

**Amended Final Application for New License for
Major Water Power Project – Existing Dam**

Bellows Falls Project (FERC No. 1855)

**EXHIBIT D: STATEMENT OF PROJECT COSTS AND
FINANCING**

June 2023 Revision

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EXHIBIT D: PROJECT OPERATIONS AND RESOURCE UTILIZATION

Section 5.18(a)(5)(iii) of Title 18 of the Code of Federal Regulations (CFR) refers to Section 4.51 (License for Major Project—Existing Dam) for a description of information that an applicant must include in Exhibit D. Exhibit D is a statement of costs and financing.

D1 Original Cost of the Existing Project

The Bellows Falls Project was previously licensed in 1979, and this Application is for a new license rather than initial license. Federal Energy Regulatory Commission (FERC) regulations at 18 C.F.R. § 4.51(e)(1) do not require a statement of costs of lands, water rights, structures, or facilities in applications for new licenses.

D2 Amount Payable in the Event of Project Takeover

Section 14 of the Federal Power Act (FPA) reserves to the United States the right to take over a non-publicly owned project upon expiration of its license. To date, no agency or interested party has recommended a federal takeover of the Bellows Falls Project. If such a takeover were to occur, Great River Hydro, LLC (Great River Hydro), would be entitled to be reimbursed for its net investment, not to exceed the fair value, of the property taken, plus severance damages suffered (16 United States Code [U.S.C.] § 807). However, the information required by FERC's regulations (18 C.F.R. 4.51(e)(2)) that would be needed to quantify the compensation to be paid to Great River Hydro pursuant to Section 14 is provided below.

D2.1 Fair Value

The FPA does not define the term "fair value"; however, for the purpose of this Application, Great River Hydro will rely upon gross asset value (not depreciated) as of December 31, 2019, of \$126,753,000 as the estimate of fair market value of the Bellows Falls Project.

D2.2 Net Investment

The FPA generally defines a Licensee's net investment in a project as the original cost of the project, plus additions and betterments, minus depreciation and other amounts (16 USC § 796(13)). For the purpose of this Application, net investment is represented as the net book value of the Bellows Falls Project, equal to \$121,136,000 as of December 31, 2019.

D2.3 Severance Damages

Under Section 14 of the FPA (16 USC § 807(a)) “severance damages” are those “reasonable damages, if any, to property of the licensee valuable, serviceable, and [which is then] dependent [for its usefulness upon the continuance of the license] but not taken” in the event of a federal takeover. All Project structures, facilities, equipment, and contractual obligations or requirements are required for the successful operation of the Bellows Falls Project; therefore, Great River Hydro estimates that there would not be any severance damages but cannot render a definitive determination at this time.

D3 Estimated Capital Cost of New Development

~~Great River Hydro has no plans for future development of the Bellows Falls Project.~~New development capital costs, associated with the proposed development of the 680kW minimum flow unit at the dam, are estimated to be \$6.5M. The cost estimate includes the cost of turbine generator, civil intake structure, mechanical equipment including new spill gates, control house and electrical equipment, construction and project management as well as commission and post commissioning fishery impact evaluations. Cost by year following the issuance of a new license is included in Table D-1. For more description of the proposed minimum flow unit, see Exhibit A Section A3.

D4 Estimated Average Annual Cost of the Project

This section describes the estimated annual costs of the Bellows Falls Project. The estimated average annual cost of the total Project in 2019 (in 2019 dollars) was approximately \$10,484,000 based on a full fiscal 2019 year of record. This estimate includes local, state, and federal taxes; depreciation and amortization; and operation and maintenance (O&M) expenses.

