EXHIBIT H: ECPA FACTORS

1 Contents and Purpose of This Exhibit

To ensure that it has sufficient information to issue a new license , the Federal Energy Regulatory Commission (FERC) requires all applicants for new licenses to prepare an Exhibit H containing the information described in FERC regulations at 18 CFR § 5.18(c). The regulations divide the required information into three basic sections: information to be provided by all applicants (§ 5.18(c)(i)), information to be provided by an applicant who is an existing licensee (§ 5.18(c)(ii)), and information to be provided by an applicant who is not an existing licensee (§ 5.18(c)(iii)). Because Seattle City Light (SCL) is an existing licensee within the meaning of Section 15, this Exhibit addresses only the information specified in § 5.18(c)(i) and § 5.18(c)(ii).

2 Information to be Supplied by all Applicants

This section provides information on SCL's plans and abilities to best use the resource represented by the Boundary Hydroelectric Project (Project). Included in this section are descriptions of how the Project generation is used by SCL within its electric system, its coordination with other projects in the Pend Oreille River system, the need for the Project generation, SCL's plans for modifications and improvements to the Project, and discussions of measures taken by SCL to ensure the safe, reliable operation of the Project.

2.1. Plans and Ability to Operate the Project, Maintaining Efficient and Reliable Electric Service

2.1.1. Efforts and Plans to Increase Capacity and Generation at the Project

During the initial license term, SCL has made efforts to maximize possible energy and capacity benefits derived from the Project. Major renewals at the Project since it was completed in 1961 have included overhaul of the six turbine/generator units in the Project power plant between 1996 and 2003.

SCL has plans for further capacity upgrades at the Project during the new license term. SCL will replace the turbine runners, rewind the generators, and replace the step-up transformers for Units 55 and 56. These changes will be designed to increase unit efficiencies. The units will use the same flow to produce a greater amount of energy and will have a higher total capacity.

It is estimated that the installed capacity for each turbine will increase from 200 megawatts (MW) to 215 MW (i.e., the electrical output from the generator) (see Figure H.2-1), for an increase of total Project capability from 1,040 MW to 1,070 MW and an estimated increase in average annual generation of 39,838 megawatt hours (MWh).

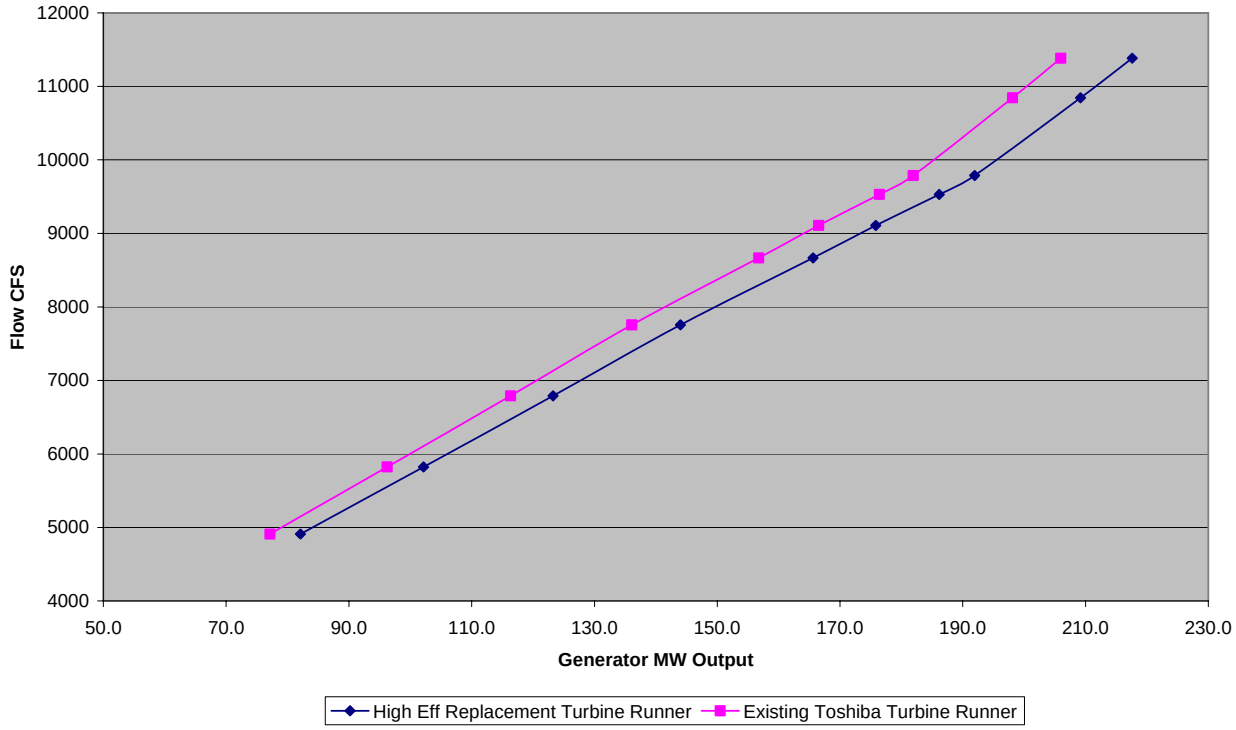

Figure H.2-1. Comparison of the efficiency of the existing and the proposed turbine runners of Units 55 and 56.

