Review of Application
for
LIHI Certification of the
Kingsley Dam Hydroelectric Project
North Platte and Platte Rivers, Nebraska

Prepared by
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Introduction

This report reviews the application submitted by the Central Nebraska Public Power and Irrigation District (CNPPID or "Central") to the Low Impact Hydropower Institute (LIHI) for LIHI Certification of the existing 105.9 megawatt (MW) Kingsley Dam Project, located on the North Platte and Platte Rivers in Garden, Keith, Lincoln, Dawson, and Gosper Counties in south-central Nebraska. The original FERC license for this project expired on June 30, 1987 and from that date to July 1998 Central operated the project under annual licenses.

This FERC relicensing proceeding[1] which was pending for fourteen years before the parties reached agreement was at times highly contentious and resulted in numerous FERC orders and two important court decisions. The primary issue has been instream flows for fish and wildlife, including endangered and threatened species, and the possible effects of releasing flows on the availability of water for irrigation and recreation. In accepting Central's Offer of Settlement, FERC found that it "...strikes an appropriate balance between developmental and environmental resources, and provides adequate protection for endangered and threatened species." Although the relicensing process took a longer time than most to complete, the settlement that came out of that proceeding is

[1] On July 29, 1998, FERC approved the Offer of Settlement filed on May 15, 1998, in a consolidated relicensing proceeding, and approved the issuance of new licenses consistent with its provisions. In separate license orders issued concurrently with a "master" order, FERC issued new licenses to the Central Nebraska Public Power and Irrigation District (Central) for its 105.9-megawatt (MW) Kingsley Dam Project No. 1417, and to the Nebraska Public Power District (NPPD) for its 26.1-MW North Platte/Keystone Diversion Dam Project No. 1835. The projects are located on the North Platte, South Platte, and Platte Rivers in south-central Nebraska.

comprehensive and appears to cover all major issues in the relicensing. Besides the Licensee ("Central" or CNPPID) the Offer of Settlement is supported by all major parties including the U.S. Department of the Interior (Interior); the states of Nebraska, Colorado, and Wyoming; Nebraska Public Power District (NPPD); the Platte River Whooping Crane Critical Habitat Maintenance Trust (Trust); National Audubon Society; American Rivers; Sierra Club; Nebraska Wildlife Federation; and Nebraska Water Users .

Project History

The construction of the Kingsley Dam was one of the largest public works projects in Nebraska during the 1930s. Construction began in 1936 and was completed in 1941 at a cost of more than $43.5 million. Kingsley is one of the largest earthen dams in the world.

The dam and reservoir are named for George P. Kingsley, a Minden, Nebraska banker, and C.W. McConaughy, a grain merchant and mayor of Holdrege, Nebraska, two of the leading promoters of the project. Although neither lived to see the completion of the project, their leadership and perseverance eventually culminated in a public power and irrigation project that helped Nebraska become one of the nation's leading agricultural states.

The Kingsley Dam, located 9 miles north of Ogallala, Nebraska, is the second largest, hydraulic fill dam in the world. It is over 162 feet high, 3.1 miles long, has 26 million cubic yards of material, and holds a body of water that is 22 miles long and 142 feet deep called Lake McConaughy.

The Kingsley Dam was formed by the pumping of a mixture of loess soil and water into the ground, making a watertight core. Lake Ogallala was formed from the pumping of the soil into Kingsley Dam. It is 35 feet deep, 1.6 miles long, and .3 miles wide.

Drought[2]

The onset of a prolonged drought in the Great Plains during 1999, along with associated increases in well drilling and surface-water extractions, progressively began to affect water flows in the Platte River. By 1993 Nebraska's Department of Natural Resources (DNR) had prohibited any new uses of Platte River surface water from Columbus west. This decree didn't stop groundwater pumping, since groundwater extraction rates are largely regulated by the regional Natural Resources Districts (NRDs). Nevertheless, drilling moratoriums began to take effect in some or all parts of eight of the state's 23 NRDs between 2002 and 2004. The Central Platte NRD, an 11-county region stretching from Dawson County east to Platte County, also announced a forthcoming moratorium on new irrigation wells. Their substantial advance warning simply caused a frantic surge in new drilling activity that lasted until the moratorium finally took effect in 2004.

Between 1999 and 2006, groundwater levels declined an average of nearly six feet in the Central Platte. Not only did state groundwater levels begin to decline seriously at this time over broad regions, but Nebraska's largest reservoir, Lake McConaughy, also began to suffer.

Lake McConaughy is also the source of nearly all of central Nebraska's surface irrigation. The reservoir reached near-record high water levels during the relatively wet years of the mid-1990s, but the drought that began in 1999 would bring it down to equally historic lows within five years. Smaller-than-normal snowpacks in the mountains of Wyoming and Colorado have produced greatly reduced runoffs into the headwaters of the South Platte and North Platte rivers for most years since about 2000.

By 2004 Lake McConaughy was at a historic low level of 20 percent capacity, and 2005 was the fifth consecutive year in which the amount of water flowing into the lake was less than half its normal inflow. Irrigation restrictions put in place during the summers of 2005 and 2006 brought the reservoir up to about 27

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[2] This "Drought" section is excerpted from a November 2007 essay by *Dr Paul A.. Johnsgard* that appeared in Prairie Fire Copyright 2007-2008 Prairie Fire Enterprises, LLC, 7312 Sherman Street Lincoln, NE 68506. The complete article can be found at: http://www.prairiefirenewspaper.com/2007/11/the-platte

percent of its maximum capacity by late 2007, when lake inflow rates were about one-third the normal.

As a result of continued drought problems, Nebraska's DNR banned further well drilling in the central Platte Valley as of September 2004. In 2005, for the first time in its 65-year history, the Central Nebraska Pubic Power and Irrigation District (CNPPID) reduced the amount of water its customers could receive, and shortened the summer irrigation period by four weeks. Allocations in the district were reduced varying amounts from a full allotment of 18 inches of water per year, with a proposed 2008 allotment of 6.7 inches for 2008.

Considering all these factors, namely the extended drought, increased upstream surface-water diversions, and the largely uncontrolled and unreplenished groundwater extractions, it is not surprising that even the Platte River has proved to have its limits. For several weeks during the summer of 2002 the river completely dried up along a 70-mile stretch between Grand Island and Columbus, leaving uncountable thousands of dead fish and other aquatic life rotting on the drying sand channels. Comparable channel drying has occurred every summer along this stretch from 2002 through at least 2006, although flows were later restored after nearby irrigation wells were turned off.

Although its current situation is precarious, the future of the Platte River need not blindly follow the path to near-oblivion... In 1994 the U.S. Fish and Wildlife Service decided to impose certain restrictions on Platte water use in order to protect four nationally threatened or endangered species that use the basin's natural resources. It required all large water users, primarily irrigators, to assure that sufficient water is available to protect the habitats of the whooping crane, least tern, piping plover and pallid sturgeon. The habitats of three of these rare or endangered species, all but the pallid sturgeon, are mostly concentrated in the central Platte Valley, while the sturgeon uses only the downstream stretch close to the Missouri confluence.

As a result, a consortium of persons representing diverse interests in the Platte Basin's water and natural environments came together to try find a way to equitably share the Platte's waters among a host of competing interests. The result was a much-debated compromise. The Platte River Cooperative Agreement, or Platte River Recovery Plan, was initially approved in 1997 as a three-year planning guide. As a part of a related and long-negotiated relicensing agreement for Kingsley Dam in 1998, the reservoir's operators agreed to set aside 10 percent of the storable inflows of Lake McConaughy (averaging about 100,000

acre-feet in normal years) as an Environmental Account. This water would be released for maintaining wetland habitats of the central Platte Valley when needed.

Parties involved in developing the cooperative agreement for managing the overall Platte River basin included representatives of the federal government, Colorado, Wyoming, Nebraska, in-state natural resources districts and irrigation districts, and various national and state environmental groups.

In 2003 the National Academy of Sciences was asked to review the 1997 Platte River Recovery Plan. The academy judged that the plan addressed the needs of the four threatened species as required by the Endangered Species Act. More importantly, the academy's approval basically undercut the many objections of irrigation interests, who had claimed in part that the central Platte Valley does not actually constitute critical habitat for the whooping crane, owing to habitat degradation that they themselves had largely caused.

In essence, the recovery plan would fulfill the basic requirements of the Endangered Species Act. Its primary function would add and restore 29,000 acres of additional wetland habitats in the central Platte Valley. Some 10,000 acres are scheduled for such acquisition in this region during the first 13 years of the agreement.

The Platte's 80-mile "Big Bend" stretch between Lexington and Chapman is historically the single most important spring and fall staging area for migrating whooping cranes. Besides its importance to whooping cranes, the Platte's Big Bend stretch is also the single most important segment for seasonal use by waterfowl, shorebirds and other migratory birds, and an important breeding area for both the least tern and piping plover.

