EXHIBIT H

PLANS AND ABILITY OF APPLICANT TO OPERATE PROJECT EFFICIENTLY

List of Tables

H. PLANS AND ABILITY OF APPLICANT TO OPERATE PROJECT EFFICIENTLY

H.1 EFFICIENT AND RELIABLE ELECTRIC SERVICE

Loup River Public Power District (Loup Power District or the District) has owned and operated the Loup River Hydroelectric Project (FERC Project No. 1256) since it was licensed and constructed in the 1930s. District personnel have extensive experience managing, operating, and maintaining the Loup River Hydroelectric Project (Project) in an efficient and reliable manner. In addition to maintaining the Project in excellent operating condition for over 7 decades, the District has willingly invested the funds required to make major capital improvements through the years and to provide public benefits (such as substantial recreation improvements). Notable examples include adding a second regulating reservoir (Lake North), developing extensive Project recreation facilities, completing a major rehabilitation of the turbine generating units, replacing major electrical and protective equipment, installing a sophisticated supervisory control and data acquisition (SCADA) system, and most recently, ordering a new and more efficient Project dredge. The District plans to continue operating and maintaining the Project as it has in the past.

H.1.1 Increase in Capacity or Generation

The District has no plans to increase Project installed capacity or generation. The District may periodically reevaluate its hydroelectric generating facilities to assess life-extension and upgrade alternatives. If an economically feasible capacity expansion or generation alternative is identified, the District will pursue a license amendment as appropriate.

H.1.2 Coordination of Operation with Other Water Resource Projects

Except for local flood control and irrigation projects, there are no other water resource projects located in the vicinity of the Project. There are no specific requirements in place for the District to operate the Project in coordination with any other water resource projects. However, the District maintains communication with all relevant local, state, and Federal water management agencies as well as local irrigation and recreation interests. In the interest of public safety and good community relations, the District tries to accommodate special requests to temporarily modify its normal operations when appropriate.

H.1.3 Coordination of Operation with Other Electrical Systems

District operation of the Project is closely coordinated with the Nebraska Public Power District (NPPD), the singular purchaser of all hydroelectric power generated by the Project. This coordination includes everything from executive-level long-term

planning, to next-day water management decisions, to scheduled maintenance, to real-time dispatch of power generation at the Monroe and Columbus Powerhouses.

District and NPPD operating staff communicate multiple times each day to monitor river conditions, weather, canal inflows, reservoir pondage, and NPPD power system demands. Based on this information, other data, and their collective experience, they coordinate to define and implement specific actions to obtain the maximum overall system benefit from the available resources under the existing conditions. These daily dispatch decisions are taken with full consideration for Project safety and operating guidelines as well as an appreciation that the Project must be available for generating power the following day.

Coordination with external third-party electrical systems is handled by NPPD.

H.2 NEED FOR PROJECT POWER

Nebraska is the only state in the nation where all electric customers are served by public power. The Nebraska Legislature established the statutes that govern public power in 1933, the same year that the Loup Power District was formed. As a public power state, all utilities that generate, transmit, or distribute electric power for use in Nebraska must be publicly owned and operated.

The District is a wholesale and retail electric distribution utility with over 18,000 customers in five counties. It also owns and operates the licensed Project. The District is a full-requirements wholesale customer of NPPD and purchases all of its electricity under a power supply agreement with NPPD. The District concurrently functions as a wholesale power producer that sells all Project power to NPPD under a separate and distinct power purchase agreement (PPA).

As explained above, the District sells all hydroelectric power generated by the Project to NPPD; it does not directly use Project power. However, the District indirectly receives an unknown amount of Project-produced power in the much larger blended mix of power it annually purchases from NPPD. Because all Project power and ancillary benefits are embedded in NPPD's generation portfolio, the District and all other NPPD customers in Nebraska share in the economic and environmental energy benefits provided by the Project. In addition, the District's annual revenue from the sale of Project power to NPPD is a critical element in keeping overall electrical rates low for its retail customers.

