



gas | electric | steam | telecom

Commissioners:

Francis J. Hoey, III
Robert H. Griffin
Raymond H. Feyre

Manager:

James M. Lavelle

October 30, 2009

Luly E. Massaro
Commission Clerk
Public Utilities Commission
89 Jefferson Blvd.
Warwick, RI 02888

Dear Ms. Massaro:

SUBJECT: Application for Rhode Island Existing Renewable Energy Resources Eligibility Holyoke Gas & Electric Department Existing Small Hydroelectric Facilities – Harris Energy

Please find attached The City of Holyoke Gas and Electric Department (HG&E) application for Eligibility of Harris Energy, a small hydroelectric facility located in Holyoke, Massachusetts, as an Existing Renewable Energy Resource consistent with the Rhode Island Public Utilities Commission Renewable Portfolio Standard Program.

HG&E's hydroelectric system is based on the Hadley Falls Dam, which diverts flow from the mainstream of the Connecticut River and creates an impoundment for potential head and power. Flow and head at the dam are used immediately at the capstone Hadley Station (not included in this application). The diversion dam also feeds an elaborate network of canals, providing cascading head and flow to a series of smaller hydroelectric facilities and units.

Harris Energy consists of eight separate Run-of-River project facilities located on the Second Level Canal that discharge into the Connecticut River. HG&E acquired these projects in 2004 from Harris Energy and Realty Corporation. Each project has a separate FERC License and is physically and electrically separate. Each contains its own intake, penstock, powerhouse and tailrace facilities (as documented in the respective FERC License orders.) These Facilities are represented as a single NEPOOL asset for simplicity in data communications only. One totalizer reports combined totals of six separate metered generation and station service points. Only six of the eight hydro power projects are currently active. These six projects are Albion Mill A - .281 MW, Albion Mill B - .395 MW, Gill Mill A - .450 MW, Gill Mill D - .330 MW, Mt. Tom Mill - .473 MW, and Nonotuck Mill - .492 MW. The total installed capacity of these six hydro projects is 2.421 MW. Crocker Mill AB, and Crocker Mill C are currently inactive and are not included in this application.

HGED requests that the RI PUC issue a separate RI RPS Registration Number for each of the six Projects. Below is a brief description of each facility:

Albion Mill A Project -- FERC Project No. 2768

Albion Mill A Project is located on the Second Level Canal and became operational in 1919. The facility includes a 180-foot long penstock. The tailrace arch brick-lined tunnel is 16-foot wide by 9 foot-high and 260 feet long. The Albion Mill A Project generating unit has an installed capacity of 0.281 MW.

Albion Mill D Project -- FERC Project No. 2766

Albion Mill D Project is located on the Second Level Canal and became operational in 1919. The facility includes a 190-foot long, 9 foot diameter steel penstock. The tailrace arch brick-lined tunnel is 9-foot wide by 12 foot-high and 250 feet long. The Albion Mill D Project generating unit has an installed capacity of 0.395 MW.

HG&E Existing Small Hydro Facilities – Harris Energy
Renewable Energy Resources Eligibility Submission
October 30, 2009

Gill Mill A Project -- FERC Project No. 2772

Gill Mill A Project is located on the Second Level Canal and became operational in 1919. The facility includes a 295-foot long, 8 foot diameter steel penstock. The tailrace arch brick-lined tunnel is 16-foot wide by 9 foot-high. The Gill Mill A Project generating unit has an installed capacity of 0.450 MW.

Gill Mill D Project -- FERC Project No. 2775

Gill Mill D Project is located on the Second Level Canal and became operational in 1919. The facility includes a 295-foot long, 12 foot diameter steel penstock. The tailrace arch brick-lined tunnel is 7-foot wide by 10 foot-high. The Gill Mill D Project generating unit has an installed capacity of 0.330 MW.

Mt. Tom Mill Project-- FERC Project No. 2497

Mt. Tom Mill Project is located on the Second Level Canal and became operational in 1919. The facility includes a 230-foot long, 8 foot diameter steel penstock. The tailrace arch brick-lined tunnel is 9-foot wide by 6 foot-high and 205 feet long. The Mt. Tom Mill Project generating unit has an installed capacity of 0.473 MW.

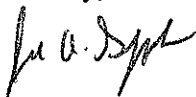
Nonotuck Mill Project -- FERC Project No. 2771

Nonotuck Mill Project is located on the Second Level Canal and became operational in 1919. The facility includes a 235-foot long, 10.5 foot diameter penstock. There are two parallel 9 foot-wide by 9 foot high arched brick-lined tailrace tunnels extending 190 feet long. The Nonotuck Mill Project generating unit has an installed capacity of 0.492 MW

As requested, this submittal includes FERC Operating Licenses and Connecticut DPUC Decisions as supporting eligibility documentation.

Please contact me if you have any questions or require additional information concerning this submission.

Sincerely,



Jeanette A. Sypek

Holyoke Gas & Electric Department
Sr. Energy Resources Coordinator
99 Suffolk Street
Holyoke, MA 01040
(413) 536-9373
jsypek@hged.com

RIPUC Use Only	
Date Application Received:	___/___/___
Date Review Completed:	___/___/___
Date Commission Action:	___/___/___
Date Commission Approved:	___/___/___

GIS Certification #: _____

RENEWABLE ENERGY RESOURCES ELIGIBILITY FORM

**The Standard Application Form
Required of all Applicants for Certification of Eligibility of Renewable Energy Resource
(Version 6 – January 21, 2008)**

**STATE OF RHODE ISLAND PUBLIC UTILITIES COMMISSION
Pursuant to the Renewable Energy Act
Section 39-26-1 et. seq. of the General Laws of Rhode Island**

NOTICE:

When completing this Renewable Energy Resources Eligibility Form and any applicable Appendices, please refer to the State of Rhode Island and Providence Plantations Public Utilities Commission Rules and Regulations Governing the Implementation of a Renewable Energy Standard (RES Regulations, Effective Date: January 1, 2006), and the associated RES Certification Filing Methodology Guide. All applicable regulations, procedures and guidelines are available on the Commission's web site: www.ripuc.org/utilityinfo/res.html. Also, all filings must be in conformance with the Commission's Rules of Practice and Procedure, in particular, Rule 1.5, or its successor regulation, entitled "Formal Requirements as to Filings."

- Please complete the Renewable Energy Resources Eligibility Form and Appendices using a typewriter or black ink.
- Please submit one original and three copies of the completed Application Form, applicable Appendices and all supporting documentation to the Commission at the following address:

Rhode Island Public Utilities Commission
89 Jefferson Blvd
Warwick, RI 02888
Attn: Renewable Energy Resources Eligibility
- In addition to the paper copies, electronic/email submittals are required under Commission regulations. Such electronic submittals should be sent to: **Luly E. Massaro, Commission Clerk at lmassaro@puc.state.ri.us**
- In addition to filing with the Commission, Applicants are required to send, electronically or electronically and in paper format, a copy of the completed Application including all attachments and supporting documentation, to the Division of Public Utilities and Carriers and to all interested parties. A list of interested parties can be obtained from the Commission's website at www.ripuc.org/utilityinfo/res.html.
- Keep a copy of the completed Application for your records.
- The Commission will notify the Authorized Representative if the Application is incomplete.
- Pursuant to Section 6.0 of the RES Regulations, the Commission shall provide a thirty (30) day period for public comment following posting of any administratively complete Application.
- Please note that all information submitted on or attached to the Application is considered to be a public record unless the Commission agrees to deem some portion of the application confidential after consideration under section 1.2(g) of the Commission's Rules of Practice and Procedure.
- In accordance with Section 6.2 of the RES Regulations, the Commission will provide prospective reviews for Applicants seeking a preliminary determination as to whether a facility would be eligible prior to the formal certification process described in Section 6.1 of the RES Regulations. Please note that space is provided on the Form for applicant to designate the type of review being requested.
- Questions related to this Renewable Energy Resources Eligibility Form should be submitted in writing, preferably via email and directed to: **Luly E. Massaro, Commission Clerk at RES@puc.state.ri.us**

SECTION I: Identification Information

- 1.1 Name of Generation Unit (sufficient for full and unique identification):
Harris Energy
- 1.2 Type of Certification being requested (check one):
 Standard Certification Prospective Certification (Declaratory Judgment)
- 1.3 This Application includes: (Check all that apply)¹
- APPENDIX A: Authorized Representative Certification for Individual Owner or Operator
 - APPENDIX B: Authorized Representative Certification for Non-Corporate Entities Other Than Individuals
 - APPENDIX C: Existing Renewable Energy Resources
 - APPENDIX D: Special Provisions for Aggregators of Customer-sited or Off-grid Generation Facilities
 - APPENDIX E: Special Provisions for a Generation Unit Located in a Control Area Adjacent to NEPOOL
 - APPENDIX F: Fuel Source Plan for Eligible Biomass Fuels
- 1.4 Primary Contact Person name and title: Brian C. Beauregard, Superintendent –Electric Division
- 1.5 Primary Contact Person address and contact information:
Address: Holyoke Gas & Electric Department
99 Suffolk Street
Holyoke, MA 01040
Phone: (413) 536-9352 Fax: (413) 536-9353
Email: bbeauregard@hged.com
- 1.6 Backup Contact Person name and title: Jeanette A. Sypek
Senior Energy Resources Coordinator
- 1.7 Backup Contact Person address and contact information:
Address: Holyoke Gas & Electric Department
99 Suffolk Street
Holyoke, MA 01040
Phone: (413) 536-9373 Fax: (413) 536-9353
Email: jsypek@hged.com

¹ Please note that all Applicants are required to complete the Renewable Energy Resources Eligibility Standard Application Form and all of the Appendices that apply to the Generation Unit or Owner or Operator that is the subject of this Form. Please omit Appendices that do not apply.

1.8 Name and Title of Authorized Representative (*i.e.*, the individual responsible for certifying the accuracy of all information contained in this form and associated appendices, and whose signature will appear on the application):

James M. Lavelle, Manager

Appendix A or B (as appropriate) completed and attached? Yes No N/A

1.9 Authorized Representative address and contact information:

Address: Holyoke Gas & Electric Department
99 Suffolk Street
Holyoke, MA 01040
Phone: (413) 536-9352 Fax: (413) 536-9353
Email: bbeauregard@hged.com

1.10 Owner name and title: Holyoke Gas & Electric Department, James M. Lavelle, Manager

1.11 Owner address and contact information:

Address: Holyoke Gas & Electric Department
99 Suffolk Street
Holyoke, MA 01040
Phone: (413) 536-9311 Fax: (413) 536-9315
Email: jlavelle@hged.com

1.12 Owner business organization type (check one):

- Individual
 Partnership
 Corporation
 Other: _____

1.13 Operator name and title: Holyoke Gas & Electric Dept., Paul Duchenev, Superintendent – Hydro Division

1.14 Operator address and contact information:

Address: Holyoke Gas & Electric Department
99 Suffolk Street
Holyoke, MA 01040
Phone: (413) 536-9340 Fax: (413) 536-9353
Email: duchenev@hged.com

1.15 Operator business organization type (check one):

- Individual
 Partnership
 Corporation
 Other: _____

SECTION II: Generation Unit Information, Fuels, Energy Resources and Technologies

2.1 ISO-NE Generation Unit Asset Identification Number or NEPOOL GIS Identification Number (either or both as applicable): ISO-NE Asset ID# 12168, GIS ID# MSS12168

2.2 Generation Unit Nameplate Capacity: 2.421 MW

2.3 Maximum Demonstrated Capacity: 2.421 MW

2.4 Please indicate which of the following Eligible Renewable Energy Resources are used by the Generation Unit: (Check ALL that apply) – *per RES Regulations Section 5.0*

- Direct solar radiation
- The wind
- Movement of or the latent heat of the ocean
- The heat of the earth
- Small hydro facilities
- Biomass facilities using Eligible Biomass Fuels and maintaining compliance with all aspects of current air permits; Eligible Biomass Fuels may be co-fired with fossil fuels, provided that only the renewable energy fraction of production from multi-fuel facilities shall be considered eligible.
- Biomass facilities using unlisted biomass fuel
- Biomass facilities, multi-fueled or using fossil fuel co-firing
- Fuel cells using a renewable resource referenced in this section

2.5 If the box checked in Section 2.4 above is “Small hydro facilities”, please certify that the facility’s aggregate capacity does not exceed 30 MW. – *per RES Regulations Section 3.31*

← check this box to certify that the above statement is true

N/A or other (please explain) _____

2.6 If the box checked in Section 2.4 above is “Small hydro facilities”, please certify that the facility does not involve any new impoundment or diversion of water with an average salinity of twenty (20) parts per thousand or less. – *per RES Regulations Section 3.31*

← check this box to certify that the above statement is true

N/A or other (please explain) _____

2.7 If you checked one of the Biomass facilities boxes in Section 2.1 above, please respond to the following:

A. Please specify the fuel or fuels used or to be used in the Unit: _____

B. Please complete and attach Appendix F, Eligible Biomass Fuel Source Plan.

Appendix F completed and attached? Yes No N/A

- 2.8 Has the Generation Unit been certified as a Renewable Energy Resource for eligibility in another state's renewable portfolio standard?
 Yes No If yes, please attach a copy of that state's certifying order.
 Copy of State's certifying order attached? Yes No N/A

SECTION III: Commercial Operation Date

Please provide documentation to support all claims and responses to the following questions:

- 3.1 Date Generation Unit first entered Commercial Operation: 0 1 / 0 1 / 19 19 at the site.
- 3.2 Is there an Existing Renewable Energy Resource located at the site of Generation Unit?
 Yes
 No
- 3.3 If the date entered in response to question 3.1 is earlier than December 31, 1997 or if you checked "Yes" in response to question 3.2 above, please complete Appendix C.
 Appendix C completed and attached? Yes No N/A
- 3.4 Was all or any part of the Generation Unit used on or before December 31, 1997 to generate electricity at any other site?
 Yes
 No
- 3.5 If you checked "Yes" to question 3.4 above, please specify the power production equipment used and the address where such power production equipment produced electricity (attach more detail if the space provided is not sufficient):

SECTION IV: Metering

- 4.1 Please indicate how the Generation Unit's electrical energy output is verified (check all that apply):
 ISO-NE Market Settlement System
 Self-reported to the NEPOOL GIS Administrator
 Other (please specify below and see Appendix D: Eligibility for Aggregations):

Appendix D completed and attached? Yes No N/A

SECTION V: Location

5.1 Please check one of the following that apply to the Generation Unit:

- Grid Connected Generation
- Off-Grid Generation (not connected to a utility transmission or distribution system)
- Customer Sited Generation (interconnected on the end-use customer side of the retail electricity meter in such a manner that it displaces all or part of the metered consumption of the end-use customer)

5.2 Generation Unit address: 15 Water Street
Holyoke, MA 01040

5.3 Please provide the Generation Unit’s geographic location information:

- A. Universal Transverse Mercator Coordinates: 42.207261, -72.592788
- B. Longitude/Latitude: W 72°35' 34.04" / N 42°12' 26.14"

5.4 The Generation Unit located: (please check the appropriate box)

- In the NEPOOL control area
- In a control area adjacent to the NEPOOL control area
- In a control area other than NEPOOL which is not adjacent to the NEPOOL control area ← *If you checked this box, then the generator does not qualify for the RI RES – therefore, please do not complete/submit this form.*

5.5 If you checked “In a control area adjacent to the NEPOOL control area” in Section 5.4 above, please complete Appendix E.

Appendix E completed and attached? Yes No N/A

SECTION VI: Certification

- 6.1 Please attach documentation, using one of the applicable forms below, demonstrating the authority of the Authorized Representative indicated in Section 1.8 to certify and submit this Application.

Corporations

If the Owner or Operator is a corporation, the Authorized Representative shall provide **either**:

- (a) Evidence of a board of directors vote granting authority to the Authorized Representative to execute the Renewable Energy Resources Eligibility Form, **or**
- (b) A certification from the Corporate Clerk or Secretary of the Corporation that the Authorized Representative is authorized to execute the Renewable Energy Resources Eligibility Form or is otherwise authorized to legally bind the corporation in like matters.

Evidence of Board Vote provided? Yes No N/A

Corporate Certification provided? Yes No N/A

Individuals

If the Owner or Operator is an individual, that individual shall complete and attach APPENDIX A, or a similar form of certification from the Owner or Operator, duly notarized, that certifies that the Authorized Representative has authority to execute the Renewable Energy Resources Eligibility Form.

Appendix A completed and attached? Yes No N/A

Non-Corporate Entities

(Proprietorships, Partnerships, Cooperatives, etc.) If the Owner or Operator is not an individual or a corporation, it shall complete and attach APPENDIX B or execute a resolution indicating that the Authorized Representative named in Section 1.8 has authority to execute the Renewable Energy Resources Eligibility Form or to otherwise legally bind the non-corporate entity in like matters.

Appendix B completed and attached? Yes No N/A

6.2 Authorized Representative Certification and Signature:

I hereby certify, under pains and penalties of perjury, that I have personally examined and am familiar with the information submitted herein and based upon my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties, both civil and criminal, for submitting false information, including possible fines and punishment. My signature below certifies all information submitted on this Renewable Energy Resources Eligibility Form. The Renewable Energy Resources Eligibility Form includes the Standard Application Form and all required Appendices and attachments. I acknowledge that the Generation Unit is obligated to and will notify the Commission promptly in the event of a change in a generator's eligibility status (including, without limitation, the status of the air permits) and that when and if, in the Commission's opinion, after due consideration, there is a material change in the characteristics of a Generation Unit or its fuel stream that could alter its eligibility, such Generation Unit must be re-certified in accordance with Section 9.0 of the RES Regulations. I further acknowledge that the Generation Unit is obligated to and will file such quarterly or other reports as required by the Regulations and the Commission in its certification order. I understand that the Generation Unit will be immediately de-certified if it fails to file such reports.

Signature of Authorized Representative:

SIGNATURE:

DATE:

James M. Lovelle 10/30/09

Manager
(Title)

CERTIFICATE

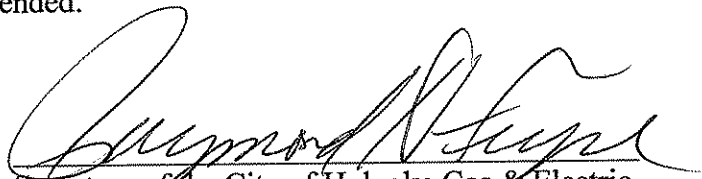
City of Holyoke Gas & Electric Department

I, Secretary of the Municipal Light Commission of the City of Holyoke, Massachusetts, Gas & Electric Department (HG&E) certify that at a meeting of the Commission held on June 16, 2008 of which meeting all members of the board were duly notified and at which a quorum was present and acting throughout, the following votes were unanimously passed, all of which appears in the official records of the board in my custody:

- VOTED:
- (1) to authorize and direct James M. Lavelle, Manager to execute and deliver an Application under Section 1.8 of the State of Rhode Island Public Utilities Commission Renewable Energy Resources Eligibility Form on behalf of HG&E; and
 - (2) that the Manager is hereby authorized and directed to take any other action he deems necessary or advisable to carry out the purposes of these votes; and
 - (3) that any actions taken by the Manager consistent with the purposes of these votes are hereby ratified and confirmed.

I further certify that these votes were taken at a meeting open to the public; that notice stating the place, date and time of the meeting was filed with the City Clerk and a copy thereof posted in the office of the City Clerk or on the principal official bulletin board of the city at least 48 hours, including Saturdays but not Sunday and legal holidays, prior to such meeting and remained so posted at the time of the meeting; that no deliberation or decision in connection with the above votes were taken in private or executive session; and that the official record of the meeting was made available to the public promptly and will remain so available to the public, all in accordance with G.L. c. 39, § 23B, as amended.

Dated: July 9, 2008


Secretary of the City of Holyoke Gas & Electric
Commission

APPENDIX C

(Required of all Applicants with Generation Units at the Site of Existing Renewable Energy Resources)

**STATE OF RHODE ISLAND
PUBLIC UTILITIES COMMISSION**

RENEWABLE ENERGY RESOURCES ELIGIBILITY FORM

**Pursuant to the Renewable Energy Act
Section 39-26-1 et. seq. of the General Laws of Rhode Island**

If the Generation Unit: (1) first entered into commercial operation before December 31, 1997; or (2) is located at the exact site of an Existing Renewable Energy Resource, please complete the following and attach documentation, as necessary to support all responses:

- C.1 Is the Generating Unit seeking certification, either in whole or in part, as a New Renewable Energy Resource? Yes No
- C.2 If you answered "Yes" to question C.1, please complete the remainder of Appendix C. If you answered "No" and are seeking certification entirely as an Existing Renewable Energy Resource, you do NOT need to complete the remainder of Appendix C.
- C.3 If an Existing Renewable Energy Resource is/was located at the site, has such Existing Renewable Energy Resource been retired and replaced with the new Generation Unit at the same site? Yes No
- C.4 Is the Generation Unit a Repowered Generation Unit (as defined in Section 3.28 of the RES Regulations) which uses Eligible Renewable Energy Resources and which first entered commercial operation after December 31, 1997 at the site of an existing Generation Unit? Yes No
- C.5 If you checked "Yes" to question C.4 above, please provide documentation to support that the entire output of the Repowered Generation Unit first entered commercial operation after December 31, 1997.
- C.6 Is the Generation Unit a multi-fuel facility in which an Eligible Biomass Fuel is first co-fired with fossil fuels after December 31, 1997? Yes No

- C.7 If you checked “Yes” to question C.6 above, please provide documentation to support that the renewable energy fraction of the energy output first occurred after December 31, 1997.
- C.8 Is the Generation Unit an Existing Renewable Energy Resource other than an Intermittent Resource (as defined in Section 3.9 and 3.14 of the RES Regulations)? Yes No
- C.9 If you checked “Yes” to question C.8 above, please attach evidence of completed capital investments after December 31, 1997 attributable to efficiency improvements or additions of capacity that are sufficient to, were intended to, and can be demonstrated to increase annual electricity output in excess of ten percent (10%). As specified in Section 3.22.v of the RES Regulations, the determination of incremental production shall not be based on any operational changes at such facility **not directly** associated with the efficiency improvements or additions of capacity.
- C.10 Is the Generating Unit an Existing Renewable Energy Resource that is an Intermittent Resource? Yes No
- C.11 If you checked “Yes” to question C.10 above, please attach evidence of completed capital investments after December 31, 1997 attributable to efficiency improvements or additions of capacity that are sufficient to, were intended to, and have demonstrated on a normalized basis to increase annual electricity output in excess of ten percent (10%). The determination of incremental production shall not be based on any operational changes at such facility **not directly** associated with the efficiency improvements or additions of capacity. In no event shall any production that would have existed during the Historical Generation Baseline period in the absence of the efficiency improvements or additions to capacity be considered incremental production. Please refer to Section 3.22.vi of the RES Regulations for further guidance.
- C.12 If you checked “Yes” to C.10, provide the single proposed percentage of production to be deemed incremental, attributable to the efficiency improvements or additions of capacity placed in service after December 31, 1997. Please provide backup information sufficient for the Commission to make a determination of this incremental production percentage.
- C.13 If you checked “no” to both C.3 and C.4 above, please complete the following:
- a. Was the Existing Renewable Energy Resource located at the exact site at any time during calendar years 1995 through 1997? Yes No
 - b. If you checked “yes” in Subsection (a) above, please provide the Generation Unit Asset Identification Number and the average annual electrical production (MWhs) for the three calendar years 1995 through 1997, or for the first 36 months after the Commercial Operation Date if that date is after December 31, 1994, for each such Generation Unit.

- c. Please attach a copy of the derivation of the average provided in (b) above, along with documentation support (such as ISO reports) for the information provided in Subsection (b) above. Data must be consistent with quantities used for ISO Market Settlement System.



STATE OF CONNECTICUT

DEPARTMENT OF PUBLIC UTILITY CONTROL
TEN FRANKLIN SQUARE
NEW BRITAIN, CT 06051

DOCKET NO. 08-04-11 APPLICATION OF HOLYOKE GAS & ELECTRIC
DEPARTMENT FOR QUALIFICATION OF HARRIS
ENERGY AS A CLASS II RENEWABLE ENERGY
SOURCE

June 11, 2008

By the following Commissioners:

John W. Betkoski, III
Donald W. Downes
Anne C. George

DECISION

I. INTRODUCTION

A. SUMMARY

In this Decision, the Department of Public Utility Control determines that the six Harris Energy generation facilities each qualify as run-of-the river hydropower Class II renewable energy sources and assigns each facility a separate Connecticut Renewable Portfolio Standard (RPS) Number.

B. BACKGROUND OF THE PROCEEDING

By Application (Application) received on April 10, 2008, Holyoke Gas & Electric Department (HG&E) requests, through Brian C. Beauregard, its representative, that the Department of Public Utility Control (Department) determine that six separate run-of-the-river generation facilities qualify as Class II renewable energy sources. The six facilities, Albion A, Albion D, Gill A, Gill D, Mt. Tom and Nonotuck (collectively, the Facilities or Harris Energy), are located in Holyoke, Massachusetts, and comprise Harris Energy. Application, p. 1; HG&E April 9, 2008 Letter, p. 1. The generation facilities commenced commercial operation in 1919. The facilities have the following nameplate facilities: Albion A - .281 MW, Albion D - .395 MW; Gill A - 450; Gill D - .330; Mt. Tom - .473 MW and Nonotuck - .492 MW. Application, pp. 2 and 3. Each of the facilities obtained separate FERC licenses, issued June 29, 1989. Application, Attachments A through F. HG&E requests that the Department issue each facility a separate Connecticut RPS Registration Number. HG&E April 9, 2008 Letter

The ISO-NE Generation Unit Asset Identification Number is 12168 Harris Energy Application, p. 2.

C. CONDUCT OF THE PROCEEDING

A hearing in this matter is not required and none was held

D. PARTIES TO THE PROCEEDING

The Department recognized Holyoke Gas and Electric Department, 99 Sulffock Street, Holyoke, Massachusetts; and the Office of Consumer Counsel, Ten Franklin Square, New Britain, Connecticut 06051 as Participants to this proceeding.

II. DEPARTMENT ANALYSIS

A. STATUTORY REQUIREMENTS

Conn. Gen. Stat. § 16-1(a)(27) defines a class II renewable energy source, in part as: energy derived from . . . a run-of-the-river hydropower facility provide such

facility has a generating capacity of not more than five megawatts, does not cause an appreciable change in the river flow, and began operation prior to July 1, 2003.

In interpreting Conn. Gen. Stat. §16-1(a)(27), the Department has determined that:

(1) "Facility" refers to an entire hydroelectric plant at a single site rather than a turbine generating unit within a hydroelectric plant;

(2) The "generating capacity of not more than five megawatts" refers to a hydroelectric facility's nameplate capacity, not its actual or average generation output;

(3) In order to qualify as "run-of-the-river," a hydroelectric facility must show a current FERC license or exemption that requires the facility to operate in run-of-river mode. In addition, a facility can qualify as a Class I or Class II renewable energy facility only to the extent that its FERC license or exemption requires run-of-river operation. Hydroelectric facilities that are not regulated by FERC will be required to show a FERC order or a court decision stating that FERC has no jurisdiction, or has declined to exercise jurisdiction, over such facility. In such cases, the hydroelectric facility must show that its operation allows the river inflow to equal outflow instantaneously and therefore, does not cause an appreciable change in the river flow; and

(4) "Began operations" means (A) the date an existing facility with existing generation began commercial operation as shown in documentation from FERC, (B) the new date given to an abandoned or destroyed facility that comes back into operation as shown in its documentation from FERC or as determined by the Department; (C) the date upon which a facility changes operation from store and release to run-of-river as shown in documentation from FERC; or (D) the new date that incremental generation is in operation at an existing facility as shown in its documentation from FERC.¹

As provided in the application, the Facilities are hydroelectric and are located in Holyoke, Massachusetts. The Facilities are currently owned Holyoke Gas & Electric Department. According to the application and supporting documentation, the Facilities began operation in 1919 and are licensed to operate by FERC as run-of-river hydroelectric facilities. Application, FERC licenses issued June 29, 1989.

Based on the foregoing, the Department determines that the Harris Energy Facilities qualify as Class II renewable energy facilities

III. FINDINGS OF FACT

1. Albion A, Albion D, Gill A, Gill D, Mt. Tom and Nonotuck comprise Harris Energy.
2. Albion A, Albion D, Gill A, Gill D, Mt. Tom and Nonotuck are each run-of-the-river facilities and each obtained a FERC license in June 1989

¹ See the Department's September 10, 2004 Decision in Docket No. 04-02-07, DPUC Declaratory Ruling Concerning "Run-of the River Hydropower" as That Term is Used in the Definitions of Class I and Class II Renewable Energy Source in C.G.S. § 16-1(a)(26) & (27).

3. The total generating capacity of the Facilities is less than 5 MW.
4. Total rated capacity for the Facilities is 2,421 MW.
5. Harris Energy is connected to the ISO-NE grid.
6. The Facilities began operation prior to July 1, 2003.

IV. CONCLUSION AND ORDERS

A. CONCLUSION

Based on the evidence submitted, the Department finds that the Albion A, Albion D, Gill A, Gill D, Mt. Tom and Nonotuck each qualify as Class II renewable energy sources pursuant to Conn. Gen. Stat. 16-1(a)(27).

The Department assigns each renewable generation source a unique Connecticut RPS registration number. The Facilities Connecticut RPS registration number is as follows: Albion A – CT00266-08A ; Albion D – CT00266-08B , Gill A – CT00266-08C ; Gill D – CT00266-08D , Mt. Tom – CT00266-08E , and Nonotuck – CT00266-08F.

The Department's determination in this docket is based on the information submitted by HG&E. The Department may reverse its ruling or revoke the Applicant's registration in any material information provided by the Applicant proves to be false or misleading. The Department reminds HG&E that it is obligated to notify the Department within 10 days of any changes to any of the information it has provided to the Department.

DOCKET NO. 08-04-11 APPLICATION OF HOLYOKE GAS & ELECTRIC
DEPARTMENT FOR QUALIFICATION OF HARRIS
ENERGY AS A CLASS II RENEWABLE ENERGY
SOURCE

This Decision is adopted by the following Commissioners:

John W. Betkoski, III

Donald W. Downes

Anne C. George

CERTIFICATE OF SERVICE

The foregoing is a true and correct copy of the Decision issued by the Department of Public Utility Control, State of Connecticut, and was forwarded by Certified Mail to all parties of record in this proceeding on the date indicated

Louise E. Rickard

June 11, 2008

Louise E. Rickard
Acting Executive Secretary
Department of Public Utility Control

Date

[¶ 62,298]

Linweave, Inc., Project No. 2768-002-Massachusetts

Order Issuing New License (Minor Project)

(Issued June 29, 1989)

Fred E. Springer, Director, Office of Hydropower Licensing.

Linweave, Inc. has filed a license application under Part I of the Federal Power Act (Act) to continue to operate and maintain the Albion Mill (A Wheel) Project, located on the Holyoke Canal, in Hampden County, Massachusetts. The hydroelectric facilities located along the Holyoke Canal system affect navigable waters of the United States.¹ The license for the pro-

ject, which was issued on July 6, 1977 [59 FPC 403], with an effective date of March 1, 1941, expires on February 28, 1991. The existing license waived section 15 of the Act only as it relates to federal takeover.

Notice of the application has been published. No protests were filed in this proceeding, and no agency objected to issuance of this license.

¹ See 33 FPC 593, 594 (1965).

Comments received from interested agencies and individuals have been fully considered in determining whether to issue this license. Motions to intervene were filed by the City of Holyoke Gas & Electric Department and the Holyoke Water Power Company in order to be parties in this proceeding. HWP also requests that any license issued which utilizes HWP's Holyoke Canal System water be conditioned, as was the previous license, to require cooperation with HWP as the licensee for the Hadley Falls Project No. 2004. Article 202 is included to provide for appropriate cooperation.

Comprehensive Development

Sections 4(e) and 10(a)(1) of the Act require the Commission to consider and balance in the public interest all uses of the waterway on which a project is proposed to be located.

The Albion Mill (A Wheel) Project has operated under the terms of its existing license since 1977. In the environmental assessment (EA), the staff analyzed the environmental effects of the continued operation of the project. Neither the resource agencies nor staff identified any significant conflicts between continued operation of the project as proposed by the applicant, and the environmental values of the project area.

Three alternatives to relicensing the Albion Mill (A Wheel) Project were also considered by the staff in its EA. They include: (1) issuance of an annual license; (2) issuance of a non-power license; and (3) denial of a license application. No alternative was identified that would have a higher or better use of the project in terms of providing power and environmental benefits without significant environmental cost.

Section 10(a)(2) of the Act also requires the Commission to consider the extent to which a proposed project is consistent with an existing federal, state, or local comprehensive plan. Under section 10(a)(2), federal and state agencies filed seven comprehensive plans that address resources in Massachusetts. Of these plans, staff identified and reviewed four plans relevant to this project.² No conflicts between the proposed Albion Mill (A Wheel) Project and these four plans were found.

Therefore, the project as conditioned is determined to be best adapted to a comprehensive plan, pursuant to section 10(a) of the Act, for improving a waterway and would provide for

adequate protection, mitigation, and enhancement of fish and wildlife pursuant to section 10(j) of the Act.

Recommendations of Federal and State Fish and Wildlife Agencies

Section 10(j) of the Act requires the Commission to include license conditions, based on recommendations of federal and state fish and wildlife agencies, for the protection, mitigation, and enhancement of fish and wildlife. The environmental assessment for the Albion Mill (A Wheel) Project addresses the concerns of the federal and state fish and wildlife agencies; however, recommendations are not needed for continued operation of the project.

ECPA Findings

Section 10(a)(2)(C) and section 15(a) of the Federal Power Act, as amended by the Electric Consumers Protection Act of 1986 (ECPA), requires the Commission to consider in writing the following factors in issuing new licenses.

The following discussions apply individually and collectively to the eight hydro projects owned and operated by Linweave, Inc. The eight projects are identified by FERC project numbers: 2497, 2758, 2766, 2768, 2770, 2771, 2772, and 2775.

Consumption Efficiency Improvement Programs (Section 10(a)(2)(C))

Since the applicant's primary business is the manufacture of paper products and not the generation or sale of electric power, no discussion of on-going or planned conservation and load-management programs is required in this document.

