



Great River Hydro

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VIA ELECTRONIC FILING

Debbie-Anne Reese, Acting Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, DC 20426

**Re: Great River Hydro, LLC; FERC Project Nos. 1855-050, 1892-030 and 1904-078,
Response to Bellows Falls Application Deficiencies and Requests for Additional
Information**

Dear Acting Secretary Reese:

Great River Hydro, LLC (“Great River Hydro”), licensee for the Wilder, Bellows Falls and Vernon Projects respectfully submits its response to the Commission letter of November 9, 2023, requesting additional information (AIR) and a response to noted deficiencies in the revised Bellows Falls license application filed on June 8, 2023, specifically Exhibits A, B and E. Revisions to Exhibits A and B of Bellows Falls application and the composite Exhibit E to the Wilder, Bellows Falls and Vernon applications are included with this response; provided in “tracked changes” to better locate the revisions, and “clean” versions.

Great River Hydro responses to the Deficiencies and AIRs are summarized below:

Bellows Falls Project License Application Deficiencies

Exhibit A:

Section 4.51(b) of the Commission’s regulations requires an Exhibit A that identifies the number, type, and capacities of the project’s existing and proposed turbines and generators. The regulations also require that Exhibit A identify the number, length, voltage, and interconnections of the project’s existing and proposed transmission lines. Great River’s revised Exhibit A, filed on June 8, 2023 with the proposal for a new minimum flow turbine-generator unit, does not include the required information for the project’s proposed turbine, generator, and associated transmission line(s). For the proposed minimum flow unit, please provide the same information that is provided for

the existing units in table A-2, Turbines and Generators (section A1.4 of the application, labeled Powerhouse and Appurtenant Facilities), of the June 8, 2023 Exhibit A. In addition, please identify the number, length, voltage, and interconnections of any additional transmission lines proposed to support the operation of the new minimum flow unit, and (if applicable) describe any associated modifications to the project's existing electrical facilities (section A1.5 of the application, labeled Electrical Facilities).

Great River Hydro's response:

Exhibit A has been revised to address the deficiencies related to minimum flow turbine generator specifications, including adding Table A-4 to reflect similar information as the existing Table A-2. Additional information regarding interconnection with local distribution utility has been provided including Figure A-14 Distribution Interconnection Schematic. Exhibit A January 2024 Revision in both a "tracked change" and a "clean" version are included as Attachments A and B, respectively.

Exhibit B:

Section 4.51(c) of the Commission's regulations requires a complete Exhibit B to be included with the license application. The revised Exhibit B, filed on June 8, 2023, includes cover pages for Attachments A and B, but is missing the associated content. Therefore, Exhibit B is incomplete and should be revised to include the contents of Attachments A and B.

Great River Hydro's response:

The Revised Exhibit B, filed on June 8, 2023, was inadvertently missing the content of Attachments A and B. The content has been added and is included in the revised Exhibit B. Exhibit B January 2024 Revision in both a "tracked change" and a "clean" version are included as Attachments C and D, respectively.

Additional Information Requests

The following additional information items have been identified for Great River Hydro, LLC's (Great River) license applications, and associated amendments, for the Wilder Hydroelectric Project No. 1892, Bellows Falls Hydroelectric Project No. 1855, and Vernon Hydroelectric Project No. 1904.

Exhibit A:

1. Section A1.4 of the Bellows Falls application, labeled Powerhouse and Appurtenant Facilities, states that the nameplate generating capacity is 13.6 megawatts (MW) for each unit, and 40.8 MW in total. Table A-2, labeled Turbines and Generators, states that the existing turbines are rated at 18,000 horsepower (hp) and the existing generators are rated at 13.6 MW (17,000 kilovolt-amperes, 0.8 power factor). The turbine rating of 18,000 hp equates to 13.5 MW, so each turbine-generator unit would be turbine-limited at 13.5 MW and the overall installed capacity of the project would

be 40.5 MW. Please clarify whether this discrepancy is the result of anything other than differences in hp-to-MW conversion factors.

Great River Hydro's response:

Section A1.4 mis-stated the turbine MW rating due to applying an incorrect conversion factor to the turbine rating of 18,000 hp. The correct MW rating is 13,500 MW. Section A1.4 and Table A-2 of the Bellows Falls application has been revised to correctly state the MW rating as well as revise the nameplate rating of Unit 2 generator. The previous Table A-2 failed to note that the Unit 2 generator was rewound in 2016, which resulted in a new nameplate, specifying ratings of 18,400 kVA and 14,720 kW. These revisions are included in Exhibit A January 2024 Revision (included as Attachments A and B).