Great River Hydro’s proposed alternative includes significant modifications in project operation. The proposed operation will largely operate and manage the impoundment to a stable Target water surface elevation (WSE) while discharging estimated inflow. Great River Hydro will install, maintain, and operate equipment and tools required to manage the project under the proposed operation. Also, under the proposed alternative, continuous minimum flow of 300 cubic feet per second (cfs) will be maintained in the bypassed reach, and as such, Great River Hydro anticipates developing a dedicated means of conveying the bypassed minimum flow. It will continue to manage its existing Recreation facilities and enhance them as needed to address demands and use. Great River Hydro will develop a Programmatic Agreement for Managing Historic Properties and implement a Historic Properties Management Plan (HPMP). Although it is unclear what specific recommendations under Section 18 of the FPA will be prescribed by the Department of Interior, Great River Hydro’s proposed alternative recognizes potential fish passage improvements and potential O&M expansion. Table D-1 identifies annual cost associated with O&M related to this proposed alternative.

D4.1 Capital Costs

The Licensee uses a 10 percent rate to approximate its average cost of capital. Actual capital costs are based on a combination of funding mechanisms that may include contributions from owners, debt issuances, revolving credit lines, cash from operations, or other sources of funding.

D4.2 Local, State, and Federal Taxes

As a limited liability company, income tax liabilities associated with Great River Hydro, other than in the State of New Hampshire, are passed through to the owners. For 2019, State of New Hampshire taxes were \$249,000 for the Bellows Falls Project, and local property taxes were \$4,267,000.

D4.3 Depreciation and Amortization

Depreciation for the Bellows Falls Project in 2019 was \$2,141,000.

D4.4 Operation and Maintenance Expenses

Estimated annual O&M expenses for 2019 at the Bellows Falls Project were approximately \$3,827,000, including interim replacements, insurance, and administrative and general expenses, but excluding property taxes, income taxes, and depreciation. These costs do not include estimated O&M costs associated with Great River Hydro's proposed alternative; they are however, provided in Table D-1.

D4.5 Estimated Cost of Proposed Environmental Measures

The total direct cost of the implementing, operating, and maintaining the proposed environmental measures is estimated at ~~\$16,376,000~~~~\$5,670,000~~ (2020 \$s). The costs for major components with and the cost to operate and maintain the proposed environmental measures for the Bellows Falls Project are identified in Table D-1¹. ~~These values represent 2020 net present value costs within a 30-year period of economic analysis, allocated to the year incurred at an inflation rate of 2.5 percent per year and discount rate of 10 percent.~~

~~Table D-1. Estimated Cost of Proposed Environmental Measures.~~

Measure	Value 2020 \$s
Cultural resource surveys, HPMP measures	\$240,000
Eel surveys and studies	\$400,000
Expanded fish ladder O&M	\$500,000

¹ ~~Table D-1 was previously revised in Aug 2022 to reflect proposed fish passage enhancements per SA. Further revised June 2023 to reflect Bellows Falls minimum flow unit.~~

Measure	Value 2020-\$s
Recreation O&M	\$120,000
Impoundment WSE monitoring/Inflow forecasting enhancements and O&M	\$205,000
Fish ladder modifications	\$370,000
Downstream fish passage	\$1,750,000
Recreation area improvements	\$310,000
WSE monitoring Inflow forecasting equipment and installation	\$275,000
Bypass minimum flow gate	\$1,500,000
TOTAL	\$5,670,000

D5 Estimated Annual Value of Project Power

Project energy is sold into the New England Independent System Operator (ISO-NE) regional market on a day-ahead and real-time basis at the prices that clear for each generating facility. Capacity commitments are priced through a regional Forward Capacity Auction process. The Bellows Falls Project also receives revenue for providing ancillary services to the regional system and the sale of renewable energy credits. Table D-2 summarizes estimated revenues from energy production, capacity, renewable energy credits, and ancillary services based on 2019 prices and generation (253,565 megawatt-hours [MWh]). The total estimated annual valuation of Project power is \$13,982,143 or \$55.14/MWh.

Table D-2. Valuation of annual Project output.