In addition to its basic habitat goal of acquiring 10,000 new acres of crane and wetland habitats, the Platte River Recovery Plan would also manage, lease or secure an additional 19,000 acres of open channels or other riverine habitats in the same region. These would include lands already owned by the Platte River Whooping Crane Habitat Maintenance Trust, the Nebraska Game and Parks Commission, The Nature Conservancy and the National Audubon Society. Lands thus acquired would be managed in such a way as to minimize harm to neighboring landowners. Furthermore, annual shortages to U.S. Fish and Wildlife Service target flow rates in the Platte River would be reduced by

130,000–140,000 acre-feet through enhanced upstream storage in several reservoirs, such as Lake McConaughy, with the water to be released as needed. Lastly, land would be leased or acquired only from willing sellers, and acquisitions will not result in losses from the local tax bases. Water projects built prior to 1997 would be given "grandfather" protection so as not to conflict with provisions of the Endangered Species Act.

To cover associated costs, the federal government will pay for as much as half of the approximate $320 million program, with the three states contributing the remainder through a combination of cash, land or water. Nebraska's share of the total cost is to be provided by land and water contributed by the Nebraska Public Power District and the Central Nebraska Public Power and Irrigation District. However, Nebraska will be also required to reduce existing stream flow depletions to the 1997 level in order to offset water "depletions" resulting from irrigation wells drilled between the initial 1997 preliminary agreement and the final multi-state approval of the Platte River Recovery Plan a decade later. Irrigation interests offered endless objections to the Platte River recovery plan, with four of Nebraska's NRDs firmly opposed to it. The Central Platte NRD even considered initiating a lawsuit that would attempt to remove the whooping crane from the list of federally endangered species. However, it was made clear to all the irrigation interests that, should they fail to agree to its terms, any number of federally funded projects such as dams, reservoirs and hydroelectric plants would receive close scrutiny to make certain that current activities did not jeopardize any endangered species or their habitats.

With the threat of expensive environmental surveys looming and potentially crippling alterations possibly required of their activities, the irrigation interests finally reluctantly agreed to comply. In the fall of 2006 all three governors signed on, and the secretary of interior also added his approval a few weeks later. After the first 13 years, the entire Platte River Recovery Implementation Program will be evaluated for renewal. Additionally, the governors of any of the three cooperating states can unilaterally withdraw from the program at any time.

The future of the Platte River lies primarily in the hands of Nebraskans.

Project Description

The Kingsley Dam Project (FERC # 1417), consists of dams, reservoirs, canals, and powerplants. The 3-mile long Kingsley Dam, on the North Platte River,

impounds Lake McConaughy, which has a surface area of 30,500 acres and a maximum allowable storage capacity of 1,790,000 acre-feet.

Kingsley Hydro, a 51.9-MW single-turbine hydroelectric plant, abuts Kingsley Dam and discharges to Lake Ogallalla. The Central (or Tri-County) Diversion Dam, located 50 miles downstream of Kingsley Dam at the confluence of the North Platte and South Platte Rivers, diverts Platte River flow into the 75-mile-long Supply Canal, which incorporates 27 dams and impoundments and three 18-MW hydroelectric facilities (Jeffrey, Johnson No. 1, and Johnson No. 2).

There are ten dams and impoundments in the Jeffrey section of the Supply Canal. The dimensions of each dam, the normal maximum surface area of water and the normal maximum surface elevation are provided in Table 1.

Table 1 -Dams and Reservoirs of the Supply Canal

Miles Below Diversion	Dam/Reservoir	Height (ft.)	Crest Length (ft.)	Crest Width (ft.)	Approx-imate Freeboard (ft.)	Approximate Surface Area (acres) (1)	Normal Maximum Surface Elevation (ft msl) (2)
Jeffrey Section							
0.0	Diversion Dam	8.0	874.0	NA	NA	NA	2770.7
9.5	Box Elder	33.0	595.1	12.0	5.0	19.0	2764.5
12.8	Cottonwood	31.5	774.0	24.0	5.2	33.0	2763.3
13.5	East Cottonwood	26.0	273.0	12.0	5.2	2.0	2763.1
14.8	Target Canyon	30.5	380.0	12.0	5.2	18.0	2762.8
15.6	Little West Snell	26.0	214.0	12.0	5.0	<1.0	2762.6
15.8	West Snell	36.6	552.0	16.0	5.0	12.0	2762.6
16.4	Middle Snell	25.0	213.5	12.0	5.0	2.0	2762.5
17.7	Snell	25.0	853.7	24.0	5.0	53.0	2762.1
20.0	West Conroy	25.0	285.0	12.0	5.0	3.0	2761.4
22.8	Jeffrey	70.0	1034.0	20.0	8.0	595.0	2760.0
Johnson Section							
40.8	Hiles	25.0	501.7	12.0	5.0	22.0	2634.6
42.7	Jensen	18.0	572.0	12.0	5.8	17.0	2633.2
46.1	Brown	25.0	353.7	12.0	5.1	0.0	2632.6
47.5	West Midway	38.0	878.0	20.0	6.1	150.0	2632.4
47.9	Henderson	20.0	254.2	12.0	5.0	6.0	2632.3

48.3	Central Midway	60.0	851.4	12.0	7.0	325.0	2632.3
50.5	Walker	43.0	550.0	16.0	5.2	48.0	2631.9
51.0	Glen Young	53.0	560.7	20.0	5.3	82.0	2631.8
51.5	Schmeeckle	59.0	952.7	18.0	5.4	24.0	2631.7
52.0	Dead End	22.0	192.0	12.0	5.5	0.0	2631.6
56.7	Gallagher	54.4	643.5	20.0	6.0	182.0	2631.1
60.8	Plum Creek	74.0	1794.2	20.0	7.1	263.0	2630.4
64.5	Johnson	47.0	4985.0	20.0	10.0	2266.0	2621.0
Below Johnson							
67.1	Phillips	43.0	354.0	12.0	6.3	29.0	2509.7
68.1	Middle Phillips	29.0	316.0	12.0	6.5	7.0	2509.5
68.9	East Phillips	63.0	618.0	16.0	6.6	142.0	2509.4
71.3	Knapple	33.0	328.0	12.0	7.0	38.0	2509.0

(1) Surface area data taken from digitized aerial photos taken in 1999.
(2) Elevations are in reference to datum of The CNPP ID.

All of the dams, except for Jeffrey Dam, are very similar in design. They are compacted earth-fill dams with a 3:1 slope on both faces of the dam and a 10-foot wide berm on the upstream face located 5 feet below the normal maximum water surface. Each dam has a 12-inch gravel blanket from the upstream toe to the top of the berm. Above the berm, each dam is faced with a 6-inch gravel blanket and overlaid with a minimum of 9 inches of rock riprap. Cottonwood and Snell dams are faced with a minimum of 15 inches of riprap. Each dam was constructed with a core trench and a 24-inch gravel blanket toe drain.

Reinforced concrete siphonic spillway structures (Table 2) are located in canyon areas where heavy storm runoff from canyon drainage may occur. Each siphon will operate when the Supply Canal rises approximately two feet above the normal water surface. A concrete-lined outfall is located below each structure.

TABLE 2- SIPHONIC SPILLWAYS OF THE SUPPLY CANAL

Miles Below Diversion	Dam/Reservoir	Number and Size of Barrels	Flow line Elevation (ft msl)	Siphon Outlet Elevation (ft msl)	Flow Line Elevation at End of Outfall (ft msl)
5.7	Not Applicable	6-4'x10'	2747.96	2757.96	2757.56
9.6	Box Elder	7-4'x10'	2746.52	2746.77	2735.70

12.5	Cottonwood	6-4'x10'	2745.48	2743.98	2737.95
17.6	Snell	8-4'x10'	2744.11	2746.11	2742.67
40.7	Hiles	3-4'x10'	2617.14	2618.14	2613.57
47.6	West Midway	4-4'x10'	2613.90	2609.65	2607.05
48.2	Central Midway	4-4'x10'	2613.90	2609.65	2603.55
56.6	Gallagher	2-4'x10'	2613.63	2608.38	2598.38

The Kingsley Hydro Plant contains one 51,900-kW turbine and one 59,470-kW generator, with an installed capacity of 51,900 kW. The Jeffrey Hydro Plant contains two 9,750-kW turbines and two 9,000-kW generators, with a installed capacity of 18,000 kW. The Johnson No. 1 Hydro plant contains 9,750 kW turbines and two 9,000-kW generators, with an installed capacity of 18,000 kW. The Johnson No. 2 Hydro plant contains one 18,750-kW turbine and one 18,000-kW generator, with an installed capacity of 18,000 kW. The total installed capacity of the project is 105,900 kW.

Kingsley Dam on the North Platte River impounds the 21-mile long, 30,500-acre Lake McConaughy in Keith and Garden Counties. The Kingsley hydroelectric power plant (Kingsley Hydro), with a best gate capacity of 33,000 kW, is located downstream of the right abutment of Kingsley Dam. Just below Kingsley Dam is the 1.5-mile long Lake Ogallala, which was the borrow pit for the sand and gravel materials used in the downstream outer shell of the dam. The "east arm" of Lake Ogallala is in FERC Project No. 1835, licensed to Nebraska Public Power District (NPPD).

The Project resumes at Central's Diversion Dam that is located approximately 50 miles downstream from Kingsley Dam at the confluence of the North Platte and South Platte Rivers near North Platte, Nebraska. The Diversion Dam diverts water into the 75.5-mile long Supply Canal (also known as the "Tri-County Canal") that follows the contours of the hills and canyons that define the southern edge of the Platte River valley. There were, originally, 27 impoundments ranging in size from less than one surface acre to 2,266 surface acres of water along the Supply Canal (Table 1), however, several of the smaller, shallower impoundments have filled with sediment and vegetation and are no longer distinguishable from the remainder of the Supply Canal.