H.2.1 Cost and Availability of Alternative Sources of Power

As stated above, the District purchases all of its power from NPPD. NPPD is the largest power producer in Nebraska. It has a diverse generation portfolio and a major transmission system that provides low-cost public power throughout most of Nebraska. NPPD's sources of energy for 2010 are shown in Table H-1.

Table H-1. NPPD Sources of Energy (2010)

Generation Type	Percentage
Coal	43.6
Nuclear	40.7
Purchases[a]	7.7
Hydro[b]	5.7
Wind	1.6
Gas & Oil	0.7

Source: NPPD, January 1, 2011, "Information Guide on Public Power and the Nebraska Public Power District," available online at http://www.nppd.com/assets/publicpowerinformationguide.pdf.

Notes:

[a] Purchases = 5.8% Western Area Power; 1.9% other

[b] NPPD's hydro power resource includes Project power sold to NPPD by the District as well as other sources.

In addition to selling Project power to NPPD, the District also purchases all of its wholesale power from NPPD. This existing buy and sell arrangement currently represents the best available source of power for the District given the unique public power situation in Nebraska. As a full-requirements customer of NPPD, the District currently has no other comparatively priced alternative source of power.

H.2.2 Increased Cost to Replace Power Generated by the Project

The District has no other generation resources and no options to economically replace the locally generated Project power that it sells to NPPD. Given current contract requirements, the District would continue to purchase all of its power from NPPD. If the District no longer operated the Project, it would lose the annual revenue from the sale of Project power, which would likely result in an increase in electric rates for the District's retail customers.

Because all Project power is sold directly to NPPD, the NPPD system would be directly affected if Project power were no longer available for purchase. In that case, NPPD would need to replace Project power from an alternative source. The cost and availability of alternative sources of power would be determined by the types of resources available to NPPD, both NPPD-owned resources as well as external resources such as those within the Southwest Power Pool (SPP).

Given that the Project functions as a hydrocycling plant dispatched by NPPD to provide power during periods of high demand, the current prices of on-peak power in the SPP provide a reasonable estimate of NPPD's cost to secure replacement power.

For the period from April 1, 2009, to October 31, 2011, the average daily price for on-peak power in the SPP was $30.99 per megawatt hour (MWh), with an average daily price variance of $37.94/MWh and an average daily high price of $53.83/MWh.[1]

The need for NPPD to replace Project power could also affect the wholesale rates paid by the District through its full-requirements PPA with NPPD.

H.2.3 Effects of Alternative Sources of Power

The effects on the District caused by NPPD having to purchase equivalent power from unknown alternative sources would depend on the cost impact on NPPD's generation portfolio, the subsequent effect on NPPD's wholesale power rates to the District, and the subsequent effects on the District's wholesale and retail power rates to its wholesale and retail customers. Considering NPPD's current generation resources, it is highly probable that alternative sources of power would involve some degree of fossil fuel combustion with its attendant environmental issues.

Effects on Customers

If the Project is not relicensed, NPPD and its wholesale customers would need to obtain the annual equivalent capacity and energy from sources other than the Project. The cost and availability of such alternative sources of power would be determined by NPPD's other generation sources, including outside sources such as those within the SPP.

Effects on the Applicant's Operating and Load Characteristics

The District does not use Project-generated power to supply it own electric distribution load; therefore, effects on the District's operating and load characteristics are not applicable. As the full-requirements power supplier to the District, the NPPD system would be subject to any effects on operating and load characteristics. The effects on NPPD's system are unknown.

Effects on Communities Served

As stated above, if the Project is not relicensed, NPPD would need to obtain an equivalent amount of power produced by the Project. The cost and availability of such alternative sources of power would be determined by other resources available to NPPD.

[1] These prices are based on the Southwest Power Pool's Locational Imbalance Prices (LIP) for Columbus for the period from April 1, 2009, to October 31, 2011, as provided by NPPD.

H.3 COST AND AVAILABILITY OF ALTERNATIVE SOURCES OF POWER

H.3.1 Average Annual Cost of Power

Average annual costs of the Project for the period 2007 through 2010 are approximately $6.4 million, including operations and maintenance (O&M), administrative, legal, accounting, insurance, and payments made for amortization of bonds.