Revenue Source	Value
On-peak energy	\$4,830,138
Off-peak energy	\$4,041,831
Forward capacity	\$4,651,394
Renewable energy credit	\$425,215
Real-time reserves	\$245
Volt-ampere-reactive support	\$33,320
Total value	\$13,982,143
Total value per MWh	\$55.14

D6 Sources and Extent of Financing and Annual Revenues

Capital projects are financed using cash flow from operations and as necessary, additional debt obligations or equity injections. Based on the value of Project power

described in Section D5, the Bellows Falls Project will have adequate financial resources to meet the costs of operations for the term of the new license.

D7 Estimated Cost to Develop License Application

The estimated cost to develop the Bellows Falls Project License Application is approximately \$4,300,000.

D8 On-peak and Off-peak Value of Project Power

The average annual price in 2019 for real-time on-peak Bellows Falls Project power was \$37.79/MWh. The real-time off-peak price was \$32.14/MWh. Prices are annual average, location-specific prices from ISO-NE at Node 335 based on the full 2019 calendar year. Pricing nodes are specific locations on the transmission system for which the ISO-NE calculates and publishes wholesale electricity prices. Each is related to one or more of the power grid's electrical buses—specific components at which generators, loads, or the transmission system are connected. This location-specific pricing helps give market participants a clear and accurate signal of the price of electricity at every location on the grid.

D9 Estimated Average Annual Change in Project Generation and Value of Project Power Due to Changes in Project Operation

Great River Hydro's proposed operation at the Bellows Falls project, including the 300 cfs continuous discharge into the bypassed reach, is estimated to reduce overall generation due to bypass flow and shift a portion of energy from on-peak to off-peak hours due to maintaining Target water surface elevation(WSE) and passing inflow at the dam under most hours. Study 5 operations modeling was used to compare the impact on generation at all the projects under current relicensing proceedings and show relative changes in energy values between the proposed alternative and the current operation across the five representative hydrologic inflow datasets that were used throughout the relicensing studies. The operations model modeled the proposed operation as a stable impoundment at the Target WSE, discharging IEO, providing 300 cfs into the Bellows Falls bypassed reach, extending current fish ladder operations into July 15, and continuing to manage high flows through river profile operation but did not apply the use of limited discretionary Flexible Operation hours. Under the proposed operation, including added benefits of limited Flexible Operation observed in the IEO/Flexible Operation simulations, Great River Hydro estimates average total annual generation at the Bellows Falls Project to be reduced approximately by 2-3 percent; and a reduction in peak period generation of approximately 14 percent; and an increase in off-peak generation of approximately 12 percent. Table D-3 summarizes estimated change in on-peak and off-peak generation revenue based on 2019 prices and production (Table D-2), reduced by percentages listed above. The proposed 680kW minimum flow unit at the dam should recover approximately 55% of the lost energy resulting from the minimum flow diverted into the bypass versus flow through the station based on the difference in net head between the station generating units (net head

of 57 feet) and the proposed unit at the dam (net head of 31.5 feet). The annual energy generation is estimated to be approximately 5,145 mWh annually, with a total (peak and off-peak) revenue value of \$156,406 based on 2019 energy prices. Under the proposed operation, Great River Hydro does not anticipate any change in value in the Forward Capacity, Renewable Energy Credits, and Ancillary services. The total estimated annual valuation of Project power is ~~\$13,556,317~~\$13,712,725 or ~~\$53.46~~\$54.08/MWh.

Table D-3. Estimated Valuation of Project Power of Proposed Operation.

Revenue Source		Value
On-peak Energy		\$4,202,220
Off-peak Energy		\$4,243,923
Forward Capacity	No Change	\$4,651,394
Renewable Energy Credit	No Change	\$425,215
Real-time Reserves	No Change	\$245
Volt-ampere-reactive support	No Change	\$33,320
<u>Minimum flow unit combined energy</u>		<u>\$156,408</u>
Total Value		\$13,556,317 \$13,712,725
Total Value per MWh		\$53.46 \$54.08