

EXHIBIT H: SUPPLEMENTAL INFORMATION

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H1.0 EFFICIENCY AND RELIABILITY

Public Utility District No. 1 of Chelan County (Chelan PUD) has more than 47 years of experience operating and maintaining the Lake Chelan Project, efficiently and reliably providing electricity at low cost for customers in the Pacific Northwest and in other western states.

There have been only two unscheduled outages since the existing license was issued in 1981. One was due to a packing gland failure in a generator in 1986, and the other was due to faulty welding performed on the project penstock in 1998. Overall the annual plant factor from 1988 through 1997 was 93 percent.

In addition to the 48-MW Lake Chelan Project, Chelan PUD also owns and operates the Rock Island Project (660 MW) and the Rocky Reach Project (1,280 MW), both on the Columbia River and both under jurisdiction of the Federal Energy Regulatory Commission (FERC). Chelan PUD acquired the Rock Island and Lake Chelan projects through purchases, but it constructed the Rocky Reach project in 1956-61. Chelan PUD expects to continue operating all three projects safely and reliably into the foreseeable future.

H1.1 PLANS FOR INCREASED CAPACITY OR GENERATION

When the Lake Chelan Project was originally constructed, two generating units were installed, served by one power tunnel. However, the project was constructed with provisions for increasing the power generation capabilities, if ever desired. A second power tunnel was constructed through the dam and capped 25 feet downstream to accommodate increased power generation. Also, the southern wall of the powerhouse was not architecturally finished, in anticipation that it could be extended when/if new turbine generators were added to the project. Chelan PUD has, from time to time, evaluated whether completing the second tunnel and adding turbine generators at the existing powerhouse would be economically beneficial. There have been four occasions on which Chelan PUD has explored the possibility of expanding the project.

- During the late 1960s, Chelan PUD investigated the feasibility of developing a new dam, power tunnel(s) and new powerhouse. The basic scheme consisted of a 200-foot-tall dam located about three miles downstream from the existing dam. A new tunnel and penstock about 2,200 feet in length would connect the dam's intake to a new powerhouse with a single 224-MW unit. The project rated flow was envisioned at 7,850 cfs with a rated net head of 371 feet. The existing powerhouse would have remained in operation. Based on a 1973 completion date, the cost was estimated at \$28,035,000. Concerns with environmental impacts and future power values contributed to Chelan PUD's decision to delay further consideration. By about the mid-1980s, power prices had receded to levels rendering the project uneconomic, and further studies were abandoned.
- During the 1970s, Chelan PUD, as part of a long-range power planning program, investigated potential hydroelectric pumped storage sites in Chelan County. Of a number of sites studied,

Antilon Lake was selected as having the most advantages for further investigation. Antilon Lake sits approximately 1,500 vertical feet above Lake Chelan and a few miles to the north. The contemplated pumped-storage project would have used Lake Chelan as its lower reservoir. Antilon Lake would have been enlarged to serve as the project's upper reservoir. Studies were completed for three project installations covering a range of 1,100 MW to about 2,000 MW. Power studies were also conducted to determine the role such a project may have in the Pacific Northwest power system. At the time, the project showed technical feasibility and a low installed power cost projection relative to the prevailing power costs. However, by the time the project studies were nearing completion, other major base load projects were either coming on line or under construction in the Pacific Northwest. Significant environmental concerns associated with the pumped-storage proposal were also raised. Each of these factors contributed to Chelan PUD's decision to delay further consideration. By about the mid-1980s, power prices had receded to levels rendering the project uneconomic, and further studies were abandoned.

- In 1993-94, a detailed study looked at the feasibility of expanding the existing powerhouse and completing the second tunnel to accommodate additional turbine-generators. The capacity increases evaluated were 50 and 100 MW. The study indicated that although technically feasible, the project was not economically viable without significant increases in power values. The study also indicated that with virtually any increase in the project's capacity, the project operating regime would need to shift from its existing near-constant discharge to a peaking facility with highly variable project discharge. A basic assumption in the study was that no change in the height of the existing dam or changes in Lake Chelan water storage would occur.
- An Operations Model Study in 1998 took a new look at the analysis of expansion possibilities done in 1993-94 and concluded that the generation benefits of both expansion alternatives (50 and 100 MW) did not appear attractive considering the estimated development costs of these options.

Chelan PUD has no plans for expansion of the Lake Chelan Project in the foreseeable future.

H1.2 COORDINATION WITH OTHER WATER RESOURCE PROJECTS

While the Chelan Dam is located at the mouth of Lake Chelan (and at the head of the 3.9-mile Chelan River), water from the project runs down a 2.2-mile penstock to the powerhouse which is located along the Columbia River near the community of Chelan Falls. There is roughly a 360-foot drop in vertical elevation from the lake to the powerhouse. After flowing through two Francis-type turbines at the powerhouse, water is then discharged into the tailrace, where it flows several hundred yards into the Columbia River. Water reaching the Columbia from the Lake Chelan Project becomes part of river flow (less than 2 percent of the yearly average) that is used to generate electricity at eight more dams along the main stem of the Columbia before it reaches the Pacific Ocean. As the water moves downstream after leaving the Lake Chelan Project tailrace, it passes through two other Chelan PUD hydroelectric projects. It first reaches Rocky Reach Dam, approximately 30 miles downstream, and then Rock Island Dam, another 20 miles

downstream. Operation of the Columbia River for hydroelectric power generation and flood control is guided by the Pacific Northwest Coordination Agreement (PNCA), which was first enacted in 1965.

H1.3 COORDINATION WITH OTHER ELECTRIC SYSTEMS

The 48-MW Lake Chelan Project is the smallest of Chelan PUD's three generating projects. Combined resources from Chelan PUD's three projects make Chelan PUD the second largest non-federal hydroelectric generating system in the country, producing a combined total of approximately 11 billion kilowatt hours of power every year.

Chelan PUD uses 37 percent of its total generating capacity to meet the electrical needs of its Chelan County customers, including a portion of Alcoa's Wenatchee Works aluminum smelter. The remainder, about 63 percent, is transmitted throughout the Pacific Northwest and the West Coast over a 16,000-mile grid of high-voltage transmission lines to four principal power purchasers: Puget Sound Energy; Avista Corp.; PacifiCorp and Portland General Electric.