SCL also plans to rewind the generators and replace the turbine runners and transformers for Units 51 through 54 during the new license term; however, it is not expected at this time that these changes will result in an increase in capacity or generation.

Exhibits B, D and E of this License Application provide additional information on the refurbishment and upgrades proposed for the Project.

2.1.2. Plans to Coordinate Project Operation with Upstream and Downstream Projects

SCL is a member of the Pacific Northwest Coordination Agreement (PNCA), which coordinates use of water in the region to optimize flows available for power generation and to accommodate other uses of water. Avista and the Pend Oreille County Public Utility District (PUD) are members and both own projects upstream of the Project. Grant County PUD and Douglas County PUD are also members, and own projects downstream of the Project.

2.1.3. Plans to Coordinate Project Operation with the Applicant's and Other Electrical Systems to Minimize Cost of Energy Production

SCL operates the Project in coordination with its Skagit River Project (FERC No. 553), long-term purchase contracts with the Bonneville Power Administration (BPA), and wholesale

purchases. This coordination is highly seasonal in nature and includes periods of net surplus and periods of net deficit to SCL's hydro system, based on water availability and operating constraints related to recreation and environmental stewardship.

System operators use Project generation in a load-following mode to ensure the delivery of least-cost energy to SCL's rate payers. This includes optimizing market opportunities that are available from the Project reservoir and discharge flexibility. SCL plans to continue this practice of load-following with the Project during the new license term. A more complete discussion of load-following is provided in Section 3.2.1, Over view of Project Operations, of this Exhibit.

2.2. Need for the Electricity Generated by the Project [1]

2.2.1. Role of Project Generation in SCL's System

SCL is an integrated electric utility serving nearly 600,000 people in the greater Seattle metropolitan area and nearly 400,000 residential and non-residential customers. SCL's service territory covers 131 square miles.

SCL has 1,884 MW of installed generation capacity at six power plants (including the Boundary Project). Additionally, SCL has power supply contracts with the BPA for approximately one-third of SCL's retail needs. Other contracts include hydroelectric output from irrigation projects, a wind farm, hydroelectric output from BC Hydro, and other contracts. In 2007, SCL's retail sales for the year totaled 9,599,911 MWh. SCL finished 2007 with total revenues of $889 million, expenses of $775 million and net income of $114 million.

The Project is a valuable component of the SCL's generating resources, representing approximately 60 percent of SCL-owned hydroelectric generating capacity and supplying 35 to 45 percent (depending on water conditions) of Seattle's power requirements.

SCL depends heavily on hydropower, and the Project is a major contributor of that hydropower. For example, in 2007 hydropower accounted for 89 percent of Seattle's total power resources, with 27 percent provided by the Project (Figure H.2-2).

[1] Because of the interrelationship between sections (c)(1)(B) and (c)(1)(C) of 18 CFR § 5.18, they are addressed concurrently in this section of Exhibit H.