The Plans and Abilities of the Applicant to Comply with the Articles, Terms, and Conditions of Any License Issued to it and Other Applicable Provisions of Part I of the FPA (Section 15(a)(2)(A))

The staff has reviewed the plans of the applicant to comply with the articles, terms, and conditions of any license issued to Linweave, Inc.

A review of the compliance record of the applicant indicates that the applicant's compliance with the terms and conditions of its current license has been satisfactory. The staff concludes that the applicant has demonstrated its ability to comply in a good faith manner

² Connecticut River 1982 Water Quality Management Plan, June 1983, Massachusetts Division of Water Pollution Control; Connecticut River Basin Fish Passage, Flow, and Habitat Alteration Considerations in Relation to Anadromous Fish Restoration, October 1981, Technical Committee for Fisheries Management of the Connecticut River; The Outdoor

Heritage of Massachusetts, SCORP 1983-1988, December 1983, Massachusetts Department of Environmental Management; A Strategic Plan for the Restoration of Atlantic Salmon to the Connecticut River Basin, September 1982, Policy Committee for Fisheries Management of the Connecticut River.

with all articles, terms, and conditions of the license, and the staff concludes that the applicant would perform in a competent manner if issued a new license for the project.

The Plans of the Applicant to Manage, Operate, and Maintain the Project Safely (Section 15(a)(2)(B))

The staff has reviewed the applicant's plans to manage, operate, and maintain the project safely. There is no dam within the project boundaries to operate and maintain.

The eight projects draw carefully prescribed quantities of water from the Second Level Canal and discharge it to the Connecticut River below the projects. There is a flood wall located between the eight projects and the Connecticut River that ensures protection during flood conditions. When the river elevations reach 62 feet or higher, the eight projects are shut down and the headgates and tailrace gates are closed. The City of Holyoke Department of Public Works (DPW) is responsible for implementing the flood wall operation schedule and closing the tailrace gates of the eight projects.

The applicant has operated the eight projects with a perfect employee safety and public safety record. There have been no deaths or lost-time injuries to employees from project operations, nor is there any record of injury or death to the public within the project boundaries.

Based upon a review of the available information on the project safety plans, the staff concludes that the applicant is capable of managing, operating, and maintaining the project in a safe manner.

The Plans and Abilities of the Applicant to Operate and Maintain the Project in a Manner Most Likely to Provide Efficient and Reliable Electric Service (Section 15(a)(2)(C))

The staff has reviewed the operation inspection reports by the NYRO and the applicant's project operation reports.

The applicant has full time employees in its engineering department that monitor the eight projects, including physically checking each unit several times daily. Additionally, the projects have automatic safety devices to shut down the units in case of abnormal operating conditions.

The applicant cleans the trashracks and lubricates the mechanical machinery regularly. The applicant provides for periodic inspection of the penstock and provides maintenance when needed.

The applicant has reported a total of seven unscheduled outages for the eight projects over the last five years. The outages ranged in

length from 48 days to 114 days during which time the equipment was repaired. The applicant has rebuilt and/or overhauled seven of the generating units since February 1979 when the applicant purchased the eight projects.

The applicant has no plans to increase generation at the eight projects. The main reason for this is that the applicant is entitled to withdraw only a carefully prescribed quantity of water from the Second Level Canal under the terms of certain indenture agreements with HWP.

The applicant is in the paper-products manufacturing business, which is a highly competitive field and is very energy-intensive. Because of the competition in the paper-products market, the applicant must operate the project in the most efficient and reliable manner to maximize electric power sales revenues available to offset power purchases for use in its paper manufacturing operations.

The staff concludes that the project is being operated in an efficient and reliable manner.

The Need of the Applicant Over the Short and Long Terms for the Electricity Produced by the Project to Serve Its Customers (Section 15(a)(2)(D))

The applicant, Linweave, Inc., is a manufacturer of paper products and, as such, does not sell any of the electrical output of the eight hydroelectric projects (which it owns and operates as the current licensee) to end-use customers. Therefore, this document does not address the applicant's need for the electricity generated by the eight projects to serve its customers. The paper-products manufacturing business is today a highly competitive industry. Production costs in this industry are very energy-intensive, due to the large amounts of electric energy used for the manufacture of paper. When deprived of a low-cost source (or sources) of electric energy, a paper manufacturer cannot survive in the market place for paper products.

All eight of the hydropower projects for which the applicant is applying for new licenses are operated in the run-of-the river mode; and, as a result, the capacity and energy produced by them depend upon the available streamflow provided by the Second Level Canal of the Holyoke Water Power Company (HWP). This flow is subject to seasonal and yearly variations. The applicant's electric power demands at the several paper mills are determined by factors which are in no way correlated with water flow in the canal system. Because of this, and for other reasons affecting the applicant's paper-making electrical energy costs, Linweave has found it to be economically advantageous to sell the output of the eight

projects to a local electric utility and purchase the power required by the Linweave paper mills.

The total net electrical output from all eight of the projects is currently being sold, and is expected to continue to be sold to Fitchburg Gas and Electric Light Company (FGELC), pursuant to a power sales agreement dated March 25, 1982.

The applicant's present and future need for the electric power produced by the eight hydro projects, with which this document is concerned, can be stated in few words: revenues received from the sale of project capacity and energy are used to offset the cost of capacity and energy purchased on an "as-needed, total requirements" purchase agreement with a local utility, thus improving Linweave's competitive position in the paper products marketplace, which may prove necessary for industrial survival.

The total installed capacity of the eight hydro projects is 3.362 megawatts (MW), and the applicant estimates that the projects are capable of producing an average of 16,997 megawatthours (MWh) of energy annually.

The staff concludes that there is a need for the project power over the short and the long term.

The Existing and Planned Transmission Services of the Applicant (Section 15(a)(2)(E))

If the applicant is issued new licenses for the eight hydro projects listed above, no changes of the existing transmission system, its operation, or operating characteristics would occur as a result thereof, and none are planned.

If new licenses are denied, the transmission system, or systems associated with the eight projects, would no longer be required, since the applicant would no longer generate power to sell. The applicant would continue to purchase "all requirements" power required for the operation of the paper mills from a local utility. Transmission would not be affected by denial of the licenses.

The staff concludes that the transmission services are adequate as they currently exist.

Whether the Plans of the Applicant will be Achieved, to the Greatest Extent Possible, in a Cost Effective Manner (Section 15(a)(2)(F))

The Albion Mill was constructed in 1877 and the present hydroelectric generating unit was installed in 1954 and rebuilt in 1983. No new construction is proposed. The annual cost of operating the project would be its annual oper-

ation and maintenance costs. Continued future project operation would serve to provide an economically efficient source of energy for Linweave, Inc. The staff concludes that the project is economically beneficial.

The Applicant's Record of Compliance with the Terms and Conditions of the Existing License (Section 15(a)(3))

The compliance records of Linweave, Inc., with the terms and conditions of its existing licenses, are satisfactory. Further, the licensee has maintained the projects in a satisfactory manner.

The licensee is reminded that failure to comply with the terms and conditions of this license will subject it to the enforcement and penalty provisions of section 31 of the Federal Power Act.

Term of License

Section 15 of the Act, as amended by ECPA specifies that any license issued under section 15 shall be for a term which the Commission determines to be in the public interest, but not less than 30 years, nor more than 50 years from the date the license is issued. This provision is similar to pre-ECPA Commission policy, which was to establish from the expiration date of the prior license, 30-year terms for those projects which proposed no new construction or capacity, 40-year terms for those projects that proposed a moderate amount of new development, and 50-year terms for those projects that proposed a substantial amount of new development.³

Linweave, Inc. proposes no modifications to the existing project facilities or change in operation of the project. However, the existing license will not expire until February 28, 1991. Accordingly, the new license for the project will be for a term of 30 years from the expiration of the existing license.

Summary of Findings

An EA was issued for this project. Background information, analysis of impacts, support for related license articles, and the basis for a finding of no significant impact on the environment are contained in the EA attached to this order. Issuance of this license is not a major federal action significantly affecting the quality of the human environment.

The design of this project is consistent with the engineering standards governing dam safety. The project will be safe if operated and maintained in accordance with the requirements of this license. Analysis of related issues

³ See *Montana Power Company*, 56 FPC 2008 (1976).

is provided in the Safety and Design Assessment attached to this order.

The Director, Office of Hydropower Licensing, concludes that the project would not conflict with any planned or authorized development, and would be best adapted to comprehensive development of the waterway for beneficial public uses.

The Director orders:

(A) This license is issued to Linweave, Inc. (licensee), for a period of 30 years, effective March 1, 1991, to operate and maintain the Albion Mill (A Wheel) Project. 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 project consists of:

(1) All lands, to the extent of the licensee's interests in those lands, shown by exhibit G:

<i>Exhibit</i>	<i>FERC No.</i>	<i>Showing</i>
G-1	2768-5	Project Location

(2) Project works consisting of: (a) a gated intake with submerged trashracks located on the Second Level Canal; (b) a 180-foot-long, 8-foot-diameter steel penstock; (c) a single runner, Francis turbine directly coupled to a 312-kilowatt (kW) Westinghouse generator; (d) a 260-foot-long, 16-foot-wide by 9-foot-high arched, brick-lined tailrace tunnel; (e) a concrete gated outlet structure where the tailwater empties into a channel that leads to the Connecticut River; (f) a 0.6-kilovolt (kV), 650-foot-long transmission line, and a 13.8-kV, 90-foot-long transmission line; and (g) appurtenant facilities.

The project works generally described above are more specifically shown and described by those portions of exhibits A and F recommended for approval in the attached Safety and Design Assessment.

(3) All of the structures, fixtures, equipment or facilities used to operate or maintain the project, all portable property that may be employed in connection with the project and all riparian or other rights that are necessary or appropriate in the operation or maintenance of the project.

(C) The exhibit G described above and those sections of exhibits A and F recommended for approval in the attached Safety and Design Assessment are approved and made part of the license.

(D) The following sections of the Act are waived and excluded from the license for this minor project:

4(b), except the second sentence; 4(e), insofar as it relates to approval of plans by the Chief of Engineers and the Secretary of the Army; 6, insofar as it relates to public notice and to the acceptance and expression in the license of terms and conditions of the Act that are waived here; 10(c), insofar as it relates to depreciation reserves; 10(d); 10(f); 14, except insofar as the power of condemnation is reserved; 15; 16; 19; 20; and 22.

(E) This license is subject to the articles set forth in Form L-9 [54 FPC 1852] (October 1975), entitled "Terms and Conditions of License for Constructed Minor Project Affecting Navigable Waters of the United States," and the following additional articles:

Article 201. The licensee shall pay the United States the following annual charge, effective March 1, 1991:

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 416 horsepower.

Article 202. The Licensee shall cooperate with the licensee for Project No. 2004 in order that the conditions of Article 16 of the license for Project No. 2004 can be fulfilled.

Article 401. Authority is reserved to the Commission to require the licensee to construct, operate, and maintain, or provide for the construction, operation, and maintenance of such fishways, as may be prescribed by the Secretary of the Interior pursuant to section 18 of the Federal Power Act.

Article 402. (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 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 use 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 type of use and occupancy of project lands and water 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 that can accommodate no more than 10 watercraft at a time and where said facility is intended to serve single-family type dwellings; 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 use 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 certification 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 submit a letter to the Director, Office of Hydropower Licensing, 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 paragraph (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 insure 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.

(g) The authority granted to the licensee under this article shall not apply to any part of the public lands and reservations of the United States included within the project boundary.

(F) The licensee shall serve copies of any Commission filing required by this order on any entity specified in this order to be consulted on matters related to that filing. Proof of service on these entities must accompany the filing with the Commission.

(G) This order is issued under authority delegated to the Director and is final unless appealed to the Commission by any party within 30 days from the issuance date of this order. Filing an appeal does not stay the effective date of this order or any date specified in this order. The licensee's failure to appeal this order shall constitute acceptance of the license.

Environmental Assessment¹
Federal Energy Regulatory Commission
Office of Hydropower Licensing
Division of Project Review

Date: June 16, 1989

Project name: Albion Mill, A Wheel, Hydroelectric Project

FERC Project No. 2768-002

A. Application

1. Application type: New minor license
2. Date filed with the Commission: November 25, 1988
3. Applicant: Linweave, Inc.
4. Water body: Holyoke Canal; River basin: Connecticut
5. Nearest city or town: Holyoke (See figure 1.)
6. County: Hampden; State: Massachusetts

B. Purpose and Need for Action

1. Purpose.

Linweave estimates the average annual energy generation of the Albion Mill, A Wheel, Hydroelectric Project is 1,795 megawatthours. Project power is sold to the Fitchburg Gas and Electric Light Company.

2. Need for power.

The power from the project is useful in meeting a small part of the need for power projected for the New England Power Pool area of the Northeast Power Coordinating Council (NPCC) region. Power generated at the project

¹ Figures and attachments referenced in the text are omitted from this document due to reproduction requirements.

displaces fossil-fueled power generation in the NPCC region, thus conserving nonrenewable fossil fuels and reducing the emission of noxious by-products caused by the combustion of fossil fuels.

C. Proposed Project and Alternatives

1. Description of the proposed action. (See figure 2.)

The existing operating project was issued an initial license in 1977, which will expire in 1991. The licensee has filed for a new license for the continued operation of the project. The existing, operating project consists of: (i) a gated intake with submerged trashracks located on the second level canal of the Holyoke Power Company; (ii) an 8-foot-diameter penstock 180 feet long; (iii) a 312-kW generating unit located in the Albion Mill building; (iv) a 16-foot-wide by 9-foot-high arched brick-lined tailrace tunnel 260 feet long extending from the draft tube to a concrete outlet structure; (v) a concrete gated outlet structure where tailwater empties into a channel that leads to the Connecticut River; (vi) a 13.8-kV transmission line 475 feet long that connects the project to an existing transmission line; and (vii) appurtenant facilities. The project operates in a run-of-river mode. Linweave does not propose any construction of change in project operation. The Holyoke Water Power Company controls flows from the Connecticut River into the canal system under a FERC major license granted to Project No. 2004 [42 FERC ¶ 62,166].

2. Applicant's proposed mitigative measures.

Since Linweave proposes to continue operating the project as in the past, with no new construction, no changes to the hydroelectric project, and no changes in the use and release of water, Linweave proposes no mitigative measures.

3. Federal lands affected.

No.

4. Alternatives to the proposed project.

a. *Issuance of an annual license.* Section 15(a) of the Federal Power Act (Act), 16 U.S.C. § 808(a), provides for the issuance of annual licenses to the prior licensee if the license expires pending the relicensing determination. Under this alternative, an annual license would continue to be issued to Linweave until a new license is issued. The annual license contains the same terms as the expired license, thereby maintaining the status quo.

b. *Issuance of a non-power license.* Section 15(f) of the Act, § 808(b), authorizes the Commission to issue a license for nonpower use when the Commission "finds that in conformity with a comprehensive plan for improving or

developing a waterway or waterways for beneficial public uses all or part of any licensed project should no longer be used or adapted for use for power purposes." A license that is granted by the Commission for nonpower use is temporary. When the Commission finds that a state, municipality, interstate agency, or another federal agency is authorized and willing to assume regulatory supervision of the lands and facilities included under the nonpower license and does so, the Commission shall thereupon terminate the nonpower license.

c. *Denial of the license application.* Denial of the license application could lead to removal of the power facilities and removal of all project works.

D. Consultation and Compliance

1. Fish and wildlife agency consultation (Fish & Wildlife Coordination Act).

a. U.S. Fish & Wildlife Service: Yes.

b. State(s): Yes.

c. National Marine Fisheries Service: Yes.

2. Section 7 consultation (Endangered Species Act).

a. Listed species: Present.

b. Consultation: Not required.

Remarks: The federally listed endangered shortnose sturgeon under the jurisdiction of the National Marine Fisheries Service (NMFS) inhabits the lower segment of the Connecticut River from the river's mouth upstream to the Holyoke dam. A small landlocked population is found in the pool above the Holyoke dam (Taubert, 1980). Dadswell *et al.* (1984) estimated that between 800 and 1000 shortnose sturgeon inhabit the lower portion (below Holyoke) of the Connecticut River. The NMFS reports that due to the trashrack spacing, any sturgeon which might enter the canal would be prevented from entrainment into the project (personal communication, Chris Mantzaris, staff, National Marine Fisheries Service, Gloucester, Massachusetts, June 13, 1989).

3. Section 401 certification (Clean Water Act).

Required; applicant requested certification on 10/17/88.

Status: Granted by the certifying agency on 03/30/89.

4. Cultural resource consultation (Historic Preservation Act).

a. State Historic Preservation Officer: Yes.

b. National Park Service: Yes.

c. *National Register* status: Eligible or listed.

d. Council: Not required.

e. Further consultation: Not required.

Remarks: The project is adjacent to the Holyoke Canal System, a property listed in the *National Register of Historic Places*. Since there would be no redevelopment, new construction, or changes to the exterior of the property, the project would not affect the canal system or any other *National Register* or eligible properties. The SHPO concurs with this finding (letter from Valerie A. Talmage, Executive Director, Massachusetts Historical Commission, and State Historic Preservation Officer, Boston, Massachusetts, December 9, 1988).

5. Recreational consultation (Federal Power Act).

- a. U.S. Owners: No.
- b. National Park Service: Yes.
- c. State(s): Yes.

6. Wild and scenic rivers (Wild and Scenic Rivers Act).

Status: None.

7. Land and Water Conservation Fund lands and facilities (Land and Water Conservation Fund Act).

Status: None.

E. Comments

1. The following agencies and entities provided comments on the application or filed a motion to intervene in response to the public notice dated 03/27/89.

<i>Commenting agencies and other entities</i>	<i>Date of letter</i>
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Department of the Army, New England Division Corps of Engineers	05/11/89
Environmental Protection Agency	05/17/89
Department of the Interior	05/24/89
Massachusetts Division of Fisheries and Wildlife	05/30/89

<i>Motions to intervene</i>	<i>Date of motion</i>
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City of Holyoke, Gas and Electric Department	03/28/89
Holyoke Water Power Company	05/24/89

2. The applicant did not respond to the comments or motion(s) to intervene.

F. Affected Environment

1. General description of the locale. (See figure 3.)

a. *Description of the Connecticut River Basin.*

The Connecticut River Basin, with a drainage area of 11,765 square miles, is the largest

river basin in New England. Extending from the northernmost part of New Hampshire to Long Island Sound, the river basin has a maximum length in a north-south direction of about 280 miles and a maximum width of about 62 miles. The total drainage area of the basin is 11,765 square miles. The principal tributaries to the mainstem Connecticut River, by state, are the Passumpsic, White, West, Ottawquechee, and Black Rivers in Vermont; the Ammonoosuc, Mascoma, Ashuelot, and Sugar Rivers in New Hampshire; the Millers, Deerfield, Chicopee, and Westfield Rivers in Massachusetts; and the Farmington River in Connecticut.

This complex of rivers and tributaries constitutes one of the most extensively developed hydropower systems in the U.S. There is now a major effort by federal, state, and private sectors to restore Atlantic salmon to the Connecticut River Basin.

The project is located in a heavily industrialized setting between the second level of the Holyoke Canal system and the Connecticut River. The climate is typical of inland Connecticut and Massachusetts with an average temperature of 49.8 degrees Fahrenheit and an average annual precipitation of 44.39 inches.

b. *Licensed and exempted projects.*

There are 62 existing licensed projects and 38 exempted projects in the Connecticut River Basin, as of June 1, 1989.

c. *Pending applications.*

There are 10 pending license applications in the Connecticut River Basin, as of June 1, 1989.

d. *Cumulative impacts.*

Cumulative impacts are defined as impacts on the environment that result from the incremental impacts of an action when added to other past, present, and reasonably foreseeable future actions regardless which agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 C.F.R., Part 1508.7).

A target resource is an important resource that may be cumulatively affected by multiple development within a basin. The staff identified Atlantic salmon as the target resource in the Connecticut River Basin (Federal Energy Regulatory Commission, 1986). The selection was based on the regional significance and geographic distribution of this species within the river basin. This anadromous fishery resource is described below in section F(2d). Impacts to Atlantic salmon are discussed in section G.

2. Descriptions of the resources in the project impact area (Source: Linweave, Inc., application, exhibit E, unless otherwise indicated).

a. *Geology and soils:* Bedrock in the project area is interbedded sandstone, shale, conglomerate, and basaltic lava. The glacial till deposits that lie on the glaciated surface of the bedrock are overlain by varied glacial lake deposits. The original dry, sandy, surface soils in the project area have been highly altered by construction of the project and by fill and construction activities associated with urban development of the area.

b. *Streamflow:* Water flow in the canal system is controlled at the canal gatehouse in order to supply necessary water to various hydropower and industrial facilities along the canal. The amount of flow entering the canal system ranges from no flow, when the gatehouse is shut down, to 5,155 cubic feet per second, which is the maximum hydraulic capacity of the canal.

c. *Water quality:* The Connecticut River upstream of Holyoke dam is classified as Class B water by the Massachusetts Division of Water Pollution. Class B water is suitable for primary and secondary contact recreation and fish and wildlife resources. Class B water must have dissolved oxygen (DO) levels greater than 5.0 milligrams per liter (mg/l) and a pH between 6.5 and 8.0. The first level canal is classified as Class C. Class C water is suitable for secondary contact recreation and fish and wildlife resources and must have a DO level greater than 5.0 mg/l and a pH between 6.5 and 9.0 standard units. Water in the project area conforms to the state water quality standards.

d. *Fisheries:*

Anadromous: Present.

Anadromous fish species found in the Connecticut River in the vicinity of the project include American shad, Atlantic salmon, blueback herring, sea lamprey, striped bass, shortnose sturgeon, and American eel (catadromous).

Resident: Present.

Resident fish species found in the Connecticut River in the vicinity of the project include carp, channel catfish, smallmouth bass, largemouth bass, spottail shiner, white perch, bluegill, rainbow trout, and brown trout.

e. *Vegetation:* Dominant vegetative species in the vicinity of the project include oak, maple, white pine, pitch pine, grasses, and ornamental shrubs.

f. *Wildlife:* Undeveloped land in the project area provides habitat for the gray squirrel, eastern cottontail rabbit, raccoon, muskrat, beaver, weasel, pheasant, and small field mammals (mice and voles). The industrial area is inhabited by English sparrows, starlings, rob-

ins, mockingbirds, Norway rats, raccoons, and eastern cottontail rabbits.

g. *Cultural:*

There are properties listed on, or eligible for listing on, the *National Register of Historic Places* in the project impact area.

Description: The Holyoke Canal System, a contributing element in the Holyoke Canal Historic District, is listed on the *National Register of Historic Places* and is within the area of the project's potential environmental impact. The portion of the canal in the project area was constructed between 1854 and 1857.

h. *Visual quality:* The project is in an industrial area. Its appearance is consistent with that of the surrounding buildings and structures.

i. *Recreation:* The immediate project area receives no significant recreational use because of its location in a highly industrialized area. No recreational facilities are located at the project. Recreational facilities including playgrounds, swimming pools, and a skating rink are available for use within walking distance of the project. The Connecticut River in the project vicinity is used for boating and fishing.

j. *Land use:* The project is entirely within the city of Holyoke. Land in the project area is primarily used for commercial, industrial, and residential purposes. The canal system is used for generating hydroelectric power at several locations.

k. *Socioeconomics:* The socioeconomic well-being of the area is influenced by industrial and urban development.

G. *Environmental Issues and Proposed Resolutions*

There are 3 issues addressed below.

1. *Cumulative impacts on Atlantic salmon resulting from developing several hydropower projects in the Connecticut River Basin:* The Atlantic salmon is currently a primary target species for a major federal, state, and private sector restoration effort. The goal of the restoration program is to provide and to maintain a sport fishery for Atlantic salmon in the Connecticut River, and to restore and maintain a spawning population in selected tributaries (Federal Energy Regulatory Commission, 1986).

Seaward migrating salmon smolts in the river basin pass numerous hydropower developments where they may become entrained and impinged. The more hydropower facilities out-migrating fish have to pass, the greater the fish losses. Among these hydropower facilities are the Holyoke dam and the canal system.

When river discharges are high and water is flowing over the dam, migrating fish pass

downstream with little or no delay (Northeast Utilities Service Company, 1984). On the other hand, outmigrating fish would be entrained into the canal system by high flows entering the canal if they arrive at the dam when flashboards, permitting little or no spillage, are in place. Once in the canal, escape is very difficult. Fish can then be entrained in the turbines of hydropower plants operating along the canal.

On February 26, 1988, the Commission ordered the Holyoke Water Power Company (HWPC) to spill water over Holyoke dam when salmon smolts are migrating downstream (Federal Energy Regulatory Commission, 1988a). [HWPC is the licensee for the Hadley Falls Project (FERC Project No. 2004) and the entity that controls the dam and the water going into the canal.] Spilling water over the Holyoke dam allows migrating salmon smolts to pass safely downstream in the spill, instead of entering the canal system.

Canal users and the HWPC have since implemented an economic dispatch agreement, in which the HWPC passes all flow downstream at the Holyoke dam and sells the users electricity, instead of water, when salmon smolts are migrating downstream. Linweave participates in this agreement. This arrangement prevents flow from entering the canal and attracting outmigrating Atlantic salmon, and minimizes the number of outmigrating Atlantic salmon trapped in the canal, and the number of project-related impacts to fish in the river basin.

Continuing to operate the Albion Mill, A Wheel, Hydroelectric Project would not contribute to cumulative adverse impacts on Atlantic salmon.

2. *Authority to prescribe fish passage facilities.* The Department of the Interior states that fish passage facilities may be needed at the project in the future, and, by letter of May 24, 1989 they reserve the authority to prescribe such fish facilities. The Commission reserves authority to require the licensee to provide fishways, as may be prescribed by the Secretary of Interior pursuant to section 18 of the Federal Power Act, if the need arises in the future.

3. *Entraining fish in the intake structure.* The Massachusetts Division of Fisheries and Wildlife (DFW) recommended the trashracks at the intake structures have a bar spacing not greater than 1 inch to prevent the entrainment of fish. The project's intake opening includes trashracks with one-inch slot width spacing between bars. The bar spacing at the existing structure satisfies the DFW's recommendation.

H. *Environmental Impacts*

1. Assessment of impacts expected from the applicant's proposed project (P), with the applicant's proposed mitigation and any conditions set by a federal land management agency; the proposed project with any additional mitigation recommended by the staff (Ps); and any action alternative considered (A). Assessment symbols indicate the following impact levels:

- O = None;
- 2 = Moderate;
- A = Adverse;
- L = Long-term;
- 1 = Minor;
- 3 = Major;
- B = Beneficial;
- S = Short term.

Resource	P	Impact	
		Ps	A
a. Geology-Soils	0		
b. Streamflow	0		
c. Water quality:			
Temperature	0		
Dissolved oxygen	0		
Turbidity and sedimentation	0		
d. Fisheries:			
Anadromous	0		
Resident	0		
e. Vegetation	0		
f. Wildlife	0		
g. Cultural:			
Archeological	0		
Historical	0		
h. Visual quality	0		
i. Recreation	0		
j. Land use	0		
k. Socioeconomics	0		

2. Recommended alternative (including proposed, required, and recommended mitigative measures):

Proposed project.

3. Reason(s) for selecting the preferred alternative.

The power generated at this project is produced without any known adverse environmental impacts.

I. *Unavoidable Adverse Impacts of the Recommended Alternative*

There are no known adverse impacts.

J. *Conclusion*

Finding of No Significant Impact. Approval of the recommended alternative [H(2)] would not constitute a major federal action significantly affecting the quality of the human environment; therefore, an environmental impact statement (EIS) will not be prepared.

K. *Literature Cited*

Dadswell, M.J., B.D. Taubert, T.S. Squires, D. Marchette, and J.L. Buckley. 1984. Synopsis of biological data on shortnose sturgeon

(*Acipenser brevirostrum*) Lesueur 1818. National Oceanic and Atmospheric Administration Technical Report NMFS 14, National Oceanic and Atmospheric Administration, Washington, D.C., 45pp.

Linweave, Inc. 1988. Application for minor license for the Ablion Mill, A Wheel, Hydroelectric Project, FERC Project No. 2768, Massachusetts. November 25, 1988.

_____. 1989a. Supplement to the application for minor license for the Albion Mill, A Wheel, Hydroelectric Project, FERC Project No. 2768, Massachusetts. February 21, 1989.

_____. 1989b. Additional information for the application for minor license for the Albion Mill, A Wheel, Hydroelectric Project, FERC Project No. 2768, Massachusetts. March 20, 1989.

Northeast Utilities Service Company. 1984. Review of cancelled Atlantic salmon smolt (*Salmo salar*), radiotelemetry study at the Holyoke dam, Massachusetts. Hartford, Connecticut. September 1984.

Federal Energy Regulatory Commission. 1983. Planning status report for the Connecticut River Basin. Washington, DC. August 1983.

_____. 1986. Environmental assessment for the Connecticut River Basin. Washington, D.C. November 7, 1986.

_____. 1988a. Order amending license for the Hadley Falls Project, FERC Project No. 2004 [42 FERC ¶ 62,166], Massachusetts. February 26, 1988.

_____. 1988b. Environmental assessment for the Number 2 Hydro Unit, FERC Project No. 2387, Holyoke, Massachusetts. August 26, 1988.

Taubert, B.D. 1980. Biology of shortnose sturgeon (*Acipenser brevirostrum*) in the Holyoke Pool, Connecticut River, Massachusetts. Ph.D. Thesis. University of Massachusetts, Amherst, 136 pp.

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FERC Reports

Safety and Design Assessment

Albion mill (A Wheel) Hydroelectric Project

FERC Project No. 2768-002 - MA

Dam Safety

The applicant for the Albion Mill (A Wheel) Project is Linweave, Inc., a manufacturer of paper products. No dam or spillway is included in the project works. All water is delivered to the project via the Holyoke Second Level Canal, which is owned and operated by the Holyoke Water Power Company (HWP).

The New York Regional Office (NYRO), in an Operation Inspection Report dated October 10, 1986, indicated that the existing project had no downstream hazard potential. Since there is no dam, the staff concludes that there are no dam safety problems.

Project Design

The existing project works would consist of: (1) a gated intake with submerged trashracks located on the Second Level Canal of the HWP; (2) a 130-foot-long, 8-foot-diameter steel penstock; (3) a single runner, Francis turbine directly coupled to a 312-kilowatt (kW) Westinghouse generator; (4) a 260-foot-long, 16-foot-wide by 9-foot-high arched, brick-lined tailrace tunnel; (5) a concrete gated outlet structure where the tailwater empties into a channel that leads to the Connecticut River; (6) a 0.6-kilovolt (kV), 650-foot-long transmission line, and a 13.8-kV, 90-foot-long transmission line; and (7) appurtenant facilities. The 240-foot-long by 320-foot-wide Albion Mill building which houses the generating equipment is not considered part of the project works.

The applicant has proposed no new construction or improvements for the existing project; therefore, the project license does not need to include any special engineering articles.

The NYRO October 1986 Operation Inspection Report cited no deficiencies in project safety or operation. There is no dam within the project boundaries.

The staff concludes that the project would be safe and adequate if operated in conformance with the terms of a new license.

Water Resource Planning

The project works would contain one 312-kW generator directly connected to a Francis turbine. The gross head at the site ranges from 24 to 32 feet depending upon the tailwater elevation and the average head is 30 feet. The design head of the turbine is 32 feet and its hydraulic capacity is estimated to be 181 cubic feet per second (cfs). The applicant indicated that the project generated 1,795

megawatthours (MWh) annually. The staff finds that the plant factor would be 65.7 percent. The project would continue to be operated manually in a run-of-river mode.

All water to the project is delivered via the Second Level Canal. The Second Level Canal is one of a series of three canals (First Level Canal, Second Level Canal, and Third Level Canal) that receives water from the Hadley Falls Project (FERC Project No. 2004) on the Connecticut River. The HWP owns and operates the Hadley Falls Project and its canal system, which delivers water to various manufacturing and other business concerns for process purposes and power generation. The applicant for the Albion Mill (A Wheel) Project is Linweave, Inc.

The water for power generation is allocated in the form of mill powers (mp) to owners of lands adjacent to the canal system, under indentures or contracts between the individual property owners and the HWP.

These "mp" quantities vary according to water flow in the Connecticut River and fall into the following three categories:

Permanent power - the amount of water sold to Linweave whenever the average daily river flows in the Connecticut River are equal to or greater than 3,100 cfs.

Surplus power - water offered for sale to owners of the so-called permanent power rights whenever average river flows in the Connecticut River are equal to or greater than 3,600 cfs.

Non-permanent power - water which is not guaranteed, but which would be furnished when there is more than a sufficient quantity of water in the river to supply all the permanent power owners together with 50 percent of it as surplus. Water would be supplied 6 days a week (but not on Sundays or holidays) when the river flows are equal to or greater than 3,865 cfs. Sunday and holiday operation is allowed when the average river flows exceed approximately 4,300 cfs.

Under the allocation terms of the indentures, Linweave is entitled, in perpetuity, to draw a carefully prescribed quantity of water from the HWP canal system for power generation and discharge it into the Connecticut River below the project. Linweave is also entitled to purchase and use such surplus water as the HWP makes available from time to time.

The Albion Mill (A Wheel) Project is authorized two types of water allocation rights based on the indentures: permanent and permanent plus 50 percent surplus. For permanent power allocations, the Albion Mill (A Wheel) Project is authorized to withdraw 5 mp or 143 cfs. For permanent plus 50 percent surplus power allo-

cations, the project is authorized to withdraw 5.9 mp or 169 cfs. Based on the staff's flow duration curve for the Connecticut River, the applicant can withdraw 143 cfs about 90 percent of the time, and 169 cfs about 87 percent of the time. Whenever the flows in the Connecticut River exceed 15,000 cfs, the applicant can withdraw the maximum hydraulic capacity of the turbine unit, which is 181 cfs, from the Second Level Canal. The staff estimates that this could occur about 31 percent of the time.

The applicant has estimated that the project operates at its maximum capacity (181 cfs) about 26 percent of the time, at its permanent plus 50 percent surplus allocation (169 cfs) about 59 percent of the time, and at its permanent allocation (143 cfs) about 4 percent of the time. Based on the applicant's estimates, the project would be shut down 11 percent of the time. The NYRO 1986 Operation Inspection Report indicated that the canal system is shut down 3 times a year: once in April, once in July, and once in October. During those periods, the canal system is drained, inspected, and repaired if needed. The repairs are generally scheduled for the July shutdown.

