

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

18 FERC 162,156

FEB 17 1982

Green Mountain Power Corporation) Project No. 2879-000

ORDER ISSUING MAJOR LICENSE (More than 5 MW)
(Issued February 5, 1982)

Green Mountain Power Corporation has filed an application for a license under Part I of the Federal Power Act (Act) for the proposed construction, operation and maintenance of the Bolton Falls Hydroelectric Project No. 2879. 1/ The project would be located on the Winooski River near the town of Duxbury, Washington and Chittenden Counties, Vermont. The project would be operated as a peaking facility and will affect the interests of interstate or foreign commerce.

Notice of the application has been published and comments have been received from interested Federal, State, and local agencies. No opposition exists to the construction of the project. However, some concerns were expressed by State and Federal Fish and Wildlife Agencies to the project as initially proposed. Extensive consultations have subsequently taken place and the results are discussed below. The Attorney General and Public Service Board of the State of Vermont petitioned and were granted intervenor status to allow their participation.

DESCRIPTION:

The proposed project would utilize an existing 190-foot long, 66-foot high, rockfilled timber crib and masonry dam, forebay, and remnants of a trashrack and intake structure. The original dam was built in 1899. The Applicant proposes to raise the height of the dam 9 feet by constructing a 4-foot high concrete cap and installing two 5-foot high, 95-foot long Bascule gates, a new single bifurcated penstock, a powerhouse with two 4,395 kW turbine generators and an 800-foot long, 34.5-kV transmission line. The project would have a total storage capacity of 355 acre-feet.

The Applicant proposes to provide a small day-use recreation area below the dam for water-oriented recreation, picnicking, fishing, and boating. Upstream of the dam, the Applicant would provide a canoe take-out, a scenic overlook and a canoe portage area.

DC-A-7

1/ Authority to act on this matter is delegated to the Acting Director, Office of Electric Power Regulation, under 18 C.F.R. §375.308 (1981).

SAFETY AND ADEQUACY:

The proposed rehabilitation of the dam would include the installation of anchors through the dam into bedrock and the grouting of any voids under the dam. Strengthening of the dam by use of the rock anchors was necessary because of the proposed increase in its height. The dam has been analyzed by the staff and was found to be safe against sliding and overturning for various loading conditions including normal reservoir, earthquake and ice conditions. The existing dam was inspected by the Commission's staff on June 2, 1981, and it was determined that the project is located in an undeveloped rural area and is a low hazard dam. Failure of the dam, would not result in a downstream hazard to human life or significant property damage.

CULTURAL RESOURCES:

The Vermont State Historic Preservation Officer (SHPO) concluded that the Bolton Falls Dam meets the criteria for inclusion in the National Register of Historic Places. The SHPO also concluded that although proposed construction work at the project would cause some changes in the appearance of the dam, the construction would not affect the dam's structural qualities that make it eligible for the National Register.

Staff's analysis of project effects on the historic character of the dam indicates that there would be no adverse effect on the property, with certain qualifications. There would be structural and visual changes to the dam if the Applicant's reactivation proposal is implemented. The dam's eligibility for the National Register however, does not stem from its architectural qualities, but from its association with the early development of hydroelectric technology and power production in Vermont. Without some form of renovation there would be a further decline in the remaining qualities that make the dam representative of early hydroelectric development in the State.

Staff's finding of no adverse effect is also based upon the implementation of certain mitigative measures proposed by the Applicant. These measures would require: (1) cooperation with the SHPO in adhering, where possible, to the Secretary of the Interior's Standards for Rehabilitation; (2) design of any project structures in a manner consistent with the character of the National Register property; and, (3) written and photographic documentation of the historical and engineering features of the dam. The third measure was requested by the Advisory Council on Historic Preservation (ACHP).

cc. Willard
Issuing 2/18
Inca, 2/21

Staff has sought and received the comments of the ACHP on its determination of no adverse effect. The Executive Director of the ACHP concurs with the no adverse effect determination, provided that a documentation report on the dam is completed before alterations are made to the structure. Article 33 provides for mitigation measures proposed above.

MINIMUM FLOWS:

The States of Vermont and New York are presently cooperating in re-establishing salmonid fisheries in Lake Champlain. The reach of river below Bolton Falls is being considered for the rearing of steelhead, rainbow trout and landlocked Atlantic salmon. Nursery potential is considered excellent. Restoration plans also call for the use of the Mad River, a tributary of the Winooski River upstream from the Bolton Falls Dam.

The Vermont Agency of Environmental Conservation (VAEC) initially commented that the Applicant's environmental assessment of the proposed project was not adequate to make a determination in regard to streamflows. The VAEC further stated that the Vermont Department of Water Resources and the Vermont Division of Fish and Game (VDFG) would study the stream and fishery resources below Bolton Falls. Based on the results of the study the VAEC then recommended that a minimum flow of 325 cfs be passed from the dam whenever available. The VAEC also recommended that the upstream hydroelectric facilities owned by the Applicant be operated in a manner to ensure the availability of this minimum flow, and that the Applicant provide assurances that project design allows for continuous flow through the tailrace pool, which extends from the base of the dam to below the powerhouse outlet.

EPA stated that it had no objection to the Applicant's original proposal to release a minimum flow equal to the 7Q10 (120 cfs). The Department of the Interior (Interior) however, recommended a minimum flow of 425 cfs, which was based on its New England flow policy, but later commented that results of a limited study of the area suggest that a flow in the range 300-360 cfs may be adequate.

Subsequently, on March 31, 1981 (amended May 13, 1981), VAEC issued a water quality certificate pursuant to Section 401 of the Clean Water Act. A principal feature of the certification is the requirement to release a minimum flow from the tailrace. If the VAEC finds, however, that the water quality in the pool between the dam and tailrace is significantly degraded,

it may modify the terms of the certification to require the Applicant to supplement flows into the tailrace pool to maintain Vermont water quality standards.

