FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, D.C. 20426

DEC 9 1985

Project No. P-1892-002
New Engleand Power Company

J. F. Kaslow, President
New England Power Company
25 Research Drive
Westborough, MA 01582

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H. W. S. ✓
E. W. H. ✓
H. W. M. ✓
C. M. H. ✓
W. D. M. ✓
R. H. L. ✓
M. S. R.
A. E. H. ✓
M. V. T.
D. E. B. ✓

2 FERC

Gentlemen:

Enclosed is the order designated Amendment No. 1 **, Instrument No.** 12**, in the above-entitled matter.**

Quentin A. Edson
Director, Office of
Hydropower Licensing

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

New England Power Company — Project No. 1892-002

ORDER AMENDING LICENSE

(Issued December 11, 1985)

The New England Power Company (Licensee) filed on May 13, 1985, an application for amendment of the license for the Wilder Project No. 1892, under Part I of the Federal Power Act (Act). The project is located on the Connecticut River in Windsor and Orange Counties, Vermont and in Grafton County, New Hampshire. The Licensee proposes to amend the license to increase the project's installed capacity from 32,400 kW to 35,600 kW.

Notice of the application has been published and comments have been received from interested Federal, state, and local agencies. No protests were received and none of the agencies objected to the amendment of the license. The State of Vermont was granted intervention.

A license was issued for the Wilder Project on April 22, 1944, and a new license was issued on December 10, 1979. The major changes proposed in this amendment include the installation of a new 3,200-kW unit, utilizing the attraction water supply for the project fishway and the addition of a new lead to the existing 13.8-kV bus.

ENVIRONMENTAL CONSIDERATIONS

Cumulative Impacts

By letter dated February 28, 1985, the Vermont Agency of Environmental Conservation (AEC) recommends that the Commission conduct a cumulative impact assessment of hydropower projects proposed within the Connecticut River Basin. No such recommendations, however, have been received in regard to this amendment of the Wilder Project license. The commenting agencies do not express any objections to this amendment. In fact, the AEC, in its August 9, 1985, comments on the amendment application, states its belief that this project would benefit the fishery resources of the upper Connecticut River Basin, and would not degrade the environment either at or upstream of the site.

Installation of the proposed 3.2-megawatt generating unit, as part of the attraction water system of the previously approved project fishway, would not contribute to significant cumulative impacts on important resources within the Connecticut River Basin. The major resource of concern in the upper Connecticut River is the Atlantic salmon, which has been introduced to tributaries upstream of the Wilder Project, as part of the salmon restoration program for the Connecticut River Basin. Salmon smolts produced in these tributaries must pass Wilder Dam, plus four other mainstem hydroelectric projects, during downstream migration to the sea. Migration occurs during the high-flow period in the spring, when the project normally passes a significant volume of spill. Studies have demonstrated that a high percentage of salmon smolts will utilize spill for passage over a dam, if substantial levels of spill are available. The proposed unit would increase the hydraulic capacity of the Wilder powerhouse by about 8 percent, which would not significantly decrease the amount of spill available for smolt passage at the project.

If this proposal for installation of the 3.2-megawatt unit were denied, the Licensee would construct the fishway (in late-1985 and 1986) with an energy dissipation sleeve valve in place of the generating unit. The functional designs of the fishway and associated attraction water system (with a sleeve valve) were approved by Commission order dated March 18, 1982. The sleeve valve would be required to dissipate the energy of the attraction water withdrawn from the project forebay (58 feet of head), so that this attraction water would pass through the lower fishway diffuser at a velocity of no greater than 1 foot per second (about 2 feet of head). The design of the sleeve valve, and the forces involved in reducing the energy of water at 58 feet of head to that of 2 feet of head, would likely result in essentially 100 percent mortality of any salmon smolts entrained in the attraction water supply. In contrast, the mortality of smolts passing through the proposed generating unit would likely be in the range of 10 to 15 percent, based on turbine mortality studies conducted at other projects. Since the Wilder fishway would operate during at least a portion of the smolt outmigration period, fishway operation using the sleeve valve could result in greater mortality to salmon smolts entrained in the attraction water supply than would occur for smolts passing through the proposed generating unit.

Although the proposed generating unit could operate throughout the entire smolt outmigration period, and thus have a greater potential for exposing migrating smolt to entrainment through the unit, the impacts on the salmon population would not be detectable. If a zero-spill condition is assumed at the project (this is a "worst-case" assumption since significant spill usually occurs at the project through most of the smolt outmigration period), an estimated 1 percent of the smolts approaching Wilder Dam during the spring outmigration would be killed by the proposed unit. This

loss would in turn translate into an estimated 0.3 percent loss to the total projected Connecticut River production of wild and nonnatal (from fry stockings) smolts, as estimated by the U.S. Fish and Wildlife Service (FWS).

As indicated above, the commenting agencies do not object to the proposed generating unit, and state that the generating unit and fishway would benefit the fishery resources of the upper Connecticut River. The Department of the Interior (Interior) states that the Licensee and the FWS will monitor the passage success of salmon at the project, and that structural or operational modifications to the fishway may be needed in the future to mitigate any adverse impacts to downstream migrating smolts or upstream migrating adults. Interior further states that existing license articles would provide a sufficient avenue to pursue such modifications.

Terms and conditions of the license for the Wilder Project reserve the Commission's right to require the Licensee, after notice and opportunity for hearing, to make changes in project structures or operations for the conservation and development of fish and wildlife resources. These conditions would provide the mechanism to mitigate for any unexpected adverse impacts that may be discovered during monitoring of fish passage at the project. The level of impacts expected from installation of the proposed unit would be insignificant, however, and would not contribute to significant cumulative impacts in the Connecticut River Basin.