The Supply Canal carries water for three hydroelectric generating plants having an aggregate best gate capacity of 53,342 kW. It also furnishes water to three non-project irrigation canals owned by Central that serve approximately 108,000 aces in Gosper, Phelps, and Kearney Counties, Nebraska as well as furnishing water directly from the Supply Canal to approximately 5,600 acres in Lincoln and Dawson Counties, Nebraska. Additionally, the Supply Canal delivers water to the lower end of the Thirty-Mile Canal Company's system and furnishes cooling water for the Canaday Steam Electric Station, which is a 108 MW natural gas and/or oil-fired power plant owned by NPPD.

Regulatory Background

Prior to the Kingsley FERC Relicensing, the Endangered Species Act (ESA) had stopped or slowed the development of Platte river water projects, but had not been used to restrict the water use of existing Platte river appropriators to protect endangered species. This changed with the FERC relicensing of Kingsley dam. At the beginning of the relicensing process, the power districts operating Kingsley dam fought the ESA restrictions on project operation. After a legal setback requiring interim water releases for habitat maintenance, the State of Nebraska entered the relicensing negotiations, and proposed the "environmental account." This broke the negotiating log jam, and provided Nebraska's water contribution to what would become the Platte River Cooperative Agreement.

CNPPID and the Nebraska Public Power District (NPPD) cooperatively operate the Kingsley Dam-Lake McConaughy system as a hydroelectric generation and irrigation water supply project. Water stored behind Kingsley Dam in the 1.7 million acre feet (MAF) Lake McConaughy near Ogallala is used for hydroelectricity production throughout the year. Central has installed three hydro facilities to generate power off water routed through Central's canal system. During the irrigation season some water is diverted from hydropower production for irrigation purposes. Significantly, project

power returns enter the Platte River just above the endangered species critical habitat. Approximately one-third of the average annual inflow into Lake McConaughy is diverted for surface irrigation of over 200,000 acres. An estimated 300,000 additional acres are irrigated from a ground water mound resulting from project operations (canal leakage and seepage from gravity irrigation). Lake McConaughy is managed as a fishery resource and is a significant recreational resource with 600,000-720,000 annual visitors, seventy-four percent of which are out-of-state.

Kingsley dam and Lake McConaughy were constructed as Works Progress Administration projects during the Great Depression of the 1 9 3 0's. The two fifty-year federal hydropower licenses for Kingsley expired June 29 and July 30, 1987. Central and NPPD filed two days before the 1987 deadline. FERC subsequently determined that the districts's relicensing application was deficient in not adequately dealing with wildlife habitat maintenance and enhancement.

Central and NPPD subsequently requested that FERC allow them to delay submitting amended applications meeting these objections until after the Platte River Management Joint Study conducted by the FWS and the Bureau had been completed. FERC ruled in January 1986 that the districts would have until 120 days after the completion of the Joint Study to correct the deficiencies in their Kingsley relicensing application.

By April 1987 another fifteen months passed, the Joint Study was not completed, and the original Kingsley hydropower licenses were about to expire. This meant that FERC would issue annual operating licenses "under the terms and conditions of the original license." This requirement for obtaining annual operating permits gave the Whooping Crane Trust the opportunity to request that environmental conditions be established for those annual operating Licenses.

The Trust requested FERC to conduct administrative hearings to determine whether interim habitat maintenance requirements should be included in the annual operating license granted for Kingsley. The Trust did not specify what streamflow conditions it sought but requested FERC to hold administrative hearings on what habitat mitigation conditions might be established. FERC refused the Trust's request on two grounds:

> (1) that it was not authorized to establish new conditions in annual licenses, and that such conditions were appropriate only in the new fifty-year license, and
> (2) that there was insufficient information (pending

completion of the Joint Study) upon which to base interim habitat maintenance requirements.

However FERC did acknowledge the slow pace of completing the Joint Study and ordered Central and NPPD to submit their amended application May 5, 1990 whether the Joint Study was completed or not. At which time relicensing proceedings would begin. FERC also issued annual operating licenses for Kingsley until May 5, 1990, but with no habitat mitigation conditions.

The federal District of Columbia Circuit Court of Appeals reversed FERC's decision not to consider imposing habitat mitigation requirements on the annual Kingsley operating licenses. The court ruled that FERC's refusal to even consider imposing interim environmental conditions on annual licenses was arbitrary and capricious. The court's decision returned the FERC order granting the Kingsley annual licenses back to FERC for reconsideration of interim habitat maintenance requirements.

Pursuant to the May 18, 1989 federal court order, FERC considered whether to impose instream flow requirements on Central's and NPPD's annual operating licenses. NPPD's hydropower license reserved to the federal government the right to establish new operating conditions, while Central's license authorized new conditions only with Central's consent. Thus FERC could order NPPD to meet interim instream flow requirements but not Central (unless Central consented).

On February 14, 1990 FERC required NPPD to meet interim instream flow requirements at Grand Island, based on monthly storage in Lake McConaughy. FERC requested that Central cooperate in meeting the requested flows, which Central subsequently refused to do. Seventy thousand acre feet (KAF) was released by NPPD under the FERC February 14, 1990 interim instream flow requirements.

When NPPD had used up over half of its 125 KAF Lake McConaughy storage to meet the interim instream flow requirements for the 1990 crane spring migration, NPPD received a temporary stay from FERC May 10, 1990 and an indefinite stay May 30, 1990. No interim releases were subsequently sought by the Trust which did not appeal the stay. CNPPID consequently agreed to interim flow releases, and after several years of delay relicensing proceedings began to move more expeditiously.

The interim flow releases fundamentally changed CNPPID's approach towards the relicensing proceeding. The State of Nebraska and Governor Benjamin E. Nelson personally intervened and took a much more active role in relicensing proceedings. The State of Nebraska organized a wide range of Nebraska water interests to negotiate the

Nebraska Plan, which became the foundation for the subsequent Platte Cooperative Agreement.

Cooperative Agreement

I have included the following italicized excerpt written by David Aiken (Professor of Agricultural Economics) University of Nebraska at Lincoln from his paper entitled: Balancing Endangered Species Protection and Irrigation Water Rights: The Platte River Cooperative Agreement, because I believe it is helpful in understanding the size and complexity of the Platte Cooperative Agreement.

The Platte Cooperative Agreement is the latest in a series of negotiated basin-wide settlements dealing with water right and habitat issues. The best known of these basin wide settlements is the CALFED Bay-Delta program, dealing with water right-habitat issues in the San Francisco Bay region. The confluence of the Sacramento and San Joaquin Rivers (the Delta) provides forty percent of California's drinking water supplies, provides irrigation water for more than four million acres, and provides critical habitat for more than 120 fish and wildlife species. Declining fish populations in the Sacramento-San Joaquin Rivers Delta resulted in unsuccessful state efforts to develop a water quality plan to protect fish and wildlife.

Ultimately a joint state-federal partnership (CALFED) evolved to deal with Delta habitat issues. Alternatives were evaluated in phase I, a preferred alternative will be selected and evaluated under NEPA in phase II, and will be implemented in phase III. Between 400 KAF-1.1 MAF of water will be provided for -habitat purposes. If additional water is needed for species recovery it must be acquired on a willing seller basis with federal funds.

Features of the CALFED Delta agreement that foreshadowed development of the Platte Cooperative Agreement include

> *(1) ESA mandates that persuaded irrigators and states to put water on the negotiating table,*
>
> *(2) a long-term process to acquire needed habitat water that includes "adaptive management" to see how species respond to improved habitat, and;*
>
> *(3) regulatory certainty to provide "no surprises," i.e., no additional water requirements should additional endangered species issues emerge in the Delta.*

Significantly, the lead federal negotiator for the CALFED Delta agreement was also the lead federal negotiator for the Platte Cooperative Agreement.

The "Cooperative Agreement for Platte River Research and Other Efforts Relating to Endangered Species Habitats Along the Central Platte River, Nebraska," ("Cooperative Agreement"), was signed by the Governors of Nebraska, Colorado and Wyoming and Department of Interior Secretary Bruce Babbit on July 1, 1997.

The Cooperative Agreement establishes a multistate-federal cooperative effort to develop a basin-wide program (Program) to protect Platte River endangered species from the effects of water development and use. The purposes of the Cooperative Agreement are:

A. implementation of research, analysis and other measures that will benefit the target species and their associated habitats ;

B. implementation of efforts to acquire, restore, and manage land or interests in land so as to provide and improve associated habitats for the target species ;

C. development and implementation of certain water management, conservation and supply measures ;

D. development of a basin-wide program ("Program") to be implemented following evaluation of the Proposed Alternative, and a range of reasonable alternatives in compliance with NEPA and the ESA, the intent of which is to :

(1) secure defined benefits for the target species and their associated habitats to assist in their conservation and recovery through a basin-wide cooperative approach that can be agreed to by the three states and the Department of Interior;

(2) serve as the reasonable and prudent alternative to offset the effects of existing and new water related activities in the Platte River Basin that, in the absence of such a Program, would be found by the FWS to be likely to jeopardize the continued existence of the target species or adversely modify designated critical habitat;

(3) help prevent the need to list more basin associated species pursuant to the ESA; and,

(4) mitigate new water related activities in a state in a manner that will not increase the mitigation responsibilities of other signatory states, with the intent that mitigation will be implemented in the state where the activity occurs; and

E. establishment of a governance structure that will ensure appropriate state government and stakeholder involvement in the completion of NEPA compliance tasks, in the implementation of research and other projects beneficial to the target species and their associated habitats, and in the development of a Program.