By letter dated May 20, 1981, the Applicant accepted conditions imposed in the water quality certificate. On July 10, 1981; the Applicant revised its license application to include provisions for a 300 cfs minimum flow and revised its project design to include two turbine generators, one of which would pass the minimum flow (originally one 6.5-MW turbine-generator was proposed in the April 7, 1981, filing).

Interior, subsequently revised its earlier comments, stating that VAEC's findings on minimum flows were acceptable. Interior also requested that the license be conditioned to require the Applicant to (1) submit a detailed proposal for operating its upstream facilities to make possible the required releases at Bolton Falls, (2) report on the feasibility of suppressing wide fluctuations in streamflow in order to further reduce disruptive impacts on aquatic life, and (3) provide assurance that a continuous flow would be maintained through the tailrace pool.

The VAEC has adequately shown that a minimum release from the project works of 300 cfs is needed to ensure that the project would be operated in a manner which would not cause a violation of the state water quality standards. Article 29 requires a minimum flow release from the project of 300 cfs or a release equal to inflow to the reservoir, whichever is less.

Interior requested that a continuous flow be maintained below the project dam. Although this reach is considered by the VAEC to be an important fisheries asset, the water quality certificate does not require releases to be made upstream from the tailrace. The VAEC anticipates that leakage and the powerhouse discharge may be sufficient to maintain water quality in this reach of river at levels meeting state standards. During construction of the project, however, the Applicant proposes to grout upstream from the dam to minimize water losses underneath and to fill voids under the toe of the dam. This action may reduce leakage and require supplemental flow to be released at the base of the dam to meet state water quality requirements. Sufficient authority exists under the terms of the license to take appropriate actions on this matter if it is found to be a problem after project operation commences.

Both the VAEC and Interior believe that the Applicant should coordinate releases from several upstream projects in order to assure that minimum flow requirements are met at Bolton Falls. With the exception of FERC Project No. 2090, located on the Little River tributary, upstream projects are not licensed by FERC and it has been determined that those projects are not under Commission jurisdiction. 2/

Project No. 2090 is operated for flood control as governed by license conditions and power generation. A minimum flow release of 3 cfs is required by the license. The Applicant attempts to maintain the water surface elevation of the project's impoundment for recreation purposes in cooperation with the State. Alteration of project operation would, therefore, impact existing power operation and recreational use of the impoundment.

FLOW FLUCTUATIONS:

The VAEC expressed concern that fluctuation of river stages resulting from project operation could dewater shallow areas used for fish spawning. The VAEC stated that flows characteristic during spawning periods should ideally be sustained to provide water cover during the egg incubation period. With flows fluctuating during peaking operation, redds located in fringe areas during generation could become dewatered when flows are reduced to the 300-cfs minimum. Further, brown trout spawning would occur during fall low-flow periods with subsequent generation flows scouring the redds. Hazards to wading fishermen and other users would occur when flow is suddenly increased from a base flow up to a generation flow.

Interior recommended that in any license issued the Applicant as noted above be required to investigate and report on the feasibility of suppressing wide fluctuations in streamflow in order to reduce disruptive impacts on aquatic life.

Staff believes that sudden significant reductions in flows may strand fish and other aquatic organisms, and damage redds. Control of fluctuations could reduce these impacts. Article 31 requires an assessment by the Licensee of the possibility of regulating maximum changes in flow over time, considering effects on the aquatic biota and on project peaking capability.

FISH PASSAGE:

Interior recommended that any license issued be conditioned to include construction of fish passage facilities for upstream and downstream migrant fish at the request of the Secretary of the Interior. The VAEC stated that the Applicant should

provide for passing fish above the project dam, either by installing a fishway at the project dam or by sharing the costs in a trapping/trucking operation. The fish trap would be constructed at the Chace Mill Project, FERC No. 2756 (license application pending), the lowermost dam on the Winooski River. Captured fish would be trucked to upstream reaches of the river with appropriate spawning habitat.

In response, the Applicant stated that the solution to fish passage has been mutually understood to be a fish trapping facility to be built at the Chace Mill Project with a release location upstream from the Bolton Falls Project. The Applicant, while believing the trapping/trucking operation should be self-supporting via fishing license fees, has stated it intends to cooperate in a basin-wide plan.

Staff believes that the Licensee should share the costs of operating the fish trap and subsequent trucking of fish to upstream spawning areas in lieu of constructing permanent fish passage facilities at the project dam at this time. Article 30 requires the Licensee to submit a plan for cost sharing of fish passage facilities to assist the implementation of the State's fish passage plan.

RECREATION:

The VAEC recommended that the focus for recreational development at the project site should center on canoeing, fishing, picnicking, and viewing of the falls and gorge. The VAEC recommended against development of a volleyball area and swimming beach which were part of the Applicant's original plan.

The VAEC requested the opportunity to review Applicant's plans for maintenance and operation of the proposed recreational facilities. The Town of Duxbury requested that Applicant install safety gate/fences to segregate the recreation facility from the power plant area and upgrade the safety of the railroad crossing at the entrance to the area.

In response to the agencies' comments and in the revisions to the application, the Applicant stated that it would operate and maintain the proposed recreation area and improve safety at the railroad crossing by installing signals and drop gates.

Applicant's proposed recreation plan as set forth in the Exhibit E to include revisions dated July 10, 1981, complies with the Commission's regulations and is approved as part of the license.

2/ See Order Dismissing Applications For License, Projects Nos. 2439, 2480 and 2653 issued August 24, 1979.