Other Environmental Concerns

The Applicant requested water quality certification, pursuant to Section 401 of the Clean Water Act, from the Vermont Department of Water Resources (DWR) on May 7, 1985, and from the New Hampshire Water Supply and Pollution Control Commission (WSPCC) on May 8, 1985. The WSPCC issued water quality certification on August 2, 1985. The DWR issued water quality certification on October 28, 1985.

No Federally listed threatened or endangered species or critical habitat, or sites listed or determined eligible for listing on the National Register of Historic Places, will be affected by the project.

FINDING OF NO SIGNIFICANT IMPACT

Construction of the proposed generating unit would occur during the construction of the proposed fish ladder at the project, with the proposed unit construction occurring within the vacant unit bay of the existing powerhouse. This activity would result in short-term minor increases in noise levels and dust in the immediate area.

Operation of the proposed unit would result in a small (8 percent) increase in the volume of river flow utilized for power production. This would slightly increase the potential for fish entrainment at the project, although the impacts on the salmon restoration program would not be detectable. Fish entrained in the proposed unit would, in fact, experience lower mortality than those passing through an energy dissipation sleeve valve if installed as part of the proposed fishway attraction water system.

In accordance with the National Environmental Policy Act of 1969, an Environmental Assessment was prepared for the proposed amendment of the Wilder Project license (FERC No. 1892-002). 1/ On the basis of the record and of Staff's environmental analysis, the issuance of an amendment to the license for the project will not constitute a major Federal action significantly affecting the quality of the human environment.

Economic Feasibility

The installed capacity of the project would be increased from 32,400 kW to 35,600 kW. 2/ The proposed project would be economically feasible based on the production expenses at the New England Power Company's W.F. Wyman No. 4-steam plant.

Other Aspects of Comprehensive Development

The proposed modifications make good use of the flow and fall of the Connecticut River, and would not be in conflict with any planned or potential development and would be best adapted to the comprehensive development of the Connecticut River Basin upon compliance with the terms and conditions of the amended license.

The Director of the Office of Hydropower Licensing or the Director's designee, under 18 C.F.R. §375.314, orders:

(A) The license for the Wilder Project No. 1892 is amended by this order, effective the first day of the month in which this order is issued.

1/ Environmental Assessment, Wilder Project, FERC No. 1892-002--Vermont and New Hampshire, September 30, 1985, prepared by the Division of Environmental Analysis, Office of Hydropower Licensing, Federal Energy Regulatory Commission. This document is available in the Division of Public Information and in the Commission's public file associated with this proceeding.

2/ The proposed project generating 148,850,000 kWh annually would utilize a renewable resource that will save the equivalent of approximately 244,411 barrels of oil or 68,918 tons of coal per year.

(B) The description of the project contained in ordering paragraph (B)(2) of the license is amended as follows:

(2) Project works consisting of: (1) 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; (2) 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; (3) a powerhouse containing two 16,200-kW generating units, and a 3,200-kW unit located at the fishway, for a total installed capacity of 35,600 kW; (4) transmission facilities consisting of: (a) three generator leads to the 13.8-kV bus; (b) the 13.8-kV bus; (c) the two banks of 13.8/46-kV step-up transformers; (d) the 13.8/115-kV step-up transformer bank; and (e) 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 (5) appurtenant facilities.

(C) The following Exhibits A and F are approved and made a part of this license.

Exhibit A - Exhibit A on page 3 of the amendment application filed May 13, 1985, describing the proposed turbine/generator.

Exhibit Drawing No.	FERC No.	Description	Superseding FERC No.
	1892-112	General Layout Proposed Redevelopment	1892-97
	1892-113	Dam and Powerhouse General Plan	1892-98
	1892-114	Dam - Typical Sections	1892-99
	1892-115	Dike and Yard Sections	1892-100
	1892-116	Profile and Downstream Elevation	1892-101
F-6	1892-117	Powerhouse and Abutment Sections	1892-102
	1892-118	Powerhouse Basement Plan	1892-103
	1892-119	Powerhouse Section	1892-104
	1892-120	Future Unit Bay - Section	1892-105
F-10	1892-121	Fishway - General Plan	
F-11	1892-122	Fishway - Section	
F-12	1892-123	Fishway and Attraction Water Unit - Sections and Details	

superseded exhibit drawings are deleted from the license.

Article 30 is revised as follows:

Article 30. (1) The Licensee shall pay the United States, for the period from December 1, 1950, to November 30, 1985, for the purpose of reimbursing the United States for the cost of administration of Part I of the Act, an annual charge for the Wilder Project as determined by the Commission in accordance with the provisions of its regulations, in effect from time to time. The authorized installed capacity for the Wilder Project for that purpose is 45,800 horsepower.

(2) The Licensee shall pay the United States, effective as of December 1, 1985, for the purpose of reimbursing the United States for the cost of administration of Part I of the Act, 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 47,500 horsepower.

(E) 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 385.1902 of the Commission's regulations, 18 CFR 385.1902 (1985). The Licensee's failure to file a petition appealing this order to the Commission shall constitute acceptance of this order. In acknowledgment of acceptance of this order 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.

Don Gaber

for Kenneth M. Pusateri
Acting Director, Office
of Hydropower Licensing

Project No. 1892-002

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

By _____
President

Attest:

_____
Secretary

(Executed in quadruplicate)