H.3.2 Projected Resources Required by the Licensee to Meet Short- and Long-Term Capacity and Energy Requirements

All power generated by the Project is sold by the District to NPPD under a negotiated PPA. All short- and long-term capacity and energy requirements are the responsibility of NPPD under its power supply agreement with the District.

H.4 USE OF PROJECT POWER FOR THE DISTRICT'S INDUSTRIAL FACILITY

The District does not own or operate any industrial facilities that use Project power; therefore, this section is not applicable.

H.5 USE OF PROJECT POWER BY INDIAN TRIBE AS APPLICANT

The District is not an Indian tribe and there are no Tribal lands within or directly adjacent to the Project Boundary; therefore, this section is not applicable.

H.6 IMPACTS ON TRANSMISSION SYSTEM OF RECEIVING OR NOT RECEIVING PROJECT LICENSE

The District is a generator that sells all Project power to NPPD through interconnections with NPPD's transmission system. The District does not own or operate a transmission system. NPPD takes ownership of Project power at the Monroe and Columbus Powerhouse substations; therefore, this section is not applicable.

H.7 NEED FOR PROJECT MODIFICATIONS AND CONSISTENCY WITH COMPREHENSIVE PLANS

The District has reviewed the Federal and State of Nebraska list of comprehensive plans adopted by FERC under Section 10(a)(2)(A) of the Federal Power Act (16 USC § 803 (a)(2)(A)). The following nine plans are listed for the State of Nebraska (FERC, June 2011):

- The Nationwide Rivers Inventory (U.S. National Parks Service, January 1982)
- Statewide Comprehensive Outdoor Recreation Plan (SCORP): A Guide to an Active Nebraska 2011-2015 (NGPC, 2010)

- Platte River Management Joint Study, Biology Workgroup Final Report (Platte River Management Joint Study, July 20, 1990)
- Endangered Resources in the Platte River Ecosystem: Description, Human Influences and Management Options (USFWS, July 20, 1990)
- Fish and Wildlife Resources of Interest to the U.S. Fish and Wildlife Service on the Platte River, Nebraska (USFWS, May 15, 1987)
- Whooping Crane Recovery Plan (USFWS, December 23, 1986)
- Great Lake and Northern Great Plains Piping Plover Recovery Plan (USFWS, May 12, 1988)
- North American Waterfowl Management Plan (USFWS, May 1986)
- Fisheries USA: The Recreational Fisheries Policy of the U.S. Fish and Wildlife Service (USFWS, December 5, 1989)

Based on a review of these comprehensive plans, the District has determined that the Project and associated operations are consistent with these plans (as discussed further in Exhibit E, Section E.8).

H.8 FINANCIAL AND PERSONNEL RESOURCES

H.8.1 Financial Resources

The District receives financial revenues from its power distribution business of approximately $68,371,000[2] annually. It also receives annual revenues from the sale of Project power of approximately $7,520,000.[2] As a public utility and a political unit of the State of Nebraska, the District periodically sells bonds for major capital projects in the tens of millions of dollars.

H.8.2 Personnel Resources

The District maintains a total staff of approximately 118 full-time personnel. Of these, approximately 43 full-time-equivalent staff are assigned to the Project and its operation. Employees are certified and trained as appropriate to ensure the reliable continued operation of the Project, and the District maintains a number of management, engineering, technical, operating, and trade specialty staff who manage Project facilities as well as compliance with regulatory requirements. The District has always maintained, and will continue to maintain, adequate and well-trained staff to safely and efficiently operate the Project.

[2] 2007 to 2010 average revenue.

H.9 EXPANSION OF PROJECT LANDS

The District has no plans to expand the Project Boundary to encompass additional lands. However, the District is proposing to make some minor revisions to refine the existing Project Boundary (a detailed explanation is provided in Exhibit G).

H.10 ELECTRICITY CONSUMPTION EFFICIENCY IMPROVEMENT PROGRAM

The District is a publicly owned electrical wholesale and retail distribution utility with a single generation asset—the Project. As discussed above, all Project power is sold to NPPD. The District has an established energy conservation program and actively promotes energy efficiency among its retail distribution customers; such retail sales are not subject to FERC's jurisdiction. Therefore, the details of its program are not relevant in this proceeding.

