

UNITED STATES OF AMERICA 67 FERC ¶62,272
FEDERAL ENERGY REGULATORY COMMISSION

Wisconsin Power & Light Company

Project No. 2348-001
Wisconsin

ORDER ISSUING SUBSEQUENT LICENSE
(Minor Project)
(Issued June 23, 1994)

INTRODUCTION

The Wisconsin Power & Light Company (Wisconsin Power) filed a license application under Part I of the Federal Power Act (FPA) for continued operation and maintenance of the 480-kilowatt (kW) Beloit Blackhawk (Beloit) Hydroelectric Project, located on the Rock River, near the city of Beloit, in Rock County, Wisconsin.¹ The project produces about 3.18 gigawatthours of electricity annually.

BACKGROUND

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, and under what conditions, to issue this license.

The Wisconsin Department of Natural Resources (WDNR) filed a motion to intervene for this project requesting party status. Their motion was granted.

The Commission's staff issued the draft environmental assessment (EA) for this project on March 10, 1994, and the final EA for this project on May 12, 1994, which is attached to and made part of the license. The comments on the draft EA are addressed in the final EA. The staff also prepared a Safety and Design Assessment (SDA) which is available in the Commission's public file for this project.

PROJECT DESCRIPTION

The existing run-of-river project consists of a 17-foot-high concrete dam, a 485-acre impoundment, a powerhouse containing one generating unit with an installed capacity of 480 kW, and appurtenant facilities.

¹ The Rock River is a navigable waterway of the United States. 32 FPC 575.

A more detailed project description can be found in ordering paragraph B(2) and in the EA.

APPLICANT'S PLANS AND CAPABILITIES

Wisconsin Power's Record as a Licensee

The staff evaluated Wisconsin Power's record as a licensee for these areas: (1) conservation efforts, and (2) compliance history and potential for complying with the subsequent license. I accept the staff's findings in each of these areas.

Here are the staff's findings:

1. Conservation Efforts

The staff has reviewed Wisconsin Power's efforts to encourage and help its customers conserve electricity. They found that Wisconsin Power is making a good faith effort to promote electric conservation.

The Wisconsin Public Service Commission (WPSC) has statutory and regulatory authority regarding least cost planning and energy conservation in the state of Wisconsin. Wisconsin Power promotes electric conservation among its member systems in compliance with the requirements and policies of the WPSC.

Wisconsin Power's plans and activities to promote conservation of electric energy and to reduce the peak demand for generating capacity include (1) the installation of automated control systems, (2) the efficiency evaluation and upgrade of the distribution system, (3) the implementation of demand-side management programs, and (4) providing information on energy conservation to its customers.

Therefore, Wisconsin Power is making a good faith effort to conserve electricity in compliance with the requirements of the WPSC.

2. Compliance History and Potential for Complying with the Subsequent License

The staff has reviewed Wisconsin Power's compliance with the terms and conditions of the original license for the Beloit Project; they found Wisconsin Power's overall record of making timely filings and compliance with its license to be satisfactory.

Based on past performance, Wisconsin Power would be able to comply with the terms and conditions of this subsequent license.

WATER QUALITY CERTIFICATION

On August 29, 1990, Wisconsin Power applied to the WDNR for water quality certification for the Beloit Project, as required by section 401 of the Clean Water Act. By letter dated June 12, 1991, the WDNR waived section 401 water quality certification for this project.

SECTION 18 FISHWAY PRESCRIPTIONS

The Department of the Interior (Interior) requests reservation of authority to prescribe the construction, operation, and maintenance of fishways under section 18 of the FPA. Currently, upstream and downstream fish passage past the Beloit dam is not a management objective for the Rock River. Should management objectives change, there may be a need for future fish passage at the project. Therefore, the Commission reserves the authority to require fishways as may be prescribed by Interior in the future (article 404).

RECOMMENDATIONS OF FEDERAL AND STATE FISH AND WILDLIFE AGENCIES

Section 10(j)(1) of the FPA, U.S.C. 1803(j)(1), requires the Commission to include license conditions based on recommendations of federal and state fish and wildlife agencies submitted under the Fish and Wildlife Coordination Act for the protection, mitigation, and enhancement of fish and wildlife.

The EA addresses five of the eight fish and wildlife agency recommendations and this license provides conditions consistent with those recommendations.

The other three fish and wildlife agency recommendations that are not addressed in the EA are detailed below.² In their letter filed August 9, 1993, the WDNR makes two recommendations concerning dam safety at the Beloit Project. They recommend that (1) they be provided with information -- stability calculations, an operation and maintenance plan, and an emergency action plan -- to determine if the dam is safe, and (2) the licensee provide them with FERC required dam safety inspection reports.

In its response letter dated November 12, 1993, Wisconsin Power says that, since the project is federally licensed and subject to the Commission's dam safety requirements, they do not

² These measures were not discussed in the EA because they do not directly involve the environmental impacts of the project. Moreover, since they would not provide measures for the protection, mitigation of damages to, and enhancement of fish and wildlife, they are not subject to the section 10(j) process.

♀

need to prove to the WDNR that the dam is safe. Also, Wisconsin Power does not think it is necessary for them to submit Commission inspection reports to the WDNR.

The staff agrees with Wisconsin Power on the first recommendation. Since the Commission already has jurisdiction over dam safety matters at the project, the staff does not think it is appropriate to condition the license so that the licensee must also conform to state dam safety requirements. The Commission's dam safety program considers dam and personal safety, operations, maintenance, and emergency action plans. The Chicago Regional Office will make any necessary information available to the State, upon request. Also, see the discussion below rejecting the WDNR's request to reserve state permitting authority.

Finally, the WDNR requests a reservation of authority "to issue orders and require permits and approvals needed under state law." This request must be denied. The power to withhold a state permit or approval could thwart the accomplishment of the full purposes and objectives of the Federal Power Act embodied in this license. The WDNR's request for a license condition reserving its permitting and approval authority is tantamount to an assertion of final review authority over project requirements, and the Commission and the courts have held that such review impermissibly conflicts with the Commission's licensing and comprehensive development authority under the Federal Power Act. See, for example, *Weyerhaeuser Company*, 55 FERC ¶ 61,079 at pp. 61,246-48 (1991) and the cases cited there.

I concur with the staff's conclusions.

COMPREHENSIVE PLANS

Section 10(a)(2) of the FPA requires the Commission to consider the extent to which a project is consistent with federal and state comprehensive plans for improving, developing, and conserving waterways affected by the project.

Ten plans address resources relevant to the Beloit Project. They are:

- ù National Park Service. 1985. The Nationwide Rivers Inventory. United States Department of the Interior.
- ù Rock County, Wisconsin. 1985. Park and Outdoor Recreation Plan, 1986-91. Rock county Planning and Development Agency.

♀

- ù U. S. Department of Interior. 1986. North American Wildlife Management Plan. Twin Cities, Minnesota.

Beloit - License 06-23-1994

- ù U. S. Department of Interior and Environment Canada. 1986. North American Waterfowl Management Plan.
- ù Wisconsin Department of Natural Resources. 1979. Rock River Basin Area-wide Water Quality Management Plan. Madison, Wisconsin.
- ù Wisconsin Department of Natural Resources. 1985. Statewide Comprehensive Outdoor Recreation Plan, 1986-91.
- ù Wisconsin Department of Natural Resources. 1986. Wisconsin Water Quality: Report to Congress. Madison, Wisconsin.
- ù Wisconsin Department of Natural Resources. 1991. Lower Rock River Basin Water Quality Management Plan. Madison, Wisconsin.
- ù Wisconsin Department of Natural Resources. 1991. Wisconsin Statewide Comprehensive Outdoor Recreation Plan for 1991-96. Madison Wisconsin.
- ù Wisconsin Department of Natural Resources. 1992. Wisconsin Water Quality Assessment Report to Congress. Madison, Wisconsin.

No conflicts were found.

COMPREHENSIVE DEVELOPMENT

Section 4(e) of the FPA directs the Commission to consider equally developmental and environmental purposes in making licensing decisions. Section 10(a) directs the Commission to license projects that are best adapted to a comprehensive plan for improving or developing a waterway for all beneficial public uses. In determining whether, and under what conditions, to license a project, the Commission must weigh the various economic and environmental parameters involved.