Operation of the major hydropower resources managed by 16 generating utilities in the Pacific Northwest is guided by an agreement first signed in 1965 known as the Pacific Northwest Coordination Agreement. It is a contract for planned operation among all major power generating utilities of the Pacific Northwest, and its basic concept is that all parties will jointly and cooperatively determine the aggregate firm load which they can carry. They will then mutually support each other in their operation to carry this load and to effect optimum economy in the use of hydroelectric resources including production of secondary energy.

A new agreement has recently been signed, valid until 2024, which replaces the old agreement that was set to expire on June 30, 2003.

Integrated generating, scheduling, transmitting and wholesale marketing resources allow Chelan PUD to operate the project in conjunction with all other electrical systems to maximize the power production efficiency and reliability and to simultaneously comply with environmental and other public purpose restrictions and objectives.

H2.0 CHELAN PUD'S SHORT-TERM AND LONG-TERM NEED FOR POWER GENERATED BY THE PROJECT

H2.1 SHORT-TERM

Chelan County PUD now serves nearly 30,000 residential customers, more than 1,100 irrigation customers, more than 4,400 commercial accounts and 26 industrial accounts within Chelan County. The load represented by these customers amounts to more than 1.3 billion kilowatt hours annually. When power transmitted by Chelan PUD to other areas in the Pacific Northwest is added, more than seven million Northwest electric customers benefit from the low-cost energy

produced by Chelan PUD. The average residential electric rate in Chelan County is about 3 cents per kilowatt hour. The average residential rate nationally in 1999 was 9 cents per kilowatt hour.

Currently in the northwest, there is a deficit of resources compared to load during critical high-load winter periods. This deficit approaches 10,000 MW during a cold-winter scenario. If the license for the Lake Chelan Project is not granted, the options available to Chelan PUD will either be to buy energy from the market or construct new resources to replace the lost generation.

H2.2 LONG-TERM

The Lake Chelan Project produces, on average, around 380,871 MWh of energy each year, or about 25 percent of Chelan PUD's current total resource portfolio. Replacement generation would be available if sufficient time were allowed for siting and construction of a replacement resource. For market-based purchases, the probability of acquiring resources is more difficult to evaluate. The primary source of new generation has been independent power producers. If the producers do not construct additional generation in the Pacific Northwest, and if load continues to grow, there could be conditions where there is not enough transfer capability from other areas outside the Northwest and from internal generation to serve load. Replacement power may not be available at any price under some severe-winter scenarios, either due to a shortage of generation or from lack of transfer capability.

H2.3 ENERGY REPLACEMENT COST AND AVAILABILITY OF ALTERNATIVE SOURCES OF ENERGY

Prices of energy and the commodities that would be used to fuel new generation have been rising rapidly in the last several years. At this point, the consensus least-cost replacement generation would be natural gas. Natural gas prices have also been increasing rapidly, rising from less than \$2 per one million British thermal units (MMBTU), to more than \$5 per MMBTU. At this price, the cost of replacement generation for the Lake Chelan Project approaches \$50 per MWh. This is roughly five times the current cost of production from the Lake Chelan Project and would have an economic impact on Chelan PUD of more than \$15 million per year.

Market conditions are also highly volatile at this time. Replacement power prices into the future range from \$30 to \$70 per MWh. The actual future price cannot be predicted with any degree of certainty. It is estimated, however, that the costs will range from three to seven times higher than the current production costs at the Lake Chelan Project. The economic impact to Chelan PUD from market purchases could vary from \$7 million per year to more than \$20 million per year.

H2.3.1 Effects of Alternative Sources of Capacity and Generation

Chelan PUD's customers would see a substantial rate increase as a result of the loss of generation from the Lake Chelan Project. The exact amount of the increase is dependent on market conditions and other factors which are impossible to predict at this time.

This would also have an effect on Chelan PUD's ability to serve load in the Lake Chelan area and the ability to meet peak load requirements throughout Chelan County. Without the voltage

support provided by the Lake Chelan Project, critical low-voltage situations could develop that could cause equipment damage and outages in the area.

A combination of new transmission lines, capacitor banks and other equipment to boost voltage may be required to ensure continuity of service to the Lake Chelan area. Additional capacity and peaking power would have to be acquired to ensure service to Chelan County loads. Without the Lake Chelan Project and without additional generation or purchases, load deficits in the winter to serve Chelan County, which now approach 50 MW, could approach 100 MW.

The primary effect of losing the license would be an increase in the rates for power in the local communities, affecting all communities in the county.

H3.0 ESTIMATED COSTS OF PROPOSED PROJECT MODIFICATIONS

H3.1 AVERAGE ANNUAL COST OF POWER FROM THE PROJECT

The average historical annual cost of power produced by the Project has been about \$5.7 million dollars per year, or about \$19.80 per MWh, for the period 1985 to 2000 based on current accounting methods.

H3.2 PROJECTED ENERGY NEEDS

H3.2.1 Resource Stack

Chelan PUD has a 100-percent hydro-based resource portfolio. Given that fact, the output of the resources varies considerably from year to year, depending on hydraulic conditions.

Chelan PUD's estimated load for 2002 is 1,791,719 MWh. Chelan PUD's expected resources available under critical water conditions (as defined by the Pacific Northwest Coordination Agreement) is 1,785,288 MWh, and in average water conditions, 2,106,780 MWh. In dry water conditions, Chelan PUD is deficit with the current resource mix, including the Lake Chelan Project. In good water conditions, Chelan PUD is deficit for several months in the winter due to the high concentration of electric space-heating load and lack of natural gas or alternative fuel service in the area.

Chelan PUD will be withdrawing additional shares from the Rock Island Project to serve load growth in Chelan County. Load is projected to grow to 2,205,000 MWh in the next 10 years. Even with the additional withdrawals at the maximum rate allowed by the contracts, Chelan PUD remains deficit in dry water conditions and deficit in several months during the winter even in good water years. Under any circumstances, the energy and capacity from the Lake Chelan Project are needed to serve Chelan County load requirements.