H.11 AFFECTED INDIAN TRIBES

There are no Tribal lands within, or immediately adjacent to, the Project Boundary. A review of the Native American Consultation Database indicates that both the Omaha Tribe of Nebraska and the Pawnee Nation of Oklahoma have formal claims in the general vicinity of the Project.

Omaha Tribe of Nebraska
P.O. Box 368
Macy, Nebraska 68039

Pawnee Nation of Oklahoma
P.O. Box 470
Pawnee, Oklahoma 74058

Ponca Tribe of Nebraska
607 Georgia Avenue
Norfolk, Nebraska 68701

Ponca Tribe of Oklahoma
20 White Eagle Drive
Ponca City, Oklahoma 74601

Santee Sioux Tribal Council
425 Frazier Avenue N, Suite 2
Niobrara, Nebraska 68760

Winnebago Tribal Council
100 Bluff Street
P.O. Box 687
Winnebago, Nebraska 68071

H.12 SAFE MANAGEMENT, OPERATION, AND MAINTENANCE OF THE PROJECT

As a respected public power utility and a political unit of the State of Nebraska, the District places a high priority on the safety of its personnel and the public at large. The following subsections describe how the Project is safely operated and maintained under various conditions and situations.

H.12.1 Operation During Flood Conditions

Operation of the Project during high flow conditions is described in Section H.12.2.

H.12.2 Warning Devices for Downstream Public Safety

The District has posted appropriate warning signs at multiple locations throughout the Project to warn the public about the presence of various risks and dangers. During the summer months, floating cable barriers are installed upstream of the siphons and powerhouses. The public is excluded from the operational areas of both powerhouses and the Headworks (excluding Headworks Park and Headworks [Off-highway Vehicle] OHV Park). In addition, a strobe light and audible alarm downstream of the Monroe Powerhouse activate when the radial gate is about to open. This system warns anglers that there may be release of a substantial flow of water.

There are only two areas of the Project that have been designated by FERC as high hazard due to the proximity of dwellings to embankment sections of the Loup Power Canal. Genoa High-Hazard Area 2 is a small group of homes just north of the Upper Power Canal in the town of Genoa. Columbus High-Hazard Area 1 is a residential subdivision just west of the Intake Canal as it approaches the Columbus Powerhouse. The District has installed an automated telephone callout system that allows the Columbus Powerhouse operator to quickly notify all threatened residences by phone in the event of a potential overtopping or embankment failure.

H.12.3 Emergency Action Plan

The Project Emergency Action Plan (EAP) required under Part 12D of the FPA is evaluated and updated annually as needed. In addition to updating contact names and phone numbers, the District annually reviews potentially affected areas, and any changes in area development or risk factors are also addressed. The District is proposing no facility or operation changes that might affect the current EAP.

H.12.4 Monitoring Devices

Over the years, the District has deployed a number of water level sensors, pressure transducers, wells, and staff gages to monitor water elevations at key locations.

There are no seepage measuring weirs on the Project. The Genoa High-Hazard Area 2 has an early warning system that monitors water level in the drainage ditch directly adjacent to the left embankment of the Loup Power Canal and is connected to alarms at the Columbus Powerhouse. If the water level rises above normal conditions, an alarm is immediately activated at the Columbus Powerhouse. When the alarm activates, the alarm is evaluated by the operator, and if necessary, the FERC-approved EAP is activated.

The Columbus High-Hazard Area 1 near the Columbus Powerhouse and Intake Canal is equipped with an alarm circuit that runs directly to the Operator's station. The alarm sounds when water level in the Intake Canal rises above or falls below normal levels. When the alarm activates, the alarm is evaluated by the operator, and if necessary, the FERC-approved EAP is activated.

There are four settlement monuments established at the four corners of the Columbus Powerhouse and four more at the Powerhouse Inlet Structure.