ENVIRONMENTAL IMPACTS:

During construction activities, impacts on water quality and aquatic biota would be localized and temporary. During this period, dewatering of areas on the upstream side of the dam would occur, although streamflow would not be stopped or diverted out of the streambed. Construction activities would result in increased turbidity and sedimentation greater than those that now occur. The Applicant's erosion and sedimentation controls should, however, minimize any adverse impact.

The renovation of the hydroelectric facility could result in the loss of state-listed orchid plants found growing on the powerhouse site and along the access road. Impacts to wildlife would result from loss of habitat. The areas affected, however, are small. Similar habitat is available surrounding the project site and should provide adequate habitat for displaced wildlife.

The appearance of the project dam, a property eligible for the National Register, would be altered, but the qualities that make it eligible would not be materially affected.

Raising the height of the dam 9 feet would inundate about 1 mile of riffle area and preclude its use as a potential spawning and nursery area. This alteration of habitat is not expected to significantly affect the Lake Champlain salmonid restoration plan.

Downstream from the dam, flow variations would normally be in the range of 300 cfs to 2,000 cfs. While the Applicant's proposal to release a 300 cfs minimum flow would offer some protection to the aquatic resources in the reach of river below the powerhouse discharge, high flows during generation may disrupt redds and aquatic organisms. Gradual flow changes, if implemented, would, however, ameliorate any associated impact.

The project dam would remain as a barrier to existing fish species that migrate upstream within the Winooski River. Should the Lake Champlain coldwater fish restoration program proceed as planned, the project dam and several downstream dams would block spawning migrations of Atlantic salmon and steelhead trout from Lake Champlain. The Applicant, however, has stated it would cooperate in a fish trapping/trucking program that would enable migratory fishes to be moved to potential spawning areas in the Winooski River basin without the high costs associated with construction of permanent fishways at the project.

Impacts to the visual resources of the project area would occur as a result of raising the elevation of the dam. The higher reservoir level would inundate remnants of Bolton Falls, upstream rapids and islands within a three mile reach above the dam. Bolton Falls Gorge, however, would remain as a scenic attraction, viewed from the Applicant's proposed scenic overlook.

On the basis of the record, including agency and intervenor comments, and the staff's independent analysis, it is found that the issuance of a license for the project, as conditioned, would not constitute a major Federal action significantly affecting the quality of the human environment.

ECONOMIC FEASIBILITY:

The staff has analyzed the economic feasibility of the redevelopment of the Bolton Falls Dam. The estimated annual cost of output of the proposed project was compared with the levelized annual cost of producing an equivalent amount of power from coal fired generation and was determined to be significantly lower and therefore, making the proposed project economically justified. The installed capacity of the proposed project was determined by staff to be adequate to develop the regulated flows of the Winooski River. The Bolton Falls Project would not be in conflict with any existing or planned developments on the Winooski River. ^{3/} It is concluded that, as conditioned in this license, Project No. 2879 is best adapted to a comprehensive plan for the development of the river basin for beneficial public uses and that issuance of this license is in the public interest.

LICENSE TERM:

The proposed scale of development does not warrant a full 50-year term since the project would utilize an existing dam. Therefore, pursuant to the Commission's policy for licensing projects involving substantial redevelopment, ^{4/} this license term will be for a period of 40 years.

It is ordered that:

(A) This license is issued to Green Mountain Power Corporation (Licensee) under Part I of the Federal Power Act (Act), for a period of 40 years, effective the first day of the month in which this order is issued, for the construction,

^{3/} The project would generate up to 27,000,000 kWh, annually saving the equivalent of 44,300 barrels of oil or 12,500 tons of coal.

^{4/} Montana Power Company, Order Issuing New License (Major), Project No. 2301, 56 FPC 2008 (1976).

operation, and maintenance of the Bolton Falls Project No. 2879 located in Washington and Chittenden Counties, Vermont, on the Winooski River. This license is subject to the terms and conditions of the Act, which are incorporated by reference as part of this license, and subject to the regulations the Commission issued under the provisions of the Act.

(B) The Bolton Falls Project No. 2879 consists of:

(1) All lands, to the extent of the Licensee's interests in those lands, constituting the project area and enclosed by the project boundary. The project area and boundary are shown and described by certain exhibits that form part of the application for license and that are designated and described as:

<u>Exhibit</u>	<u>FERC No. 2879-</u>	<u>Showing</u>
G Sheet 1	6	General Map

(2) Project works consisting of: (1) an existing 70-foot high, 190-foot long rock filled timber crib and masonry dam; (2) twin 5-foot high Bascule gates; (3) a 70-acre reservoir with a usable storage capacity of 215-acre feet at a maximum normal water surface elevation of 397 feet msl; (4) an existing forebay, trash rack and intake structure; (5) a new 82-foot long, 13-foot diameter steel penstock bifurcating into two 22-foot long, 10-foot diameter steel penstocks; (6) a new powerhouse containing two single turbine generators with a total rated capacity of 8.79 MW; (7) a 120-foot long tailrace channel; (8) the generator leads; (9) a 13.8/34.5-kV step-up transformer; (10) an 800-foot long 34.5-kV transmission line; and (11) appurtenant facilities.

The location, nature, and character of these project works are generally shown and described by the exhibits cited above and more specifically shown and described by certain other exhibits and reports that also form part of the application for license and that are designated and described as:

<u>Exhibit</u>	<u>FERC Drawing No. 2879-</u>	<u>Showing</u>
F Sheet 1	2	Existing Construction Plan and Section and Elevation
F Sheet 2	3	Existing Construction Plan and Section and Elevation

F Sheet 3	4	Proposed Construction Plan
F Sheet 4	5	Proposed Construction Sections

(3) Report on Recreational Facilities filed on April 7, 1981, and revised on July 10, 1981, consisting of 34 pages of text (E-95 to E-128) and Figure E-10 drawing (FERC No. 2879-1) showing a general recreation plan entitled "Recreational Facilities".

