

SECRET

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Charles B. Curtis, Chairman;
Georgiana Sheldon, Matthew Holden, Jr.,
and George R. Hall.

License (Major);
Relicense; Competing
Applicant; New
Capacity (study);
Erosion Control; Fish
Passage Facilities;
Hydraulic Coordination

New England Power Company)

Project No. 1892

ORDER ISSUING NEW LICENSE
(Issued December 10, 1979)

New England Power Company (NEPCO) filed an application under Part I of the Federal Power Act for a new major license to authorize the continued operation and maintenance of the constructed Wilder Project No. 1892. The project is located on the Connecticut River, a navigable water of the United States, in Windsor and Orange Counties, Vermont and Grafton County, New Hampshire. 1/

Notice of the filing of an application was issued and the Environmental Defense Fund, Western Massachusetts Public Interest Research Group, Inc., For Lands' Sake, and Trout Unlimited have been permitted to intervene. In addition, numerous late-filed protests related to erosion control have been received and are considered below.

1/ The application was filed on June 23, 1969, and supplemented at various times, the latest being the filing of September 2, 1971.

Project No. 1892

History of the Project

A timber crib dam was built at the Wilder site in 1882 for the purpose of paper manufacture, and in 1907 work was commenced on a small powerhouse adjacent to the papermill. In 1924 an additional generator was installed and a small amount of surplus electrical power was sold to a local utility. In 1926, a concrete dam was constructed just downstream of, and to the same elevation as, the timber crib dam. Additional generating units were installed in 1928 and 1937, and the original two units were rehabilitated in 1937-38, thus bringing the total capacity of the five water wheel generating units to 5,220 kW.

On November 6, 1942, Bellows Falls Hydro-Electric Corporation purchased the Wilder Project from Olcott Falls Company and a major license was issued on April 22, 1944. ^{2/} On July 28, 1948, the license was transferred to New England Power Company. Reconstruction of the Wilder Project began in March 1949 and the existing project became operational on December 1, 1950. The original license for the project expired on June 30, 1970. The project has been operating under annual licenses since then.

^{2/} A condition of the license required the redevelopment of the project. 4 F.P.C. 3,5 (1944).

Project Description and Operation

2. The constructed project includes a concrete gravity-type dam 59 feet high, having a 232-foot long non-overflow section and a 526-foot long spillway section with tainter gates and flashboards. The dam creates a 45-mile long reservoir with a surface area of 3,100 acres at elevation 385 feet msl, and with 105 miles of shoreline. At full-pond elevation, the reservoir contains a total volume of about 55,000 acre-feet. The powerhouse contains two 16,200-kW generating units, which, under a maximum gross-head of 53 feet, are capable of producing 33,000 kW at full station load.

The project is operated primarily on a run-of-the-river basis, and has 13,500 acre-feet of useable storage. During periods of low flow, off-peak stream flows are stored and the plant is used to supply daily peak load power. During high flow periods, the plant is operated for base load power and passes the water as it is received. The normal pool elevation during the recreation season is 383 feet msl, with a maximum of 385 feet msl and a minimum of 380 feet msl. A more detailed description is given in ordering paragraph (B) below. NEPCO sometimes deviates from the above pattern of operation in order to provide for a minimum flow of 1,200 cfs from the reservoir of its downstream Vernon Project No. 1904, which supplies water to the Vermont Yankee Nuclear Power Plant

for cooling purposes. 3/ No additional construction or changes in the operation of the project are proposed, except for installation of fish passage facilities, as explained below.