If the non-federal parties fulfill their obligations under the Cooperative Agreement, they will be deemed to be in ESA, NEPA, and ESA regulatory compliance and review will occur within the first three years. Upon successful NEPA and ESA review, the Program will be implemented by Interior and the states. If a party withdraws from the Program, or if the Program otherwise fails, Interior will implement Section 7 consultation for all water activities in the basin affecting the critical habitat.

The three states pledge by 2010-2013 to provide 130-150 KAF of water for habitat, to implement mitigation requirements for post-Cooperative Agreement water users (including the regulation of hydrologically connected wells), and to monitor species habitat requirements as the species respond to improved habitat condition. Under the Cooperative Agreement, funding will be provided to implement other voluntary water conservation/supply projects to increase habitat flows by at least 60 KAF annually to achieve the first increment goal of 130-150 KAF increased habitat flows per year.

Public comment: LIHI received no Public Comments

General thoughts and conclusions: This is a very complex and large agriculture/irrigation/hydro project and it is a project with more information than we normally see. It is also unusual in that we were able talk with stakeholders who had been involved in Platte River negotiations for nearly two decades. I spent a fair amount of time talking with these Kingsley Dam veterans and would summarize what they had to say as follows:

The FERC relicensing had initially been a contentious proceeding, but those difficult times were in the past and generally speaking the licensee and other parties have figured out how to work together and accomplish consensus solutions. More than one person described the Applicant's

negotiating style as tough but fair. As far as each stakeholder knew, the Applicant was in compliance with license and settlement terms. Most stakeholders felt they could live with the settlement terms, although some spoke with a little more enthusiasm saying they were satisfied with the results. Most stakeholders were positive about the future and were anxious to do things "on the ground". Finally all stakeholders were frustrated with the drought conditions which have affected the project activities from moving forward as quickly as most would like them to.

Recommendation. Based on my review of information submitted by the applicant, my review of additional documentation, and my extensive consultations with resource agency staff and NGOs, I believe the Kingsley Dam Hydroelectric Project should be certified but I recommend certification with this special condition concerning water quality:

Background - In 2002, Lake Ogallala, a tailrace reservoir below Lake McConaughy, was placed on the state's 303(d) list of impaired water bodies by the Nebraska Department of Environmental Quality (DEQ) due to diurnal seasonal low dissolved oxygen levels. Shortly after the listing, a team was formed with representatives from NPPD, Central, DEQ and the Nebraska Game and Parks Commission (NGPC) to investigate the causes of seasonal low dissolved oxygen levels, initiate development of the total maximum daily load (TMDL) and to see what, if any, measures could be implemented to alleviate or to mitigate the low dissolved oxygen levels.

The team developed a two-part plan to address the low oxygen concerns in Lake Ogallala. Central maintains a minimum D.O. level at the end of its tailrace by bypassing the turbine of the Kingsley Hydroelectric Plant and spraying the water into the air through a bypass valve. In addition, Central monitors DO and temperature at one-meter intervals at five separate stations around the lake on a weekly basis to assure adequate DO. A plan to cut channels through a peninsula and through shallow areas of the lake has been developed and approved by the Army Corp of Engineers through the §404 permitting process.

In discussions with Pat O'Brien, DEQ, he described how the operation of the hydro facilities contributed to the 303d issues at Lake Ogalalla which has significant amounts of sulfates and nutrients at the lake bottom. The stakeholders have been developing a plan to solve the problem and Pat says that planning effort is a model for a 303d/TMDL success story. He was quick to point out that they have been working on this plan for six years. He describes this as extremely complex challenge with each stakeholder having their interests.

The implementation of the plan, which includes constructing a channel to remove sediments, has been held up due to the Army Corp of Engineers taking quite a bit of time to process the §404 dredge and fill permit. He is hopeful that the proposed mitigation will resolve the 303d issues. He pointed out that one of the reasons he is optimistic about the Plan's ability to solve

these issues that the shear size of the project focused on 303d concerns has allowed stakeholders to have significant scientific resources dedicated to solving the problem. Not many 303d planning efforts would be of this size. He also said that they should know whether the issue is solvable within 5 years.

Based on these factors, my recommended condition is for the Applicant to file Annual updates on the Lake Ogallala Mitigation effort and to have resolved the 303d/TMDL issues by the time this certification expires in 5 years. In addition, LIHI staff would do follow-up with DEQ Annually and report back to the Board with status reports and recommendations.

Prepared by Fred Ayer and submitted on December 11, 2008 for LIHI Governing Board action at the December 18, 2008 LIHI Board Meeting.

LIHI HYDROPOWER CERTIFICATION CRITERIA

Goals, Standards and Applicant's Responses

The Low Impact Hydropower Institute certifies those hydropower facilities that meet its eight criteria:

A. River Flows:

***Goal**: The facility (dam and powerhouse) should provide river flows that are healthy for fish, wildlife, and water quality, including seasonal flow fluctuations where appropriate.*

***Standard**: For instream flows, a certified facility must comply with recent resource agency recommendations[3] for flows. If there were no qualifying resource agency recommendations, the applicant can meet one of two alternative standards: (1) meet the flow levels required using the Aquatic Base Flow methodology or the "good" habitat flow level under the Montana-Tennant methodology; or (2) present a letter from a resource agency prepared for the application confirming the flows at the facility are adequately protective of fish, wildlife, and water quality.*

A. Flows:

Criteria

1) Is the facility in Compliance with Resource Agency Recommendations issued after December 31, 1986 regarding flow conditions for fish and wildlife protection, mitigation and enhancement (including in-stream flows, ramping and peaking conditions, and seasonal and episodic instream flow variations) for both the reach below the tailrace and all bypassed reaches?

YES *go to B*
NO *fail*
NOT APPLICABLE *go to A2*

2) If there is no flow condition recommended by any Resource Agency for the Facility, or if the recommendation was issued prior to January 1, 1987, is the Facility in Compliance with a flow release schedule, both below the tailrace and in all bypassed

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[3] "recent resource agency recommendations" are defined as final recommendations made by state, federal, or tribal resource agencies in a proceeding, such as a Federal Energy Regulatory Commission (FERC) licensing proceeding. Qualifying agencies are those whose mission includes protecting fish and wildlife, water quality and/or administering reservations held in the public trust. Agencies such as a state or tribal department of fish and game, or the U.S. Fish and Wildlife Service are considered a "resource agency" but the FERC, with its balancing responsibilities, is not. The agency recommendations must be recent, which means they were issued after 1986 (after enactment of the Electric Consumers Protection Act, which amended the Federal Power Act to increase the profile of recommendations from fish and wildlife agencies in the FERC licensing process). If there are a number of resource agency recommendations, then the most stringent (most environmentally protective) is used. In the case of settlement agreements, the final settlement terms will be considered the agency's "recommendation."

reaches, that at a minimum meets Aquatic Base Flow standards or "good" habitat flow standards calculated using the Montana-Tennant method?

YES - The facility is in compliance with all Resource Agency Recommendations regarding flow conditions for fish and wildlife protection, mitigation, and enhancement. Central annually provides 10% of the storable inflows into Lake McConaughy to an Environmental Account. This account can be utilized as desired by the USFWS to augment instream flows, seasonal pulse flows, or to be held in storage to accumulate and be used at a later time. Central meets semi-annually with the USFWS, representatives from the Nebraska Game and Parks Commission (NGPC), Nebraska Department of Natural Resources (DNR), the State of Wyoming, Bureau of Reclamation, and the State of Colorado to discuss the use of the Environmental Account. At times when the USFWS is requesting releases from the Environmental Account, Central is in daily or almost daily contact with the USFWS to schedule those releases.

In addition Central has entered into a J-2 Hydrocycling Agreement with the Service and NGPC on ramping and peaking rates in the Platte River below the J-2 River Return during the spring and fall to reduce risk to cranes, terns, and plovers. Central also has a flow attenuation plan agreed to as part of the license settlement, the purpose of which is to protect ground nesting birds who's nests may otherwise be inundated by sudden river stage changes during the summer months.
YES *go to B*

PASS/FAIL.

A. Flows – The Facility is in Compliance with Resource Agency Recommendations issued after December 31, 1986 regarding flow conditions for fish and wildlife protection, mitigation and enhancement for both the reach below the tailrace and all bypassed reaches. FACILITY PASSES.

B. Water Quality:

Goal: *Water quality in the river is protected.*

Standard: *The water quality criterion has two parts. First, a facility must demonstrate that it is in compliance with state water quality standards, either through producing a recent (after 1986) Clean Water Act Section 401 certification, or demonstrating compliance with state water quality standards (typically by presenting a letter prepared for the application from the state confirming the facility is meeting water quality standards). Second, a facility must demonstrate that it has not contributed to a state finding that the river has impaired water quality under Clean Water Act Section 303(d) (relating to water quality limited streams).*

1) **Is the Facility either:**
a) **In compliance with all conditions issued pursuant to a Clean Water Act Section 401 water quality certification issued for the facility after December 31, 1986? Or**
b) **In Compliance with the quantitative water quality standards established by the state that support designated uses pursuant to the federal Clean Water Act in the Facility area and in the downstream reach?**

YES

The Nebraska Department of Environmental Conservation issued water quality certification for Project No. 1417 on August 30, 1988, with three conditions. Pursuant to Section 401(d) of the Clean Water Act, these conditions are included in the license.

