

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Great River Hydro LLC
Application for New License

Wilder Hydroelectric Project
FERC Docket No. P-1892-030

Bellows Falls Hydroelectric Project
FERC Docket No. P-1855-050

Vernon Hydroelectric Project
FERC Docket No. P-1904-078

AMERICAN WHITEWATER AND APPALACHIAN MOUNTAIN CLUB MOTION TO
INTERVENE AND COMMENTS IN RESPONSE TO NOTICE OF READY FOR
ENVIRONMENTAL ANALYSIS FOR THE TURNERS FALLS HYDROELECTRIC
PROJECT AND THE NORTHFIELD MOUNTAIN PUMPED STORAGE PROJECT
(FERC PROJECT NOS. P-1892-030, P-1855-050, P-1904-078)

American Whitewater and Appalachian Mountain Club (“AW/AMC”) hereby move to intervene in this proceeding pursuant to 18 C.F.R. § 385.210 and § 385.214. Service of process and other Communications should be made to:

Robert Nasdor
Northeast Stewardship & Legal Director
American Whitewater
65 Blueberry Hill Lane
Sudbury, MA 01776
bob@americanwhitewater.org

Mark Zakutansky
Director of Conservation Policy Engagement
Appalachian Mountain Club
100 Illick’s Mill Rd.
Bethlehem, PA 18017
mzakutansky@outdoors.org

I. Introduction

American Whitewater is a national non-profit 501(c)3 river conservation and recreation organization founded in 1954. We have approximately 7,000 members and 85 affiliate organizations, representing tens of thousands of whitewater paddlers across the nation. American Whitewater’s mission is to protect and restore our nation’s whitewater resources and to enhance opportunities to enjoy them safely. Our members, who are primarily conservation-oriented kayakers and canoeists frequently paddle on the Connecticut River. American Whitewater has a longstanding interest in the unique and highly valued recreational opportunities in the northeast region, and in particular, on Vermont and New Hampshire rivers in the area of Wilder, Bellows

Falls, and Vernon hydroelectric projects, FERC Docket Nos. P-1892-030, P-1855-050, P-1904-078. The license for the Wilder Hydroelectric Project was issued on December 10, 1979, August 3, 1979, and June 25, 1979, respectively, and expired on April 30, 2019. These projects have operated under annual licenses during this extended relicensing proceeding. FirstLight seeks a new 30-50-year license for the Wilder, Bellows Falls, and Vernon hydroelectric projects.

Since 1876, the Appalachian Mountain Club has promoted the protection, enjoyment, and understanding of the mountains, forests, waters, and trails of the Appalachian region. AMC is the largest conservation and recreation organization in the Northeast with more than 90,000 members, supporters and advocates, many of whom visit the project lands and waters upstream and downstream of the project for recreation.

AW/AMC have been involved with the relicensing of the Wilder, Bellows Falls, and Vernon hydroelectric projects since the filing on the Notice of Intent and Pre-application Document in 2012. Over the past 12 years, we have attended the scoping meeting, filed scoping comments and study requests addressing project effects on recreation and other resources, commented on proposed and final study plans, participated in the implementation of recreation studies, facilitated the completion of the whitewater boating study, attended study report meetings, commented on study reports, commented on draft, final, and amended final license applications, and attended countless settlement meetings with the licensee and other stakeholders in this relicensing proceedings. AW/AMC have numerous members who reside and recreate within easy proximity of the Wilder, Bellows Falls, and Vernon hydroelectric projects and the organizations and its members have a significant stake in the outcome of this proceeding. Federal actions that affect flow, access to the river and navigation may potentially have an adverse impact on opportunities for AW/AMC members to engage in recreational boating.

As a conservation-oriented organizations and outfitters, AW/AMC have a strong interest in the issuance of a new FERC license for the Wilder, Bellows Falls, and Vernon hydroelectric projects and the development of Protection, Mitigation & Enhancement (“PM&E”) measures that address project effects on the river ecosystem, project lands, and the surrounding communities. Throughout this relicensing proceeding, we have advocated for improved river flows, expanded recreation opportunities on the water and on licensee-owned lands, and improvements to other aspects of environmental quality. Our advocacy has principally focused on protecting and enhancing whitewater boating opportunities; through paddling on the Connecticut River Blueway; river access and portage; and promoting the outdoor recreation economy of the surrounding region. We have also supported efforts by state and federal resource agencies to restore the aquatic habitat as well and supported efforts by Tribal groups to protect cultural resources.

On December 7, 2020, the licensee filed an Amended Final License Application for the projects, and AW/AMC filed extensive comments in response to the AFLA on January 13, 2021, FERC Accession No. 20210113-5145. We file this Motion to Intervene and Comments in response to FERC’S Notice of Ready for Environmental Analysis of the licensee’s Amended Final License Application.

II. Grounds for Intervention

Intervention by AW/AMC is in the public interest as required by 18 C.F.R. §385.214(b)(2)(iii). AW/AMC has a significant interest in the recreational uses and other aspects of environmental quality of the Connecticut River at Turners Falls. No other party to the proceeding will be able to adequately represent those interests. AW/AMC has a direct and substantial interest in the outcome of this process.

III. Comments

As part of the relicensing process, TransCanada/GRH completed a whitewater boating study on two sections of the Connecticut River at Sumner Falls and Bellows Falls as requested by AW/AMC. The results of the whitewater boating study demonstrate that Sumner Falls and Bellows Falls provide high-quality whitewater boating experiences when appropriate flows are provided.

Downriver boating for both flatwater paddling day trips and through paddling on the Connecticut River Paddlers Trail is a popular recreational activity on the Connecticut River. The Connecticut River Paddlers' Trail provides one of the northeast's best options for multi-day paddling trips, with over fifty-five camping destinations and over 150 access Points.



Photo: Sumner Falls (Hartland Rapids)



Photo: Bellows Falls Bypassed Reach



Photo: Connecticut River Paddlers Trail



Photo: Connecticut River Paddlers Trail Campsite

Current operations by GRH divert and alter flows on the Connecticut River, diminishing recreational boating opportunities for both flatwater and whitewater paddlers. At Wilder, GRH currently operates as a peaking project storing and releasing flows as low as 675 cfs minimum flows to more than 10,000 cfs with no ramping. This peaking regime often makes through paddling and day-tripping impossible as flows change without notice and low flows make the river unnavigable, particularly during the summer months. Whitewater boaters at Sumner Falls are also affected by sudden flow changes that cause hydraulic river features to appear or evaporate based on the peaking cycle.

The effect of GRH's current operations is even more pronounced at Bellows Falls where the bypassed reach is completely dewatered except for leakage from dam seals and the presence of a low-head "salmon stopper" dam blocking passage at all but very high flows and creating a significant safety hazard at lower flows. Additionally, access to the bypassed reach is grossly inadequate. Other than leakage flows of approximately 300 cfs, the only time significant water is present in the bypassed reach is when inflows exceed the hydraulic and storage capacity of the project. But for GRHs facilities and operations preventing recreational

boating, Bellows Falls would provide a high-quality whitewater boating experience if these impediments were removed.

GRH filed an Amended Final License Application (AFLA) with FERC on December 7, 2020, seeking a new 30-50-year license for the Wilder, Bellows Falls, and Vernon hydroelectric projects. The AFLA is the basis for GRH's application to VTDEC and NHDES for water quality certification. In its AFLA, GRH proposes certain changes to the way it operates these projects to reduce the frequency of hydropeaking. Essentially, it proposes to limit the number of hours each month it can store and release flows, typically 10-65 hours monthly, based on peak demand-based energy pricing. Other proposed changes relate to impoundment level changes, minimum flows, and ramping. The AFLA proposes no meaningful changes that would restore natural flow patterns in the Bellows Falls bypassed reach or mitigation for project impacts on recreation.

While hydropeaking limits will reduce the frequency of sudden flow changes, it will not restore the natural flow regime. Hydropeaking from the upstream dam at Fifteen Mile Falls will continue daily pulse flows into Wilder that will not be re-regulated. Hydropeaking at Wilder, Bellows Falls and Vernon will continue to pass peaking flows provided by Fifteen Mile Falls and will be allowed to peak additionally, with the downstream most project being provided additional peaking flows at times from the upstream projects, compounding peaking on the river system at each successive project. The hydropeaking impacts will be cumulative and essentially triple allowable flow fluctuations, and the GRH will have the ability to generate at capacity whenever ISO-NE indicates that the region's power grid is short of operating reserves, potentially allowing peaking on demand.

As proposed, the GRH application for a new 30-50-year FERC license will adversely affect current and future recreation opportunities in a variety of ways. Wilder, Bellows Falls, and Vernon have inadequate portage routes that are difficult to traverse, and in the case of Bellows Falls, highly dangerous. Although reduced, flows downstream of Wilder will continue to fluctuate without notice, making advance planning for paddling impossible during the summer months. Hydropeaking limits will reduce or eliminate optimal whitewater boating flows at Sumner Falls throughout the year and make through-paddling and day-tripping along the Connecticut River more difficult during the summer months.

In the Bellows Falls bypassed reach, GRH proposes no access improvements, inadequate minimum flows, no scheduled whitewater boating flows, no real-time flow information, and no removal of the dangerous low-head dam. As proposed, the AFLA will degrade recreational boating for through-paddlers and day trippers from Wilder to Vernon, degrade whitewater boating opportunities at Sumner Falls, and eliminate any meaningful opportunities for whitewater boating in the Bellows Falls bypassed reach. The effects of the GRH on recreational boating on the Connecticut River are more fully described in the AW/AMC comments on the AFLA filed with FERC and attached here.

On December 1, 2020, Great River Hydro entered into a Memorandum of Understanding with resource agencies regarding the proposed modifications to the GRH

licenses for the project. While the MOU outlines changes to the flow regime that address certain aquatic-related concerns, the MOU does not address recreation interests. In fact, the MOU expressly excludes certain issues including recreation and whitewater boating on the Connecticut River affected by project facilities and operations from consideration by state agencies responsible for water quality certification. Nor does the MOU address FERC's responsibility for giving equal consideration to recreation uses under the Federal Power Act.

