED COUNCIL

The River Connects Us

15 Bank Row, Greenfield, MA 01301 crwc@ctriver.org www.ctriver.org

March 1, 2016

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

Re: Northfield Mountain Pumped Storage Project No. 2485-063
Turners Falls Project No. 1889-081
**Comments by the Connecticut River Watershed Council
on the Draft License Application (DLA) dated December 5, 2015**

Dear Secretary Bose,

The Connecticut River Watershed Council, Inc. (CRWC) provides comments in response to FirstLight's December 5, 2015 filing of the Turners Falls Dam (P-1889) and Northfield Mountain Pumped Storage Project's (P-2485) "Draft Application for a New License." The DLA is incomplete and precludes any meaningful comment. To the extent that it can, CRWC submits the following comments pursuant to 18 C.F.R. § 5.16(e) and Revised Process Plan and Schedule – Wilder, Bellows Falls, Vernon, Turners Falls, and Northfield Mountain Projects (Sept. 14, 2015).

I. DESCRIPTION OF THE CONNECTICUT RIVER WATERSHED COUNCIL

The Connecticut River Watershed Council, Inc. (CRWC) is a nonprofit citizen group that was established in 1952 to advocate for the protection, restoration, and sustainable use of the Connecticut River and its four-state watershed. We are proud that the Connecticut River was designated one of 13 American Heritage Rivers during the Clinton Administration and became the country's first National Blueway in 2012. The interests and goals represented by CRWC include, but are not limited to, improving water quality; enhancing habitat for fish and other aquatic biota; safeguarding and improving wildlife habitat; protecting threatened and endangered species; protecting wetlands; preserving undeveloped shore lands; enhancing public recreation and promoting recreational safety; protecting aesthetic values; protecting archeological, cultural, and historical resources; fostering sustainable economic development, energy production, and preserving the local tax base along the Connecticut River and its tributaries.

The Council's members regularly and frequently use and are concerned about the area of the Connecticut River affected by the presence and operation of the Turners Falls Dam and Northfield Mountain Pumped Storage Project, owned and operated by FirstLight.

MASSACHUSETTS
413-772-2020

LOWER VALLEY
860-704-0057

UPPER VALLEY
802-869-2792

NORTH COUNTRY
802-457-6114

CRWC has been participating in the relicensing of the five hydropower facilities on the Connecticut River since the beginning of the process in late 2012. CRWC is committed to working with the FERC, the applicant, resource agencies, Tribes, and other stakeholders to support a new license that will positively affect the Connecticut River and its resources for present and future generations. CRWC has intervened in relicensing proceedings and license amendments at the Holyoke Dam (FERC No. 2004), Canaan Dam (No. 7528), Fifteen Mile Falls (No. 2077), Vernon (No. 1904), and Northfield Mountain Pumped Storage projects on the Connecticut River. We are participating in the ongoing relicensing of Bear Swamp Pumped Storage/Fife Brook on the Deerfield River (P-2669).

II. THE DLA IS PATENTLY INCOMPLETE AND UNDERMINES THE ILP; THE DLA SHOULD BE REJECTED, OR IN THE ALTERNATIVE, A PROCESS EQUIVALENT TO COMMENT ON A COMPLETE DLA SHOULD BE AFFORDED.

CRWC requests that FirstLight's Draft Application for New License for Major Water Power Project – Existing Dam for the Northfield Mountain Pumped Storage Project and the Turners Falls Hydroelectric Project (DLA) be rejected as deficient or patently deficient. 18 C.F.R. § 5.20. Alternatively, CRWC requests that stakeholders be afforded a process equivalent to the right to comment on a complete DLA. *See* 18 C.F.R. §§ 5.16(e)(comment on DLA), 5.18(b)(5)(C)(ii)(C) (FLA must address environmental measures proposed by resource agencies and stakeholders), 5.21 (additional information), 5.27 (amendment of application).

A. The DLA Is Patently Incomplete; Only 13 of the 39 Needed Studies Are Concluded.

Applicant FirstLight elected to file a draft application in lieu of a preliminary licensing proposal. 18 C.F.R. § 5.16(c). A draft license application must “include[] the contents of a license application required by § 5.18.” *Id.* Specifically, “[t]he applicant must present the results of its studies conducted under the approved study plan . . .” 18 C.F.R. § 5.18(b)(5)(C)(ii)(B). The DLA must also include an analysis of environmental impacts and proposed environmental measures. 18 C.F.R. § 5.18(b)(5).