In the EA, the staff evaluated three alternatives: (1) the proposed project, (2) the proposed project with the staff's additional recommended enhancements, and (3) the no-action alternative. The staff recommends the proposed project with their additional recommended enhancements as the preferred option. The reasons for the recommendation are explained below.

In order to protect and enhance environmental conditions at

♀

the project site, the staff recommends adoption of the following five enhancement measures proposed by Wisconsin Power:

- ù maintain run-of-river operations;
- ù maintain the reservoir surface elevation at 744.7 ±0.3

Beloit - License 06-23-1994

feet NGVD to the extent allowed by project operations;

- ù automatically maintain spillway flow during project shutdown;
- ù provide \$5,000 for the construction of a boat launch to be located downstream of the project in the proposed Heritage Park development; and
- ù provide \$1,000 to the WDNR to monitor the transplanting of gravel chub.

The staff also recommends implementation of the following three additional enhancement measures:

- ù prepare a plan to monitor the project's run-of-river operations;
- ù notify the WDNR whenever the reservoir surface level cannot be maintained within the prescribed 744.7 ±0.3 feet NGVD bounds; and
- ù implement a cultural resource management plan and a programmatic agreement (PA) to avoid and minimize impacts to archeological and historical sites, including the project facilities, which are eligible for inclusion in the National Register of Historic Places.

Two of the enhancement measures involve a cost. First, Wisconsin Power has a written agreement with the city of Beloit to provide \$5,000 towards the construction of new boat launch facility just downstream of the project dam, along the east bank of the Rock River. This facility would be constructed in the proposed Heritage Park as part of the "Beloit 2000" plan.

The recreational benefits provided by this enhancement measure would improve recreational resources in the project area, while not substantially affecting the project economics.

Second, Wisconsin Power has agreed to provide \$1,000 to the WDNR for the monitoring of gravel chub which were transplanted from below the Beloit dam to an area about 15 miles upstream of the project.

Monitoring the survival of the gravel chub would improve fishery resources in the Rock River without substantially

♀

7

impacting project economics.

In summary, I conclude that the environmental benefits derived from these enhancement measures outweigh the cost to Wisconsin Power. Therefore, Wisconsin Power should adopt these measures discussed.

LICENSE TERM

Beloit - License 06-23-1994

In 1986, the Electric Consumers Protection Act (ECPA) modified section 15 of the FPA to specify that any license issued shall be for a term that the Commission determines to be in the public interest, but not less than 30 years, nor more than 50 years. The Commission's policy establishes 30-year terms for those projects that propose little or no redevelopment or new construction, 40-year terms for those projects that propose a moderate amount of redevelopment, new capacity or enhancement measures, and 50-year terms for those projects that propose extensive redevelopment, new construction, new capacity or enhancement measures.

Accordingly, because Wisconsin Power does not propose any changes in the existing project works for the Beloit Project, I am issuing the subsequent license for a term of 30 years.

PROJECT RETIREMENT

The Commission has issued a Notice of Inquiry (NOI), dated September 15, 1993, requesting comments that address the decommissioning of licensed hydropower projects.³ The NOI states that the Commission is not proposing new regulations at this time, but is inviting comments on whether new regulations may be appropriate. Alternatively, the Commission may consider issuing a statement of policy addressing the decommissioning of licensed hydropower projects, or take other measures. The Beloit Project may be affected by future actions that the Commission takes with respect to issues raised in the NOI. Therefore, the license includes article 203, which reserves authority to the Commission to require the licensee to conduct studies, make financial provisions, or otherwise make reasonable provisions for decommissioning of the project in appropriate circumstances.

OTHER FINDINGS

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 attached EA. Issuance of the license is not a major federal

³ Notice of Inquiry, Project Decommissioning at Relicensing, Dockets No. RM93-23-000, September 15, 1993

♀

action significantly affecting the quality of the human environment.

The project will be safe if constructed, operated, and maintained in accordance with the requirements of this license. Analysis of related issues is provided in the SDA.

I conclude that the Beloit Project does not conflict with any planned or authorized development, and is best adapted to comprehensive development of the Rock River for beneficial public

uses.

The Director orders:

(A) This license is issued to the Wisconsin Power & Light Company for a period of 30 years, effective the first day of the month in which this license is issued, to operate and maintain the Beloit Project. This license is subject to the terms and conditions of the FPA, which is incorporated by reference as part of this license, and to the regulations the Commission issues under the provisions of the FPA.

(B) The project consists of:

(1) All lands, to the extent of the licensee's interests in those lands, as shown on exhibit G, FERC Drawing Number 2348-9.

(2) Project works consisting of:

- ù an existing concrete non-overflow 38.5-foot-long dam with sluiceway;
- ù an existing 91.1-foot-long reinforced concrete Tainter gate and stop-log section;
- ù an existing 81.2-foot-long needle section;
- ù an existing 101.6-foot-long slide gate section containing nine gates;
- ù an existing reservoir with a surface area of 485 acres and a total storage volume of 3,255 acre-feet at the normal maximum surface elevation of 744.7 feet National Geodetic Vertical Datum (NGVD);
- ù an existing concrete and brick powerhouse containing one generating unit with an installed capacity of 480 kW; and
- ù appurtenant facilities.

The project works above are more specifically described in

†

section I of exhibit A of the license application and shown by exhibit F:

Exhibit F-	FERC No. 2348-	Showing
1	1	Plan and Section of Dam
2	2	Upstream Powerhouse Elevation
3	3	Downstream Powerhouse Elevation
4	4	End Elevation

Beloit - License 06-23-1994

5	5	Section Thru Powerhouse CL
6	6	Long. Section Thru Powerhouse
7	7	Details of Taintor Gates
8	8	Single-Line Electric Diagrams

(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 located within or outside the project boundary, and all riparian or other rights that are necessary or appropriate in the operation or maintenance of the project.

(C) Exhibits A, F and G described above are approved and made part of the license.

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

Section 4(b), except the second sentence thereof; 4(e) insofar as it relates to approval of plans by the Chief of Engineers and the Secretary of the Army and to public notice; 6, insofar as it relates to public notice and to the acceptance and expression in the license of terms and conditions of the FPA which are hereinafter waived; 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), entitled "Terms and Conditions of License for Constructed Minor Project Affecting Navigable Waters of the U. S.," and the following additional articles:

Article 201. The licensee shall pay the United States an annual charge, effective the first day of the month in which this license is issued, for the purpose of reimbursing the United

♀

States for the cost of administration of Part I of the FPA, as determined by the Commission. The authorized installed capacity for that purpose is 640 horsepower.

Article 202. (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, canceling 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; (3) embankments, bulkheads, retaining walls, or similar structures for erosion control to protect the existing shoreline; and (4) food plots and other wildlife enhancement. 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 or roads where 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 (measured over project waters) 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 project waters at normal 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 60 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 the following covenants running with the land: (i) the use of the lands conveyed shall not endanger health, create a nuisance, or otherwise be incompatible with overall project recreational use; (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; and (iii) the grantee shall not unduly restrict public access to project waters.

(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.

Article 203. The Commission reserves authority, in the context of a rulemaking proceeding or a proceeding specific to this license, to require the licensee at any time to conduct studies, make financial provisions, or otherwise make reasonable provisions for decommissioning of the project. The terms of this

Beloit - License 06-23-1994

article shall be effective unless the Commission, in Docket No. RM93-23, finds that they lack statutory authority to require such actions or otherwise determines that the article should be rescinded.

Article 401. The licensee shall operate the project in a run-of-river mode for the protection of fish and wildlife resources in the Rock River. The licensee shall at all times act to minimize the fluctuation of the reservoir surface elevation by maintaining a discharge from the project so that, at any point in time, flows, as measured immediately downstream from the project tailrace, approximate the sum of inflows to the project reservoir. Under normal operating conditions, the licensee shall maintain the elevation of the Beloit reservoir between 744.4 feet and 745.0 feet National Geodetic Vertical Datum (NGVD).