Safety and Adequacy

All project structures, machinery, and appurtenant facilities were inspected by the Commission's staff and found to be adequately maintained and in good operating condition. The Commission's staff has analyzed the project works for stability and found them to be safe against sliding and overturning for various loading conditions, including extreme flooding and earthquake and ice loadings. The analysis demonstrated that the spillway overflow section is stable through the range of water surface elevations

3/ The license for the Vernon Project was amended for the use of the project as a source of cooling water by order dated July 31, 1970, 44 F.P.C. 220. Pursuant to that order, NEPCO maintains a minimum stream flow through the Vernon Project of 1,200 cfs to prevent excessive heat build-up in the reservoir. Under the new license recently issued for the Vernon Project, NEPCO must maintain a minimum flow release of 1250 c.f.s. New England Power Company, Project No. 1904, Order Issuing New License (issued June 25, 1979) (mimeo at 15).

prior to and including submergence. The spillway has successfully passed all flood flows since 1910, including the maximum flood of record, 91,000 cfs in March 1936. That flood was the greatest in the Connecticut River Basin in 300 years. Both the staff and independent consultants who have analyzed the project works under Part 12 of our regulations and consider the spillway capacity adequate. On the basis of our staff's report, we conclude that the project works are safe and adequate.

Comprehensive Development

The drainage area above the Wilder Dam is approximately 3,375 square miles, or about 30% of the total Connecticut River Basin drainage area. The average flow of the Connecticut River at the project is 5,900 cfs. In addition to the project's 13,500 acre-feet of useable storage capacity, NEPCO owns and operates 232,500 acre-feet of storage capacity upstream from the Wilder Project. NEPCO also utilizes 99,300 acre-feet of storage capacity from the State of New Hampshire's Lake Francis. Operation of the Wilder Project provides 32,400 kW of installed capacity that produces an average annual generation of 136,200 MWh. 4/

4/ The project uses a renewable energy resource that saves the equivalent of about 223,000 barrels of oil or 63,000 tons of coal annually.

The United States Corps of Engineers cited in its report on the application the need for closer coordination of operation of the federal projects and the licensed projects located in the Connecticut River Basin. NEPCO recognizes the need to coordinate the operation of the tributary flood control reservoirs and the main stem power projects during floods. NEPCO has been meeting with personnel of the Corps' Reservoir Control Center to determine how coordination should be carried out. Article 32 of this license requires the licensee to enter into an agreement with the Corps of Engineers for coordination of the project's operation in the interest of flood control and navigation.

The average monthly flow at the project exceeds the hydraulic capacity of the power plant less than 15 percent of the time and, as presently operated, the project utilizes about 82 percent of the available flow. A Commission staff study in 1968 analyzed the feasibility of adding 25,000 kW of new capacity at the project, with an estimated increase in annual generation of 21,000,000 kWh. The analysis at that time developed a cost/benefit ratio of 1.05 which indicated that the installation of additional generating units would be attractive when compared to alternative sources of generation in the area. Changed minimum flow requirements then made the feasibility of additional generation problematic, however. In light of the significantly changed economic conditions since 1973, particularly the escalating costs of

non-renewable fuels, the installation of additional generating capacity may now be feasible. Article 37 of this license requires the Licensee to file a feasibility analysis of installing additional generating capacity and, if additional capacity is feasible, a schedule for filing an application to add capacity. Under Article 9 of this license, we retain the authority to require the Licensee to install additional capacity that may be economically feasible.

We conclude that the project as constructed makes effective use of the fall and flow of the Connecticut River and, upon compliance with the terms and conditions of the license, will be best adapted to a plan for comprehensive development of the Connecticut River for beneficial public uses.

Federal Takeover

Section 14 of the Federal Power Act reserves to the United States the right to take over a non-publicly owned project upon expiration of the license, after paying to the licensee the net investment in the project, not to exceed the fair value of the property taken, plus severance damages, if any. No federal department or agency, state, or municipality recommended takeover or redevelopment of the project by the United States or any other entity. The project is not in conflict with any project authorized or under study by the United States. None of the above governmental units has

objected to the relicensing of the project. We know of no reason why federal takeover of the project would better serve the public interest than issuance of this license. Consequently, we shall not recommend federal takeover.

Fish Passage Facilities

The Department of the Interior (Interior) and the New Hampshire Fish and Game Department (NHFG) recommended that fish passage facilities, needed for the restoration of Atlantic salmon and American shad to upstream reaches of the Connecticut River, should be constructed as soon as possible. The New Hampshire Office of State Planning, the New England River Basins Commission, and the Vermont Federation of Sportsmen's Club, Inc. expressed similar views. A restoration program was initiated in December, 1966. NEPCO has cooperated in studies conducted in conjunction with this program and has contributed funds supporting such studies.