(4) All of the structures, fixtures, equipment, or facilities used or useful in the operation or maintenance of the project and located within the project boundary, all portable property that may be employed in connection with the project, located within or outside the project boundary, as approved by the Commission, and all riparian or other rights that are necessary or appropriate in the operation or maintenance of the project.

(C) Exhibits F and G and the Report on Recreational Facilities designated in ordering paragraph (B) above are approved and made a part of the license.

(D) This license is also subject to Article 1 through 23 set forth in Form L-11 (revised October, 1975), entitled "Terms and Conditions of License for Unconstructed Major Project Affecting The Interests of Interstate Commerce", attached to and made a part of this license. The license is also subject to the following special articles:

Article 24. The Licensee shall, within 90 days of completion of construction, file with the Director, Office of Electric Power Regulation in accordance with Commission's Rules and Regulations, revised "as-built" Exhibit F drawings showing the project as finally constructed.

Article 25. The Licensee shall file with the Commission's Regional Engineer and the Director, Office of Electric Power Regulation, one copy each of the final contract drawings and specifications for pertinent features of the project, such as water retention structures, powerhouses, and water conveyance structures, 60 days prior to start of construction. The Director, Office of Electric Power Regulation may require changes in the plans and specifications to ensure a safe and adequate project.

Article 26. The Licensee shall pay the United States the following annual charges, effective the first day of the month in which this license is issued:

For the purpose of reimbursing the United States for the cost of administration of Part I of the Act, a reasonable amount as determined in accordance with the provisions of the Commission's regulations in effect from time to time. The authorized installed capacity for that purpose is 11,700 horsepower.

Article 27. The Licensee shall commence construction of the project within two years from the effective date of this license and, in good faith and with due diligence, shall prosecute and complete construction of the project works within four years from the effective date of this license.

Article 28. The Licensee shall review and approve the design and construction procedures for contractor-designed cofferdams prior to the start of construction. The Licensee shall file with the Commission's Regional Engineer and Director, Office of Electric Power Regulation, one copy of the approved construction drawings and specifications and a copy of the letter of approval.

Article 29. Licensee shall discharge from the Bolton Falls Project, a continuous minimum flow of 300 cubic feet per second, or the inflow to the reservoir, whichever is less, for the purpose of protecting and enhancing aquatic resources in the Winooski River. These flows may be temporarily modified if required by operating emergencies beyond the control of the Licensee, and for short periods for fishery management purposes upon mutual agreement between the Licensee and the Vermont Department of Fish and Game.

Article 30. Licensee, in consultation with the Vermont Department of Fish and Game and the U.S. Fish and Wildlife Service, shall prepare a plan for assisting in the transport of upstream migratory fishes collected at the Chase Mill Project fish trap to upstream spawning areas in the Winooski River Basin. The plan shall be developed in cooperation with the Licensee of the Chase Mill Project, FERC No. 2756, and filed with the Commission within 1 year after the start of commercial operation of the project.

Article 31. Licensee shall, in cooperation with the Vermont Agency of Environmental Conservation, investigate the feasibility of minimizing instantaneous flow changes during daily project operation. Further, the Licensee shall file a report on said investigation within 1 year following the start of commercial operation of the project to include the potential effects on downstream aquatic resources and on project peaking capability, and for Commission approval, any changes in the project's operation found necessary.

Article 32. (a) In accordance with the provisions of this article, the Licensee shall have the authority to grant permission for certain types of use and occupancy of project lands and waters and to convey certain interests in project lands and waters for certain other types of use and occupancy, without prior Commission approval. The Licensee may exercise the authority only if the proposed use and occupancy is consistent with the purposes of protecting and enhancing the scenic, recreational, and other environmental values of the project. For those purposes, the Licensee shall also have continuing responsibility to supervise and control the uses and occupancies for which it grants permission, and to monitor the use of, and ensure compliance with the covenants of the instrument of conveyance for, any interests that it has conveyed, under this article. If a permitted use and occupancy violates any condition of this article or any other condition imposed by the Licensee for protection and enhancement of the project's scenic, recreational, or other environmental values, or if a covenant of a conveyance made under the authority of this article is violated, the Licensee shall take any lawful action necessary to correct the violation. For a permitted use or occupancy, that action includes, if necessary, cancelling the permission to use and occupy the project lands and waters and requiring the removal of any non-complying structures and facilities.

(b) The types of use and occupancy of project lands and waters for which the Licensee may grant permission without prior Commission approval are: (1) landscape plantings; (2) non-commercial piers, landings, boat docks, or similar structures and facilities; and (3) embankments, bulkheads, retaining walls, or similar structures for erosion control to protect the existing shoreline. To the extent feasible and desirable to protect and enhance the project's scenic, recreational, and other environmental values, the Licensee shall require multiple use and occupancy of facilities for access to project lands or waters. The Licensee shall also ensure, to the satisfaction of the Commission's authorized representative, that the uses and occupancies for which it grants permission are maintained in good repair and comply with applicable State and local health and safety requirements. Before granting permission for construction of bulkheads or retaining walls, the Licensee shall: (1) inspect the site of the proposed construction, (2) consider whether the planting of vegetation or the use of riprap would be adequate to control erosion at the site, and (3) determine that the proposed construction is needed and would not change the basic contour of the reservoir shoreline. To implement this paragraph (b), the Licensee may, among other things, establish a program for issuing permits for the specified types of use and occupancy of project lands and waters, which may be subject to the payment of a reasonable fee to cover the Licensee's costs of administering the permit program. The Commission reserves the right to require the Licensee to file a description of its standards, guidelines, and procedures for implementing this paragraph (b) and to require modification of those standards, guidelines, or procedures.