Further, the DLA has to include “Exhibit E” which “must address the resources listed in the Pre-Application Document provided for in § 5.6 . . .” 18 C.F.R. § 5.18(b). Section 5.6, in turn, requires a description of the existing environment and resource impacts, including: water resources, fish and aquatic resources, wildlife and botanical resources, rare threatened and endangered species, recreation and land use, and aesthetic resources. This description's purpose is, in part, to:

. . . develop study requests and study plans, and prepare documents analyzing any license application that may be filed. It is also a precursor to the environmental analysis section of the Preliminary Licensing Proposal or draft license application provided for in § 5.16, Exhibit E of the final license application, and the Commission's scoping document(s) and environmental impact statement or environmental assessment under the National Environmental Policy Act (NEPA).

18 C.F.R. § 5.6(b)(1). *See also* 18 C.F.R. § 5.18(b)(5)(B) (Environmental analysis required in DLA and FLA must be based on pre-application document prepared under Rule 5.6).

The applicant does not present the results of the vast majority of required studies. DLA, Exhibit E, Table 1.4.3.5-1 (Proposed Study Report Filing Dates), p. E-15-E16. Only 13 of the 39 required studies had been filed as of the date of the DLA. Therefore, the DLA does not, indeed cannot, adequately address the

environment and resource impacts. The DLA lacks substantive information, and does not propose any operational changes other than increasing the operating range of Northfield Mountain Pumped Storage Project's upper reservoir, or propose any environmental measures. Without this information, stakeholders cannot provide meaningful and comprehensive comments.

B. Accepting the Current DLA Undermines the ILP.

Failure to allow meaningful comment on a complete DLA undermines the Integrated Licensing Process (ILP). Rule 5.16(c) provides a right to comment on the DLA. Such comment is the ultimate step of the pre-filing process. It provides substantive stakeholder input that shapes the final application and its proposed environmental measures, and narrows or resolves issues for the post-application process. DLA comment is also the final opportunity for stakeholders to comment directly to the applicant, and where the applicant must respond to stakeholder comment. That critical step of the ILP would be lost if stakeholders are not provided the opportunity to file supplemental comments on a complete DLA.

The Commission was clear in its description of how the ILP is to work:

The PLP should also include a description of proposed measures and plans to protect, mitigate, or enhance environmental resources (e.g. a Draft Biological Assessment, Essential Fish Habitat Assessment, Historic Properties Management Plan, Recreation Management Plan, etc.). Filing drafts of the plans and measures with the PLP will facilitate the filing of final plans and measures with the license application, which is strongly encouraged by the Commission.

It is during this period that applicants and stakeholders often enter into settlement discussions to resolve issues related to licensing the project. The Commission looks with great favor on settlements in licensing cases.

Applicants may elect to file a draft license application, which would include all remaining elements of the application (for example, Exhibits A, F, G, and H). Filing a draft license application may help expedite Commission processing of the final license application by identifying application deficiencies early.

FERC ILP Tutorial, *Protection, Mitigation and Enhancement Measures, Settlements and Draft License Application*, <https://www.ferc.gov/industries/hydropower/gen-info/licensing/ilp/ilp-tutorial/prepare/draft-license/protect-app.asp> (citations omitted).

Specifically, a Final License Application must address stakeholder and resource agency DLA comment that proposes environmental measures.

This section [of Exhibit E] must also include a statement of existing measures to be continued for the purpose of protecting and improving the environment and any proposed preliminary environmental measures received from the consulted resource agencies, Indian tribes, or the public. If an applicant does not adopt a preliminary environmental measure proposed by a resource agency, Indian tribe, or member of the public, it must include its reasons, based on project-specific information. 18 C.F.R. § 5.18(b)(5)(C)(ii)(C).

Likewise, the FLA must respond to any requests for additional information gathering or studies filed with comments on the DLA. 18 C.F.R. § 5.18(e). All further steps are subject to Commission decision and action. In short, a meaningful way for stakeholders to provide proposed environmental measures for these projects, and the applicant's adoption or response to these measures benefits the applicant, Commission, resource agencies and the public by resolving or narrowing issues set for Commission decision.

This important process issue must be addressed now to avoid tainting subsequent steps in the ILP. The FLA will not be able to meet the above-mentioned requirements without the opportunity for meaningful comment on the DLA. The inability to comment on a complete DLA simply sets the stage for dispute over whether a final application would be complete.

C. The DLA Should Be Rejected.

FirstLight's DLA is deficient, indeed patently deficient, for the above reasons and should be rejected. 18 C.F.R. § 5.20. There is substantial failure to comply with the ILP's (Part 5) filing requirements. The process cannot move forward in any meaningful way without study results, proposed environmental measures, and the other information required by Rules 5.16(c) and 5.18. Rule 5.20 provides a process for assuring timely correction of the deficiencies. That process should be applied here.