On October 5, 1978, in Docket No. E-7561, the Commission approved a settlement agreement providing a schedule for construction of fish passage facilities at the Wilder Project and at the Vernon Project No. 1904 and the Bellows Falls Project No. 1885, downstream on the Connecticut River. 5/ Construction at the

5/ Signatories to the settlement agreement included the intervenors in this proceeding and the states of Connecticut, Massachusetts, New Hampshire, and Vermont.

Vernon Project is in progress and is expected to be completed during two construction seasons. Preliminary design of fish facilities at the Bellows Falls Project is under way. Preliminary design of fish passage facilities at the Wilder Project will begin by May 1, 1981 and be completed by November 1, 1981. Construction of facilities at Wilder Project is to begin after the later of May 1, 1983 or, depending on the numbers of adult salmon that return to the farther downstream Holyoke Project No. 2004, two years after construction begins at the Bellows Falls Project. Construction must be completed within about two construction seasons. Article 15 of this license provides for continuing supervision of the construction and operation of fish passage facilities at the Wilder Project.

Stream Flow Releases

The Coordinating Committee of the Connecticut River Basin Comprehensive Water and Related Land Resources Study has recommended a minimum flow of 0.2 cfsm (cubic feet per second per square mile of drainage area) for projects on the Connecticut River, to reestablish historic low flow levels. Applied to the drainage area associated with the Wilder Project, that requirement is the equivalent of 675 cfs. The New England River Basin Commission, the Vermont Agency of Environmental Conservation, and the Environmental Protection Agency also have recommended a minimum flow release of 0.2 cfsm, with which our

staff concurs. 6/ On the other hand, the Technical Committee for Fisheries Management of the Connecticut River Basin, the New Hampshire Fish and Game Department, and the Department of the Interior 7/ all favored a minimum release of 0.25 cfsm (equivalent to 850 cfs from Project No. 1892), to promote anadromous fish runs.

In our recent orders issuing licenses for the downstream Vernon Project No. 1904 and the Bellows Falls Project No. 1855, we required minimum flow releases of 0.2 cfsm. That figure represents the estimated minimum natural flow in the river if the various projects had not been constructed. Accordingly, in Article 33 of this license, we are requiring a minimum flow release of 675 cfs, or 0.20 cfsm, from the project. Should this minimum flow release prove inadequate to protect the Connecticut River fishery, however, we may require higher flow releases under Article 12 or Article 15.

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- 6/ The New Hampshire Water Supply and Pollution Control Commission certified the project's compliance with New Hampshire water quality standards. The Vermont Agency of Environmental Conservation waived state certification under §401 of the Federal Water Pollution Control Act on condition that the 0.20 cfsm flow release be maintained.
- 7/ Interior's actual recommendation is somewhat unclear, because at one point in its comments it recommended a 675 cfs minimum flow release.

As noted above, this license also requires coordination of project operation with the Corps of Engineers for flood control purposes.

Recreation

Adequate public access to project waters is provided by state parks and state boat launch sites, access from highways crossing the project reservoir, privately owned launch and access areas, and NEPCO-owned and operated facilities. On the New Hampshire side of the reservoir, a visitors' center and picnic area, where guided tours of the project dam and powerhouse originate, provides an exhibition and display area. Sanitary and drinking water facilities provided at the center also serve the users of the nearby picnic area. A portage trail enables canoeists and boaters to get around the dam to a safe distance downstream for continuing their river journey. On the Vermont side of the reservoir, a picnic and boat launching area has been developed upstream of the dam, that includes toilets, a launch ramp, a drinking fountain, a parking area, and a public ball field. A parking lot on the Vermont shoreline adjacent to the powerhouse is available for use by people who wish to fish in the vicinity of the tailrace. NEPCO proposes to develop a variety of additional facilities to accommodate growing recreational demand, including fishing access, playground and picnic facilities, trails, and a boat ramp.