Water Quality Certification Conditions
for the Kingsley Dam Project
Issued August 30, 1988, by the
Nebraska Department of Environmental Conservation

We have reviewed FERC Project No. 1417 for State Water Quality Certification in accordance with Section 401 of the federal Clean Water Act (33 U.S.C. ◎ 1251 et seq.). FERC Project No. 1417 is comprised of Central Nebraska Public Power and Irrigation District's (Central) hydroelectric facilities and appurtenant structures on the North Platte River in Garden and Keith Counties, and on and off streams of the Platte River in Lincoln, Dawson, and Gosper Counties. It is our determination that operation of this project will comply with State Water Quality Standards and the applicable provisions of the federal Clean Water Act subject to meeting the following conditions:

1. At all times, except for the force majeure condition set forth in paragraph 2 below, the site-specific criteria for Lake Ogallalla defined in NDEC's Title 117 shall be maintained (i.e., Title 117, Chapter 4.003.0111).

2. Any failure to comply with Title 117, Chapter 4.003.0111 shall not be deemed noncompliance if such failure is a result of earthquake, flood, or other acts of God, fire, work stoppage, riot, or failure of materials or equipment to be delivered as promised, labor disturbances, equipment failure, strikes, civil disturbances, boycotts, acts of military authority, acts of local authorities, arrests, or other occurrences resulting in impossibility of compliance and such occurrence or noncompliance was beyond the party's control and was not due to a lack of good faith or diligence on the part of the party. Central shall advise NDEC in the event such an occurrence has prevented or may prevent Central from such compliance and shall specify the additional time it needs to bring the Kingsley Hydro back into compliance.

3. During the period of July 1 through October 15, Central shall conduct the following water quality monitoring when Kingsley Hydro is in operation and submit the results to NDEC on a monthly basis:

a) Monitor dissolved oxygen in Lake Ogallalla at the midpoint of the buoy line (1987 location at the outer edge of the stilling basin) at a 1 meter depth every 10 minutes.

b) Monitor dissolved oxygen at the Kingsley Hydro powerhouse every hour, and

c) Monitor water temperature at the Kingsley Hydro powerhouse every hour.

However, we reserve the right to apply our appropriate regulatory authority to various elements of Central's system. Specifically, we will continue to regulate the discharge from Canaday Steam Plant under Section 402 of the Clean Water Act (NPDES permit number NE0000680). It is noted that a Corps of Engineers Section 404 permit for maintenance dredging activities at the North Platte Diversion Dam (NE 258 OXT 2 001311) was reissued on April 26, 1988, and will expire on April 30, 1989. We will apply the appropriate authority under Section 401 for a Section 404 permit or Section 402 for these elements of Central's system as needed to carry out our responsibilities. The same holds true for any future activities which are applicable under Sections 402 and 404 of the federal Clean Water Act or the Nebraska Environmental Protection Act.

We therefore, by this letter, provide Water Quality Certification for FERC Project 1417. The facility is in Compliance with all conditions issued pursuant to the Clean Water Act and Nebraska regulations.

2) Is the Facility area or the downstream reach currently identified by the state as not meeting water quality standards (including narrative and numeric criteria and designated uses) pursuant to Section 303(d) of the Clean Water Act?

YES

In 2002, Lake Ogallala, a tailrace reservoir below Lake McConaughy, was placed on the state's 303(d) list of impaired water bodies by the Nebraska Department of Environmental Quality (DEQ) due to diurnal seasonal low dissolved oxygen levels. Shortly after the listing, a team was formed with representatives from NPPD, Central, DEQ and the Nebraska Game and Parks Commission (NGPC) to investigate the causes of seasonal low dissolved oxygen levels, initiate development of the total maximum daily load and to see what, if any, measures could be implemented to alleviate or to mitigate the low dissolved oxygen levels. The cause of the low D.O.was determined to be pollution entering the lake from upstream waters and not caused by the facility.
Central and the other entities developed a two-part plan to address the low oxygen concerns in Lake Ogallala. Central maintains a minimum D.O. level at the end of its tailrace by bypassing

the turbine of the Kingsley Hydroelectric Plant and spraying the water into the air through a bypass valve. In addition, Central monitors DO and temperature at one-meter intervals at five separate stations around the lake on a weekly basis to assure adequate DO. The studies discussed earlier identified areas in the lake where lack of circulation of lake water contributed to the low D.O. in those areas and subsequent stress on the trout fishery of the lake. A plan to cut channels through a peninsula and through shallow areas of the lake has been developed and approved and is presently undergoing evaluation by the Army Corp of Engineers through the 404 permitting process.

3) If the answer to question B.2. is yes, has there been a determination that the Facility is not a cause of that violation?

NA

In evaluating the potential measures to be implemented, the DEQ issued, for public review, a draft Total Maximum Daily Load and Water Quality Management Plan for Lake Ogellala. The documents provided the public a description of the area, data, research, modeling results and proposed measures that could be implemented to mitigate low dissolved oxygen levels. No comments were received on the notice.

PASS

B. Water Quality – The Facility is in Compliance with all conditions issued pursuant to a Clean Water Act §401 in the Facility area and in the downstream standards (including narrative and numeric criteria and designated uses) pursuant to Section 303(d) of the Clean Water Act. FACILITY PASSES

C. Fish Passage and Protection:

Goal: *The facility provides effective fish passage for riverine, anadromous and catadromous fish, and also protects fish from entrainment.*

Standard: *For riverine, anadromous, and catadromous fish, a facility must be in compliance with recent (after 1986) mandatory prescriptions regarding fish passage (such as a Fish and Wildlife Service prescription for a fish ladder) as well as any recent resource agency recommendations regarding fish protection (e.g., a tailrace barrier). If anadromous or catadromous fish historically passed through the facility area but are no longer present, the applicant must show that the fish are not extirpated or extinct in the area because of the facility and that the facility has made a legally binding commitment to provide any future fish passage recommended by a resource agency.*

When no recent fish passage prescription exists for anadromous or catadromous fish, and the fish are still present in the area, the facility must demonstrate either that there was a recent decision that fish passage is not necessary for a valid environmental reason, that existing fish passage survival rates at the facility are greater than 95% over 80% of the run, or provide a letter prepared for the application from the U.S. Fish and Wildlife Service or the National Marine Fisheries Service confirming the existing passage is appropriately protective.

1) **Is the facility in compliance with Mandatory Fish Passage Prescriptions for upstream and downstream passage of anadromous and catadromous fish issued by Resource Agencies after December 31, 1986?**

YES go to C5
NOT APPLICABLE go to C2
NO fail

2) **Are there historic records of anadromous and/or catadromous fish movement through the facility area, but anadromous and/or catadromous fish do not presently move through the Facility area (e.g., because passage is blocked at a downstream dam or the fish run is extinct)?**

YES *Go to C2a*
NO *Go to C3*

   a) **If the fish are extinct or extirpated from the Facility area or downstream reach, has the Applicant demonstrated that the extinction or extirpation was not due in whole or part to the Facility?**

   b) **If a Resource Agency Recommended adoption of upstream and/or downstream fish passage measures at a specific future date, or when a triggering event occurs (such as completion of passage through a downstream obstruction or the completion of a specified process), has the Facility owner/operator made a legally enforceable commitment to provide such passage?**

YES *Go to C2b*
N/A *Go to C2b*
NO *fail*

3) **If, since December 31, 1986:**

a) **Resource Agencies have had the opportunity to issue, and considered issuing, a Mandatory Fish Passage Prescription for upstream and/or downstream passage of**

anadromous or catadromous fish (including delayed installation as described in C2a above), and

b) The Resource Agencies declined to issue a Mandatory Fish Passage Prescription,

c) Was a reason for the Resource Agencies' declining to issue a Mandatory Fish Passage Prescription one of the following: (1) the technological infeasibility of passage, (2) the absence of habitat upstream of the Facility due at least in part to inundation by the Facility impoundment, or (3) the anadromous or catadromous fish are no longer present in the Facility area and/or downstream reach due in whole or part to the presence of the Facility?

NO *Go to C5*
N/A *Go to C4*
YES *fail*

5) Is the Facility in Compliance with Mandatory Fish Passage Prescriptions for upstream or downstream passage of riverine fish?

YES *Go to C6*
NO *fail*
If NOT APPLICABLE *go to C6*

6) Is the facility in Compliance with Resource Agency Recommendations for Riverine, anadromous and catadromous fish entrainment protection, such as tailrace barriers?

YES *Pass, go to D*
NO *fail*
NOT APPLICABLE *Pass go to D*

PASS/FAIL

C. Fish Passage and Protection – The facility is in Compliance with Mandatory Fish Passage Prescriptions for upstream and downstream passage of anadromous and catadromous fish issued by Resource Agencies after December 31, 1986 - FACILITY PASSES.