There are six monitoring wells in the canal embankments. Four of these are located just upstream of the Columbus Powerhouse and two are located in the Genoa high-risk area just downstream of the Beaver Creek Siphon.

There are 25 crack monitoring gages at the Columbus Powerhouse.

Appropriate intervals have been established for inspecting, reading, and maintaining the devices. In addition, predicted values, threshold values, and action levels have been determined where needed. Additional details regarding the monitoring devices are classified as critical energy infrastructure information (CEII) and can be found in the Project Safety and Surveillance Monitoring Plan, which has been filed with the FERC regional office in Chicago.

H.12.5 Employee and Public Safety

Employee Safety Record

The District has an outstanding employee safety record for operation of the Project. Specifically, during the period from January 1, 2006, to December 31, 2010, the District recorded only one lost-time accident (in 2007) associated with operation of the Project.

Public Safety Record

Table H-2 lists the fatal incidents/accidents involving the public that have occurred on Project lands during the period from January 1, 2006, through October 31, 2011. None of these incidents were a result of Project operations.

Table H-2. Fatal Incidents/Accidents Involving the Public

Date of Incident	Description	Date of Final Report to FERC
March 10, 2006	Suicide on bank of Intake Canal near Columbus Powerhouse	March 13, 2006
May 13, 2007	Drowning accident at Tailrace Canal Outlet Weir	May 18, 2007
July 27, 2007	Drowning downstream of Oconee Siphon (vehicle entered canal)	August 3, 2007
October 2, 2007	Drowning suicide upstream of U.S. Highway 81 bridge (vehicle entered canal)	October 25, 2007
July 23, 2011	Suicide on Project lands south of the Headworks	July 27, 2011
October 5, 2011	Drowning accident near Sawtooth Weir	October 17, 2011

The District continues to post warning signs, exclude the public from hazardous operating areas, and coordinate with FERC and local law enforcement agencies to improve public safety while still allowing public access for recreation.

H.13 CURRENT PROJECT OPERATIONS

There are currently no plans or constraints that would affect the manner in which the Project is operated. The following subsections describe how the Project is operated under four different flow and seasonal conditions.

H.13.1 Normal Operations

Normal Project operating conditions are associated with Loup River flows below 10,000 cfs. All river flow above 3,500 cfs continues down the Loup River bypass reach because 3,500 cfs is the District's water right limit as well as the hydraulic capacity of the canal. During normal operation, the Headworks are operated to divert the maximum practical amount of water (and the least amount of sediment) from the Loup River into the Settling Basin. The amount of flow that can be diverted at any given time is a function of Loup River stage and flow, sediment accumulation in front of the Intake Gate Structure, settings of the 11 fully adjustable gates comprising the Intake Gate Structure, Settling Basin stage, and the sediment situation in the Settling Basin on that particular day. These continuously variable factors make it difficult for operators to deliver a pre-selected rate of diverted flow. There is no automation at the Headworks; the Intake Gates and Sluice Gates are frequently manually adjusted to keep water flow and sediment movement within acceptable ranges.

The long-term average for diverted flow is 1,630 cfs, or 3,233 acre-feet per day. Over the available period of record, the Project has diverted approximately 69 percent of the total Loup River flow at the point of diversion.

The hydraulic capacity of the Loup Power Canal is 3,500 cfs, or 6,942 acre-feet per day. This flow is also the maximum diversion rate allowed under the District's water right. In practice, the District is only able to divert the maximum flow for short periods of individual days when conditions are just right.

The Monroe Powerhouse operates in a traditional run-of-river mode, passing all water coming to it in the Upper Power Canal with no regulation. Water level sensors at the station intake are used to initiate minor adjustments to the turbine wicket gates to maintain a constant canal elevation. Control of the Monroe Powerhouse turbine generating units is normally dispatched remotely by the Columbus Powerhouse operator. Generation of each unit is determined by water levels in the Upper Power Canal and the wicket gate settings on the unit. A radial bypass gate at the Monroe Powerhouse can be operated in manual or automatic mode and is fitted with a floatation device that automatically opens the gate in response to high water levels. This gate will automatically open to a pre-determined position to pass any flow that exceeds the capacity of the turbine generating units on-line. Operation with water level control maintains a steady headwater level at the Monroe Powerhouse.