(c) The Licensee may convey easements or rights-of-way across, or leases of, project lands for: (1) replacement, expansion, realignment, or maintenance of bridges and roads for which all necessary State and Federal approvals have been obtained; (2) storm drains and water mains; (3) sewers that do not discharge into project waters; (4) minor access roads; (5) telephone, gas, and electric utility distribution lines; (6) non-project overhead electric transmission lines that do not require erection of support structures within the project boundary; (7) submarine, overhead, or underground major telephone distribution cables or major electric distribution lines (69-kV or less); and (8) water intake or pumping facilities that do not extract more than one million gallons per day from a project reservoir. No later than January 31 of each year, the Licensee shall file three copies of a report briefly describing for each conveyance made under this paragraph (c) during the prior calendar year, the type of interest conveyed, the location of the lands subject to the conveyance, and the nature of the use for which the interest was conveyed.

(d) The Licensee may convey fee title to, easements or rights-of-way across, or leases of project lands for: (1) construction of new bridges or roads for which all necessary State and Federal approvals have been obtained; (2) sewer or effluent lines that discharge into project waters, for which all necessary Federal and State water quality certificates or permits have been obtained; (3) other pipelines that cross project lands or waters but do not discharge into project waters; (4) non-project overhead electric transmission lines that require erection of support structures within the project boundary, for which all necessary Federal and State approvals have been obtained; (5) private or public marinas that can accommodate no more than 10 watercraft at a time and are located at least one-half mile from any other private or public marina; (6) recreational development consistent with an approved Exhibit R or approved report on recreational resources of an Exhibit E; and (7) other uses, if: (i) the amount of land conveyed for a particular use is five acres or less; (ii) all of the land conveyed is located at least 75 feet, measured horizontally, from the edge of the project reservoir at normal maximum surface elevation; and (iii) no more than 50 total acres of project lands for each project development are conveyed under this clause (d)(7) in any calendar year. At least 45 days before conveying any interest in project lands under this paragraph (d), the Licensee must file a letter to the Director, Office of Electric Power Regulation, stating its intent to convey the interest and briefly describing the type of interest and location of the lands to be conveyed (a marked Exhibit G or K map may be used), the nature of the proposed use, the identity of any Federal or State agency official consulted, and any Federal or State approvals required for the proposed use. Unless the Director, within 45 days from the filing date, requires the Licensee to file an application for prior approval, the Licensee may convey the intended interest at the end of that period.

(e) The following additional conditions apply to any intended conveyance under paragraphs (c) or (d) of this article:

(1) Before conveying the interest, the Licensee shall consult with Federal and State fish and wildlife or recreation agencies, as appropriate, and the State Historic Preservation Officer.

(2) Before conveying the interest, the Licensee shall determine that the proposed use of the lands to be conveyed is not inconsistent with any approved Exhibit R or approved report on recreational resources of an Exhibit E; or, if the project does not have an approved Exhibit R or approved report on recreational resources, that the lands to be conveyed do not have recreational value.

(3) The instrument of conveyance must include covenants running with the land adequate to ensure that: (i) the use of the lands conveyed shall not endanger health, create a nuisance, or otherwise be incompatible with overall project recreational use; and (ii) the grantee shall take all reasonable precautions to ensure that the construction, operation, and maintenance of structures or facilities on the conveyed lands will occur in a manner that will protect the scenic, recreational, and environmental values of the project.

(4) The Commission reserves the right to require the Licensee to take reasonable remedial action to correct any violation of the terms and conditions of this article, for the protection and enhancement of the project's scenic, recreational, and other environmental values.

(f) The conveyance of an interest in project lands under this article does not in itself change the project boundaries. The project boundaries may be changed to exclude land conveyed under this article only upon approval of revised Exhibit G or K drawings (project boundary maps) reflecting exclusion of that land. Lands conveyed under this article will be excluded from the project only upon a determination that the lands are not necessary for project purposes, such as operation and maintenance, flowage, recreation, public access, protection of environmental resources, and shoreline control, including shoreline aesthetic values. Absent extraordinary circumstances, proposals to exclude lands conveyed under this article from the project shall be consolidated for consideration when revised Exhibit G or K drawings would be filed for approval for other purposes.

Article 33. The Licensee shall cooperate with the Vermont State Historic Preservation Officer (SHPO) to implement mitigation measures, as concurred in by the Advisory Council on Historic Preservation, for avoiding adverse impacts on the Bolton Falls Dam, a property eligible for inclusion in the National Register of Historic Places. These measures shall include: (1) adherence, where technically and economically feasible, to the Secretary of the Interior's Standards for Rehabilitation; (2) design of project structures in a manner consistent with the character of the historic dam; and, (3) compilation of a brief historic narrative of the dam and former hydroelectric facilities, to be accompanied by historic photographs and engineering drawings, for deposit in the SHPO's archives. The Licensee shall make available funds in a reasonable amount for mitigation measures required. If any previously undiscovered archeological sites are found during the course of construction or development of any project works or other facilities, construction activity in the vicinity shall be halted, a qualified archeologist shall be consulted to determine the significance of the resources, and the Licensee shall consult with the SHPO to develop a mitigation plan for the protection of significant archeological resources. If the Licensee and the SHPO cannot agree on the amount of money to be expended on historical and archeological work related to the project, the Commission reserves the right to require the Licensee to conduct, at its own expense, any such work found necessary.