Run-of-river operation may be temporarily modified if required by operating emergencies beyond the control of the licensee, or for short periods upon mutual agreement between the licensee and the Wisconsin Department of Natural Resources. If the flow is so modified, the licensee shall notify the Commission as soon as possible, but no later than 10 days after each such incident.

Article 402. Within 6 months from the effective date of the license, the licensee shall file, for Commission approval, a plan to monitor the project's run-of-river operation, as required by article 401. The plan should include the method of monitoring and recording reservoir elevation, a schedule for implementing the monitoring and recording, and a provision for providing the reservoir elevation data to agencies or individuals that request the data.

♀

The licensee shall prepare the plan in consultation with the Wisconsin Department of Natural Resources and the U.S. Fish and Wildlife Service. The licensee shall include with the plan documentation of consultation, copies of comments and recommendations on the completed plan after it has been prepared and provided to the agencies, and specific descriptions of how the agencies' comments are accommodated by the plan. The licensee shall allow a minimum of 30 days for the agencies to comment and to make recommendations before filing the plan with the Commission. If the licensee does not adopt a recommendation, the filing shall include the licensee's reasons, based on project-specific information.

The Commission reserves the right to require changes to the plan. Upon Commission approval, the licensee shall implement the plan, including any changes required by the Commission.

Article 403. The licensee shall provide \$1,000 to the Wisconsin Department of Natural Resources for the purpose of monitoring the survival of gravel chubs transplanted from below the Beloit dam to a site on the Rock River about 15 miles upstream from the project.

Within 6 months of issuance of this license, the licensee shall file, with the Commission, evidence of compliance with this article.

Article 404. The Commission reserves the authority to require the licensee to construct, operate, and maintain such fishways as may be prescribed by the Secretary of the Interior.

Article 405. The licensee shall implement the Programmatic Agreement (PA) executed on December 30, 1993, to avoid and mitigate impacts to the historical integrity of the Blackhawk Dam Historic District, archeological sites 47Ro335, 47Ro336, and 47Ro337, and any other archeological and historic sites at the project eligible or potentially eligible for inclusion in the National Register of Historic Places.

Within 15 months from the effective date of this license, the licensee shall file, for Commission approval, the Historic Resources Management Plan identified in the PA, together with a letter from the Wisconsin State Historic Preservation Officer commenting on the plan. The Commission may require additional work and changes to the plan based on this filing.

Article 406. The licensee shall provide \$5,000 for the construction of a carry-in boat access facility at Heritage Park located just downstream from the project dam.

Within 6 months of issuance of this license, the licensee shall file, with the Commission, evidence of compliance with this

♀

article.

(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 the Commission 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 constitutes final agency action. Request for rehearing by the Commission may be filed within 30 days of the date of this order, pursuant to 18 C.F.R. § 385.713. The filing of a request for rehearing does not operate as a stay of the effective date of this order or of any other date specified in this order, except as specifically ordered by the Commission. The licensee's failure to file a request for rehearing shall constitute acceptance of this order.

Fred E. Springer
Director, Office of

♀

FINAL ENVIRONMENTAL ASSESSMENT

FEDERAL ENERGY REGULATORY COMMISSION OFFICE OF HYDROPOWER LICENSING DIVISION OF PROJECT REVIEW

Bel o i t B l a c k h a w k H y d r o e l e c t r i c P r o j e c t
FERC No. 2348-001 W i s c o n s i n

INTRODUCTION

The Federal Energy Regulatory Commission issued the Beloit Blackhawk (Beloit) Draft Environmental Assessment (DEA) for comment on March 10, 1994. In response, we received one comment letter from the Wisconsin Department of Natural Resources (WDNR). The letter was reviewed by the staff. The sections of the DEA that have been modified as a result of comments received are identified in the staff responses to the right of the comment letter in Appendix A.

I. APPLICATION

The Wisconsin Power & Light Company (Wisconsin Power) filed an application with the Commission for a subsequent license for the existing 480-kilowatt (kW) Beloit Hydroelectric Project on December 23, 1991. The project is located on the Rock River, in the city of Beloit, in Rock County, Wisconsin (figure 1).

The original license for the Beloit Project expired on December 31, 1993. The project has been operating on an annual license since that time.

II. PURPOSE AND NEED FOR ACTION

A. Purpose of Action

The Federal Energy Regulatory Commission (Commission) must decide whether to issue Wisconsin Power a subsequent license for the project and what conditions to place on any license issued. Issuing a new license would allow Wisconsin Power to continue to operate the project for a term of 30 to 50 years, making electrical power from a renewable resource available to its customers.

In this environmental assessment (EA), we, the Commission staff, assess the environmental and economic effects of (1)

♀

Fi gure 1 goes ri ght here

Beloit - License 06-23-1994

continuing to operate the project with the enhancements proposed by Wisconsin Power, (2) operating the project as proposed by Wisconsin Power with our additional recommended environmental measures, and (3) continuing to operate the project with no changes or enhancements (the no-action alternative).

B. Need for Power

The Beloit Project is located in the Mid-America Interconnected Network (MAIN) region. To consider the need for power, the staff looked at Wisconsin Power's need as well as the regional need for power. The power produced at the project is used in Wisconsin Power's electric utility system. Wisconsin Power produces, transmits and distributes electricity, gas, and water to about 348,000 wholesale and retail customers in south central Wisconsin and northern Illinois.

Wisconsin Power's Demand-Side Management Program Plan shows that a need for new utility-owned generation will not occur until the latter part of the 10-year forecast period (around 1999). The delay is due to (1) the implementation of load management and conservation measures, and (2) the capacity exchanges with neighboring utilities.

The project's average annual generation of 3.18 gigawatthours (GWh) meets a small part of Wisconsin Power's annual requirement: Wisconsin Power uses the project output to serve local loads. The project helps lower system deficits and reduce costs to rate-payers.

To consider the regional need for power, the staff reviewed the demand forecast for the MAIN council.

Each year, MAIN submits a long range Regional Reliability Council Coordinated Bulk Power Supply program report to the U.S. Department of Energy. This report gives forecasts of summer and winter peak demands for capacity and annual energy requirements for each year of a 10-year planning period, and also provides actual data for the previous year.

In its April 1, 1993, report, MAIN projects average annual growth rates of 1.79 percent for summer peak demand, and 1.88 percent for winter peak demand. By the year 1999, MAIN utilities anticipate adding base load capacity to meet this projected load growth.

In summary, both MAIN and Wisconsin Power forecasts show capacity deficits by the year 1999. As a result, Wisconsin Power plans to add new resources in the last 3 years of the forecast period.

The power from the project would be useful in meeting a small part of the need for power projected by the MAIN region.

The project displaces fossil-fueled electric power generation in the MAIN region and thereby, conserves nonrenewable fossil fuels, and reduces the emission of noxious byproducts caused by the combustion of fossil fuels.

III. PROPOSED ACTION AND ALTERNATIVES

A. Wisconsin Power's Proposal

1. Project Description

The project consists of (figure 2):

- ù an existing concrete non-overflow 38.5-foot-long dam with sluiceway;
- ù an existing 91.1-foot-long reinforced concrete Tainter gate and stop-log section;
- ù an existing 81.2-foot-long needle section;
- ù an existing 101.6-foot-long slide gate section containing nine gates;
- ù an existing reservoir with a surface area of 485 acres and a total storage volume of 3,255 acre-feet at the normal maximum surface elevation of 744.7 feet National Geodetic Vertical Datum (NGVD);
- ù an existing concrete and brick powerhouse containing one generating unit with an installed capacity of 480 kW; and
- ù appurtenant facilities.

Wisconsin Power is not proposing to change the existing run-of-river operations. The estimated average annual generation for the project is 3.18 GWh. All energy generated by the project would be sold to Wisconsin Power's customers.

No primary transmission lines are included as part of the licensed project. The project occupies no federal lands.