Water exiting the Monroe Powerhouse enters the Lower Power Canal. Level control in this canal segment is provided by the Sawtooth Weir located at the entrance to Lake Babcock. Water level in the regulating reservoirs is controlled by adjusting incoming canal flow and/or turbine releases at the Columbus Powerhouse.

Project generation is dispatched from the Nebraska Public Power District (NPPD) Control Center in Doniphan, Nebraska. The NPPD dispatcher will request that the District bring generation on- or off-line as demand changes within the NPPD system. When the NPPD dispatcher issues an order, the Columbus Powerhouse Operator makes wicket gate adjustments, brings turbine generating units on-line, or takes turbine generating units off-line, depending on the order.

The turbines are capable of operating in the following four modes:

- Flow control – The flow through the unit remains constant.
- Headwater level control – The headwater elevation is maintained within a narrow band by adjusting turbine wicket gates.
- Power control – The flow is adjusted to maintain a steady generation rate.
- Tailwater control – Wicket gates are adjusted to maintain within a narrow band of a specified tailwater elevations.

The Columbus Powerhouse is generally operated as a daily hydrocycling plant by the NPPD dispatcher. This involves ponding some of the canal inflow in the regulating reservoirs and then drawing the level of the reservoirs down generally about 2 to 3 feet during certain times of the day by generating more power during peak demand. In the off-peak hours, when there is less electrical demand, the turbine generating units are turned down or shut off, and the regulating reservoirs are allowed to refill for hydrocycling the following day.

The controls at both the Monroe and Columbus powerhouses are interfaced electronically to provide optimum control of all water elevations during Project operation. This control, in turn, produces optimum generation from the available flow.

H.13.2 High Flow Operations

Abnormally high flows in the Loup Power Canal could be produced by two scenarios: 1) excessive precipitation runoff into the Loup Power Canal from local drainage areas, and 2) high flows in the Loup River at the Headworks. Although there are several small drainages that flow into the Loup Power Canal, the resulting inflow, even during precipitation events is relatively minor. However, high flows (10,000 cfs and greater) in the Loup River have historically occurred during the spring freshet (that is, the sudden high flow resulting from a thaw). High flows can and do occur whenever there is a major precipitation event in the Loup River Basin.

The District proactively maintains the Project to address high flows in the Loup River before the high flow event occurs. Dikes that connect the Diversion Weir and Intake Gate Structure with high ground on either bank are maintained in good repair. These dikes contain the river channel and prevent shoreline erosion.

When high flow events occur, the Loup River carries large amounts of trash, debris, and occasionally ice. These materials need to be passed down the river and not diverted into the Loup Power Canal. Most of the unwanted material will simply pass over the submerged Diversion Weir; the remainder can be passed downstream using the Sluice Gate Structure. The Headgate Operator resides on site and monitors both weather and river flow conditions. To protect the Project, the Headgate Operator will reduce or curtail flow diversion as necessary prior to or during a high flow event.

The Project was designed to handle normal storm runoff entering the Loup Power Canal from adjacent areas. However, during extreme precipitation events, some storm runoff will enter the Loup Power Canal. To manage such events, the Headgate Operator can reduce diversion at the Headworks prior to an event to provide additional freeboard in the canal segments. If an event occurs with little or no warning, the Headgate Operator can cease diversion. The Headgate Operator can also

call for over-generation[3] at both the Monroe and Columbus powerhouses as well as for opening the radial bypass gate at the Monroe Powerhouse. There is no spillway or flow bypass device at the Columbus Powerhouse. In an emergency, any two turbine generating units can safely pass up to 4,100 cfs. This outflow rate is 17 percent greater than the maximum inflow rate to Lake Babcock. These actions will move the high inflows through the Loup Power Canal at a much higher rate.