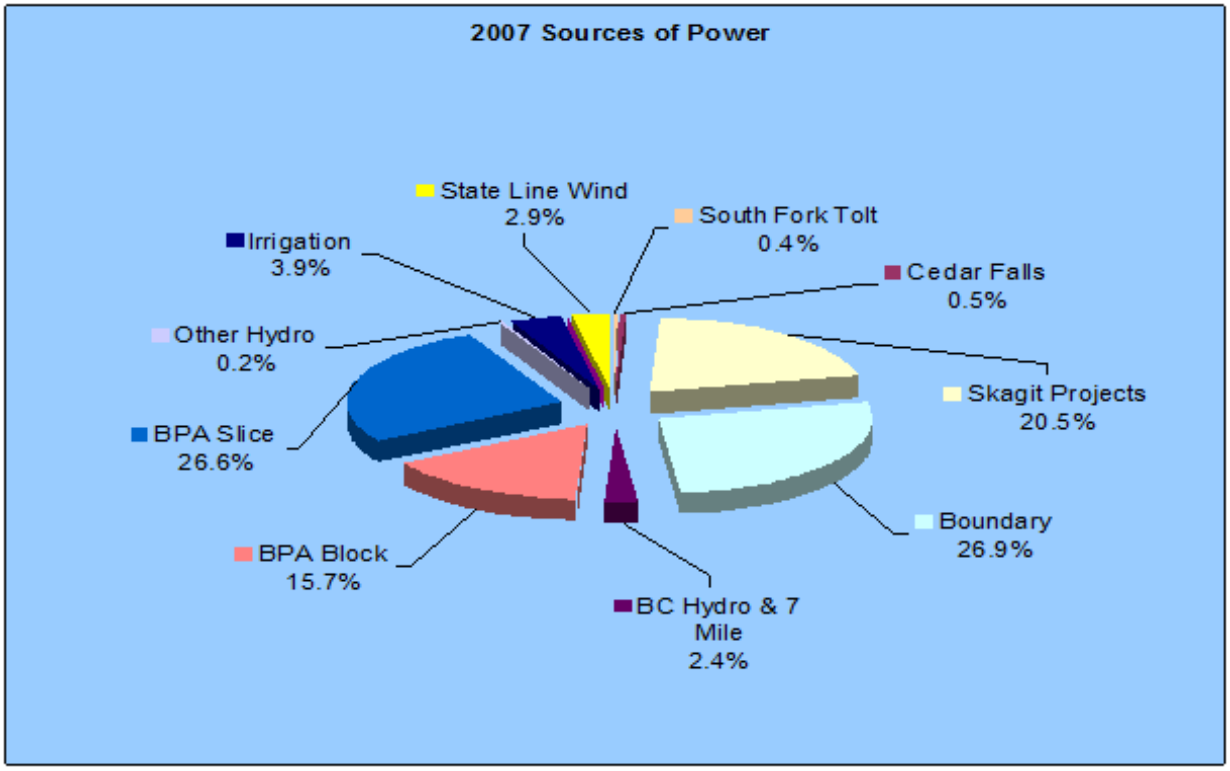

Figure H.2-2. Sources of SCL's power in calendar year 2007.

The Project is critical to SCL's power generation operations not only for the amount of power it provides, but also for the role it plays as SCL's principal load-following resource. The Project typically begins generating in the early morning hours and ramps up to meet peak morning demand. Power is generated throughout the day, rising and falling in response to customer demand, and then increases again to meet peak evening demand.

The majority of the Project's value to SCL and the region is due to its flexibility and reliability, that is, its ability to ramp up or down quickly within the hour and in immediate response to customer demand. This flexibility allows the Project to respond to daily fluctuations in customer demand, both in the City of Seattle and the region as a whole. This flexibility is what distinguishes the Project from many other similarly-sized Northwest hydropower facilities, whose operations are heavily constrained by regulations designed to protect anadromous fish.

SCL proposes to operate the Project consistent with current practice. SCL will formalize restrictions on summer forebay water surface elevations (done mainly to benefit recreation) and sequencing of turbine operation to reduce total dissolved gas (TDG). However, turbine sequencing for TDG reduction may no longer be needed following upgrades to Units 55 and 56, i.e., the units that have the greatest effect on production of non-spill-related TDG. If unit sequencing is no longer needed in the future, it will be discontinued by SCL. Operating the Project as proposed will continue to allow SCL to provide clean, safe, and reliable power to its ratepayers. If the new FERC license were to contain restrictions beyond what is proposed by

SCL, the Project's existing operational flexibility will be diminished, and SCL will need to assess available alternatives and prepare to make new resource decisions predicated on its need to provide clean, safe, and reliable power. To the extent that a new license will impose constraints on within-hour operations at the Project, SCL and the region will need to replace that power with an alternative resource.

2.2.2. Cost and Value of Project Generation

2.2.2.1. Cost of Project Generation

In 2007, the annual cost of power produced by the Project was $26.3 million, which includes production expenses and an allocated share of debt service. Production expenses were $13.8 million for operations, maintenance, FERC fees, impact payment to Pend Oreille County, and a share of administrative and general costs based on production costs at the Project. Debt service was $12.5 million, which is allocated based on the Project's share of SCL's net asset value and 2007 debt service payments. This is an average cost of $6.40/MWh.

2.2.2.2. Value of Project Generation

Replacement Costs of and Environmental Impacts of Energy and Capacity

To replace the energy and capacity from the Project, SCL could construct or buy output from coal-fired, gas-fired, or renewable-fueled replacements. State permitting regulations and City policies effectively preclude construction of or contracts with coal-fired plants. Renewable resources do not provide the same resource reliability and capacity benefits as the Project, and therefore, could not adequately replace the energy and capacity from the Project.

The technology most similar to the Project, which has a peak output of 1,040 MW and average capacity factor of 45 percent, is a natural gas-fired combined cycle plant. Such a plant can follow load changes and provide ancillary services, although not as well as the Project.

A 1,040-MW combined cycle plant will cost approximately $1.2 billion dollars to construct, which, including fixed operation and maintenance costs, has an annual equivalent of $97 million. Annual gas consumption to meet the firm output of the Project (3 million MWh per year) will cost between approximately $83 million with a natural gas price of $4/MMBTU to as much as $207 million with a natural gas price of $10/MMBTU. Adding variable operations and maintenance costs and the carbon tax, as identified in President Obama's 2010 budget proposal, and assuming a long-term levelized natural gas price of $6/MMBTU, yields an annual variable cost of $143 million. As a result, the annualized replacement cost for the firm output of the Project will be $221 million ($74.05/MWh), assuming a natural gas cost of $6/MMBTU.

The decision to operate the replacement plant in a manner to replace some or all of the non-firm output will be based on actual market prices for energy and ancillary services compared to the operational and opportunity costs.

In addition to financial costs, the replacement plant will have certain environmental impacts. Air emissions impacts are estimated in Table H.2-1, and consumptive water use is described in the following paragraph. Other environmental impacts have not been quantified.

Table H.2-1. Estimated annual air emissions associated with replacement plant.