Likewise, nothing in the August 2, 2022, Fish Passage Settlement Agreement (FPSA) limits the ability of state water quality certifying agencies to assure that project facilities and operations meet water quality standards, nor does it limit FERC's equal consideration obligations under the Federal Power Act. Specifically, the provision in the FPSA limiting the ability of certain resource agencies to advocate for the removal of the low-head dam in the Bellows Falls bypassed reach prevents FERC, VTDEC, or NHDES from conditioning water quality certification on requiring GRH to remove the recreation blocking dangerous low-head dam at Bellows Falls.

AW/AMC requests that FERC fully consider the impact of the hydropower dams and operations on recreation uses at Wilder, Bellows Falls, and Vernon. These uses include but are not limited to project effects on recreational boating by through paddlers and whitewater boaters on the Connecticut River. As more fully described in the AW/AMC AFLA comments, we request that FERC fully analyze projects effects on recreational boating in its NEPA analysis for these projects and include conditions in any future project license that provide for the following measures in order to meet water quality standards:

- Timeshift flow releases from Wilder to store and release variable inflows to provide adequate flows for through paddling and whitewater boating at Sumner Falls on weekends during the boating season;
- Provide scheduled whitewater releases in the Bellows Falls bypassed reach on 28 days annually on weekends during the boating season;
- Improve portage routes at Wilder, Bellows Falls, and Vernon dams;
- Provide real-time flow information at each of the projects as well as at Sumner Falls and the Bellows Falls bypassed reach;
- Provide put-in ingress and take-out egress in the Bellows Falls bypassed reach;
- Remove the low-head dam in the Bellows Falls bypassed reach;
- Provide paddler campsites along the Connecticut River Paddlers Trail from the top of the Wilder impoundment to the Vernon Dam.

Conclusion

Granting intervenor status to AW/AMC will not delay this proceeding. No other party represents AW/AMC interest in this proceeding. For these reasons, the Commission should accept this motion to intervene in this proceeding.

Respectfully submitted this 13th day of May, 2024

<p>Robert Nasdor Northeast Stewardship & Legal Director American Whitewater 65 Blueberry Hill Lane Sudbury, MA 01776 bob@americanwhitewater.org</p>	<p>Mark Zakutansky Director of Conservation Policy Engagement Appalachian Mountain Club 100 Illick's Mill Rd. Bethlehem, PA 18017 mzakutansky@outdoors.org</p>
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UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Great River Hydro, LLC

Wilder Project No. 1892-026
Bellows Falls Project No. 1855-045
Vernon Project No. 1904-073

AMERICAN WHITEWATER, APPALACHIAN MOUNTAIN CLUB AND
NEW ENGLAND FLOW COMMENTS ON AMENDED FINAL LICENSE
APPLICATION FOR GREAT RIVER HYDRO, LLC FOR WILDER,
BELLOWS FALLS, AND VERNON HYDROELECTRIC PROJECTS
(FERC NOS. 1892-026, 1855-045, AND 1904-073)

Pursuant to 18 CFR § 5.20-5.21, American Whitewater, Appalachian Mountain Club, and New England FLOW submit to the Federal Energy Regulatory Commission (herein FERC or the Commission) comments identifying application deficiencies in response to the Amended Final Licensing Application (here in AFLA) submitted by Great River Hydro, LLC for the Wilder, Bellows Falls, and Vernon hydroelectric projects on December 7, 2020 and requests for additional information from Great River Hydro, LLC.

Background

American Whitewater (AW) is a national non-profit 501(c)(3) river conservation and recreation organization founded in 1954 whose mission is to protect and restore our nation's whitewater resources and to enhance opportunities to enjoy them safely. Our members are primarily conservation-oriented kayakers and canoeists, many of whom live and/or engage in recreational boating in Vermont, and New Hampshire. As a result, we have a strong and direct interest in the availability of whitewater flows both at Sumner Falls and Bellows Falls.

Since 1876, the Appalachian Mountain Club (AMC) has promoted the protection, enjoyment, and understanding of the mountains, forests, waters, and trails of the Appalachian region. AMC is the largest conservation and recreation organization in the Northeast with more than 90,000 members, supporters and advocates, many of whom live within two hours of the Connecticut River and would use the Sumner Falls and Bellows Falls sections of the Connecticut River for whitewater boating and the rest of the river and surrounding lands for quieter recreation.

New England FLOW, created in 1988, is a regional non-profit organization whose affiliations have represented whitewater boaters, canoeists, rafters, and other river users on multiple project relicensings throughout New England for over twenty years. FLOW is the largest coalition of whitewater boaters in the northeast, many of whom live within two hours of the Connecticut River and would enjoy whitewater boating opportunities at Bellows Falls and Sumner Falls and flatwater paddling on the rest of the river.

American Whitewater (AW), the Appalachian Mountain Club (AMC), and New England FLOW (FLOW) have participated in this relicensing process following our longstanding interest in the highly valuable recreation and conservation opportunities on the Connecticut River. We have previously submitted comments on the Pre-Application Document, submitted study requests, participated in the Whitewater Boating Flow Assessment at Sumner Falls and Bellows Falls (Study 31) and have submitted comments in response to the Study Reports and have filed comments in response to the Draft License Application. We incorporate our previously submitted comments by reference and submit these additional comments in response to the licensee's Amended Final License Application.

Deficiencies of the Amended Final License Application and Requests for Additional Information

The licensee does not propose appropriate mitigation for project impacts on whitewater and through paddling on the Connecticut River, nor does the Amended Final License Application provide FERC with sufficient information to conduct its environmental assessment of project impacts under the National Environmental Policy Act (herein NEPA), and has not fulfilled the Commission's requirements under §§5.18 and 5.19.

Specifically, the Amended Final License Application lacks the following information, analysis and mitigation elements, which AW, AMC and New England FLOW hereby request of the applicant pursuant to 18 CFR § 5.21:

- 1) Data on projected flow ranges as would be provided by the flow regime proposed in the AFLA that may impact whitewater boating opportunity at the Sumner Falls recreation area below the Wilder project as well as in the Bellows Falls natural river bypassed reach. Data should be provided in a range showing low water and average water years and quantify the number of days that flows would be projected to fall below 5,000 cubic feet per second at Sumner Falls; the number of days below 10,000 cfs; and data showing the frequency of days that flows in the Bellows Falls bypass reach will be no less than 2,500 cubic feet per second.
- 2) Data on projected flow ranges as would be provided by the flow regime proposed in the AFLA that may impact on day trippers and through paddlers on the Connecticut River Paddlers Trail above, at and below the projects during daytime hours during the recreation paddling season. Data should be provided in a range showing low water and average water years and quantify the number of days that flows would be projected to fall below 2,500 cubic feet per second.
- 3) An analysis of the flow regime proposed in the AFLA in relation to findings and recommendations of the Whitewater Boating Flow Assessment at Sumner Falls and Bellows Falls (Study 31), identifying impacts to the flows utilized by and preferred for whitewater recreation.
- 4) Project protection, mitigation, and enhancement (PM&E) elements that would appropriately mitigate project related impacts on river, riparian and upland recreational uses. PM&E elements not included in the AFLA but recommended by the stakeholders on the DLA (Accession No. 20170301-5205) included developing new primitive campsites for through paddlers; developing and enhancing public

access points; improving portage trails; developing public education; providing scheduled whitewater flows in the Bellows Falls bypass and below the Wilder Dam; and, to remove the low-head dam in the Bellows Falls bypassed reach.

Given the substantial changes proposed in the Amended Final License Application as compared to the licensee's draft and final license applications, the public has been denied an opportunity to comment on the proposed licensing plan and the licensee has not been required to respond to public comment on its new licensing proposal. Accordingly, we request that FERC revise the project licensing schedule to provide the public with an opportunity to comment on the Amended Final License Application and require the licensee to respond to any comments filed by stakeholders in response to its Amended Final License Application.

Additionally, we request that FERC issue an Additional Information Request and/or a Notice of Deficiency to require that the licensee provide detailed information and modeling demonstrating the impact of its proposed flow regime on recreational boating opportunity in and below the project boundaries including but not limited to whitewater boating opportunity at the Sumner Falls recreation area below the Wilder project as well as in the Bellows Falls natural river bypassed reach. In addition, the licensee should provide detailed information and modeling on the impact of its new flow regime on paddler utilizing the Connecticut River Paddlers Trail and associated facilities. Additionally, we request that the applicant provide the information and analysis requested herein, as well as proposed PM&E measures that would appropriately address impacts to these resources.

Comments on the Amended Final License Application

After filing its Draft License Application, soliciting and responding to comments from stakeholders, and subsequently filing its Final License Application according to the Integrated Licensing Process, the licensee now proposes an entirely new flow regime in the Amended Final License Application that fails to accurately analyze or mitigate project impacts on river-based recreation at and below any of its projects undergoing relicensing in this proceeding.

The licensee is in exclusive possession of project inflow data and operations models that would enable stakeholders, resource agencies, and the Commission to properly balance all resources in order to develop the best adapted plan for managing the projects under a new license.

Subsequent to the filing of its Final License Application, the licensee engaged with resource agencies and certain stakeholders regarding alternative flow regimes at all three of its hydropower projects in relicensing and entered into a Memorandum of Understanding (MOU) included in the AFLA. While the MOU and the new flow regime addresses some resource impacts, is not the product of comprehensive settlement negotiations and does not address project impacts on recreational use and the exacerbation of those adverse impacts that flow from its proposed alternative flow regime. Having elected to exclude from its negotiations our organizations representing the interests of recreational boaters on the

Connecticut River, the licensee's proposal can best be described as a partial agreement that addresses certain resource impacts but fails to address the licensee's impact on other resource areas. While we see some positive aspects to certain aspects of the Amended Final License Application, we cannot support a plan that fails to adequately address all resource needs.

Given the substantial changes proposed in the Amended Final License Application as compared to the licensee's draft and final license applications, the public has been denied an opportunity to comment on the proposed licensing plan and the licensee has not been required to respond to public comment on its new licensing proposal. Accordingly, we request that FERC revise the project licensing schedule to provide the public with an opportunity to comment on the Amended Final License Application and require the licensee to respond to any comments filed by stakeholders in response to its Amended Final License Application.

