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## 1.0 PURPOSE OF ACTION AND NEED FOR POWER

### 1.1 PURPOSE OF THE ACTION

PacifiCorp is seeking new federal licenses for the continued operation of its Merwin (FERC No. 935), Yale (FERC No. 2071), and Swift No. 1 (FERC No. 2111) hydroelectric projects located on the North Fork Lewis River near Woodland, Washington (Figure 1.1-1). A fourth project, known as Swift No. 2 (FERC No. 2213), is located between Swift No. 1 and the Yale projects and is owned by Public Utility District No. 1 of Cowlitz County (Cowlitz PUD). Cowlitz PUD is seeking a new federal license to continue to operate and maintain the Swift No. 2 Project.<sup>1</sup>

PacifiCorp previously submitted the license application for the Yale Project in April 1999. Prior to that submission, the Federal Energy Regulation Commission (FERC) had approved the use of the alternative licensing process and a coordinated environmental analysis of the four Lewis River Projects. With its Yale application, PacifiCorp proposed interim measures to protect and enhance the environment, pending the coordinated environmental analysis of all four projects. This Preliminary Draft Environmental Assessment (PDEA) presents PacifiCorp's and Cowlitz PUD's preferred alternative, Alternative B, which includes protection, enhancement and mitigation measures for all four coordinated projects, including Yale. As required by NEPA, it also analyzes a No Action Alternative (A). Alternative C analyzes another combination of protection and enhancement measures. The PDEA also includes discussion of two options that were considered but rejected for further analysis.

The existing licenses for these facilities expire between 2001 and 2006 (Table 1.1-1). The FERC must determine whether to grant new licenses for the continued operation and maintenance of the four Lewis River hydroelectric projects and related facilities in compliance with Federal Power Act requirements and other laws and, if so, what conditions should be included in those licenses. Issuing new licenses would allow PacifiCorp and Cowlitz PUD to continue to generate electric power from a renewable source for the benefit of their customers for terms of up to 50 years. These facilities have provided a reliable source of renewable power and environmental and recreation benefits for over 70 years.

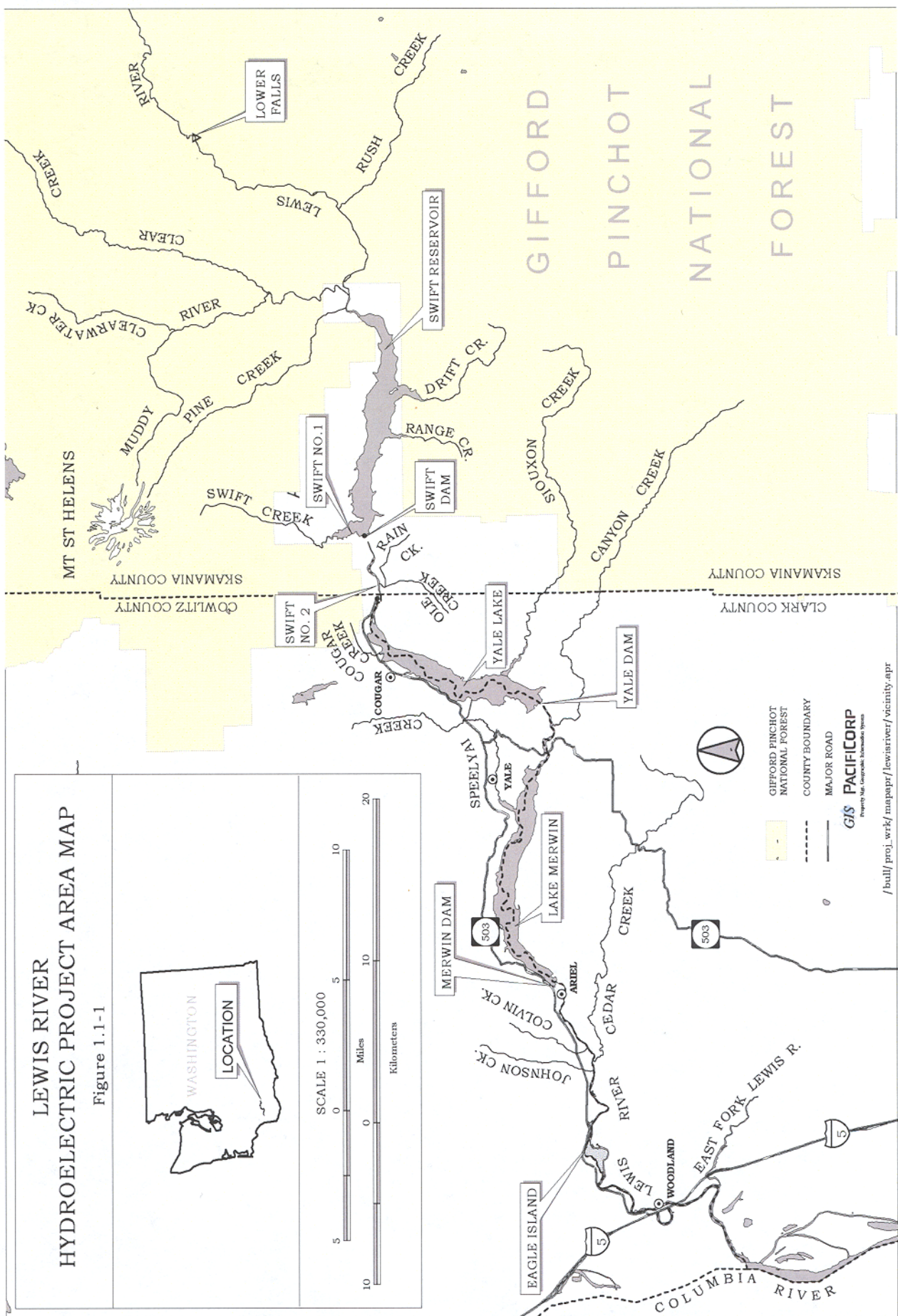
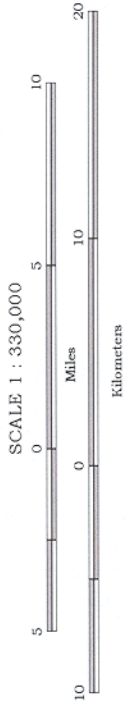
**Table 1.1-1. The Lewis River Hydroelectric Projects.**