D. Watershed Protection:

***Goal**: Sufficient action has been taken to protect, mitigate and enhance environmental conditions in the watershed.*

***Standard**: A certified facility must be in compliance with resource agency recommendations and FERC license terms regarding watershed protection, mitigation or enhancement. These may cover issues such as shoreline buffer zones, wildlife habitat protection, wetlands protection, erosion control, etc. The Watershed Protection Criterion was substantially revised in 2004. The revised criterion is designed to reward projects with an extra three years of certification that have: a buffer zone extending 200 feet from the high water mark; or, an approved watershed enhancement fund that could achieve within the project's watershed the ecological and recreational equivalent of land protection in D.1. and has the agreement of appropriate stakeholders and state and federal resource agencies. A Facility can pass this criterion, but not receive extra years of certification, if it is in compliance with both state and federal resource agencies recommendations in a license approved shoreland management plan regarding protection, mitigation or enhancement of shorelands surrounding the project.*

1) Is there a buffer zone dedicated for conservation purposes (to protect fish and wildlife habitat, water quality, aesthetics and/or low-impact recreation) extending 200 feet from the high water mark in an average water year around 50 - 100% of the impoundment, and for all of the undeveloped shoreline

NO *go to D2*

2) Has the facility owner/operator established an approved watershed enhancement fund that: 1) could achieve within the project's watershed the ecological and recreational equivalent of land protection in D.1.,and 2) has the agreement of appropriate stakeholders and state and federal resource agencies?

NO *go to D3*

3) Has the facility owner/operator established through a settlement agreement with appropriate stakeholders and that has state and federal resource agencies agreement an appropriate shoreland buffer or equivalent watershed land protection plan for conservation purposes (to protect fish and wildlife habitat, water quality, aesthetics and/or low impact recreation)

NO *Go to D4*

4) Is the facility in compliance with both state and federal resource agencies recommendations in a license approved shoreland management plan regarding protection, mitigation or enhancement of shorelands surrounding the project.

YES There are no "buffer zones" extending 200 feet from the high water mark, however, Central has a FERC-approved Shoreline Management Plan that identifies safeguards in regard to development, use, and wildlife protection along the entire shore of the facilities. Included in

that plan are setbacks from the water's edge where construction is not allowed, recreational areas where further development is limited, constraints on land use that may result in point source pollution, and species protection zones where habitat for species of concern (endangered species and bald eagles) are located.

In addition, a large portion of the facility's shoreline is under a no-fee management lease to the NGPC.

Central is obligated to comply with the terms and conditions of its FERC license. Those license conditions establish limitations and criteria and require specific actions and approvals that directly affect Central's administration of the lands it owns within the FERC Project Boundary, which can be roughly described as a line surrounding all of the project reservoirs, canal, dams, and other critical project equipment and facilities.

This Plan was developed to meet Central's responsibilities and objectives as a FERC licensee and as a landowner. For that reason, the Plan addresses lands within Central's Right of Way, that is, lands in the Project vicinity owned by Central, as well as those lands which are located within the defined FERC Project Boundary which is shown in the Project FERC license documentation and in this Plan. By this definition, Central's "Right of Way" as used in this Plan includes all the lands within the hydropower project boundary. When the term "Project Boundary" appears in this Plan, it refers only to those lands that are actually circumscribed by the boundary line in the FERC license.

The Plan sets forth goals, policies, general procedures and standards developed to support consistent land management actions and decisions and to function as an information and management tool for Central and for individuals, organizations or agencies that may wish to develop land or facilities or to change specific land uses, including recreation, within Central's Right of Way. The Plan protects the existing resources, uses and values of the Project by establishing a comprehensive framework for the processes, procedures and standards to which Central will adhere when changes in recreation, land or shoreline use are proposed.

Central developed this Plan in active consultation with the United States Fish and Wildlife Service, the Nebraska Game and Parks Commission, and local governments and people. The Plan development process was initiated in mid-1999. Central met with interested parties including shoreline property and homeowners, local governments and resource agencies. Meetings were held to identify issues and concerns and to enable Central to consider the perspective of various interested parties. The Plan reflects the outcome of that consultation process. The agency comments regarding the initial draft Plan, and Central's responses to them, are included in this document.

The Plan is organized into nine sections and three Appendices. Section 6 of the Plan is also designed to serve as the Project Recreation Report for FERC license compliance purposes and is separable from the rest of the document. The Plan discusses the process Central used to develop this Plan; describes and categorizes Project land uses at Plan inception; identifies development constraints and opportunities within the Project Boundary; defines Central's fundamental land

management philosophy and implementation strategies; and offers guidance on the standards for evaluating and conditioning authorizations for use of Central's lands in the future. The Appendices to the Plan are intended to be supporting documents, not subject to the Amendment process. The reference information in the Appendices will be updated appropriately as changes occur over time.

In the Plan, Central describes the overall goals it has adopted to guide its land and shoreline management efforts as to:

· Ensure continued reasonable public access to the lands and waters of the Project.

· Provide for a diversity of public recreational opportunities throughout the Project.

· Protect and manage the significant existing natural and man-made resources of the Project, including environmental resources and recreation opportunities.

· Evaluate the potential impact of all proposals for land use change on surrounding Project and non-Project lands, and balance potential benefits and impacts with the benefits and impacts of existing uses.

· Evaluate all proposed changes in use and/or occupancy of Central's lands to assure they are consistent with the purposes of protecting and enhancing the scenic, recreational, and other environmental values of the Project.

· Support and provide, where consistent with the other goals, economic development opportunities within the Project and region.

Organization of the Plan

The Plan is organized into the following sections:

Section 1. Introduction – The introduction to the Plan includes an overview of the regulatory basis for the Plan, a description of Central's Kingsley Dam Project area, a basic discussion of the purpose of the Plan, and this general outline of the main elements of the Plan document.

Section 2. The Planning and Consultation Process – This section discusses Central's overall approach to and schedule for the public and agency consultation used to develop the Plan.

Section 3. Shoreline Management / Responsibilities and Activities – This section describes Central's regulatory and stewardship responsibilities for the Project and the roles and responsibilities of other agencies and local governments.

Section 4. Land and Shoreline Use – This section describes the project shorelines, land development and ownership patterns, development opportunities and constraints, proposed

developments, and the process to obtain approval for a new development or a change in use on Project lands.

Section 5. Implementation Strategies – This section describes Central's overall land and shoreline management philosophy, specific "Shoreline Management Strategies" and management standards and procedures.

Section 6. Recreation Plan – This section identifies existing and proposed public and private recreation opportunities within Central's Project Boundary. This section is also intended to serve as the Project Recreation Report.

Section 7. Plan Amendments and Updates – This section discusses fulfillment of the requirements for periodic evaluation and reporting on the least tern and plover nesting protection, bald eagle nesting and roosting, and aquatic resource protection measures described in the license, the development and filing of updates to the Land and Shoreline Management Plan, and the specific procedures and consultation that will be undertaken to amend or modify the Plan once it has been initially approved by FERC.

Section 8. Public Comments and Agency Consultation – This section includes a summary of the resource topics and comments received from the agencies during consultation and raised at the public meetings. Summaries of the comments and recommendations received during formal agency review and the public hearings are also included, as is a discussion of Central's response to those comments and recommendations. Copies of written comments or summaries of transcribed oral comments are included in Plan Appendix II.

Section 9. Maps and Illustrations - This section includes maps and drawings illustrating the resource utilization classifications.

PASS

D. Watershed Protection – The facility is in compliance with both state and federal resource agencies recommendations in a license approved shoreland management plan regarding Protection, mitigation, and enhancement of shorelands surrounding the Project - FACILITY PASSES

E. Threatened and Endangered Species Protection:

***Goal**: The facility does not negatively impact state or federal threatened or endangered species.*

Standard: *For threatened and endangered species present in the facility area, the facility owner/operator must either demonstrate that the facility does not negatively affect the species, or demonstrate compliance with the species recovery plan and any requirements for authority to "take" (damage) the species under federal or state laws.*

Threatened and Endangered Species Protection:

1) **Are threatened or endangered species listed under state or federal Endangered Species Acts present in the Facility area and/or downstream reach?**

YES There are both threatened and endangered species as well as species of concern in the facility area and downstream. The facility is in compliance with all aspects of the Recovery Plan for the threatened Great Plains population of piping plovers (*Charadrius melodus*), the endangered Interior least tern (*Sterna antillarum*), the recently de-listed American bald eagle (*Haliaeetus leucocephalus)*, and downstream only, the endangered Pallid Sturgeon (*Scaphirhynchus albus)*.

As part of its license (Article 421), and Shoreline Management Plan, Central is providing protection for piping plovers and least terns along the shores of its facilities as well as perch and roost trees for bald eagles. According to the USFWS designation of Critical Habitat, this level of protection was sufficient for piping plovers to preclude the shoreline of Lake McConaughy from designation as critical habitat. The 2002 Draft of Piping Plover Critical Habitat stated the following:

> "The shoreline along Lake McConaughy, Nebraska, was not included as critical habitat due to the existence of two draft conservation management plans developed by the Central Nebraska Public Power and Irrigation District to satisfy a Federal Energy Regulatory Commission (FERC) relicensing requirement for Project No. 1417. The ``Land and Shoreline Management Plan'' and the ``Management Plan for Least Terns and Piping Plovers Nesting on the Shore of Lake McConaughy'' were developed in coordination and in agreement with the Service and the Nebraska Game and Parks Commission. Both plans are being implemented on an interim basis while awaiting FERC approval. We believe that implementation of these conservation management plans is consistent with piping plover recovery. Therefore, this area is not in need of special management and does not meet the definition of critical habitat. If conservation management plans are in place and meet the following three criteria, then we may exclude these areas from critical habitat. These conservation plans must (1) Provide a benefit to the species; (2) include implementation assurances; and (3) include features, such as an adaptive management plan, that will assure effectiveness. Therefore, despite the presence of nesting piping plovers at this site, it is eligible for exclusion from critical habitat on the basis of having conservation management plans that specifically address the conservation and

recovery of the piping plover. We have been informed that FERC will be finalizing the plans in the near future."