Exhibit B:

2. Section B1.1 of the Bellows Falls application, labeled Existing Project Operations, states that there is no minimum flow requirement through the dam into the bypassed reach, but leakage provides flows in the range of 125 to 300 cubic feet per second (cfs). Please clarify whether your proposed operation with the proposed new 300-cfs minimum flow turbine-generator unit would therefore result in flows in the range of 425 to 600 cfs in the bypassed reach.

Great River Hydro's response:

Great River Hydro intends to operate the minimum flow unit continuously to ensure the proposed required minimum flow of 300 cfs would be maintained in the bypassed reach below Bellows Falls Dam. During times when the unit is out-of-service, gates would be used to provide this minimum flow requirement. We do not intend to meet this requirement through leakage. While Section B1.1 indicates that currently and during the relicensing study phase, an estimated 125-300 cfs flowed into the bypassed reach from leakage, it would be our intent under the new license to minimize leakage flow to the extent practical; future leakage could be significantly less. Therefore, under the proposed operation and new 300-cfs minimum flow turbine-generator, the flow into the bypassed reach will be a minimum of 300 cfs plus any leakage flow.

3. Section B1.3 of the Bellows Falls application, labeled Proposed Project Operations, states that during maintenance or emergencies, when the proposed minimum flow unit is out of service, spill "over the dam crest or through gates" will provide the proposed minimum flow into the bypassed reach. Please describe your proposed procedure for maintaining the minimum flow releases during such events, including how Great River would decide whether the releases would be made from the dam crest or through the gates. Please also specify which gate(s) would be used to provide the flow. If there would be an interruption in the minimum flow releases, then provide an estimate of the duration of the disruption.

Great River Hydro's response:

Planned or un-planned minimum flow unit outages due to maintenance, inspection or emergencies would require Great River Hydro to provide the minimum flow of 300 cfs through other means. If the minimum flow unit simply tripped but did not require dewatering of the intake to conduct a visual inspection or maintenance, the minimum flow would be provided using either of the proposed: (1) 14-foot-wide bottom-hinged gate, or (2) 25-foot-wide vertical gate. As a third option, but not preferred, operating one of the existing 115-foot-wide roller gates could be used to pass minimum flow. The proposed new gates are described in Section A3 Proposed Modifications and Enhancements. If dewatering of the intake was necessary, the minimum flow would most likely be provided through one of the existing roller gates. If an emergency outage of the minimum flow unit was related to extreme high water spilling into the bypass, that flow would undoubtedly exceed the minimum requirement. In such a situation, flow would be provided through a combined use of the above-mentioned gates, and spill over the dam crest through portions of the three stanchion flashboard sections.

Exhibit E:

4. Attachment 1 of the June 8, 2023 cover letter for the license application revisions provides Great River's responses to agency comments on the proposed revisions to the Bellows Falls application, which was amended on December 7, 2020. Great River's responses to New Hampshire Department of Environmental Services (DES) comments 3 and 4 state that text additions describing turbine injury to American eel and results of other evaluations of the Natel Restoration Hydro Turbine (RHT) effects on rainbow trout, bluegill, and channel catfish were added to section 3.6.2.10 of Exhibit E. However, neither the clean nor redlined versions of the revised Exhibit E contain the stated additions. In addition, Great River's response to New Hampshire DES comment 5 suggests a discussion of the proposed minimum flow unit's intake velocity was added to Exhibit E; however, that discussion appears to be missing, as well. Finally, Exhibit E states that Great River proposes to conduct a study to assess whether the RHT would provide a safe route of passage for American eels, as alluded to in Great River's response to New Hampshire DES comment 5 and U.S. Fish and Wildlife Service comment 6. Please file the missing information noted above. Also, please update table 5-1, labeled Average Annual Energy Based on Operations Model (section 5.1, labeled Environmental Measures), and the accompanying text to indicate the quantities of on-peak and off-peak energy in megawatt-hours for the Bellows Falls Project with the addition of the proposed minimum flow unit.

Great River Hydro's response:

Great River Hydro apologizes for the error in final production of the revised Exhibit E filed on June 8, 2023, that resulted in missing text in Sections 3.6.2.9 and 3.6.2.10. The text and information requested in this AIR, including what was referenced in Great River Hydro's response to the NHDES comments 3, 4 and 5, has been added to the

revised Exhibit E. Exhibit E January 2024 Revision in both a “tracked change” and a “clean” version is included as Attachments E and F, respectively.

Cultural Resources:

5. Table 3.11-1 of each license application states that historic architectural resources survey reports for the Wilder, Bellows Falls, and Vernon projects were submitted to the Commission, New Hampshire State Historic Preservation Officer (SHPO), and Vermont SHPO on May 28, 2015; however, there is no record of this filing with the Commission. Please file the three architectural reports referenced in Table 3.11-1.