Pollutant	Estimated Annual Emissions (tons)
Nitrogen oxide	1,348.75 [1]
Carbon dioxide	1,213,875 [2]
Carbon monoxide	311.25 [2]
Sulfur dioxide	35.275 [3]
Methane	89.225 [2]
Total particulate matter	68.475 [2]
Volatile organic compounds	21.7875 [2]

Notes:

1 United States Environmental Protection Agency, Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources, AP-42 Fifth Edition, January 1995, Supplement F, April 2000, ("AP-42"), Table 3.1-1.

2 United States Department of Energy, Energy Information Administration, Instructions for Form EIA-1605, Appendix H.

3 AP-42, Table 3.1-2a.

It is anticipated that a replacement 1,040-MW combined cycle plant will have a re-circulating wet cooling system. Re-circulating wet cooling requires between 4.72 and 5.86 acre-feet of cooling water per MW per year (Maulbetsch and DiFilippo 2006). Based on the size of a combined cycle plant necessary to replace the Project, the replacement plant will have a consumptive water use of between 4,909 and 6,094 acre-feet per year of cooling water. By contrast, Project use of water is generally non-consumptive.

Value of Ancillary Services

Ancillary services include the ability of a power plant to respond quickly to changes in load from end-users or changes in supply from intermittent sources such as wind turbines. While the Pacific Northwest does not have an organized market or posted prices for these services, certain proxies are available.

Regional utilities post prices for these services in Open Access Transmission Tariffs and the Northwest Power Planning and Conservation Council estimates and projects these costs into the future. Based on an assessment of growing quantity demanded for these sources, the price of ancillary services is likely to rise at a rate higher than overall price inflation for the next 20 years.

SCL provides ancillary services from its Skagit River Project, Boundary Project, and certain contracts, and provides these services to SCL's ratepayers and third parties. SCL's ability to provide ancillary services from multiple sources increases SCL's overall ability to respond to changes in load compared to a scenario in which SCL had only one source. Having multiple

sources is advantageous to SCL's ratepayers, but complicates the task of estimating ancillary services from a single source, such as the Project.

2.3. Statement of Need for Modifications of the Project Facilities or Operations

Proposed changes in Project operations and facility enhancements, as described below, are expected to increase hydroelectric generation, provide increased environmental benefits, and enhance non-power resource values. Potential modifications associated with these changes are summarized in Exhibit A (Attachment A-1) and are described in more detail in Exhibit E of this License Application.

2.3.1. Proposal for Facility Enhancements

SCL proposes to install new high efficiency turbines in Units 55 and 56. The turbine runner upgrades will increase efficiency, i.e., they will use the same flow to produce a greater amount of energy and will have a higher total generation capacity. The turbine runner efficiency upgrades will be performed concurrently with planned electrical generator rewinds and step-up transformer replacements, which are scheduled for Years 1 and 2 after license issuance.

Reconnaissance-level engineering and cost studies for the turbine runner upgrades were performed in 2008 and 2009. Results indicate that installed capacity for each turbine will increase from 200 MW to 215 MW (i.e., the electrical output from the generator) (see Figure H.2-1), for an increase of total Project capability from 1,040 MW to 1,070 MW and an estimated increase in average annual generation of 39,838 MWh. Cost estimates for this effort are detailed in Exhibit D of this License Application.

SCL also plans to rewind the generators and replace the turbine runners and transformers for Units 51 through 54 during the new license term; however, it is not expected at this time that these changes will result in an increase in capacity or generation.

Descriptions of other proposed modifications and enhancements to Project facilities are included in Exhibits A C, D and E of this License Application.

2.3.2. Proposed Changes to Project Operations

Under the new FERC license term, SCL proposes to operate the Project as it is currently licensed, but with the formalization of two currently voluntary operational measures: forebay water surface elevation restrictions primarily for summer recreation enhancement and turbine unit sequencing to reduce TDG production. A general description of Project operations is provided in Section 3.2.1 of this Exhibit, and the voluntary measures to be formalized are described below.

From Memorial Day weekend (starting Friday evening) through Labor Day weekend (on Monday evening), forebay water surface elevations will be maintained at or above 1,984 North

American Vertical Datum (NAVD) 88 [2] from 6:00 am through 8:00 pm to facilitate recreational access and use. From 8:00 pm through 6:00 am, forebay water surface elevations will be maintained at or above elevation 1,982 feet NAVD 88. From Labor Day weekend to Memorial Day weekend, operating the Project as it is currently operated will result in forebay water surface elevations fluctuating between 1,994 feet and 1,974 feet NAVD 88, and minimum forebay elevations will often be above 1,980 feet NAVD 88. Under SCL's proposed operations, the 1,984- and 1,982-foot water surface elevations will be license requirements that cannot be violated except for conditions such as equipment failures, maintenance activities, electrical and mechanical device limitations, safety inspections, testing, natural disasters (e.g. lightning), compliance with Western Electricity Coordinating Council (WECC) and North American Electric Reliability Council (NERC) requirements, capacity and energy emergencies, and any event that triggers the Project Emergency Action Plan (EAP).

To reduce TDG under normal, non-spill operations, SCL will operate Units 55 and 56 above 125 MW and sequence their startup and shutdown so that they are the last units to be brought on line and the first units to be shut down (see Section 5.4.7 of the Evaluation of Total Dissolved Gas and Potential Abatement Measures Final Report [SCL 2009] for greater detail).