H3.2.2 Resource analysis and planning criteria

Chelan PUD is a participant in the Northwest Power Pool Reserve sharing program. Under normal circumstances, Chelan PUD maintains reserve margins through the use of its own hydro generation. Under some conditions, it is necessary for Chelan PUD to purchase reserves from other suppliers to meet its requirements. Under extreme situations involving the forced outage of the generating units, Chelan PUD will call upon other participants in the Northwest Power Pool Reserve sharing program. Margins are maintained as per the National Electric Reliability Council, Western Systems Coordinating Council and Northwest Power Pool standards to ensure reliable operation of the power system.

H3.2.3 Load Management

Chelan PUD does not operate any load management at this time. Chelan PUD has time-of-day metering on most large industrial customers, which assists with demand management during peak load periods.

H3.3 ALTERNATIVE SOURCES OF POWER

Sections (3)(iii)(A)(B)(C) are covered in this discussion.

The reasonable alternatives to replace the generation of the Lake Chelan Project include gas-fired combustion turbines, coal-fired thermal generation and wind power. Rejected as alternatives are nuclear, due to the uncertain regulatory environment and cost; geothermal, as there is insufficient supply in the west to expect to cover the loss of the Lake Chelan Project reasonably; and landfill gas due to the same supply limitations.

The primary alternative to the project generation would be to purchase contract generation from the market in a quantity sufficient to cover the loss of the Lake Chelan generation. Market estimates for 2003 are \$46 per MWh for a flat 24-hour-per-day purchase to match the lost generation. The total cost of this purchase would be \$18.4 million in 2003 and would ramp up over time as the market changes. Locking in purchases for a longer term results in a premium on the price. In the alternative, buying short term results in substantial market risk, which could have unfavorable rate impacts on Chelan PUD's customers. This alternative would have no impact on Chelan PUD reliability, unless purchased on a unit-contingent basis, in which case it would depend on the underlying resource.

The next best alternative would be as a partner or contract output purchaser of a natural-gas-fired unit. With gas estimated at approximately \$4 per MMBTU, and using a unit with a heat rate of 9,500 BTU/kWh, the resulting price of the resource would be \$42 per MWh. There is substantial price risk with the future cost of natural gas, with consequences similar to those listed above for power contracts. The total cost of this replacement is estimated at \$16.8 million in 2003, escalating with the forward price of gas. The forced outage rate of gas-fired plants is higher than hydro-based generation, so this alternative would have a slightly negative impact on reliability and on Chelan PUD's ability to maintain reserve margins.

Coal is also a potential resource, though no new coal plants have been built for the last 20 years in the northwest. Coal supplies are available locally and imported from the Powder River area to serve a local generator. Water supply, air quality and other emissions issues make this an expensive alternative. It would also take two to three times as long to permit and construct as a natural gas plant. Fuel costs, however, are generally lower and much less volatile than for natural gas. It is estimated that a new coal plant would have operating costs near \$80 per MWh and cost a total of \$32.1 million to replace the lost generation. The forced outage rate of coal plants is higher than hydro-based generation, so this alternative would have a slightly negative impact on reliability and on Chelan PUD's ability to maintain reserve margins.

Wind energy is another alternative. Wind is problematic in that it cannot be dispatched or generally used for load control. It is also highly variable, and a backup source of capacity is almost always required to serve firm load using the resource. It is, however, an alternative priced near \$90 per MWh. This again could be as a partner or contract output holder. Total replacement costs would be \$36.1 million. It would be difficult to develop sufficient wind resources to replace the Lake Chelan Project within five years. It may take as many as seven or eight years to develop sufficient new capacity. If used to replace the project totally, it would have a negative effect on reliability due to the characteristics of the resource.

H3.3.1 Cost of Alternatives

(See above)

H3.3.2 Relative Merits of Alternatives

(See above)

H3.3.3 Effects of Alternative Sources on Direct Providers

If the source of the replacement energy is as reliable as hydro, there would be no direct effect. If, on the other hand, the replacement power supply characteristics affect frequency, voltage and stability in the local area, then some customers could be negatively affected.

H4.0 EFFECT ON CHELAN PUD INDUSTRIAL FACILITIES

The Alcoa Wenatchee Works has the capacity to operate five pot lines, employing approximately 1,000 workers. When the market price of aluminum drops below certain levels, pot lines are shut down if the price of electricity is too high or if the supply is restricted. Without the electricity from the Lake Chelan Project being added to the Chelan PUD mix, the price of power would increase, the available supply would be restricted and the likelihood of shutdowns in production at the aluminum smelter would be high. The resulting layoff of hundreds of skilled workers in high-paying jobs would affect the regional economy significantly.

In addition, fruit packing and processing industries – long the mainstay of the Chelan County economy – are enduring highly competitive economic conditions as world competition increases

from Asia, South America and Australia. Any increase in the price of power to run the fruit processing operations would result in a negative impact on market price of fruit grown in the Chelan County region, thereby further impacting the regional economy negatively.

H5.0 INDIAN TRIBAL NEED FOR ELECTRICITY

Chelan PUD is not an American Indian tribe.

H6.0 TRANSMISSION SYSTEM IMPACTS

This section includes an analysis of the potential impacts to the District's transmission system in the event that a new license is not issued for the Lake Chelan Project. These impacts are wide ranging and include both economic and reliability factors.

It should be noted that the existing transmission system up until this time has been ultimately designed to accommodate continued operation of the Lake Chelan powerhouse. No new or upgraded substations or lines are presently planned to carry this generation. In the event that a new operating license is not granted, these existing facilities would still be necessary to serve the Chelan service area load.

H6.1 EFFECT OF REDISTRIBUTION OF POWER FLOWS IF LICENSE IS NOT RENEWED

The Lake Chelan powerhouse is electrically remote from any major loads. Much of the power generated at this plant serves the electrical needs of the Chelan service area using two of five 115-kV transmission lines. Depending on the time of year, this load generally varies, allowing both import and export of incremental power flows on the three other existing 115-kV transmission lines tied to this area.