Central protects least terns in the same fashion. In addition to protection and management along facility shorelines, as per License Article 420, Central manages habitat for piping plovers and least terns at three locations on the river downstream and participates in tern and plover monitoring along with the Nebraska Public Power District, the Central Platte Natural Resources District, NGPC, and the USFWS downstream of the facility.

Central has also purchased, has a long-term lease with option to buy, and owns easements on a total of approximately 5,000 acres of riverine property dedicated to the protection, development, and enhancement of habitat for whooping cranes, least terns, piping plovers, sandhill cranes, and migratory waterfowl in the North Platte and Platte River valleys. These properties are: The Kelly Ranch, a 507-acre tract along the North Platte River under a 40-year easement with The Nature Conservancy. The Jeffrey Island Habitat Area, approximately 4,200 acres under a 17-year lease with an option to purchase contract along the Platte River.

Central is an active member in the Platte River Recovery Implementation Program (Program), a program to aid the recovery of whooping cranes, least terns, piping plovers, and pallid sturgeon. The Program is a cooperative effort between the States of Wyoming, Colorado, and Nebraska and the U.S. Department of the Interior.

Central was a member of the Lower Platte Pallid Sturgeon/Sturgeon Chub Task Force. This Task Force provided funding through the NGPC to the University of Nebraska-Lincoln for research on pallid sturgeon habitat availability and use of the lower Platte River. *Endangered and Threatened Species of the Platte River*, published by the National Research Council of the National Academes (2005) stated (page 238), "For those reasons, the committee concluded that current habitat conditions in the lower Platte do not adversely affect the likelihood of survival or recovery of the pallid sturgeon."

The facility has an incidental take permit for disturbing roosting whooping cranes as part of its J-2 Hydrocycling agreement with the USFWS.

Central's Biological Opinion on the operation of the facility is accompanied by a FERC license and it is consistent with the recovery plans for the indicated species.

The whooping crane, piping plover, and interior least tern, which are listed as threatened or endangered under the federal ESA, use the Central Platte River Valley in Nebraska. The pallid sturgeon, which occurs in the Lower Platte River between its confluence with the Elkhorn and its confluence with the Missouri River, is also listed as endangered. Together, these four species are the "target species" for the conservation partnership.

The waters of the Platte River serve the people of Wyoming, Colorado, and Nebraska in many ways. Federal and non-federal water projects in the Platte River Basin, including 15 major

dams, provide municipal and industrial water supplies for about 3.5 million people, irrigate millions of acres of farmland, and generate millions of dollars of hydroelectric power. These projects also provide flood control, recreation, and fish and wildlife habitat.

The U.S. Fish and Wildlife Service has concluded that suitable habitat for the target threatened and endangered species in the Central Platte region has been significantly reduced by these water diversions and other factors, such as highway and bridge construction and other changes in land use that have come with extensive settlement throughout the Platte River Basin.

Under the ESA, federal agencies must ensure that the water projects they operate, or for which they provide federal permits or funds, are not likely to jeopardize the continued existence of any threatened or endangered species or to adversely modify critical habitat. If a project is likely to cause adverse impacts, its operation must be modified or other measures undertaken.

Many water projects in the Platte River Basin are now or soon will be undergoing a review of their impacts on endangered species. These projects include the Bureau of Reclamation's North Platte facilities in Wyoming and western Nebraska and the Colorado-Big Thompson Project in Colorado; the Corps of Engineers' reservoirs in the Denver area; and a large number of private water storage and diversion projects, primarily in Colorado, which require permit renewals from the U.S. Forest Service. Also included are the non-federal hydropower projects in Nebraska and Colorado, including Kingsley Dam, which require license renewals from the Federal Energy Regulatory Commission (FERC).

The signatories to the Cooperative Agreement believe that the best approach to addressing the Endangered Species Act issues in the Central Platte region is a basinwide, cooperative effort to improve and maintain habitat for the target species. The alternative to a basinwide approach would be for each water project to undergo individual review and lengthy proceedings to develop separate measures to help listed species. The signatories believe that a basinwide, cooperative approach will be more effective, efficient, and equitable, and provide greater certainty for water users regarding compliance with the ESA. More details regarding the agreement are found at pages

2) If a recovery plan has been adopted for the threatened or endangered species pursuant to Section 4(f) of the Endangered Species Act or similar state provision, is the Facility in Compliance with all recommendations in the plan relevant to the Facility?

YES *Go to E3*
NOT APPLICABLE *Go to E3*
NO *fail*

3) If the Facility has received authority to Incidentally Take a listed species through: (i) Having a relevant agency complete consultation pursuant to ESA Section 7 resulting in a biological opinion, a habitat recovery plan, and/or (if needed) an incidental take

statement; (ii) Obtaining an incidental take permit pursuant to ESA Section 10; or (iii) For species listed by a state and not by the federal government, obtaining authority pursuant to similar state procedures; is the Facility in Compliance with conditions pursuant to that authority?

YES *Go to E4*
NOT APPLICABLE Go to E5
NO *fail*

4) If a biological opinion applicable to the Facility for the threatened or endangered species has been issued, can the Applicant demonstrate that:

a) The biological opinion was accompanied by a FERC license or exemption or a habitat conservation plan? Or

b) The biological opinion was issued pursuant to or consistent with a recovery plan for the endangered or threatened species? Or

c) There is no recovery plan for the threatened or endangered species under active development by the relevant Resource Agency? Or

d) The recovery plan under active development will have no material effect on the Facility's operations?

YES *Pass, go to F*
NO *fail*

5) If E2 and E3 are not applicable, has the Applicant demonstrated that the Facility and Facility operations do not negatively affect listed species?

YES *Pass, go to F*
NO *fail*

PASS/FAIL

E. Threatened and Endangered Species Protection – Except for the occasional transient no threatened or endangered species or their critical habitat listed under state or federal Endangered Species Acts are present in the Facility area. FACILITY PASSES.

F. Cultural Resource Protection:

Goal: *The facility does not inappropriately impact cultural resources.*

Standard: *Cultural resources must be protected either through compliance with FERC license provisions, or, if the project is not FERC regulated, through development of a plan approved by the relevant state, federal, or tribal agency.*

Criteria:

1) **If FERC-regulated, is the Facility in compliance with all requirements regarding Cultural Resource protection, mitigation or enhancement included in the FERC license or exemption?**

YES Central is in compliance with FERC Article 425 that requires implementation of a "Programmatic Agreement Among the Federal Energy Regulatory Commission, the Advisory Council on Historic Preservation, and The Nebraska State Historic Preservation Officer for Managing Historic Properties That May Be Affected by a License Issuing to the Central Nebraska Public Power and Irrigation District for the Kingsley Dam Hydroelectric Power Project, Project No. 1417." An archaeological and historic inventory of the Project area was done in 1991 by Larson-Tibesar Associates on behalf of Central. Eighteen archaeological sites, one building, and an engineering system were recorded as a result of this inventory. More recent investigations have concluded there are five archaeological sites eligible for the National Register of Historic Places along with the Jeffrey Lodge and the engineering system of the project. Central's Cultural Resources Management Plan includes the guidelines for the protection of historic cultural resources within the project by working closely with the Nebraska State Historical Preservation Society.

YES Pass, go to G

PASS/FAIL

G. Cultural Resources – The Facility is in Compliance with all requirements regarding Cultural Resource protection, mitigation or enhancement included in the FERC license - FACILITY PASSES.

H. Recreation:

Goal: *The facility provides free access to the water and accommodates recreational activities on the public's river.*

Standard: *A certified facility must be in compliance with terms of its FERC license or exemption related to recreational access, accommodation and facilities. If not FERC-regulated, a facility*

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must be in compliance with similar requirements as recommended by resource agencies. A certified facility must also provide the public access to water without fee or charge.

Criteria:

1) If FERC-regulated, is the Facility in Compliance with the recreational access, accommodation (including recreational flow releases) and facilities conditions in its FERC license or exemption?

YES Central is in compliance with FERC Article 421, "Land and Shoreline Management Plan". As a general policy, Central considers all of its shorelines adjacent to the lakes and canal system open to public access, unless an operational safety concern, natural hazard, or environmental protection issue requires access restrictions. Central has leased much of the land within the FERC Project Boundary and adjacent to the lakes to the NGPC, for use as State Recreation Areas or Wildlife Management Areas. As a result, the majority of existing public park, camping, and water access facilities on the lakes are managed by the NGPC. The NGPC requires a permit which applies to all NGPC-managed facilities in the state. Central does not receive any income from the NGPC permits.

Central's project has almost 6,000 acres of land adjacent to District waters that are designated State Recreation Areas. Another 6,800 acres have been set aside as Wildlife Management Areas. The main attraction is the total 35,688 surface acres of water which comprise Central's many lakes and reservoirs.