Project Name	Owner	FERC No.	Year Constructed	Year License Expires	Generation (mW)
Merwin	PacifiCorp	935	1932	May 1, 2006	136
Yale	PacifiCorp	2071	1953	May 1, 2001	134
Swift No. 1	PacifiCorp	2111	1958	May 1, 2006	240
Swift No. 2	Cowlitz PUD	2213	1958	May 1, 2006	70

<sup>1</sup> PacifiCorp and Cowlitz PUD have jointly prepared an environmental analysis of the proposed operations and measures for the projects that is presented in Sections 2 and 3 of this PDEA. Each applicant has prepared its own Executive Summary, Purpose and Need (Section 1), and Economic Analysis (Section 4).

# LEWIS RIVER HYDROELECTRIC PROJECT AREA MAP

Figure 1.1-1



GIFFORD PINCHOT  
NATIONAL FOREST

--- COUNTY BOUNDARY

— MAJOR ROAD

**GIS PACIFICORP**  
Property Map, Geographic Information Systems

/bull/proj\_wrk/mapapr/lewisriver/vicinity.apr

PacifiCorp and Cowlitz PUD have prepared this PDEA pursuant to the National Environmental Policy Act (NEPA) and the FERC regulations to describe and evaluate the potentially significant environmental effects of the proposed relicensing of the four Lewis River Projects and alternative suites of mitigation measures for relicensing. In deciding whether to issue licenses to PacifiCorp and Cowlitz PUD, the FERC must determine that each project will be best adapted to a comprehensive plan for improving or developing the waterway. In addition to the power and developmental purposes for which licenses are issued (e.g., flood control, irrigation and water supply), the FERC must give equal consideration to the purposes of energy conservation, the protection, mitigation of damage to, and enhancement of fish and wildlife (including related spawning grounds and habitat), the protection of recreational opportunities, and the preservation of other aspects of environmental quality.

This PDEA closely follows the level of detail and format of an Environmental Impact Statement. PacifiCorp and Cowlitz PUD have also engaged in settlement negotiations with interested parties and hope to reach a settlement agreement setting forth terms and conditions which the parties agree are appropriate for relicensing of the Projects. If and when such a settlement is reached, the Applicants anticipate submitting amended license applications and, if appropriate, a supplemental environmental assessment analyzing the impacts of the settlement proposal insofar as they may differ from the PacifiCorp and Cowlitz PUD proposal or the alternatives analyzed in this PDEA.