Four of these lines are owned by Chelan PUD, while the fifth relatively small line is owned by Avista (previously Washington Water Power). One of the Chelan PUD-owned lines was recently constructed (1995) not only to help meet existing load growth in the Chelan area, but also to provide physical protection from the effects of inadvertently isolating the Chelan plant due to transmission line outages. The line is also used to provide an additional contract path for this generation to Wenatchee area loads approximately 35 miles away. The cost of this line was funded primarily by Chelan PUD's own customers, who also stand to benefit the most by its operation. The potential loss of this generation resulting from the failure to secure a new operating license would render this line underutilized for the purpose for which it was originally funded.

The Lake Chelan Project generation not only serves the Chelan area but also supplies a bulk of the voltage support for this area. Loss of this generation would not only force higher import power flows on the existing transmission lines but would also require voltage support to come from outside the immediate area. This, in turn, will lead to greater and more frequent voltage fluctuations, overall lower system voltages and a significant increase in overall system transmission losses. In addition, the Lake Chelan Project's units can be black started, adding reliability to electrical service in Chelan and Douglas counties. All of these potential factors represent a significant impact in terms of the economical and reliable operation of the Chelan PUD transmission system, especially if additional investment in corrective equipment is needed to counter these effects.

H6.2 ADVANTAGES OF DISTRICT'S TRANSMISSION SYSTEM

The advantages of the Chelan PUD transmission system are described in Section 6.1.

H6.3 SINGLE-LINE DIAGRAMS

Detailed single-line diagrams of the existing electrical facilities at the Lake Chelan Project are contained in Exhibit F of this application. None of Chelan PUD's transmission and distribution system is considered primary to the Lake Chelan Project, and therefore none of it is included as part of this license application. Project power is commingled with other power sources once it leaves the substation.

H7.0 PLANS TO MODIFY PROJECT OPERATIONS AND CONFORMANCE WITH COMPREHENSIVE PLANS

Chelan PUD's plan to modify project operations, in accordance with the agreement reached with all relicensing parties, conforms with the comprehensive plans listed in the table in Section H8.0.

H8.0 CONFORMANCE OF EXISTING PROJECT WITH COMPREHENSIVE PLANS

The Lake Chelan Project, as it now exists, conforms to the comprehensive plans listed in Table H-1. Following the table is a brief discussion of the major plans having the most direct effects on the project.

Table H-1: FERC Comprehensive Plans Affecting the Project

<i>COMPREHENSIVE PLAN</i>	<i>CONTACT AGENCY/PERSON</i>
Wenatchee National Forest Land and Resource Management Plan. 1990.	United States Department of Agriculture Forest Service Wenatchee, WA
Washington's Statewide Comprehensive Outdoor Recreation Plan, Sixth Edition. March 1985.	Washington State Interagency Committee for Outdoor Recreation Olympia, WA
Washington Outdoors: Assessment and Policy Plan, 1990-1995	Washington State Interagency Committee for Outdoor Recreation Olympia, WA
State of Washington, Outdoor Recreation and Habitat: Assessment and Policy Plan, 1995-2001	Washington State Interagency Committee for Outdoor Recreation Olympia, WA
1987 Strategies for Washington's Wildlife. December 1986.	Mark Quinn Washington State Department of Game Olympia, WA
Hydroelectric Project Assessment Guidelines. 1987.	Brenda Kane Washington State Department of Fisheries Olympia, WA
Northwest Conservation & Electric Power Plan. 1986. Two volumes.	Northwest Power Planning Council Portland, OR
Columbia River Basin Fish & Wildlife Program. October 1984.	Northwest Power Planning Council Portland, OR
Columbia River Basin Fish & Wildlife Program. 1987. Amendments to the 1987 Edition	Northwest Power Planning Council Portland, OR
Columbia River Basin Fish & Wildlife Program. December 1994. 1994 Overview	Northwest Power Planning Council Portland, OR
Confederated Tribes of the Warm Springs Reservation of Oregon. Confederated Tribes of the Umatilla Indian Reservation. Nez Perce Tribe. Confederated Tribes and Bands of the Yakama Indian Nation. Settlement Agreement Pursuant to the 09/01/83 Order.	Yakama Indian Fisheries
Standards and Guidelines for Management of Habitat for Late-Successional and Old-Growth Forest-Related Species Within the Range of the Northern Spotted Owl. April 1994.	US Department of Agriculture, Bureau of Land Management, Forest Service Washington, DC

COMPREHENSIVE PLAN	CONTACT AGENCY/PERSON
North American Waterfowl Management Plan. May 1986.	US Department of the Interior Fish & Wildlife Service Washington, DC
Recreational Fishery Resources Conservation Plan 1995	US Department of the Interior Fish & Wildlife Service Washington, DC
Fisheries USA: The Recreational Fisheries Policy of the US Fish and Wildlife Service. Undated.	US Department of the Interior Fish & Wildlife Service Washington, DC
General Management Plan: North Cascades National Park, Ross Lake National Recreation Area, and Lake Chelan National Recreation Area. June 29, 1988.	US Department of the Interior National Park Service Sedro Woolley, WA
The Nationwide Rivers Inventory. January 1982.	US Department of the Interior National Park Service Washington, DC
Lake Chelan National Recreation Area General Management Plan and Environmental Impact Statement	US Department of the Interior National Park Service Washington, DC
A Resource Protection Planning Process Identification Component for the Eastern Washington Protohistoric Study Unit. 1987.	Washington State Dept. of Community Development Office of Archaeology & Historic Preservation Olympia, WA
Resource Protection Planning Process-- MidColumbia Study Unit. 1987.	Washington State Dept. of Community Development Office of Archaeology & Historic Preservation Olympia, WA
Resource Protection Planning Process-- Paleoindian Study Unit. 1987.	Washington State Dept. of Community Development Office of Archaeology & Historic Preservation Olympia, WA
Instream Resource Protection Program for the Main Stem Columbia River in Washington State. 1982.	
Shorelands & Coastal Zone Management Program. 1986. Application of Shoreline Management to Hydroelectric Developments. September 1986.	Carol Mortensen & Mark Schuppe Washington State Department of Ecology Water Resources Division 15 West Yakima Avenue Yakima, WA 98902-3401
Shorelands & Water Resources Program. 1994. State Wetlands Integration Strategy. December 1994.	
State of Washington Natural Heritage Plan. 1987.	Washington State Department of Natural Resources Heritage Olympia, WA