There are more than 20 campgrounds and 11 areas for recreational vehicles with space for more than 450 RV pads, nine trailer parks and innumerable sites suitable for primitive camping throughout the project. Recreation areas are equipped with picnic tables, grills, water wells and boat ramps. These facilities are available to the public in an area that, for the most part, would otherwise be significantly limited as to water-based recreation were it not for the existence of the project.

YES *Go to G3*

3) Does the Facility allow access to the reservoir and downstream reaches without fees or charges?

YES *Pass, go to H*

PASS/FAIL

G. Recreation – The Facility is in Compliance with all requirements regarding Recreation protection, mitigation or enhancement included in the FERC license and allow access to the reservoir and downstream reaches without fees or charges - FACILITY PASSES.

Facilities Recommended for Removal:

***Goal**: To avoid encouraging the retention of facilities that have been considered for removal due to their environmental impacts.*

***Standard:** If a resource agency has recommended removal of a dam associated with the facility, certification is not allowed.*

1) **Is there a Resource Agency recommendation for removal of the dam associated with the Facility?**

NO *Pass, Facility is Low Impact*

PASS
FACILITY IS LOW IMPACT

RECORD OF CONTACTS WITH RESOURCE AGENCY STAFF

Date of Conversation: April 2, 2008
Application Reviewer: Fred Ayer, Executive Director
Person Contacted: Patrick O'Brien,
Nebraska Department of Environmental Quality (DEQ)

Eric Hixson (Applicant), and I had been discussing his Kingsley Dam filing and although the project looked to be in good shape, there was a question or two regarding a possible 303d issue and Lake Ogallala. I asked Eric if he could send me a list of state agency contacts who would be good sources of information on this subject. He gave me several names but said that the guy to talk with is Patrick Obrien.

I had a chance to explain LIHI's program to Patrick and he in turn, shared some of his thoughts and the issues surrounding Lake Ogallalla and Kingsley Dam. It is clear he is the 303d guy. Lake Ogallalla, is one of the very few cold water lakes, it is also a put and take fishery with a lot of water. In 1997 the lake was "renovated" and lots of great habitat was created that suited the trout, and they did well.

Because of its operation (load following?) there are diurinal fluctuations of oxygen and there have been fish kills and there are differences of opinions as to cause and extent. CNPPID and NPPD have been working with agencies to come up with the appropriate mitigation. Patrick alerted me that there was a cooperative study done recently which deals with mitigation entitled: *Stakeholder Derived Water Quality Management Plan for Lake Ogallala.* The description of the document is: *The desired product of the Lake Ogallala work group is a water quality management plan that will address the identified problems, assist in meeting water quality and management goals, and is acceptable to all stakeholders*

The Project Partners include: Nebraska Game and Parks Commission, Nebraska Public Power District, Central Nebraska Public Power District, and Nebraska Department of Environmental Quality

Technical Advisory Team consists of the following members:

Nebraska Game and Parks Commission
Darrol Eichne, Larry Hutchinson, and Dave Tunink

Nebraska Public Power District
Doug Harris and John Shadle

Central Nebraska Public Power and Irrigation District
Eric Hixson and Mark Peyton

Nebraska Department of Environmental Quality
Paul Brakhage and Pat O'Brien

Update November 19, 2008 - I had a follow-up discussion with Pat O'Brien. He represents the Department of Environmental Quality on 303d and TMDL issues. He described how the operation of the hydro facilities contributed to the 303d issues at Lake Ogalalla which has significant amounts of sulfates and nutrients at the lake bottom. The stakeholders have been developing a plan to solve the problem and Pat says that planning effort is a model for a 303d/TMDL success story. He was quick to point out that they have been working on this plan for six years. He describes this as extremely complex challenge with each stakeholder having their interests.

The implementation of the plan, which includes constructing a channel to remove sediments, has been held up due to the Army Corp of Engineers taking quite a bit of time to process a §404 dredge and fill permit. He is hopeful that the proposed mitigation will resolve the 303d issues. He pointed out that one of the reasons he is optimistic about the Plan's ability to solve these issues that the shear size of the project focused on 303d concerns has allowed stakeholders to have significant scientific resources dedicated to solving the problem. Not many 303d planning efforts would be of this size.

Pat is comfortable with the settlement and satisfied with licensee's compliance. He, like other stakeholders involved in this process acknowledges the Applicants skill at negotiating and he describes his relationship with the applicant as positive. I asked a general question about the USFWS and Pat's response was similar to other stakeholders. At the end of the interview I asked if Pat considered this project as low impact, without hesitation he said yes and went on to say that he felt this was a model for 303d/TMDL projects.

Date of Conversation:	September 30, 2008
Application Reviewer:	Fred Ayer, Executive Director
Person Contacted:	Dwayne Hovorka National Wildlife Federation

Dwayne was and is still actively involved in this project. Before joining the NWF he held the position of Executive Director with the Nebraska Wildlife Federation. He is familiar and knowledgeable with not only the ESA issues but the water and flow issues. Dwayne's organization supported the settlement agreement as something they could "live with" --- they settled believing that they would get the best deal with the settlement. Dwayne is part of the

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Governance Committee that manages the Settlement (recovery plan). There are also a number of other NWF employees that are actively involved in the implementation and management of the plan.

Dwayne and I discussed some of the history of the FERC relicensing and how it had initially been a fairly contentious proceeding, but how that was in the past and generally speaking the licensee and other parties have figured out how to work together and accomplish consensus solutions.

The land acquisition parts of the settlement are working better and are getting done sooner than the water parts of the plan. The land acquisition group has been successful acquiring good quality habitat. The water issue is more complex in that the three states committed to restore water that had been degraded as a result of irrigation use. This "restored" water would be used to supplement minimum flows. While the water issue is being worked on it is not as far along as the land acquisition.

A key component of the recovery plan is to return flows to a more historic hydrograph (bank-full) to low flows. Dwayne has also been involved in the hydro-cycling plan proposed by the Licensee. This plan is still being discussed and modified. If I understand it correctly NWF and the Licensee are discussing and negotiating several different ideas to improve the Hydro Cycling Plan

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Date of Conversation:	September 30, 2008
Application Reviewer:	Fred Ayer, Executive Director
Person Contacted:	Paul Tebbel, Executive Director Friends of the River (formally with Audubon)

Paul and I had a fairly lengthy conversation. Paul's involvement with the Platte River projects and specifically the Kingsley Dam goes back to the mid-1990s. He was actively involved in the project from 1995-2004 and was involved in a more part-time role during 2005. He was an alternate on the Governance Committee and Chair of the Technical Committee for five years. Audubon was very involved with the Platte and actually owned and managed land for over 35 years and Paul had spent a fair amount of time working in the project area. He is very familiar with the ESA species of concern. He was helpful in explaining why the focus was on the Whooping Cranes and Plovers and not so much on the Pallid sturgeon. It turns out that the sturgeon's prime spawning waters are at the confluence of the Platte and the Missouri which is about 100 miles downstream of the Kingsley Dam Project.

In discussing the negotiations, Paul described how limited the NGO's role was in the actual negotiations. As an example he described going to a meeting that he understood to be a negotiating session, only to find out that the Licensee and the USFWS had already reached an agreement. My sense was that the USFWS involvement in the Kingsley Dam was not their

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greatest moment and that they had not done a good job in developing scientific data, specifically not developing a protocol for identifying critical habitat. Their lackluster performance included not being very effective in reaching an agreement that satisfied all stakeholders. I will be interviewing the USFWS and will present their view of their role in the Kingsley Dam relicensing.

Paul was not real satisfied with the Settlement Agreement related to the FERC relicensing, but like others saw it as better than fighting over it. He was much happier with the Platte River Project agreement. With agreements in-place Paul and others felt that at least they could do things "on the ground" and Paul felt that from that standpoint they had been successful. I reviewed the LIHI criteria and Paul's response was that the project probably passed most of LIHI's criteria, however he felt the"flow" criteria was fair to poor, but he also pointed out that there was still ongoing negotiations regarding flows and that he felt adaptive management approaches had been reasonably successful in the implementation phase.

Paul pointed out more than once that a major portion of the challenges in this project were a reflection of the fact that the hydro facilities are located on a major irrigation project and that Central's Board was made up almost exclusively of farmers. This means that Central's staff had to walk a tightrope while attempting to satisfy their Board while coming to agreement with a range of stakeholders.

Date of Conversation:	October 1, 2008
Application Reviewer:	Fred Ayer, Executive Director
Person Contacted:	Ted Kowalski, Platte River Coordinator Colorado Water Conservation Board

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Ted is deeply involved in this project as can be seen from the various assignments he has. Ted is the state of Colorado's representatives on the Governance Committee, and a series of sub-committees including: Land Advisory, Water Advisory, Technical Advisory, Legal Advisory, Environmental Advisory, and Adaptive Management Advisory.

Ted said that Colorado had a hard time admitting that we were part of the problem. Once we did the process went better. He felt the settlement negotiations were some of the most contentious parts of the process, but once the parties reached agreement and accepted that an agreement was better than litigation. Ted said they were generally satisfied with the agreements.

Ted observed that this took a long time to get through. He described the Licensee as being somewhat cooperative, but usually aiming at doing what they were required to do and no more

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