## **1.2 NEED FOR PROJECTS**

### **1.2.1 PacifiCorp Operations**

The Lewis River Projects are used to maximize the value of all of PacifiCorp's generation assets and power purchases to provide customer benefits. The operational flexibility of the projects enhances PacifiCorp's ability to reliably perform its function as control area operator.

Over 1.5 million retail customers in a service area covering more than 136,000 square miles in portions of six Western states (Utah, Wyoming, Idaho, Washington, Oregon and California) rely on PacifiCorp for their energy needs. Residential customers account for about 85 percent of PacifiCorp's retail customers, 11 percent are commercial businesses, and 4 percent are industrial users.

PacifiCorp has more than 8,300 megawatts (MW) of generation capacity. Roughly 68 percent of this generation is produced by PacifiCorp's thermal and hydroelectric resources with 32 percent being purchased generation. PacifiCorp undertakes a least cost planning approach to integrated resource planning. The primary goal of PacifiCorp's planning is the reliable and least cost electric service to its retail customers as well as maintain shareholder value.

PacifiCorp operates two control areas that it designates as east and west. In its 2003 Integrated Resource Plan (IRP), PacifiCorp forecasts load on its system to grow by 2.2 percent in the east (Utah, Wyoming and Idaho) and 2.0 percent in the west (Washington,

Oregon and California) per year, on average, although load growth could vary between 1.4 percent and 3.4 percent. At the same time, resources available to serve this demand will diminish over time due to expiration of supply contracts, potential restrictions due to hydroelectric re-licensing requirements, and as thermal plants comply with more stringent emissions requirements. PacifiCorp expects it will require an additional 4,000 MW of new resources through 2013.

Hydroelectric generation is especially important to meeting customers' energy demand requirements as it is an extremely flexible resource. Of the 4,000 MW of new resources PacifiCorp needs, 1,200 MW are to be additions of flexible capacity<sup>2</sup> to provide the necessary operational characteristics to manage system reliability requirements.

PacifiCorp's hydroelectric portfolio consists of 51 generating plants, with a capacity of over 1,000 MW. Hydroelectric generation makes up a very large percentage of the PacifiCorp portfolio of generation in the west. When this output is reduced due to poor hydrologic conditions, PacifiCorp has limited additional flexible capacity to serve customer needs and must turn to higher-cost market resources. The Lewis River Projects' 510 MW capacity comprises almost 50 percent of PacifiCorp's total hydroelectric resources. As discussed further below, power produced by the Lewis River Projects is used to meet customer "peak" energy demand, meet load following requirements, allow for the most efficient use of thermal generation resources, provide for spinning reserves<sup>3</sup> and other important ancillary benefits, and displace the need for additional energy production facilities that burn fossil fuels and generate greenhouse gases such as carbon dioxide (see Section 4.4).

Flexible resources such as the Lewis River Projects are essential to ensure system reliability and to meet fluctuating power requirements. With the exception of the Merwin Project, which is used to regulate downstream flows in the Lewis River, the Lewis River Projects are operated primarily as flexible resources that also provide an important contribution with respect to system reliability. This means that the resource not only operates at high levels during the day when demand is typically highest, but it is also used to maintain the operational integrity of the regional system during shifts in the load/resource balance. In short, because of the high degree of interconnectivity in the Western United States, this highly flexible and diverse resource helps improve the overall reliability and safety of the regional power grid. The inherent generation flexibility of these projects allows PacifiCorp to provide valuable and needed benefits to the grid since there are a limited number of such resources that reside west of the Cascade Mountains along the Interstate 5 corridor. In addition, the cascading design of the Lewis River projects, in which outflow from the upstream projects is discharged directly to the downstream reservoir, mitigates flow impacts as compared to other hydro resources providing this benefit.

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<sup>2</sup> Flexible capacity is used to serve peak demand as opposed to resources that are used to serve a constant level of customer demand. Since electricity cannot be stored, generation must be raised and lowered as demand varies. The regulation of the electric system generation to follow changes in customer demand is known as "load following." Flexible capacity is required for load following.

<sup>3</sup> Spinning reserves are generation capacity that is on-line and available to serve customer demand immediately should a contingency occur.