During the new license term, SCL plans to upgrade equipment at the Project's power plant (see Section 2.3.1 of this Exhibit). Proposed upgrades to the Unit 55 and 56 turbines may reduce or eliminate the conditions that in the past have led to TDG production during non-spill operations. When the proposed turbine upgrades are completed, SCL plans to re-evaluate the need for the unit sequencing identified above and adjust the approach to, or eliminate, the sequencing restrictions as appropriate.

Further details regarding proposed modifications to Project operations under the new license, including the modeling analysis of operational scenarios that led to the proposal, are provided in Exhibit E of this License Application.

2.4. Conformance with Comprehensive Plan for Development of Waterway

PM&E measures are proposed for the new license term (as summarized in Exhibit A and detailed in Exhibit E of this License Application) to make the Project's operations and facilities compatible with the natural resource goals of resource agencies and other relicensing participants in accordance with regional comprehensive plans. Several comprehensive plans have been developed by federal and State agencies for developing the waterway and for other beneficial uses in the vicinity of the Project. These plans and strategies are briefly summarized below.

[2] Elevation values are in datum NAVD 88 unless otherwise noted.

2.4.1. List of Plans

2.4.1.1. Bureau of Land Management. 1985. Spokane Resource Management Plan. Department of the Interior, Spokane, Washington.

Land managed by the Bureau of Land Management (BLM) in eastern Washington is guided by the BLM Spokane District Resource Management Plan (BLM 1985). The Resource Management Plan establishes an overall goal to "provide a variety of uses within the sustained yield capability of the resource…[combining] renewable and non-renewable resource uses, incorporating the necessary constraints for protecting resources from irreversible decline." To support that overall goal, the Resource Management Plan includes a number of "general management objectives" for lands within the planning unit of the plan (east of the Cascade Mountains in Washington State). Relevant objectives of the plan include the following: (1) protect or enhance water quality with particular attention to those watersheds with major downstream water uses, including anadromous and other sport fisheries and agriculture; (2) keep public lands open for exploration/development of mineral resources, rights-of-way, access, and other public purposes with consideration to mitigate designated resource concerns; (3) enhance BLM land pattern and resource management efficiency or make lands available for better uses; and (4) manage public lands and keep access routes open for a variety of recreational opportunities/experiences, including both motorized and non-motorized recreative activities.

2.4.1.2. Forest Service. 1988. Colville National Forest Land and Resource Management Plan. Department of Agriculture, Colville, Washington.

The Colville National Forest is located within Pend Oreille, Stevens, and Ferry counties and consists of over 1 million acres, some of which are within or border the Project boundary. The current Colville National Forest Plan (USFS 1988) guides natural and cultural resource management activities on U.S. Forest Service (USFS)-managed lands and establishes management standards and guidelines. It describes resource management policies and prescriptions, levels of resource production and management, and the availability and suitability of lands for resource management. The Colville National Forest Plan is currently being updated by the USFS.

2.4.1.3. Northwest Power and Conservation Council. 2009. Fish and Wildlife Program. Portland Oregon. Council Document 2009-02.

In 1990, Congress enacted the Pacific Northwest Electric Power Planning and Conservation Act. As authorized under the Act, the states of Idaho, Washington, Oregon and Montana created the Northwest Power and Conservation Council ("Council"). In accordance with the Act, the Council prepared the Fish and Wildlife Program aimed at protecting, mitigating, and enhancing fish and wildlife of the Columbia River Basin that have been affected by the construction and operation of hydroelectric dams, while also assuring the Pacific Northwest an adequate, efficient, economical, and reliable power supply. The program was first adopted in November 1982 and was most recently revised in 2009.

The overarching biological objectives of the 2009 Program include: (1) a Columbia River ecosystem that sustains an abundant, productive, and diverse community of fish and wildlife; (2)

mitigation across the basin for the adverse effects to fish and wildlife caused by the development and operation of the hydro system; (3) sufficient populations of fish and wildlife for abundant opportunities for tribal trust and treaty right harvest and for non-tribal harvest; and (4) recovery of the fish and wildlife affected by the development and operation of the hydro system that are listed under the Endangered Species Act.

The 2009 Program is to be implemented principally at the subbasin level. For each of the 50 subbasins of the Columbia River Basin, a locally developed "plan" will be adopted into the 2009 Program. Each plan is to have its own vision and biological objectives and will identify specific actions needed for fish and wildlife in that subbasin. The plans must be consistent with the visions, biological objectives, and strategies adopted at the basin and province levels, but otherwise are free to reflect unique choices and local policies and priorities.

2.4.1.4. Northwest Power and Conservation Council. 2005. The Fifth Northwest Electric Power and Conservation Plan. Portland, Oregon. Council Document 2005-07.

The 1980 Pacific Northwest Electric Power Planning and Conservation Act also requires the Council to periodically develop a 20-year power plan to assure the region of an adequate, efficient, economical, and reliable power system.

The Fifth Power Plan is designed to provide a flexible resource strategy that can perform well under the expanded and intensified range of future uncertainties. It also addresses policy issues that affect the region's ability to assure an adequate, efficient, economical, and reliable power system. These issues include: standards for resource adequacy; planning, funding, and operation of transmission; the interaction of fish and wildlife and power; and the future role of the BPA in power supply. In the plan, the Council assesses these issues and recommends actions to help regional entities resolve them. The plan recognizes the ability of using hydropower to support wind generating resources.