The Department of the Interior and our staff both report that NEPCO's Recreation Plan (Exhibit R) adequately provides for public use of the project's recreational resources. NEPCO's biennial filings of Form 80 will facilitate continuing review of the adequacy of recreational facilities. If a need for additional facilities develops in the future, the additional development may be required under Article 17 of this license.

Article 33 of this license requires NEPCO to install any safety devices that may be reasonably needed to protect the public using project lands and waters, to the satisfaction of our authorized representative, the Regional Engineer (see Article 4).

Erosion Control

The New Hampshire Fish and Game Department recommended that NEPCO be required to stabilize bank conditions within the impoundment area. The Department contends that fluctuation of the reservoir level has caused serious bank erosion and resultant siltation in the Connecticut River. Intervenors, including For Lands' Sake, have also raised this issue. Over

100 protests 8/ to the issuance of a long-term license to NEPCO, prior to completion of the U.S. Army Corps of Engineers study, have been received on the subject of erosion.

We addressed this matter in our earlier "Order Approving Settlement Agreement Concerning Fish Passage Facilities..." 9/ There, we recognized that the Corps of Engineers was conducting a study of the Connecticut River to determine the causes of erosion, problem areas, and methods to reduce erosion. In our order we denied For Lands' Sake's motion that we not issue a license for the Wilder Project until the erosion study was complete and the findings were reviewed. We found that standard license Article 19 and, if necessary, special articles could retain ample means for us to address any erosion problems the Corps' study might establish.

The Corps' final report on its erosion study is not yet available. 10/ Special Article 38 of the license we recently issued for Project No. 1904 already requires NEPCO to file a copy of the Corps' report within 30 days after it is issued.

8/ Including the Hanover Conservation Commission; the Town of Norwich, Vermont; Congressmen James M. Jeffords of Vermont and James Cleveland of New Hampshire; the Connecticut River Watershed Council; and individual citizens.

9/ New England Power Co., Docket No. E-7561, Project Nos. 1904, 1855, and 1892 (issued October 5, 1978).

10/ The President of For Lands' Sake has recently submitted a letter asking that note be taken of certain enclosures alleged to be part of the Corps' consultants' "final" draft of the report on the erosion study. The letter and enclosures were not properly submitted in accordance with our rules, with proof of service on other parties, and thus have not been considered. In any event, the consultants' draft may not be final and the Corps' final report may vary from that draft. To the extent that matters in the consultants' draft are reflected in the Corps' final report, we shall, of course, consider them when available.

If the Corps' report identifies erosion problems associated with Project No. 1892, we shall then entertain, on our own motion or the motion of others, the question of what mitigative measures might be appropriate.

Historical and Archeological Resources

The State Historic Preservation Officers (SHPO) of Vermont and New Hampshire were requested to review the proposed recreational development for the Wilder Project to determine what effects, if any, relicensing and construction of any new recreational facilities might have on any known archeological remains. The Vermont SHPO stated that the issuance of a license for the Wilder project will not affect properties that are included or eligible for inclusion in the National Register of Historic Places. No response has been received to date from the New Hampshire SHPO, but our staff reports that no site listed in or eligible for the National Register is within the project boundary. Since there are some archeological remains within the project area, however, it is in the public interest to require NEPCO to consult with the SHPOs in both Vermont and New Hampshire before any future construction, to prevent possible loss of any archeological remains within project boundaries. Article 36 of this license will ensure proper protection of historical and archeological resources.

Other Environmental Considerations

Approval of a new license for Project No. 1892 would permit the continued project operation which started in 1910. No additional power facilities are proposed. Continued operation and maintenance of the project and resulting environmental impacts are discussed in this order. The only construction authorized or required by this license is for limited recreational development and will not result in any significant adverse environmental impacts. On the basis of the record, including agency and intervenor comments and the staff's independent analysis, the Commission concludes that issuance of this new license for Project No. 1892, as conditioned, is not a major federal action significantly affecting the quality of the human environment.