Article 34. Pursuant to Section 10(d) of the Act, the first 20 years of operation of the project under license, a specified reasonable rate of return upon the net investment in the project shall be used for determining surplus earnings of the project for the establishment and maintenance of amortization reserves. One half of the project surplus earnings, if any, accumulated after the first 20 years of operation under the license, in excess of the specified rate of return per annum on the net investment, shall be set aside in a project amortization reserve account at the end of each fiscal year. To the extent that there is a deficiency of project earnings below the specified rate of return per annum for any fiscal year after the first 20 years of operation under the license, the amount of that deficiency shall be deducted from the amount of any surplus earnings subsequently accumulated, until absorbed. One-half of the remaining surplus earnings, if any, cumulatively computed, shall be set aside in the project amortization reserve account. The amounts established in the project amortization reserve account shall be maintained until further order of the Commission.

The annual specified reasonable rate of return shall be the sum of the annual weighted costs of long-term debt, preferred stock, and common equity, as defined below. The annual weighted cost for each component of the reasonable rate of return is the product of its capital ratio and cost rate. The annual capital ratio for each component of the rate of return shall be calculated based on an average of 13 monthly balances of amounts properly includable in the Licensee's long-term debt and proprietary capital accounts as listed in the Commission's Uniform System of Accounts. The cost rates for long-term debt and preferred stock shall be their respective weighted average costs for the year, and the cost of common equity shall be the interest rate on 10-year government bonds (reported as the Treasury Department's 10 year constant maturity series) computed on the monthly average for the year in question plus four percentage points (400 basis points).

(C) This order is final unless a petition appealing it to the Commission is filed within 30 days from the date of its issuance, as provided in Section 1.7(d) of the Commission's regulations, 18 C.F.R. 1.7(d) (1981). The filing of a petition appealing this order to the Commission or an application for rehearing as provided in Section 313(a) of the Act does not operate as a stay of the effective date of this License or of any other date specified in this order, except as specifically ordered by the Commission. The Licensee's failure to file a petition appealing this order to the Commission shall constitute acceptance of this license. In acknowledgment of acceptance of this license and its terms and conditions, it shall be signed by the Licensee and returned to the Commission within 60 days from the date this order is issued.


Robert E. Cackowski
Acting Director, Office of
Electric Power Regulation

Project No. 2879

Form L-11
(Revised October, 1975)

IN TESTIMONY of its acknowledgment of acceptance of all of
the terms and conditions of this Order, _____
_____ this _____ day of _____, 1981, has caused
its corporate name to be signed hereto by _____
its President, and its corporate seal to be affixed hereto and
attested by _____, its _____
Secretary, pursuant to a resolution of its Board of Directors
July adopted on the _____ day of _____, 19____,
a certified copy of the record of which is attached hereto.

By _____
President

Attest:

Secretary

FEDERAL POWER COMMISSION

TERMS AND CONDITIONS OF LICENSE FOR UNCONSTRUCTED
MAJOR PROJECT AFFECTING THE INTERESTS
OF INTERSTATE OR FOREIGN COMMERCE

Article 1. The entire project, as described in this order of the Commission, shall be subject to all of the provisions, terms, and conditions of the license.

Article 2. No substantial change shall be made in the maps, plans, specifications, and statements described and designated as exhibits and approved by the Commission in its order as a part of the license until such change shall have been approved by the Commission: Provided, however, That if the Licensee or the Commission deems it necessary or desirable that said approved exhibits, or any of them, be changed, there shall be submitted to the Commission for approval a revised, or additional exhibit or exhibits covering the proposed changes which, upon approval by the Commission, shall become a part of the license and shall supersede, in whole or in part, such exhibit or exhibits theretofore made a part of the license as may be specified by the Commission.

Article 3. The project works shall be constructed in substantial conformity with the approved exhibits referred to in Article 2 herein or as changed in accordance with the provisions of said article. Except when emergency shall require for the protection of navigation, life, health, or property, there shall not be made without prior approval of the Commission any substantial alteration or addition not in conformity with the approved plans to any dam or other project works under the license or any substantial use of project lands and waters not authorized herein; and any emergency alteration, addition, or use so made shall thereafter be subject to such modification and change as the Commission may direct. Minor changes in project works, or in uses of project lands and waters, or divergence from such approved exhibits may be made if such changes will not result in a decrease in efficiency, in a material increase in cost, in an adverse environmental impact, or in impairment of the general scheme of development; but any of such minor changes made without the prior approval of the Commission, which in its

judgment have produced or will produce any of such results, shall be subject to such alteration as the Commission may direct.

Upon the completion of the project, or at such other time as the Commission may direct, the Licensee shall submit to the Commission for approval revised exhibits insofar as necessary to show any divergence from or variations in the project area and project boundary as finally located or in the project works as actually constructed when compared with the area and boundary shown and the works described in the license or in the exhibits approved by the Commission, together with a statement in writing setting forth the reasons which in the opinion of the Licensee necessitated or justified variation in or divergence from the approved exhibits. Such revised exhibits shall, if and when approved by the Commission, be made a part of the license under the provisions of Article 2 hereof.

Article 4. The construction, operation, and maintenance of the project and any work incidental to additions or alterations shall be subject to the inspection and supervision of the Regional Engineer, Federal Power Commission, in the region wherein the project is located, or of such other officer or agent as the Commission may designate, who shall be the authorized representative of the Commission for such purposes. The Licensee shall cooperate fully with said representative and shall furnish him a detailed program of inspection by the Licensee that will provide for an adequate and qualified inspection force for construction of the project and for any subsequent alterations to the project. Construction of the project works or any feature or alteration thereof shall not be initiated until the program of inspection for the project works or any such feature thereof has been approved by said representative. The Licensee shall also furnish to said representative such further information as he may require concerning the construction, operation, and maintenance of the project, and of any alteration thereof, and shall notify him of the date upon which work will begin, as far in advance thereof as said representative may reasonably specify, and shall notify him promptly in writing of any suspension of work for a period of more than one week, and of its resumption and completion. The Licensee shall allow said representative and other officers or employees of the United States, showing proper credentials, free and unrestricted access to, through, and

across the project lands and project works in the performance of their official duties. The Licensee shall comply with such rules and regulations of general or special applicability as the Commission may prescribe from time to time for the protection of life, health, or property.