2. Proposed Environmental Measures

To enhance environmental resources of the project area, Wisconsin Power proposes to:

- ù maintain run-of-river operations;

figure 2 here

♀

ù maintain the reservoir surface elevation at 744.7 ±0.3 feet NGVD to the extent allowed by project operations;

ù automatically maintain spillway flow during project shutdown; and

ù provide \$5,000 for the construction of a boat launch to be located downstream of the project in the proposed Heritage Park development.

3. Mandatory Requirements--Section 18 Fishway Prescription

The Department of Interior (Interior) requests reservation of authority to prescribe the construction, operation, and maintenance of fishways under section 18 of the Federal Power Act (FPA). Currently, upstream and downstream fish passage past the Beloit dam is not a management objective for the Rock River. Should management objectives change, there may be a need for future fish passage at the project. Therefore, we recommend that authority be reserved to the Commission to require fishways as may be prescribed by Interior.

B. Staff's Modification of Wisconsin Power's Proposal

The measures that we recommend, in addition to Wisconsin Power's proposal, include:

ù preparing a plan to monitor the project's run-of-river operations;

ù notifying the WDNR whenever the reservoir surface level cannot be maintained within the prescribed 744.7 ±0.3 feet NGVD bounds; and

ù implementing a cultural resource management plan and a programmatic agreement (PA) to avoid and minimize impacts to archeological and historical sites, including the project facilities, which are eligible for inclusion in the National Register of Historic Places.

The basis for these recommendations are explained in section V.

C. No-Action Alternative

Under the no-action alternative, the project would continue to operate under the terms and conditions of the existing license, and no new environmental protection, mitigation, or enhancement measures would be implemented. We use this alternative to establish baseline environmental conditions for comparison with other alternatives. The alternative of license

denial and project decommissioning is discussed below in section D.

D. Alternatives Considered but Eliminated from Detailed Study

We also considered three additional alternatives, but eliminated them from detailed study because they were not reasonable in the circumstances of this case. Two of these

Beloit - License 06-23-1994

alternatives involved project decommissioning, which could be accomplished with or without dam removal. Either alternative would involve denial of the subsequent license and surrender or termination of the existing license with appropriate conditions.

The first decommissioning alternative would involve dam removal. No participant has suggested that dam removal would be appropriate in this case, and we have no basis for recommending it. The project reservoir provides important recreational resources and the sediments stored behind the project dam could, if released by dam removal, cause downstream flooding and degradation of environmental resources. Thus, dam removal is not a reasonable alternative to relicensing the project with appropriate protection and enhancement measures.

The second decommissioning alternative would involve retaining the dam and disabling or removing equipment used to generate power. Project works would remain in place and could be used for historic or other purposes. This would require us to identify another government agency willing and able to assume regulatory control and supervision of the remaining facilities. No agency has stepped forward, and no participant has advocated this alternative. Nor have we any basis for recommending it. Because the power supplied by the project is needed, a source of replacement power would have to be identified. In these circumstances, we don't consider removal of the electric generating equipment to be a reasonable alternative.

A third alternative considered but eliminated from detailed study was adding capacity to the Beloit Project. In looking at the project's use of the energy potential of the site, we find that, at a maximum hydraulic capacity of 725 cfs, river flows exceed plant capacity 79 percent of the time. This means that the available river flow could support additional generation capacity. Our analysis indicates that doubling the existing capacity would provide the greatest increase in power benefits for the least cost. However, we believe that the cost for expansion would exceed our estimate of the value of the power that would be produced--41.5 mills/kWh. Therefore, we conclude that capacity expansion would not be economically feasible at this time.

IV. CONSULTATION AND COMPLIANCE

♀

A. Interventions

The Commission issued a public notice on May 5, 1992, stating that Wisconsin Power's application for the Beloit Project was accepted for filing.

On June 15, 1992, the WDNR filed a motion to intervene in response to that notice. In the intervention, the WDNR requested party status in all future proceedings involving this project.

B. Agency Terms and Conditions

The Commission issued a public notice on June 11, 1993, stating that the staff was ready to begin the environmental analysis of the Beloit Project. The following entities responded:

Commenting entity	Date of letter
ù WDNR	August 9, 1993
ù Interior	August 9, 1993

We address these terms and conditions in the appropriate sections of the EA.

C. Comments on the DEA

The following entity commented on the DEA for this project:

Commenting entity	Date of Letter
ù WDNR	April 14, 1994

D. Water Quality Certification

On August 29, 1990, Wisconsin Power applied to the WDNR for water quality certification for the Beloit Project, as required by section 401 of the Clean Water Act. By letter dated June 12, 1991, the WDNR granted a waiver of the need for a section 401 water quality certificate to Wisconsin Power.

V. ENVIRONMENTAL ANALYSIS

In this section, we analyze and compare the environmental effects of the three alternatives discussed in section III -- Wisconsin Power's proposal, their proposal with our additional recommended enhancement measures, and the no-action alternative. In addition to project-specific impacts, we analyze the potential for significant cumulative impacts to resources affected by the project and by other past, present, and reasonably foreseeable activities in the basin. Unless we say otherwise, the source of our information is Wisconsin Power's (1991) application for

♀

subsequent license, and the source of agency comments are the letters addressed in the Agency Terms and Conditions section of this EA.

A. General Description of the Rock River Basin

The Rock River, the major river of the Rock River basin, originates in the Horicon Marsh in Dodge County, Wisconsin. It flows for 318 miles, and empties into the Mississippi River at Rock Island, Illinois. The total drainage area of the Rock River is 10,915 square miles; about half of that drainage area is in Wisconsin. The Rock River provides habitat for a wide variety of

fish, wildlife, and plants.

According to United States Weather Bureau data collected near the project site, Beloit's climate is classified as humid continental, characterized by large daily and seasonal temperature ranges. The major factors contributing to this climatic classification are Beloit's latitude and continental location. Annual precipitation in the project area averages about 32 inches per year.

Geologically, the Rock River drainage was diverted and entrenched into the present valley during the Wisconsinan glaciation. The drainage was cut through a series of bedrock divides between several valleys established before, during, and/or after the Illinoisan glaciation. The valley then carried Wisconsinan glacial outwash after the entrenchment.

Presently, much of the land in Rock County is used for farming. In recent years, however, farmland has been transformed to urban uses such as residential developments, commercial centers, industrial facilities, and parklands.

B. Proposed Action and Action Alternatives

Our analysis in this section is organized by resource categories. For each resource, we first describe the affected environment, i.e., the existing condition of the resource which could be affected by the alternatives. Second, we describe the effects that the three alternatives would have on these resources, including alternative environmental protection and enhancement measures, using the affected environment as the baseline for comparisons. Here is where we address agency and other comments. Third, we describe any unavoidable adverse impacts that would result from the implementation of these protection and enhancement measures.

Wisconsin Power does not propose any new construction, and any potential land disturbance would be limited to minor construction activities associated with recreational access facilities. We conclude that continued project operation would

♀

not affect geological, aesthetic, socioeconomic, or land use resources; therefore, these resources are not further discussed.

1. Water Resources

Affected Environment

a. General

Indigenous peoples occupied lands in the Rock River basin for thousands of years before settlers arrived in the 1830's. The influx of settlers spurred development along the Rock River - - residentially, municipally, industrially, and agriculturally. Today, there are eight FERC-licensed or exempted project dams

Beloit - License 06-23-1994

(table 1) as well as several other dams impeding the flow of water along the main stem of the Rock River.

Table 1. Existing FERC-Licensed and Exempted Projects on the Main Stem of the Rock River (Commission Staff, 1994).

Project Name	Project No.	Capacity (kW)	License or Exemption
Sears	P-2936	746	Exemption
Upper Sterling	P-7004	2000	Exemption
Dixon	P-2446	3200	Major License
Rockton	P-2373	1100	Minor Project
Beloit	P-2348	480	Minor Project
Janesville	P-2347	500	Minor License
Lower Watertown	P-10117	289	Exemption
Watertown Upper	P-9947	300	Exemption

Today, the Rock River is a typical midwestern prairie stream -- low gradient and turbid.