Licensee's Current and Proposed Operations

- Current Operations

Great River Hydro is seeking a new license for its hydropower projects on the Connecticut River. Under its existing License, The licensee operates three hydropower dams, the 35.6 MW Wilder Development, the 40.8 MW Bellows Falls Development, and the 32.4 MW Vernon Development.

The Wilder Dam impoundment extends upstream 45 miles with a surface area of 3,100 acres and a total usable storage of 13,350 acre-feet. Under the current license, the impoundment has a 5-foot operating range, but more typically, pool levels fluctuate approximately 2.5 feet. The project has a hydraulic capacity of 12,600 cfs, but ranges from a minimum flow of 400 to 11,700 under normal project operations. The drainage area at the Wilder Dam is 3,377 sq. mi. and the minimum conservation flow under the current license is 675 cfs or 0.2 cfs/m.

Inflow into the Wilder Project is derived from 1) discharge from the Fifteen Mile Falls Project (FERC No. P-2077) located 58 miles upstream with a 1.635 sq. mi. drainage area above Comerford, and 2) natural inflow of 1,740 sq. miles between McIndoes development and Wilder Dam. According to the PAD, under normal generation conditions it takes about 8 hours for flow releases from the upstream McIndoes Dam to reach Wilder Dam. Late afternoon peaking operations at McIndoes would typically arrive at Wilder after midnight; however, under current operations, the licensee pre-draws the Wilder impoundment for peaking generation during late afternoon and evening hours using its storage capacity in the Wilder impoundment. While the maximum hydraulic capacity of the Fifteen Mile Falls project is 5,800 cfs, the additional drainage area combined with flow attenuation reduces the effect of upstream peaking operations at the Wilder Dam to approximately 2,000 cfs from peak to low flow on any given day. The impact of hydropeaking operations at McIndoes can be seen on the Connecticut River USGS gage at Wells River (USGS-01138500) upstream of Wilder with a drainage area of 2644 sq. mi..

Upstream peaking operations combined with higher spring flows result in flows at or above the hydraulic capacity of the project during April and May approximately 90 percent of the time in most years, essentially passing all inflows during this period. Inflows at the Wilder Project are typically within the hydraulic capacity of the powerhouse by May in most years. With the exception of significant rainfall events, after this period the Wilder Project alters flows between the Wilder Dam and the Bellows Falls impoundment through peaking operations causing flows on the Connecticut River to fluctuate between the minimum flow and maximum generation flows under normal project operations except during spill events.

The reach between the Wilder and Bellows Falls dams extends 43.7 miles. Outflows from the Wilder Project impact the Connecticut River for 18 miles below the Wilder Dam including the Hartland rapids (Sumner Falls) located 13 miles downstream until flows reach the upper extent of the 26-mile Bellows Falls impoundment at normal full pond elevation of 291.63 msl. The Bellows Falls Project has a maximum 3-foot drawdown and 7,476 acre-feet of usable storage and a surface area of 2,804 acres at full pond; however, under normal operations fluctuates the impoundment less than 2 feet. It takes about 8 hours for flow releases from the upstream Wilder dam to reach Bellows Falls dam under normal conditions. The Bellows Falls Project has a drainage area of 5,414 sq. mi. and a required minimum flow release of 1,083 cfs or 0.2 cfsm below the powerhouse under its current FERC license.

The Bellows Falls Project diverts all flow from the Connecticut River into the Bellows Falls power canal, completely dewatering the 3500-foot natural river bypassed reach except when flows exceed the hydraulic capacity of the powerhouse turbines. Project turbines have a hydraulic range of 1,083 cfs to 11,400 cfs. Under normal project operations, the flow diversion leaves only minimal leakage of 125-300 cfs from faulty dam seals in the bypassed reach. There is no minimum flow requirement for spill into the bypassed reach under the current FERC license.

Toward the lower end of the bypassed reach, the river narrows as the channel crosses the Vilas Bridge. In order to mitigate project impacts on migrating Atlantic Salmon, the licensee's predecessor constructed a low-head dam to block upstream migrating fish from entering the bypassed reach. With the abandonment of the Atlantic Salmon restoration program by the USFWS, the fish dam no longer serves any aquatic purpose. The presence of the fish dam and the lack of flow into the bypassed reach has destroyed aquatic habitat, prevented fish from accessing the bypassed reach, and has eliminated meaningful recreation opportunities.

- Proposed Operations

The licensee proposes to change its mode of operation at each of its three hydropower projects undergoing relicensing from a strictly peaking mode to a modified run-of-release/peaking mode. Flows from upstream projects at Fifteen Mile Falls will continue to affect flows on the Connecticut River notwithstanding the proposed change in mode of operation as the upstream developments will continue to operate under their existing FERC

license, storing and releasing flows based on energy markets. The licensee does not propose to restore “run-of-river” conditions at the three projects undergoing relicensing, rather it proposes to pass upstream peaking flows some of the time, and at other times plans to continue hydropeaking at each of its projects.

The licensee, through negotiations with resource agencies, has executed a Memorandum of Understanding filed with the AFLA that will place certain restrictions on its peaking operations to limit the number of hours monthly that it can hydropeak its generation, limit impoundment fluctuations, and limit the rate of impoundment refill. These restrictions will allow limited discretionary generation at times of peak energy pricing. At other times, generation will occur at current energy peak and off-peak pricing based on actual inflow.

While the shift in operation from peaking to hybrid run-of-release/peaking mode will have little impact on overall generation and the projects will retain its ability to respond to grid emergencies, limits on impoundment fluctuation, peaking hours, and to a lesser extent refill rates will limit the operational flexibility of the projects. More significantly, the change will substantially reduce the ability of the projects to generate during peak demand hours. For example, inflows from Fifteen Mile Falls will arrive at Wilder around midnight, assuming that peak generation upstream occurs during the late-afternoon hours when demand and prices increase.

Outside of the limited discretionary generation that the licensee will be allowed under its new flow proposal, peak generation will shift to off-peak hours. While we recognize that the licensee will retain the ability to generate during the most profitable hours, the change in operations will certainly affect energy supply. The licensee has not quantified the impact in its Amended Final License Application.

Our organizations are members of the Hydropower Reform Coalition, and we recognize that hydropower will continue to play a role in a clean energy future. We recognize that hydropower generation provides grid stability and load balancing, increasingly important as we transition to bringing more wind and solar energy sources onto the grid. Over the 30 to 50 year term of a new FERC license, efforts to limit climate change impacts will result in greater reliance on wind and solar energy sources, and simultaneously, greater reliance on flexible energy sources such as hydropower. While advances in battery storage hold great promise, hydropeaking will continue to be the primary grid-scale energy storage component of the energy grid for the future.

Energy demand net of renewables has created the “duck curve” reflecting the imbalance between renewable energy generation and the demand for power from other energy sources including hydropower. Already in some areas, this imbalance has resulted in negative energy pricing. Shifting generation from peak to off-peak hours will result in greater reliance on carbon polluting energy sources.

The Amended Final License Application fails to provide sufficient information to allow FERC to fully understand the impact of the proposed flow regime on river hydrology, and related river-based recreation. While detailed inflow data and operations model runs would

provide an understanding of run-of-release operations and we request that FERC require the licensee to provide this information, the licensee also needs to provide information on how the proposed flow regime will affect the frequency of its peaking operations through participation in real-time energy markets. In addition to passing peaking flows from Fifteen Mile Falls during overnight off-peak hours, we expect that the licensee will utilize its flexible generation budget to bid into the hourly real-time markets where hourly generation prices can reach into the hundreds of dollars per MWh.

The proposed flow regime incentivizes the licensee to frequently bid into real-time markets to generate for 1-hour periods without up-ramping and taking advantage of down-ramping requirements for additional peak generation not charged to its discretionary generation budget. During the warm summer months, for example, the hydrograph will likely show daily peaks during the overnight hours from upstream flows from Fifteen Mile Falls, and in addition, daytime peaks on up to 20 days monthly from hourly generation based on real-time energy markets. While the flow proposed regime will reduce the magnitude and the duration of high flows, the frequency of generation pulse flows will likely increase under the proposed flow regime.

Recreation on the Connecticut River

Both flatwater and whitewater boating are protected designated and existing uses along the Connecticut River including from the top of the Wilder impoundment to the Vernon tailrace near the Massachusetts border.

- Connecticut River Blueway and Paddlers' Trail

Downriver boating for both flatwater paddling daytrips and through paddling on the Connecticut River Paddlers Trail is a popular recreational activity on the Connecticut River. On May 24, 2012, former Secretary of the Interior Ken Salazar announced that the 410-mile long Connecticut River and its 7.2 million-acre watershed as the first National Blueway - covering large areas of Vermont, New Hampshire, Massachusetts and Connecticut. The designation was part of President Obama's America's Great Outdoors Rivers Initiative to establish a community-driven conservation and recreation agenda for the 21st century.

The Connecticut River National Blueway designation recognizes the collaborative leadership of more than 40 partner organizations under the umbrella of the Friends of the Silvio O. Conte National Fish and Wildlife Refuge and the cumulative successes of the Connecticut River Watershed Council, states, and many other partners. Running from the Canadian border to Long Island Sound, the Connecticut River and its watershed include 2.4 million residents and 396 communities. The existing Silvio O. Conte National Fish and Wildlife Refuge conserves native plant, fish and wildlife species and the ecosystems on which they depend throughout the Connecticut River watershed. The Refuge works in partnership with a wide variety of individuals and organizations to provide environmental education, to encourage and support appropriate habitat

conservation and management on public and private lands, and to protect additional habitat.

In 2014, Secretary of Interior Sally Jewell affirmed the designation of the designation of the Connecticut River Blueway Designation, releasing an Order stating:

In light of its successful designation, on-the-ground accomplishments, and ongoing, broad support, I hereby reaffirm the designation of the Connecticut River and Watershed as a National Blueway. The Connecticut River Watershed exemplifies coordinated stewardship of a river and its watershed with diverse partnerships of interested communities including over 40 partner organizations, protection of over 2 million acres of habitat, environmental and educational efforts aimed at urban and rural populations, and recreational access to the river, its tributaries, and public lands. The Department is committed to promoting best practices, sharing information and resources, and encouraging active and collaborative stewardship of the Connecticut River and Watershed.