There are certain periods of the year when the project cannot operate and the applicant is directed by the HWP to discontinue drawing water from the canal system. These periods include: (1) periods when the canal system is dewatered for inspection and maintenance; (2) periods of low flow in the Connecticut River when a public authority has required that the low flows be released at the Hadley Falls Project rather than through the canals according to the indentures, without generating power; and (3) periods when a public authority requires that the waters of the Connecticut River flow through the HWP's hydroelectric generating facilities at the Hadley Falls Project rather than through the canal system according to the indentures. During the latter periods when the HWP generates power at the Hadley Falls Project rather than releases water through the canal system, the applicant is entitled to compensation in kilowatthours (in lieu of water) under the terms of the Water Use Agreement (or Economic Dispatch Agreement). In 1987, the compensation provided under the Economic Dispatch Agreement amounted to 1,545 MWh for the eight projects owned by the applicant.

The staff's independent analysis shows that the applicant makes reasonable use of its allocated water. Because of the water allocation limits of the HWP, the applicant cannot develop additional potential at the site. Hence, the staff concludes that the applicant has prop-

erly developed the head and hydraulic potential of the site.

The August 1983 Planning Status Report for the Connecticut River Basin lists 19 existing hydroelectric projects, including the Albion Mill (A Wheel) Project, which are located on the canal system owned by HWP. The applicant owns eight of these projects. The report also listed the Holyoke Project on the canal system as a potential project with an installed capacity of 1,222 kW and an annual generation of 13,165 MWh. The report did not indicate any proposed project on the canal system that would be in conflict with the Albion Mill (A Wheel) Project.

The staff's review of the state and federal agency comments and of seven comprehensive resource development plans identified no plans with which the existing project would be in conflict within this reach of the Second Level Canal. The staff presently has no specific comments or recommendations from reviewing agencies addressing flood control, navigation, or water supply requirements for the Second Level Canal. No competing applications for the project are currently pending before the Commission.

The City of Holyoke, Massachusetts Gas and Electric Department, and the HWP filed petitions to intervene in the licensing proceeding. Neither party opposes the issuance of a license but each wanted to protect its interests. The HWP submitted a series of technical comments correcting certain information in the application. None of the corrections affect this report.

The generation from this project is equivalent to generation produced from burning 3,200 barrels of oil or 730 tons of coal annually in a steam-electric plant.

In summary, the staff's analysis shows that the existing project is properly designed to develop the hydropower potential of the site.

Economic Evaluation

The proposed project would be economically beneficial, so long as the projected levelized cost is less than the levelized cost of alternative energy and capacity.

In the case of the Albion Mill (A Wheel) Project, the applicant has proposed no new construction. Hence, the levelized project costs would be the operation and maintenance costs and administrative and general costs. These costs are small compared to the value of the power.

The applicant currently sells the project power to Fitchburg Gas & Electric Light Company, pursuant to a power sales agreement dated March 25, 1982, and it would continue to do so.

The staff concludes that the existing project is economically beneficial.

Exhibits

The staff concludes that the following parts of exhibit A and the following exhibit F drawings conform to the Commission's rules and regulations. The staff therefore includes these in the license:

Exhibit A - The following sections of exhibit A filed November 25, 1988:

The turbine and generator description on page A-2; the transmission line description on page A-2, and corrected by letter dated April 10, 1989; and the additional mechanical and electrical equipment description on pages A-1 through A-7.

<i>Exhibit</i>	<i>FERC No.</i>	<i>Showing</i>
F-1	2768-3	Site Plan
F-2	2768-4	Powerhouse Plan and Elevation

Preparers

David E. Zehner, Civil Engineer
C. Frank Miller, Electrical Engineer

[¶ 62,307]**Linweave, Inc., Project No. 2766-002-Massachusetts
Issuing New License (Minor Project)****(Issued June 29, 1989)****Fred E. Springer, Director, Office of Hydropower Licensing.**

Linweave, Inc. has filed a license application under Part I of the Federal Power Act (Act) to continue to operate and maintain the Albion Mill (D Wheel) Project, located on the Holyoke Canal, in Hampden County, Massachusetts. The hydroelectric facilities located along the Holyoke Canal system affect navigable waters of the United States.¹ The license for the pro-

ject, which was issued on July 6, 1977 [59 FPC 395], with an effective date of March 1, 1941, expires on February 28, 1991. The existing license waived section 15 of the Act only as it relates to federal takeover.

Notice of the application has been published. No protests were filed in this proceeding, and no agency objected to issuance of this license.

¹ See 33 FPC 593, 594 (1965).

Comments received from interested agencies and individuals have been fully considered in determining whether to issue this license. Motions to intervene were filed by the City of Holyoke Gas & Electric Department and the Holyoke Water Power Company (HWP) in order to be parties in this proceeding. HWP also requests that any license issued which utilizes HWP's Holyoke Canal System water be conditioned, as was the previous license, to require cooperation with HWP as the licensee for the Hadley Falls Project No. 2004. Article 202 is included to provide for appropriate cooperation.

Comprehensive Development

Sections 4(e) and 10(a)(1) of the Act require the Commission to consider and balance in the public interest all uses of the waterway on which a project is proposed to be located.

The Albion Mill (D Wheel) Project has operated under the terms of its existing license since 1977. In the environmental assessment (EA), the staff analyzed the environmental effects of the continued operation of the project. Neither the resource agencies nor staff identified any significant conflicts between continued operation of the project as proposed by the applicant, and the environmental values of the project area.

Three alternatives to relicensing the Albion Mill (D Wheel) Project were also considered by the staff in its EA. They include: (1) issuance of an annual license; (2) issuance of a non-power license; and (3) denial of a license application. No alternative was identified that would have a higher or better use of the project in terms of providing power and environmental benefits without significant environmental cost.

Section 10(a)(2) of the Act also requires the Commission to consider the extent to which a proposed project is consistent with an existing federal, state, or local comprehensive plan. Under section 10(a)(2), federal, and state agencies filed seven comprehensive plans that address resources in Massachusetts. Of these plans, staff identified and reviewed four plans relevant to this project.² No conflicts between the proposed Albion Mill (D Wheel) Project and these four plans were found.

Therefore, the project as conditioned is determined to be best adapted to a comprehensive plan, pursuant to section 10(a) of the Act, for

improving a waterway and would provide for adequate protection, mitigation, and enhancement of fish and wildlife pursuant to section 10(j) of the Act.

Recommendations of Federal and State Fish and Wildlife Agencies

Section 10(j) of the Act requires the Commission to include license conditions, based on recommendations of federal and state fish and wildlife agencies, for the protection, mitigation, and enhancement of fish and wildlife. The environmental assessment for the Albion Mill (D Wheel) Project addresses the concerns of the federal and state fish and wildlife agencies; however, recommendations are not needed for continued operation of the project.

ECPA Findings

Section 10(a)(2)(C) and section 15(a) of the Federal Power Act, as amended by the Electric Consumers Protection Act of 1986 (ECPA), requires the Commission to consider in writing the following factors in issuing new licenses.

The following discussions apply individually and collectively to the eight hydro projects owned and operated by Linweave, Inc. The eight projects are identified by FERC project numbers: 2497, 2758, 2766, 2768, 2770, 2771, 2772, and 2775.

Consumption Efficiency Improvement Programs (Section 10(a)(2)(C))

Since the applicant's primary business is the manufacture of paper products and not the generation or sale of electric power, no discussion of on-going or planned conservation and load-management programs is required in this document.

The Plans and Abilities of the Applicant to Comply with the Articles, Terms, and Conditions of Any License Issued to It and Other Applicable Provisions of Part I of the Act (Section 15(a)(2)(A))

The staff has reviewed the plans of the applicant to comply with the articles, terms, and conditions of any license issued to Linweave, Inc.

A review of the compliance record of the applicant indicates that the applicant's compliance with the terms and conditions of its current license has been satisfactory. The staff concludes that the applicant has demonstrated

² Connecticut River 1982 Water Quality Management Plan, June 1983, Massachusetts Division of Water Pollution Control; Connecticut River Basin Fish Passage, Flow, and Habitat Alteration Considerations in Relation to Anadromous Fish Restoration, October 1981, Technical Committee for Fisheries Management of the Connecticut River; The Outdoor

Heritage of Massachusetts, SCORP 1983-1988, December 1983, Massachusetts Department of Environmental Management; A Strategic Plan for the Restoration of Atlantic Salmon to the Connecticut River Basin, September 1982, Policy Committee for Fisheries Management of the Connecticut River.

its ability to comply in a good faith manner with all articles, terms, and conditions of the license, and the staff concludes that the applicant would perform in a competent manner if issued a new license for the project.

The Plans of the Applicant to Manage, Operate, and Maintain the Project Safely (Section 15(a)(2)(B))

The staff has reviewed the applicant's plans to manage, operate, and maintain the project safely. There is no dam within the project boundaries to operate and maintain.

The eight projects draw carefully prescribed quantities of water from the Second Level Canal and discharge it to the Connecticut River below the projects. There is a flood wall located between the eight projects and the Connecticut River that ensures protection during flood conditions. When the river elevations reach 62 feet or higher, the eight projects are shut down and the headgates and tailrace gates are closed. The City of Holyoke Department of Public Works (DPW) is responsible for implementing the flood wall operation schedule and closing the tailrace gates of the eight projects.

The applicant has operated the eight projects with a perfect employee safety and public safety record. There have been no deaths or lost-time injuries to employees from project operations, nor is there any record of injury or death to the public within the project boundaries.

Based upon a review of the available information on the project safety plans, the staff concludes that the applicant is capable of managing, operating, and maintaining the project in a safe manner.

The Plans and Abilities of the Applicant to Operate and Maintain the Project in a Manner Most Likely to Provide Efficient and Reliable Electric Service (Section 15(a)(2)(C))

The staff has reviewed the operation inspection reports by the NYRO and the applicant's project operation reports.

The applicant has full time employees in its engineering department that monitor the eight projects, including physically checking each unit several times daily. Additionally, the projects have automatic safety devices to shut down the units in case of abnormal operating conditions.

The applicant cleans the trashracks and lubricates the mechanical machinery regularly. The applicant provides for periodic inspection of the penstock and provides maintenance when needed.

The applicant has reported a total of seven unscheduled outages for the eight projects over

the last five years. The outages ranged in length from 48 days to 114 days during which time the equipment was repaired. The applicant has rebuilt and/or overhauled seven of the generating units since February 1979 when the applicant purchased the eight projects.

The applicant has no plans to increase generation at the eight projects. The main reason for this is that the applicant is entitled to withdraw only a carefully prescribed quantity of water from the Second Level Canal under the terms of certain indenture agreements with HWP.

The applicant is in the paper-products manufacturing business, which is a highly competitive field and is very energy-intensive. Because of the competition in the paper-products market, the applicant must operate the project in the most efficient and reliable manner to maximize electric power sales revenues available to offset power purchases for use in its paper-manufacturing operations.

The staff concludes that the project is being operated in an efficient and reliable manner.

The Need of the Applicant Over the Short and Long Terms for the Electricity Produced by the Project to Serve Its Customers (Section 15(a)(2)(D))

The applicant, Linweave, Inc., is a manufacturer of paper products and, as such, does not sell any of the electrical output of the eight hydroelectric projects (which it owns and operates as the current licensee) to end-use customers. Therefore, this document does not address the applicant's need for the electricity generated by the eight projects to serve its customers. The paper-products manufacturing business is today a highly competitive industry. Production costs in this industry are very energy-intensive, due to the large amounts of electric energy used for the manufacture of paper. When deprived of a low-cost source (or sources) of electric energy, a paper manufacturer cannot survive in the market place for paper products.

All eight of the hydropower projects for which the applicant is applying for new licenses are operated in the run-of-the river mode; and, as a result, the capacity and energy produced by them depend upon the available streamflow provided by the Second Level Canal of the Holyoke Water Power Company (HWP). This flow is subject to seasonal and yearly variations. The applicant's electric power demands at the several paper mills are determined by factors which are in no way correlated with water flow in the canal system. Because of this, and for other reasons affecting the applicant's paper-making electrical energy costs, Linweave has found it to be economically

advantageous to sell the output of the eight projects to a local electric utility and purchase the power required by the Linweave paper mills.

The total net electrical output from all eight of the projects is currently being sold, and is expected to continue to be sold to Fitchburg Gas and Electric Light Company (FGELC), pursuant to a power sales agreement dated March 25, 1982.

The applicant's present and future need for the electric power produced by the eight hydro projects, with which this document is concerned, can be stated in few words: revenues received from the sale of project capacity and energy are used to offset the cost of capacity and energy purchased on an "as-needed," "total requirements" purchase agreement with a local utility, thus improving Linweave's competitive position in the paper-products marketplace, which may prove necessary for industrial survival.

The total installed capacity of the eight hydro projects is 3.362 megawatts (MW), and the applicant estimates that the projects are capable of producing an average of 16,997 megawatthours (MWh) of energy annually.

The staff concludes that there is a need for the project power over the short and the long term.

The Existing and Planned Transmission Services of the Applicant (Section 15(a)(2)(E))

If the applicant is issued new licenses for the eight hydro projects listed above, no changes of the existing transmission system, its operation, or operating characteristics would occur as a result thereof, and none are planned.

If new licenses are denied, the transmission system, or systems associated with the eight projects, would no longer be required, since the applicant would no longer generate power to sell. The applicant would continue to purchase "all requirements" power required for the operation of the paper mills from a local utility. Transmission would not be affected by denial of the licenses.

The staff concludes that the transmission services are adequate as they currently exist.

Whether the Plans of the Applicant will be Achieved, to the Greatest Extent Possible, in a Cost Effective Manner (Section 15(a)(2)(F))

The Albion Mill was constructed in 1877 and the present hydroelectric generating unit was installed in 1954 and rebuilt in 1983. No new construction is proposed. The annual cost of

operating the project would be its annual operation and maintenance costs. Continued future project operation would serve to provide an economically efficient source of energy for Linweave, Inc. The staff concludes that the project is economically beneficial.

The Applicant's Record of Compliance with the Terms and Conditions of the Existing License (Section 15(a)(3))

The compliance records of Linweave, Inc., with the terms and conditions of its existing licenses, are satisfactory. Further, the licensee has maintained the projects in a satisfactory manner.

The licensee is reminded that failure to comply with the terms and conditions of this license will subject it to the enforcement and penalty provisions of section 31 of the Federal Power Act.

Term of License

Section 15 of the Act, as amended by ECPA specifies that any license issued under section 15 shall be for a term which the Commission determines to be in the public interest, but not less than 30 years, nor more than 50 years from the date the license is issued. This provision is similar to pre-ECPA Commission policy, which was to establish from the expiration date of the existing license, 30-year terms for those projects which proposed no new construction or capacity, 40-year terms for those projects that proposed a moderate amount of new development, and 50-year terms for those projects that proposed a substantial amount of new development.³

Linweave, Inc. proposes no modifications to the existing project facilities or change in operation of the project. However, the existing license will not expire until February 28, 1991. Accordingly, the new license for the project will be for a term of 30 years from the expiration of the existing license.

Summary of Findings

An EA was issued for this project. Background information, analysis of impacts, support for related license articles, and the basis for a finding of no significant impact on the environment are contained in the EA attached to this order. Issuance of this license is not a major federal action significantly affecting the quality of the human environment.

The design of this project is consistent with the engineering standards governing dam safety. The project will be safe if operated and maintained in accordance with the require-

³ See *Montana Power Company*, 56 FPC 2008 (1976).

ments of this license. Analysis of related issues is provided in the Safety and Design Assessment attached to this order.

The Director, Office of Hydropower Licensing, concludes that the project would not conflict with any planned or authorized development, and would be best adapted to comprehensive development of the waterway for beneficial public uses.

The Director orders:

(A) This license is issued to Linweave, Inc. (licensee), for a period of 30 years, effective March 1, 1991, to operate and maintain the Albion Mill (D Wheel) Project. 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 project consists of:

(1) All lands, to the extent of the licensee's interests in those lands, shown by exhibit G:

<i>Exhibit G-</i>	<i>FERC No.</i>	<i>Showing</i>
1	2766-5	Project Location

(2) Project works consisting of: (a) a gated intake with submerged trashracks located on the second level canal; (b) a 190-foot-long, 9-foot-diameter steel penstock; (c) a single runner, Francis turbine directly coupled to a 500-kilowatt (kW) Westinghouse generator; (d) a 205-foot-long, 9-foot-wide by 12-foot-high arched, brick-lined tailrace tunnel; (e) a concrete gated outlet structure where the tailwater empties into a channel that leads to the Connecticut River; (f) a 0.6-kilovolt (kV), 605-foot-long transmission line, and a 13.8-kV, 90-foot-long transmission line and (g) appurtenant facilities.

The project works generally described above are more specifically shown and described by those portions of exhibits A and F recommended for approval in the attached Safety and Design Assessment.

(3) All of the structures, fixtures, equipment or facilities used to operate or maintain the project, all portable property that may be employed in connection with the project and all riparian or other rights that are necessary or appropriate in the operation or maintenance of the project.

(C) The exhibit G described above and those sections of exhibits A and F recommended for approval in the attached Safety and Design Assessment are approved and made part of the license.

(D) The following sections of the Act are waived and excluded from the license for this minor project:

4(b), except the second sentence; 4(e), insofar as it relates to approval of plans by the Chief of Engineers and the Secretary of the Army; 6, insofar as it relates to public notice and to the acceptance and expression in the license of terms and conditions of the Act that are waived here; 10(c), insofar as it relates to depreciation reserves; 10(d); 10(f); 14, except insofar as the power of condemnation is reserved; 15; 16; 19; 20; and 22.

(E) This license is subject to the articles set forth in Form L-9 [54 FPC 1852], (October 1975), entitled "Terms and Conditions of License for Constructed Minor Project Affecting Navigable Waters of the United States," and the following additional articles:

Article 201. The licensee shall pay the United States the following annual charge, effective March 1, 1991:

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 667 horsepower.

Article 202. The Licensee shall cooperate with the licensee for Project No. 2004 in order that the conditions of Article 16 of the license for Project No. 2004 can be fulfilled.

Article 401. Authority is reserved to the Commission to require the licensee to construct, operate, and maintain, or provide for the construction, operation, and maintenance of such fishways, as may be prescribed by the Secretary of the Interior pursuant to section 18 of the Federal Power Act.

Article 402. (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 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 use 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 type of use and occupancy of project lands and water 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 that can accommodate no more than 10 watercraft at a time and where said facility is intended to serve single-family type dwellings; 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 use 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 certification 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 submit a letter to the Director, Office of Hydropower Licensing, 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 paragraph (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 insure 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.

(g) The authority granted to the licensee under this article shall not apply to any part of the public lands and reservations of the United States included within the project boundary.

(F) The licensee shall serve copies of any Commission filing required by this order on any entity specified in this order to be consulted on matters related to that filing. Proof of service on these entities must accompany the filing with the Commission.

(G) This order is issued under authority delegated to the Director and is final unless appealed to the Commission by any party within 30 days from the issuance date of this order. Filing an appeal does not stay the effective date of this order or any date specified in this order. The licensee's failure to appeal this order shall constitute acceptance of the license.

Environmental Assessment¹

Federal Energy Regulatory Commission
Office of Hydropower Licensing
Division of Project Review

Date: June 16, 1989

Project name: Albion Mill, D Wheel, Hydroelectric Project

FERC Project No. 2766 - 002

A. Application

1. Application type: New minor license
2. Date filed with the Commission: November 25, 1988
3. Applicant: Linweave, Inc.
4. Water body: Holyoke Canal River basin: Connecticut
5. Nearest city or town: Holyoke (See figure 1.)
6. County: Hampden State: Massachusetts

B. Purpose and Need for Action

1. Purpose.

Linweave estimates the average annual energy generation of the Albion Mill, D Wheel, Hydroelectric Project is 2,382 megawatthours. Project power is sold to the Fitchburg Gas and Electric Light Company.

2. Need for power.

The power from the project is useful in meeting a small part of the need for power projected for the New England Power Pool area of the Northeast Power Coordinating Council (NPCC) region. Power generated at the project displaces fossil-fueled power generation in the

¹ Figures and attachments referenced in the text are omitted from this document due to reproduction requirements.

NPCC region, thus conserving nonrenewable fossil fuels and reducing the emission of noxious by-products caused by the combustion of fossil fuels.

C. Proposed Project and Alternatives

1. Description of the proposed action. (See figure 2.)

The existing operating project was issued an initial license in 1977, which will expire in 1991. The licensee has filed for a new license for the continued operation of the project. The existing project consists of: (i) a gated intake with submerged trashracks located on the second level canal of the Holyoke Water Power Company; (ii) a 9-foot-diameter penstock, 190 feet long; (iii) an existing 500-kW generating unit located within the Gill Mill building; (iv) a 9-foot-wide by 12-foot-high arched brick-lined tailrace tunnel 205 feet long extending from the draft tube to an existing concrete outlet structure; (v) a concrete gated outlet structure where tailwater empties into a channel that leads to the Connecticut River; (vi) a 13.8-kV transmission line 475 feet long that connects the project to an existing transmission line; and (vii) appurtenant facilities. The project operates in a run-of-river mode. Linweave does not propose any construction or change in project operation. The Holyoke Water Power Company controls flows from the Connecticut River into the canal system under a FERC major license granted to Project No. 2004.

2. Applicant's proposed mitigative measures.

Since Linweave proposes to continue operating the project as in the past, with no new construction, no changes to the hydroelectric project, and no changes in the use and release of water, Linweave proposes no mitigative measures.

3. Federal lands affected.

No.

4. Alternatives to the proposed project.

a. *Issuance of an annual license.* Section 15(a) of the Federal Power Act (Act), 16 U.S.C. § 808(a), provides for the issuance of annual licenses to the prior licensee if the license expires pending the relicensing determination. Under this alternative, an annual license would continue to be issued to Linweave until a new license is issued. The annual license contains the same terms as the expired license, thereby maintaining the status quo.

b. *Issuance of a nonpower license.* Section 15(f) of the Act, § 808(b), authorizes the Commission to issue a license for nonpower use when the Commission "finds that in conformity with a comprehensive plan for improving or developing a waterway or waterways for beneficial public uses all or part of any licensed

project should no longer be used or adapted for use for power purposes." A license that is granted by the Commission for nonpower use is temporary. When the Commission finds that a state, municipality, interstate agency, or another federal agency is authorized and willing to assume regulatory supervision of the lands and facilities included under the nonpower license and does so, the Commission shall thereupon terminate the nonpower license.

c. *Denial of the license application.* Denial of the license application could lead to removal of the power facilities and removal of all project works.

D. Consultation and Compliance

1. Fish and wildlife agency consultation (Fish & Wildlife Coordination Act).

a. U.S. Fish & Wildlife Service: Yes.

b. State(s): Yes.

c. National Marine Fisheries Service: Yes.

2. Section 7 consultation (Endangered Species Act).

a. Listed species: Present.

b. Consultation: Not required.

Remarks: The federally listed endangered shortnose sturgeon under the jurisdiction of the National Marine Fisheries Service (NMFS) inhabits the lower segment of the Connecticut River from the river's mouth upstream to the Holyoke dam. A small landlocked population is found in the pool above the Holyoke dam (Taubert, 1980). Dadswell *et al.* (1984) estimated that between 800 and 1000 shortnose sturgeon inhabit the lower portion (below Holyoke) of the Connecticut River. The NMFS reports that due to the trashrack spacing, any sturgeon which might enter the canal would be prevented from entrainment into the project (personal communication, Chris Mantzaris, staff, National Marine Fisheries Service, Gloucester, Massachusetts, June 13, 1989).

3. Section 401 certification (Clean Water Act).

Required; applicant requested certification on 10/17/88.

Status: Granted by the certifying agency on 03/30/89.

4. Cultural resource consultation (Historic Preservation Act).

a. State Historic Preservation Officer: Yes.

b. National Park Service: Yes.

c. *National Register* status: Eligible or listed.

d. Council: Not required.

e. Further consultation: Not required.

Remarks: The project is adjacent to the Holyoke Canal System, a property listed in the

National Register of Historic Places. Since there would be no redevelopment, new construction, or changes to the exterior of the property, the project would not affect the canal system or any other *National Register* or eligible properties. The SHPO concurs with this finding (letter from Valerie A. Talmage, Executive Director, Massachusetts Historical Commission, and State Historic Preservation Officer, Boston, Massachusetts, December 9, 1988).

5. Recreational consultation (Federal Power Act).

- a. U.S. Owners: No.
- b. National Park Service: Yes.
- c. State(s): Yes.

6. Wild and scenic rivers (Wild and Scenic Rivers Act).

Status: None.

7. Land and Water Conservation Fund lands and facilities (Land and Water Conservation Fund Act).

Status: None.

E. Comments

1. The following agencies and entities provided comments on the application or filed a motion to intervene in response to the public notice dated 03/27/89.

<i>Commenting agencies and other entities</i>	<i>Date of letter</i>
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Department of the Army, New England Division Corps of Engineers	05/11/89
Environmental Protection Agency	05/17/89
Department of the Interior	05/19/89
Massachusetts Division of Fisheries and Wildlife	05/30/89

<i>Motions to intervene</i>	<i>Date of motion</i>
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City of Holyoke, Gas and Electric Department	03/28/89
Holyoke Water Power Company	05/24/89

2. The applicant did not respond to the comments or motion(s) to intervene.

F. Affected Environment

1. General description of the locale. (See figure 3.)

a. Description of the Connecticut River Basin.

The Connecticut River Basin, with a drainage area of 11,765 square miles, is the largest river basin in New England. Extending from the northernmost part of New Hampshire to

Long Island Sound, the river basin has a maximum length in a north-south direction of about 280 miles and a maximum width of about 62 miles. The total drainage area of the basin is 11,765 square miles. The principal tributaries to the mainstem Connecticut River, by state, are the Passumpsic, White, West, Ottauquechee, and Black Rivers in Vermont; the Ammonoosuc, Mascoma, Ashuelot, and Sugar Rivers in New Hampshire; the Millers, Deerfield, Chicopee, and Westfield Rivers in Massachusetts; and the Farmington River in Connecticut.

This complex of rivers and tributaries constitutes one of the most extensively developed hydropower systems in the U.S. There is now a major effort by federal, state, and private sectors to restore Atlantic salmon to the Connecticut River Basin.

The project is located in a heavily industrialized setting between the second level of the Holyoke Canal system and the Connecticut River. The climate is typical of inland Connecticut and Massachusetts with an average temperature of 49.8 degrees Fahrenheit and an average annual precipitation of 44.39 inches.

b. Licensed and exempted projects.

There are 62 existing licensed projects and 38 exempted projects in the Connecticut River Basin, as of June 1, 1989.

c. Pending applications.

There are 10 pending license applications in the Connecticut River Basin, as of June 1, 1989.

d. Cumulative impacts.

Cumulative impacts are defined as impacts on the environment that result from the incremental impacts of an action when added to other past, present, and reasonably foreseeable future actions regardless which agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 C.F.R., Part 1508.7).

A target resource is an important resource that may be cumulatively affected by multiple development within a basin. The staff identified Atlantic salmon as the target resource in the Connecticut River Basin (Federal Energy Regulatory Commission, 1986). The selection was based on the regional significance and geographic distribution of this species within the river basin. This anadromous fishery resource is described below in section F(2d). Impacts to Atlantic salmon are discussed in section G.

2. Descriptions of the resources in the project impact area (Source: Linweave, Inc., application, exhibit E, unless otherwise indicated).

a. *Geology and soils:* Bedrock in the project area is interbedded sandstone, shale, conglomerate, and basaltic lava. The glacial till deposits that lie on the glaciated surface of the bedrock are overlain by varied glacial lake deposits. The original dry, sandy, surface soils in the project area have been highly altered by construction of the project and by fill and construction activities associated with urban development of the area.

b. *Streamflow:* Water flow in the canal system is controlled at the canal gatehouse in order to supply necessary water to various hydropower and industrial facilities along the canal. The amount of flow entering the canal system ranges from no flow, when the gatehouse is shut down, to 5,155 cubic feet per second, which is the maximum hydraulic capacity of the canal.

c. *Water quality:* The Connecticut River upstream of Holyoke dam is classified as Class B water by the Massachusetts Division of Water Pollution. Class B water is suitable for primary and secondary contact recreation and fish and wildlife resources. Class B water must have dissolved oxygen (DO) levels greater than 5.0 milligrams per liter (mg/l) and a pH between 6.5 and 8.0. The first level canal is classified as Class C. Class C water is suitable for secondary contact recreation and fish and wildlife resources and must have a DO level greater than 5.0 mg/l and a pH between 6.5 and 9.0 standard units. Water in the project area conforms to the state water quality standards.

d. *Fisheries:*

Anadromous: Present.

Anadromous fish species found in the Connecticut River in the vicinity of the project include American shad, Atlantic salmon, blueback herring, sea lamprey, striped bass, shortnose sturgeon, and American eel (catadromous).

Resident: Present.

Resident fish species found in the Connecticut River in the vicinity of the project include carp, channel catfish, smallmouth bass, largemouth bass, spottail shiner, white perch, bluegill, rainbow trout, and brown trout.

e. *Vegetation:* Dominant vegetative species in the vicinity of the project include oak, maple, white pine, pitch pine, grasses, and ornamental shrubs.

f. *Wildlife:* Undeveloped land in the project area provides habitat for the gray squirrel, eastern cottontail rabbit, raccoon, muskrat, beaver, weasel, pheasant, and small field mammals (mice and voles). The industrial area is inhabited by English sparrows, starlings, rob-

ins, mockingbirds, Norway rats, raccoons, and eastern cottontail rabbits.

g. *Cultural:* There are properties listed on, or eligible for listing on, the *National Register of Historic Places* in the project impact area.

Description: The Holyoke Canal System, a contributing element in the Holyoke Canal Historic District, is listed on the *National Register of Historic Places* and is within the area of the project's potential environmental impact. The portion of the canal in the project area was constructed between 1854 and 1857.

h. *Visual quality:* The project is in an industrial area. Its appearance is consistent with that of the surrounding buildings and structures.

i. *Recreation:* The immediate project area receives no significant recreational use because of its location in a highly industrialized area. No recreational facilities are located at the project. Recreational facilities including playgrounds, swimming pools, and a skating rink are available for use within walking distance of the project. The Connecticut River in the project vicinity is used for boating and fishing.

j. *Land use:* The project is entirely within the city of Holyoke. Land in the project area is primarily used for commercial, industrial, and residential purposes. The canal system is used for generating hydroelectric power at several locations.

k. *Socioeconomics:* The socioeconomic well-being of the area is influenced by industrial and urban development.

G. *Environmental Issues and Proposed Resolutions*

There are 3 issues addressed below.

1. *Cumulative impacts on Atlantic salmon resulting from developing several hydropower projects in the Connecticut River Basin:* The Atlantic salmon is currently a primary target species for a major federal, state, and private sector restoration effort. The goal of the restoration program is to provide and to maintain a sport fishery for Atlantic salmon in the Connecticut River, and to restore and maintain a spawning population in selected tributaries (Federal Energy Regulatory Commission, 1986).

Seaward migrating salmon smolts in the river basin pass numerous hydropower developments where they may become entrained and impinged. The more hydropower facilities out-migrating fish have to pass, the greater the fish losses. Among these hydropower facilities are the Holyoke dam and the canal system.

When river discharges are high and water is flowing over the dam, migrating fish pass downstream with little or no delay (Northeast

Utilities Service Company, 1984). On the other hand, outmigrating fish would be entrained into the canal system by high flows entering the canal if they arrive at the dam when flashboards, permitting little or no spillage, are in place. Once in the canal, escape is very difficult. Fish can then be entrained in the turbines of hydropower plants operating along the canal.

On February 26, 1988, the Commission ordered the Holyoke Water Power Company (HWPC) to spill water over Holyoke dam when salmon smolts are migrating downstream (Federal Energy Regulatory Commission, 1988a) [HWPC is the licensee for the Hadley Falls Project (FERC Project No 2004) and the entity that controls the dam and the water going into the canal] Spilling water over the Holyoke dam allows migrating salmon smolts to pass safely downstream in the spill, instead of entering the canal system.

Canal users and the HWPC have since implemented an economic dispatch agreement, in which the HWPC passes all flow downstream at the Holyoke dam and sells the users electricity, instead of water, when salmon smolts are migrating downstream. Linweave participates in this agreement. This arrangement prevents flow from entering the canal and attracting outmigrating Atlantic salmon, and minimizes the number of outmigrating Atlantic salmon trapped in the canal and the number of project-related impacts to fish in the river basin.

Continuing to operate the Albion Mill, D Wheel, Hydroelectric Project would not contribute to cumulative adverse impacts on Atlantic salmon.

2. *Authority to prescribe fish passage facilities:* The Department of the Interior states that fish passage facilities may be needed at the project in the future, and, by letter of May 24, 1989 they reserve the authority to prescribe such fish facilities. The Commission reserves authority to require the licensee to provide fishways, as may be prescribed by the Secretary of Interior pursuant to Section 18 of the Federal Power Act, if the need arises in the future.

3. *Entraining fish in the intake structure:* The Massachusetts Division of Fisheries and Wildlife (DFW) recommended the trashracks at the intake structures have a bar spacing not greater than 1 inch to prevent the entrainment of fish. The project's intake opening includes trashracks with one-inch slot width spacing between bars. The bar spacing at the existing structure satisfies the DFW's recommendation.

H. *Environmental Impacts*

1. Assessment of impacts expected from the applicant's proposed project (P), with the applicant's proposed mitigation and any conditions set by a federal land management agency; the proposed project with any additional mitigation recommended by the staff (Ps); and any action alternative considered (A). Assessment symbols indicate the following impact levels:

- O = None;
- 2 = Moderate;
- A = Adverse;
- L = Long-term;
- 1 = Minor;
- 3 = Major;
- B = Beneficial;
- S = Short-term.

Resource	P	Impact	
		Ps	A
a. Geology-Soils	0		
b. Streamflow	0		
c. Water quality:			
Temperature	0		
Dissolved oxygen	0		
Turbidity and sedimentation	0		
d. Fisheries:			
Anadromous	0		
Resident	0		
e. Vegetation	0		
f. Wildlife	0		
g. Cultural:			
Archeological	0		
Historical	0		
h. Visual quality	0		
i. Recreation	0		
j. Land use	0		
k. Socioeconomics	0		

2. Recommended alternative (including proposed, required, and recommended mitigative measures):

Proposed project.