2.4.1.5. U.S. Fish and Wildlife Service. 1988. Fisheries USA: The Recreational Fisheries Policy of the U.S. Fish and Wildlife Service. Washington, D.C.

In 1988, the U.S. Fish and Wildlife Service (USFWS) initiated a multilateral effort to establish a National Recreational Fisheries Policy. The policy is structured to serve and be used by agencies, organizations, and individuals to enhance the vitality of recreational fisheries at the local, state, and national levels. Goals of the policy are to facilitate the preservation and/or increased productivity of fishery resources; ensure and enhance the quality, quantity, and diversity of recreational fishing opportunities; develop and enhance partnerships between governments and the private sector for conserving and managing recreational fisheries; and cooperate to maintain a healthy recreational fisheries industry.

2.4.1.6. Washington Department of Ecology. 1994. State Wetlands Integration Strategy. Olympia, Washington. December 1994.

The Washington Department of Ecology brought together a variety of jurisdictions within the state to develop a Wetlands Integration Strategy for the purpose of creating a more effective, efficient, and coordinated system to better protect the wetland resources of Washington State.

2.4.1.7. U.S. Fish and Wildlife Service. Canadian Wildlife Service. 1986. North American Waterfowl Management Plan. Department of the Interior. Environment Canada. May 1986.

The North American Waterfowl Management Plan calls for biologically based planning refined through ongoing evaluation, definition of the landscape conditions needed to sustain waterfowl and benefit other wetland-associated species, and collaborative initiatives to reach out to other sectors and communities to forge broad resource management alliances.

2.4.1.8. Washington Department of Game. 1987. Strategies for Washington's Wildlife. Olympia, Washington. May 1987.

This program has been superseded by the 2005 Washington Comprehensive Wildlife Conservation Strategy (WCWCS). All State Wildlife Grants funded by Congress are predicated on the completion and acceptance of state Comprehensive Wildlife Conservation Strategies (CWCS) by October 2005. This program develops a number of programs including status and trend monitoring of wildlife, implementation and effectiveness monitoring, setting of priorities, and adaptive management.

2.4.1.9. Washington Department of Natural Resources. 1987. State of Washington Natural Heritage Plan. Olympia, Washington.

The 1981 amendment to the Natural Area Preserves Act requires the Natural Heritage Program (NHP) to develop a plan each biennium regarding the Act's implementation. Specifically, the purpose of the State of Washington Natural Heritage Plan is to identify priority species and ecosystems to be considered in the selection of potential natural areas and establish the criteria and process by which natural areas are selected. Washington's last NHP update was published in 2009.

2.4.1.10. Washington Department of Ecology. 1986. Application of Shoreline Management to Hydroelectric Developments. Olympia, Washington. September 1986.

The Application of Shoreline Management to Hydroelectric Developments document discusses general shoreline management at hydroelectric projects.

2.4.1.11. Interagency Committee for Outdoor Recreation. 2008. Washington Statewide Comprehensive Outdoor Recreation Plan. Olympia, Washington. June 2008; Interagency Committee for Outdoor Recreation. 1995. Washington State Outdoor Recreation and Habitat: Assessment and Policy Plan 1995-2001. Tumwater, Washington. November 1995; Interagency Committee for Outdoor Recreation. 1991. Washington State Trails Plan: Policy and Action Document. Tumwater, Washington. June 1991.

Statewide Comprehensive Outdoor Recreation Planning (SCORP) documents are prepared periodically by the Washington State Recreation and Conservation Office (RCO) to provide statewide policy direction and to fulfill the agency's recreation and preservation mandate. The updated SCORP serves as a status report and as an overall guidance document identifying priorities for future recreation projects. The direction for recreation in the state is guided by statewide policies. SCL anticipates that the FERC's List of Comprehensive Plans will soon be updated to include the 2008 SCORP; accordingly, that is the version addressed in this License Application.

2.4.2. Summary

The existing Project provides beneficial public uses, including recreational opportunities, in addition to its energy generation benefits, and in general conforms with the comprehensive plans and strategies that apply to the waters and lands occupied by the Project. SCL believes the Project, including any proposed modifications and measures described in this License Application, will continue to provide beneficial uses as defined in section 10(a)(1) and (2) of the Federal Power Act (FPA).

2.5. Financial and Personnel Resources for Operation and Maintenance of the Project

2.5.1. Financial Resources

SCL's Strategic Plan emphasizes the importance of financial strength to meeting strategic initiatives including relicensing the Project (SCL 2008a). SCL will recommend financial policies and retail rate increases sufficient to fund the initiatives. SCL's customer base includes the City of Seattle, with 586,000 people in 2007 and a population growth rate of 1-2 percent per year, franchise agreements for retail sales with six communities adjacent to Seattle, and wholesale sales of surplus power that result when flow conditions are greater than the critical conditions SCL uses for supply planning.

SCL's financial resources for operation and maintenance of the Project come from retail revenue and wholesale revenue. In 2007, these were $542 million and $161 million, respectively. These revenues support all SCL activities, with no special designation given to any of SCL's projects.