As operator of two control areas within the Western Electricity Coordinating Council (WECC), PacifiCorp is required to provide ancillary services for reliability and safety. The Lewis River Projects play a crucial role in providing these operational benefits, including flexible capacity, automatic generation control<sup>4</sup>, spinning reserves and voltage control.<sup>5</sup> The WECC requires its members to maintain the following operating reserve: sufficient spinning reserve to provide regulating margin, plus an additional amount of operating reserve equal to the sum of 5 percent of committed hydroelectric generation and 7 percent of committed thermal generation (at least half of which must be spinning reserve). The North American Electric Reliability Council's Control Performance Standard also requires regulation and spinning reserves for system reliability. Because hydroelectric facilities can ramp up and down at 10 to 50 percent of rated capacity per minute, compared to coal units at 1 to 2 percent per minute, hydroelectric generators are ideal for providing regulation and spinning reserves.

In summary, PacifiCorp relies heavily on the Lewis River Projects' generation flexibility to meet the above requirements as well as its primary goal of reliable, least-cost energy for its customers. Benefits of the Lewis River Projects include:

- Meeting moment-to-moment changes in load demand within two control areas of the WECC;
- Providing generating reserve capacity to maintain electric grid voltage and frequency in the event of the loss of a major generating unit elsewhere on the grid;
- Minimizing inadvertent generation interchange with other control area operators;
- Minimizing the exposure of its customers to financial impacts of power price volatility;
- Maximizing its ability to dispatch fossil fuel plant units at maximum economy to its customers and to minimize fossil fuel consumption by running thermal units at maximum efficiency loadings; and
- Firming up and making useful the generation from intermittent resources such as wind turbines.

### 1.2.2 Cowlitz PUD Operations

Cowlitz PUD is a not-for-profit customer-owned utility providing reliable low-cost electricity to over 45,100 residential, commercial, industrial, and street-lighting customers in Cowlitz County, Washington.

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<sup>4</sup> Automatic generation control is the ability to automatically adjust the generation within a control area to maintain power flow between entities and to maintain a given frequency.

<sup>5</sup> Voltage control is the control of voltage on transmission lines through adjusting generator output and transformer operations.

Cowlitz PUD allocates the majority (about 90 percent) of its Swift No. 2 power to its approximately 40,000 residential customers, with the remaining 10 percent going to its approximately 5,000 commercial and small industrial customers. Swift No. 2 meets 10 to 15 percent of the energy load and up to 30 percent of the peak load of these three customer classes.

Load from these customers is expected to grow about 1.25 percent annually while power from Swift No. 2 is expected to remain relatively constant. The result will be an ever-increasing distance between Swift No. 2's assured capability and the demand from the customers it serves. Cowlitz PUD has prepared its own Purpose and Need section that provides more detailed information on the purpose and value of the Swift No. 2 project.

### 1.2.3 Regional Demand

The projected future energy needs of the Pacific Northwest are significantly higher than the available supply from existing resources. As was seen in 2001, a shortage in energy supplies leads to significant increases in cost and creates a severe hardship on low-income and fixed-income residential customers, as well as businesses that are essential to a healthy economy. Many businesses require reliable and affordable energy supplies to continue to stimulate economic growth by generating jobs, goods, and services. PacifiCorp's projects are integral to meeting consumer demand for reliable and renewable power. Without licenses to continue operating these facilities, other generating facilities would be required to replace the lost generation capacity. Replacement costs are likely to be significantly higher than current production costs for the Lewis River Projects. Thus, there is a strong need to relicense the Company's Lewis River Projects for the benefit of the PacifiCorp customers and communities.

### 1.2.4 Need For Flood Management

In addition to power generation, PacifiCorp's projects serve an important flood management function. Under current operating policies, and in accordance with both a contract between PacifiCorp and the Federal Emergency Management Agency (FEMA) and with the conditions of the current FERC licenses, the three project reservoirs (Lake Merwin, Yale Lake, and Swift Creek Reservoir) provide a combined 70,000 acre feet of dependable or dedicated flood control storage during the months of highest flood risk from November through March. The effect of this storage is to significantly reduce flood discharges throughout the lower Lewis River valley with corresponding benefits to the local community. The 70,000 acre feet of dependable flood management storage is sufficient to control most project releases from Merwin Dam to 60,000 cubic feet per second (cfs) or less. The 100-year peak discharge, which provides the regulatory basis for FEMA's floodplain delineation, is also reduced from an estimated 128,000 cfs at Woodland in the absence of flood control storage to 102,000 cfs, with a corresponding reduction in the area within the regulatory 100-year floodplain subject to development restrictions.