H.13.3 Low Flow Operations

Low flow conditions on the Loup River can occur at any time of year but are most likely to occur during the summer months when river flow is often impacted by upstream irrigation withdrawals. During these periods, the Project continues to operate normally, albeit with reduced flow available for diversion and generation. An operating consideration regarding low flow in the canal is restricting flow in the canal for maintenance activities during hot weather conditions. The District has implemented a policy to defer non-emergency maintenance activities during high-temperature periods.

H.13.4 Cold Weather Operations

Operations are modified as needed in cold weather (that is, when Project facilities become subject to freezing conditions). In winter, slush begins to form in the Loup River and the Settling Basin. A small amount of slush can normally be diverted into the Settling Basin without causing problems. Heavier concentrations of slush are bypassed down the Loup River to avoid a "plug" forming in the Settling Basin. If this should happen, there could be no further flow diversion until the ice plug melts or dissipates, and the ice plug could remain in place for the duration of the winter season.

As air temperature gets colder, an ice cap forms both on the Loup River and in the Loup Power Canal. Once a solid ice cap exists, a maximum winter diversion rate of about 2,000 cfs can be established. Typically, winter flows are less than the maximum that can be accommodated by the ice cap. Abrupt flow increases are avoided when there is an ice cap in the canal. Ice adheres to bridge pilings and could loosen or damage them if it rises. If a diversion increase is needed, all ice formed around the bridge pilings within the canal is manually removed first to avoid damaging infrastructure.

Steam produced by an on-site boiler is used to de-ice the intake and sluice gates and keep the Headworks operable. Heavy ice also accumulates on the Diversion Weir flashboards, which cannot be reached with steam. Ice accumulation, rising water,

[3] Over-generation refers to the practice of admitting more than the rated flow through the turbine gates for short periods to release excessive flow.

moving ice, and debris may cause damage to the sacrificial flashboards, requiring at least partial replacement each spring.

Winter operation at the Monroe Powerhouse involves monitoring water temperature and watching for the formation of frazil ice. If frazil ice begins to form, diversion is quickly halted at the Headworks as frazil ice can plug the trash racks and lead to overtopping of the Upper Power Canal. The radial bypass gate at the Monroe Powerhouse and its hoist are enclosed in a heated enclosure to prevent freezing. Additionally, the operator is responsible for ensuring that the gate seals are not frozen to the sill or sides of the gate bay. The operator thaws the gate seals as necessary and monitors them frequently to keep them from refreezing.

Winter operation at the Columbus Powerhouse also involves monitoring water temperature and responding rapidly to the formation of frazil ice. At the Columbus Powerhouse, declining pressure readings in the Penstocks indicate that frazil ice is forming on the trash racks. The Columbus Powerhouse Operator may reduce flow through the plant or take the turbine generating units off-line to inhibit additional icing and potential plugging of the trash racks. The Columbus Powerhouse has no bypass gate; therefore, when the powerhouse is taken off-line and the regulating reservoirs reach a certain elevation, flow diversion at the Headworks would need to be halted to allow for handling of water already in the canal system.

H.14 PROJECT HISTORY

The District has owned and operated the Project since it was first licensed and constructed in the 1930s. Affordable electric power from this efficiently operated Project was a key component in the establishment of the City of Columbus and the surrounding area as a leading industrial region of Nebraska.

The following Project improvements have been—or are currently being—implemented pursuant to FERC authorization or as general maintenance (as documented below) since issuance of the District's license in 1982:

- Turbine Rehabilitation – As authorized by FERC in 2003 (105 FERC ¶ 62,235), each of the six turbine generating units associated with the Project was rehabilitated and modernized between 2004 and 2007. Confirmation of completion of that work as of June 1, 2007, was submitted to FERC in September 2007. This $18 million initiative substantially improved overall Project efficiency and made the turbine generating units viable for at least another 50 years of renewable energy operation.
- Major Equipment Replacement – The following major pieces of equipment associated with operation of the Project have been replaced or upgraded since the existing license was issued:
    - Monroe Powerhouse Generator Step-up Transformer – replaced in 1987