Article 5. The Licensee, within five years from the date of issuance of the license, shall acquire title in fee or the right to use in perpetuity all lands, other than lands of the United States, necessary or appropriate for the construction, maintenance, and operation of the project. The Licensee or its successors and assigns shall, during the period of the license, retain the possession of all project property covered by the license as issued or as later amended, including the project area, the project works, and all franchises, easements, water rights, and rights of occupancy and use; and none of such properties shall be voluntarily sold, leased, transferred, abandoned, or otherwise disposed of without the prior written approval of the Commission, except that the Licensee may lease or otherwise dispose of interests in project lands or property without specific written approval of the Commission pursuant to the then current regulations of the Commission. The provisions of this article are not intended to prevent the abandonment or the retirement from service of structures, equipment, or other project works in connection with replacements thereof when they become obsolete, inadequate, or inefficient for further service due to wear and tear; and mortgage or trust deeds or judicial sales made thereunder, or tax sales, shall not be deemed voluntary transfers within the meaning of this article.

Article 6. In the event the project is taken over by the United States upon the termination of the license as provided in Section 14 of the Federal Power Act, or is transferred to a new licensee or to a non-power licensee under the provisions of Section 15 of said Act, the Licensee, its successors and assigns shall be responsible for, and shall make good any defect of title to, or of right of occupancy and use in, any of such project property that is necessary or appropriate or valuable and serviceable in the maintenance and operation of the project, and shall pay and discharge, or shall assume responsibility for payment and discharge of, all liens or encumbrances upon the project or project property created by the Licensee or created or incurred after the issuance of the license: Provided, That the provisions of this article are not intended to require the Licensee, for

the purpose of transferring the project to the United States or to a new licensee, to acquire any different title to, or right of occupancy and use in, any of such project property than was necessary to acquire for its own purposes as the Licensee.

Article 7. The actual legitimate original cost of the project, and of any addition thereto or betterment thereof, shall be determined by the Commission in accordance with the Federal Power Act and the Commission's Rules and Regulations thereunder.

Article 8. The Licensee shall install and thereafter maintain gages and stream-gaging stations for the purpose of determining the stage and flow of the stream or streams on which the project is located, the amount of water held in and withdrawn from storage, and the effective head on the turbines; shall provide for the required reading of such gages and for the adequate rating of such stations; and shall install and maintain standard meters adequate for the determination of the amount of electric energy generated by the project works. The number, character, and location of gages, meters, or other measuring devices, and the method of operation thereof, shall at all times be satisfactory to the Commission or its authorized representative. The Commission reserves the right, after notice and opportunity for hearing, to require such alterations in the number, character, and location of gages, meters, or other measuring devices, and the method of operation thereof, as are necessary to secure adequate determinations. The installation of gages, the rating of said stream or streams, and the determination of the flow thereof, shall be under the supervision of, or in cooperation with, the District Engineer of the United States Geological Survey having charge of stream-gaging operations in the region of the project, and the Licensee shall advance to the United States Geological Survey the amount of funds estimated to be necessary for such supervision, or cooperation for such periods as may be mutually agreed upon. The Licensee shall keep accurate and sufficient records of the foregoing determinations to the satisfaction of the Commission, and shall make return of such records annually at such time and in such form as the Commission may prescribe.

Article 9. The Licensee shall, after notice and opportunity for hearing, install additional capacity or make other changes in the project as directed by the Commission, to the extent that it is economically sound and in the public interest to do so.

Article 10. The Licensee shall, after notice and opportunity for hearing, coordinate the operation of the project, electrically and hydraulically, with such other projects or power systems and in such manner as the Commission may direct in the interest of power and other beneficial public uses of water resources, and on such conditions concerning the equitable sharing of benefits by the Licensee as the Commission may order.

Article 11. Whenever the Licensee is directly benefited by the construction work of another licensee, a permittee, or the United States on a storage reservoir or other headwater improvement, the Licensee shall reimburse the owner of the headwater improvement for such part of the annual charges for interest, maintenance, and depreciation thereof as the Commission shall determine to be equitable, and shall pay to the United States the cost of making such determination as fixed by the Commission. For benefits provided by a storage reservoir or other headwater improvement of the United States, the Licensee shall pay to the Commission the amounts for which it is billed from time to time for such headwater benefits and for the cost of making the determinations pursuant to the then current regulations of the Commission under the Federal Power Act.

Article 12. The operations of the Licensee, so far as they affect the use, storage and discharge from storage of waters affected by the license, shall at all times be controlled by such reasonable rules and regulations as the Commission may prescribe for the protection of life, health, and property, and in the interest of the fullest practicable conservation and utilization of such waters for power purposes and for other beneficial public uses, including recreational purposes, and the Licensee shall release water from the project reservoir at such rate in cubic feet per second, or such volume in acre-feet per specified period of time, as the Commission may prescribe for the purposes hereinbefore mentioned.

Article 13. On the application of any person, association, corporation, Federal agency, State or municipality, the Licensee shall permit such reasonable use of its reservoir or other project properties, including works, lands and water rights, or parts thereof, as may be ordered by the Commission, after notice and opportunity for hearing, in the interests of comprehensive development of the waterway or waterways involved and the conservation and utilization of the water resources of the region for water supply or for the purposes of steam-electric, irrigation, industrial, municipal or similar uses. The Licensee shall receive reasonable compensation for use of its reservoir or other project properties or parts thereof for such purposes, to include at least full reimbursement for any damages or expenses which the joint use causes the Licensee to incur. Any such compensation shall be fixed by the Commission either by approval of an agreement between the Licensee and the party or parties benefiting or after notice and opportunity for hearing. Applications shall contain information in sufficient detail to afford a full understanding of the proposed use, including satisfactory evidence that the applicant possesses necessary water rights pursuant to applicable State law, or a showing of cause why such evidence cannot concurrently be submitted, and a statement as to the relationship of the proposed use to any State or municipal plans or orders which may have been adopted with respect to the use of such waters.