Photos: Paddling along the Connecticut River

With hundreds of access points and over 55 primitive campsites, the Connecticut River provides a unique experience to paddle through the heart of New England. The Connecticut River Paddlers' Trail is a series of primitive campsites and river access points from its headwaters in New Hampshire's Great North Woods south to Long Island Sound. Over 20 organizations assist with trail planning and development, building and maintaining campsites, improving access points and portage trails, and disseminating information to visitors.

With the support of the community, work continues to protect the river corridor, construct new campsites and portage trails, and expand the Paddlers' Trail from source to sea. The Connecticut River Paddlers' Trail provides one of the northeast's best options for multi-day paddling trips, with over fifty-five camping destinations and over 150 access points. In 2012, through the leadership of the Appalachian Mountain Club, the Connecticut River Conservancy, the Silvio Conte Fish and Wildlife Refuge, and the Trust For Public Land, an initiative to expand the trail south into Massachusetts and Connecticut was launched. The primary goal of this expanded effort is to close the gaps in primitive campsite availability from source to sea. Two new campsites have been constructed in Massachusetts, and one in Connecticut, with more on the way.



Photo: Connecticut River Paddlers Trail campsite

- Whitewater Boating

Approximately 9 miles downstream of the Wilder Dam in Hartland, VT are a series of shale ledges creating Class II/III whitewater boating features known as Sumner Falls or Hartland Rapids. The location is a popular whitewater boating play spot with numerous features that are enjoyed by a variety of boat types and boater skill levels at various flows. According to the Whitewater Boating Flow Assessment, acceptable boating flows ranged from 3,500 to 13,000 cubic feet per second. Generally, optimal boating flows corresponded to generation provided by one or both of the Wilder Kaplan turbines, and as a result, recreation at Sumner Falls is a popular summer recreation activity.

Sumner Falls provides a variety of play opportunities at flows between 3,500 and 13,000 cubic feet per second. The waves and holes form on a series of ledges that span the Connecticut River at one of its few gradient drops that remains un-harnessed for hydro-power. The combination of a huge upstream catch basin and daily dam releases has caused the "Hartlands Wave" to become a mainstay of summertime boating in northern New England. Flow at Hartlands fluctuates significantly both seasonally and daily due to the influx of water from the White River, the Mascoma River, the Ottaqueechee River, and Wilder Dam on the Connecticut. Whitewater boating on this section of the Connecticut River was recognized by Vermont in its Lower Connecticut River Direct Drainage Assessment Report for Basin 13 (April 2002) as well as in the American Whitewater River Database.¹

¹ <http://www.americanwhitewater.org/content/River/detail/id/3606/>

The nearest USGS gage located on the Connecticut River at West Lebanon is about eight miles upstream. It is downstream of Wilder Dam and the White River, and upstream of the Mascoma and Ottauquechee Rivers. Water level conditions recorded at the gauge take about three hours to reach Sumner Falls. The scheduled Wilder release times and amounts on any given day are available via their flow-phone and Waterline website but the recorded release information can be unreliable according to the Ledyard Canoe Club at Dartmouth that frequently boats at the Hartland Rapids.



Photo: Whitewater Boating at Sumner Falls (Hartland Rapids)

In response to study requests by AW, AMC, and FLOW, FERC required the licensee to conduct a controlled-flow whitewater boating study at Sumner Falls and in the Bellows Falls natural river channel bypassed reach. In its Study Plan Determination, FERC required that the licensee to follow the flow assessment framework developed by Whittaker, Shelby, and Gangemi in *Flows & Recreation: A Guide to Studies for River Professionals (2005)*, a widely adopted methodology for assessing flows on regulated rivers for recreation and aesthetics. The methodology provides a protocol for identifying minimum acceptable and optimal flows for boating, angling, and aesthetic viewing through a multiple flow assessment. The whitewater boating study confirmed that Sumner Falls and Bellows Falls are valuable whitewater boating resources.

Study Participants rated nine characteristics of boating for each flow including: its boatability, difficult rapids, large hydraulics, and the availability of playboating, potential instream hazards and the overall whitewater challenge. All boaters rated both sites and each flow as higher than acceptable across the entire range of flows, and would provide an

important regional resource throughout the paddling season if water was available on a regularly scheduled basis.

Study participants documented that there are many “catch on the fly” waves at Sumner Falls and the area is an excellent place for training beginning boaters and for playboaters. At generational and higher flow levels, the study found that this site provides excellent surfing and currents for squirt boating. At moderate flows the run provides opportunities to complete a wide array of acrobatic tricks called “freestyle” paddling. All manufacturers of kayaks design boats for this purpose.

The recreational use of the resources at Sumner Falls has the potential to add economic value to the region, given its central location and its proximity to Dartmouth College, Norwich University, and the communities of Bellows Falls, Springfield, and White River Jet., Vermont, as well as Lebanon, New Hampshire. Boaters would flock to Sumner Falls when other regional resources dry up after spring runoff if predictable flows were provided at Sumner Falls.

At Bellows Falls, the bypass reach located in the natural riverbed of the Connecticut River has the ability to offer paddling opportunities of sufficient quality when sufficient flows are provided. Study participants evaluated 9 different flows over the course of two days that ranged from Class II to Class IV, and because of the fish barrier dam at the end of the run, boaters were unable to evaluate flows in the lower portion of the bypass reach. While all flows were considered boatable by the participants, there was a diversity of opinion regarding which flows were optimal depending on skill level and craft. Most participants agreed that the boating public would utilize the resource providing that there was sufficient flow, adequate access, and removal of the fish barrier dam. See video documentation of Bellows Falls whitewater boating study at <https://youtu.be/GIJoPcRQTCA>

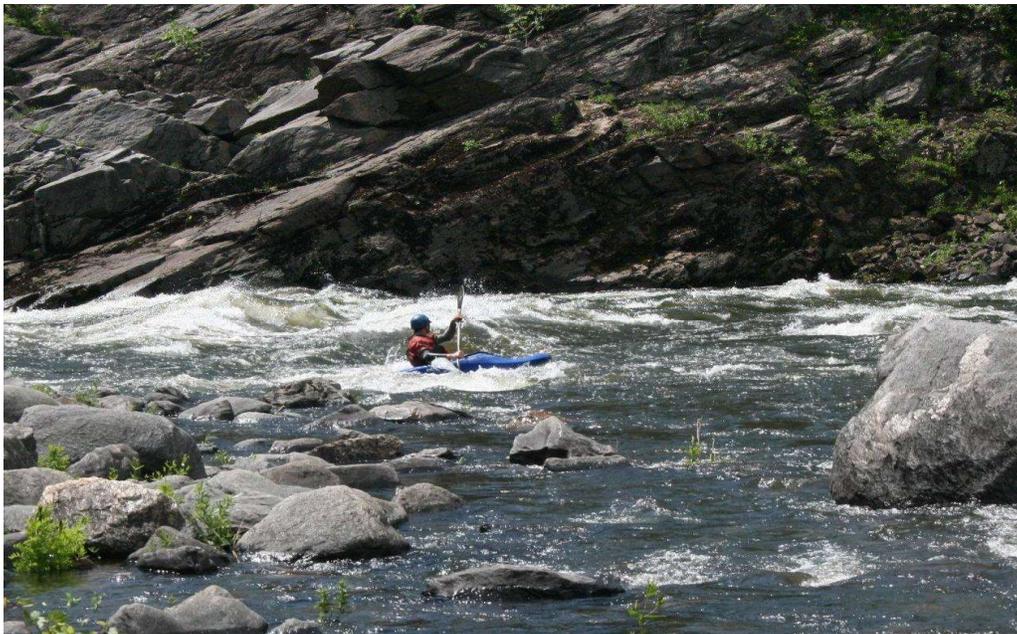


Photo: Whitewater boating at Bellows Falls

During the 2-day boating evaluation at Bellows Falls, participants evaluated 9 boating flows, all of which provided at least a minimum acceptable rating, although the lowest flow of 1,580 cfs was closer to marginal. As at Sumner Falls, ratings varied by craft and skill level; however, the length of the run and access difficulties were more desirable for those in kayaks than open boaters. In addition, the presence of the fish barrier dam and the inability of participants to evaluate rapids in the barrier dam pool or between the barrier dam and the tailrace will likely impact on optimal flow levels for the entire reach. In addition, the possibility of developing a whitewater park in the natural river channel will also need to be considered when designing features for particular flow levels.

The Bellows Falls flow evaluation did, however, produce useful information regarding optimal boating flows in the upper portion of the study area. The highest participant responses showed a double peak, as was the case at Sumner Falls, with flows in the areas of 2,500 cfs and 5,000 cfs generally producing the highest overall satisfaction for the majority of participants. We agree with the study results suggesting that there is potential for this area to provide whitewater opportunities.

Determining how Bellows Falls would compare to other regional boating opportunities is difficult to determine at this stage, as issues such as flow levels, access, removal of the fish barrier dam, and the possibility of developing a whitewater park will all impact on the desirability of the boating opportunity. There are very few scheduled boating releases in the region, particularly during the summer months. Providing seasonally appropriate guaranteed flows into the natural river channel would provide a highly valuable regional boating opportunity throughout the late-spring to fall boating season.