3. Reason(s) for selecting the preferred alternative.

The power generated at this project is produced without any known adverse environmental impacts.

I. *Unavoidable Adverse Impacts of the Recommended Alternative*

There are no known adverse impacts.

J. *Conclusion*

Finding of No Significant Impact. Approval of the recommended alternative [H(2)] would not constitute a major federal action significantly affecting the quality of the human environment; therefore, an environmental impact statement (EIS) will not be prepared.

K. *Literature Cited*

Dadswell, M.J., B.D. Taubert, T.S. Squires, D. Marchette, and J.L. Buckley. 1984. Synopsis of biological data on shortnose sturgeon

- (*Acipenser brevirostrum*) Lesueur 1818. National Oceanic and Atmospheric Administration Technical Report NMFS 14, National Oceanic and Atmospheric Administration, Washington, D.C., 45 pp.
- Linweave, Inc. 1988. Application for minor license for the Albion Mill, D Wheel, Hydroelectric Project, FERC Project No. 2766, Massachusetts. November 25, 1988.
- _____. 1989a. Supplement to the application for minor license for the Albion Mill, D Wheel, Hydroelectric Project, FERC Project No. 2766, Massachusetts. February 21, 1989.
- _____. 1989b. Additional information for the application for minor license for the Albion Mill, D Wheel, Hydroelectric Project, FERC Project No. 2497, Massachusetts. March 20, 1989.
- Northeast Utilities Service Company. 1984. Review of cancelled Atlantic salmon smolt (*Salmo salar*), radiotelemetry study at the Holyoke dam, Massachusetts. Hartford, Connecticut. September 1984.
- Federal Energy Regulatory Commission. 1983. Planning status report for the Connecticut River Basin. Washington, DC. August 1983.
- _____. 1986. Environmental assessment for the Connecticut River Basin. Washington, D.C. November 7, 1986.
- _____. 1988a. Order amending license for the Hadley Falls Project, FERC Project No. 2004 [42 FERC ¶ 62,166], Massachusetts. February 26, 1988.
- _____. 1988b. Environmental assessment for the Number 2 Hydro Unit, FERC Project No. 2387, Holyoke, Massachusetts. August 26, 1988.
- Taubert, B.D. 1980. Biology of shortnose sturgeon (*Acipenser brevirostrum*) in the Holyoke Pool, Connecticut River, Massachusetts. Ph.D. Thesis. University of Massachusetts, Amherst, 136 pp.

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Safety and Design Assessment

Albion Mill (D Wheel) Hydroelectric Project
 FERC Project No. 2766-002-MA

Dam Safety

The applicant for the Albion Mill (D Wheel) Project is Linweave, Inc., a manufacturer of

FERC Reports

paper products. No dam or spillway is included in the project works. All water is delivered to the project via the Holyoke Second Level Canal, which is owned and operated by the Holyoke Water Power Company (HWP).

The New York Regional Office (NYRO), in an Operation Inspection Report dated October 10, 1986, indicated that the existing project had no downstream hazard potential. Since there is no dam, the staff concludes that there are no dam safety problems.

Project Design

The existing project works would consist of: (1) a gated intake with submerged trashracks located on the Second Level Canal of the HWP; (2) a 190-foot-long, 9-foot-diameter steel penstock; (3) a single runner, Francis turbine directly coupled to a 500-kilowatt (kW) Westinghouse generator; (4) a 205-foot-long, 9-foot-wide by 12-foot-high arched, brick-lined tailrace tunnel; (5) a concrete gated outlet structure where the tailwater empties into a channel that leads to the Connecticut River; (6) a 0.6-kilovolt (kV), 605-foot-long transmission line, and a 13.8-kV, 90-foot-long transmission line; and (7) appurtenant facilities. The 240-foot-long by 320-foot-wide Albion Mill building which houses the generating equipment is not considered part of the project works.

The applicant has proposed no new construction or improvements for the existing project; therefore, the project license does not need to include any special engineering articles.

The NYRO October 1986 Operation Inspection Report cited no deficiencies in project safety or operation. There is no dam within the project boundaries.

The staff concludes that the project would be safe and adequate if operated in conformance with the terms of a new license.

Water Resource Planning

The project works would contain one 500-kW generator directly connected to a Francis turbine. The gross head at the site ranges from 24 to 32 feet depending upon the tailwater elevation and the average head is 30 feet. The design head of the turbine is 32 feet and its hydraulic capacity is estimated to be 245 cubic feet per second (cfs). The applicant indicated that the project generated 2,382 megawatthours (MWh) annually. The staff finds that the plant factor would be 54.4 percent. The project would continue to be operated manually in a run-of-river mode.

All water to the project is delivered via the Second Level Canal. The Second Level Canal is one of a series of three canals (First Level Canal, Second Level Canal, and Third Level

Canal) that receives water from the Hadley Falls Project (FERC Project No. 2004) on the Connecticut River. The HWP owns and operates the Hadley Falls Project and its canal system, which delivers water to various manufacturing and other business concerns for process purposes and power generation. The applicant for the Albion Mill (D Wheel) Project is Linweave, Inc.

The water for power generation is allocated in the form of mill powers (mp) to owners of lands adjacent to the canal system, under indentures or contracts between the individual property owners and the HWP.

These "mp" quantities vary according to water flow in the Connecticut River and fall into the following three categories:

Permanent power - the amount of water sold to Linweave whenever the average daily river flows in the Connecticut River are equal to or greater than 3,100 cfs.

Surplus power - water offered for sale to owners of the so-called permanent power rights whenever average river flows in the Connecticut River are equal to or greater than 3,600 cfs.

Non-permanent power - water which is not guaranteed, but which would be furnished when there is more than a sufficient quantity of water in the river to supply all the permanent power owners together with 50 percent of it as surplus. Water would be supplied 6 days a week (but not on Sundays or holidays) when the river flows are equal to or greater than 3,865 cfs. Sunday and holiday operation is allowed when the average river flows exceed approximately 4,300 cfs.

Under the allocation terms of the indentures, Linweave is entitled, in perpetuity, to draw a carefully prescribed quantity of water from the HWP canal system for power generation and discharge it into the Connecticut River below the project. Linweave is also entitled to purchase and use such surplus water as the HWP makes available from time to time.

The Albion Mill (D Wheel) Project is authorized two types of water allocation rights based on the indentures: permanent and permanent plus 50 percent surplus. For permanent power allocations, the Albion Mill (D Wheel) Project is authorized to withdraw 7 mp or 202 cfs. For permanent plus 50 percent surplus power allocations, the project is authorized to withdraw 8.5 mp or 245 cfs. Based on the staff's flow duration curve for the Connecticut River, the applicant can withdraw 202 cfs about 90 percent of the time, and 245 cfs about 87 percent of the time. Whenever the flows in the Connecticut River exceed 15,000 cfs, the applicant can withdraw the maximum hydraulic capac-

ity of the turbine unit, which is 245 cfs, from the Second Level Canal. The staff estimates that this could occur about 31 percent of the time.

The applicant has estimated that the project operates at its permanent plus 50 percent allocation (245 cfs), which is also its maximum capacity, about 85 percent of the time, and at its permanent allocation (202 cfs) about 4 percent of the time. Based on the applicant's estimates, the project would be shut down 11 percent of the time. The NYRO 1986 Operation Inspection Report indicated that the canal system is shut down 3 times a year: once in April, once in July, and once in October. During those periods, the canal system is drained, inspected, and repaired if needed. The repairs are generally scheduled for the July shutdown.

There are certain periods of the year when the project cannot operate and the applicant is directed by the HWP to discontinue drawing water from the canal system. These periods include: (1) periods when the canal system is dewatered for inspection and maintenance; (2) periods of low flow in the Connecticut River when a public authority has required that the low flows be released at the Hadley Falls Project rather than through the canals according to the indentures, without generating power; and (3) periods when a public authority requires that the waters of the Connecticut River flow through the HWP's hydroelectric generating facilities at the Hadley Falls Project rather than through the canal system according to the indentures. During the latter periods when the HWP generates power at the Hadley Falls Project rather than releases water through the canal system, the applicant is entitled to compensation in kilowatthours (in lieu of water) under the terms of the Water Use Agreement (or Economic Dispatch Agreement). In 1987, the compensation provided under the Economic Dispatch Agreement amounted to 1,545 MWh for the eight projects owned by the applicant.

The staff's independent analysis shows that the applicant makes reasonable use of its allocated water. Because of the water allocation limits of the HWP, the applicant cannot develop additional potential at the site. Hence, the staff concludes that the applicant has properly developed the head and hydraulic potential of the site.

The August 1983 Planning Status Report for the Connecticut River Basin lists 19 existing hydroelectric projects, including the Albion Mill (D Wheel) Project, which are located on the canal system owned by HWP. The applicant owns eight of these projects. The report also listed the Holyoke Project on the canal system as a potential project with an installed

capacity of 1,222 kW and an annual generation of 13,165 MWh. The report did not indicate any proposed project on the canal system that would be in conflict with the Albion Mill (D Wheel) Project.

The staff's review of the state and federal agency comments and of seven comprehensive resource development plans identified no plans with which the existing project would be in conflict within this reach of the Second Level Canal. The staff presently has no specific comments or recommendations from reviewing agencies addressing flood control, navigation, or water supply requirements for the Second Level Canal. No competing applications for the project are currently pending before the Commission.

The City of Holyoke, Massachusetts Gas and Electric Department, and the HWP filed petitions to intervene in the licensing proceeding. Neither party opposes the issuance of a license but each wanted to protect its interests. The HWP submitted a series of technical comments correcting certain information in the application. None of the corrections affect this report.

The generation from this project is equivalent to generation produced from burning 4,300 barrels of oil or 980 tons of coal annually in a steam-electric plant.

In summary, the staff's analysis shows that the existing project is properly designed to develop the hydropower potential of the site.

Economic Evaluation

The proposed project would be economically beneficial, so long as the projected levelized cost is less than the levelized cost of alternative energy and capacity.

In the case of the Albion Mill (D Wheel) Project, the applicant has proposed no new construction. Hence, the levelized project costs would be the operation and maintenance costs and administrative and general costs. These costs are small compared to the value of the power.

The applicant currently sells the project power to Fitchburg Gas & Electric Light Company, pursuant to a power sales agreement dated March 25, 1982 and it would continue to do so.

The staff concludes that the existing project is economically beneficial.

Exhibits

The staff concludes that the following parts of exhibit A and the following exhibit F drawings conform to the Commission's rules and regulations. The staff therefore includes these in the license:

Exhibit A - The following sections of exhibit A filed November 25, 1988:

The turbine and generator description on page A-2; the transmission line description on page A-2 and corrected by letter dated April 10, 1989; and the additional mechanical and electrical equipment description on pages A-1 through A-7.

<i>Exhibit</i>	<i>FERC No.</i>	<i>Showing</i>
F-1	2766-3	Site Plan
F-2	2766-4	Powerhouse Plan and Elevation

Preparers

David E. Zehner, Civil Engineer
C. Frank Miller, Electrical Engineer

¶ 62,303

Linweave, Inc., Project No. 2772-002 - Massachusetts

Order Issuing New License (Minor Project)

(Issued June 29, 1989)

Fred E. Springer, Director, Office of Hydropower Licensing.

Linweave, Inc. has filed a license application under Part I of the Federal Power Act (Act) to continue to operate and maintain the Gill Mill (A Wheel) Project, located on the Holyoke Canal, in Hampden County, Massachusetts. The hydroelectric facilities located along the Holyoke Canal system affect navigable waters of the United States.¹ The license for the project, which was issued on July 6, 1977 [59 FPC 426], with an effective date of March 1, 1941, expires on February 28, 1991. The existing license waived section 15 of the Act only as it relates to federal takeover.

Notice of the application has been published. No protests were filed in this proceeding, and no agency objected to issuance of this license. Comments received from interested agencies and individuals have been fully considered in determining whether to issue this license. Motions to intervene were filed by the City of Holyoke Gas & Electric Department and the Holyoke Water Power Company (HWP) in order to be parties in this proceeding. HWP also requests that any license issued which utilizes HWP's Holyoke Canal System water be conditioned, as was the previous license, to require cooperation with HWP as the licensee for the Hadley Falls Project No. 2004. Article 202 is included to provide for appropriate cooperation.

Comprehensive Development

Sections 4(e) and 10(a)(1) of the Act require the Commission to consider and balance in the public interest all uses of the waterway on which a project is proposed to be located.

The Gill Mill (A Wheel) Project has operated under the terms of its existing license since

1977. In the environmental assessment (EA), the staff analyzed the environmental effects of the continued operation of the project. Neither the resource agencies nor staff identified any significant conflicts between continued operation of the project as proposed by the applicant, and the environmental values of the project area.

Three alternatives to relicensing the Gill Mill (A Wheel) Project were also considered by the staff in its EA. They include: (1) issuance of an annual license; (2) issuance of a non-power license; and (3) denial of a license application. No alternative was identified that would have a higher or better use of the project in terms of providing power and environmental benefits without significant environmental cost.

Section 10(a)(2) of the Act also requires the Commission to consider the extent to which a proposed project is consistent with an existing federal, state, or local comprehensive plan. Under section 10(a)(2), federal and state agencies filed seven comprehensive plans that address resources in Massachusetts. Of these plans, staff identified and reviewed four plans relevant to this project.² No conflicts between the proposed Gill Mill (A Wheel) Project and these four plans were found.

Therefore, the project as conditioned is determined to be best adapted to a comprehensive plan, pursuant to section 10(a) of the Act, for improving a waterway and would provide for adequate protection, mitigation, and enhancement of fish and wildlife pursuant to section 10(j) of the Act.

¹ See 33 FPC 593, 594 (1965).

² Connecticut River 1982 Water Quality Management Plan, June 1983, Massachusetts Division of Water Pollution Control; Connecticut River Basin Fish Passage, Flow, and Habitat Alteration Considerations in Relation to Anadromous Fish Restoration, October 1981, Technical Committee for Fisheries

Management of the Connecticut River; The Outdoor Heritage of Massachusetts, SCORP 1983-1988, December 1983, Massachusetts Department of Environmental Management; A Strategic Plan for the Restoration of Atlantic Salmon to the Connecticut River Basin, September 1982, Policy Committee for Fisheries Management of the Connecticut River.

Recommendations of Federal and State Fish and Wildlife Agencies

Section 10(j) of the Act requires the Commission to include license conditions, based on recommendations of federal and state fish and wildlife agencies, for the protection, mitigation, and enhancement of fish and wildlife. The environmental assessment for the Gill Mill (A Wheel) Project addresses the concerns of the federal and state fish and wildlife agencies; however, recommendations are not needed for continued operation of the project.

ECPA Findings

Section 10(a)(2)(C) and section 15(a) of the Federal Power Act, as amended by the Electric Consumers Protection Act of 1986 (ECPA), requires the Commission to consider in writing the following factors in issuing new licenses.

The following discussions apply individually and collectively to the eight hydro projects owned and operated by Linweave, Inc. The eight projects are identified by FERC project numbers: 2497, 2758, 2766, 2768, 2770, 2771, 2772, and 2775.

Consumption Efficiency Improvement Programs (Section 10(a)(2)(C))

Since the applicant's primary business is the manufacture of paper products and not the generation or sale of electric power, no discussion of on-going or planned conservation and load-management programs is required in this document.

The Plans and Abilities of the Applicant to Comply with the Articles, Terms, and Conditions of Any License Issued to it and Other Applicable Provisions of Part I of the Act (Section 15(a)(2)(A))

The staff has reviewed the plans of the applicant to comply with the articles, terms, and conditions of any license issued to Linweave, Inc.

A review of the compliance record of the applicant indicates that the applicant's compliance with the terms and conditions of its current license has been satisfactory. The staff concludes that the applicant has demonstrated its ability to comply in a good faith manner with all articles, terms, and conditions of the license, and the staff concludes that the applicant would perform in a competent manner if issued a new license for the project.

The Plans of the Applicant to Manage, Operate, and Maintain the Project Safely (Section 15(a)(2)(B))

The staff has reviewed the applicant's plans to manage, operate, and maintain the project

safely. There is no dam within the project boundaries to operate and maintain.

The eight projects draw carefully prescribed quantities of water from the Second Level Canal and discharge it to the Connecticut River below the projects. There is a flood wall located between the eight projects and the Connecticut River that ensures protection during flood conditions. When the river elevations reach 62 feet or higher, the eight projects are shut down and the headgates and tailrace gates are closed. The City of Holyoke Department of Public Works is responsible for implementing the flood wall operation schedule and closing the tailrace gates of the eight projects.

The applicant has operated the eight projects with a perfect employee safety and public safety record. There have been no deaths or lost-time injuries to employees from project operations, nor is there any record of injury or death to the public within the project boundaries.

Based upon a review of the available information on the project safety plans, the staff concludes that the applicant is capable of managing, operating, and maintaining the project in a safe manner.

The Plans and Abilities of the Applicant to Operate and Maintain the Project in a Manner Most Likely to Provide Efficient and Reliable Electric Service (Section 15(a)(2)(C))

The staff has reviewed the operation inspection reports by the NYRO and the applicant's project operation reports.

The applicant has full time employees in its engineering department that monitor the eight projects, including physically checking each unit several times daily. Additionally, the projects have automatic safety devices to shut down the units in case of abnormal operating conditions.

The applicant cleans the trashracks and lubricates the mechanical machinery regularly. The applicant provides for periodic inspection of the penstock and provides maintenance when needed.

The applicant has reported a total of seven unscheduled outages for the eight projects over the last five years. The outages ranged in length from 48 days to 114 days during which time the equipment was repaired. The applicant has rebuilt and/or overhauled seven of the generating units since February 1979 when the applicant purchased the eight projects.

The applicant has no plans to increase generation at the eight projects. The main reason for this is that the applicant is entitled to withdraw only a carefully prescribed quantity of water from the Second Level Canal under the

terms of certain indenture agreements with HWP.

The applicant is in the paper-products manufacturing business, which is a highly competitive field and is very energy-intensive. Because of the competition in the paper-products market, the applicant must operate the project in the most efficient and reliable manner to maximize electric power sales revenues available to offset power purchases for use in its paper manufacturing operations.

The staff concludes that the project is being operated in an efficient and reliable manner.

The Need of the Applicant Over the Short and Long Terms for the Electricity Produced by the Project to Serve Its Customers (Section 15(a)(2)(D))

The applicant, Linweave, Inc., is a manufacturer of paper products and, as such, does not sell any of the electrical output of the eight hydroelectric projects (which it owns and operates as the current licensee) to end-use customers. Therefore, this document does not address the applicant's need for the electricity generated by the eight projects to serve its customers. The paper-products manufacturing business is today a highly competitive industry. Production costs in this industry are very energy-intensive, due to the large amounts of electric energy used for the manufacture of paper. When deprived of a low-cost source (or sources) of electric energy, a paper manufacturer cannot survive in the market place for paper products.

All eight of the hydropower projects for which the applicant is applying for new licenses are operated in the run-of-the river mode; and, as a result, the capacity and energy produced by them depend upon the available streamflow provided by the Second Level Canal of the Holyoke Water Power Company. This flow is subject to seasonal and yearly variations. The applicant's electric power demands at the several paper mills are determined by factors which are in no way correlated with water flow in the canal system. Because of this, and for other reasons affecting the applicant's paper-making electrical energy costs, Linweave has found it to be economically advantageous to sell the output of the eight projects to a local electric utility and purchase the power required by the Linweave paper mills.

The total net electrical output from all eight of the projects is currently being sold, and is expected to continue to be sold to Fitchburg Gas and Electric Light Company, pursuant to a power sales agreement dated March 25, 1982.

The applicant's present and future need for the electric power produced by the eight hydro

projects, with which this document is concerned, can be stated in few words: revenues received from the sale of project capacity and energy are used to offset the cost of capacity and energy purchased on an "as-needed, total requirements" purchase agreement with a local utility, thus improving Linweave's competitive position in the paper-products marketplace, which may prove necessary for industrial survival.

The total installed capacity of the eight hydro projects is 3.362 megawatts, and the applicant estimates that the projects are capable of producing an average of 16,997 megawatthours of energy annually.

The staff concludes that there is a need for the project power over the short and the long term.

The Existing and Planned Transmission Services of the Applicant (Section 15(a)(2)(E))

If the applicant is issued new licenses for the eight hydro projects listed above, no changes of the existing transmission system, its operation, or operating characteristics would occur as a result thereof, and none are planned.

If new licenses are denied, the transmission system, or systems associated with the eight projects, would no longer be required, since the applicant would no longer generate power to sell. The applicant would continue to purchase "all requirements" power required for the operation of the paper mills from a local utility. Transmission would not be affected by denial of the licenses.

The staff concludes that the transmission services are adequate as they currently exist.

Whether the Plans of the Applicant will be Achieved, to the Greatest Extent Possible, in a Cost Effective Manner (Section 15(a)(2)(F))

The Gill Mill was constructed in 1880 and the present hydroelectric generating unit was manufactured in 1919 and rewound in 1979. No new construction is proposed. The annual cost of operating the project would be its annual operation and maintenance costs. Continued future project operation would serve to provide an economically efficient source of energy for Linweave, Inc. The staff concludes that the project is economically beneficial.

The Applicant's Record of Compliance with the Terms and Conditions of the Existing License (Section 15(a)(3))

The compliance records of Linweave, Inc., with the terms and conditions of its existing licenses, are satisfactory. Further, the licensee has maintained the projects in a satisfactory manner.

The licensee is reminded that failure to comply with the terms and conditions of this license will subject it to the enforcement and penalty provisions of section 31 of the Federal Power Act.

Term of License

Section 15 of the Act, as amended by ECPA specifies that any license issued under section 15 shall be for a term which the Commission determines to be in the public interest, but not less than 30 years, nor more than 50 years from the date the license is issued. This provision is similar to pre-ECPA Commission policy, which was to establish from the expiration date of the existing license, 30-year terms for those projects which proposed no new construction or capacity, 40-year terms for those projects that proposed a moderate amount of new development, and 50-year terms for those projects that proposed a substantial amount of new development.³

Linweave, Inc. proposes no modifications to the existing project facilities or change in operation of the project. However, the existing license will not expire until February 28, 1991. Accordingly, the new license for the project will be for a term of 30 years from the expiration of the existing license.

Summary of Findings

An EA was issued for this project. Background information, analysis of impacts, support for related license articles, and the basis for a finding of no significant impact on the environment are contained in the EA attached to this order. Issuance of this license is not a major federal action significantly affecting the quality of the human environment.

The design of this project is consistent with the engineering standards governing dam safety. The project will be safe if operated and maintained in accordance with the requirements of this license. Analysis of related issues is provided in the Safety and Design Assessment attached to this order.

The Director, Office of Hydropower Licensing, concludes that the project would not conflict with any planned or authorized development, and would be best adapted to comprehensive development of the waterway for beneficial public uses.

The Director orders:

(A) This license is issued to Linweave, Inc. (licensee), for a period of 30 years, effective March 1, 1991, to operate and maintain the Gill Mill (A Wheel) Project. 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 project consists of:

(1) All lands, to the extent of the licensee's interests in those lands, shown by exhibit G:

Exhibit G	FERC		Showing
	No. 2772—		
1	3		Project Location

(2) Project works consisting of: (a) a gated intake with submerged trashracks located on the second level canal of the Holyoke Water Power Company; (b) an 8-foot-diameter penstock 295 feet long; (c) a 450-kW generating unit located within the Gill Mill building; (d) a 16-foot-wide by 9-foot-high arched brick-lined tailrace tunnel extending from the draft tube to an existing outlet structure; (e) a concrete gated outlet structure where tailwater empties into a channel that leads to the Connecticut River; (f) a 13.8-kV transmission line 660 feet long that connects the project to an existing transmission line; and (g) appurtenant facilities.

The project works generally described above are more specifically shown and described by those portions of exhibits A and F recommended for approval in the attached Safety and Design Assessment.

(3) All of the structures, fixtures, equipment or facilities used to operate or maintain the project, all portable property that may be employed in connection with the project and all riparian or other rights that are necessary or appropriate in the operation or maintenance of the project.

(C) The exhibit G described above and those sections of exhibits A and F recommended for approval in the attached Safety and Design Assessment are approved and made part of the license.

(D) The following sections of the Act are waived and excluded from the license for this minor project:

4(b), except the second sentence; 4(c), insofar as it relates to approval of plans by the Chief of Engineers and the Secretary of the Army; 6, insofar as it relates to public notice and to the acceptance and expression in the license of terms and conditions of the Act that are waived here; 10(c), insofar as it relates to depreciation reserves; 10(d); 10(f); 14, except insofar as the power of condemnation is reserved; 15; 16; 19; 20; and 22.

³ See *Montana Power Company*, 56 FPC 2008 (1976).

(E) This license is subject to the articles set forth in Form L-9, [reported at 54FPC 1852] (October 1975), entitled "Terms and Conditions of License for Constructed Minor Project Affecting Navigable Waters of the United States," and the following additional articles:

Article 201. The licensee shall pay the United States the following annual charge, effective March 1, 1991:

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 600 horsepower.

Article 202. The Licensee shall cooperate with the licensee for Project No. 2004 in order that the conditions of Article 16 of the license for Project No. 2004 can be fulfilled.

Article 401. Authority is reserved to the Commission to require the licensee to construct, operate, and maintain, or provide for the construction, operation, and maintenance of such fishways, as may be prescribed by the Secretary of the Interior pursuant to section 18 of the Federal Power Act.

Article 402. (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 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 use 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 type of use and occupancy of project lands and water 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 that can accommodate no more than 10 watercraft at a time and where said facility is intended to serve single-family type dwellings; 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 use 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 certification 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 submit a letter to the Director, Office of Hydropower Licensing, 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 paragraph (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 insure 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.

(g) The authority granted to the licensee under this article shall not apply to any part of the public lands and reservations of the United States included within the project boundary.

(F) The licensee shall serve copies of any Commission filing required by this order on any entity specified in this order to be consulted on matters related to that filing. Proof of service on these entities must accompany the filing with the Commission.

(G) This order is issued under authority delegated to the Director and is final unless appealed to the Commission by any party within 30 days from the issuance date of this order. Filing an appeal does not stay the effective date of this order or any date specified in this order. The licensee's failure to appeal this order shall constitute acceptance of the license.

Environmental Assessment¹

Federal Energy Regulatory Commission
Office of Hydropower Licensing

Division of Project Review

Date: June 16, 1989

Project Name: Gill Mill, A Wheel, Hydroelectric Project

FERC Project No 2772 - 002

A. Application

1. Application type: New minor license
2. Date filed with the Commission: November 28, 1988
3. Applicant: Linweave, Inc.
4. Water body: Holyoke Canal; River basin: Connecticut
5. Nearest city or town: Holyoke; (See figure 1.)
6. County: Hampden; State: Massachusetts

B. Purpose and Need for Action**1. Purpose.**

Linweave estimates the average annual energy generation of the Gill Mill, A Wheel, Hydroelectric Project is 2,530 megawatt-hours. Project power is sold to the Fitchburg Gas and Electric Light Company

2. Need for power.

The power from the project is useful in meeting a small part of the need for power projected for the New England Power Pool area of the Northeast Power Coordinating Council (NPCC) region. Power generated at the project displaces fossil-fueled power generation in the NPCC region, thus conserving nonrenewable fossil fuels and reducing the emission of noxious by-products caused by the combustion of fossil fuels.

C. Proposed Project and Alternatives**1. Description of the proposed action. (See figure 2.)**

The existing operating project was issued an initial license in 1977, which will expire in 1991. The licensee has filed for a new license for the continued operation of the project. The existing project consists of: (i) a gated intake with submerged trashracks located on the second level canal of the Holyoke Water Power Company; (2) an 8-foot-diameter penstock 295 feet long; (iii) an existing 450-kW generating unit located within the Gill Mill building; (iv) a 16-foot-wide, by 9-foot-high arched brick-lined tailrace tunnel extending from the draft tube

to an existing outlet structure; (v) a concrete gated outlet structure where tailwater empties into a channel that leads to the Connecticut River; (vi) a 13.8-kV transmission line 660 feet long that connects the project to an existing transmission line; and (vii) appurtenant facilities. The project operates in a run-of-river mode. Linweave does not propose any construction or change in project operation. The Holyoke Water Power Company controls flows from the Connecticut River into the canal system under a FERC major license granted to Project No. 2004.

2. Applicant's proposed mitigative measures.

Since Linweave proposes to continue operating the project as in the past, with no new construction, no changes to the hydroelectric project, and no changes in the use and release of water, Linweave proposes no mitigative measures

3. Federal lands affected.

No

4. Alternatives to the proposed project.

a. *Issuance of an annual license.* Section 15(a) of the Federal Power Act (Act), 16 U.S.C. § 808(a), provides for the issuance of annual licenses to the prior licensee if the license expires pending the relicensing determination. Under this alternative, an annual license would continue to be issued to Linweave until a new license is issued. The annual license contains the same terms as the expired license, thereby maintaining the status quo.

b. *Issuance of a non-power license.* Section 15(f) of the Act, § 808(b), authorizes the Commission to issue a license for nonpower use when the Commission "finds that in conformity with a comprehensive plan for improving or developing a waterway or waterways for beneficial public uses all or part of any licensed project should no longer be used or adapted for use for power purposes." A license that is granted by the Commission for nonpower use is temporary. When the Commission finds that a state, municipality, interstate agency, or another federal agency is authorized and willing to assume regulatory supervision of the lands and facilities included under the nonpower license and does so, the Commission shall thereupon terminate the nonpower license.

c. *Denial of the license application.* Denial of the license application could lead to removal of the power facilities and removal of all project works.

¹ Figures and attachments referenced in the text are omitted from this document due to reproduction requirements

D. Consultation and Compliance**1. Fish and wildlife agency consultation (Fish & Wildlife Coordination Act)**

- a. U.S. Fish & Wildlife Service: Yes.
- b. State(s): Yes.
- c. National Marine Fisheries Service: Yes.

2. Section 7 consultation (Endangered Species Act)

- a. Listed species: Present.
- b. Consultation: Not required.

Remarks: The federally listed endangered shortnose sturgeon under the jurisdiction of the National Marine Fisheries Service (NMFS) inhabits the lower segment of the Connecticut River from the river's mouth upstream to the Holyoke dam. A small landlocked population is found in the pool above the Holyoke dam (Taubert, 1980). Dadswell *et al.* (1984) estimated that between 800 and 1000 shortnose sturgeon inhabit the lower portion (below Holyoke) of the Connecticut River. The NMFS reports that due to the trashrack spacing, any sturgeon which might enter the canal would be prevented from entrainment into the project (personal communication, Chris Mantzaris, staff, National Marine Fisheries Service, Gloucester, Massachusetts, June 13, 1989).

3. Section 401 certification (Clean Water Act)

Required; applicant requested certification on 10/17/88.

Status: Granted by the certifying agency on 03/30/89.

4. Cultural resource consultation (Historic Preservation Act)

- a. State Historic Preservation Officer: Yes.
- b. National Park Service: Yes.
- c. *National Register* status: Eligible or listed.
- d. Council: Not required.
- e. Further consultation: Not required.

Remarks: The project is adjacent to the Holyoke Canal System, a property listed in the *National Register of Historic Places*. Since there would be no redevelopment, new construction, or changes to the exterior of the property, the project would not affect the canal system or any other *National Register* or eligible properties. The SHPO concurs with this finding (letter from Valerie A. Talmage, Executive Director, Massachusetts Historical Commission, and State Historic Preservation Officer, Boston, Massachusetts, December 9, 1988).

5. Recreational consultation (Federal Power Act)

- a. U.S. Owners: No.
- b. National Park Service: Yes.

c. State(s): Yes.

6. Wild and scenic rivers (Wild and Scenic Rivers Act)

Status: None.

7. Land and Water Conservation Fund lands and facilities (Land and Water Conservation Fund Act)

Status: None.

E. Comments

1. The following agencies and entities provided comments on the application or filed a motion to intervene in response to the public notice dated 03/24/89.

<i>Commenting agencies and other entities</i>	<i>Date of letter</i>
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Department of the Army, New England Division Corps of Engineers	05/11/89
Environmental Protection Agency	05/17/89
Department of the Interior	05/24/89
Massachusetts Division of Fisheries and Wildlife	05/30/89

<i>Motions to intervene</i>	<i>Date of motion</i>
-----------------------------	-----------------------

City of Holyoke, Gas and Electric Department	03/28/89
Holyoke Water Power Company	05/24/89

2. The applicant did not respond to the comments or motion(s) to intervene.

F Affected Environment**1. General description of the locale. (See figure 3)****a. Description of the Connecticut River Basin.**

The Connecticut River Basin, with a drainage area of 11,765 square miles, is the largest river basin in New England. Extending from the northernmost part of New Hampshire to Long Island Sound, the river basin has a maximum length in a north-south direction of about 280 miles and a maximum width of about 62 miles. The total drainage area of the basin is 11,765 square miles. The principal tributaries to the mainstem Connecticut River, by state, are the Passumpsic, White, West, Ottauquechee, and Black Rivers in Vermont; the Ammonoosuc, Mascoma, Ashuelot, and Sugar Rivers in New Hampshire; the Millers, Deerfield, Chicopee, and Westfield Rivers in Massachusetts; and the Farmington River in Connecticut.

This complex of rivers and tributaries constitutes one of the most extensively developed hydropower systems in the U.S. There is now a major effort by federal, state, and private sectors to restore Atlantic salmon to the Connecticut River Basin.

The project is located in a heavily industrialized setting between the second level of the Holyoke Canal system and the Connecticut River. The climate is typical of inland Connecticut and Massachusetts with an average temperature of 49.8 degrees Fahrenheit and an average annual precipitation of 44.39 inches.

b. Licensed and exempted projects.

There are 62 existing licensed projects and 38 exempted projects in the Connecticut River Basin, as of June 1, 1989.

c. Pending applications.

There are 10 pending license applications in the Connecticut River Basin, as of June 1, 1989.

d. Cumulative impacts

Cumulative impacts are defined as impacts on the environment that result from the incremental impacts of an action when added to other past, present, and reasonably foreseeable future actions regardless of which agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 C.F.R., Part 1508.7).

A target resource is an important resource that may be cumulatively affected by multiple development within a basin. The staff identified Atlantic salmon as the target resource in the Connecticut River Basin (Federal Energy Regulatory Commission, 1986). The selection was based on the regional significance and geographic distribution of this species within the river basin. This anadromous fishery resource is described below in section F(2d). Impacts to Atlantic salmon are discussed in section G.