CRWC understands that the Applicant's current license expires on April 30, 2018, and that it must apply for a new license by April 30, 2016. 16 U.S.C. § 808(c); 18 CFR 5.17. CRWC likewise understands that the August 27, 2013 announcement about the Vermont Yankee nuclear power plant shut down delayed the study schedules and was beyond the control of the applicant. TransCanada was in a position to request, and then receive, a one-year license extension; all stakeholders supported this request. FirstLight is unable to request the same because the Northfield license is at the statutory 50-year limit.¹ However, we are now left with a "nonsensical application of the Commission's regulations" as contemplated by TransCanada in their January 16, 2015 request, imposing an unnecessary burden on all relicensing participants.

Delay should not lead to precluding meaningful comment at this critical pre-filing step. Delay cannot be rewarded by allowing an applicant or FERC to skip such steps, and the ILP schedule should not be applied in an overly rigid manner that undermines the ILP's purpose and public or stakeholder rights.

D. Alternatively, the Equivalent to Comment on a Complete DLA Should be Provided.

Alternatively, process equivalent to comment on a complete DLA should be provided as part of the post-filing process. For example, the following could be required:

1. Upon completion of all of the studies, the applicant shall, pursuant to 18 C.F.R. § 5.21 (additional information), file:
 - a. study results,
 - b. detailed report on all proposed operational changes,
 - c. all proposed environmental measures (PMEs), and
 - d. all other information required by Rules 5.16 and 5.18.

¹ An annual license could be issued. 16 U.S.C. §808(a)(1).

2. Stakeholders, resource agencies, and other participants shall have 90 days to comment on this filing.
3. The applicant shall respond to comments as required by Rule 5.18 and other Part 5 requirements and amend the application accordingly. 18 C.F.R. § 5.27.

III. CRWC GENERAL COMMENTS

A. Obligation to Mitigate

A new license will involve a balance between power generation and environmental quality.

In deciding whether to issue any license under this subchapter for any project, the Commission, in addition to the power and development purposes for which licenses are issued, shall give equal consideration to the purposes of energy conservation, the protection, mitigation of damage to, and enhancement of, fish and wildlife (including related spawning grounds and habitat), the protection of recreational opportunities, and the preservation of other aspects of environmental quality.

16 U.S. Code §797(e)

Under 18 CFR 5.18(b)(5)(ii)(C) the license applicant must provide any proposed new environmental measures to address identified environmental effects. It must also include a statement of existing measures to be continued for the purpose of protecting and improvement the environment and any proposed preliminary environmental measures received from resource agencies, Indian tribes, or the public.

The DLA contained little in the way of mitigation proposals because so many studies are incomplete. We request that the FLA propose specific protection, mitigation and enhancement (PM&E) measures, or include placeholders for them, that address the Project's environmental effects. We further request that the FLA propose objectives, or leave placeholders for them, for the purpose of effectiveness monitoring of PM&E measures which may require adaptation in design or operation.

B. An EIS is Required

Rule 5.16(e) provides that comments on a DLA may include recommendations on whether the Commission should prepare an Environmental Assessment or an Environmental Impact Statement. The decision to prepare an EIS has already been made. FERC, in its December 2012 Scoping Document 1 stated, "At this time, we intend to prepare an environmental impact statement (EIS) for the projects..." The need for an EIS continues, and the decision to prepare an EIS should not be revisited.

IV. SPECIFIC COMMENTS

A. Water Quality

Study 3.2.1, Water Quality Monitoring Study was completed and circulated on February 26, 2016. The DLA did not incorporate any results of Study 3.2.1, and CRWC will comment further after we have reviewed the study report. However, as noted in the DLA, the Connecticut River is listed as impaired in the project area. FirstLight does not address some available data, and we think further analysis is

warranted. Moreover, Section 3.3.2 of the DLA's Exhibit E should acknowledge the Long Island Sound Total Maximum Daily Load (TMDL) and there should be an analysis on how project operations impact the amount of nutrients contributed to the Connecticut River system. Clean Water Act section 319 funding through MassDEP has contributed to bank erosion repair work in the Project area to prevent further erosion and washing of sediments and nutrients into the system.

We would like to clarify that CRWC's dissolved oxygen (DO) testing at Barton Cove in 2007 and 2008 was done at the Franklin County Boat Club docks and our bacteria monitoring 2010 – 2015 is done at the state boat launch nearby.