Impact of Licensee Current and Proposed Operations on Recreation Opportunity

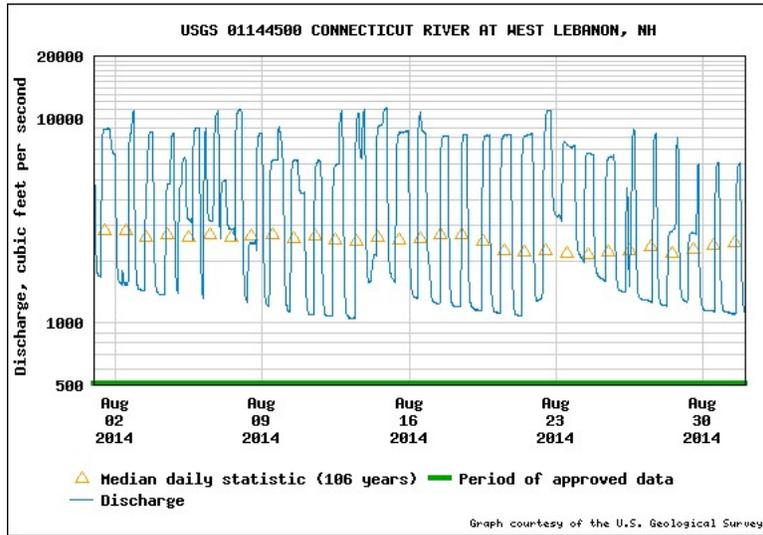
As part of its Environmental Assessment, FERC must consider the impact of current and alternative modes of operation on other resources including recreation as part of its mandate to give equal consideration to non-developmental values in order to develop the best adapted plan for the river. Regarding the three Great River Hydro, LLC projects being relicensed, FERC is required to evaluate the impact of the licensee's flow diversion and flow alteration on recreation opportunity in and below the project boundaries on the Connecticut River.

- Current Operations

Under its current FERC license, the Wilder, Bellows Falls, and Vernon projects have a negative impact on recreational boating. Project operations significantly alter flows on the Connecticut River resulting in widely variable flows from less than 1000 cfs to more than 10,000 cfs from the Wilder Dam to the Northfield Mountain Pumped Storage Project in Massachusetts. Current operations store and release inflows on short notice resulting in flows that are too low to paddle or short duration releases that can strand paddlers downstream. While flows are predictably high during the spring freshet when flows are above the hydraulic capacity of the projects, flows vary widely during other periods.

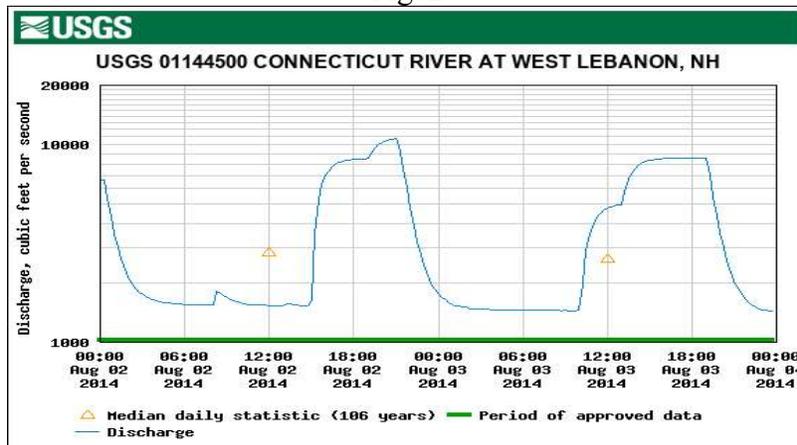
For through paddlers on the Connecticut River Paddlers Trail who require flows of at least 2500 cfs to travel from Wilder to Bellows Falls, Wilder hydropeaking operations frequently result in flows that are too low to paddle during weekend recreation days as illustrated below on the USGS gage below:

Fig. 1



A closer look at the weekend of August 2 - 4 in 2014, for example, shows that generation from Wilder resulted in flows that gyrated from minimum flows (plus additional inflow from the White River) during overnight hours followed by peak generation during afternoon and evening hours. Given the 8 hours of travel time between Wilder and Bellows Falls dams, the ability of through paddlers on the Connecticut River Paddlers Trail were severely impacted by project generation during this weekend such that a paddling trip would likely be futile. For both day trippers and through paddlers, Waterline provides the day-ahead notice of anticipated generation, but does not include unplanned generation from the licensee's participation in real-time energy markets which makes planning difficult because actual flows may vary significantly.

Fig. 2



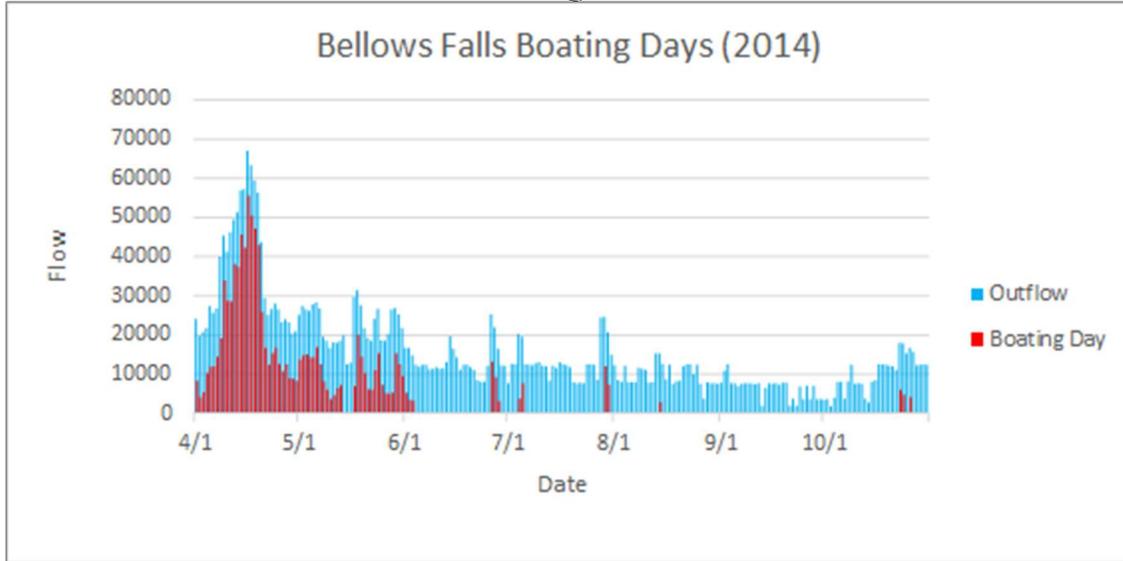
Connecticut River day trippers and through paddlers are also challenged by the lack of adequate portage trails at the Wilder, Bellows Falls, and Vernon dams. At Wilder, the trail is steep, rocky, and potentially dangerous on the way to the put-in. At Bellows Falls, the portage trail is excessively long and travels along the breakdown lane of a major state highway. At Vernon, trash blocks the portage time-out, and the trail is steep. All three portage routes should be significantly improved for the recreational benefit of downriver paddlers.

For whitewater boaters at Sumner Falls, Wilder generation similarly impacts recreational use below the project. According to the licensee's whitewater boating study, the minimum acceptable flow for whitewater boating at Sumner Falls is 3500 cfs, and optimal flows for whitewater boating are present at flows ranging from 5000-13,000 cfs. The release of minimum flows during daytime hours eliminates all ability to boat at Sumner Falls during those hours. At the same time, afternoon generation at Wilder frequently results in the release of optimal flows at Sumner Falls during late afternoon or early evening hours (assuming a 3-hour water travel time) that provide high-quality whitewater boating opportunities during the summer months when the days are long. While the day-ahead forecast on Waterline provides some opportunity for planning on short-notice, generation based on the real-time market provides little recreation opportunity because the timing and duration of generation is unknown.

For whitewater boaters at Bellows Falls, the impact of the licensee's flow diversion, the presence of its low-head dam, and its lack of suitable access in the bypassed reach eliminates nearly all whitewater boating opportunity at the project. The reach is periodically paddled at very high flows when the licensee spills flows into the bypassed reach when inflows exceed the hydraulic capacity of the project. At other times, the project eliminates all whitewater boating opportunities in the bypassed reach by diverting all flow into the bypassed reach other than leakage from faulty dam seals.

Based on the flow exceedance charts in the Final License Application, historical monthly mean flows exceed 2500 cfs in every month including during the boating season from April through October, flows that would otherwise be boatable in the bypassed reach but for the flow diversion of up to 11,400 at the Bellows Falls Dam for project generation. Bellows Falls Project outflows exceeded the hydraulic capacity of the project and spilled boatable flows greater than 2500 cfs into the bypassed reach during the boating season as shown on Fig. 2 below. Predictably, spillage of boatable flows into the bypassed reach was primarily limited to the spring season as shown in this average water year. In addition, the licensee does not provide real-time information on anticipated bypassed reach spillage.

Fig. 3



Inflows on the Connecticut River above the project are above optimal boating levels daily based on the USGS North Walpole gage. Even on the lowest flow days, storage behind the Bellows Falls Dam would be sufficient to provide recreational releases throughout the year. Under current operations, flows from the Connecticut River spill into the bypassed reach when flows exceed 11,400 cfs, generally during the spring freshet. Flows above this level are infrequent after mid-May, and the natural river channel is typically dry throughout the remainder of the boating season.

Over the 74 complete water years between 1943 and 2016, there were 7,562 days during the boating season in which mean flows on the Connecticut River fell between 2,500 cfs and 10,000 cfs, flows identified as acceptable or optimal in the Whitewater Boating Flow Evaluation. Without the licensee's hydropower operations at Bellows Falls, there would be on average 102 annual boating days in the natural river channel. Under current operations, there are an average of 15 days annually, when spillage into the bypassed reach is in the range of 2500 – 10,000 cfs. This results in a loss of 87 boating days in the natural river channel at Bellows Falls.

Given that the licensee lacks meaningful control over the river prior to May 1 and that October 31 typically represents the end of the whitewater boating season for most paddlers, we focused our analysis on these boating months. We then compared the average monthly number of days on which flows fell within the range of boatable flows evaluated during the Whitewater Boating Flow Evaluation, comparing project inflows to spills into the bypassed reach under current project operations. The chart above makes clear that project operations virtually eliminate all boatable pulse flows into the natural river channel during the months of June through October at the peak of the recreational boating season when incoming flows are typically below 11,400 cfs.

Access into the bypassed reach is extremely difficult at present due to the lack of parking along Route 12 and the trail leading down to the bypassed reach near the dam is narrow and steep. Due to the dewatering of the bypassed reach and the lack of regular recreational use, the area serves as an encampment for homeless people and is replete with litter. During the whitewater boating study of the bypassed reach, access was obtained down the steep embankment behind the licensee's offices on Route 12, but this access is not otherwise accessible and would require improvement for recreational access.