The reservoir at the Beloit Project has a surface area of 485 acres and extends upstream for a distance of about 10 miles. The gross storage capacity of the project is 3,255 acre feet at the normal headwater surface elevation of 744.7 feet NGVD.

b. Streamflow

♀

The historically free-flowing waters of the Rock River are now impeded by a series of dams. The construction of these dams has altered flow conditions in the river by creating a series of long, deep bodies of slack water behind the dams. In addition, consumptive water use have probably decreased the average annual flows in the Rock River from its historic levels.

The United States Geological Survey (USGS) maintains a stream gaging station (Gage No. 05430500) on the Rock River in Afton, Wisconsin, about 9 miles upstream from the project. The drainage area at the site of the gage is about 3,340 square miles. The drainage area of the Rock River at the Beloit Project dam is about 3,460 square miles.

Wisconsin Power developed flow measurements for the Beloit Project by correlating drainage areas of the project dam with

Beloit - License 06-23-1994

that of the Afton gage. The average monthly flow for the period between 1958 to 1987 was estimated to be about 1,507 cubic feet per second (cfs). The highest flow at the project was estimated to be about 12,535 cfs; the lowest, about 49 cfs.

The Rock River flows exceed the minimum turbine discharge capacity of 500 cfs about 88 percent of the time; the flows exceed the maximum turbine capacity of 725 cfs about 79 percent of the time.

c. Water Use and Quality

The construction of the dams over the last 150 years, coupled with various other developments in the basin, has probably impacted water quality parameters in the Rock River. Industrial, agricultural, municipal, and residential effluent discharge and runoff has probably raised the levels of fecal coliform, nitrogen, phosphorous, and heavy metals in the water.

Also, since the slack water reservoirs created by the dams tend to retain the water for longer periods of time, this will probably increase the average water temperatures and dissolved oxygen levels in the Rock River.

Along with providing wildlife habitat, the Rock River is presently used for waste assimilation, recreation, irrigation, power production, and stock watering. To support these uses, the WDNR requires that waters in the Rock River meet the following specific water quality standards:

1. General - Substances shall not be deposited on the bed or banks nor shall floating or submerged debris be present in such amounts as to interfere with public rights. Substances shall not be present in concentrations or combinations which are harmful to humans or acutely harmful to plants, animals, or aquatic life.

11

♀

2. Recreational Use - The fecal coliform count may not exceed 200 per 100 milliliters (ml) as a geometric mean of not less than five samples per month, nor shall the count exceed 400 per 100 ml in more than ten percent of all monthly samples.

3. Fish and Aquatic Life -

Dissolved Oxygen: The dissolved oxygen (DO) concentration shall not be lowered to below five milligrams per liter (mg/l).

Temperatures: There shall be no temperature change that may adversely affect aquatic life; natural temperature fluctuations shall be maintained; and at no time shall the temperature exceed 89 degrees Fahrenheit.

pH: The pH may range only between six and nine standard pH

units.

Other substances: Unauthorized concentrations of substances are not permitted that alone or in combination with other materials are toxic to fish or other aquatic life.

There are three water quality monitoring stations near the Beloit Project which are used for the U.S. Environmental Protection Agency's surface water quality monitoring program. The first is located at Indianford, about 29 miles upstream of the project. The second, at Afton, about 9 miles upstream of project. The third, at Rockton, Illinois, about five miles downstream of the project. The water monitoring station at Rockton is located just downstream of the Rockton Hydroelectric Project.

Water quality samples were collected at these three stations for the water years 1982-90 to measure DO, pH, and temperature. Results of this sampling program are summarized below.

Only two DO samples taken during the sampling program failed to meet the minimum state requirement of 5.0 mg/l. On August 7, 1986, a DO concentration of 4.3 mg/l was recorded at Indianford; on October 5, 1982, a DO concentration of 2.3 mg/l was recorded at Afton.

A DO concentration of 0.0 mg/l was recorded at the Rockton station in April of 1984; this sample point is considered extremely questionable since the concentrations immediately preceding it and following were well above the state allowable minimum.

♀

Only one pH sample from these three monitoring stations was outside the required state range during this sampling period. A pH of 9.1 was recorded at Afton in 1983, just falling outside the allowable maximum.

No water temperatures recorded at these three stations during the monitoring period exceeded the state allowable maximum of 89 degrees Fahrenheit (F).

Wisconsin Power conducted their own DO and temperature monitoring program above and below the Beloit dam in August 1989. DO concentrations ranged from 7.0 mg/l to 12.4 mg/l depending on sampling time of day, site location, and water depth. Generally, DO concentrations were lowest in the early morning hours, at upstream sites, and at the deepest readings near the bottom of the reservoir. Temperature readings ranged from about 71.0 degrees F. to about 75.0 degrees F., with cooler temperatures being recorded in the early morning hours.

Generally, only weak vertical stratification of water DO

Beloit - License 06-23-1994

concentrations and temperatures was evident from samples taken. The difference between upstream and downstream DO and temperature conditions was slight. DO differences at corresponding upstream and downstream sampling sites usually differed by less than 0.5 mg/l; temperatures at corresponding upstream and downstream sites usually differed by less than one-tenth of a degree. The results of all DO samples were well above the state allowable minimum of 5.0 mg/l. The results of all temperature samples were all well below the state allowable maximum of 89 degrees F.

Wisconsin Power also conducted two sediment depth probes at the Beloit Project in November of 1989 and June of 1990, respectively. The purpose of the first investigation was to record sediment depths at seven locations immediately behind the dam and powerhouse. The results of this field sampling showed that no sediment was detected at any of the seven locations sampled.

The purpose of the second investigation was to record sediment depths at 6 locations in the project reservoir further upstream of the dam. Transects were established across the reservoir at distances of about 50 ft., 150 ft., 250 ft., 350 ft., 450 ft., and 550 ft. upstream of the dam, and sediment depth was measured across these transects. No accumulated sediment was detected in the transect located 50 ft. upstream of the dam. Some (6 inches or less) sediment was detected at the transect located 150 ft. upstream of the dam. Seven inches of sediment was detected at the transects located 250 ft. and 350 ft. upstream of the dam. As much as 25 inches of sediment was detected at the transect located 450 ft. upstream of the dam. Finally, about 8 inches of sediment was found at transect located 550 ft. upstream of the dam.

d. Project Operation

A run-of-river hydropower project has been operating at the Beloit site for the past 70 years. Wisconsin Power proposes to continue operating the project run-of-river. Therefore, as discussed in the Environmental Analysis section to follow in this EA, continuing project operations in a run-of-river mode would not change the existing environment.

e. Water Rights

Of the designated surface water uses for the Rock River listed in the water use section, only irrigation, stock watering, recreation, and power production require diversion of the river water from its channel. Of these, only irrigation, stock watering, and recreation consume a percentage of the water withdrawn.

The Beloit Project does not consume water and does not affect water diversion on the Rock River. Therefore, continued operation of the Beloit Project would not require any water rights nor affect existing water rights.

Environmental Impacts and Recommendation

The WDNR recommends that, to protect water quality and to preserve existing beneficial downstream uses, the project continue to operate as a run-of-river facility, where instantaneous inflow equals instantaneous outflow.

Wisconsin Power proposes to maintain run-of-river operations where project inflow equals project outflow to the extent allowable by the operations of their facilities.

Since the project has maintained run-of-river operations in the past, and since no concerns have arisen as a result of this mode of operation (i.e., water quality or fishery concerns), we recommend that Wisconsin Power continue to operate the Beloit Project run-of-river, with instantaneous inflow equal to instantaneous outflow, to extent allowable by project operations.

Since Wisconsin Power does not propose any changes to the operations of the Beloit Project, which has been run-of-river in its 70 years of operations, and since there is no new construction associated with this relicensing, there would be no changes in cumulative impacts to water resources in the Rock River basin caused by the continued operation of the Beloit Project.

Unavoidable Adverse Impacts

None.

2. Fishery Resources

Affected Environment

Prior to development along the Rock River, the river provided fish habitat similar to typical northern free-flowing rivers. Walleyes, northern pike, muskies, and yellow perch were probably the abundant predator species, while redhorse, minnows, and darters were probably the dominant forage species.