<i>COMPREHENSIVE PLAN</i>	<i>CONTACT AGENCY/PERSON</i>
Washington State Hydropower Development/Resource Protection Plan. December 1992.	Washington State Energy Office Library Olympia, WA
Washington State Trails Plan: Policy and Action Document. June 1991.	Washington State Interagency Committee for Outdoor Recreation Tumwater, WA
Voices of Washington: Public Opinion on Outdoor Recreation and Habitat Issues, 1995.	Washington State Interagency Committee for Outdoor Recreation Olympia, WA
Washington State Department of Natural Resources Final Habitat Conservation Plan. September 1997	Washington State Dept. of Natural Resources Olympia, WA

The following plans (from the above list) bear most directly on the Lake Chelan Project.

*U.S. Forest Service, Land and Resource Management Plan
Wenatchee National Forest*

The 1990 Forest Plan is part of the 50-year framework for long-range resource planning established by the Forest and Rangeland Renewable Resources Planning Act (RPA), as amended by the National Forest Management Act (NFMA). As such it establishes general direction for a period of time, usually between 10 and 15 years. The Forest Plan is a general strategy for managing the Wenatchee National Forest System in an environmentally sound manner to produce goods and services in a way that maximizes long-term public benefits. The Forest Plan establishes multiple use goals, objectives and desired future conditions.

*National Park Service, 1995 General Management Plan
Lake Chelan National Recreation Area*

The purpose of the 1995 General Management Plan (GMP) is to manage visitor use, natural and cultural resources, development, and operation of the Lake Chelan National Recreation Area (NRA) according to the enabling legislation and other laws and regulations affecting management of the NRA. The NPS Organic Act states that its mission is to “provide for the enjoyment of the parks in such a manner and by such means as will leave them unimpaired for the enjoyment of future generations.”

Under the GMP, the rustic setting of the Lake Chelan NRA is a part of a transition from the down lake residential, agricultural, and industrial setting to a very wild and natural North Cascades National Park, Lake Chelan NRA wilderness, and adjacent U.S. Forest Service-administered wilderness areas. The NRA is managed as an integral part of a larger regional ecosystem and socioeconomic region. The use of recreation area resources by visitors and residents will be managed in order to preserve the natural, scenic, and cultural values of the area. Visitors should experience a harmony between the natural and human environment and be provided with low-impact recreational opportunities.

Interagency Committee for Outdoor Recreation (IAC)

Assessment and Policy Plan 1995-2000

Statewide Comprehensive Outdoor Recreation Planning (SCORP) Document

The Interagency Committee for Outdoor Recreation (IAC) Washington State Comprehensive Outdoor Recreation Planning (SCORP) includes the "State of Washington Outdoor Recreation and Habitat Assessment and Policy Plan 1995 - 2001" (IAC, 1995a). The Washington State IAC prepared the SCORP as required by RCW 43.99.025 (3), a statute calling for the IAC to "prepare and update a strategic plan for the acquisition, renovation, and development of recreational resources and the preservation and conservation of open space."

In preparing the assessment, the IAC sought input from the public and professional recreation and habitat providers. Forums included a survey of recreation and habitat professionals, 21 public focus group meetings, a statewide issue-refining ("Delphi") process including hundreds of people in leadership roles, and individual interviews. Survey results and public comment heard during previous planning efforts were also considered.

H9.0 FINANCIAL AND PERSONNEL RESOURCES

H9.1 FINANCIAL RESOURCES

Past performance since the Chelan County PUD was created in 1936 demonstrates that Chelan PUD has sufficient financial resources to meet continuing operation and maintenance requirements of the Lake Chelan Project. Chelan County PUD is a nonprofit municipal organization.

Improved operating practices, cost-containment measures and above-average water runoff combined to produce net revenues of \$18.4 million for 1999 (the latest figures available), up from \$10.5 million in 1997 and \$7.3 million in 1998. Chelan PUD's Distribution System posted net revenues of \$14.5 million for 1999, compared to \$5.5 million in 1998 and \$8.5 million in 1997. These results have allowed the Distribution System to accumulate unrestricted cash reserves of more than \$50 million. These reserves are necessary to cover market fluctuations in energy pricing and to fund capital projects. Cost-containment efforts have helped Chelan PUD reduce production costs and maintain retail rates which are among the lowest in the country.

As a result, the bond-rating agencies Standard & Poor's and Fitch IBCA affirmed Chelan PUD's AA bond rating in 1999. A third agency, Moody's, upgraded its rating from Aa3 to Aa2, making Chelan PUD one of a select group of utilities in the country awarded such high ratings. In December 1999, Chelan PUD issued \$30,355,000 of Chelan Hydro Consolidated System Revenue Bonds, Series 1999A and 1999B. The \$21,855,000 Series 1999A bonds will be used to finance certain repairs, replacements, renewals, additions, betterments, extensions and improvements to Chelan PUD's hydroelectric systems. The proceeds of the \$8,500,000 Series 1999B bonds will be used to finance a portion of the costs of certain fisheries-related improvements to the hydroelectric system.

Revenues from the hydro systems represent sales of power generated by Chelan PUD's three hydroelectric production facilities (Rocky Reach, Rock Island and Lake Chelan) under firm power sales contracts or sales directly to the Distribution System. Revenues under these contracts are determined on a cost-of-service basis including debt-service costs. These firm power sales contracts extend into the future with varying expiration dates. The Rocky Reach system's contract expires in 2011, and the Rock Island system's contract expires in 2012. The Lake Chelan system sells 100 percent of its output to the Distribution System.

To balance power resources with demand, Chelan PUD enters additional power sales agreements when resources exceed demand and enters into additional power purchase agreements when demand exceeds resources available.