The licensee's facilities and operation have a further impact on whitewater boating in the bypassed reach due to the presence of the deadbeat low-head dam that was constructed in order to prevent Atlantic Salmon from entering the bypassed reach as part of the now abandoned Connecticut River Atlantic Salmon Restoration Program. Under all but very-high spring flows presumably in excess of 20,000 cfs, the low-head dam presents a dangerous hazard that would prevent all but expert paddlers from whitewater boating in the bypassed reach. In addition, the low-head dam prevents American shad, blueback herring, sea lamprey, American eel, and other fish species from accessing suitable habitat in the bypassed reach.



Photo: Low-head Dam in Bellows Falls Bypassed Reach.

- Proposed Operations

The licensee's proposed change to its current mode of operation at Wilder will have an impact on recreational boating in the reach between the Wilder dam and the top of the Bellows Falls impoundment. Changes in generation will alter flows used by both whitewater boaters as well as day trippers and through paddlers on this section of the Connecticut River. Understanding the impacts of the proposed changes requires analyzing

the timing, magnitude, and duration of inflows from Fifteen Mile Falls on downstream flows during boating hours over the course of the April to October boating season.

In the absence of any analysis by the licensee, we have done a preliminary analysis of the impact of the proposed changes on recreation opportunity on waters affected by project generation at Wilder. Based on our preliminary analysis, the data shows that whitewater boating opportunity will be substantially diminished under the proposed as compared to the current flow regime at Sumner Falls, while day tripping and through paddling on the Connecticut River will improve during the spring, early summer, and fall periods, but paddling opportunity will diminish during the later summer dry period.

On each graph, the frequency with which current operations result in the presence of boatable flows at each targeted flow level is shown (black) and represents actual boating hours based on current operations in 2014. This percentage is shown in comparison to the projected frequency of boating hours under the proposed flow regime. In order to account for the impact of upstream peaking flows from Fifteen Mile Falls that fluctuate inflows by approximately 2000 cfs, the graphs show the average daily inflow (yellow), peak flow (green), and low flow (red). Given that the timing of inflows from Fifteen Mile Falls will most frequently arrive at Wilder around midnight and will pass Sumner Falls around 3 a.m., we assume that the low flow (red) will more closely approximate the actual frequency of boatable flows at Wilder. Reregulating flows at Wilder to pass average daily flows (yellow) or shifting the incoming peaks to daytime hours (green) would improve the frequency of boatable flows.

At lower flows of 2500 cfs used by flatwater paddlers for day trips and through paddling on the Connecticut River below Sumner Falls, Fig. 4, below, depicts the percentage the time the daily outflow from Wilder, exceeds 2500 cfs during boating hours between hours between April through October. For whitewater paddlers, Fig. 5 and Fig. 6, below, depict the percentage of time flows at Sumner Falls exceeds 5000 cfs and 10,000 cfs, respectively, during boating hours between April through October. We focused our preliminary analysis on 2014 outflows shown on the USGS gage at West Lebanon because it represented an average water year based on mean outflows between April through October.

Fig. 4

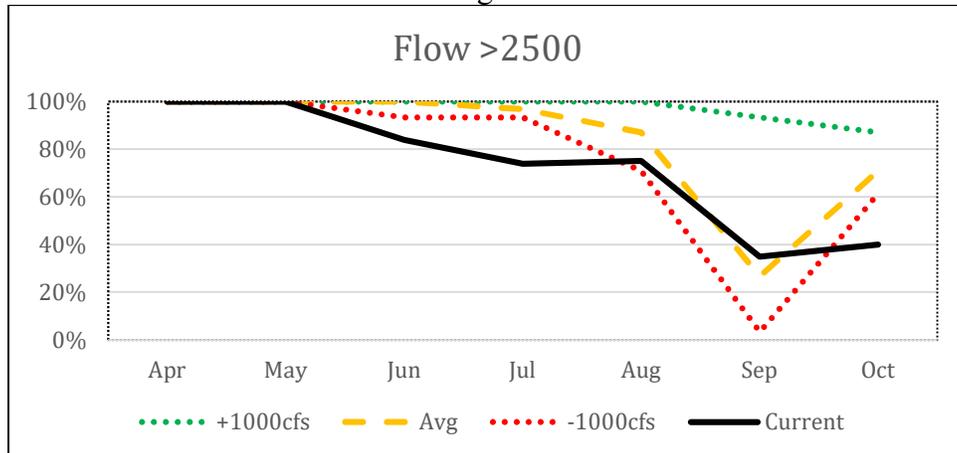


Fig. 5

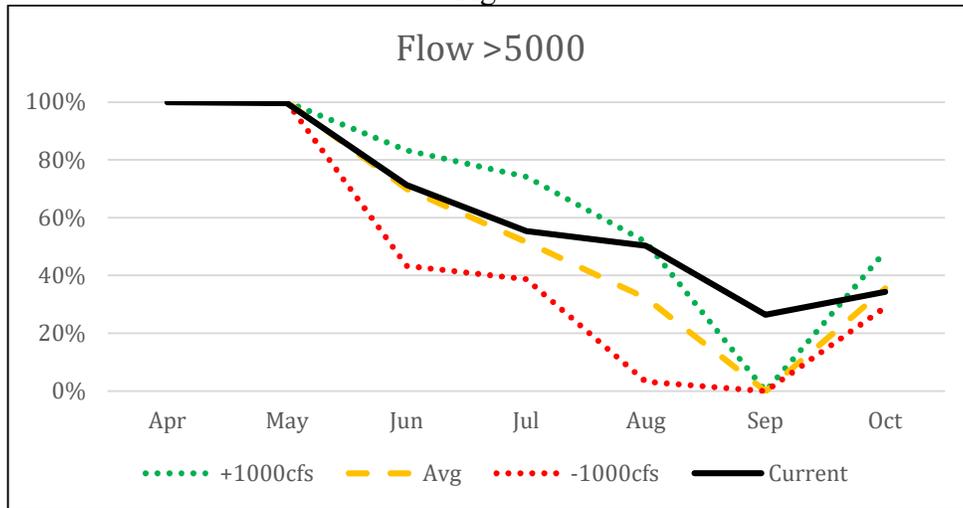
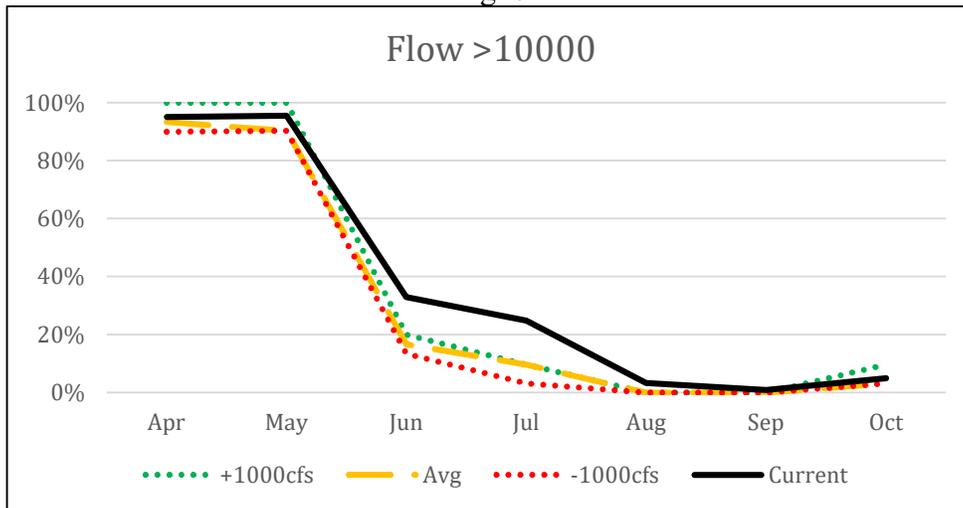


Fig. 6



For flatwater paddlers between Wilder and the top of the Bellows Falls impoundment, the proposed flow regime will slightly improve the frequency of boatable flows in the spring and early summer, but under both current and proposed flow regimes, boatable flows of at least 2500 cfs are generally present on the Connecticut River.

We acknowledge some benefit to flatwater paddling under the proposed flow regime during the early summer period when peaking operations would result in intermittent boating opportunities on a given day. The change in operations should result in longer, lower magnitude pulses during this period that may provide more sustained flatwater boating opportunities.

Conversely, as the summer progresses, the proposed flow regime will reduce boating opportunities at times when inflows would otherwise be insufficient for day trips during low flow periods. (Fig. 4) The adverse impact on flatwater paddling in this river reach is compounded by the timing of upstream peaks that arrive during overnight hours resulting

in the passing of the lowest daily flows during the daytime hours when recreation activity occurs. Time-shifting inflow for generation at Wilder to daytime hours would result in significant improvement in boating flows for flatwater paddling as compared to an instantaneous release of inflows, particularly during the warm summer months.

In sum, while there would be no net loss of the overall number of boating hours for flatwater paddlers at flows of 2500 cfs based on our preliminary analysis, there would be a significant loss of boating opportunity during the lower flow period in the summer when the demand is greatest. While the licensee will retain a limited peaking ability at the project under its proposed flow regime, the limited short duration peaks are unlikely to have significant recreation benefit.

For whitewater boaters, the proposed flow regime will have a far more substantial negative impact on whitewater boating opportunities at Sumner Falls that rely on the licensee's peaking operations. Analyzing the impact of the proposed flow regime on the frequency of optimal flows of at least 5000 cfs (Fig. 4) and 10,000 cfs (Fig. 5), it becomes clear that the reduction in peaking operations will substantially reduce the frequency of optimal boating flows at Sumner Falls.

Flows in excess of 5000 cfs are present at Sumner Falls approximately 63 percent of the time during boating hours between April through October in an average water year. We project that the Licensee's proposed flow regime will result in the passage of flows in excess of 5000 cfs 45 percent of the time during this period. Based on the whitewater boating study, flows at this level provided an optimal whitewater boating experience. The change from peaking to a limited peaking/run-of-release flow regime will result in the estimated loss of 38 boating days. While flows below this level will provide a less than optimal boating experience down to 3500 cfs based on the results of the whitewater boating experience, the reduction in optimal whitewater boating opportunity is substantial.