License Term

Our usual policy on relicensing is to limit the license term to 30 years if no substantial redevelopment is contemplated or proposed. 11/ On December 8, 1978, the City of Lebanon, N.H. filed a letter stating the interest of its citizens in filing a competing application for long-term license; and at elections in both Lebanon and Hartford, Vt., questions were later presented on the

11/ See The Montana Power Co., Mystic Lake Project No. 2301, Order Issuing New License (Major) (issued October 5, 1976).

question of whether to apply for the license for the project. In each instance, the polls failed to support filing of either a petition to intervene on NEPCO's application or a competing application. The Lebanon City Council did, however, recommend that we issue a 25-year license to NEPCO. "Listen", a citizens group based in Lebanon that is not an intervenor, submitted comments urging year-to-year licensing rather than a 50- or 25- year license, to allow the City of Lebanon to intervene in the "near future", should municipal power become economically attractive and feasible.

The City of Lebanon and its inhabitants have had more than ample opportunity to file a competing application for the Wilder Project, and have chosen not to. We believe it would be inconsistent with Section 15 of the Federal Power Act and sound administrative practice to continue issuing only annual licenses to NEPCO just to allow others an indefinitely long opportunity to compete for a long-term license. In the circumstances of this project we consider a long-term license of about 38 years to be warranted, even though NEPCO does not propose to add new generating capacity. The Wilder Project is located upstream from the Turners Falls Project No. 1889, the Northfield Mountain Project No. 2485, the Vernon Project No. 1904, and the Bellows Falls Project No. 1855. The expiration date of the licenses for the

Northfield Mountain Project, which makes joint use of the Turners Falls Reservoir, and the Vernon and Bellows Falls Projects is April 30, 2018. In the interests of coordinating the administration of projects on this reach of the Connecticut River, the license for Project No. 1892 will terminate on April 30, 2018, too. 12/

Exhibit K

NEPCO's Exhibit K shows a project boundary which, in general, follows the outer lot lines of lands owned in fee and which follows contour lines, as designated on each drawing, on lands over which NEPCO holds only flowage rights. NEPCO states that the exact location of the line delineating the outside limits of its flowage rights cannot be determined since its location changes under varying flood, ice, and other conditions. It also states that it includes in the project all of the rights which it has to flow water over the lands and properties of others. The entire parcels over which NEPCO has flowage rights, however, are not shown as included within the project boundary on the Exhibit K maps.

Our staff recommends that NEPCO be required to file a revised Exhibit K to define clearly the limits of the lands

12/ Moreover, assuming the requisite number of adult salmon return to the Holyoke Project, NEPCO will be investing a significant amount of new capital in the Wilder Project to provide fish passage facilities.

over which NEPCO holds only flowage rights for the project. Article 38 requires NEPCO to file such a revised Exhibit K for approval. The project boundary should be revised to encompass highwater levels, i.e., all lands on which waters flow when the reservoir is at full pond (including increase in the water level in upstream reaches because of backwater effects), and all other land which is necessary for project purposes. Where a flowage easement applies to an entire tract of land and is not otherwise defined, the project boundary may enclose the entire tract.

The Commission orders:

(A) This license is issued to New England Power Company (Licensee) of Westboro, Massachusetts, under Part I of the Federal Power Act (Act), for a period effective the first day of the month in which the continued operation and maintenance of the Wilder Project No. 1892, located in Orange and Windsor Counties, Vermont, and Grafton County, New Hampshire, on the Connecticut River, a navigable waterway of the United States. This license is subject to the terms and conditions of the Act, which is incorporated by reference as part of this license, and subject to the regulations the Commission issues under the provisions of the Act.