Chelan PUD's most recent annual report to its customers is included in Appendix H-1 of this application.

H9.2 PERSONNEL RESOURCES

Chelan County PUD has operated the Lake Chelan Project safely and efficiently for more than 45 years. The record demonstrates Chelan PUD's ability and commitment to continue operating in accordance with new license terms and conditions.

In 2000, Chelan PUD had approximately 560 full-time employees who earned a total payroll of about \$35 million.

Chelan PUD periodically renegotiates a collective bargaining agreement between the Central Washington Public Utilities organization, to which Chelan PUD belongs, and Local 77 International Brotherhood of Electrical Workers, covering approximately 370 employees. The other 190 full-time employees are salaried.

H10.0 PROPERTY BOUNDARY EXPANSION

Chelan PUD has no plans to expand the project boundary to include any additional lands for the new license term.

H11.0 ELECTRICITY CONSUMPTION EFFICIENCY IMPROVEMENT PROGRAM

H11.1 CUSTOMER PROGRAMS

For more than 40 years, Chelan PUD has maintained a strong record in promoting conservation and encouraging efficient use of electricity. Beginning in the mid-1950s, Chelan PUD's Sales Department provided three technical representatives to advise residential, commercial/industrial and irrigation pumping customers how to make most efficient use of their power. Free heat loss and heat gain studies were provided.

These efforts progressed in the 1960s, leading to the first established residential standards for insulation in the county, known as the Gold Medallion Home Program. It was active for about 15 years.

In the early 1980s, Chelan PUD formed a Conservation Section within the Customer Service and Engineering Department, instituting a more sophisticated energy analysis and a customer education program. Chelan PUD participated in conservation programs under the auspices of the Bonneville Power Administration, including hot water efficiency, short-term energy buy-back weatherization, marketing for energy efficient new homes and a low-income weatherization program. In 1985, the BPA Super Good Cents Program for new home energy efficiency was initiated by Chelan PUD. And also in 1985, an agreement was reached to channel some weatherization funds directly to the local Chelan-Douglas Community Action Council (CDCAC) for low-income energy assistance. That program evolved in 1994 to a direct grant to CDCAC, which enabled the funds to be directly matched by a Washington state energy program, effectively doubling the money available.

In 1995, the department name was changed to Energy Services, with one division for residential assistance and another for the commercial/industrial sector.

Commercial programs have included complete audits of commercial buildings, monitoring and testing of specific equipment and training and education of building operators. The primary focus of the industrial programs has been on the fruit storage and fruit processing industry, the mainstay of the local economy. Programs include audits, research projects and education. Another program funded by BPA helped replace street lights with energy-efficient models.

Energy Services continued to evolve, and the department was restructured again in 2000. For new construction, Chelan PUD offers services to encourage the purchase of energy-efficient manufactured homes, design assistance and advice on meeting energy codes and information on proper installation of heating, ventilation and air condition systems (HVAC). For existing construction, Chelan PUD continues to promote energy audits by contractors, offers weatherization loans and promotes duct sealing. In addition, training and education is offered on a wide scale to building professionals, manufactured home dealers, customers, Realtors and school officials. Customer assistance for all energy efficiency questions is available.

Services provided by Chelan PUD over the years have included the following:

Residential:

- Energy analyses of existing residences
- Home energy loan, retrofit weatherization program
- HVAC duct sealing services
- Customer and professional training and education
- Residential energy code support
- Promotion of energy-efficient lighting
- Promotion of energy-efficient manufactured homes
- Promoting Super Good Cents construction
- Water heater retrofit insulation program (9,424 tanks wrapped in 1982-83)

Commercial:

- Expanded energy audits
- Nonresidential energy code support
- Design assistance for new construction and remodeling
- Training and education
- Demonstration lighting project
- Research and demonstration projects
- Street light replacement program (2,375 lights)

Industrial:

- Expanded energy audits
- Account executives (specific Chelan PUD staff members assigned to work with specific customers)
- Seminars
- Chelan PUD staff member as part of advisory board for refrigeration program at community college
- ResourceSmart program: cost-sharing of industrial energy conservation projects.

To date, Chelan PUD's energy efficiency incentives and programs have resulted in the following:

Residential Customer Services home audits:		9,206
Super Good Cents construction:	(single family)	323
	(multifamily)	269
	(manufactured)	73
Homes weatherized:		2,256
Water heaters retrofitted with insulation:		9,424
Street lights replaced with energy-efficient models:		2,375
Savings (kWh)		13,810,923
Measures cost (loaned):		\$5,239,860
Industrial ResourceSmart (approximately \$400,000 used through 2001)		

H11.2 REGULATORY COMPLIANCE

Chelan PUD's energy conservation program complies with all related regulatory requirements.

H12.0 INDIAN TRIBE MAILING LIST

The nearest tribal government which has trust land adjacent to the project is:

Confederated Tribes of the Colville Reservation
Colville Business Council
P.O. Box 150
Nespelem, WA 99155

The Confederated Tribes of the Colville Reservation are on the stakeholder mailing list for the relicensing process, as are these other American Indian entities or representatives:

Confederated Tribes and Bands of the Yakama Nation
P.O. Box 151
Toppenish, WA 98948

Bureau of Indian Affairs
Portland Area Office
911 N.E. 11th Ave.
Portland, OR 97232

Columbia River Intertribal Fish Commission
(representing Umatilla, Nez Perce, Yakama and Warm Springs tribes)
729 N.E. Oregon, Suite 200
Portland, OR 97232

H13.0 MANAGEMENT, OPERATION AND MAINTENANCE MEASURES

Chelan PUD maintains state-of-the-art safety programs for its workers and the public. The programs are run in accordance with the highest contemporary standards for risk management and meet FERC requirements.

H13.1 OPERATION DURING FLOODS

The Lake Chelan Project is planned to be operated during all contemplated flood conditions. The dam meets FERC safety and stability criteria for floods up to and including the Probable Maximum Flood (PMF). Power tunnel inlet facilities are operable up to the headwater elevation predicted for PMF inflows to the project. Flood inflows to the dam exceed the power tunnel intake capacity, and, consequently, large outflows from the dam would occur during power tunnel operation. The flood channel emanating from the dam bypasses the powerhouse and discharges into the Columbia River. No flooding of the powerhouse and switchyard are predicted to occur for floods up to and including the PMF. No changes to this operating condition are planned for the future operation of the project.