2.5.2. Personnel Resources

The Project is a fully staffed facility with a crew of 41 full time employees on site. Table H.2-2 identifies the number of employees, by job title, assigned to the facility.

Table H.2-2. SCL O&M permanent staff for the Boundary Project.

O&M Staff Category	Number of Employees
Mechanical Crew	6
Hydro Maintenance	9 [1]
Electrical Crew	9
Operations Staff	7
Warehouse Staff	2
Management and Office Staff (on-site)	6
Engineering Staff (on site)	2

Note:
1 Four temporary hydro maintenance staff members are typically hired during summer months.

The regular staff is also complemented with temporary employees during Project maintenance outages.

The mechanical crews are specifically trained on specialized equipment such as governor controls, welding technology, machine tools, rigging, and alignment. Several of the senior mechanics have reached the AA Serviceman level of competency and are some of the most highly trained personnel at SCL. The civil crew is trained to operate heavy machinery. All employees on this civil crew are licensed by the Washington Department of Transportation to operate heavy trucks on public roads, and they have a long history of heavy equipment operation.

The operations staff is the most highly trained group on site. Training is performed by members of the hydro support group, and records are maintained for each operator. The electricians are also qualified as wiremen. The Project is fully equipped with a machine shop, weld repair and fabrication shop, electrical shop, and a full complement of heavy equipment to ensure optimum maintenance of all facilities. Operations staff is on site 24 hours a day. All other support groups are available during normal working hours with on-call capability. The Project is connected to SCL's System Control Center and other support groups in Seattle by computer, phone line, radio, and satellite communication.

The on-site personnel are backed up by a support group in Seattle that provides direction in the areas of environmental concerns, FERC requirements, contract questions, and financial and budget requirements, as well as engineering solutions and predictive/preventative maintenance programs. These groups provide on-site services when required.

All services and technical direction are also available from SCL's other hydroelectric facilities, and Service Centers in Seattle. These facilities share manpower, expertise, spare parts, and tooling, as well as new ideas, with each other. They are all tied into outside support

organizations such as the Electric Power Research Institute (EPRI) and Northwest Power Pool, thereby providing contact with other hydropower peer groups that discuss new designs and innovative repair and maintenance concepts.

The information above demonstrates that the Project facilities have been well maintained and operated since their construction and that they are backed up by a competent engineering and support staff.

2.6. Plans to Include Additional Lands in the Project Boundary

As described in Exhibit G of this License Application, SCL proposes to re-establish the 200-foot mine safety buffer around the lower reservoir. Doing so will require the addition of some new lands within the Project boundary and the removal of other lands. Other specific changes to the Project boundary to include certain existing or proposed Project features (e.g., Project roads and Metaline Falls Portage Trail) also require the addition of some new lands within the Project boundary. SCL has notified, by certified mail, the owners of all new lands to be included within the Project boundary of these proposed changes. SCL has also notified Pend Oreille County and the Town of Metaline Falls.

2.7. Electric Consumption Efficiency Improvement Programs

2.7.1. Seattle City Light's Record of Conservation Assistance Programs

Seattle has the longest continuously operating energy efficiency program in the nation. It has earned a well-deserved reputation as a conservation pioneer and leader. The effort began in 1972 when the "Seattle 2000" Commission identified energy conservation as the priority power source to serve the City's growing electrical load. SCL developed its first energy conservation programs in 1977 when Seattle's elected officials, working with an appointed citizen committee, determined that Seattle's load growth would be met with energy conservation. In subsequent legislation, the City designated conservation (and renewable energy) as the City's priority energy resources. This policy direction and support continue today. Since 1977, the City and SCL have stayed committed to energy efficiency as the most cost-effective and environmentally friendly energy resource available.

The City's initial conservation programs focused on building public awareness with an emphasis on low-cost or no-cost actions. Changing individual behavior–particularly turning off lights, appliances, equipment, and other electrical devices when not in use–was the foundation of energy conservation messages. This message is more valid now than ever before. SCL built on this foundation by encouraging homeowners and business owners and managers to buy and use energy-efficient products and equipment.

In 1978, SCL developed its first grant- or incentive-based energy conservation program, to install attic insulation in the homes of low-income elderly customers. This concept was expanded to include broader weatherization services (e.g., windows, wall insulation and water heater tank wraps) for single-family and multifamily buildings. Programs targeted at specific end uses, including heating water and washing clothes, were also developed. The utility expanded these types of services to the commercial and industrial sectors. Efforts to increase the

efficiency of lighting, motors, heating/cooling equipment, and custom energy management solutions were implemented and continue to be program mainstays. As with the residential sector, the commercial and industrial program offerings have been aimed at both new construction and existing buildings. To increase program participation, SCL found that financial incentives (loans, grants and/or rebates) were necessary. These incentives have addressed customers' concerns about the high first-cost of energy conservation measures and have overcome investment barriers.