Dam construction along the Rock River has increased the diversity of the aquatic environment by transforming a free-flowing river into a series of alternating flowing stretches and reservoirs. Different aquatic species have been established as a result of this change.

Today, the Rock River contains fish species adapted to a warmer, slower-moving, riverine system as well as some coldwater species. Top game species found there include channel catfish, bullheads, smallmouth bass, walleye, northern pike, and largemouth bass. Fish surveys have shown that smallmouth bass and channel catfish are the most abundant predator fish both above and below the Beloit dam, and catfish are the most significant gamefish in the Rock River (Bush, et. al., 1990).

Panfish species such as bluegill, black crappie, and white bass are present both above and below the dam, although they are more numerous above the dam.

Roughfish, such as carp, suckers, redhorse, quillback, drum, and bullheads, are also very abundant both above and below the dam. Carp were the most abundant species captured in fish surveys in 1989 and 1990 above the dam; redhorse, the most abundant below the dam. Roughfish are harvested commercially above the Beloit dam.

The roughfish harvest between the Beloit dam and the Monterey dam (located about 15 miles upstream of the Beloit dam), numbered about 108,500 for the years 1987-1989, with buffalo and carp dominating this commercial catch. Roughfish such as carp, drum, quillback, hog sucker, white sucker, and redhorse also make up an important part of the sport catch in Rock River (Bush, et al., 1990).

Forage fish such as shiners, silversides, minnows, logperch, darters, and stonerollers, were found throughout the Rock River, both above and below the Beloit dam.

There are no anadromous fish species found in the Rock River basin.

No federally-listed threatened or endangered aquatic species are known to occur in the project area (Department of the Interior 1993).

In 1989 and 1990, the WDNR conducted surveys, funded by Wisconsin Power, to determine the feasibility of introducing the gravel chub from below the Beloit dam to an area about 15 miles upstream from the project. Based on the findings of these surveys, the WDNR transplanted about 110 gravel chubs to that site in 1991.

Environmental Impacts and Recommendations

The WDNR recommends that, to protect water quality, preserve fish habitat, and preserve beneficial downstream uses of the resource, the project be operated run-of-river, where instantaneous inflow equals instantaneous outflow. The WDNR also recommends that Wisconsin Power maintain the reservoir water surface elevation at 744.7 ± 0.3 feet NGVD to the extent allowed by project operation.

In addition, the WDNR recommends that staff gages be installed and maintained in accessible locations near the dam to allow the public to monitor both headwater and tailwater surface elevations.

Beloit - License 06-23-1994

Wisconsin Power proposes to continue to operate the Beloit Project run-of-river with instantaneous inflow equal to instantaneous outflow to the extent allowed by project operation. Wisconsin Power has recently converted plant operations from manual to automatic, and as a result of this increased precision, they propose to maintain the reservoir surface level at 744.7 ±0.3 feet NGVD. Wisconsin Power plans to remotely monitor the headwater elevations through a recently installed headwater transducer.

Continued run-of-river operations at the Beloit Project would help maintain the existing fishery in the Rock River. Since the present fish community in the project is highly rated, and the public use of the fish resource is unencumbered, we do not believe the project's operations have adversely affected the river's fishery.

Furthermore, since no data or historical information shows that the project has affected, or in the future will affect, the beneficial uses of the fish resource, we believe that the proposed run-of-river project and maintenance of the headwater at 744.7 ±0.3 feet NGVD would adequately protect the existing fishery in Rock River and adequately provide a fishery which would meet the public demand for use of fish resources in the future.

16

♀

We recommend that, for any license issued for this project, Wisconsin Power prepare a monitoring plan to ensure run-of-river operation of the project. This plan should be prepared in consultation with the WDNR and Interior, and include:

- ù the method of monitoring and recording reservoir surface elevations;
- ù a schedule for implementing the monitoring and recording of the reservoir surface;
- ù a way of providing the monitoring data to interested agencies within 30 days from the agencies' request for the data; and
- ù proof of agency consultation in preparing the plan, including consultation letters and agency comments.

In addition, we recommend that Wisconsin Power notify the WDNR whenever the reservoir surface level cannot be maintained within the prescribed 744.7 ±0.3 feet NGVD bounds. This coordination would help the WDNR better monitor operations at the Beloit Project.

In order to enhance the gravel chub population in the Rock River, the WDNR, in cooperation with Wisconsin Power, recently transplanted 110 gravel chub from an area below the Beloit dam to an area about 15 miles upstream from the project. The WDNR

Beloit - License 06-23-1994

requested that Wisconsin Power provide \$1,000 over two years (1994 and 1995) to monitor the success of the gravel chub transplant.

We believe that monitoring the survival of the transplanted gravel chubs could help determine the success of the relocation program. Therefore, we recommend that Wisconsin Power provide \$1,000 to the WDNR over a two year period to monitor the survival of the transplanted gravel chubs⁴

Although the Beloit Project, coupled with the other dams constructed on the main stem of the Rock River, historically contributed to changes in fish population and species composition, the fishery has stabilized over the years. Continued project run-of-river operations will not likely contribute to cumulative impacts to fishery resources in the Rock River basin.

Unavoidable Adverse Impacts

⁴ The WDNR estimated that the cost to monitor the transplanted gravel chub would be about \$800. Wisconsin Power, however, agreed to provide \$1,000 for the monitoring.

17

♀

None.

3. Terrestrial Resources

Affected Environment

In the mid-1800's, an oak savanna community, consisting of grasslands and tall, widely-spaced oak trees, followed the central valley of the Rock River. Beyond the river valley's oak savanna, the dominant vegetation was prairie. The destruction of adjoining prairie lands by cultivation, and the resultant elimination of periodic prairie fires, turned the neighboring savanna in the valley into a closed oak forest. By 1980, the river valley forest was replaced by agricultural, industrial, and residential areas, or broken up into tracts of less than 40 acres.

As previously mentioned, the project reservoir extends about 10 miles upstream from the dam location. The lands around the dam and powerhouse are used primarily for industrial purposes. The upstream reservoir area within the city limits is typically lined with residential areas and parkland. The reservoir shoreline area beyond the city limits is primarily wooded and undeveloped. Wetlands are located along the river and its tributaries. Wetland plant associations include marsh, shrub-carr, and lowland forest.

Interior (Department of the Interior 1993) states that two plants federally listed as threatened -- the prairie bush clover (*Lespedeza leptostachya*) and the eastern prairie fringed orchid

Beloit - License 06-23-1994

(*Platanthera leucophaea*) -- occur in Rock County. They further state, however, that neither plant species occurs on project lands.

White-tailed deer is the principal game species using habitat in the project area. The most common waterfowl using the reservoir are wood ducks, Canada geese, and common goldeneyes. No federally listed threatened or endangered animal species occur in the project area (Department of the Interior 1993).

Environmental Impacts and Recommendations

The threatened prairie bush clover and eastern prairie fringed orchid occur in Rock County, but neither grow on project lands. Interior says the project would not affect either plant (Department of the Interior 1993). We concur.

We have no evidence that continued operations of the Beloit Project would cumulatively impact terrestrial resources in the Rock River basin.

Unavoidable Adverse Impacts

18

♀

None.

4. Cultural Resources

Affected Environment

Wisconsin Power conducted a cultural resources survey for the Beloit Project (Salkin 1991). The survey report identifies three archeological sites as eligible for inclusion in the National Register of Historic Places. One archeological site dates to the Late Archaic Stage (3000-1500 B.C.). The two other archeological sites date to the Late Woodland Stage (300-1600 A.D.). These sites are significant because they could potentially contribute to knowledge about the prehistory of this portion of the Rock River drainage.

The survey report also identifies the Blackhawk Dam Historic District as eligible for inclusion in the National Register. The District has two historically significant components, namely the project dam and powerhouse. The District has five other component buildings and structures that are not historically significant, which are included in the District to help define the context of the project dam and powerhouse. Essentially, the District defines Wisconsin Power's power-generating facilities and associated structures in the city of Beloit on the east side of the Rock River, and highlights their historical significance in this area.