Operation during other emergency conditions is detailed in Chelan PUD's Emergency Action Plan (EAP), which is on file with the FERC. The purpose of the EAP is to provide a detailed plan of operations and a notification flow chart in the event of a hazardous or emergency condition at the project. This plan is updated annually and tested periodically.

H13.2 WARNING DEVICES

The Lake Chelan Project is located at the outfall of Lake Chelan, with portions of the project inside the city limits of Chelan, Washington, and other portions near the communities of Manson and Chelan Falls. Chelan County as a whole has approximately 63,000 residents, but the immediate Chelan-Manson-Chelan Falls area has a population of roughly 9,000 people who would be most directly concerned with safety as it relates to project operations.

Project facilities include a remotely located dam and spillway, power tunnel and penstock, powerhouse and switchyard. There is also a bypassed reach of approximately 3.9 miles below the dam and spillway, through which water is released primarily in the late spring and early summer when inflows from snowmelt are at their peak. The project is normally operated remotely from the Central Dispatch Center in Wenatchee, approximately 35 miles from the dam. The powerhouse is attended eight hours per day, and the dam is inspected at least once per day. The dam and powerhouse are not open to the public.

Safety devices in use around the project include:

- Signs in both English and Spanish (32 locations in the bypassed reach warning of, danger, no trespassing and sudden flooding due to unanticipated releases of water)
- Fences around the switchyard, powerhouse and dam
- Buoys in several locations on Lake Chelan warning of rocks
- Life rings along the spillway deck, intake structure and tailrace decks
- Life jackets on the spillway deck
- Boat barriers in front of the dam and intake structure
- Log boom in front of the dam
- Motion detector alarms and door position detectors around the switchyard, powerhouse doors and entrance gates
- Lighting

- Electronic sensors downstream of the dam to alert dispatch if any water is detected below the structure

In addition, there are various signs posted at park sites within the project boundary to warn of swimming dangers, absence of lifeguards and explaining boat and water use regulations.

Newspaper and radio advertisements in English and Spanish are used to alert residents and visitors of the seasonal dangers related to spill through the bypassed reach.

H13.3 CHANGES THAT MIGHT AFFECT EMERGENCY ACTION PLAN

There are no changes anticipated in operation of the Lake Chelan Project that would alter the Emergency Action Plan.

H13.4 MONITORING DEVICES TO DETECT STRUCTURAL MOVEMENT

Lake Chelan Dam is monitored by means of periodic surveying, piezometers in its foundation and crack meters in the drainage gallery. In addition to monitoring by means of instruments, the condition and operation of the dam, powerhouse and surge tank are inspected daily by the project's staff of operators/maintainers.

To measure horizontal and vertical movement, six monuments are embedded in the concrete of the dam and spillway along a reference line. Precise measurements of the six monuments are made at six-month intervals, and these measurements have been made regularly since 1967. In addition, Chelan PUD recently installed a system of three global positioning system (GPS) stations near the dam to provide a means of independent monitoring.

A system of 58 standpipe piezometers in eight lines parallel to the dam axis are read approximately monthly.

Four joint meters that have been installed along cracks in the drainage gallery are read manually approximately once a month. Based on the data recorded, it appears the cracks are stable and not a detriment to the structural stability of the dam.

H13.5 SAFETY RECORD

H13.5.1 Employees

A Chelan County PUD employee was killed in January 1990 at the Lake Chelan Dam in an accident involving an improperly assembled crane. The incident was not directly related to the generation effort.

There were no lost time injuries from 1990 to the present. Two contractor employees suffered minor injuries while performing work on behalf of Chelan County PUD within the project boundary.

H13.5.2 Public

For the period 1986 through September 2000, no injuries or deaths to members of the public were directly attributable to project operations. However, there have been four fatalities (two drownings, one hang-glider death, and one fatal fall in the Chelan Gorge) and nine trip and/or fall type incidents involving minor injuries related to recreation that occurred within the Lake Chelan Project boundary.

H14.0 DESCRIPTION OF CURRENT OPERATIONS

Chelan PUD operates the Lake Chelan Project to optimize use of the water resources to produce electric energy while meeting flood control needs, irrigation requirements, and environmental uses of Lake Chelan. The operation of the Project generally includes power operation near the full installed flow capacity of the power plant on a year-round basis. The Project is and will continue to be operated in accordance with all applicable FERC license requirements and the laws of the state of Washington.

The Project uses water from the Chelan drainage basin, which encompasses approximately 924 square miles, of which approximately 50 percent is above 5,500 feet in elevation. The major portion of precipitation occurring within the watershed falls in the form of snow during the months of November through March. Flows into Lake Chelan are dominated by the springtime, snowmelt runoff, which generally occurs between April 15 and July 15. Historically, the annual peak runoff occurs in early June.

Chelan PUD operates the Project reservoir between a normal maximum water surface elevation of 1,100 feet (USGS) and a normal minimum water surface elevation of 1,079 feet. The full pool water surface elevation is at 1,098 feet. This operation assures the fullest possible utilization of the reservoir for generation of electric energy at the Lake Chelan Project while enhancing other beneficial uses of Lake Chelan. The usable reservoir storage capacity within this range of reservoir elevations is 677,400 acre-feet. The amount of water reserved for irrigation, municipal and domestic water supplies is 65,000 acre-feet. Average annual inflow to Lake Chelan is approximately 1,496,000 acre-feet (1952-1995, USGS). Inflow in excess of the hydraulic capacity of the Project generating plant is discharged through the dam spillway.

The discharge from Lake Chelan is regulated to assure, with a 95-percent probability, that the reservoir will refill to the full pool water surface elevation of 1,098 feet on or before June 30 of each year. To assure this refill, the inflow potential of the snowpack within the Chelan drainage basin is determined from snow measurements taken five times a year. Measurements are made by direct field or remote measurement methods from established snow courses. Runoff predictions are also based on probability curves defined by a relationship between the historical basin precipitation and the observed reservoir inflow.