Page E-81 of the DLA states,

In addition, the CRWC, in cooperation with Franklin Regional Council of Governments (FRCOG), the Pioneer Valley Planning Commission (PVPC) and the University of Massachusetts Water Resources Research Center, has conducted water sampling for bacterial analysis in the TFI at the state boat launch at Barton Cove for the last several years. Data from 2010-2011 is presented in Table 3.3.2.1.2-5. Several measurements from this location in 2011 exceeded the Massachusetts Water Quality maximum standard of 235 colonies/100 ml for E. coli. River flows were appreciably higher in 2011 compared to 2010. All of the corresponding E. coli measurements from 2010 met the Massachusetts Water Quality Standard.

It is more accurate to state that CRWC has been monitoring bacteria at the Barton Cove state boat launch on a weekly basis from the week after Memorial Day to the first week of October since 2010. With the exception of 2010, this effort is done only by CRWC and not in cooperation with the organizations listed in the DLA. We are not sure why the DLA only contained bacteria data from 2010 to 2011, but limiting the data to these two years presents an inaccurate picture of Barton Cove's attainment of water quality standards. Data for the years 2012 through 2015 can be obtained online at <http://www.connecticutriver.us/site/content/sites-list> by searching for the site by name, town, waterbody, etc. Our data show that in 2015, bacteria levels at Barton Cove exceeded 235 colonies/100 mL on 7 out of 19 sampling weeks. In 2014, the state water quality standard was exceeded on 13 of 18 Thursdays sampled; in 2013, it was 13 out of 19 Thursdays. We also note that in 2010, when the samples all met the MA Water Quality Standard, Northfield Mountain Pumped Storage was not in operation during the entire sampling season. This is the only year that the site met water quality standards so consistently. We do not know if the two events are related. We recommend further analysis on how the operation of Northfield Mountain Pumped Storage may cause or contribute to the violations of bacterial standards at Barton's Cove due to its ability to impact water levels and flow.

B. Erosion

Under the current license, the permittee has worked on many riverbank restoration and monitoring projects. We expect the FLA to include additional PM&E measures, including *operational* mitigation strategies to reduce riverbank erosion. CRWC re-iterates our recommendation that FL consider converting to a closed loop operation, which would eliminate or reduce project-induced erosion.

Section 2.1.6 in Exhibit E of the DLA describes several "key license requirements." CRWC believes that license requirements related to erosion are also key license requirements and should be acknowledged as such in future filings. The PAD and DLA did not include the following license requirements that are part of the current project licenses.

Article 19 from the Turners Falls project P-1889 license (1980) states that,

In the construction, maintenance, or operation of the project, the Licensee shall be responsible for, and take reasonable measures to prevent, soil erosion on lands adjacent to streams or other waters, stream sedimentation, and any form of air or water pollution. The commission, upon request or upon its own motion, may order the Licensee to take such measures as the Commission finds to be necessary for these purposes, after notice and opportunity for hearing.

In addition, the licensees for the Northfield Mountain Project No. 2485 have been taking remedial measures to minimize bank erosion on the Turners Falls Reservoir [a.k.a. the Connecticut River], under provisions of the Project 2485 license. A river bank protection program had been initiated and consists of such methods as tree clearing, riprapping and landscaping. If that program does not prove sufficient in the future to control erosion along the Turners Falls Reservoir, additional measures could be required under the Project No. 2485 license or Article 19 of the license, as appropriate.

Article 20 from the Northfield Mountain project P-2485 license (1968) states that,

The Licensee shall be responsible for and shall minimize soil erosion and siltation on lands adjacent to the stream resulting from construction and operation of the project. The Commission upon request, or upon its own motion, may order the Licensee to construct and maintain such preventative works to accomplish this purpose and to revegetate exposed soil surface as the Commission may find to be necessary after notice and opportunity for hearing.”

Since Northfield Mountain began operation in 1972, the extent and amount of riverbank erosion has been dramatic. In 1977, the Army Corps of Engineers wrote a report called “Streambank Erosion Control Evaluation and Demonstration Projects (Section 32) in New England: Haverhill, NH and Northfield, MA.” This report states,

Turners Falls pool was raised 5.5 feet in 1973 [CRWC believes the correct year was 1970] to accommodate the pump-storage operation. Streambank erosion began to accelerate in 1973 and this area is one of the most actively eroding reaches of the Connecticut River today... NU [Northeast Utilities, the original owner of Northfield Mountain] acknowledges that much of the problem is a result of the power pool operations. The Company has undertaken a \$600,000 program of bank stabilization which began this fall with the cutting of trees which are falling into the river. Several particularly bad areas have been armored. The Company plans to hydroseed the cleared areas in the spring of 1977... NU will of course be monitoring the work because of the sizeable investment. Company plans do not, however, include the in-depth monitoring that is necessary to document the success of the program if it is to be recommended for use by others.