Article 14. In the construction or maintenance of the project works, the Licensee shall place and maintain suitable structures and devices to reduce to a reasonable degree the liability of contact between its transmission lines and telegraph, telephone and other signal wires or power transmission lines constructed prior to its transmission lines and not owned by the Licensee, and shall also place and maintain suitable structures and devices to reduce to a reasonable degree the liability of any structures or wires falling or obstructing traffic or endangering life. None of the provisions of this article are intended to relieve the Licensee from any responsibility or requirement which may be imposed by any other lawful authority for avoiding or eliminating inductive interference.

Article 15. The Licensee shall, for the conservation and development of fish and wildlife resources, construct, maintain, and operate, or arrange for the construction, maintenance, and operation of such reasonable facilities, and comply with such reasonable modifications of the project structures and operation, as may be ordered by the Commission upon its own motion or upon the recommendation of the Secretary of the Interior or the fish and wildlife agency or agencies of any State in which the project or a part thereof is located, after notice and opportunity for hearing.

Article 16. Whenever the United States shall desire, in connection with the project, to construct fish and wildlife facilities or to improve the existing fish and wildlife facilities at its own expense, the Licensee shall permit the United States or its designated agency to use, free of cost, such of the Licensee's lands and interests in lands, reservoirs, waterways and project works as may be reasonably required to complete such facilities or such improvements thereof. In addition, after notice and opportunity for hearing, the Licensee shall modify the project operation as may be reasonably prescribed by the Commission in order to permit the maintenance and operation of the fish and wildlife facilities constructed or improved by the United States under the provisions of this article. This article shall not be interpreted to place any obligation on the United States to construct or improve fish and wildlife facilities or to relieve the Licensee of any obligation under this license.

Article 17. The Licensee shall construct, maintain, and operate, or shall arrange for the construction, maintenance, and operation of such reasonable recreational facilities, including modifications thereto, such as access roads, wharves, launching ramps, beaches, picnic and camping areas, sanitary facilities, and utilities, giving consideration to the needs of the physically handicapped, and shall comply with such reasonable modifications of the project, as may be prescribed hereafter by the Commission during the term of this license upon its own motion or upon the recommendation of the Secretary of the Interior or other interested Federal or State agencies, after notice and opportunity for hearing.

Article 18. So far as is consistent with proper operation of the project, the Licensee shall allow the public free access, to a reasonable extent, to project waters and adjacent project lands owned by the Licensee for the purpose of full public utilization of such lands and waters for navigation and for outdoor recreational purposes, including fishing and hunting: Provided, That the Licensee may reserve from public access such portions of the project waters, adjacent lands, and project facilities as may be necessary for the protection of life, health, and property.

Article 19. In the construction, maintenance, or operation of the project, the Licensee shall be responsible for, and shall take reasonable measures to prevent, soil erosion on lands adjacent to streams or other waters, stream sedimentation, and any form of water or air pollution. The Commission, upon request or upon its own motion, may order the Licensee to take such measures as the Commission finds to be necessary for these purposes, after notice and opportunity for hearing.

Article 20. The Licensee shall consult with the appropriate State and Federal agencies and, within one year of the date of issuance of this license, shall submit for Commission approval a plan for clearing the reservoir area. Further, the Licensee shall clear and keep clear to an adequate width lands along open conduits and shall dispose of all temporary structures, unused timber, brush, refuse, or other material unnecessary for the purposes of the project which results from the clearing of lands or from the maintenance or alteration of the project works. In addition, all trees along the periphery of project reservoirs which may die during operations of the project shall be removed. Upon approval of the clearing plan all clearing of the lands and disposal of the unnecessary material shall be done with due diligence and to the satisfaction of the authorized representative of the Commission and in accordance with appropriate Federal, State, and local statutes and regulations.

Article 21. If the Licensee shall cause or suffer essential project property to be removed or destroyed or to become unfit for use, without adequate replacement, or shall abandon or discontinue good faith operation of the project or refuse or neglect to comply with the terms of the license and the lawful orders of the

Commission mailed to the record address of the Licensee or its agent, the Commission will deem it to be the intent of the Licensee to surrender the license. The Commission, after notice and opportunity for hearing, may require the Licensee to remove any or all structures, equipment and power lines within the project boundary and to take any such other action necessary to restore the project waters, lands, and facilities remaining within the project boundary to a condition satisfactory to the United States agency having jurisdiction over its lands or the Commission's authorized representative, as appropriate, or to provide for the continued operation and maintenance of nonpower facilities and fulfill such other obligations under the license as the Commission may prescribe. In addition, the Commission in its discretion, after notice and opportunity for hearing, may also agree to the surrender of the license when the Commission, for the reasons recited herein, deems it to be the intent of the Licensee to surrender the license.

Article 22. The right of the Licensee and of its successors and assigns to use or occupy waters over which the United States has jurisdiction, or lands of the United States under the license, for the purpose of maintaining the project works or otherwise, shall absolutely cease at the end of the license period, unless the Licensee has obtained a new license pursuant to the then existing laws and regulations, or an annual license under the terms and conditions of this license.

Article 23. The terms and conditions expressly set forth in the license shall not be construed as impairing any terms and conditions of the Federal Power Act which are not expressly set forth herein.