(B) The Wilder Project No. 1892 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 being shown and described by certain exhibits which form part of the application for license and which are designated and described as:

<u>Exhibit</u>	<u>FERC No. 1892</u>	<u>Showing</u>
J-Sheet 2A	76	General Map
K-2	77	Project Map
K-3	78	Project Map
K-3; 1A-18	79	Project Map
K-3; 2A-18	80	Project Map
K-3; 3A-18	81	Project Map
K-3; 4A-18	82	Project Map
K-3; 5A-18	83	Project Map
K-3; 6A-18	84	Project Map
K-3; 7A-18	85	Project Map
K-3; 8A-18	86	Project Map
K-3; 9A-18	87	Project Map
K-3; 10A-18	88	Project Map
K-3; 11A-18	89	Project Map
K-3; 12A-18	90	Project Map
K-3; 13A-18	91	Project Map
K-3; 14A-18	92	Project Map
K-3; 15A-18	93	Project Map
K-3; 16A-18	94	Project Map
K-3; 17A-18	95	Project Map
K-3; 18 -18	96	Project Map

(2) Project works consisting of: (a) a concrete gravity-type dam 59 feet high, comprising a 232-foot long non-overflow section and a 526-foot long spillway section with taintor gates and flashboards; (b) a 45-mile long reservoir having a surface area of 3,100 acres at elevation 385 feet m.s.l., with 105 miles of shoreline and a total volume of about 55,000 acre-feet at full-pond elevation; (c) a powerhouse containing two 16,200-kW generating units; (d) transmission facilities consisting of: (i) two generator leads to the 13.8-kV bus; (ii) the 13.8-kV bus; (iii) the two banks of 13.8/46-kV step-up transformers; (iv) the 13.8/115-kV step-up transformer bank; and (v) the 115-kV appurtenances to connect to the 115-kV bus at which the Vermont Electric Power Company, Inc., and the 115-kV Wilder-Bellows Falls lines are connected; and (e) appurtenant facilities.

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

<u>Exhibit</u>	<u>FERC No. 1892-</u>	<u>Showing</u>
L - 1d	97	General Layout
L - 2d	98	Dam and Powerhouse (general plan)
L - 3d	99	Dam - Typical Sections

<u>Exhibit</u>	<u>FERC No. 1892-</u>	<u>Showing</u>
L - 4d	100	Dike and Yard
L - 5d	101	Profile and Down-
L - 6c	102	Powerhouse and
L - 7c	103	Powerhouse Basement
L - 8c	104	Powerhouse Section
L - 9c	105	Future Unit Bay

Exhibit M: consisting of three pages showing "General Description and General Specifications of Mechanical, Electrical and Transmission Equipment filed June 23, 1969.

Exhibit R: consisting of: (1) 14 pages of text; (2) Appendix entitled "Estimated Public Visitation 1959-1968; Ultimate"; and (3) Exhibit R drawing No. 1892-106, entitled "General Recreation Map", and No. 1892-107, entitled "General Recreation Map - Plant Area", as filed June 23, 1969, and supplemented on September 2, 1971.

Exhibit S: filed on September 2, 1971 consisting of text entitled "Fish and Wildlife Report."

(3) All of the structures, fixtures, equipment, or facilities used or useful in the maintenance and operation of the project and located on the project area, all portable property which may be employed in connection with the project located on or off the project area, as approved by the Commission, and all riparian or other rights which are necessary or appropriate in the maintenance or operation of the project.

(C) Exhibits J, L, M, and R, designated and described in ordering paragraph (B) above, are approved and made a part of this license. Exhibit K, designated and described in ordering paragraph (B), is approved and made a part of this license only to the extent that it shows the general location, nature, and description of the project and subject to Article 38 of this license. Exhibit S, designated and described in ordering paragraph (B), is approved and made part of the license subject to the Commission's "Order Approving Settlement Agreement Concerning Fish Passage Facilities ...," Docket No. E-7561, Project Nos. 1904, 1855, and 1892 (issued October 5, 1978).