Id. at 16-17.

As we all know now, tree roots help keep banks stable, and so the helicopter removal of trees was misguided and made the problem worse. Erosion continued through the 1980's and in 1990, a riverbank stabilization master plan was prepared after a series of workshop meetings. A draft environmental impact report (DEIR) for stabilization projects was submitted and denied by MEPA (Massachusetts Environmental Policy Act) in 1992, and in 1994 the Franklin County Commission (predecessor to the Franklin Regional Council of Governments) brought together concerned parties to resolve issues raised in the DEIR. The Connecticut River Streambank Erosion Committee (CRSEC) formed as a result of the 1994 meetings. A Final Environmental Impact Report was prepared in 1996. In addition, an Erosion Control Plan was reviewed and approved by FERC in 1999. Restoration projects identified by the 1999

ECP have all been completed as of recently, and a Full River Reconnaissance has been conducted every 3-5 years under the ECP.

The 2013 Full River Reconnaissance (FRR) was already scheduled as part of the ECP schedule and became relicensing Study 3.1.1. This study was completed in September 2014. Study 3.1.2, Northfield Mountain/Turners Falls Operations Impact on Existing Erosion and Potential Bank Instability, is due to be completed by June 30, 2016. Our comments on the issue of erosion are therefore not complete.

CRWC continues to believe that Study 3.1.1, the Full River Reconnaissance (FRR), was completed in a way that differed from the Approved Study Plan. See our comments on the Initial Study Report (ISR) dated November 14, 2014 and our comments on the Updated Study Report (USR) dated November 13, 2015. In particular, the study did not use the study plan's and the QAPP's definition of "stable" in making study conclusions. "Stable" is defined in the FRR as "riverbank segment does not exhibit types or indicators of erosion." Using FirstLight's data and assessment of each segment, CRWC concludes that only 43.3% of the banks meet their definition of stable.

FirstLight submitted a Long Term Transect Monitoring Report dated January 22, 2013. The transect diagrams had the same technical problems that were discussed at length in our filings and the Connecticut River Streambank Erosion Committee's (CRSEC's) filings in response to FirstLight's license amendment application dated September 1, 2015. In FERC's determination letter dated December 16, 2015, FERC ordered that a report following the temporary amendment period for this year follow certain protocol for how the transect information is depicted graphically.

CRWC requests that FirstLight re-submit the January 22, 2013 transect report, showing all historical data for existing transects, following the same protocol as ordered by FERC in their December 16, 2015 ruling. A revised report is necessary for adequate review of the FLA. That means the transect report should include the following:

- (1) a standardized definition of left and right bank used for the transect charts (e.g., extending from 175 feet msl to the top of the bank, or other definition if determined to be more appropriate)
- (2) charts showing the results of the 22 annual cross-sectional surveys with the left and right banks in separate charts scaled to fully accommodate five-foot increments on both axes and without any vertical exaggeration

Under the new license, we expect to see proposed operational mitigation strategies as well as a plan developed in coordination with stakeholders for objectively monitoring erosion and fixing problems before they get to be severe. Protection of archaeological resources should be enhanced as part of this work.

C. Habitat

Turners Falls Impoundment

Several studies, such as 3.3.6 (shad spawning), 3.3.10 (odonate study), 3.3.11 (fish assemblage), 3.3.15 (sea lamprey spawning), have recently been released. CRWC reserves the right to comment further after the study has been finalized.

Bypass reach and below Cabot

Pages E-123 and E-132 of the DLA do not include burbot (*Lota lota*) as occurring in the project, or as a list of fish species located in or below the Turners Falls development. Hartel et al. 2002 notes its

presence below the dam. Burbot are a state listed species of special concern. Section 3.3.5 of Exhibit E of the DLA also did not list burbot in its description of listed species in the project area.

Relicensing Study 3.3.1 is the instream flow study of the bypass reach and below Cabot Station. The study report is not due out until the fall of 2016. CRWC reserves the right to comment further after the study has been finalized.

Fish passage

Page E-1 of the DLA describes fish migrating up the spillway ladder as entering the power canal, which is not accurate. Fish leaving the spillway ladder enter a channel that runs across the downstream side of the power house and is independent of the power canal. That channel leads to the gatehouse ladder.

Page E-129 of the DLA refers to the Holyoke Dam as being located at river mile 36. It is at river mile 86.

Page E-131 of the DLA should describe the velocity in front of the racks at Station #1 as an average velocity. Similarly on the following page the velocity in front of the Cabot station should be described as an average velocity.

Upstream and downstream fish passage studies were not yet completed by the filing of the DLA. CRWC reserves the right to comment further after the studies have been finalized.