The Beloit dam was first constructed in 1842, and was later rebuilt in 1881 and again in 1903. Tainter gates were added in 1950. The present powerhouse for the Beloit Project was constructed in 1929. The powerhouse and the dam are culturally

Beloit - License 06-23-1994

significant because of their architectural characteristics and high degree of integrity. The integrity is especially high for the powerhouse; the external and internal features of this structure have changed little over time. A visitor can tour the powerhouse, with some minimal interpretation, and clearly understand the function and appearance of a small 1920's hydroelectric plant.

Environmental Impacts and Recommendations

Shoreline erosion has affected or has the potential to affect the historical integrity of the three archeological sites identified in the project area. Maintenance and repair work have the potential to affect the project dam and powerhouse (Salkin 1991).

On December 30, 1993, the Commission staff, the SHPO, and the Advisory Council on Historic Preservation executed a state-wide PA to avoid and mitigate impacts to archeological and historic sites listed or eligible for inclusion in the National Register for all new and amended licenses for existing projects in Wisconsin issued by the Commission. The PA requires development and implementation of a cultural resources management plan to avoid or mitigate impacts to National Register listed or eligible sites affected by the project. This PA supersedes the plan and agreement proposed by Wisconsin Power (Wisconsin Power and Light Company 1992).

The effects of the project on National Register listed or eligible sites can be avoided or mitigated if the PA is implemented. We will recommend, as a condition of any license issued for the project, implementation of this PA to protect the National Register sites identified in the project area.

Unavoidable Adverse Impacts

None.

5. Recreational Resources

Affected Environment

Prior to the development of the dams along the main stem of the Rock River, the river provided an unimpeded navigable waterway for boating and travel over its entire 318-mile length. Now, although the river is still navigable, boaters are forced to portage the dams.

Coinciding with the development of the Rock River basin, numerous recreational parks have been established. Presently, according to the city of Beloit's 1985 Parks and Open Space Plan (City of Beloit, 1985), 27 public parks comprising about 610 acres have been established in and around the city of Beloit. Six of these public parks are located along the boundary of the Beloit Project. They include:

- ù Big Hill Park - (open space)
- ù Riverside Park - (picnicking, ice-skating, boat-launch)

20

♀

- ù Wootton Park - (boat launch, tennis courts)
- ù Happy Hollow Park - (boat launch, picnicking)
- ù Beloit Town Dump Prairie - (open space)
- ù Armstrong Eddy Park - (boat launch)

Several private parks and boat launch sites are also located in the project area.

The most popular activities in the project area are boating and fishing, though people also engage in swimming and hiking there. Nearby are venues for such other activities as golf, indoor ice-skating, baseball, and skiing.

The WDNR indicated that the section of the Rock River from the upstream border of the city of Janesville (located about 17 miles upstream of the Beloit Project) to the Illinois state line (located just downstream of the Beloit dam) is designated as a scenic urban waterway under Wisconsin statutes. This legislation establishes a mechanism for state and local involvement in managing the stretch of river to afford adequate recreational opportunities to both local residents and visitors.

Environmental Impacts and Recommendations

The WDNR recommends that a carry-in boat access be built on the east bank of the river just downstream from the dam site. This proposed facility would serve as both a put-in site for watercrafts portaging the dam, and as a launching site for watercrafts navigating below the dam. The National Park Service (NPS) supported the WDNR's recommendation for a carry-in boat access site downstream of the dam.

Wisconsin Power does not propose to build such a boat access

facility because (1) they do not own land downstream of the dam, (2) they have safety concerns about providing public access to site so close to project facilities and operation, and (3) there is not a demonstrated need for additional boat-launching facilities in the project area.

Wisconsin Power does, however, propose to participate in a program titled "Beloit 2000." "Beloit 2000" is a conceptual plan for a joint public/private sector development of the downtown area of Beloit. This plan calls for the future construction of parks, walkways, and piers along the Rock River waterfront. An example of development initiated by the program is the recent construction of a boat launching facility just upstream of the Beloit dam.

As part of "Beloit 2000," a parcel of land two blocks downstream of the project site has been earmarked for the proposed Heritage Park, a recreational site featuring bank fishing, walkways, and a boat launch. By letter dated November 5, 1991 to the "Beloit 2000" program director, Wisconsin Power agreed to pay 50 percent (\$5,000) of the estimated construction costs of a boat launch facility for Heritage Park. This will satisfy the WDNR's concern of having a boat launch facility on the east bank of the river downstream of the dam. Although construction was supposed to commence on the boat launch in late 1993, funding problems have caused a postponement until 1995.

The NPS also recommends in pre-filing consultation that Wisconsin Power construct a canoe portage around the Beloit dam.

Wisconsin Power does not propose to construct such a facility because the parcel of land they own around the dam site is extremely steep, and not suitable for the development of a portage. Also, they claim that the tailwater conditions immediately downstream of the dam are often very turbulent and pose a danger to small watercraft.

We agree with Wisconsin Power that the area around the dam is too dangerous to construct a canoe portage; such a facility would not be in the best interest of the public.

The WDNR also recommends that dam warning signs be maintained at all times. They did not offer specific suggestions. The NPS supported the WDNR's recommendation.

Dam warning signage is currently in place at the project facility. The signage was inspected by the Commission's Regional Office in 1991 and 1992. The inspection determined that the signage is in compliance with Commission regulations.

The NPS recommends that access needs for disabled individuals using recreational facilities around the project be addressed. They did not offer any specific suggestions.

Wisconsin Power is required by law to provide for the needs of disabled individuals using its facilities. When Wisconsin Power constructs any new recreational facilities near the project site as part of the "Beloit 2000" program, barrier-free access for the disabled must be considered.

Continued operation of the Beloit Project coupled with the proposed enhancement measures discussed above would cause minor beneficial cumulative impacts to recreation in the Rock River basin.

Unavoidable Adverse Impacts

None.

C. No-Action Alternative

Under the no-action alternative, Wisconsin Power would continue to operate under the terms of the original license. The environmental enhancements that Wisconsin Power proposes or that staff recommends would not occur. In our analysis, we find no evidence of substantial continuing impacts of current project operations, i.e., no resources are presently declining as a result of project operations. Therefore, no-action would not change the existing physical, biological, or cultural resources of the project area.

VI. DEVELOPMENTAL ANALYSIS

In previous sections of this EA, we assessed the effects of continued operation of the Beloit Project on the environment. In this section, we look at the developmental purposes of the project to see what effect proposed environmental measures have on the project power benefits. We also summarize our findings on whether the project would continue to have economic benefits over the license term.

We consider a utility-owned project has economic benefits, if the estimated total costs over the license term are less than the estimated costs, using alternative power resources, over the same period. We refer to the difference between the project cost and the alternative power cost as the net benefit. We base our estimate of the cost of alternative power on: (1) the cost of replacing the project's 0.48 MW of dependable capacity; and (2) the cost of generating 3.18 GWh annually, using fossil-fueled facilities.

As we have said, Wisconsin Power proposes to continue operating the project run-of-river to provide a small part of their customer base load electricity requirements. Wisconsin

Beloit - License 06-23-1994

Power recently upgraded the operation from manual to automatic. This upgrade improved the performance, control, and reliability of the project at a cost of \$80,000 (Wisconsin Power & Light Company, 1992).

None of the proposed environmental enhancement measures would have any effect on project generation or dependable capacity. The only measure considered in this EA that was determined to have a direct cost impact was a contribution of \$5,000 towards the cost of recreational boat access. The total cost of this measure would reduce the net benefits to the ratepayers by less than 0.5 mills/kWh.

23

♀

Based on our estimate of project costs and the value of power produced, we find the project would produce net benefits equivalent to about 21 mills/kWh levelized over a new license period of 30 years.

VII. COMPREHENSIVE DEVELOPMENT AND RECOMMENDED ALTERNATIVE

Section 4(e) of the FPA directs the Commission to consider equally a broad range of developmental and environmental purposes in making licensing decisions. Section 10(a) directs the Commission to license projects that are best adapted to a comprehensive plan for improving or developing a waterway for a broad range of developmental and environmental purposes. In determining whether, and under what conditions, to license a project, the Commission must weigh the various economic and environmental tradeoffs involved in the decision.