Great River Hydro’s response:

GRH is similarly unable to confirm that historic architectural resources survey reports (referenced in Table 3.11-1) for the Wilder, Bellows Falls, and Vernon projects were submitted to the Commission. The filing was intended to be submitted on May 18, 2015 based upon our records and documentation. Included in this response to the AIR is the intended filing, included as Attachment G. We apologize for this oversight.

6. Table 3.11-1 of each license application indicates that, by letter dated August 27, 2015, the New Hampshire SHPO concurred that Wilder Dam is eligible for listing on the National Register of Historic Places (National Register); however, that letter is not in the project record. Please file the letter.

Great River Hydro’s response:

The August 27, 2015 letter from New Hampshire Division of Historic Resources (referenced in Table 3.11.1 and on page 3-715) is included in this response as Attachment H.

7. Pages 3-647, 3-681, and 3-696 of the Bellows Falls application state that the Vermont SHPO has not concurred on the National Register-eligibility recommendations for the sites identified at the Wilder, Bellows Falls, and Vernon projects. These statements have remained unchanged since the license application was submitted for the projects on May 1, 2017 (pages 3-562, 3-594, 3-609 of the May 1, 2017 application). Please confirm that, to date, the Vermont SHPO has not concurred, or if appropriate, file any correspondence from the Vermont SHPO that has been received regarding the eligibility of sites identified at the projects.

Great River Hydro’s response:

On May 15, 2017, the Vermont SHPO filed a comment letter with the Commission in which it stated concurrence on Phase II National Register eligibility recommendations, the development of protective measures and establishment of a site monitoring program. The letter is included in this response as Attachment I. Corrections can be found in the January 2024 revised Exhibit E, included as Attachment E, in tracked changes, (Table

3.11-1; page 3-653, Table 3.11-4; page 3-702; Table 3.11-10) and Attachment F as clean text (Table 3.11-1; page 3-652, Table 3.11-4; page 3-700; Table 3.11-10).

Supporting Design Report:


8. The proposed minimum flow turbine at the Bellows Falls Project could affect the stability of the spillway section where the proposed minimum flow unit would be installed. Specifically, this could change the stability analysis for this spillway section. Please update the stability analysis provided in the Supporting Design Report for this spillway section of the dam. If the proposed modifications would adversely affect the stability factors of safety, please explain what measures would be taken during construction of the new unit, such that the modified dam would meet stability criteria in accordance with the Commission's Engineering Guidelines (e.g., installing post-tensioned anchors).

Great River Hydro's response:

Great River Hydro is still in conceptual design phase for the minimum flow unit at the Bellows Falls dam. There are several structural components that may change during the final design phase which may or may not affect stability. It is too early in the process to update the Stability Analysis (SA) or Supporting Design Report (SDR). Until we specify the final aerial extents of the structures, wall thickness, weights of the unit etc., a detailed SA cannot be done. As the design progresses beyond the conceptual phase, the stability analysis in the SDR will be updated to include the proposed minimum flow structures. If that analysis indicates the proposed structure does not meet the Commissions Engineering Guidelines, additional modifications (i.e. installing post-tensioned anchors) will be incorporated into the final design package. The final design package will be reviewed and approved by the FERC Division of Dam Safety and Inspection. An SA and SDR based on the final design would be submitted to the Commission for review and approval at that time.

Great River Hydro hopes these responses adequately address the deficiencies and requests for additional information. If there are any questions regarding the information provided in this filing or the process, please contact John Ragonese at 603-498-2851 or by emailing jragonese@greatriverhydro.com.

Sincerely,



John L. Ragonese
FERC License Manager

Attachments:

Attachment A: Bellows Falls License Application Exhibit A revised January 2024 – tracked changes version

Attachment B: Bellows Falls License Application Exhibit A revised January 2024 – clean version

Attachment C: Bellows Falls License Application Exhibit B revised January 2024 – tracked changes version

Attachment D: Bellows Falls License Application Exhibit B revised January 2024 – clean version

Attachment E: Composite Exhibit E revised January 2024 for Wilder, Bellows Falls and Vernon License Applications – tracked changes version

Attachment F: Composite Exhibit E revised January 2024 for Wilder, Bellows Falls and Vernon License Applications – clean version

Attachment G: Historic Architectural Resources Survey Report, May 2015, for Wilder, Bellows Falls and Vernon Projects

Attachment H: August 27, 2015 letter from New Hampshire Division of Historic Resources

Attachment I: May 15, 2027 letter from Vermont Division for Historic Preservation comment letter stating concurrence on Phase II National Register eligibility recommendations