(D) This license is also subject to Articles 1 through 28 set forth in Form L-3 (Revised October 1975) entitled "Terms and Conditions of License for Constructed Major Project Affecting Navigable Waters of the United States", attached to and made a part of this license. This license

is also subject to the following special conditions set forth as additional articles:

Article 29. Pursuant to Section 10(d) of the Act, 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 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: Provided, that, if and to the extent that there is a deficiency of project earnings below the specified rate of return per annum for any fiscal year under the license, the amount of such deficiency shall be deducted for the amount of any surplus earnings accumulated thereafter until absorbed, and one-half of the remaining surplus earnings, if any, cumulatively computed, shall be set aside in the project amortization reserve account; and the amounts thus established in the project amortization reserve account shall be maintained therein until further order of the Commission.

The annual specified reasonable rate of return shall be the sum of the weighted cost components of long-term debt, preferred stock, and the cost of common equity, as defined herein. The weighted cost component for each element

of the reasonable rate of return is the product of its capital ratios and cost rate. The current capital ratios for each of the above elements of the rate of return shall be calculated annually 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 rate for such ratios shall be the weighted average cost of long-term debt and preferred stock for the year, and the cost of common equity shall be the interest rate on 10-year constant maturity series) computed on the monthly average for the year in question plus four percentage points (400 basis points).

Article 30. For the purpose of reimbursing the United States for the cost of administration of Part I of the Act, the Licensee shall pay the United States, a reasonable annual charge as determined by the Commission in accordance with the provisions of its regulations in effect from time to time. The authorized installed capacity for that purpose is 45,800 horsepower.

Article 31. Licensee shall implement, and modify when appropriate, the emergency action plan on file with the Commission designed to provide an early warning to upstream

and downstream inhabitants and property owners if there should be an impending or actual sudden release of water caused by an accident to, or failure of, project works. That plant shall include: instructions to be provided on a continuing basis to operators and attendants for actions they are to take in the event of an emergency; detailed and documented plans for notifying law enforcement agents, appropriate Federal, State, and local agencies, operators of water-related facilities, and those residents and owners of properties that could be endangered; actions that would be taken to reduce the inflow to the reservoir, if possible, by limiting the outflow from upstream dams or control structures; and actions to reduce downstream flow by controlling the outflow from dams located on tributaries to the stream on which the project is located. Licensee shall also maintain on file with the Commission a summary of the study used as a basis for determining the areas that may be affected by an emergency, including criteria and assumptions used. Licensee shall monitor any changes in upstream or downstream conditions which may influence possible flows or affect areas susceptible to damage, and shall promptly make and file with the Commission appropriate changes in the emergency action plan. The Commission reserves the right to require modifications to the plan.

Article 32. The Licensee shall enter into an agreement with the Department of Army, Corps of Engineers (Corps), providing for the coordinated operation of the project, in the interest of flood control and navigation, on the Connecticut River in accordance with rules and regulations prescribed by the Secretary of the Army. A conformed copy of the agreement shall be filed with the Commission within one year of the date of issuance of this license. If the Licensee and the Corps fail to reach agreement, then within one year from the date of issuance of this license the Licensee shall file its proposals for coordinated operation of the project with other water resource projects on the Connecticut River, together with a copy of the Corps' objections to the Licensee's proposals. The Commission reserves the right to impose conditions on the Licensee for coordinated operation of the project.

Article 33. The Licensee shall, to the satisfaction of the Commission's authorized representative, install and operate any signs, lights, sirens, barriers, or other devices that may be reasonably needed to warn the public of fluctuations in flow from the project and to protect the public in its recreational use of project lands and waters.

Article 34. In the interests of protecting and enhancing the scenic, recreational, and other environmental values of the project, Licensee: (1) shall supervise and control the use and occupancy of project lands and waters; (2) shall prohibit, without further Commission approval, the further use and occupancy of project lands and waters other than as specifically authorized by this license; (3) may authorize, without further Commission approval, the use and occupancy of project lands and waters for landscape plantings and the construction, operation and maintenance of access roads, power and telephone distribution lines, piers, landings, boat docks, or similar structures and facilities, and embankments, bulkheads, retaining walls, or other similar structures for erosion control to protect the existing shoreline; (4) shall require, where feasible and desirable, the multiple use and occupancy of facilities for access to project lands and waters; and (5) shall ensure to the satisfaction of the Commission's authorized representative that all authorized uses and occupancies of project lands and waters: (a) are consistent with shoreline aesthetic values, (b) are maintained in a good state of repair, and (c) comply with State and local health and safety regulations. Under item (3) of this article, Licensee may, among other things, institute a program, for issuing permits to reasonable extent for the authorized types of use and occupancy of project lands and waters. Under