  - Monroe Powerhouse Governors – replaced from 1997 to 1999
  - Columbus Powerhouse Unit Transformer 3 – replaced in 1998
  - Monroe Powerhouse Exciter – replaced from 2000 to 2002
  - Columbus Powerhouse Exciter and Governor – replaced from 2000 to 2002
  - Monroe Powerhouse Unit Breakers – replaced from 2002 to 2004
  - Columbus Powerhouse Unit Transformers 1 & 2 – replaced in 2003
  - Columbus Powerhouse Unit Breakers – replaced in 2003
  - Monroe Powerhouse Unit Transformer Circuit Switcher – installed from 2004 to 2008
  - Monroe Powerhouse Generator Protection Panels – replaced from 2004 to 2008

- SCADA System Installation – The SCADA system was installed in 1993 and allows for automation of certain Project functions; however, in general, the Project remains manually controlled by a qualified operator 24 hours per day, 7days per week. The SCADA system includes remote sensors at the Headworks, Monroe Powerhouse, and Columbus Powerhouse. Operation of turbine generating units in both powerhouses can be monitored and controlled from the Columbus Powerhouse through the SCADA system. In addition, each turbine generating unit has a manual interface in its respective powerhouse for local control.
- Dredge Replacement – Dredging at the Project is undertaken consistent with Article 21 of the existing license. The District's original 1937 dredge has reached the end of its economic life and is being replaced by a new hydraulic dredge that is scheduled to enter service in September 2012. The new dredge will be very similar to its predecessor in form and function. However, it will have a more powerful 3,000-horsepower pump and use more energy-efficient variable frequency drive electric motors. The new dredge will also employ modern controls and monitoring systems. A new substation and transformer are also required to meet the energy needs of the new dredge.
- Camper Outlets – Existing electrical outlets for campers at Headworks Park and Lake North Park were upgraded in 2011 in response to comments received during the District's 2010 Recreation Use Survey conducted as part of Project relicensing.

H.15 POWER GENERATION LOST DUE TO UNSCHEDULED OUTAGES

The District has an outstanding record of reliable Project operation. One unscheduled Project outage was recorded during the period from January 1, 2006, to October 31, 2011. On May 11, 2011, a storm-related outage occurred at the Monroe Powerhouse, the duration of which was less than 1 hour. The corrective action taken was to check units and relay targets, reset protective relays, re-synchronize the units, and close the breakers.

H.16 COMPLIANCE WITH EXISTING LICENSE

The District has established a positive compliance history with respect to operation and maintenance of the Project. As of October 31, 2011, District files indicate no instances of non-compliance with any of the terms and conditions of the existing Project license.

H.17 PROJECT-RELATED ACTIONS THAT AFFECT THE PUBLIC

The following are Project-related actions that currently affect the public in various ways; no operational changes are planned or proposed that would change the actions in this list:

- The District works closely with resource management agencies to protect the endangered interior least terns and threatened piping plovers that frequent and nest on the North Sand Management Area.
- The District values and protects the historical and cultural resources associated with the Project.
- The District works closely with the public and local stakeholders to develop, improve, and properly maintain recreational opportunities at the Project. Overall, the District enjoys excellent relations with the public.
- The District maintains and annually updates a comprehensive EAP that is designed to notify the public and protect public infrastructure in the event an emergency should occur.
- Project operations provide clean, renewable energy and dispatchable capacity that are of considerable value to all electrical consumers in the local area and the region served by NPPD. However, daily hydrocycling by the Project results in small water level fluctuations in the Platte River downstream of the Project. Some riparian landowners and some persons recreating in the Platte River may be affected by these changes.
- Project operations at the Headworks such as Intake Gate adjustments and sluicing of sediment may impact downstream riparian landowners and some persons recreating in the Loup River bypass reach.

H.18 OWNERSHIP AND OPERATING EXPENSES

If the Project license were transferred to another entity, the District's annual cost of operating and maintaining the Project would be eliminated. These expenses are estimated at approximately $6.4 million.[4]

H.19 ANNUAL FEES FOR USE OF FEDERAL OR INDIAN LANDS

No annual use fees are paid by the District because no Federal or Indian lands are located within the Project Boundary.

[4] Average annual cost for the period from 2007 to 2010.