Tributary streams

Study 3.3.17 is complete and assessed the impacts of project operations on tributary and backwater area access and habitat, both upstream and downstream of the Turners Falls dam. We disagree with the statement on page E-134 of the DLA that Study 3.3.17 results indicated that only three tributaries had barriers and these were attributable to natural phenomena. The study did not superimpose the ~4ft daily elevation changes on the maps and graphs provided. The study has not identified how low the river elevations could go at the confluence of each tributary if the project operations used the full extent of the allowable range on the CT River at the Turners Falls dam (176-185 ft river elevation). However, using the elevations on Table 5.1-1 and figures in Section 5.3.1 of Study 3.3.17, and assuming river levels could drop to an elevation of at least 178 ft from the levels measured in the summer, there would be operation-induced barriers on the Ashuelot River, Pauchaug Brook, Bottom Brook, Mallory Brook, and Millers Brook. The report already identifies project-related barrier at Fourmile Brook, along with other contributing factors. If river levels were dropped to 176 at the Turners Falls dam, as they are allowed to do under the current license (again using the elevations on Table 5.1-1 and figures in Section 5.3.1 of Study 3.3.17), CRWC expects barriers would be created at all 15 tributaries, save possibly Dry Brook.

We expect a final license application will take into account the impacts of project-induced barriers into tributaries. Possible mitigation should include a narrower range of allowable river levels from Northfield Mountain operations, including raising the minimum river level on the river to eliminate the creation of barriers at tributaries.

Power canal annual drawdown

Study 3.3.18 and an addendum are complete. This study looked at impacts of the annual Turners Falls canal drawdown on aquatic organisms. We disagree with the statement on page E-34, "Based on results of the 2014 sampling effort, it appears that the annual drawdown has little effect on Connecticut River aquatic species."

Study report 3.3.18 notes in section 1.2, two other studies (3.3.3 and 3.3.5) will address the first objective to the study, which was to assess whether juvenile American shad and American eel abundance in the canal increases leading up to the time of its closure for the drawdown. These studies are not due out until September 1, 2016 and March 1, 2017, respectively. Until these studies are complete, any conclusions about the impacts of the annual drawdown are incomplete.

CRWC noted in our comments on the USR dated November 13, 2015 that the Revised Study Plan (RSP) submitted as Appendix to ISR for 3.3.18 said that in Task 1, “A field crew of experienced biologists will systematically traverse each of the zones in a meander survey fashion recording observations of estimated number of each species encountered.” We could not find a record of a meander survey having taken place, or any information about any observation, in the final report. FirstLight’s response to comments dated December 14, 2015 did not respond to the question about meander surveys, and the addendum to the report also did not describe any meander survey taking place. As such, we believe that this study was not completed according to the study plan, which appears to have skewed the results.

FirstLight has explained how the numbers of fish in pools could not be extrapolated to make any assessment of mortality numbers overall in the canal (see response letter dated December 14, 2015). However, results from quadrats could theoretically be expanded using realistic assumptions. Study 3.3.18 reported quadrat survey results as the number of animals found, but no expansion of those counts was provided. No area within zones 2 to 6, the area of the canal randomly sub-sampled, is reported so an expansion of the counts within each zone is not possible. A crude analysis of the total area of zones 2 to 6 shows approximately 200,000 square meters. Sixty-four one meter square quadrats were sampled during the two sampling events. The expansion factor is calculated as 3,125 [200,000 / 64]. During the quadrat sampling 534 elliptio mussels, 1 alewife floater mussel, 3 mudpuppies, and 12 juvenile lampreys were found.

Table 1 shows the total number of animals within zones 2 to 6 affected by the drawdown, expanded to estimate the total number of animals affected. The numbers are not necessarily insignificant.

Table 1. Study 3.3.18 quadrat results expanded by CRWC to estimate the number of individuals potentially affected by the drawdown

Species	# from report	Extension to estimate total canal impact
Elliptio	534	1,668,750
Alewife floater	1	3,125
Mudpuppy	3	9,375
Sea lamprey	12	37,500

And, after giving no numbers of stranded individuals in the original report, the addendum now estimates that 766 fish were counted as stranded. Again, we don’t know if a meander survey was done, and the methods section of the addendum gives no description of the methods used to locate stranded fish. As such, we do not know what proportion of stranded fish was photographed. Twelve of sixteen

photographs did not include dates. As at least two of the photographs were taken on Day 2 (10/3) additional mortalities are likely due to the presence of avian predation throughout the week of the drawdown.