Based on our independent review and evaluation of the three alternatives analyzed -- the proposed project, the proposed project with our additional recommended enhancements, and the no-action alternative -- we have selected the proposed project with our additional recommended enhancements as the preferred option.

We recommend this option because (1) issuance of new license would allow Wisconsin Power to continue to operate the project as an economically beneficial and dependable source of electric energy for its customers, (2) the 480-kW project would eliminate the need for an equivalent amount of fossil-fuel-derived energy and capacity, which helps conserve these nonrenewable resources and limits atmospheric pollution, and (3) we believe the public benefits of the selected alternative would exceed those of Wisconsin Power's proposal and the no-action alternative.

Only one of the proposed or recommended enhancement measures involves a cost. Wisconsin Power has a written agreement with the city of Beloit to provide \$5,000 towards the construction of new boat launch facility just downstream of the project dam, along the east bank of the Rock River. This facility would be constructed in the proposed Heritage Park, part of the "Beloit 2000" plan.

The recreational benefits provided by this enhancement

Beloit - License 06-23-1994

measure would improve recreational resources in the project area, while not substantially affecting the project economics.

Based on our review under sections 4(e) and 10(a) of the FPA, the Beloit Project would be best adapted to a comprehensive plan for developing the Rock River if licensed with the staff's modifications of Wisconsin Power's proposal.

VIII. RECOMMENDATIONS OF FISH AND WILDLIFE AGENCIES

24

†

Section 10(j)(1) of the FPA requires the Commission to protect, mitigate damages to, and enhance fish and wildlife resources affected by a project with license conditions that are based upon the recommendations of the federal and state fish and wildlife agencies received under the Fish and Wildlife Coordination Act. When the Commission believes that any fish and wildlife agency's recommendation, submitted under paragraph 10(j)(1), may be inconsistent with applicable law, section 10(j)(2) requires the Commission and the agency to attempt to resolve the inconsistency.

In their letter, dated August 9, 1993, the WDNR made eight specific recommendations for terms and conditions of any license issued for the Beloit Project (see table 3). Two of these recommendations -- run-of-river operations and headwater level maintenance -- are within the scope of section 10(j) and were found to be consistent with the applicable law. We adopted both of these recommendations for the protection of fishery resources in the project area.

The other six recommendations are not specific measures to protect fish and wildlife, and thus are not within the scope of section 10(j). We did, however, adopt two of these recommendations -- provision for a boat access and maintenance of warning signage.

We partially adopted a third recommendation -- installing staff gages to monitor headwater and tailwater elevations. The WDNR recommended that staff gages be installed so that the public can monitor headwater and tailwater elevations. We think that Wisconsin Power's existing automatic headwater monitoring system is adequate to monitor the headwater elevation at the project; however, we do not think there is a demonstrated need to install a gage to monitor the tailwater elevation.

The three remaining recommendations listed in table 3 -- service of dam safety reports, preparation of an emergency action plan, and ability to retain jurisdiction to issue orders, permits, and approvals -- are beyond the scope of this EA but will be addressed in any order issued for this project.

±

Table 3. Analysis of Fish and Wildlife Agency Recommendations for the Beloit Project No. 2348 (Commission Staff, 1994).

Recommendation	Agency	Within Scope of Sec. 10(j)	Conclusion
Run-of-river operations	WDNR	Yes	Adopted
Maintain headwater level at 744.7 ±0.3 feet NGVD	WDNR	Yes	Adopted
Carry-in boat access to east bank downstream of dam	WDNR	No-not a specific measure to protect fish and wildlife.	Adopted
Dam safety inspection reports to WDNR	WDNR	"	Will be addressed in Commission order
Emergency Action Plan, Operation and Maintenance Plan, and other safety information to WDNR	WDNR	"	"
Maintenance of dam warning signs	WDNR	"	Adopted
Staff gages to allow public to monitor headwater and tailwater levels	WDNR	"	Adopted in part: A plan to monitor ROR is recommended by staff
Retain jurisdiction to issue orders, permits, and approvals needed under state law	WDNR	"	Will be addressed in Commission order

Section 10(a)(2) of the FPA requires the Commission to consider the extent to which a project is consistent with federal and state comprehensive plans for improving, developing, and

♀

conserving waterways affected by the project. Ten plans address resources relevant to the Beloit Project. They include:

- ù National Park Service. 1985. The Nationwide Rivers Inventory. United States Department of the Interior.
- ù Rock County, Wisconsin. 1985. Park and Outdoor Recreation Plan, 1986-91. Rock county Planning and Development Agency.
- ù U. S. Department of Interior. 1986. North American Wildlife Management Plan. Twin Cities, Minnesota.
- ù U. S. Department of Interior and Environment Canada. 1986. North American Waterfowl Management Plan.
- ù Wisconsin Department of Natural Resources. 1979. Rock River Basin Areawide Water Quality Management Plan. Madison, Wisconsin.
- ù Wisconsin Department of Natural Resources. 1985. Statewide Comprehensive Outdoor Recreation Plan, 1986-91.
- ù Wisconsin Department of Natural Resources. 1986. Wisconsin Water Quality: Report to Congress. Madison, Wisconsin.
- ù Wisconsin Department of Natural Resources. 1991. Lower Rock River Basin Water Quality Management Plan. Madison, Wisconsin.
- ù Wisconsin Department of Natural Resources. 1991. Wisconsin Statewide Comprehensive Outdoor Recreation Plan for 1991-96. Madison Wisconsin.
- ù Wisconsin Department of Natural Resources. 1992. Wisconsin Water Quality Assessment Report to Congress. Madison, Wisconsin.

We find no conflicts with these plans.

X. FINDING OF NO SIGNIFICANT IMPACT

We find that none of the resources that we have examined in this EA would suffer significant adverse project-specific or cumulative impacts under either Wisconsin Power's proposal for continued operation of the project or staff's modification of

Wisconsin Power's proposal. Therefore, an environmental impact statement is not required.

♀

On the basis of the record and this EA, issuing a new license for the project, with the environmental measures we recommend, would not be a major federal action significantly affecting the quality of the human environment.

XI. LITERATURE CITED

- Bush, Donald M., Greg A. Rublee, and Douglas V. Lubke, 1990. Fish Populations of the Rock River Relevant to FERC Relicensing of Wisconsin Power & Light Dams. Wisconsin Department of Natural Resources. December 11, 1990.
- City of Beloit. 1985. Parks and Open Space Plan. City Planning Commission and City Parks. Recreation Conservation Advisory Commission. 1985.
- Department of the Interior. 1993. Letter from Sheila Minor Huff, Regional Environmental Officer, Chicago, Illinois. August 4, 1993.
- Salkin, P. 1991. A Cultural Resources Survey of the Blackhawk Hydroelectric Facility and Associated Study Area for the Wisconsin Power & Light Company in Rock County, Wisconsin. Archeological Consulting and Services, Reports of Investigations, Report No. 623. Verona, Wisconsin. October 1991.
- Wisconsin Power & Light Company. 1991. Application for a subsequent license, Beloit Blackhawk Project No. 2348, Wisconsin. Filed December 17, 1991.
- Wisconsin Power & Light Company. 1992. Applicant's Response to Request for Additional Information. Wisconsin. Filed August 20, 1992.

XII. LIST OF PREPARERS

- Michael Strzelacki --Environmental Coordinator (Project Manager; M. S., Ocean Engineering)
- Roland George--Need for Power (Electrical Engineer; B. S. Electrical Engineering)
- John Ramer--Water Resources, Fishery Resources (Ecologist; M. S. Zoology)
- Dianne Rodman--Terrestrial Resources and Threatened and Endangered Species (Ecologist; M. S. Biology)
- Edwin Slatter--Cultural Resources (Archeologist; Ph. D.)

Beloit - License 06-23-1994
Anthropology)

28

♀

John Costello--Visual, Recreation, and Land Use Resources
(Landscape Architect; BLA Landscape Architecture and
Environmental Planning)

Chuck Hall--Developmental Analysis (Civil Engineer; M.S. Civil
Engineering)

♀