2. Descriptions of the resources in the project impact area (Source: Linweave, Inc., application, exhibit E, unless otherwise indicated)

a. *Geology and soils:* Bedrock in the project area is interbedded sandstone, shale, conglomerate, and basaltic lava. The glacial till deposits that lie on the glaciated surface of the bedrock are overlain by varied glacial lake deposits. The original dry, sandy, surface soils in the project area have been highly altered by construction of the project and by fill and construction activities associated with urban development of the area.

b. *Streamflow:* Water flow in the canal system is controlled at the canal gatehouse in order to supply necessary water to various

hydropower and industrial facilities along the canal. The amount of flow entering the canal system ranges from no flow, when the gatehouse is shut down, to 5,155 cubic feet per second, which is the maximum hydraulic capacity of the canal.

c. *Water quality:* The Connecticut River upstream of Holyoke dam is classified as Class B water by the Massachusetts Division of Water Pollution. Class B water is suitable for primary and secondary contact recreation and fish and wildlife resources. Class B water must have dissolved oxygen (DO) levels greater than 5.0 milligrams per liter (mg/l) and a pH between 6.5 and 8.0. The first level canal is classified as Class C. Class C water is suitable for secondary contact recreation and fish and wildlife resources and must have a DO level greater than 5.0 mg/l and a pH between 6.5 and 9.0 standard units. Water in the project area conforms to the state water quality standards.

d. *Fisheries:*

Anadromous: Present.

Anadromous fish species found in the Connecticut River in the vicinity of the project include American shad, Atlantic salmon, blueback herring, sea lamprey, striped bass, shortnose sturgeon, and American eel (catadromous).

Resident: Present.

Resident fish species found in the Connecticut River in the vicinity of the project include carp, channel catfish, smallmouth bass, largemouth bass, spottail shiner, white perch, bluegill, rainbow trout, and brown trout.

e. *Vegetation:* Dominant vegetative species in the vicinity of the project include oak, maple, white pine, pitch pine, grasses, and ornamental shrubs.

f. *Wildlife:* Undeveloped land in the project area provides habitat for the gray squirrel, eastern cottontail rabbit, raccoon, muskrat, beaver, weasel, pheasant, and small field mammals (mice and voles). The industrial area is inhabited by English sparrows, starlings, robins, mockingbirds, Norway rats, raccoons, and eastern cottontail rabbits.

g. *Cultural:* There are properties listed on, or eligible for listing on, the *National Register of Historic Places* in the project impact area.

Description: The Holyoke Canal System, a contributing element in the Holyoke Canal Historic District, is listed on the *National Register of Historic Places* and is within the area of the project's potential environmental impact. The portion of the canal in the project area was constructed between 1854 and 1857.

h. *Visual quality*: The project is in an industrial area. Its appearance is consistent with that of the surrounding buildings and structures.

i. *Recreation*: The immediate project area receives no significant recreational use because of its location in a highly industrialized area. No recreational facilities are located at the project. Recreational facilities including playgrounds, swimming pools, and a skating rink are available for use within walking distance of the project. The Connecticut River in the project vicinity is used for boating and fishing.

j. *Land use*: The project is entirely within the city of Holyoke. Land in the project area is primarily used for commercial, industrial, and residential purposes. The canal system is used for generating hydroelectric power at several locations.

k. *Socioeconomics*: The socioeconomic well-being of the area is influenced by industrial and urban development.

G. *Environmental Issues and Proposed Resolutions*

There are 3 issues addressed below.

1. *Cumulative impacts on Atlantic salmon resulting from developing several hydropower projects in the Connecticut River Basin*: The Atlantic salmon is currently a primary target species for a major federal, state, and private sector restoration effort. The goal of the restoration program is to provide and to maintain a sport fishery for Atlantic salmon in the Connecticut River, and to restore and maintain a spawning population in selected tributaries (Federal Energy Regulatory Commission, 1986).

Seaward migrating salmon smolts in the river basin pass numerous hydropower developments where they may become entrained and impinged. The more hydropower facilities outmigrating fish have to pass, the greater the fish losses. Among these hydropower facilities are the Holyoke dam and the canal system.

When river discharges are high and water is flowing over the dam, migrating fish pass downstream with little or no delay (Northeast Utilities Service Company, 1984). On the other hand, outmigrating fish would be entrained into the canal system by high flows entering the canal if they arrive at the dam when flashboards, permitting little or no spillage, are in place. Once in the canal, escape is very difficult. Fish can then be entrained in the turbines of hydropower plants operating along the canal.

On February 26, 1988, the Commission ordered the Holyoke Water Power Company (HWPC) to spill water over Holyoke dam when

salmon smolts are migrating downstream (Federal Energy Regulatory Commission, 1988a) [HWPC is the licensee for the Hadley Falls Project (FERC Project No 2004) and the entity that controls the dam and the water going into the canal] Spilling water over the Holyoke dam allows migrating salmon smolts to pass safely downstream in the spill, instead of entering the canal system.

Canal users and the HWPC have since implemented an economic dispatch agreement, in which the HWPC passes all flow downstream at the Holyoke dam and sells the users electricity, instead of water, when salmon smolts are migrating downstream. Linweave participates in this agreement. This arrangement prevents flow from entering the canal and attracting outmigrating Atlantic salmon, and minimizes the number of outmigrating Atlantic salmon trapped in the canal, and the number of project-related impacts to fish in the river basin.

Continuing to operate the Gill Mill, A Wheel, Hydroelectric Project would not contribute to cumulative adverse impacts on Atlantic salmon.

2. *Authority to prescribe fish passage facilities*: The Department of the Interior states that fish passage facilities may be needed at the project in the future, and, by letter of May 24, 1989 they reserve the authority to prescribe such fish facilities. The Commission reserves authority to require the licensee to provide fishways, as may be prescribed by the Secretary of Interior pursuant to section 18 of the Federal Power Act, if the need arises in the future.

3. *Entraining fish in the intake structure*: The Massachusetts Division of Fisheries and Wildlife (DFW) recommended the trashracks at the intake structures have a bar spacing not greater than 1 inch to prevent the entrainment of fish. The project's intake opening includes trashracks with one-inch slot width spacing between bars. The bar spacing at the existing structure satisfies the DFW's recommendation.

H. *Environmental Impacts*

1. *Assessment of impacts expected from the applicant's proposed project (P), with the applicant's proposed mitigation and any conditions set by a federal land management agency; the proposed project with any additional mitigation recommended by the staff (Ps); and any action alternative considered (A)*. Assessment symbols indicate the following impact levels:

O = None; 1 = Minor; 2 = Moderate; 3 = Major; A = Adverse; B = Beneficial; L = Long-term; S = Short-term

Resource	Impact	
	P	Ps A
a. Geology-Soils	0	
b. Streamflow	0	
c. Water quality:		
Temperature	0	
Dissolved oxygen	0	
Turbidity and sedimentation	0	
d. Fisheries:		
Anadromous	0	
Resident	0	
e. Vegetation	0	
f. Wildlife	0	
g. Cultural:		
Archeological	0	
Historical	0	
h. Visual quality	0	
i. Recreation	0	
j. Land use	0	
k. Socioeconomics	0	

2. Recommended alternative (including proposed, required, and recommended mitigative measures):

Proposed project.

3. Reason(s) for selecting the preferred alternative.

The power generated at this project is produced without any known adverse environmental impacts.

I. Unavoidable Adverse Impacts of the Recommended Alternative

There are no known adverse impacts.

J. Conclusion

Finding of No Significant Impact. Approval of the recommended alternative [H(2)] would not constitute a major federal action significantly affecting the quality of the human environment; therefore, an environmental impact statement (EIS) will not be prepared.

K. Literature Cited

- Dadswell, M.J., B.D. Taubert, T.S. Squires, D. Marchette, and J.L. Buckley. 1984. Synopsis of biological data on shortnose sturgeon (*Acipenser brevirostrum*) Lesueur 1818. National Oceanic and Atmospheric Administration Technical Report NMFS 14, National Oceanic and Atmospheric Administration, Washington, DC., 45pp.
- Linweave, Inc. 1988. Application for minor license for the Gill Mill, A Wheel, Hydroelectric Project, FERC Project No. 2772, Massachusetts. November 28, 1988.
- 1989a. Supplement to the application for minor license for the Gill Mill, A Wheel, Hydroelectric Project, FERC Project No. 2772, Massachusetts. February 21, 1989.

FERC Reports

1989b. Additional information for the application for minor license for the Gill Mill, A Wheel, Hydroelectric Project, FERC Project No. 2772, Massachusetts March 20, 1989.

Northeast Utilities Service Company. 1984. Review of cancelled Atlantic salmon smolt (*Salmo salar*), radiotelemetry study at the Holyoke dam, Massachusetts. Hartford, Connecticut September 1984.

Federal Energy Regulatory Commission. 1983. Planning status report for the Connecticut River Basin. Washington, DC. August 1983.

1986. Environmental assessment for the Connecticut River Basin. Washington, DC. November 7, 1986.

1988a. Order amending license for the Hadley Falls Project, FERC Project No. 2004, Massachusetts. February 26, 1988 [42 FERC ¶ 62,166].

1988b. Environmental assessment for the Number 2 Hydro Unit, FERC Project No. 2387, Holyoke, Massachusetts. August 26, 1988.

Taubert, B.D. 1980. Biology of shortnose sturgeon (*Acipenser brevirostrum*) in the Holyoke Pool, Connecticut River, Massachusetts. Ph.D. Thesis. University of Massachusetts, Amherst, 136 pp.

L. List of Preparers(Name—Position title)

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Safety and Design Assessment

Gill Mill (A Wheel) Hydroelectric Project
 FERC Project No. 2772-002, MA

Project Safety

The applicant for the Gill Mill (A Wheel) Project is Linweave, Inc, a manufacturer of paper products. No dam or spillway is included in the project works. All water is delivered to the project via the Holyoke Second Level Canal, which is owned and operated by the Holyoke Water Power Company (HWP).

The New York Regional Office (NYRO), in an Operation Inspection Report dated October 10, 1986, indicated that the existing project had no downstream hazard potential. Since there is no dam, the staff concludes that there are no dam safety problems.

Project Design

The existing project works consist of: (1) a gated intake with submerged trashracks located on the Second Level Canal of the HWP; (2) a 295-foot-long, 8-foot-diameter steel penstock; (3) a single runner, Francis turbine directly coupled to a 450-kilowatt (kW) Westinghouse generator; (4) a 145-foot-long, 16-foot-wide by 9-foot-high arched, brick-lined tailrace tunnel; (5) a concrete gated outlet structure where the tailwater empties into a channel that leads to the Connecticut River; (6) a 13.8-kilovolt (kV), 660-foot-long transmission line connecting the project to an existing transmission line; and (7) appurtenant facilities. The 310-foot-long by 325-foot-wide Gill Mill building which houses the generating equipment is not considered part of the project works.

The primary transmission lines to be included in a new license for Project No. 2772 can be described as a 660-foot run of three-phase, 0.6-kilovolt (kV) overhead line extending from the 0.6-kV terminals of the project generator to the 0.6-kV terminals of the Mt. Tom step-up transformer; and a 90-foot run of three-phase, 13.8-kV overhead line extending from the 13.8-kV terminals of the Mt. Tom step-up transformer bank to the 13.8-kV substation owned by the Holyoke Water Power Company (HWP).

In addition to the primary lines, the new license should include the single-runner Francis turbine, the 450-kilowatt (kW) Westinghouse generator, all necessary switchgear, all installed electrical protection and control apparatus, and all instrumentation. No step-up transformer is included since Project No. 2772 shares the kilovoltampere (kVa) capacity of the Mt. Tom step-up transformer bank.

The applicant has proposed no new construction or improvements for the existing project; therefore, the project license does not need to include any special engineering articles.

The NYRO October 1986 Operation Inspection Report cited no deficiencies in project safety or operation. There is no dam within the project boundaries.

The staff concludes that the project would be safe and adequate if operated in conformance with the terms of a new license.

Water Resource Planning

The project works would contain one 450-kW generator directly connected to a Francis turbine. The gross head at the site ranges from 24 to 32 feet depending upon the tailwater elevation and the average head is 30 feet. The design head of the turbine is 32 feet and its

hydraulic capacity is estimated to be 263 cubic feet per second (cfs). The applicant indicated that the project generated 2,530 megawatt-hours (MWh) annually. The staff finds that the plant factor would be 64 percent. The project would continue to be operated manually in a run-of-river mode.

All water to the project is delivered via the Second Level Canal. The Second Level Canal is one of a series of three canals (First Level Canal, Second Level Canal, and Third Level Canal) that receives water from the Hadley Falls Project (FERC Project No. 2004) on the Connecticut River. The HWP owns and operates the Hadley Falls Project and its canal system, which delivers water to various manufacturing and other business concerns for process purposes and power generation. The applicant for the Gill Mill (A Wheel) Project is Linweave, Inc.

The water for power generation is allocated in the form of mill powers (mp) to owners of lands adjacent to the canal system, under indentures or contracts between the individual property owners and the HWP.

These "mp" quantities vary according to water flow in the Connecticut River and fall into the following three categories:

Permanent power - the amount of water sold to Linweave whenever the average daily river flows in the Connecticut River are equal to or greater than 3,100 cfs.

Surplus power - water offered for sale to owners of the so-called permanent power rights whenever average river flows in the Connecticut River are equal to or greater than 3,600 cfs.

Non-permanent power - water which is not guaranteed, but which would be furnished when there is more than a sufficient quantity of water in the river to supply all the permanent power owners together with 50 percent of it as surplus. Water would be supplied 6 days a week (but not on Sundays or holidays) when the river flows are equal to or greater than 3,865 cfs. Sunday and holiday operation is allowed when the average river flows exceed approximately 4,300 cfs.

Under the allocation terms of the indentures, Linweave is entitled, in perpetuity, to draw a carefully prescribed quantity of water from the HWP canal system for power generation and discharge it into the Connecticut River below the project. Linweave is also entitled to purchase and use such surplus water as the HWP makes available from time to time.

The Gill Mill (A Wheel) Project is authorized two types of water allocation rights based on the indentures: permanent and permanent plus 50 percent surplus. For permanent power allocations, the Gill Mill (A Wheel) Project is authorized to withdraw 7 mp or 202 cfs. For permanent plus 50 percent surplus power allocations, the project is authorized to withdraw 9.1 mp or 263 cfs. Based on the staff's flow duration curve for the Connecticut River, the applicant can withdraw 202 cfs about 90 percent of the time, and 263 cfs about 87 percent of the time. Whenever the flows in the Connecticut River exceed 15,000 cfs, the applicant can withdraw the maximum hydraulic capacity of the turbine unit, which is 263 cfs, from the Second Level Canal. The staff estimates that this could occur about 31 percent of the time.

The applicant has estimated that the project operates at its maximum capacity (263 cfs) about 26 percent of the time, at its permanent plus 50 percent surplus allocation (263 cfs) about 59 percent of the time, and at its permanent allocation (202 cfs) about 4 percent of the time. Based on the applicant's estimates, the project would be shut down 11 percent of the time. The NYRO 1986 Operation Inspection Report indicated that the canal system is shut down 3 times a year: once in April, once in July, and once in October. During those periods, the canal system is drained, inspected, and repaired if needed. The repairs are generally scheduled for the July shutdown.

There are certain periods of the year when the project cannot operate and the applicant is directed by the HWP to discontinue drawing water from the canal system. These periods include: (1) periods when the canal system is dewatered for inspection and maintenance; (2) periods of low flow in the Connecticut River when a public authority has required that the low flows be released at the Hadley Falls Project rather than through the canals according to the indentures, without generating power; and (3) periods when a public authority requires that the waters of the Connecticut River flow through the HWP's hydroelectric generating facilities at the Hadley Falls Project rather than through the canal system according to the indentures. During the latter periods when the HWP generates power at the Hadley Falls Project rather than releases water through the canal system, the applicant is entitled to compensation in kilowatt-hours (in lieu of water) under the terms of the Water Use Agreement (or Economic Dispatch Agreement). In 1987, the compensation provided under the Economic Dispatch Agreement amounted to 1,545 MWh for the eight projects owned by the applicant.

FERC Reports

The staff's independent analysis shows that the applicant makes reasonable use of its allocated water. Because of the water allocation limits of the HWP, the applicant cannot develop additional potential at the site. Hence, the staff concludes that the applicant has properly developed the head and hydraulic potential of the site.

The August 1983 Planning Status Report for the Connecticut River Basin lists 19 existing hydroelectric projects, including the Gill Mill (A Wheel) Project, which are located on the canal system owned by HWP. The applicant owns eight of these projects. The report also listed the Holyoke Project on the canal system as a potential project with an installed capacity of 1.222 MW and an annual generation of 13,165 MWh. The report did not indicate any proposed project on the canal system that would be in conflict with the Gill Mill (A Wheel) Project.

The staff's review of the state and federal agency comments and of seven comprehensive resource development plans identified no plans with which the existing project would be in conflict within this reach of the Second Level Canal. The staff presently has no specific comments or recommendations from reviewing agencies addressing flood control, navigation, or water supply requirements for the Second Level Canal. No competing applications for the project are currently pending before the Commission.

The City of Holyoke, Massachusetts Gas and Electric Department, and the HWP filed petitions to intervene in the licensing proceeding. Neither party opposes the issuance of a license, but each want to protect its interests. The HWP submitted a series of technical comments correcting certain information in the application. None of the corrections affect this report.

The generation from this project is equivalent to generation produced from burning 4,154 barrels of oil or 1,171 tons of coal annually in a steam-electric plant.

In summary, the staff's analysis shows that the existing project is properly designed to develop the hydropower potential of the site.

Economic Evaluation

The proposed project would be economically beneficial, so long as the projected levelized cost is less than the levelized cost of alternative energy and capacity.

In the case of the Gill Mill (A Wheel) Project, the applicant has proposed no new construction. Hence, the levelized project costs would be the operation and maintenance costs and administrative and general costs. These

costs are small compared to the value of the power

The applicant currently sells the project power to Fitchburg Gas & Electric Light Company, pursuant to a power sales agreement dated March 25, 1982, and it would continue to do so.

The staff concludes that the existing project is economically beneficial.

Exhibits

The staff concludes that the following parts of exhibit A and the following exhibit F drawings conform to the Commission's rules and regulations. The staff therefore includes these in the license:

Exhibit A - The following sections of exhibit A filed November 23, 1988:

The turbine and generator description on page A-2; the transmission line description on pages A-2 and A-3, as corrected by letter dated April 10, 1989; and the additional mechanical and electrical equipment description on pages A-1 through A-7.

<i>Exhibit</i>	<i>FERC No.</i>	<i>Showing</i>
F-1	2772-3	Site Plan
F-2	2772-4	Powerhouse Plan and Elevation

Preparers

Ronald E. Spath, Civil Engineer

C. Frank Miller, Electrical Engineer

[¶ 62,297]

Linweave, Inc., Project No. 2775-001 - Massachusetts

Order Issuing New License (Minor Project)

(Issued June 29, 1989)

Fred E. Springer, Director, Office of Hydropower Licensing.

Linweave, Inc. has filed a license application under Part I of the Federal Power Act (Act) to continue to operate and maintain the Gill Mill (D Wheel) Project, located on the Holyoke Canal, in Hampden County, Massachusetts. The hydroelectric facilities located along the Holyoke Canal system affect navigable waters of the United States.¹ The license for the project, which was issued on July 19, 1977 [59 FPC 736], with an effective date of March 1, 1941, expires on February 28, 1991. The existing license waived section 15 of the Act only as it relates to federal takeover.

Notice of the application has been published. No protests were filed in this proceeding, and

no agency objected to issuance of this license. Comments received from interested agencies and individuals have been fully considered in determining whether to issue this license. Motions to intervene were filed by the City of Holyoke Gas & Electric Department and the Holyoke Water Power Company (HWP) in order to be parties in this proceeding. HWP also requests that any license issued which utilizes HWP's Holyoke Canal System water be conditioned, as was the previous license, to require cooperation with HWP as the licensee for the Hadley Falls Project No. 2004. Article 202 is included to provide for appropriate cooperation.

¹ See 33 FPC 593, 594 (1965).

Comprehensive Development

Sections 4(e) and 10(a)(1) of the Act require the Commission to consider and balance in the public interest all uses of the waterway on which a project is proposed to be located.

The Gill Mill (D Wheel) Project has operated under the terms of its existing license since 1977. In the environmental assessment (EA), the staff analyzed the environmental effects of the continued operation of the project. Neither the resource agencies nor staff identified any significant conflicts between continued operation of the project as proposed by the applicant, and the environmental values of the project area.

Three alternatives to relicensing the Gill Mill (D Wheel) Project were also considered by the staff in its EA. They include: (1) issuance of an annual license; (2) issuance of a non-power license; and (3) denial of a license application. No alternative was identified that would have a higher or better use of the project in terms of providing power and environmental benefits without significant environmental cost.

Section 10(a)(2) of the Act also requires the Commission to consider the extent to which a proposed project is consistent with an existing federal, state, or local comprehensive plan. Under section 10(a)(2), federal, and state agencies filed seven comprehensive plans that address resources in Massachusetts. Of these plans, staff identified and reviewed four plans relevant to this project.² No conflicts between the proposed Gill Mill (D Wheel) Project and these four plans were found.

Therefore, the project as conditioned is determined to be best adapted to a comprehensive plan, pursuant to Section 10(a) of the Act, for improving a waterway and would provide for adequate protection, mitigation, and enhancement of fish and wildlife pursuant to Section 10(j) of the Act.

Recommendations of Federal and State Fish and Wildlife Agencies

Section 10(j) of the Act requires the Commission to include license conditions, based on recommendations of federal and state fish and wildlife agencies, for the protection, mitigation, and enhancement of fish and wildlife. The environmental assessment for the Gill Mill (D Wheel) Project addresses the concerns of the federal and state fish and wildlife agencies;

² Connecticut River 1982 Water Quality Management Plan, June 1983, Massachusetts Division of Water Pollution Control; Connecticut River Basin Fish Passage, Flow, and Habitat Alteration Considerations in Relation to Anadromous Fish Restoration, October 1981, Technical Committee for Fisheries Management of the Connecticut River; The Outdoor

however, recommendations are not needed for continued operation of the project.

ECPA Findings

Section 10(a)(2)(C) and section 15(a) of the Federal Power Act, as amended by the Electric Consumers Protection Act of 1986 (ECPA), requires the Commission to consider in writing the following factors in issuing new licenses.

The following discussions apply individually and collectively to the eight hydro projects owned and operated by Linweave, Inc. The eight projects are identified by FERC project numbers: 2497, 2758, 2766, 2768, 2770, 2771, 2772, and 2775.

Consumption Efficiency Improvement Programs (Section 10(a)(2)(C))

Since the applicant's primary business is the manufacture of paper products and not the generation or sale of electric power, no discussion of on-going or planned conservation and load-management programs is required in this document.

The Plans and Abilities of the Applicant to Comply with the Articles, Terms, and Conditions of Any License Issued to it and Other Applicable Provisions of Part I of the Act (Section 15(a)(2)(A))

The staff has reviewed the plans of the applicant to comply with the articles, terms, and conditions of any license issued to Linweave, Inc.

A review of the compliance record of the applicant indicates that the applicant's compliance with the terms and conditions of its current license has been satisfactory. The staff concludes that the applicant has demonstrated its ability to comply in a good faith manner with all articles, terms, and conditions of the license, and the staff concludes that the applicant would perform in a competent manner if issued a new license for the project.

The Plans of the Applicant to Manage, Operate, and Maintain the Project Safely (Section 15(a)(2)(B))

The staff has reviewed the applicant's plans to manage, operate, and maintain the project safely. There is no dam within the project boundaries to operate and maintain.

Heritage of Massachusetts, SCORP 1983-1988, December 1983, Massachusetts Department of Environmental Management; A Strategic Plan for the Restoration of Atlantic Salmon to the Connecticut River Basin, September 1982, Policy Committee for Fisheries Management of the Connecticut River.

The eight projects draw carefully prescribed quantities of water from the Second Level Canal and discharge it to the Connecticut River below the projects. There is a flood wall located between the eight projects and the Connecticut River that ensures protection during flood conditions. When the river elevations reach 62 feet or higher, the eight projects are shut down and the headgates and tailrace gates are closed. The City of Holyoke Department of Public Works is responsible for implementing the flood wall operation schedule and closing the tailrace gates of the eight projects.

The applicant has operated the eight projects with a perfect employee safety and public safety record. There have been no deaths or lost-time injuries to employees from project operations, nor is there any record of injury or death to the public within the project boundaries.

Based upon a review of the available information on the project safety plans, the staff concludes that the applicant is capable of managing, operating, and maintaining the project in a safe manner.

The Plans and Abilities of the Applicant to Operate and Maintain the Project in a Manner Most Likely to Provide Efficient and Reliable Electric Service (Section 15(a)(2)(C))

The staff has reviewed the operation inspection reports by the NYRO and the applicant's project operation reports.

The applicant has full time employees in its engineering department that monitor the eight projects, including physically checking each unit several times daily. Additionally, the projects have automatic safety devices to shut down the units in case of abnormal operating conditions.

The applicant cleans the trashracks and lubricates the mechanical machinery regularly. The applicant provides for periodic inspection of the penstock and provides maintenance when needed.

The applicant has reported a total of seven unscheduled outages for the eight projects over the last five years. The outages ranged in length from 48 days to 114 days during which time the equipment was repaired. The applicant has rebuilt and/or overhauled seven of the generating units since February 1979 when the applicant purchased the eight projects.

The applicant has no plans to increase generation at the eight projects. The main reason for this is that the applicant is entitled to withdraw only a carefully prescribed quantity of water from the Second Level Canal under the terms of certain indenture agreements with HWP.

FERC Reports

The applicant is in the paper-products manufacturing business, which is a highly competitive field and is very energy-intensive. Because of the competition in the paper-products market, the applicant must operate the project in the most efficient and reliable manner to maximize electric power sales revenues available to offset power purchases for use in its paper manufacturing operations.

The staff concludes that the project is being operated in an efficient and reliable manner.

The Need of the Applicant Over the Short and Long Terms for the Electricity Produced by the Project to Serve Its Customers (Section 15(a)(2)(D))

The applicant, Linweave, Inc., is a manufacturer of paper products and, as such, does not sell any of the electrical output of the eight hydroelectric projects (which it owns and operates as the current licensee) to end-use customers. Therefore, this document does not address the applicant's need for the electricity generated by the eight projects to serve its customers. The paper-products manufacturing business is today a highly competitive industry. Production costs in this industry are very energy intensive, due to the large amounts of electric energy used for the manufacture of paper. When deprived of a low-cost source (or sources) of electric energy, a paper manufacturer cannot survive in the market place for paper products.

All eight of the hydropower projects for which the applicant is applying for new licenses are operated in the run-of-the-river mode; and, as a result, the capacity and energy produced by them depend upon the available streamflow provided by the Second Level Canal of the Holyoke Water Power Company. This flow is subject to seasonal and yearly variations. The applicant's electric power demands at the several paper mills are determined by factors which are in no way correlated with water flow in the canal system. Because of this, and for other reasons affecting the applicant's paper-making electrical energy costs, Linweave has found it to be economically advantageous to sell the output of the eight projects to a local electric utility and purchase the power required by the Linweave paper mills.

The total net electrical output from all eight of the projects is currently being sold, and is expected to continue to be sold to Fitchburg Gas and Electric Light Company, pursuant to a power sales agreement dated March 25, 1982.

The applicant's present and future need for the electric power produced by the eight hydro projects, with which this document is concerned, can be stated in few words: revenues

received from the sale of project capacity and energy are used to offset the cost of capacity and energy purchased on an "as-needed, total requirements" purchase agreement with a local utility, thus improving Linweave's competitive position in the paper products marketplace, which may prove necessary for industrial survival.

The total installed capacity of the eight hydro projects is 3.362 megawatts, and the applicant estimates that the projects are capable of producing an average of 16,997 megawatt-hours of energy annually.

The staff concludes that there is a need for the project power over the short and the long term.

The Existing and Planned Transmission Services of the Applicant (Section 15(a)(2)(E))

If the applicant is issued new licenses for the eight hydro projects listed above, no changes of the existing transmission system, its operation, or operating characteristics would occur as a result thereof, and none are planned.

If new licenses are denied, the transmission system, or systems associated with the eight projects, would no longer be required, since the applicant would no longer generate power to sell. The applicant would continue to purchase "all requirements" power required for the operation of the paper mills from a local utility. Transmission would not be affected by denial of the licenses.

The staff concludes that the transmission services are adequate as they currently exist.

Whether the Plans of the Applicant will be Achieved, to the Greatest Extent Possible, in a Cost Effective Manner (Section 15(a)(2)(F))

The Gill Mill was constructed in 1880 and the present hydroelectric generating unit rebuilt in 1983. No new construction is proposed. The annual cost of operating the project would be its annual operation and maintenance costs. Continued future project operation would serve to provide an economically efficient source of energy for Linweave, Inc. The staff concludes that the project is economically beneficial.

The Applicant's Record of Compliance with the Terms and Conditions of the Existing License (Section 15(a)(3))

The compliance records of Linweave, Inc., with the terms and conditions of its existing licenses, are satisfactory. Further, the licensee has maintained the projects in a satisfactory manner.

The licensee is reminded that failure to comply with the terms and conditions of this license will subject it to the enforcement and penalty provisions of section 31 of the Federal Power Act.

Term of License

Section 15 of the Act, as amended by ECPA specifies that any license issued under section 15 shall be for a term which the Commission determines to be in the public interest, but not less than 30 years, nor more than 50 years from the date the license is issued. This provision is similar to pre-ECPA Commission policy, which was to establish from the expiration date of the existing license, 30-year terms for those projects which proposed no new construction or capacity, 40-year terms for those projects that proposed a moderate amount of new development, and 50-year terms for those projects that proposed a substantial amount of new development.³

Linweave, Inc. proposes no modifications to the existing project facilities or change in operation of the project. However, the existing license will not expire until February 28, 1991. Accordingly, the new license for the project will be for a term of 30 years from the expiration of the existing license.

Summary of Findings

An EA was issued for this project. Background information, analysis of impacts, support for related license articles, and the basis for a finding of no significant impact on the environment are contained in the EA attached to this order. Issuance of this license is not a major federal action significantly affecting the quality of the human environment.

The design of this project is consistent with the engineering standards governing dam safety. The project will be safe if operated and maintained in accordance with the requirements of this license. Analysis of related issues is provided in the Safety and Design Assessment attached to this order.

The Director, Office of Hydropower Licensing, concludes that the project would not conflict with any planned or authorized development, and would be best adapted to comprehensive development of the waterway for beneficial public uses.

The Director orders:

(A) This license is issued to Linweave, Inc. (licensee), for a period of 30 years, effective March 1, 1991, to operate and maintain the Gill Mill (D Wheel) Project. This license is

³ See *Montana Power Company*, 56 FPC 2008 (1976).

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 project consists of:

(1) All lands, to the extent of the licensee's interests in those lands, shown by exhibit G:

<i>Exhibit</i>	<i>FERC No.</i>	<i>Showing</i>
G-1	2775-3	Project Location

(2) Project works consisting of: (a) a gated intake with submerged trashracks located on the second level canal of the Holyoke Water Power Company; (b) a 12-foot-diameter penstock 295 feet long; (c) a 450-kW generating unit located within the Gill Mill building; (d) two parallel 7-foot-wide by 10-foot-high arched brick-lined tailrace tunnels extending from the draft tube to an existing outlet structure; (e) a concrete gated outlet structure where tailwater empties into a channel that leads to the Connecticut River; (f) a 13.8-kV transmission line 660 feet long that connects the project to an existing transmission line; and (g) appurtenant facilities.

The project works generally described above are more specifically shown and described by those portions of exhibits A and F recommended for approval in the attached Safety and Design Assessment.

(3) All of the structures, fixtures, equipment or facilities used to operate or maintain the project, all portable property that may be employed in connection with the project and all riparian or other rights that are necessary or appropriate in the operation or maintenance of the project.

(C) The exhibit G described above and those sections of exhibits A and F recommended for approval in the attached Safety and Design Assessment are approved and made part of the license.

(D) The following sections of the Act are waived and excluded from the license for this minor project:

4(b), except the second sentence; 4(e), insofar as it relates to approval of plans by the Chief of Engineers and the Secretary of the Army; 6, insofar as it relates to public notice and to the acceptance and expression in the license of terms and conditions of the Act that are waived here; 10(c), insofar as it relates to depreciation reserves; 10(d); 10(f); 14, except insofar as the power of condemnation is reserved; 15; 16; 19; 20; and 22.

(E) This license is subject to the articles set forth in Form L-9 (October 1975) [reported at 54 FPC 1852], entitled "Terms and Conditions of License for Constructed Minor Project

Affecting Navigable Waters of the United States", and the following additional articles:

Article 201. The licensee shall pay the United States the following annual charge, effective March 1, 1991:

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 600 horsepower.

Article 202. The Licensee shall cooperate with the licensee for Project No. 2004 in order that the conditions of Article 16 of the license for Project No. 2004 can be fulfilled.

Article 401. Authority is reserved to the Commission to require the licensee to construct, operate, and maintain, or provide for the construction, operation, and maintenance of such fishways, as may be prescribed by the Secretary of the Interior pursuant to section 18 of the Federal Power Act.

Article 402. (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 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 use 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 type of use and occupancy of project lands and water 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 that can accommo-

date no more than 10 watercraft at a time and where said facility is intended to serve single-family type dwellings; 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 use 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 certification 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 submit a letter to the Director, Office of Hydropower Licensing, 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 paragraph (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 insure 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.

(g) The authority granted to the licensee under this article shall not apply to any part of the public lands and reservations of the United States included within the project boundary.

(F) The licensee shall serve copies of any Commission filing required by this order on any entity specified in this order to be consulted on matters related to that filing. Proof of service on these entities must accompany the filing with the Commission.

(G) This order is issued under authority delegated to the Director and is final unless appealed to the Commission by any party within 30 days from the issuance date of this order. Filing an appeal does not stay the effective date of this order or any date specified in

this order. The licensee's failure to appeal this order shall constitute acceptance of the license.