We expect a final license application to acknowledge impacts from the drawdown and to suggest ways to minimize impacts. This could include drawdowns every other year, or shortening the weeklong annual maintenance to 4-5 days. We also note that the drawdown used to occur in July, but Study 3.3.18 took place in September, and if the dates of the drawdown changed back to hotter weather, or if climate change progressed to make September significantly warmer, impacts of the drawdown would increase and would need to be evaluated anew.

Fish entrainment

Page E-138 of the DLA says that the shad studies will be completed by March 1, 2016, but Table 1.4.3.5-1 lists the proposed completion dates as 9/1/2016.

Study 3.3.7 will evaluate fish entrainment and turbine mortality from the operation of the projects. This report is not due out until the fall of 2016. CRWC will review and comment at a later time. Study 3.3.20 evaluates ichthyoplankton entrainment at Northfield Mountain. The Study 3.3.20 report was finalized and posted in February, 2016, and was not included in the DLA. CRWC will review and comment at a later time.

D. Flow Regime

Northfield Mountain Pumped Storage operations

With a peak generation flow of 20,500 cfs and a peak pumping flow of 13,500 cfs, Northfield Mountain pumped storage can have a dramatic impact on the Connecticut River, particularly during the summer months. Discharge and pumping from the project can easily exceed the flow in the mainstem river.

Study 3.3.9 was finalized at about the same time the DLA was submitted and CRWC's review is not complete. This study was a 2-dimensional modeling of the Northfield Mountain tailrace upstream and downstream of the tailrace. Study results indicate that operations may entrain fish and slow migration progression. Flow reversals were demonstrated under a number of different scenarios, both upstream and downstream of Northfield Mountain's tailrace. This could impact migrating fish and also impact recreational use of the river in this area.

Study 3.2.2 is the hydraulic study and this study was already filed by the publication date of the DLA. An addendum to Study 3.2.2 was required, which was submitted in the middle of February. CRWC review is not complete. It appears that sites in the mid-Turners Falls pool experience summer-time sub-daily 2-4-ft fluctuations (the model shows 2.5-foot fluctuations in 3.2.2 Figure 5.1.2,-Scenario 4). This can impact riverbank erosion and recreational use of the river. According to the logger results, river levels generally decrease at midnight until mid-morning or mid-day, then steadily increase during the latter half of the day. This can have impacts on streambank erosion and recreational users downstream.

We expect the FLA will consider impacts from the flow regime and recommend PM&E measures.

Turners Falls Dam

The natural river channel below the Turners Falls Dam (the "bypass") is dewatered by project operations, destroying aquatic habitat, impacting river aesthetics, and eliminating recreation opportunity. Turners Falls dam is required to pass minimum flows of 1,433 cfs, which are typically passed at Station 1 or

Cabot Stations rather than at the dam. From May 1 to November 15, flows at the dam are required ranging from 150 cfs to 400 cfs. Neither flow is adequate for fish spawning, navigation, or recreation, and the river segment is listed as impaired by MassDEP and so violates state water quality standards because of flow alterations.

Study 3.3.1 is an instream flow habitat study, which is due to be completed in the fall of 2016. The results of this study will help drive recommendations for a modified minimum flow recommendation. CRWC will provide comments at a later date.

Study 3.2.2 is the hydraulic study and this study was already filed by the publication date of the DLA. An addendum to Study 3.2.2 was required, and this was submitted in the middle of February. CRWC review is not complete. Based on the August 11-16, 2012 graph downstream of the Turners Falls dam (Study 3.2.2 Appendix C), peaking flows out of the Cabot units can result in 5-ft sub-daily fluctuations in Montague and 4-foot sub-daily fluctuations at the Sunderland Bridge in the middle of the summer. Flows rapidly decrease at midnight until mid-morning or mid-day, then steadily increase during the latter half of the day. This impacts the recreational use of the river downstream.

E. Recreation

Many of FirstLight's recreation studies are now complete. We commented extensively in our letter prepared jointly with the Appalachian Mountain Club (AMC) on the Updated Study Report dated November 13, 2015 and incorporate some of the comments here. CRWC has not finished review of the Study 3.5.6, the user contact survey.

CRWC supports the recreation comments on the DLA filed by American Whitewater, AMC, New England FLOW, and the Town of Montague.