We anticipate that passing inflows will eliminate virtually all optimal whitewater boating opportunities in August when inflows are typically less than 5000 cfs in an average water year. Given the timing of anticipated inflows at Wilder, we expect that the low daily flow will arrive at Wilder during boating hours. While time-shifting peaks would provide more optimal boating opportunity, time-shifting is unlikely to restore optimal boating opportunities during the low-flow late-summer period.

Limited peaking by the licensee is unlikely to have recreational benefit to whitewater boaters due to the limited number of hours peaking will occur and the short duration of peaking operations. For example, in 2014 the licensee generated at flows in excess of 5000 cfs for 69 hours in August. Under the proposed flow regime, peaking generation will be limited to 20 hours under the proposed flow regime, hours that are unlikely to occur during boating hours.

As with Wilder, the licensee proposes to change its mode of operation from peaking to limited peaking/run-of-release. Regarding the bypassed reach, the licensee proposes no

change to current operations other than guaranteeing a minimum flow of 300 cfs, roughly equivalent to its current leakage from faulty dam seals.

Under the Amended Final License Application, the licensee's facilities and operations will continue to prevent nearly all meaningful recreation opportunities in the bypassed natural river channel.

Licensee's Proposed Protection, Mitigation & Enhancement (PM&E) Measures

A central purpose of the relicensing process is to evaluate the impact of the project on a range of resources identified in the scoping document and to evaluate alternatives to the current mode of operation in order to protect, mitigate and enhance environmental values. Sections 4(e) and 10(a) of the Federal Power Act require the Commission to give equal consideration to all uses of the waterway on which a project is located, and to set conditions on any license that may be issued. In making its license decision, the Commission must equally consider the environmental, recreational, fish and wildlife, aesthetics, and other non-developmental values of the project, as well as power and developmental values. Any license issued shall be best adapted to a comprehensive plan for improving or developing a waterway or waterways for all beneficial public uses. Recreation and aesthetics have been identified as legitimate project purposes by the Commission.

Given the lack of information in the Amended Final License Application analyzing project impacts on flatwater or whitewater boating and the lack of any PM&E measures mitigating those impacts, the AFLA deprives stakeholders of any meaningful opportunity to comment on the adequacy of proposed PM&E measures. Notwithstanding the paucity of information in the DLA, we are able to state that the required studies demonstrate that the project has an adverse impact on recreation and that those impacts have not been sufficiently protected, mitigated and enhanced under the current project license application.

The licensee proposes to formally maintain campsites that it is currently maintaining in practice as required under the existing project license, but additional campsites are needed by through-paddlers and planning. Developing and maintaining new campsites should be included as PM&E measures, to mitigate impacts from project operations on flatwater boating by day trippers and through paddlers on the Connecticut River Paddlers Trail. The licensee proposes no improvements to its inadequate portage facilities at the Wilder, Bellows Falls, and Vernon dams. It proposes no mitigation for flow changes that will reduce flatwater paddling opportunities during the warm summer months when low flows will prevent downriver paddling.

Regarding project impacts on whitewater recreation, the licensee proposes no mitigation for the significant reduction in whitewater boating opportunities at Sumner Falls. Despite the impact of the proposed changes that will substantially reduce the frequency of optimal flows at Sumner Falls that are currently utilized for whitewater recreation, the licensee proposes no scheduled whitewater boating releases. Nor does the licensee

propose to shift the timing of its generation to pass peak flows during recreational boating hours.

At Bellows Falls, the licensee proposes no mitigation for its flow diversion and dewatering of the bypassed reach. While the licensee spills boatable flows in the spring and periodically after very-high rainfall events, the licensee proposes no improvements to access into the bypassed reach. Additionally, the licensee is silent on removal of the low-head dam in the lower portion of the bypassed reach, has rejected proposals to improve portage around the Bellows Falls dam, and proposes no scheduled whitewater boating releases.

AW/AMC/FLOW Proposed PM&E Measures

Determining the most appropriate PM&E measures protective of recreational resources requires an assessment of the value of the resource, the demand for recreational opportunity, the capacity of the project, and the impact on other resources. Assessing the frequency with which a resource should be made available in order to meet the expected demand requires and consideration of additional information including the accessibility of the resource to the recreating public, willingness of the recreating public to travel, the uniqueness of the recreational resource, and the expected frequency with which the recreational resource would be utilized by individual recreation users.

The Connecticut River is a unique recreational resource in the region for both flatwater and whitewater paddlers. From source to sea, the river provides canoeists and kayakers with the opportunity for day trips and overnight excursions along its gently moving waters, interrupted by the presence of dams and altered flows including those currently being relicensed. No other river in the region provides a similar experience. Demand for recreational boating on the Connecticut River is increasing as a public eager to get outdoors are flocking to natural resources.

Flows on the Connecticut are generally sufficient to provide flatwater boating opportunity, but flow alterations from the upstream projects at Fifteen Mile Falls, portages around Wilder, Bellows Falls, and Vernon, and the flow alteration at Bellows Falls all negatively impact flatwater boating opportunities. While the proposed flow regime will improve flatwater paddling at times, it will diminish and degrade those opportunities at other times resulting in little improvement. Additional negative impacts will result from storing inflow to refill impoundments following peaking operations resulting in diminished downstream flows.

For whitewater boaters, only a few sections of the Connecticut River provide whitewater boating opportunities. These include Sumner Falls and the Bellows Falls bypassed reach that are negatively impacted by project operations under both current and proposed flow regimes. The other notable whitewater sections on the Connecticut River include the Turners Falls bypassed reach that is dewatered by the FirstLight hydropower project currently being relicensed and the Wave-o-saurus playwave located in Holyoke that is only available at flows above 50,000 cfs in the springtime.

- Mitigation of Wilder Impacts

Sumner Falls is a unique geologic feature on the Connecticut River with its shale ledges creating park-and-play whitewater boating features that are frequently available during the boating season due in large part to the licensee's peaking operations at Wilder. During the summer months when little whitewater boating opportunity is available other than scheduled releases on the Deerfield River located approximately 70 miles away in western Massachusetts. While the licensee cites scheduled releases on rivers such as the West (102 miles) and the Millers (69 miles), these rivers release only a couple of times each year and not at all between Memorial Day and Labor Day. Park-and-play features like Sumner Falls are even less accessible and less desirable. There are no whitewater parks in the northeast and small natural features such as those on the polluted Merrimack River are not regularly available.

If adopted by FERC and state water quality certification agencies, the proposed flow regime will limit opportunities to improve recreational opportunities at Sumner Falls due to limits on peaking operations. In our previously filed comments in response to the Draft License Application, our organizations proposed a series of mitigation measures including shifting the timing of peak generation to hours that would provide greater recreation opportunity for both flatwater and whitewater boating. With the proposed change in operations to hybrid limited peaking/run-of-release, opportunities for improving recreation are far more limited.

Notwithstanding these limitations, we believe that some change to the proposed flow regime is both necessary and required under FERC's equal consideration mandate to protect recreational boating opportunity impacted by project operations and to protect designated and existing recreational boating use under state water quality standards. Specifically, we recommend that the licensee shift the timing of peak flows from Fifteen Mile Falls being passed during overnight hours at Wilder to daytime hours in order to improve recreational boating opportunities below the Wilder project.

The licensee states in its AFLA that "[t]here is approximately 3,000 cubic feet per second (cfs) per hour per 0.1 ft of elevation, and 0.3 ft per hour represents a maximum station output with little to no inflow." Based on this calculation, we estimate that shifting inflow from overnight to daytime hours would utilize less than 6 inches of the licensee's usable storage in the Wilder impoundment during the boating season when flows would not otherwise be at optimal boatable levels. Requiring that the licensee store and release inflows from overnight to daytime hours would potentially impact the licensee's peaking capacity, or alternatively, would require increasing impoundment fluctuation by up to six inches during the summer months to provide the licensee with additional operational flexibility to provide recreation releases.

Shifting the timing of releases from overnight to daytime hours would partially restore the frequency of optimal boating flows at Sumner Falls, but would not fully restore whitewater boating opportunity in that river reach. To more fully restore whitewater

boating opportunity at Sumner Falls, the licensee needs to provide scheduled whitewater releases at Sumner Falls by timing generation at optimal flows during boating hours. We estimate that the proposed change in operation at Wilder will reduce the number of days in which optimal boating flows above 5,000 cfs are available at Sumner Falls by 38 days annually during the boating season. While generation above 10,000 cfs at Wilder is less frequent, we estimate that reduced peaking operations under the proposed flow regime will decrease optimal boating flows above 10,000 cfs by 18 days annually during the boating season. These losses are particularly acute during the summer months. For flatwater boaters, time-shifting generation would more fully restore lost recreation opportunity to current levels.

Shifting inflow peaks from overnight to daytime hours at Wilder would restore nearly 75 percent of optimal boatable flows of at least 5000 cfs at Sumner Falls, and nearly 50 percent of boatable flows above 10,000 cfs in an average water year. We estimate that the licensee will need to provide 10 additional scheduled releases in addition to shifting generation timing. In the absence of a shift in generation timing, we estimate that the licensee would need to provide 38 scheduled recreation releases at Wilder during the boating season. Even with time-shifting and scheduled releases, the mitigation measures will still result in the loss of optimal whitewater boating opportunity at flows above 10,000 cfs.

Our proposed whitewater boating mitigation request is consistent with the need to provide weekend whitewater boating opportunities at Sumner Falls when recreational demand is highest. Of the 60 weekend days during the boating season, we estimate that the proposed flow regime will provide flows in excess of 5000 cfs on 27 of those weekend days in an average water year. The licensee should be required to provide optimal boating flows on each of these weekend days during the boating season, or 33 days based on expected inflow. Providing additional guaranteed weekend boating days would partially mitigate project impacts but would not address additional lost boating opportunities on weekdays or lower magnitude releases.