Environmental Assessment¹

Federal Energy Regulatory Commission
Office of Hydropower Licensing
Division of Project Review

Date: June 16, 1989

Project name: Gill Mill, D Wheel, Hydroelectric Project

FERC Project No. 2775-001

A. Application

1. Application type: New minor license
2. Date filed with the Commission: November 25, 1988
3. Applicant: Linweave, Inc.
4. Water body: Holyoke Canal; River basin: Connecticut
5. Nearest city or town: Holyoke (See figure 1.)
6. County: Hampden; State: Massachusetts

B. Purpose and Need for Action

1. Purpose.

Linweave estimates the average annual energy generation of the Gill Mill, D Wheel, Hydroelectric Project is 1,790 megawatt-hours. Project power is sold to the Fitchburg Gas and Electric Light Company.

2. Need for power.

The power from the project is useful in meeting a small part of the need for power projected for the New England Power Pool area of the Northeast Power Coordinating Council (NPCC) region. Power generated at the project displaces fossil-fueled power generation in the NPCC region, thus conserving nonrenewable fossil fuels and reducing the emission of noxious byproducts caused by the combustion of fossil fuels.

C. Proposed Project and Alternatives

1. Description of the proposed action. (See figure 2.)

The existing operating project was issued an initial license in 1977, which will expire in 1991. The licensee has filed for a new license for the continued operation of the project. The existing operating project consists of: (i) a gated intake with submerged trashracks located on the second level canal of the Holyoke Water Power Company; (ii) a 12-foot-

¹ Figures and attachments referenced in the text are omitted from this document due to reproduction requirements.

diameter penstock 295 feet long; (iii) an existing 450-kW generating unit located within the Gill Mill building; (iv) two parallel 7-foot-wide by 10-foot-high arched brick-lined tailrace tunnels extending from the draft tube to an existing outlet structure; (v) a concrete gated outlet structure where tailwater empties into a channel that leads to the Connecticut River; (vi) a 13.8-kV transmission line 660 feet long that connects the project to an existing transmission line; and (vii) appurtenant facilities. The project operates in a run-of-river mode. Linweave does not propose any construction or change in project operation. The Holyoke Water Power Company controls flows from the Connecticut River into the canal system under a FERC major license granted to Project No. 2004.

2. Applicant's proposed mitigative measures.

Since Linweave proposes to continue operating the project as in the past, with no new construction, no changes to the hydroelectric project, and no changes in the use and release of water, Linweave proposes no mitigative measures.

3. Federal lands affected.

No.

4. Alternatives to the proposed project.

a. *Issuance of an annual license.* Section 15(a) of the Federal Power Act (Act), 16 U.S.C. § 808(a), provides for the issuance of annual licenses to the prior licensee if the license expires pending the relicensing determination. Under this alternative, an annual license would continue to be issued to Linweave until a new license is issued. The annual license contains the same terms as the expired license, thereby maintaining the status quo.

b. *Issuance of a non-power license.* Section 15(f) of the Act, § 808(b), authorizes the Commission to issue a license for nonpower use when the Commission "finds that in conformity with a comprehensive plan for improving or developing a waterway or waterways for beneficial public uses all or part of any licensed project should no longer be used or adapted for use for power purposes." A license that is granted by the Commission for nonpower use is temporary. When the Commission finds that a state, municipality, interstate agency, or another federal agency is authorized and willing to assume regulatory supervision of the lands and facilities included under the nonpower license and does so, the Commission shall thereupon terminate the nonpower license.

c. *Denial of the license application.* Denial of the license application could lead to removal of the power facilities and removal of all project works.

D. *Consultation and Compliance*

1. Fish and wildlife agency consultation (Fish & Wildlife Coordination Act).

- a. U.S. Fish & Wildlife Service: Yes.
- b. State(s): Yes.
- c. National Marine Fisheries Service: Yes.

2. Section 7 consultation (Endangered Species Act).

- a. Listed species: Present.
- b. Consultation: Not required.

Remarks: The federally listed endangered shortnose sturgeon under the jurisdiction of the National Marine Fisheries Service (NMFS) inhabits the lower segment of the Connecticut River from the river's mouth upstream to the Holyoke dam. A small landlocked population is found in the pool above the Holyoke dam (Taubert, 1980). Dadswell, *et al.* (1984) estimated that between 800 and 1000 shortnose sturgeon inhabit the lower portion (below Holyoke) of the Connecticut River. The NMFS reports that due to the trashrack spacing, any sturgeon which might enter the canal would be prevented from entrainment into the project (personal communication, Chris Mantzaris, staff, National Marine Fisheries Service, Gloucester, Massachusetts, June 13, 1989).

3. Section 401 certification (Clean Water Act).

Required; applicant requested certification on 10/17/88.

Status: Granted by the certifying agency on 03/30/89.

4. Cultural resource consultation (Historic Preservation Act).

- a. State Historic Preservation Officer: Yes.
- b. National Park Service: Yes.
- c. *National Register* status: Eligible or listed.
- d. Council: Not required.
- e. Further consultation: Not required.

Remarks: The project is adjacent to the Holyoke Canal System, a property listed in the *National Register of Historic Places*. Since there would be no redevelopment, new construction, or changes to the exterior of the property, the project would not affect the canal system or any other *National Register* or eligible properties. The SHPO concurs with this finding (letter from Valerie A. Talmage, Executive Director, Massachusetts Historical Commission, and State Historic Preservation Officer, Boston, Massachusetts, December 9, 1988).

5. Recreational consultation (Federal Power Act).

- a. U.S. Owners: No.
- b. National Park Service: Yes.

c. State(s): Yes.
 6. Wild and scenic rivers (Wild and Scenic Rivers Act).

Status: None.

7. Land and Water Conservation Fund lands and facilities (Land and Water Conservation Fund Act).

Status: None.

E. Comments

1. The following agencies and entities provided comments on the application or filed a motion to intervene in response to the public notice dated 03/24/89.

<i>Commenting agencies and other entities</i>	<i>Date of letter</i>
Department of the Army, New England Division Corps of Engineers	05/11/89
Environmental Protection Agency	05/17/89
Department of the Interior	05/19/89
Massachusetts Division of Fisheries and Wildlife	05/30/89

<i>Motions to intervene</i>	<i>Date of motion</i>
City of Holyoke, Gas and Electric Department	03/28/89
Holyoke Water Power Company	05/24/89

2. The applicant did not respond to the comments or motion(s) to intervene.

F. Affected Environment

1. General description of the locale. (See figure 3.)

a. Description of the Connecticut River Basin.

The Connecticut River Basin, with a drainage area of 11,765 square miles, is the largest river basin in New England. Extending from the northernmost part of New Hampshire to Long Island Sound, the river basin has a maximum length in a north-south direction of about 280 miles and a maximum width of about 62 miles. The total drainage area of the basin is 11,765 square miles. The principal tributaries to the mainstem Connecticut River, by state, are the Passumpsic, White, West, Ottauquechee, and Black Rivers in Vermont; the Ammonoosuc, Mascoma, Ashuelot, and Sugar Rivers in New Hampshire; the Millers, Deerfield, Chicopee, and Westfield Rivers in Massachusetts; and the Farmington River in Connecticut.

This complex of rivers and tributaries constitutes one of the most extensively developed hydropower systems in the U.S. There is now a major effort by federal, state, and private sectors to restore Atlantic salmon to the Connecticut River Basin.

The project is located in a heavily industrialized setting between the second level of the Holyoke Canal system and the Connecticut River. The climate is typical of inland Connecticut and Massachusetts with an average temperature of 49.8 degrees Fahrenheit and an average annual precipitation of 44.39 inches.

b. Licensed and exempted projects.

There are 62 existing licensed projects and 38 exempted projects in the Connecticut River Basin, as of June 1, 1989.

c. Pending applications.

There are 10 pending license applications in the Connecticut River Basin, as of June 1, 1989.

d. Cumulative impacts.

Cumulative impacts are defined as impacts on the environment that result from the incremental impacts of an action when added to other past, present, and reasonably foreseeable future actions regardless which agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 C.F.R., Part 1508.7).

A target resource is an important resource that may be cumulatively affected by multiple development within a basin. The staff identified Atlantic salmon as the target resource in the Connecticut River Basin (Federal Energy Regulatory Commission, 1986). The selection was based on the regional significance and geographic distribution of this species within the river basin. This anadromous fishery resource is described below in section F(2d). Impacts to Atlantic salmon are discussed in section G.

2. Descriptions of the resources in the project impact area (Source: Linweave, Inc., application, exhibit E, unless otherwise indicated).

a. *Geology and soils:* Bedrock in the project area is interbedded sandstone, shale, conglomerate, and basaltic lava. The glacial till deposits that lie on the glaciated surface of the bedrock are overlain by varied glacial lake deposits. The original dry, sandy, surface soils in the project area have been highly altered by construction of the project and by fill and construction activities associated with urban development of the area.

b. *Streamflow:* Water flow in the canal system is controlled at the canal gatehouse in order to supply necessary water to various hydropower and industrial facilities along the

canal. The amount of flow entering the canal system ranges from no flow, when the gatehouse is shut down, to 5,155 cubic feet per second, which is the maximum hydraulic capacity of the canal.

c. *Water quality:* The Connecticut River upstream of Holyoke dam is classified as Class B water by the Massachusetts Division of Water Pollution. Class B water is suitable for primary and secondary contact recreation and fish and wildlife resources. Class B water must have dissolved oxygen (DO) levels greater than 5.0 milligrams per liter (mg/l) and a pH between 6.5 and 8.0. The first level canal is classified as Class C. Class C water is suitable for secondary contact recreation and fish and wildlife resources and must have a DO level greater than 5.0 mg/l and a pH between 6.5 and 9.0 standard units. Water in the project area conforms to the state water quality standards.

d. *Fisheries:*

Anadromous: Present.

Anadromous fish species found in the Connecticut River in the vicinity of the project include American shad, Atlantic salmon, blueback herring, sea lamprey, striped bass, shortnose sturgeon, and American eel (catadromous).

Resident: Present.

Resident fish species found in the Connecticut River in the vicinity of the project include carp, channel catfish, smallmouth bass, largemouth bass, spottail shiner, white perch, bluegill, rainbow trout, and brown trout.

e. *Vegetation:* Dominant vegetative species in the vicinity of the project include oak, maple, white pine, pitch pine, grasses, and ornamental shrubs.

f. *Wildlife:* Undeveloped land in the project area provides habitat for the gray squirrel, eastern cottontail rabbit, raccoon, muskrat, beaver, weasel, pheasant, and small field mammals (mice and voles). The industrial area is inhabited by English sparrows, starlings, robins, mockingbirds, Norway rats, raccoons, and eastern cottontail rabbits.

g. *Cultural:*

There are properties listed on, or eligible for listing on, the *National Register of Historic Places* in the project impact area.

Description: The Holyoke Canal System, a contributing element in the Holyoke Canal Historic District, is listed on the *National Register of Historic Places* and is within the area of the project's potential environmental impact. The portion of the canal in the project area was constructed between 1854 and 1857.

h. *Visual quality:* The project is in an industrial area. Its appearance is consistent with that of the surrounding buildings and structures.

i. *Recreation:* The immediate project area receives no significant recreational use because of its location in a highly industrialized area. No recreational facilities are located at the project. Recreational facilities including playgrounds, swimming pools, and a skating rink are available for use within walking distance of the project. The Connecticut River in the project vicinity is used for boating and fishing.

j. *Land use:* The project is entirely within the city of Holyoke. Land in the project area is primarily used for commercial, industrial, and residential purposes. The canal system is used for generating hydroelectric power at several locations.

k. *Socioeconomics:* The socioeconomic well-being of the area is influenced by industrial and urban development.

G. *Environmental Issues and Proposed Resolutions*

There are 3 issues addressed below.

1. *Cumulative impacts on Atlantic salmon resulting from developing several hydropower projects in the Connecticut River Basin:* The Atlantic salmon is currently a primary target species for a major federal, state, and private sector restoration effort. The goal of the restoration program is to provide and to maintain a sport fishery for Atlantic salmon in the Connecticut River, and to restore and maintain a spawning population in selected tributaries (Federal Energy Regulatory Commission, 1986).

Seaward migrating salmon smolts in the river basin pass numerous hydropower developments where they may become entrained and impinged. The more hydropower facilities outmigrating fish have to pass, the greater the fish losses. Among these hydropower facilities are the Holyoke dam and the canal system.

When river discharges are high and water is flowing over the dam, migrating fish pass downstream with little or no delay (Northeast Utilities Service Company, 1984). On the other hand, outmigrating fish would be entrained into the canal system by high flows entering the canal if they arrive at the dam when flashboards, permitting little or no spillage, are in place. Once in the canal, escape is very difficult. Fish can then be entrained in the turbines of hydropower plants operating along the canal.

On February 26, 1988, the Commission ordered the Holyoke Water Power Company (HWPC) to spill water over Holyoke dam when

salmon smolts are migrating downstream (Federal Energy Regulatory Commission, 1988a). [HWPC is the licensee for the Hadley Falls Project (FERC Project No. 2004) and the entity that controls the dam and the water going into the canal.] Spilling water over the Holyoke dam allows migrating salmon smolts to pass safely downstream in the spill, instead of entering the canal system.

Canal users and the HWPC have since implemented an economic dispatch agreement, in which the HWPC passes all flow downstream at the Holyoke dam and sells the users electricity, instead of water, when salmon smolts are migrating downstream. Linweave participates in this agreement. This arrangement prevents flow from entering the canal and attracting outmigrating Atlantic salmon, and minimizes the number of outmigrating Atlantic salmon trapped in the canal, and the number of project-related impacts to fish in the river basin.

Continuing to operate the Gill Mill, D Wheel, Hydroelectric Project would not contribute to cumulative adverse impacts on Atlantic salmon.

2. *Authority to prescribe fish passage facilities:* The Department of the Interior states that fish passage facilities may be needed at the project in the future, and, by letter of May 24, 1989 they reserve the authority to prescribe such fish facilities. The Commission reserves authority to require the licensee to provide fishways, as may be prescribed by the Secretary of Interior pursuant to section 18 of the Federal Power Act, if the need arises in the future.

3. *Entraining fish in the intake structure:* The Massachusetts Division of Fisheries and Wildlife (DFW) recommended the trashracks at the intake structures have a bar spacing not greater than 1 inch to prevent the entrainment of fish. The project's intake opening includes trashracks with one-inch slot width spacing between bars. The bar spacing at the existing structure satisfies the DFW's recommendation.

H. Environmental Impacts

1. Assessment of impacts expected from the applicant's proposed project (P), with the applicant's proposed mitigation and any conditions set by a federal land management agency; the proposed project with any additional mitigation recommended by the staff (Ps); and any action alternative considered (A).

FERC Reports

Assessment symbols indicate the following impact levels:

- O = None;
- 2 = Moderate;
- A = Adverse;
- L = Long-term;
- 1 = Minor;
- 3 = Major;
- B = Beneficial;
- S = Short term.

Resource	P	Impact Ps	A
a. Geology-Soils	0		
b. Streamflow	0		
c. Water quality:			
Temperature	0		
Dissolved oxygen	0		
Turbidity and sedimentation	0		
d. Fisheries:			
Anadromous	0		
Resident	0		
e. Vegetation	0		
f. Wildlife	0		
g. Cultural:			
Archeological	0		
Historical	0		
h. Visual quality	0		
i. Recreation	0		
j. Land use	0		
k. Socioeconomics	0		

2. Recommended alternative (including proposed, required, and recommended mitigative measures):

Proposed project.

3. Reason(s) for selecting the preferred alternative.

The power generated at this project is produced without any known adverse environmental impacts.

I. Unavoidable Adverse Impacts of the Recommended Alternative

There are no known adverse impacts.

J. Conclusion

Finding of No Significant Impact. Approval of the recommended alternative [H(2)] would not constitute a major federal action significantly affecting the quality of the human environment; therefore, an environmental impact statement (EIS) will not be prepared.

K. Literature Cited

Dadswell, M.J., B.D. Taubert, T.S. Squires, D. Marchette, and J.L. Buckley. 1984. Synopsis of biological data on shortnose sturgeon (*Acipenser brevirostrum*) Lesueur 1818. National Oceanic and Atmospheric Administration Technical Report NMFS 14, National Oceanic and Atmospheric Administration, Washington, D.C., 45pp.

Linweave, Inc: 1988: Application for minor license for the Gill Mill, D Wheel, Hydroe-

lectric Project, FERC Project No. 2775, Massachusetts. November 25, 1988.

1989a. Supplement to the application for minor license for the Gill Mill, D Wheel, Hydroelectric Project, FERC Project No. 2775, Massachusetts. February 21, 1989.

1989b. Additional information for the application for minor license for the Gill Mill, D Wheel, Hydroelectric Project, FERC Project No. 2775, Massachusetts. March 20, 1989.

Northeast Utilities Service Company. 1984. Review of cancelled Atlantic salmon smolt (*Salmo salar*), radiotelemetry study at the Holyoke dam, Massachusetts. Hartford, Connecticut. September 1984.

Federal Energy Regulatory Commission. 1983. Planning status report for the Connecticut River Basin. Washington, DC. August 1983.

1986. Environmental assessment for the Connecticut River Basin. Washington, DC. November 7, 1986.

1988a. Order amending license for the Hadley Falls Project, FERC Project No. 2004, Massachusetts. February 26, 1988 [42 FERC ¶ 62,166].

1988b. Environmental assessment for the Number 2 Hydro Unit, FERC Project No. 2387, Holyoke, Massachusetts. August 26, 1988.

Taubert, B.D. 1980. Biology of shortnose sturgeon (*Acipenser brevirostrum*) in the Holyoke Pool, Connecticut River, Massachusetts. Ph.D. Thesis. University of Massachusetts, Amherst, 136 pp.

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Safety and Design Assessment

Gill Mill (D Wheel) Hydroelectric Project

FERC Project No. 2775-001, MA

Project Safety

The applicant for the Gill Mill (D Wheel) Project is Linweave, Inc., a manufacturer of paper products. No dam or spillway is included in the project works. All water is delivered to the project via the Holyoke Second Level Canal, which is owned and operated by the Holyoke Water Power Company (HWP).

The New York Regional Office (NYRO), in an Operation Inspection Report dated October

10, 1986, indicated that the existing project had no downstream hazard potential. Since there is no dam, the staff concludes that there are no dam safety problems.

Project Design

The existing project works consist of: (1) a gated intake with submerged trashracks located on the Second Level Canal of the HWP; (2) a 295-foot-long, 12-foot-diameter steel penstock; (3) a single runner, Francis turbine directly coupled to a 450-kilowatt (kW) Westinghouse generator; (4) two 125-foot-long, 7-foot-wide by 10-foot-high arched, brick-lined tailrace tunnels; (5) a concrete gated outlet structure where the tailwater empties into a channel that leads to the Connecticut River; and (6) appurtenant facilities. The 310-foot-long by 325-foot-wide Gill Mill building which houses the generating equipment is not considered part of the project works.

The primary transmission lines to be included in a new license for Project No. 2775 can be described as a 660-foot run of three-phase, 0.6-kilovolt (kV) overhead line extending from the 0.6-kV terminals of the project generator to the 0.6-kV terminals of the Mt. Tom step-up transformer; and a 90-foot run of three-phase, 13.8-kV overhead line extending from the 13.8-kV terminals of the Mt. Tom step-up transformer bank to the 13.8-kV substation owned by the Holyoke Water Power Company (HWP).

In addition to the primary lines, the new license should include the single-runner Francis turbine, the 450-kilowatt (kW) Westinghouse generator, all necessary switchgear, all installed electrical protection and control apparatus, and all instrumentation. No step-up transformer is included since Project No. 2775 shares the kilovoltampere (kVA) capacity of the Mt. Tom step-up transformer bank.

The applicant has proposed no new construction or improvements for the existing project; therefore, the project license does not need to include any special engineering articles.

The NYRO October 1986 Operation Inspection Report cited no deficiencies in project safety or operation. There is no dam within the project boundaries.

The staff concludes that the project would be safe and adequate if operated in conformance with the terms of a new license.

Water Resource Planning

The project works would contain one 450-kW generator directly connected to a Francis turbine. The gross head at the site ranges from 24 to 32 feet depending upon the tailwater elevation and the average head is 30 feet. The design head of the turbine is 32 feet and its

hydraulic capacity is estimated to be 161 cubic feet per second (cfs). The applicant indicated that the project generated 1,790 megawatt-hours (MWh) annually. The staff finds that the plant factor would be 45 percent. The project would continue to be operated manually in a run-of-river mode.

All water to the project is delivered via the Second Level Canal. The Second Level Canal is one of a series of three canals (First Level Canal, Second Level Canal, and Third Level Canal) that receives water from the Hadley Falls Project (FERC Project No. 2004) on the Connecticut River. The HWP owns and operates the Hadley Falls Project and its canal system, which delivers water to various manufacturing and other business concerns for process purposes and power generation. The applicant for the Gill Mill (D Wheel) Project is Linweave, Inc.

The water for power generation is allocated in the form of mill powers (mp) to owners of lands adjacent to the canal system, under indentures or contracts between the individual property owners and the HWP.

These "mp" quantities vary according to water flow in the Connecticut River and fall into the following three categories:

Permanent power - the amount of water sold to Linweave whenever the average daily river flows in the Connecticut River are equal to or greater than 3,100 cfs.

Surplus power - water offered for sale to owners of the so-called permanent power rights whenever average river flows in the Connecticut River are equal to or greater than 3,600 cfs.

Non-permanent power - water which is not guaranteed, but which would be furnished when there is more than a sufficient quantity of water in the river to supply all the permanent power owners together with 50 percent of it as surplus. Water would be supplied 6 days a week (but not on Sundays or holidays) when the river flows are equal to or greater than 3,865 cfs. Sunday and holiday operation is allowed when the average river flows exceed approximately 4,300 cfs.

Under the allocation terms of the indentures, Linweave is entitled, in perpetuity, to draw a carefully prescribed quantity of water from the HWP canal system for power generation and discharge it into the Connecticut River below the project. Linweave is also entitled to purchase and use such surplus water as the HWP makes available from time to time.

The Gill Mill (D Wheel) Project is authorized one type of water allocation rights based on the indentures: non-permanent. For non-permanent power allocations, the Gill Mill (D Wheel)

Project is authorized to withdraw 5.2 mp or 150 cfs. Based on the staff's flow duration curve for the Connecticut River, the applicant can withdraw 150 cfs about 87 percent of the time. Whenever the flows in the Connecticut River exceed 15,000 cfs, the applicant can withdraw the maximum hydraulic capacity of the turbine unit, which is 161 cfs, from the Second Level Canal. The staff estimates that this could occur about 31 percent of the time.

The applicant has estimated that the project operates at its maximum capacity (161 cfs) about 26 percent of the time, and at its non-permanent allocation (150 cfs) about 58 percent of the time. Based on the applicant's estimates, the project would be shut down 16 percent of the time. The NYRO 1986 Operation Inspection Report indicated that the canal system is shut down 3 times a year: once in April, once in July, and once in October. During those periods, the canal system is drained, inspected, and repaired if needed. The repairs are generally scheduled for the July shutdown.

There are certain periods of the year when the project cannot operate and the applicant is directed by the HWP to discontinue drawing water from the canal system. These periods include: (1) periods when the canal system is dewatered for inspection and maintenance; (2) periods of low flow in the Connecticut River when a public authority has required that the low flows be released at the Hadley Falls Project rather than through the canals according to the indentures, without generating power; and (3) periods when a public authority requires that the waters of the Connecticut River flow through the HWP's hydroelectric generating facilities at the Hadley Falls Project rather than through the canal system according to the indentures. During the latter periods when the HWP generates power at the Hadley Falls Project rather than releases water through the canal system, the applicant is entitled to compensation in kilowatt-hours (in lieu of water) under the terms of the Water Use Agreement (or Economic Dispatch Agreement). In 1987, the compensation provided under the Economic Dispatch Agreement amounted to 1,545 MWh for the eight projects owned by the applicant.

The staff's independent analysis shows that the applicant makes reasonable use of its allocated water. Because of the water allocation limits of the HWP, the applicant cannot develop additional potential at the site. Hence, the staff concludes that the applicant has properly developed the head and hydraulic potential of the site.

The August 1983 Planning Status Report for the Connecticut River Basin lists 19 existing hydroelectric projects, including the Gill Mill

(D Wheel) Project, which are located on the canal system owned by HWP. The applicant owns eight of these projects. The report also listed the Holyoke Project on the canal system as a potential project with an installed capacity of 1.222 MW and an annual generation of 13,165 MWh. The report did not indicate any proposed project on the canal system that would be in conflict with the Gill Mill (D Wheel) Project.

The staff's review of the state and federal agency comments and of seven comprehensive resource development plans identified no plans with which the existing project would be in conflict within this reach of the Second Level Canal. The staff presently has no specific comments or recommendations from reviewing agencies addressing flood control, navigation, or water supply requirements for the Second Level Canal. No competing applications for the project are currently pending before the Commission.

The City of Holyoke, Massachusetts Gas and Electric Department, and the HWP filed petitions to intervene in the licensing proceeding. Neither party opposes the issuance of a license, but each want to protect its interests. The HWP submitted a series of technical comments correcting certain information in the application. None of the corrections affect this report.

The generation from this project is equivalent to generation produced from burning 2,940 barrels of oil or 830 tons of coal annually in a steam-electric plant.

In summary, the staff's analysis shows that the existing project is properly designed to develop the hydropower potential of the site.

Economic Evaluation

The proposed project would be economically beneficial, so long as the projected levelized

cost is less than the levelized cost of alternative energy and capacity.

In the case of the Gill Mill (D Wheel) Project, the applicant has proposed no new construction. Hence, the levelized project costs would be the operation and maintenance costs and administrative and general costs. These costs are small compared to the value of the power.

The applicant currently sells the project power to Fitchburg Gas & Electric Light Company, pursuant to a power sales agreement dated March 25, 1982, and it would continue to do so.

The staff concludes that the existing project is economically beneficial.

Exhibits

The staff concludes that the following parts of exhibit A and the following exhibit F drawings conform to the Commission's rules and regulations. The staff therefore includes these in the license:

Exhibit A - The following sections of exhibit A filed November 25, 1988:

The turbine and generator description on page A-2; the transmission line description on pages A-2 and A-3, as corrected by letter dated April 10, 1989; and the additional mechanical and electrical equipment description on pages A-1 through A-7.

<i>Exhibit</i>	<i>FERC No.</i>	<i>Showing</i>
F-1	2775-3	Site Plan
F-2	2775-4	Powerhouse Plan and Elevation

Preparers

Ronald E. Spath, Civil Engineer
C. Frank Miller, Electrical Engineer

[¶ 62,308]

Linweave, Inc., Project No. 2497-002 - Massachusetts

Order Issuing License (Minor Project)

(Issued June 29, 1989)

Fred E. Springer, Director, Office of Hydropower Licensing.

Linweave, Inc. has filed a license application under Part I of the Federal Power Act (Act) to continue to operate and maintain the Mt. Tom Mill Project located on the Holyoke Canal, in Hampden County, Massachusetts. The hydroelectric facilities located along the Holyoke Canal system affect navigable waters of the United States.¹ The license for the project, which was issued on April 2, 1975 [53 FPC 1070], with an effective date of March 1, 1941, expires on February 28, 1991.

Notice of the application has been published. No protests were filed in this proceeding, and no agency objected to issuance of this license. Comments received from interested agencies and individuals have been fully considered in determining whether to issue this license. Motions to intervene were filed by the City of Holyoke Gas & Electric Department and the Holyoke Water Power Company (HWP) in order to be parties in this proceeding. HWP also requests that any license issued which

¹ See 33 FPC 593, 594 (1965).

utilizes HWP's Holyoke Canal System water be conditioned, as was the previous license, to require cooperation with HWP as the licensee for the Hadley Falls Project No. 2004. Article 202 is included to provide for appropriate cooperation.

Comprehensive Development

Sections 4(e) and 10(a)(1) of the Act require the Commission to consider and balance in the public interest all uses of the waterway on which a project is proposed to be located.

The Mt. Tom Mill Hydroelectric Project has operated under the terms of its existing license since 1975. In the environmental assessment (EA), the staff analyzed the environmental effects of the continued operation of the project. Neither the resource agencies nor staff identified any significant conflicts between continued operation of the project as proposed by the applicant, and the environmental values of the project area.

Three alternatives to relicensing the Mt. Tom Mill Hydroelectric Project were also considered by the staff in its EA. They include: (1) issuance of an annual license; (2) issuance of a non-power license; and (3) denial of a license application. No alternative was identified that would have a higher or better use of the project in terms of providing power and environmental benefits without significant environmental cost.

Section 10(a)(2) of the Act also requires the Commission to consider the extent to which a proposed project is consistent with an existing federal, state, or local comprehensive plan. Under section 10(a)(2), federal, and state agencies filed seven comprehensive plans that address resources in Massachusetts. Of these plans, staff identified and reviewed four plans relevant to this project.² No conflicts between the proposed Mt. Tom Mill Hydroelectric Project and these four plans were found.

Therefore, the project as conditioned is determined to be best adapted to a comprehensive plan, pursuant to Section 10(a) of the Act, for improving a waterway and would provide for adequate and equitable protection, mitigation, and enhancement of fish and wildlife pursuant to Section 10(j) of the Act.

² Connecticut River 1982 Water Quality Management Plan, June 1983, Massachusetts Division of Water Pollution Control; Connecticut River Basin Fish Passage, Flow, and Habitat Alteration Considerations in Relation to Anadromous Fish Restoration, October 1981, Technical Committee for Fisheries Management of the Connecticut River; The Outdoor Heritage of Massachusetts, SCORP 1983-1988,

Recommendations of Federal and State Fish and Wildlife Agencies

Section 10(j) of the Act requires the Commission to include license conditions, based on recommendations of federal and state fish and wildlife agencies, for the protection, mitigation, and enhancement of fish and wildlife. The environmental assessment for the Mt. Tom Mill Hydroelectric Project addresses the concerns of the federal and state fish and wildlife agencies; however, recommendations are not needed for continued operation of the project.

ECPA Finding

Section 10(a)(2)(C) and section 15(a) of the Federal Power Act, as amended by the Electric Consumers Protection Act of 1986 (ECPA), requires the Commission to consider in writing the following factors in issuing new licenses.

Consumption Efficiency Improvement Programs (Section 10(a)(2)(C))

Since the applicant's primary business is the manufacture of paper products and not the generation or sale of electric power, no discussion of on-going or planned conservation and load-management programs is required in this document.

Section 15 Findings

Section 15 was waived in the original license; therefore, section 15 findings are not required in this document.

Term of License

Section 15 of the Act, as amended by ECPA specifies that any license issued under section 15 shall be for a term which the Commission determines to be in the public interest, but not less than 30 years, nor more than 50 years from the date the license is issued. This provision is similar to pre-ECPA Commission policy, which was to establish 30-year terms for those projects which proposed no new construction or capacity, 40-year terms for those projects that proposed a moderate amount of new development, and 50-year terms for those projects that proposed a substantial amount of new development.³

Linweave, Inc. proposes no modifications to the existing project facilities or change in operation of the project. Accordingly, this license

December 1983, Massachusetts Department of Environmental Management; A Strategic Plan for the Restoration of Atlantic Salmon to the Connecticut River Basin, September 1982, Policy Committee for Fisheries Management of the Connecticut River.

³ See *Montana Power Company*, 56 FPC 2008 (1976).

for the project will be for a term of 30 years from the expiration of the existing license.

Summary of Findings

An EA was issued for this project. Background information, analysis of impacts, support for related license articles, and the basis for a finding of no significant impact on the environment are contained in the EA attached to this order. Issuance of this license is not a major federal action significantly affecting the quality of the human environment.

The design of this project is consistent with the engineering standards governing dam safety. The project will be safe if operated and maintained in accordance with the requirements of this license. Analysis of related issues is provided in the Safety and Design Assessment attached to this order.

The Director, Office of Hydropower Licensing, concludes that the project would not conflict with any planned or authorized development, and would be best adapted to comprehensive development of the waterway for beneficial public uses.

The Director orders:

(A) This license is issued to Linweave, Inc (licensee), for a period of 30 years, effective March 1, 1991, to operate and maintain the Mt. Tom Mill Project. 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 project consists of:

(1) All lands, to the extent of the licensee's interests in those lands, shown by exhibit G:

Exhibit	FERC No.	Showing
G-		
1	2497-7	Project Location

(2) Project works consisting of: (a) a gated intake with submerged trashracks located on the Second Level Canal; (b) a 230-foot-long 8-foot-diameter steel penstock; (c) a single runner, Francis turbine directly coupled to a 500-kilowatt (kW) Westinghouse generator; (d) a 205-foot-long, 9-foot-wide by 6-foot-high arched, brick-lined tailrace tunnel; (e) a concrete gated outlet structure where the tailwater empties into a channel that leads to the Connecticut River; (f) a 0.6-kilovolt (kV), 240-foot-long transmission line, and a 13.8-kV, 90-foot-long transmission line and (g) appurtenant facilities.

The project works generally described above are more specifically shown and described by those portions of exhibits A and F recommended for approval in the attached Safety and Design Assessment.

(3) All of the structures, fixtures, equipment or facilities used to operate or maintain the project, all portable property that may be employed in connection with the project and all riparian or other rights that are necessary or appropriate in the operation or maintenance of the project.

(C) The exhibit G described above and those sections of exhibits A and F recommended for approval in the attached Safety and Design Assessment are approved and made part of the license.

(D) The following sections of the Act are waived and excluded from the license for this minor project:

4(b), except the second sentence; 4(e), insofar as it relates to approval of plans by the Chief of Engineers and the Secretary of the Army; 6, insofar as it relates to public notice and to the acceptance and expression in the license of terms and conditions of the Act that are waived here; 10(c), insofar as it relates to depreciation reserves; 10(d); 10(f); 14, except insofar as the power of condemnation is reserved; 15; 16; 19; 20; and 22

(E) This license is subject to the articles set forth in Form L-9 (October 1975) [reported at 54 FPC 1852], entitled "Terms and Conditions of License for Constructed Minor Project Affecting Navigable Waters of the United States", and the following additional articles:

Article 201. The licensee shall pay the United States the following annual charge, effective March 1, 1991:

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 667 horsepower.

Article 202. The Licensee shall cooperate with the licensee for Project No. 2004 in order that the conditions of Article 16 of the license for Project No. 2004 can be fulfilled.

Article 401. Authority is reserved to the Commission to require the licensee to construct, operate, and maintain, or provide for the construction, operation, and maintenance of such fishways, as may be prescribed by the Secretary of the Interior pursuant to section 18 of the Federal Power Act.