We believe the studies indicate interest in continuing and expanding recreational opportunities on and near the Project Areas. There are numerous aspects to the recreational offerings that could be improved. CRWC recommends that FirstLight organize a visioning session for recreational facility improvements for the new license. CRWC's preliminary thoughts are as follows:

- The recreational offerings, facilities, displays, and programming at Northfield Mountain Recreation Center has been a valuable resource to the area since it was established. Recreational interests of the public and even the climate has changed since the 1970's, however. Stakeholders, together with FirstLight, need to craft a vision for making the best use of the recreation center for the next 30-50 years.
- FirstLight should re-establish a river shuttle service to locations upstream of the Turners Falls Dam.
- Cabot Camp should be made accessible to the public and river access improved.
- The Poplar Street launch is inadequate and in poor condition; this was one of the more frequent comments made among whitewater study participants and among recreation comments on the USR. Improvements to parking are needed, as is the access down to the river, so that it can be made functional for paddlers. A design was completed for improvements by the Conway School of Landscape Design and these changes should be implemented, or a new design developed. Land acquisition could solve some of the limitations of the current site.
- Cabot Woods needs to be improved and redesigned, with better parking, weekend and evening access, trails improved including better park access from 15th Street in Turners Falls, and boat access for whitewater paddlers.

- The fish ladder viewing area needs to be improved
- River access and campsites sites should be available every 5 miles along the Connecticut River from the Vernon Dam to the Sunderland Bridge.
- There is public interest in creating more trails along the Connecticut River. FirstLight should commit to funding some of the work and allowing access in order to establish riverside trails.
- Boatable flows need to be established in the bypass channel.
- The whitewater study indicated that there was much potential and interest in whitewater releases in the bypass channel. FirstLight should provide for scheduled whitewater releases that are seasonally appropriate.
- Rather than the 3-mile proposal by FirstLight, a walkable and short portage should be established around the Turners Falls Dam, where details can be determined once a new minimum flow in the bypass channel is established. New access points in the bypass channel are possible and should be provided by FirstLight.
- An analysis should be made regarding the percent of project lands (outside of Northfield Mountain) that are under private vs. public use, and also areas where public is allowed to access the river or other properties vs. areas where it is not.

A better understanding of the permits or contracts between FirstLight and individual parties related to the private camps, the private clubs, private docks, and water withdrawals is needed to allow further comment.

F. Historic and cultural resources

CRWC did not review Study 3.7.2, which looked at historical architectural resources. We also understand that the Traditional Cultural Properties study, 3.7.3, has been submitted but the study is not complete without adequate participation by the tribes. We are unclear why FirstLight has not funded the completion of this important study and is not responsive to the participation of the Nolembeka Project in this study. The FLA should show a commitment to project access, historic preservation, economic development, and Native American culture and history.

CRWC supports the comments on the DLA filed by the Town of Montague.

G. Aesthetic resources

The DLA did not discuss the two largest aesthetic impacts of its operations: a dry river channel in the bypass region and the extent of modified riverbanks from erosion control projects in the Turners Falls pools. The FLA should propose operational changes and/or PME measures for these two impacts.

V. COMMENTS ON RECOMMENDED LICENSE CHANGES

Combining Projects

In the DLA, FirstLight is requesting that the two projects (Turners Falls and Northfield Mountain Pumped Storage) be combined into a single project with each facility being called a “development.” CRWC has no immediate objection to this proposal.

Changing the project boundary

FirstLight is proposing to change the project boundary by removal of two parcels: 20.1 acres of U.S. Geological Survey property and an 8.1-acre parcel at Fuller Farm. CRWC has no objection to the

changes suggested by FirstLight, however we note that the DLA states on page E-300, “In addition, the sensitivity analysis for the Fuller Farm property in Massachusetts found it to be sensitive for the presence of archaeological resources.” We recommend Massachusetts Historic Commission, FERC, and the Tribes evaluate whether a change of ownership would impact these resources.

Proposed Project Operations

FirstLight is proposing in the DLA that the operating range of Northfield Mountain’s upper reservoir be increased by 22 feet to operate between 920 to 1004.5 feet msl (compared to the existing license of 938 to 1000.5 ft msl). The proposal is to make this change permanent year round. Northfield currently has permission under a temporary amendment to do this during the winter; a similar temporary amendment allowed this change last winter between December and March.

As more studies come out, CRWC will be evaluating the impact of this proposal on erosion, fish passage, entrainment, fish habitat including sedimentation, odonates, recreation, and archaeological resources. Study 3.1.3 Sediment Monitoring Study is due to come out September 1, 2016, and the sediment management measures that are going to be recommended in this report ought to include analysis of the proposed project operations. If any of the studies are unable to assess the impacts of this proposal, we reserve the right to suggest a new study to assess impacts.

CRWC continues to believe that converting to a closed loop system would allow the applicant to expand operations without a worry of an increase in impacts.

V. CONCLUSION

CRWC reiterates that the DLA’s deficiencies preclude comment. Comment should be allowed on a complete DLA. CRWC reserves the right to submit further comment and amend these comments once complete information is provided.

Sincerely,



Andrea Donlon
River Steward