appropriate circumstances, permits may be subject to the payment of a fee in a reasonable amount. Before authorizing the construction of bulkheads or retaining walls, Licensee shall: (a) inspect the site of the proposed construction, (b) determine that the proposed construction is needed, and (c) consider whether the planting of vegetation or the use of riprap would be adequate to control erosion at the site. If an authorized use or occupancy fails to comply with the conditions of this article or with any reasonable conditions imposed by the Licensee for the protection of the environmental quality of project lands and waters, the Licensee shall take appropriate action to correct the violations, including, if necessary, cancellation of the authorization and removal of any non-complying structures or facilities. The Licensee's consent to an authorized use or occupancy of project lands and waters shall not, without its express agreement, place upon the Licensee any obligation to construct or maintain any associated facilities. Licensee shall, within 60 days prior to commencement of a program for issuing permits, furnish a copy of its guidelines and procedures for implementing the program to the Commission's authorized representative and its Director, Office of Electric Power Regulation. Whenever the Licensee makes any modification to these guidelines and procedures, it shall promptly furnish a copy to each of those persons. The

Commission reserves the right to require modifications to these guidelines and procedures.

Article 35. The Licensee shall maintain a continuous minimum flow of 675 cfs (0.20 cubic feet per second per square mile of drainage basin) or a flow equal to the inflow of the reservoir, whichever is less, from the project into the Connecticut River. These flows may be modified temporarily: (1) during and to the extent required by operating emergencies beyond the control of the Licensee; and (2) in the interest of recreation and protection of the fisheries resources upon mutual agreement between the Licensee and the Fish and Game Departments of the States of New Hampshire and Vermont.

Article 36. Prior to the commencement of any construction or development of any project works or other facilities at the project, the Licensee shall consult and cooperate with the appropriate State Historic Preservation Officer(s) (SHPO) to determine the need for, and extent of, any archeological or historic resource surveys and any mitigative measures that may be necessary. The Licensee shall provide funds in a reasonable amount for such activity. If any previously unrecorded archeological or historic sites are discovered during the course of construction, construction activity in the vicinity shall be halted, a qualified archeologist shall be consulted to determine the significance of the sites, and the Licensee shall consult with the SHPO to develop a

mitigation plan for the protection of significant archeological or historic resources. If the Licensee and the SHPO cannot agree on the amount of money to be expended on archeological or historic 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 37. The Licensee shall, within six months from the date of issuance of the license, prepare and file with the Commission a feasibility analysis of installing additional generating capacity at the Wilder Project, taking into account, to the extent reasonable, all benefits that would be derived from the installation, including any contribution to the conservation of non-renewable natural resources. If the study shows additional capacity to be economically feasible, the Licensee shall simultaneously file a schedule for filing an application to amend its license to install that capacity.

Article 38. Within one year from the date of issuance of this license, the Licensee shall file for approval a revised Exhibit K conforming to the requirements of §4.41 of the Commission's regulations and the order issuing this license and clearly delineating the limits of the lands over which it holds flowage rights for the project.

(E) This order is final unless an application for rehearing is filed within 30 days from the date of its issuance, as provided in Section 313(a) of the Act. The filing of an application for rehearing 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. Failure of the Licensee to file an application for rehearing shall constitute acceptance of this license. In acknowledgement of acceptance of this license, the license shall be signed for the Licensee and returned to the Commission within 60 days from the date of issuance of this order.

By the Commission
(S E A L)

Kenneth F. Plumb,
Secretary.

P. act No 1

IN TESTIMONY ts acknowledgmen o cceptan
of the terms and conditions o thi Order

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