Article 402. (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 types of use and occupancy, without prior Commission approval. The licensee may exercise the author-

ity 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 use 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 type of use and occupancy of project lands and water 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 that can accommodate no more than 10 watercraft at a time and where said facility is intended to serve single-family type dwellings; 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 use 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 Com-

mission 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 certification 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 submit a letter to the Director, Office of Hydropower Licensing, 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.

(c) The following additional conditions apply to any intended conveyance under paragraph (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 insure 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.

(g) The authority granted to the licensee under this article shall not apply to any part of the public lands and reservations of the United States included within the project boundary.

(F) The licensee shall serve copies of any Commission filing required by this order on any entity specified in this order to be consulted on matters related to that filing. Proof of service on these entities must accompany the filing with the Commission.

(G) This order is issued under authority delegated to the Director and is final unless appealed to the Commission by any party within 30 days from the issuance date of this order. Filing an appeal does not stay the effective date of this order or any date specified in this order. The licensee's failure to appeal this order shall constitute acceptance of the license.

Environmental Assessment¹

Federal Energy Regulatory Commission

Office of Hydropower Licensing

Division of Project Review

Date: June 16, 1989

Project name: Mt. Tom Mill Hydroelectric Project

FERC Project No. 2497-002

A. Application

1. Application type: New minor license
2. Date filed with the Commission: November 28, 1988
3. Applicant: Linweave, Inc.
4. Water body: Holyoke Canal; River basin: Connecticut
5. Nearest city or town: Holyoke (See figure 1.)
6. County: Hampden; State: Massachusetts

B. Purpose and Need for Action

1. Purpose.
Linweave estimates the average annual energy generation of the Mt. Tom Mill Hydro-

¹ Figures and attachments referenced in the text are omitted from this document due to reproduction requirements.

lectric Project is 2,560 megawatthours. Project power is sold to the Fitchburg Gas and Electric Light Company.

2. Need for power

The power from the project is useful in meeting a small part of the need for power projected for the New England Power Pool area of the Northeast Power Coordinating Council (NPCC) region. Power generated at the project displaces fossil-fueled power generation in the NPCC region, thus conserving nonrenewable fossil fuels and reducing the emission of noxious byproducts caused by the combustion of fossil fuels.

C. Proposed Project and Alternatives

1. Description of the proposed action. (See figure 2.)

The existing operating project was issued an initial license in 1975, which will expire in 1991. Linweave has filed for a new license for the continued operation of the project. The existing project consists of: (i) a gated intake with submerged trashracks located on the second level canal of the Holyoke Water Power Company; (ii) an 8-foot-diameter penstock 230 feet long; (iii) an existing 500-kilowatt generating unit located within the Mt. Tom Mill building; (iv) a 9-foot-wide by 6-foot-high, arched brick-lined tailrace tunnel 205 feet long, extending from the draft tube to an existing concrete outlet structure; (v) a concrete-gated outlet structure where the tailwater empties into a channel that leads to the Connecticut River; (vi) a 13.8-kilovolt transmission line 90 feet long that connects the project to an existing transmission line; and (vii) appurtenant facilities. The project operates in a run-of-river mode. Linweave does not propose any construction or change in project operation. The Holyoke Water Power Company controls flows from the Connecticut River into the canal system under a FERC major license granted to Project No. 2004.

2. Applicant's proposed mitigative measures.

Since Linweave proposes to continue operating the project as in the past, with no new construction, no changes to the hydroelectric project, and no changes in the use and release of water, Linweave proposes no mitigative measures.

3. Federal lands affected.

No.

4. Alternatives to the proposed project.

a. *Issuance of an annual license.* Section 15(a) of the Federal Power Act (Act), 16 U.S.C. § 808(a), provides for the issuance of annual licenses to the prior licensee if the license expires pending the relicensing determination. Under this alternative, an annual license would

continue to be issued to Linweave until a new license is issued. The annual license contains the same terms as the expired license, thereby maintaining the status quo.

b. *Issuance of a non-power license.* Section 15(f) of the Act, § 808(b), authorizes the Commission to issue a license for nonpower use when the Commission "finds that in conformity with a comprehensive plan for improving or developing a waterway or waterways for beneficial public uses all or part of any licensed project should no longer be used or adapted for use for power purposes." A license that is granted by the Commission for nonpower use is temporary. When the Commission finds that a state, municipality, interstate agency, or another federal agency is authorized and willing to assume regulatory supervision of the lands and facilities included under the nonpower license and does so, the Commission shall thereupon terminate the nonpower license.

c. *Denial of the license application.* Denial of the license application could lead to removal of the power facilities and removal of all project works.

D. Consultation and Compliance

1. Fish and wildlife agency consultation (Fish & Wildlife Coordination Act).

a. U.S. Fish & Wildlife Service: Yes.

b. State(s): Yes.

c. National Marine Fisheries Service: Yes.

2. Section 7 consultation (Endangered Species Act).

a. Listed species: Present.

b. Consultation: Not required.

Remarks: The federally listed endangered shortnose sturgeon under the jurisdiction of the National Marine Fisheries Service (NMFS) inhabits the lower segment of the Connecticut River from the river's mouth upstream to the Holyoke dam. A small landlocked population is found in the pool above the Holyoke dam (Taubert, 1980). Dadswell *et al.* (1984) estimated that between 800 and 1000 shortnose sturgeon inhabit the lower portion (below Holyoke) of the Connecticut River. The NMFS reports that due to the trashrack spacing, any sturgeon which might enter the canal would be prevented from entrainment into the project (personal communication, Chris Mantzaris, staff, National Marine Fisheries Service, Gloucester, Massachusetts, June 13, 1989).

3. Section 401 certification (Clean Water Act).

Required; applicant requested certification on 10/17/88.

Status: Granted by the certifying agency on 03/30/89.

4. Cultural resource consultation (Historic Preservation Act)

- a. State Historic Preservation Officer: Yes.
- b. National Park Service: Yes.
- c. National Register status: Eligible or listed.
- d. Council: Not required.
- e. Further consultation: Not required.

Remarks: The project is adjacent to the Holyoke Canal System, a property listed in the National Register of Historic Places. Since there would be no redevelopment, new construction, or changes to the exterior of the property, the project would not affect the canal system or any other National Register or eligible properties. The SHPO concurs with this finding (letter from Valerie A. Talmage, Executive Director, Massachusetts Historical Commission, and State Historic Preservation Officer, Boston, Massachusetts, December 9, 1988).

5. Recreational consultation (Federal Power Act)

- a. U.S. Owners: No.
- b. National Park Service: Yes.
- c. State(s): Yes.

6. Wild and scenic rivers (Wild and Scenic Rivers Act)

Status: None.

7. Land and Water Conservation Fund lands and facilities (Land and Water Conservation Fund Act)

Status: None.

E. Comments

1. The following agencies and entities provided comments on the application or filed a motion to intervene in response to the public notice dated 03/27/89.

<i>Commenting agencies and other entities</i>	<i>Date of letter</i>
Department of the Army, New England Division Corps of Engineers	05/11/89
Environmental Protection Agency	05/17/89
Department of the Interior	05/24/89
Massachusetts Division of Fisheries and Wildlife	05/30/89
<i>Motions to intervene</i>	<i>Date of motion</i>
City of Holyoke, Gas and Electric Department	03/28/89

FERC Reports

Holyoke Water Power
Company 05/24/89

2. The applicant did not respond to the comments or motion(s) to intervene.

F. Affected Environment

I. General description of the locale (See figure 3.)

a. Description of the Connecticut River Basin.

The Connecticut River Basin, with a drainage area of 11,765 square miles, is the largest river basin in New England. Extending from the northernmost part of New Hampshire to Long Island Sound, the river basin has a maximum length in a north-south direction of about 280 miles and a maximum width of about 62 miles. The total drainage area of the basin is 11,765 square miles. The principal tributaries to the mainstem Connecticut River, by state, are the Passumpsic, White, West, Ottauquechee, and Black Rivers in Vermont; the Ammonoosuc, Mascoma, Ashuelot, and Sugar Rivers in New Hampshire; the Millers, Deerfield, Chicopee, and Westfield Rivers in Massachusetts; and the Farmington River in Connecticut.

This complex of rivers and tributaries constitutes one of the most extensively developed hydropower systems in the U.S. There is now a major effort by federal, state, and private sectors to restore Atlantic salmon to the Connecticut River Basin.

The project is located in a heavily industrialized setting between the second level of the Holyoke Canal system and the Connecticut River. The climate is typical of inland Connecticut and Massachusetts with an average temperature of 49.8 degrees Fahrenheit and an average annual precipitation of 44.39 inches.

b. Licensed and exempted projects

There are 62 existing licensed projects and 38 exempted projects in the Connecticut River Basin, as of June 1, 1989.

c. Pending applications

There are 10 pending license applications in the Connecticut River Basin, as of June 1, 1989.

d. Cumulative impacts

Cumulative impacts are defined as impacts on the environment that result from the incremental impacts of an action when added to other past, present, and reasonably foreseeable future actions regardless which agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 C.F.R., Part 1508.7).

A target resource is an important resource that may be cumulatively affected by multiple development within a basin. The staff identified Atlantic salmon as the target resource in the Connecticut River Basin (Federal Energy Regulatory Commission, 1986). The selection was based on the regional significance and geographic distribution of this species within the river basin. This anadromous fishery resource is described below in section F(2d). Impacts to Atlantic salmon are discussed in section G.

2. Descriptions of the resources in the project impact area (Source: Linweave, Inc., application, exhibit E, unless otherwise indicated).

a. *Geology and soils:* Bedrock in the project area is interbedded sandstone, shale, conglomerate, and basaltic lava. The glacial till deposits that lie on the glaciated surface of the bedrock are overlain by varied glacial lake deposits. The original dry, sandy, surface soils in the project area have been highly altered by construction of the project and by fill and construction activities associated with urban development of the area.

b. *Streamflow:* Water flow in the canal system is controlled at the canal gatehouse in order to supply necessary water to various hydropower and industrial facilities along the canal. The amount of flow entering the canal system ranges from no flow, when the gatehouse is shut down, to 5,155 cubic feet per second, which is the maximum hydraulic capacity of the canal.

c. *Water quality:* The Connecticut River upstream of Holyoke dam is classified as Class B water by the Massachusetts Division of Water Pollution. Class B water is suitable for primary and secondary contact recreation and fish and wildlife resources. Class B water must have dissolved oxygen (DO) levels greater than 5.0 milligrams per liter (mg/l) and a pH between 6.5 and 8.0. The first level canal is classified as Class C. Class C water is suitable for secondary contact recreation and fish and wildlife resources and must have a DO level greater than 5.0 mg/l and a pH between 6.5 and 9.0 standard units. Water in the project area conforms to the state water quality standards.

d. *Fisheries:*

Anadromous: Present.

Anadromous fish species found in the Connecticut River in the vicinity of the project include American shad, Atlantic salmon, blueback herring, sea lamprey, striped bass, shortnose sturgeon, and American eel (catadromous).

Resident: Present.

Resident fish species found in the Connecticut River in the vicinity of the project include

carp, channel catfish, smallmouth bass, largemouth bass, spottail shiner, white perch, bluegill, rainbow trout, and brown trout.

e. *Vegetation:* Dominant vegetative species in the vicinity of the project include oak, maple, white pine, pitch pine, grasses, and ornamental shrubs.

f. *Wildlife:* Undeveloped land in the project area provides habitat for the gray squirrel, eastern cottontail rabbit, raccoon, muskrat, beaver, weasel, pheasant, and small field mammals (mice and voles). The industrial area is inhabited by English sparrows, starlings, robins, mockingbirds, Norway rats, raccoons, and eastern cottontail rabbits.

g. *Cultural:* There are properties listed on, or eligible for listing on, the *National Register of Historic Places* in the project impact area.

Description: The Holyoke Canal System, a contributing element in the Holyoke Canal Historic District, is listed on the *National Register of Historic Places* and is within the area of the project's potential environmental impact. The portion of the canal in the project area was constructed between 1854 and 1857.

h. *Visual quality:* The project is in an industrial area. Its appearance is consistent with that of the surrounding buildings and structures.

i. *Recreation:* The immediate project area receives no significant recreational use because of its location in a highly industrialized area. No recreational facilities are located at the project. Recreational facilities including playgrounds, swimming pools, and a skating rink are available for use within walking distance of the project. The Connecticut River in the project vicinity is used for boating and fishing.

j. *Land use:* The project is entirely within the city of Holyoke. Land in the project area is primarily used for commercial, industrial, and residential purposes. The canal system is used for generating hydroelectric power at several locations.

k. *Socioeconomics:* The socioeconomic well-being of the area is influenced by industrial and urban development.

G. Environmental Issues and Proposed Resolutions

There are 3 issues addressed below.

1. *Cumulative impacts on Atlantic salmon resulting from developing several hydropower projects in the Connecticut River Basin:* The Atlantic salmon is currently a primary target species for a major federal, state, and private sector restoration effort. The goal of the restoration program is to provide and to maintain a sport fishery for Atlantic salmon in the Connecticut River Basin and to restore and main-

tain a spawning population in selected tributaries (Federal Energy Regulatory Commission, 1986).

Seaward migrating salmon smolts in the river basin pass numerous hydropower developments where they may become entrained and impinged. The more hydropower facilities outmigrating fish have to pass, the greater the fish losses. Among these hydropower facilities are the Holyoke dam and the canal system.

When river discharges are high and water is flowing over the dam, migrating fish pass downstream with little or no delay (Northeast Utilities Service Company, 1984). On the other hand, outmigrating fish would be entrained into the canal system by high flows entering the canal if they arrive at the dam when flashboards, permitting little or no spillage, are in place. Once in the canal, escape is very difficult. Fish can then be entrained in the turbines of hydropower plants operating along the canal.

On February 26, 1988, the Commission ordered the Holyoke Water Power Company (HWPC) to spill water over Holyoke dam when salmon smolts are migrating downstream (Federal Energy Regulatory Commission, 1988a). [HWPC is the licensee for the Hadley Falls Project (FERC Project No. 2004) and the entity that controls the dam and the water going into the canal.] Spilling water over the Holyoke dam allows migrating salmon smolts to pass safely downstream in the spill, instead of entering the canal system.

Canal users and the HWPC have since implemented an economic dispatch agreement, in which the HWPC passes all flow downstream at the Holyoke dam and sells the users electricity, instead of water, when salmon smolts are migrating downstream. Linweave participates in this agreement. This arrangement prevents flow from entering the canal and attracting outmigrating Atlantic salmon, and minimizes the number of outmigrating Atlantic salmon trapped in the canal, and the number of project-related impacts to fish in the river basin.

Continuing to operate the Mt Tom Mill Hydroelectric Project would not contribute to cumulative adverse impacts on Atlantic salmon.

2. Authority to prescribe fish passage facilities: The Department of the Interior states that fish passage facilities may be needed at the project in the future and, by letter of May 24, 1989, they reserve the authority to prescribe such fish passage facilities. The Commission reserves authority to require the licensee to provide fishways, as may be prescribed by

the Secretary of Interior pursuant to section 18 of the Federal Power Act, if the need arises in the future.

3. Entraining fish in the intake structure: The Massachusetts Division of Fisheries and Wildlife (DFW) recommended the trashracks at the intake structures have a bar spacing not greater than 1 inch to prevent the entrainment of fish. The project's intake opening includes trashracks with one-inch slot width spacing between bars. The bar spacing at the existing structure satisfies the DFW's recommendation.

H. Environmental Impacts

1. Assessment of impacts expected from the applicant's proposed project (P), with the applicant's proposed mitigation and any conditions set by a federal land management agency; the proposed project with any additional mitigation recommended by the staff (Ps); and any action alternative considered (A). Assessment symbols indicate the following impact levels:

O = None; 1 = Minor; 2 = Moderate; 3 = Major; A = Adverse; B = Beneficial; L = Long-term; S = Short-term.

Resource	P	Impact	
		Ps	A
a. Geology-Soils	0		
b. Streamflow	0		
c. Water quality:			
Temperature	0		
Dissolved oxygen	0		
Turbidity and sedimentation	0		
d. Fisheries:			
Anadromous	0		
Resident	0		
e. Vegetation	0		
f. Wildlife	0		
g. Cultural:			
Archeological	0		
Historical	0		
h. Visual quality	0		
i. Recreation	0		
j. Land use	0		
k. Socioeconomics	0		

2. Recommended alternative (including proposed, required, and recommended mitigative measures):

Proposed project

3. Reason(s) for selecting the preferred alternative.

The power generated at this project is produced without any known adverse environmental impacts

1. Unavoidable Adverse Impacts of the Recommended Alternative

There are no known adverse impacts.

J. Conclusion

Finding of No Significant Impact. Approval of the recommended alternative [H(2)] would not constitute a major federal action significantly affecting the quality of the human environment; therefore, an environmental impact statement (EIS) will not be prepared.

K. Literature Cited

- Dadswell, M.J., B.D. Taubert, T.S. Squires, D. Marchette, and J.L. Buckley. 1984. Synopsis of biological data on shortnose sturgeon (*Acipenser brevirostrum*) Lesueur 1818. National Oceanic and Atmospheric Administration Technical Report NMFS 14, National Oceanic and Atmospheric Administration, Washington, D.C., 45pp.
- Linweave, Inc. 1988. Application for minor license for the Mt. Tom Mill Hydroelectric Project, FERC Project No. 2497, Massachusetts. November 28, 1988.
- _____. 1989a. Supplement to the application for minor license for the Mt. Tom Mill Hydroelectric Project, FERC Project No. 2497, Massachusetts. February 21, 1989.
- _____. 1989b. Additional information for the application for minor license for the Mt. Tom Mill Hydroelectric Project, FERC Project No. 2497, Massachusetts. March 20, 1989.
- Northeast Utilities Service Company. 1984. Review of cancelled Atlantic salmon smolt (*Salmo salar*), radiotelemetry study at the Holyoke dam, Massachusetts. Hartford, Connecticut. September 1984.
- Federal Energy Regulatory Commission. 1983. Planning status report for the Connecticut River Basin. Washington, DC August 1983.
- _____. 1986. Environmental assessment for the Connecticut River Basin. Washington, DC November 7, 1986.
- _____. 1988a. Order amending license for the Hadley Falls Project, FERC Project No. 2004, Massachusetts. February 26, 1988 [42 FERC ¶ 62,166].
- _____. 1988b. Environmental assessment for the Number 2 Hydro Unit, FERC Project No. 2387, Holyoke, Massachusetts. August 26, 1988.
- Taubert, B.D. 1980. Biology of shortnose sturgeon (*Acipenser brevirostrum*) in the Holyoke Pool, Connecticut River, Massachusetts. Ph.D. Thesis. University of Massachusetts, Amherst, 136 pp.

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Safety and Design Assessment

Mt. Tom Mill Hydroelectric Project
FERC Project No. 2497-002, MA

Dam Safety

The applicant for the Mt. Tom Mill Project is Linweave, Inc., a manufacturer of paper products. No dam or spillway is included in the project works. All water is delivered to the project via the Holyoke Second Level Canal, which is owned and operated by the Holyoke Water Power Company (HWP).

The New York Regional Office (NYRO), in an Operation Inspection Report dated October 10, 1986, indicated that the existing project had no downstream hazard potential. Since there is no dam, the staff concludes that there are no dam safety problems.

Project Design

The existing project works would consist of: (1) a gated intake with submerged trashracks located on the Second Level Canal of the HWP; (2) a 230-foot-long, 8-foot-diameter steel penstock; (3) a single runner, Francis turbine directly coupled to a 500-kilowatt (kW) Westinghouse generator; (4) a 205-foot-long, 9-foot-wide by 6-foot-high arched, brick-lined tailrace tunnel; (5) a concrete gated outlet structure where the tailwater empties into a channel that leads to the Connecticut River; (6) a 0.6-kilovolt (kV), 240-foot-long transmission line, and a 13.8-kV, 90-foot-long transmission line; and (7) appurtenant facilities. The 300-foot-long by 170-foot-wide Mt. Tom Mill building which houses the generating equipment is not considered part of the project works.

The applicant has proposed no new construction or improvements for the existing project; therefore, the project license does not need to include any special engineering articles.

The NYRO October 1986 Operation Inspection Report cited no deficiencies in project safety or operation. There is no dam within the project boundaries.

The staff concludes that the project would be safe and adequate if operated in conformance with the terms of a new license.

Water Resource Planning

The project works would contain one 500-kW generator directly connected to a Francis tur-

bine. The gross head at the site ranges from 24 to 32 feet depending upon the tailwater elevation and the average head is 30 feet. The design head of the turbine is 32 feet and its hydraulic capacity is estimated to be 230 cubic feet per second (cfs). The applicant indicated that the project generated 2,560 megawatt-hours (MWh) annually. The staff finds that the plant factor would be 58.4 percent. The project would continue to be operated manually in a run-of-river mode.

All water to the project is delivered via the Second Level Canal. The Second Level Canal is one of a series of three canals (First Level Canal, Second Level Canal, and Third Level Canal) that receives water from the Hadley Falls Project (FERC Project No. 2004) on the Connecticut River. The HWP owns and operates the Hadley Falls Project and its canal system, which delivers water to various manufacturing and other business concerns for process purposes and power generation. The applicant for the Mt. Tom Mill Project is Linweave, Inc.

The water for power generation is allocated in the form of mill powers (mp) to owners of lands adjacent to the canal system, under indentures or contracts between the individual property owners and the HWP.

These "mp" quantities vary according to water flow in the Connecticut River and fall into the following three categories:

Permanent power - the amount of water sold to Linweave whenever the average daily river flows in the Connecticut River are equal to or greater than 3,100 cfs.

Surplus power - water offered for sale to owners of the so-called permanent power rights whenever average river flows in the Connecticut River are equal to or greater than 3,600 cfs.

Non-permanent power - water which is not guaranteed, but which would be furnished when there is more than a sufficient quantity of water in the river to supply all the permanent power owners together with 50 percent of it as surplus. Water would be supplied 6 days a week (but not on Sundays or holidays) when the river flows are equal to or greater than 3,865 cfs. Sunday and holiday operation is allowed when the average river flows exceed approximately 4,300 cfs.

Under the allocation terms of the indentures, Linweave is entitled, in perpetuity, to draw a carefully prescribed quantity of water from the HWP canal system for power generation and discharge it into the Connecticut River below the project. Linweave is also entitled to purchase and use such surplus water as the HWP makes available from time to time.

FERC Reports

The Mt. Tom Mill Project is authorized two types of water allocation rights based on the indentures: permanent and permanent plus 50 percent surplus. For permanent power allocations, the Mt. Tom Mill Project is authorized to withdraw 5 mp or 143 cfs. For permanent plus 50 percent surplus power allocations, the project is authorized to withdraw 7.7 mp or 222 cfs. Based on the staff's flow duration curve for the Connecticut River, the applicant can withdraw 143 cfs about 90 percent of the time, and 222 cfs about 87 percent of the time. Whenever the flows in the Connecticut River exceed 15,000 cfs, the applicant can withdraw the maximum hydraulic capacity of the turbine unit, which is 230 cfs, from the Second Level Canal. The staff estimates that this could occur about 31 percent of the time.

The applicant has estimated that the project operates at its maximum capacity (230 cfs) about 26 percent of the time, at its permanent plus 50 percent surplus allocation (222 cfs) about 59 percent of the time, and at its permanent allocation (143 cfs) about 4 percent of the time. Based on the applicant's estimates, the project would be shut down 11 percent of the time. The NYRO 1986 Operation Inspection Report indicated that the canal system is shut down 3 times a year: once in April, once in July, and once in October. During those periods, the canal system is drained, inspected, and repaired if needed. The repairs are generally scheduled for the July shutdown.

There are certain periods of the year when the project cannot operate and the applicant is directed by the HWP to discontinue drawing water from the canal system. These periods include: (1) periods when the canal system is dewatered for inspection and maintenance; (2) periods of low flow in the Connecticut River when a public authority has required that the low flows be released at the Hadley Falls Project rather than through the canals according to the indentures; without generating power; and (3) periods when a public authority requires that the waters of the Connecticut River flow through the HWP's hydroelectric generating facilities at the Hadley Falls Project rather than through the canal system according to the indentures. During the latter periods when the HWP generates power at the Hadley Falls Project rather than releases water through the canal system, the applicant is entitled to compensation in kilowatt-hours (in lieu of water) under the terms of the Water Use Agreement (or Economic Dispatch Agreement). In 1987, the compensation provided under the Economic Dispatch Agreement amounted to 1,545 MWh for the eight projects owned by the applicant.

¶ 62,308

The staff's independent analysis shows that the applicant makes reasonable use of its allocated water. Because of the water allocation limits of the HWP, the applicant cannot develop additional potential at the site. Hence, the staff concludes that the applicant has properly developed the head and hydraulic potential of the site.

The August 1983 Planning Status Report for the Connecticut River Basin lists 19 existing hydroelectric projects, including the Mt. Tom Mill Project, which are located on the canal system owned by HWP. The applicant owns eight of these projects. The report also listed the Holyoke Project on the canal system as a potential project with an installed capacity of 1,222 kW and an annual generation of 13,165 MWh. The report did not indicate any proposed project on the canal system that would be in conflict with the Mt. Tom Mill Project.

The staff's review of the state and federal agency comments and of seven comprehensive resource development plans identified no plans with which the existing project would be in conflict within this reach of the Second Level Canal. The staff presently has no specific comments or recommendations from reviewing agencies addressing flood control, navigation, or water supply requirements for the Second Level Canal. No competing applications for the project are currently pending before the Commission.

The City of Holyoke, Massachusetts Gas and Electric Department, and the HWP filed petitions to intervene in the licensing proceeding. Neither party opposes the issuance of a license but each wanted to protect its interests. The HWP submitted a series of technical comments correcting certain information in the application. None of the corrections affect this report.

The generation from this project is equivalent to generation produced from burning 4,600 barrels of oil or 1,000 tons of coal annually in a steam-electric plant.

In summary, the staff's analysis shows that the existing project is properly designed to develop the hydropower potential of the site.

Economic Evaluation

The proposed project would be economically beneficial, so long as the projected levelized cost is less than the levelized cost of alternative energy and capacity.

In the case of the Mt. Tom Mill Project, the applicant has proposed no new construction. Hence, the levelized project costs would be the operation and maintenance costs and administrative and general costs. These costs are small compared to the value of the power.

The applicant currently sells the project power to Fitchburg Gas & Electric Light Company, pursuant to a power sales agreement dated March 25, 1982, and it would continue to do so.

The staff concludes that the existing project is economically beneficial.

Exhibits

The staff concludes that the following parts of exhibit A and the following exhibit F drawings conform to the Commission's rules and regulations. The staff therefore includes these in the license:

Exhibit A - The following sections of exhibit A filed November 28, 1988:

The turbine and generator description on page A-2; the transmission line description on page A-2, and corrected by letter dated April 10, 1989; and the additional mechanical and electrical equipment description on pages A-1 through A-7.

<i>Exhibit</i>	<i>FERC No.</i>	<i>Showing</i>
F-1	2497-5	Site Plan
F-2	2497-6	Powerhouse Plan and Elevation

Preparers

David E. Zehner, Civil Engineer

C. Frank Miller, Electrical Engineer

[¶ 62,304]

Linweave, Inc., Project No. 2771-002 - Massachusetts

Order Issuing License (Minor Project)

(Issued June 29, 1989)

Fred E. Springer, Director, Office of Hydropower Licensing.

Linweave, Inc. has filed a license application under Part I of the Federal Power Act (Act) to continue to operate and maintain the Nonotuck Mill Project located on the Second Level Canal of the Holyoke Canal system off of the Connecticut River, in Hampden County, Massachusetts. The hydroelectric facilities located along the Holyoke Canal system affect navigable waters of the United States.¹ The license for the project, which was issued on July 6, 1977 [59 FPC 418], with an effective date of March 1, 1941, expires on February 28, 1991. The existing license waived section 15 of the Act only as it relates to federal takeover.

Notice of the application has been published. No protests were filed in this proceeding, and no agency objected to issuance of this license. Comments received from interested agencies and individuals have been fully considered in determining whether to issue this license. Motions to intervene were filed by the City of Holyoke Gas & Electric Department and the Holyoke Water Power Company (HWP) in order to be parties in this proceeding. HWP also requests that any license issued which utilizes HWP's Holyoke Canal System water be conditioned, as was the previous license, to require cooperation with HWP as the licensee for the Hadley Falls Project No. 2004. Article 202 is included to provide for appropriate cooperation.

¹ See 2 FPC 387 (1941).

Comprehensive Development

Sections 4(e) and 10(a)(1) of the Act require the Commission to consider and balance in the public interest all uses of the waterway on which a project is proposed to be located.

The Nonotuck Mill Hydroelectric Project has operated under the terms of its existing license since 1977. In the environmental assessment (EA), the staff analyzed the environmental effects of the continued operation of the project. Neither the resource agencies nor staff identified any significant conflicts between continued operation of the project as proposed by the applicant, and the environmental values of the project area.

Three alternatives to relicensing the Nonotuck Mill Hydroelectric Project were also considered by the staff in its EA. They include: (1) issuance of an annual license; (2) issuance of a non-power license; and (3) denial of a license application. No alternative was identified that would have a higher or better use of the project in terms of providing power and environmental benefits without significant environmental cost.

Section 10(a)(2) of the Act also requires the Commission to consider the extent to which a proposed project is consistent with an existing federal, state, or local comprehensive plan. Under section 10(a)(2), federal, and state agencies filed seven comprehensive plans that address resources in Massachusetts. Of these

plans, staff identified and reviewed four plans relevant to this project.² No conflicts between the proposed Nonotuck Mill Hydroelectric Project and these four plans were found.

Therefore, the project as conditioned is determined to be best adapted to a comprehensive plan, pursuant to section 10(a) of the Act, for improving a waterway and would provide for adequate protection, mitigation, and enhancement of fish and wildlife pursuant to section 10(j) of the Act.

Recommendations of Federal and State Fish and Wildlife Agencies

Section 10(j) of the Act requires the Commission to include license conditions, based on recommendations of federal and state fish and wildlife agencies, for the protection, mitigation, and enhancement of fish and wildlife. The environmental assessment for the Nonotuck Mill Hydroelectric Project addresses the concerns of the federal and state fish and wildlife agencies; however, recommendations are not needed for continued operation of the project.

ECPA Findings

Section 10(a)(2)(C) and section 15(a) of the Federal Power Act, as amended by the Electric Consumers Protection Act of 1986 (ECPA), requires the Commission to consider in writing the following factors in issuing new licenses.

The following discussions apply individually and collectively to the eight hydro projects owned and operated by Linweave, Inc. The eight projects are identified by FERC project numbers: 2497, 2758, 2766, 2768, 2770, 2771, 2772, and 2775.

Consumption Efficiency Improvement Programs (Section 10(a)(2)(C))

Since the applicant's primary business is the manufacture of paper products and not the generation or sale of electric power, no discussion of on-going or planned conservation and load-management programs is required in this document.

The Plans and Abilities of the Applicant to Comply with the Articles, Terms, and Conditions of Any License Issued to It and Other Applicable Provisions of Part I of the Act (Section 15(a)(2)(A))

The staff has reviewed the plans of the applicant to comply with the articles, terms, and

conditions of any license issued to Linweave, Inc.

A review of the compliance record of the applicant indicates that the applicant's compliance with the terms and conditions of its current license has been satisfactory. The staff concludes that the applicant has demonstrated its ability to comply in a good faith manner with all articles, terms, and conditions of the license, and the staff concludes that the applicant would perform in a competent manner if issued a new license for the project.

The Plans of the Applicant to Manage, Operate, and Maintain the Project Safely (Section 15(a)(2)(B))

The staff has reviewed the applicant's plans to manage, operate, and maintain the project safely. There is no dam within the project boundaries to operate and maintain.

The eight projects draw carefully prescribed quantities of water from the Second Level Canal and discharge it to the Connecticut River below the projects. There is a flood wall located between the eight projects and the Connecticut River that ensures protection during flood conditions. When the river elevations reach 62 feet or higher, the eight projects are shut down and the headgates and tailrace gates are closed. The City of Holyoke Department of Public Works (DPW) is responsible for implementing the flood wall operation schedule and closing the tailrace gates of the eight projects.

The applicant has operated the eight projects with a perfect employee safety and public safety record. There have been no deaths or lost-time injuries to employees from project operations, nor is there any record of injury or death to the public within the project boundaries.

Based upon a review of the available information on the project safety plans, the staff concludes that the applicant is capable of managing, operating, and maintaining the project in a safe manner.

The Plans and Abilities of the Applicant to Operate and Maintain the Project in a Manner Most Likely to Provide Efficient and Reliable Electric Service (Section 15(a)(2)(C))

The staff has reviewed the operation inspection reports by the NYRO and the applicant's project operation reports.

² Connecticut River 1982 Water Quality Management Plan, June 1983, Massachusetts Division of Water Pollution Control; Connecticut River Basin Fish Passage, Flow, and Habitat Alteration Considerations in Relation to Anadromous Fish Restoration, October 1981, Technical Committee for Fisheries Management of the Connecticut River; The Outdoor

Heritage of Massachusetts, SCORP 1983-1988, December 1983, Massachusetts Department of Environmental Management; A Strategic Plan for the Restoration of Atlantic Salmon to the Connecticut River Basin, September 1982, Policy Committee for Fisheries Management of the Connecticut River

The applicant has full time employees in its engineering department that monitor the eight projects, including physically checking each unit several times daily. Additionally, the projects have automatic safety devices to shut down the units in case of abnormal operating conditions.

The applicant cleans the trashracks and lubricates the mechanical machinery regularly. The applicant provides for periodic inspection of the penstock and provides maintenance when needed.

The applicant has reported a total of seven unscheduled outages for the eight projects over the last five years. The outages ranged in length from 48 days to 114 days during which time the equipment was repaired. The applicant has rebuilt and/or overhauled seven of the generating units since February 1979 when the applicant purchased the eight projects.

The applicant has no plans to increase generation at the eight projects. The main reason for this is that the applicant is entitled to withdraw only a carefully prescribed quantity of water from the Second Level Canal under the terms of certain indenture agreements with HWP.

The applicant is in the paper-products manufacturing business, which is a highly competitive field and is very energy-intensive. Because of the competition in the paper-products market, the applicant must operate the project in the most efficient and reliable manner to maximize electric power sales revenues available to offset power purchased for use in its paper manufacturing operations.