### 1.3 SCOPING PROCESS

PacifiCorp and Cowlitz PUD (“Applicant’s”) undertook the NEPA Scoping Process and formally initiated public scoping on May 17, 2000 with the release of Scoping Document 1 (SD1) (PacifiCorp and Cowlitz PUD 2000b). SD1 invited the public to provide comments on the projects either through written or oral testimony. Two public meetings were held in Woodland, WA on June 22, 2000, and a site tour was offered the following day. In addition to comments offered at these scoping meetings, the following entities provided written comments:

<b>Commenting Entity</b>	<b>Date of Letter or E-mail</b>
Conservation Groups (American Rivers, Trout Unlimited, Native Fish Society, Washington Council Trout Unlimited, Clark-Skamania Fly-Fishers, Friends of the Earth, and Federation of Fly Fishers)	July 14, 2000
Clark County Board of Commissioners	July 17, 2000
James Malinowski, Fish First	July 14, 2000
U.S. Fish and Wildlife Service	July 14, 2000
Washington Department of Fish and Wildlife	July 14, 2000
John Clapp	July 13 and August 12, 2000
Mariah Stoll Reese	July 13, 2000
U.S. Department of Agriculture, Forest Service (USFS), Gifford Pinchot National Forest	August 11, 2000
Heidi Cobbs	July 10, 2000
Gerrie Caines	July 17, 2000
James Wooldridge	July 13, 2000

Written and oral comments were summarized and addressed in Scoping Document 2 (PacifiCorp and Cowlitz PUD 2001) (SD2), issued on January 10, 2001. SD2 presented an expanded list of resource issues to be examined in this NEPA analysis. In particular, the preliminary list of alternatives was expanded to include project removal and settlement alternatives. However, removal of one or more project dams would not satisfy the purpose and need which compel the proposed action. Therefore, project removal/retirement has not been analyzed in this environmental assessment. The Applicants will analyze the impacts of any settlement proposal, as appropriate, when settlement terms are final.

### 1.4 CONSULTATION

In addition to the formal NEPA consultation described in the previous section, significant opportunities for public involvement were integrated into the Lewis River relicensing process. Opportunities began in 1999 with the Watershed Studies Scoping Process. Interested parties were invited to participate in the identification of “key watershed questions” that would guide study plan development for the three Lewis River Projects. To accommodate this basin-wide study approach, FERC agreed to delay its processing of the Yale license application (PacifiCorp 1999a) (filed in April 1999) and approved

PacifiCorp's request to accelerate the expiration date of the Merwin license application from 2009 to 2006. These actions enabled the concurrent environmental analysis of all three projects reflected in this PDEA. Also in 1999, PacifiCorp and Cowlitz PUD applied for and received FERC approval to initiate an Alternative Licensing Process (ALP). With the initiation of this collaborative process in April 1999, a Steering Committee and six resource workgroups were established. Meetings of the Aquatics, Terrestrial, Recreation, Cultural, Socioeconomics, and Flood Management workgroups and the Steering Committee have occurred at varying frequencies over a three-year period, as documented in the Applicant's six month reports to FERC, on PacifiCorp's Lewis River website, and in Cowlitz PUD's and PacifiCorp's public files. These meetings gave interested members of the public the opportunity to provide input on what resource studies were conducted, the scope of these studies, and to comment on the results of the studies.

Another extensive consultation process was undertaken by the Applicants and a relicensing Collaborative Team, designed to identify environmental enhancement measures that could be made part of relicensing alternatives. Called the Resource Enhancement Alternatives Document (READ) (PacifiCorp and Cowlitz PUD 2002a) process, many relicensing participants identified potential enhancement measures in a series of meetings and workshops throughout 2001. The product of this effort, released in March 2002, was a lengthy list of potential enhancement measures and effects for use in refining the preliminary alternatives identified in SD2. The stakeholders also collaborated on the preparation of a companion document titled the Resource Interaction Document (PacifiCorp and Cowlitz PUD 2002b) that identified the potential positive and negative interactions of each of the proposed enhancement measures with one another. These collaborative discussions and work products helped the participants to focus on and understand the measures of most importance, and interactions between and within each resource area to be carried forward into alternative development.

Following the READ process, consultation efforts focused on settlement talks. Public and agency participants selected representatives for a Negotiating Group, which met at least monthly throughout 2002 and continue to meet. Their goal, to reach settlement terms on resource issues, is ongoing at the time of publication of the PDEA. If formal settlement can be reached, the work of this group will be reflected in a Settlement Alternative to be analyzed in a supplemental environmental analysis that would be filed with FERC in 2004.