- Mitigation of Bellows Falls Impacts

The licensee does not propose any meaningful change to its operations at Bellows Falls that would restore the dewatered natural river channel that has resulted in the destruction of aquatic habitat and elimination of recreation opportunities. While the licensee proposes to continue passing leakage flows of 300 cfs from its faulty dam seals some other means, the proposed conservation flow is grossly inadequate to restore aquatic habitat and is of no recreational value. Restoring flows, providing access, and removing impediments in the bypassed reach will benefit aquatic habitat, recreation, and have a positive economic impact by reconnecting the surrounding communities to their natural resources and creating new recreational opportunities. Providing variable flows over the course of the recreational boating season will restore natural flow variability to the river reach, benefit aquatic habitat, and provide new recreation opportunities.

AW, AMC, and FLOW assisted the licensee with the planning and execution of the

Whitewater Boating Flow Evaluation in the Bellows Falls bypassed reach. Over the course of the 2-day on-water evaluation, paddlers evaluated flows ranging from 1,580 cfs to 9,660 cfs using kayaks and canoes. Overall, the participants considered the natural river channel to be a valuable boating resource if sufficient and predictable flows and adequate access were provided. Based on the evaluation, flows of 1,580 were considered to be of marginal recreation value while participants regarded flows of either 2,500 cfs or 5,000 cfs as generally producing the highest overall satisfaction. We agree with the study results suggesting that there is potential for this area to provide whitewater opportunities.

Although mostly dewatered, Bellows Falls has the potential to provide whitewater boaters with an exceptional whitewater boating paddling opportunity if access and flow were restored and the low-head dam removed. There is currently some whitewater boating in the area above the tailrace and whitewater boating occasionally in the bypassed reach at very-high water. The whitewater boating study demonstrated that the bypassed reach has the potential to provide a unique whitewater boating opportunity at flows that are within the hydraulic capacity of the project. The ledges below the Bellows Falls dam create a series of hydraulic features for playboating at holes and waves. As the river narrows approaching the low-head dam, more powerful hydraulic features emerge. With the removal of the low-head dam, the reach will contain rapids ranging from Class II to IV including an impressive big water drop at the site of the low-head dam.

No other river in the region provides a similar whitewater boating experience during the summer months except for the distant Deerfield River. While springtime flows on other rivers are well utilized, the availability of those rivers for whitewater boating fades as springtime flows diminish. While we were not able to run the low-head dam during the whitewater boating flow study, we believe that once the low-head dam is removed the bypassed reach will be highly desirable and well utilized.

Restoring flows to the Bellows Falls bypassed reach, providing access, and removing the dangerous and obsolete deadbeat low-head dam would provide new whitewater boating opportunities at Bellows Falls. While demand is difficult to gage, we would expect strong interest in boating the Bellows Falls “dryway” based on whitewater boating demand on the Dryway reach below the No. 5 dam on the Deerfield River operated by the licensee under FERC No. P-2323. Under the terms of the 1994 Settlement Agreement for the Deerfield River Project, the licensee provides 32 annual releases into the bypassed reach providing the most popular whitewater boating opportunity in the region. The No. 5 Dryway reach is located 60 miles from Bellows Falls. Since the Dryway releases are only available during 32 of 60 weekend days during the boating season, we recommend that FERC require the licensee to provide 28 annual scheduled whitewater releases in the Bellows Falls bypassed reach in order to meet anticipated recreation demand to utilize the resource. FERC should reject the licensee’s suggestion that its mitigation for the Deerfield River Project should satisfy its obligation to mitigate its impact on whitewater boating opportunities at its Connecticut River projects.

Providing 28 scheduled whitewater boating releases at Bellows Falls would also mitigate the impact of reduced peaking operations at Wilder that reduced the number of optimal

boating flows above 10,000 cfs at Sumner Falls. Flows in excess of 10,000 cfs at Sumner Falls resulted in more of a high-challenge boating experience than lower flows. Mitigating for this lost opportunity through scheduled releases in the Bellows Falls bypassed reach would restore high-challenge whitewater boating opportunity on an adjacent river reach in the same basin where the hydropower project is owned by the same licensee as part of a concurrent relicensing process.

In order to provide meaningful access to the bypassed reach for whitewater boating recreation, the licensee should provide parking and access to the bypassed reach from its adjacent project facility on Route 12. This area was used during the whitewater boating study to provide participants with access to the river. The licensee should make its existing parking area available to whitewater boaters. While the terrain below the parking area is steep, it was considered the preferred access point for the controlled flow study. FERC should require the licensee to construct stairs and an access path down to the river as shown on the map below.

Fig. 7



The licensee has constructed stairs for recreational access stairs at other project facilities including the bypassed reach at the No. 5 dam on the Deerfield River. Constructing access stairs at that project was essential to providing recreation opportunity for whitewater boaters.



Photo: Deerfield No.5 River Access

In addition to the lack of predictable flows and access, the recreation value of the natural river channel is eliminated by the lack of access and the presence of the fish barrier dam. The dam was originally constructed in 1982 by New England Power, the previous owner of the hydropower project at Bellows Falls, in order to divert Atlantic Salmon to a fish ladder in the power canal rather than in the dewatered natural river channel. At all flows evaluated in the whitewater boating study, the barrier dam poses an obstruction to safe passage. The barrier dam no longer serves any purpose and should be removed as part of this relicensing. A post-license flow study following the removal of the dam will be necessary to determine optimal flows.

- Non-Whitewater Mitigation

Great River Hydro, LLC dams have drowned significant recreational resources beneath long reservoirs and changed the nature of flows in the Connecticut River. Our organizations are not proposing dam removal to fully avoid these impacts, but it is our position that minimization is necessary with changes in the flow regime as we outline above along with adequate mitigation. Appropriate additional mitigation should include:

Primitive Campsites

Primitive, paddler-only campsites in this reach are insufficient to meet current or projected demand. The proposed license agreement does nothing to address this finding. Currently there are 18 campsites in this reach. The average distance between sites is 7.3 miles, which falls well short of established Connecticut River Paddler Trail's goals of:

- **Near term (0-5 years):** Establish campsites every 5 miles, to provide flexibility in

trip planning

- **Long term (5-15 years):** Establish campsites every 3 miles, to reduce overcrowding and ensure groups can safely reach a downstream campsite within an hour should they arrive at one already occupied.

The most notable gaps include:

- Roaring Brook Campsite to Patchen's Point: 11 miles
- SCA Campsite to Lower Meadow Campground: 12 miles
- Windyhurst Campsite to Wantastiquet Campsite: 17.5 miles

An assessment completed by partnering organizations in 2016 identified 27 sites suitable for establishment of new campsites, and identified seven priority locations. The need for formal sites is evidenced by heavy, unauthorized camping at locations such as Welch's Field (north of Walpole), a small island adjacent to Gilman Island below the Wilder impoundment, and on state owned Chase Island.

We request that Great River Hydro, LLC establish and maintain a minimum of seven additional paddler camping sites, which, if located strategically, will help meet the goal of establishing campsites every 3 miles from Wilder Dam to Vernon Dam. All campsites should meet the standards for Connecticut River Paddlers' Trail sites, and include toilet facilities, appropriate put-ins/take-outs, tent pads or platforms to accommodate at least three tents, wayfinding signage, and picnic tables. The establishment of these sites could also be accomplished by partnering organizations through the establishment of a mitigation and campsite stewardship fund dedicated for this purpose.

Access Points:

While Great River Hydro, LLC provides several launch points, they are inadequate for paddlers embarking on multi-day trips due to restrictions on overnight parking. We ask that the company modify this policy to allow paddlers to leave their vehicles at these sites when on overnight outings.

Additional such sites could be added on land already owned by Great River Hydro, LLC. Adequately spacing of access points is another priority of the paddlers' trail. Specifically, the stated short term and long-term goals are access points every 10 and 5 miles, respectively. Currently, spacing exceeds these goals in five sections:

- Sumner Falls to Cornish Landing (7 miles)
- Cornish Landing to Wilgus State Park (6 miles)
- Ashley Ferry to Hoyt's Landing (7.7 miles)
- North Walpole to Putney Landing (12.2 miles)
- Governor Hunt Recreation Area to Pauchaug Brook (11.70 miles)

We request that Great River Hydro, LLC provide additional free put-in and take-out sites along the reach from Wilder Dam to Vernon Dam equipped with wooden or sand shoreline access for canoes, to help close these gaps in river access. Sanitary facilities and

trash removal should be provided at put-in access points, including the bypassed reach at Bellows Falls, and at existing and proposed take-outs. Great River Hydro, LLC properties not used for project operations — such as lands leased for agricultural use or abandoned mill sites -- should be placed under conservation easements.

Portage Trails:

The portage trails around all three Great River Hydro, LLC dams are inadequate. At Wilder, the trail is steep, rocky, and potentially dangerous on the way to the put-in. At Bellows Falls, the portage trail is excessively long and travels along the breakdown lane of a major state highway. At Vernon, trash blocks the portage time-out, and the trail is steep. All these portage routes should be significantly improved for the recreational benefit of downriver paddlers.

Public Education:

We have an interest in the educational benefits provided to the public by the dam owners. The projects should promote leadership training and outdoor recreation in area schools. Informational signage and kiosks at project facilities such as put-ins and take-outs should promote education about invasive species, water flows, the history of the area, who to call with problems, and what to do to get involved. The licensee should contribute to the revision and republication of the *Connecticut River Boating Guide* and the Connecticut River Paddlers' Trail Map.

Conclusion

American Whitewater, the Appalachian Mountain Club, and New England FLOW respectfully request that FERC accept these comments and require Great River Hydro, LLC to respond to the information requests and application deficiencies that we have identified in the Amended Final Licensing Application or the Wilder, Bellows Falls, and Vernon hydroelectric projects on December 7, 2020 and requests for additional information from Great River Hydro, LLC.

Respectfully submitted this ___ day of January, 2021.

Bob Nasdor
Northeast Stewardship & Legal Director
American Whitewater
65 Blueberry Hill Lane
Sudbury, MA 01776
bob@americanwhitewater.org

Mark Zajutansky
Appalachian Mountain Club
45 Jordan Rd.
Albrightsville, PA 18210-0527
mzakutansky@outdoors.org

Dr. Norman Sims
Appalachian Mountain Club
77 Back Ashuelot Road
Winchester, NH 03470

Tom Christopher
New England FLOW
252 Fort Pond Inn Road
Lancaster MA 01523

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