The normal minimum water surface elevation is 1,079 feet. The average minimum lake level over 43 years of operation (1952-1995) has been approximately 1,084.2 feet. Annual drawdown of the lake begins in early October as average streamflows into the lake decline from the warm summer season. From October through April, the water flow into the power tunnel at the dam typically exceeds inflows into the lake and the reservoir elevation continues to decline. The lowest annual lake elevation normally occurs in April. From May through June, the lake refills as the spring runoff exceeds the hydraulic capacity of the power tunnel. The reservoir is maintained at or above the full pool water surface elevation of 1,098 feet from June 30 through September 30 for the summer recreation season.

Since the Project was originally licensed in 1926, the lake has never been drawn down to the minimum allowable elevation of 1,079 feet. The lowest draft of record was 1,079.7 feet in 1937 and 1970. This occurred during drought conditions when the region received record low amounts of precipitation. Chelan PUD has not failed to refill the reservoir to the 1,098-foot level or above by June 30 under the current FERC license.

Operation of the reservoir also serves to protect shoreline property from flooding. Discharges from the reservoir through the power plant and spillway at the Project are planned so that extremely high discharges through the spillway are not required and so that the reservoir level will not exceed the normal maximum water surface elevation of 1,100 feet. Chelan PUD operates the Project to limit high flows in the bypassed reach, thus limiting erosion damage in the reach.

Typically, snowpack determines the depth of drawdown at the Lake Chelan Project. In adverse years (low in flow), drawdown is curtailed to assure refill of the lake in time for the summer recreation season. In average to high water years, the powerhouse is operated at or near capacity during the spring refill season to minimize spills. Generally spill, if any, occurs in May, June or July.

The minimum, average and maximum daily flows for the Chelan River are 0 cfs, 2,041 cfs and 18,400 cfs, respectively. These flows, calculated values provided by Chelan PUD since project development, were recorded as USGS Gage No. 12452500, Chelan River at Chelan, Washington. The data includes powerhouse releases as well as spill from the dam.

H15.0 HISTORY OF THE PROJECT AND OPERATION AND MAINTENANCE UPGRADES

The history of the Lake Chelan Project is detailed in Exhibit C1.0.

H16.0 GENERATION LOST DUE TO UNSCHEDULED OUTAGES

Only one unscheduled outage has been reported in the last five years. During the period of Aug. 31, 1998, through Sept. 24, 1998, an unscheduled outage resulted in lost generation. The unscheduled outage was due solely to faulty welding performed on the project penstock by a contractor as a part of generator Turbine Inlet Valve replacement. The faulty welding was discovered by Chelan PUD and was corrected to ensure penstock integrity.

H17.0 COMPLIANCE RECORD

Chelan PUD has received no notification from FERC of any license compliance issues since the Lake Chelan Project license was granted in 1981. Chelan PUD's compliance record has been exemplary.

H18.0 ACTIONS TAKEN AFFECTING THE PUBLIC

Chelan PUD has a long history of providing the region with electric power in the most cost-effective, efficient manner possible, resulting in some of the lowest rates in the nation. Those low rates may be the single biggest action affecting the public due to their impact on the regional economy, which traditionally has lagged behind the state average in per capita income.

In addition, the record demonstrates exceptional concern for public recreation, for the environment and for cooperation with local, state and federal interests on a wide variety of projects.

A few examples include:

- In the last two decades, Chelan PUD has spent more than \$10 million developing Manson Bay Park, Old Mill Park and Riverwalk Park in the Lake Chelan area.
- Chelan PUD spends more than \$250,000 annually on maintenance and operation of those recreation facilities.
- Chelan PUD provides a conference room at its Chelan offices for free use by community groups.
- Chelan PUD leases land to the city of Chelan for a nominal fee, and the city uses the land for recreational baseball fields.
- Chelan PUD assists the recreational sport of hang-gliding, for which Chelan has become a world-class site hosting periodic international competitions, by providing a landing area

on Chelan PUD property in exchange for a nominal administration fee charged to the city of Chelan.

- Chelan PUD has provided staff time to conduct wildlife surveys on mule deer, bighorn sheep and bald eagles in the Lake Chelan Basin.
- In cooperation with WDFW, Chelan PUD has provided approximately \$30,000 a year for fish stocking programs to benefit tourism and angling in Lake Chelan.
- To promote a clean environment, Chelan PUD has participated financially and with staff support in water quality monitoring programs for Lake Chelan, one of the cleanest bodies of water in the United States.
- In cooperation with other local government agencies, Chelan PUD has managed a sewer system and a water system owned by others. Chelan PUD also has provided low-cost space in one of its buildings for the area chamber of commerce.
- In partnership with the regional Educational Service District, Chelan PUD provides a safety and energy education program in area schools. Also related to education, Chelan PUD participates in a mentorship program that brings high school students from the area into the workplace for a look at various jobs related to the electric utility industry.

H19.0 IMPACT ON EXPENSES IF LICENSE IS TRANSFERRED

Chelan PUD estimates that operations and maintenance costs for the Lake Chelan Project will average \$5.7 million per year from 2001 through 2007. That figure would be subject to the normal inflationary changes after that, but no specific projections have been calculated that far in the future. These costs would be avoided if the license to operate the project were transferred to another entity.

H20.0 ANNUAL FEES

The table below summarizes annual fees paid under Part 1 of the Federal Power Act for use of tribal and federal lands included within the Lake Chelan project boundary.

Table H-2: Annual Charges for Use of Federal Lands, 1981-Present

Year	Charges (\$)
1981	5,533
1982	5,730
1983	5,909
1984	6,097
1985	6,282

Exhibit H: Supplemental Information

1986	6,469
1987	(switched to fiscal-year billing)
1988	8,584
1989	8,816
1990	9,209
1991	9,574
1992	9,957
1993	10,223
1994	10,530
1995	10,629
1996	\$8,276.38 (municipal exemption partially credited)
1997	449
1998	371
1999	0
2000	0