The staff concludes that the project is being operated in an efficient and reliable manner.

The Need of the Applicant Over the Short and Long Terms for the Electricity Produced by the Project to Serve Its Customers (Section 15(a)(2)(D))

The applicant, Linweave, Inc., is a manufacturer of paper products and, as such, does not sell any of the electrical output of the eight hydroelectric projects (which it owns and operates as the current licensee) to end-use customers. Therefore, this document does not address the applicant's need for the electricity generated by the eight projects to serve its customers. The paper-products manufacturing business is today a highly competitive industry. Production costs in this industry are very energy-intensive, due to the large amounts of electric energy used for the manufacture of paper. When deprived of a low-cost source (or sources) of electric energy, a paper manufacturer cannot survive in the market place for paper products.

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All eight of the hydropower projects for which the applicant is applying for new licenses are operated in the run-of-the river mode; and, as a result, the capacity and energy produced by them depend upon the available streamflow provided by the Second Level Canal of the Holyoke Water Power Company (HWP). This flow is subject to seasonal and yearly variations. The applicant's electric power demands at the several paper mills are determined by factors which are in no way correlated with water flow in the canal system. Because of this, and for other reasons affecting the applicant's paper-making electrical energy costs, Linweave has found it to be economically advantageous to sell the output of the eight projects to a local electric utility and purchase the power required by the Linweave paper mills.

The total net electrical output from all eight of the projects is currently being sold, and is expected to continue to be sold to Fitchburg Gas and Electric Light Company (FGELC), pursuant to a power sales agreement dated March 25, 1982.

The applicant's present and future need for the electric power produced by the eight hydro projects, with which this document is concerned, can be stated in few words: revenues received from the sale of project capacity and energy are used to offset the cost of capacity and energy purchased on an "as-needed, total requirements" purchase agreement with a local utility, thus improving Linweave's competitive position in the paper-products marketplace, which may prove necessary for industrial survival.

The total installed capacity of the eight hydro projects is 3.362 megawatts (MW), and the applicant estimates that the projects are capable of producing an average of 16,997 megawatthours (MWh) of energy annually.

The staff concludes that there is a need for the project power over the short and the long term.

The Existing and Planned Transmission Services of the Applicant (Section 15(a)(2)(E))

If the applicant is issued new licenses for the eight hydro projects listed above, no changes of the existing transmission system, its operation, or operating characteristics would occur as a result thereof, and none are planned.

If new licenses are denied, the transmission system, or systems associated with the eight projects, would no longer be required, since the applicant would no longer generate power to sell. The applicant would continue to purchase "all requirements" power required for the operation of the paper mills from a local utility.

Federal Energy Guidelines

Transmission would not be affected by denial of the licenses.

The staff concludes that the transmission services are adequate as they currently exist.

Whether the Plans of the Applicant will be Achieved, to the Greatest Extent Possible, in a Cost Effective Manner (Section 15(a)(2)(F))

The Nonotuck Mill was constructed in 1880 and the present hydroelectric generating unit was rebuilt in 1984. No new construction is proposed. The annual cost of operating the project would be its annual operation and maintenance costs. Continued future project operation would serve to provide an economically efficient source of energy for Linweave, Inc. The staff concludes that the project is economically beneficial.

The Applicant's Record of Compliance with the Terms and Conditions of the Existing License (Section 15(a)(3))

The compliance records of Linweave, Inc., with the terms and conditions of its existing licenses, are satisfactory. Further, the licensee has maintained the projects in a satisfactory manner.

The licensee is reminded that failure to comply with the terms and conditions of this license will subject it to the enforcement and penalty provisions of section 31 of the Federal Power Act.

Term of License

Section 15 of the Act, as amended by ECPA, specifies that any license issued under section 15 shall be for a term which the Commission determines to be in the public interest, but not less than 30 years, nor more than 50 years from the date the license is issued. This provision is similar to pre-ECPA Commission policy, which was to establish from the expiration date of the existing license, 30-year terms for those projects which proposed no new construction or capacity, 40-year terms for those projects that proposed a moderate amount of new development, and 50-year terms for those projects that proposed a substantial amount of new development.³

Linweave, Inc proposes no modifications to the existing project facilities or change in operation of the project. However, the existing license will not expire until February 28, 1991. Accordingly, the new license for the project will be for a term of 30 years from the expiration of the existing license.

³ See *Montana Power Company*, 56 FPC 2008 (1976).

Summary of Findings

An EA was issued for this project. Background information, analysis of impacts, support for related license articles, and the basis for a finding of no significant impact on the environment are contained in the EA attached to this order. Issuance of this license is not a major federal action significantly affecting the quality of the human environment.

The design of this project is consistent with the engineering standards governing dam safety. The project will be safe if operated and maintained in accordance with the requirements of this license. Analysis of related issues is provided in the Safety and Design Assessment attached to this order.

The Director, Office of Hydropower Licensing, concludes that the project would not conflict with any planned or authorized development, and would be best adapted to comprehensive development of the waterway for beneficial public uses.

The Director orders:

(A) This license is issued to Linweave, Inc. (licensee), for a period of 30 years, effective March 1, 1991, to operate and maintain the Nonotuck Mill Project. 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 project consists of:

(1) All lands, to the extent of the licensee's interests in those lands, shown by exhibit G:

Exhibit G—	FERC No. 2771—	Showing
1	6	Project Location

(2) Project works consisting of: (a) a gated intake with submerged trashracks located on the second level canal; (b) a 10.5-foot-diameter penstock 225 feet long; (c) a 500-kW generating unit located in Nonotuck Mill building; (d) a two parallel 9-foot-wide by 9-foot-high arched brick-lined tailrace tunnel 190 feet long extending from the draft tube to an existing concrete outlet structure; (e) a concrete gated outlet structure where the tailwater empties into a channel that leads to the Connecticut River; (f) a 13.8-kV transmission line; and (g) appurtenant facilities.

The project works generally described above are more specifically shown and described by those portions of exhibits A and F recommended for approval in the attached Safety and Design Assessment.

(3) All of the structures, fixtures, equipment or facilities used to operate or maintain the project, all portable property that may be employed in connection with the project and all riparian or other rights that are necessary or appropriate in the operation or maintenance of the project.

(C) The exhibit G described above and those sections of exhibits A and F recommended for approval in the attached Safety and Design Assessment are approved and made part of the license.

(D) The following sections of the Act are waived and excluded from the license for this minor project:

4(b), except the second sentence; 4(c), insofar as it relates to approval of plans by the Chief of Engineers and the Secretary of the Army; 6, insofar as it relates to public notice and to the acceptance and expression in the license of terms and conditions of the Act that are waived here; 10(c), insofar as it relates to depreciation reserves; 10(d); 10(f); 14, except insofar as the power of condemnation is reserved; 15; 16; 19; 20; and 22.

(E) This license is subject to the articles set forth in Form L-9 [54 FPC 1852], (October 1975), entitled "Terms and Conditions of License for Constructed Minor Project Affecting Navigable Waters of the United States," and the following additional articles:

Article 201. The licensee shall pay the United States the following annual charge, effective March 1, 1991:

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 670 horsepower.

Article 202. The Licensee shall cooperate with the licensee for Project No. 2004 in order that the conditions of Article 16 of the license for Project No. 2004 can be fulfilled.

Article 401. Authority is reserved to the Commission to require the licensee to construct, operate, and maintain, or provide for the construction, operation, and maintenance of such fishways, as may be prescribed by the Secretary of the Interior pursuant to section 18 of the Federal Power Act.

Article 402. (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 types of use and occupancy, without prior Commission approval. The licensee may exercise the author-

ity 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 use 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 type of use and occupancy of project lands and water 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 that can accommodate no more than 10 watercraft at a time and where said facility is intended to serve single-family type dwellings; 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 use 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 Com-

mission 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 certification 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 submit a letter to the Director, Office of Hydropower Licensing, 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 paragraph (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 insure 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, pro-

tection 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.

(g) The authority granted to the licensee under this article shall not apply to any part of the public lands and reservations of the United States included within the project boundary.

(F) The licensee shall serve copies of any Commission filing required by this order on any entity specified in this order to be consulted on matters related to that filing. Proof of service on these entities must accompany the filing with the Commission.

(G) This order is issued under authority delegated to the Director and is final unless appealed to the Commission by any party within 30 days from the issuance date of this order. Filing an appeal does not stay the effective date of this order or any date specified in this order. The licensee's failure to appeal this order shall constitute acceptance of the license.

Environmental Assessment¹

Federal Energy Regulatory Commission
Office of Hydropower Licensing

Division of Project Review

Date: June 16, 1989

Project Name: Nonotuck Mill Hydroelectric Project

FERC Project No. 2771-002

A. Application

1. Application type: New minor license
2. Date filed with the Commission: November 25, 1988
3. Applicant: Linweave, Inc
4. Water body: Holyoke Canal; River basin: Connecticut
5. Nearest city or town: Holyoke; (See figure 1.)
6. County: Hampden; State: Massachusetts.

B. Purpose and Need for Action

1. Purpose.

Linweave estimates the average annual energy generation of the Nonotuck Mill Hydroelectric Project is 3,068 megawatt-hours. Project power is sold to the Fitchburg Gas and Electric Light Company.

2. Need for power.

The power from the project is useful in meeting a small part of the need for power projected for the New England Power Pool area of the Northeast Power Coordinating Council (NPCC) region. Power generated at the project displaces fossil-fueled power generation in the NPCC region, thus conserving nonrenewable fossil fuels and reducing the emission of noxious by-products caused by the combustion of fossil fuels.

C. Proposed Project and Alternatives

1. Description of the proposed action. (See figure 2.)

The existing operating project was issued an initial license in 1977, which will expire in 1991. The licensee has filed for a new license for the continued operation of the project. The existing project consists of: (i) a gated intake with submerged trashracks located on the second level canal of the Holyoke Water Power Company; (ii) a 10.5-foot-diameter penstock 235 feet long; (iii) an existing 500-kW generating unit located in the Nonotuck Mill building; (iv) two parallel 9-foot-wide by 9-foot-high arched brick-lined tailrace tunnels 190 feet long extending from the draft tube to an existing concrete outlet structure; (v) a concrete gated outlet structure where tailwater empties into a channel that leads to the Connecticut River; (vi) a 13.8-kV transmission line; and (vii) appurtenant facilities. The project operates in a run-of-river mode. Linweave does not propose any construction or change in operation. The Holyoke Water Power Company controls flows from the Connecticut River into the canal system under a FERC major license granted to Project No. 2004.

2. Applicant's proposed mitigative measures.

Since Linweave proposes to continue operating the project as in the past, with no new construction, no changes to the hydroelectric project, and no changes in the use and release of water, Linweave proposes no mitigative measures.

3. Federal lands affected

No.

4. Alternatives to the proposed project.

a. *Issuance of an annual license.* Section 15(a) of the Federal Power Act (Act), 16 U.S.C. § 808(a), provides for the issuance of annual licenses to the prior licensee if the license expires pending the relicensing determination. Under this alternative, an annual license would continue to be issued to Linweave until a new

¹ Figures and attachments referenced in the text are omitted from this document due to reproduction requirements.

license is issued. The annual license contains the same terms as the expired license, thereby maintaining the status quo.

b. *Issuance of a non-power license.* Section 15(f) of the Act, § 808(b), authorizes the Commission to issue a license for nonpower use when the Commission "finds that in conformity with a comprehensive plan for improving or developing a waterway or waterways for beneficial public uses all or part of any licensed project should no longer be used or adapted for use for power purposes." A license that is granted by the Commission for nonpower use is temporary. When the Commission finds that a state, municipality, interstate agency, or another federal agency is authorized and willing to assume regulatory supervision of the lands and facilities included under the nonpower license and does so, the Commission shall thereupon terminate the nonpower license.

c. *Denial of the license application.* Denial of the license application could lead to removal of the power facilities and removal of all project works.

D. Consultation and Compliance

1. Fish and wildlife agency consultation (Fish & Wildlife Coordination Act).

- a. U.S. Fish & Wildlife Service: Yes.
- b. State(s): Yes.
- c. National Marine Fisheries Service: Yes.

2. Section 7 consultation (Endangered Species Act).

- a. Listed species: Present.
- b. Consultation: Not required.

Remarks: The federally listed endangered shortnose sturgeon under the jurisdiction of the National Marine Fisheries Service (NMFS) inhabits the lower segment of the Connecticut River from the river's mouth upstream to the Holyoke dam. A small landlocked population is found in the pool above the Holyoke dam (Taubert, 1980). Dadswell *et al.* (1984) estimated that between 800 and 1000 shortnose sturgeon inhabit the lower portion (below Holyoke) of the Connecticut River. The NMFS reports that due to the trashrack spacing, any sturgeon which might enter the canal would be prevented from entrainment into the project (personal communication, Chris Mantzaris, staff, National Marine Fisheries Service, Gloucester, Massachusetts, June 13, 1989).

3. Section 401 certification (Clean Water Act).

Required; applicant requested certification on 10/17/88.

Status: Granted by the certifying agency on 03/30/89.

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4. Cultural resource consultation (Historic Preservation Act).

- a. State Historic Preservation Officer: Yes.
- b. National Park Service: Yes.
- c. *National Register* status: Eligible or listed.
- d. Council: Not required.
- e. Further consultation: Not required.

Remarks: The project is adjacent to the Holyoke Canal System, a property listed in the *National Register of Historic Places*. Since there would be no redevelopment, new construction, or changes to the exterior of the property, the project would not affect the canal system or any other *National Register* or eligible properties. The SHPO concurs with this finding (letter from Valerie A. Talmage, Executive Director, Massachusetts Historical Commission, and State Historic Preservation Officer, Boston, Massachusetts, December 9, 1988).

5. Recreational consultation (Federal Power Act).

- a. U.S. Owners: No.
- b. National Park Service: Yes.
- c. State(s): Yes.

6. Wild and scenic rivers (Wild and Scenic Rivers Act).

Status: None.

7. Land and Water Conservation Fund lands and facilities (Land and Water Conservation Fund Act).

Status: None.

E. Comments

1. The following agencies and entities provided comments on the application or filed a motion to intervene in response to the public notice dated 03/20/89.

<i>Commenting agencies and other entities</i>	<i>Date of letter</i>
Department of the Army, New England Division Corps of Engineers	04/26/89
Environmental Protection Agency	05/17/89
Department of the Interior	05/19/89
Massachusetts Division of Fisheries and Wildlife	05/30/89
<i>Motions to intervene</i>	<i>Date of motion</i>
City of Holyoke, Gas and Electric Department	03/28/89
Holyoke Water Power Company	05/19/89

¶ 62,304

2. The applicant did not respond to the comments or motion(s) to intervene.

F. Affected Environment

1. General description of the locale. (See figure 3.)

a. Description of the Connecticut River Basin

The Connecticut River Basin, with a drainage area of 11,765 square miles, is the largest river basin in New England. Extending from the northernmost part of New Hampshire to Long Island Sound, the river basin has a maximum length in a north-south direction of about 280 miles and a maximum width of about 62 miles. The total drainage area of the basin is 11,765 square miles. The principal tributaries to the mainstem Connecticut River, by state, are the Passumpsic, White, West, Ottauquechee, and Black Rivers in Vermont; the Ammonoosuc, Mascoma, Ashuelot, and Sugar Rivers in New Hampshire; the Millers, Deerfield, Chicopee, and Westfield Rivers in Massachusetts; and the Farmington River in Connecticut.

This complex of rivers and tributaries constitutes one of the most extensively developed hydropower systems in the U.S. There is now a major effort by federal, state, and private sectors to restore Atlantic salmon to the Connecticut River Basin.

The project is located in a heavily industrialized setting between the second level of the Holyoke Canal system and the Connecticut River. The climate is typical of inland Connecticut and Massachusetts with an average temperature of 49.8 degrees Fahrenheit and an average annual precipitation of 44.39 inches.

b. Licensed and exempted projects.

There are 62 existing licensed projects and 38 exempted projects in the Connecticut River Basin, as of June 1, 1989.

c. Pending applications.

There are 10 pending license applications in the Connecticut River Basin, as of June 1, 1989.

d. Cumulative impacts.

Cumulative impacts are defined as impacts on the environment that result from the incremental impacts of an action when added to other past, present, and reasonably foreseeable future actions regardless which agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 C.F.R., Part 1508.7)

A target resource is an important resource that may be cumulatively affected by multiple development within a basin. The staff identi-

fied Atlantic salmon as the target resource in the Connecticut River Basin (Federal Energy Regulatory Commission, 1986). The selection was based on the regional significance and geographic distribution of this species within the river basin. This anadromous fishery resource is described below in section F(2d). Impacts to Atlantic salmon are discussed in section G.

2. Descriptions of the resources in the project impact area (Source: Linweave, Inc., application, exhibit E, unless otherwise indicated).

a. *Geology and soils:* Bedrock in the project area is interbedded sandstone, shale, conglomerate, and basaltic lava. The glacial till deposits that lie on the glaciated surface of the bedrock are overlain by varied glacial lake deposits. The original dry, sandy, surface soils in the project area have been highly altered by construction of the project and by fill and construction activities associated with urban development of the area.

b. *Streamflow:* Water flow in the canal system is controlled at the canal gatehouse in order to supply necessary water to various hydropower and industrial facilities along the canal. The amount of flow entering the canal system ranges from no flow, when the gatehouse is shut down, to 5,155 cubic feet per second, which is the maximum hydraulic capacity of the canal.

c. *Water quality:* The Connecticut River upstream of Holyoke dam is classified as Class B water by the Massachusetts Division of Water Pollution. Class B water is suitable for primary and secondary contact recreation and fish and wildlife resources. Class B water must have dissolved oxygen (DO) levels greater than 5.0 milligrams per liter (mg/l) and a pH between 6.5 and 8.0. The first level canal is classified as Class C. Class C water is suitable for secondary contact recreation and fish and wildlife resources and must have a DO level greater than 5.0 mg/l and a pH between 6.5 and 9.0 standard units. Water in the project area conforms to the state water quality standards.

d. *Fisheries:*

Anadromous: Present.

Anadromous fish species found in the Connecticut River in the vicinity of the project include American shad, Atlantic salmon, blueback herring, sea lamprey, striped bass, shortnose sturgeon, and American eel (catadromous).

Resident: Present.

Resident fish species found in the Connecticut River in the vicinity of the project include carp, channel catfish, smallmouth bass, largemouth bass, spottail shiner, white perch, bluegill, rainbow trout, and brown trout.

e. *Vegetation*: Dominant vegetative species in the vicinity of the project include oak, maple, white pine, pitch pine, grasses, and ornamental shrubs.

f. *Wildlife*: Undeveloped land in the project area provides habitat for the gray squirrel, eastern cottontail rabbit, raccoon, muskrat, beaver, weasel, pheasant, and small field mammals (mice and voles). The industrial area is inhabited by English sparrows, starlings, robins, mockingbirds, Norway rats, raccoons, and eastern cottontail rabbits.

g. *Cultural*: There are properties listed on, or eligible for listing on, the *National Register of Historic Places* in the project impact area.

Description: The Holyoke Canal System, a contributing element in the Holyoke Canal Historic District, is listed on the *National Register of Historic Places* and is within the area of the project's potential environmental impact. The portion of the canal in the project area was constructed between 1854 and 1857.

h. *Visual quality*: The project is in an industrial area. Its appearance is consistent with that of the surrounding buildings and structures.

i. *Recreation*: The immediate project area receives no significant recreational use because of its location in a highly industrialized area. No recreational facilities are located at the project. Recreational facilities including playgrounds, swimming pools, and a skating rink are available for use within walking distance of the project. The Connecticut River in the project vicinity is used for boating and fishing.

j. *Land use*: The project is entirely within the city of Holyoke. Land in the project area is primarily used for commercial, industrial, and residential purposes. The canal system is used for generating hydroelectric power at several locations.

k. *Socioeconomics*: The socioeconomic well-being of the area is influenced by industrial and urban development.

G. *Environmental Issues and Proposed Resolutions*

There are 3 issues addressed below

1. *Cumulative impacts on Atlantic salmon resulting from developing several hydropower projects in the Connecticut River Basin*: The Atlantic salmon is currently a primary target species for a major federal, state, and private sector restoration effort. The goal of the restoration program is to provide and to maintain a sport fishery for Atlantic salmon in the Connecticut River, and to restore and maintain a spawning population in selected tributaries (Federal Energy Regulatory Commission, 1986).

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Seaward migrating salmon smolts in the river basin pass numerous hydropower developments where they may become entrained and impinged. The more hydropower facilities outmigrating fish have to pass, the greater the fish losses. Among these hydropower facilities are the Holyoke dam and the canal system.

When river discharges are high and water is flowing over the dam, migrating fish pass downstream with little or no delay (Northeast Utilities Service Company, 1984). On the other hand, outmigrating fish would be entrained into the canal system by high flows entering the canal if they arrive at the dam when flashboards, permitting little or no spillage, are in place. Once in the canal, escape is very difficult. Fish can then be entrained in the turbines of hydropower plants operating along the canal.

On February 26, 1988, the Commission ordered the Holyoke Water Power Company (HWPC) to spill water over Holyoke dam when salmon smolts are migrating downstream (Federal Energy Regulatory Commission, 1988a). [HWPC is the licensee for the Hadley Falls Project (FERC Project No. 2004) and the entity that controls the dam and the water going into the canal.] Spilling water over the Holyoke dam allows migrating salmon smolts to pass safely downstream in the spill, instead of entering the canal system.

Canal users and the HWPC have since implemented an economic dispatch agreement, in which the HWPC passes all flow downstream at the Holyoke dam and sells the users electricity, instead of water, when salmon smolts are migrating downstream. Linweave participates in this agreement. This arrangement prevents flow from entering the canal and attracting outmigrating Atlantic salmon, and minimizes the number of outmigrating Atlantic salmon trapped in the canal, and the number of project-related impacts to fish in the river basin.

Continuing to operate the Nonotuck Mill Hydroelectric Project would not contribute to cumulative adverse impacts on Atlantic salmon.

2. *Authority to prescribe fish passage facilities*: The Department of the Interior states that fish passage facilities may be needed at the project in the future, and, by letter of May 24, 1989 they reserve the authority to prescribe such fish facilities. The Commission reserves authority to require the licensee to provide fishways, as may be prescribed by the Secretary of Interior pursuant to section 18 of the Federal Power Act, if the need arises in the future.

3. *Entraining fish in the intake structure*: The Massachusetts Division of Fisheries and

Wildlife (DFW) recommended the trashracks at the intake structures have a bar spacing not greater than 1 inch to prevent the entrainment of fish. The project's intake opening includes trashracks with one-inch slot width spacing between bars. The bar spacing at the existing structure satisfies the DFW's recommendation.

H. Environmental Impacts

1. Assessment of impacts expected from the applicant's proposed project (P), with the applicant's proposed mitigation and any conditions set by a federal land management agency; the proposed project with any additional mitigation recommended by the staff (Ps); and any action alternative considered (A). Assessment symbols indicate the following impact levels:

O = None; 1 = Minor; 2 = Moderate; 3 = Major; A = Adverse; B = Beneficial; L = Long-term; S = Short-term.

Resource	P	Impact	
		Ps	A
a. Geology-Soils	0		
b. Streamflow	0		
c. Water quality:			
Temperature	0		
Dissolved oxygen	0		
Turbidity and sedimentation	0		
d. Fisheries:			
Anadromous	0		
Resident	0		
e. Vegetation	0		
f. Wildlife	0		
g. Cultural:			
Archeological	0		
Historical	0		
h. Visual quality	0		
i. Recreation	0		
j. Land use	0		
k. Socioeconomics	0		

2. Recommended alternative (including proposed, required, and recommended mitigative measures):

Proposed project.

3. Reason(s) for selecting the preferred alternative

The power generated at this project is produced without any known adverse environmental impacts.

I. Unavoidable Adverse Impacts of the Recommended Alternative

There are no known adverse impacts

J. Conclusion

Finding of No Significant Impact. Approval of the recommended alternative [H(2)] would

not constitute a major federal action significantly affecting the quality of the human environment; therefore, an environmental impact statement (EIS) will not be prepared.

K. Literature Cited

Dadswell, M.J., B.D. Taubert, T.S. Squires, D. Marchette, and J.L. Buckley. 1984. Synopsis of biological data on shortnose sturgeon (*Acipenser brevirostrum*) Lesueur 1818. National Oceanic and Atmospheric Administration Technical Report NMFS 14, National Oceanic and Atmospheric Administration, Washington, DC, 45 pp.

Linweave, Inc. 1988. Application for minor license for the Nonotuck Mill Hydroelectric Project, FERC Project No. 2771, Massachusetts. November 25, 1988.

_____. 1989a. Supplement to the application for minor license for the Nonotuck Mill Hydroelectric Project, FERC Project No. 2771, Massachusetts. February 21, 1989.

_____. 1989b. Additional information for the application for minor license for the Nonotuck Mill Hydroelectric Project, FERC Project No. 2771, Massachusetts. March 20, 1989.

Northeast Utilities Service Company. 1984. Review of cancelled Atlantic salmon smolt (*Salmo salar*), radiotelemetry study at the Holyoke dam, Massachusetts. Hartford, Connecticut. September 1984.

Federal Energy Regulatory Commission. 1983. Planning status report for the Connecticut River Basin. Washington, DC. August 1983.

_____. 1986. Environmental assessment for the Connecticut River Basin. Washington, D.C. November 7, 1986.

_____. 1988a. Order amending license for the Hadley Falls Project, FERC Project No. 2004 [42 FERC ¶ 62,166], Massachusetts. February 26, 1988.

_____. 1988b. Environmental assessment for the Number 2 Hydro Unit, FERC Project No. 2387, Holyoke, Massachusetts. August 26, 1988.

Taubert, B.D. 1980. Biology of shortnose sturgeon (*Acipenser brevirostrum*) in the Holyoke Pool, Connecticut River, Massachusetts. Ph.D. Thesis. University of Massachusetts, Amherst, 136 pp.

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Safety and Design Assessment
 Nonotuck Mill Hydroelectric Project
 FERC Project No. 2771-002, MA

Dam Safety

The applicant for the Nonotuck Mill Project is Linweave, Inc., a manufacturer of paper products. No dam or spillway is included in the project works. All water is delivered to the project via the Holyoke Second Level Canal, which is owned and operated by the Holyoke Water Power Company (HWP).

The New York Regional Office (NYRO), in an Operation Inspection Report dated October 10, 1986, indicated that the existing project had no downstream hazard potential. Since there is no dam, the staff concludes that there are no dam safety problems.

Project Design

The existing project works would consist of: (1) a gated intake with submerged trashracks located on the Second Level Canal of the HWP; (2) a 235-foot-long, 10.5-foot-diameter steel penstock; (3) a single runner, Francis turbine directly coupled to a 500-kilowatt (kW) Westinghouse generator; (4) two 190-foot-long, 9-foot-wide by 9-foot-high arched, brick-lined tailrace tunnels; (5) a concrete gated outlet structure where the tailwater empties into a channel that leads to the Connecticut River; (6) a 0.6-kilovolt (kV), 90-foot-long overhead transmission line from the generator to the step-up transformer, and a 13.8-kV, 325-foot-long overhead transmission line from the step-up transformer to the substation owned by HWP; and (7) appurtenant facilities. The 310-foot-long by 280-foot-wide Nonotuck Mill building which houses the generating equipment is not considered part of the project works.

The applicant has proposed no new construction or improvements for the existing project; therefore, the project license does not need to include any special engineering articles.

The NYRO October 1986 Operation Inspection Report cited no deficiencies in project safety or operation. There is no dam within the project boundaries.

The staff concludes that the project would be safe and adequate if operated in conformance with the terms of a new license.

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Water Resource Planning

The project works would contain one 500-kW generator directly connected to a Francis turbine. The gross head at the site ranges from 24 to 32 feet depending upon the tailwater elevation and the average head is 30 feet. The design head of the turbine is 32 feet and its hydraulic capacity is estimated to be 245 cubic feet per second (cfs). The applicant indicated that the project generated 3,068 megawatthours (MWh) annually. The staff finds that the plant factor would be 70 percent. The project would continue to be operated manually in a run-of-river mode.

All water to the project is delivered via the Second Level Canal. The Second Level Canal is one of a series of three canals (First Level Canal, Second Level Canal, and Third Level Canal) that receives water from the Hadley Falls Project (FERC Project No. 2004) on the Connecticut River. The HWP owns and operates the Hadley Falls Project and its canal system, which delivers water to various manufacturing and other business concerns for process purposes and power generation. The applicant for the Nonotuck Mill Project is Linweave, Inc.

The water for power generation is allocated in the form of mill powers (mp) to owners of lands adjacent to the canal system, under indentures or contracts between the individual property owners and the HWP.

These "mp" quantities vary according to water flow in the Connecticut River and fall into the following three categories:

Permanent power - the amount of water sold to Linweave whenever the average daily river flows in the Connecticut River are equal to or greater than 3,100 cfs.

Surplus power - water offered for sale to owners of the so-called permanent power rights whenever average river flows in the Connecticut River are equal to or greater than 3,600 cfs.

Non-permanent power - water which is not guaranteed, but which would be furnished when there is more than a sufficient quantity of water in the river to supply all the permanent power owners together with 50 percent of it as surplus. Water would be supplied 6 days a week (but not on Sundays or holidays) when the river flows are equal to or greater than 3,865 cfs. Sunday and holiday operation is allowed when the average river flows exceed approximately 4,300 cfs.

Under the allocation terms of the indentures, Linweave is entitled, in perpetuity, to draw a carefully prescribed quantity of water from the HWP canal system for power generation and discharge it into the Connecticut River below

the project. Linweave is also entitled to purchase and use such surplus water as the HWP makes available from time to time.

The Nonotuck Mill Project is authorized two types of water allocation rights based on the indentures: permanent and permanent plus 50 percent surplus. For permanent power allocations, the Nonotuck Mill Project is authorized to withdraw 6 mp or 173 cfs. For permanent plus 50 percent surplus power allocations, the project is authorized to withdraw 8.5 mp or 245 cfs. Based on the staff's flow duration curve for the Connecticut River, the applicant can withdraw 173 cfs about 90 percent of the time, and 245 cfs about 87 percent of the time. Whenever the flows in the Connecticut River exceed 15,000 cfs, the applicant can withdraw the maximum hydraulic capacity of the turbine unit, which is 245 cfs, from the Second Level Canal. The staff estimates that this could occur about 31 percent of the time.

The applicant has estimated that the project operates at its permanent plus 50 percent allocation (245 cfs), which is also its maximum capacity, about 85 percent of the time, at its permanent allocation (173 cfs) about 4 percent of the time. Based on the applicant's estimates, the project would be shut down 11 percent of the time. The NYRO 1986 Operation Inspection Report indicated that the canal system is shut down 3 times a year: once in April, once in July, and once in October. During those periods, the canal system is drained, inspected, and repaired if needed. The repairs are generally scheduled for the July shutdown.

There are certain periods of the year when the project cannot operate and the applicant is directed by the HWP to discontinue drawing water from the canal system. These periods include: (1) periods when the canal system is dewatered for inspection and maintenance; (2) periods of low flow in the Connecticut River when a public authority has required that the low flows be released at the Hadley Falls Project rather than through the canals according to the indentures, without generating power; and (3) periods when a public authority requires that the waters of the Connecticut River flow through the HWP's hydroelectric generating facilities at the Hadley Falls Project rather than through the canal system according to the indentures. During the latter periods when the HWP generates power at the Hadley Falls Project rather than releases water through the canal system, the applicant is entitled to compensation in kilowatthours (in lieu of water) under the terms of the Water Use Agreement (or Economic Dispatch Agreement). In 1987, the compensation provided under the Economic Dispatch Agreement

amounted to 1,545 MWh for the eight projects owned by the applicant.

The staff's independent analysis shows that the applicant makes reasonable use of its allocated water. Because of the water allocation limits of the HWP, the applicant cannot develop additional potential at the site. Hence, the staff concludes that the applicant has properly developed the head and hydraulic potential of the site.

The August 1983 Planning Status Report for the Connecticut River Basin lists 19 existing hydroelectric projects, including the Nonotuck Mill Project, which are located on the canal system owned by HWP. The applicant owns eight of these projects. The report also listed the Holyoke Project on the canal system as a potential project with an installed capacity of 1,222 kW and an annual generation of 13,165 MWh. The report did not indicate any proposed project on the canal system that would be in conflict with the Nonotuck Mill Project.

The staff's review of the state and federal agency comments and of seven comprehensive resource development plans identified no plans with which the existing project would be in conflict within this reach of the Second Level Canal. The staff presently has no specific comments or recommendations from reviewing agencies addressing flood control, navigation, or water supply requirements for the Second Level Canal. No competing applications for the project are currently pending before the Commission.

The City of Holyoke, Massachusetts Gas and Electric Department, and the HWP filed petitions to intervene in the licensing proceeding. Neither party opposes the issuance of a license but each wanted to protect its interests. The HWP submitted a series of technical comments correcting certain information in the application. None of the corrections affect this report.

The generation from this project is equivalent to generation produced from burning 5,500 barrels of oil or 1,250 tons of coal annually in a steam-electric plant.

In summary, the staff's analysis shows that the existing project is properly designed to develop the hydropower potential of the site.

Economic Evaluation

The proposed project would be economically beneficial, so long as the projected levelized cost is less than the levelized cost of alternative energy and capacity.

In the case of the Nonotuck Mill Project, the applicant has proposed no new construction. Hence, the levelized project costs would be the operation and maintenance costs and adminis-

trative and general costs. These costs are small compared to the value of the power.

The applicant currently sells the project power to Fitchburg Gas & Electric Light Company, pursuant to a power sales agreement dated March 25, 1982, and it would continue to do so.

The staff concludes that the existing project is economically beneficial.

Exhibits

The staff concludes that the following parts of exhibit A and the following exhibit F drawings conform to the Commission's rules and regulations. The staff therefore includes these in the license:

Exhibit A - The following sections of exhibit A filed November 25, 1988:

The turbine and generator description on page A-2; the transmission line description on page A-2 and corrected by letter dated April 10, 1989; and the additional mechanical and electrical equipment description on pages A-1 through A-7.

<i>Exhibit</i>	<i>FERC No.</i>	<i>Showing</i>
F-1	2771-3	Site Plan
F-2	2771-4	Powerhouse Plan and Elevation

Preparers

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