A summary of electricity savings, by sector, from conservation efforts is provided in Table H.2-3. This table shows that there has been a dramatic increase in electricity savings from 1977 through 2006. In 1978, SCL conservation programs saved approximately 1,800 MWh; by 2006, the combined residential, commercial, and industrial programs saved nearly 1,001,400 MWh. From 1977 through 2006, conservation programs saved over 11.9 million MWh. These savings, accrued since the start of all programs, would be enough to provide electricity to about 1,403,240 homes for one year (four times the number that exist in SCL's whole service area). In fact, if all 1977-2006 savings had been available in 2006, they could have powered the entire SCL load in all sectors for the year, with 32 percent to spare. Energy savings in 2006 from cumulative participants with active measures totaled 1,001,367 MWh, enough to power 118,364 homes (about one-third of SCL's residential service area).

Electric space heat and water heat are prevalent in Seattle's marine climate, making SCL a winter-peaking utility. Air conditioning in homes during the summer is rare, although it is common in commercial buildings all year round. Greater electricity use during the winter has governed the evolution of conservation programs in Seattle. Nonetheless, SCL focuses on average overall load reduction as its basic energy management strategy, from year-round lighting, appliance, and water heat end uses as well as from winter heating and summer cooling.

The average utility system load reduction in 2006 was 114.2 average megawatts (aMW). By sector, this unadjusted on-site load reduction was: Residential, 36.3 aMW; Commercial, 64.0 aMW; and Industrial–Governmental, 13.9 aMW.

Table H.2-3. Annual program electricity savings. [1]

Year	Residential Programs (MWh)	Commercial Programs (MWh)	Industrial-Government Programs (MWh)	Total Savings (MWh)
1977	116	0	0	116
1978	1,796	0	0	1,796
1979	6,386	2,592	0	8,978
1980	12,325	4,376	916	17,617
1981	17,428	9,915	2,350	29,693
1982	56,073	18,330	4,503	78,906
1983	77,729	31,443	14,547	123,719
1984	77,878	38,539	20,233	136,650
1985	87,210	46,680	25,765	159,655
1986	96,413	50,859	31,608	178,880
1987	104,780	50,854	34,352	189,986
1988	111,822	53,099	35,307	200,228
1989	114,873	57,129	38,694	210,696
1990	117,197	66,083	41,473	224,753
1991	120,163	86,139	42,158	248,460
1992	135,883	107,497	47,892	291,272
1993	144,436	142,671	52,963	340,070
1994	162,919	187,980	56,803	407,702
1995	178,496	223,965	71,522	473,983
1996	186,748	261,885	80,337	528,970
1997	197,760	283,195	83,479	564,434
1998	207,893	332,409	85,726	626,028
1999	220,839	361,715	96,490	679,044
2000	230,860	385,340	95,089	711,289
2001	266,380	426,395	97,201	789,976
2002	291,040	457,738	104,009	852,787
2003	299,537	487,267	102,016	888,820
2004	305,122	512,466	115,222	932,810
2005	313,160	541,174	118,511	972,845
2006	318,307	561,012	122,048	1,001,367
Total	**4,461,569**	**5,788,747**	**1,621,214**	**11,871,530**

Note:

1 Savings are aggregated from individual conservation program entries in Sections II-V of this report. The Energy Code Program (commercial buildings) and Lighting Design Lab are excluded.

Source: Energy Conservation Accomplishments: 1977-2006 Seattle City Light, I -17. (SCL 2007)

2.7.2. Seattle City Light's Plans and Capabilities to Promote Future Conservation

Seattle and the surrounding area continue to attract vibrant economic growth and development, guided in part by state and local policies intended to concentrate growth in urban areas. SCL's current Conservation Plan presents a "green," climate-friendly option for meeting the community's near-term energy needs cost-effectively, while delivering long-term, customer and environmental benefits. It complements the City of Seattle's 2006 Climate Action Plan and recommends a conservation savings path, including detailed budgets, proposed savings targets, program content and organizational requirements.

The recommended path will sustain SCL as a national leader for its innovative and effective energy conservation programs, in particular by meeting most of the utility's planned load growth with conservation as the first-choice resource. As shown in Table H.2-4, SCL will achieve efficiency gains equal to one percent of total retail sales and nearly all of SCL's expected load growth by 2010. This equates to over 125,000 MWhs or 14.5 aMW by 2010, a 100 percent increase from 2007 (7.25 aMW), and reaches 15.3 aMW in 2012.

Table H.2-4. SCL's five-year Conservation Plan, goals and budgets.

Year	aMW[1]	MWhs[2]	$ Million[3]
2008	8.4	73,804	$25.03
2009	12.2	180,521	$41.94
2010	14.5	307,070	$46.13
2011	15.1	439,561	$50.17
2012	15.3	573,807	$51.33
2008-2012 Cumulative Total	**65.5**	**573,807**	**$214.60**

Notes:

1 Average MW (aMW) = 8,760 megawatt-hours (MWh). The aMW unit is a unique measure often used in the hydroelectric-based Northwest. These numbers represent the total new aMW of conservation achieved in each year.

2 Starting in 2008, MWh savings are cumulative. For example, 2008 represents savings from only 2008, 2009 represents savings from 2008 and 2009, 2010 represents savings from 2008, 2009 and 2010, etc.

3 These figures represent SCL's net costs for the Five-Year Plan. These figures include all program related costs, employee salaries, labor loadings, administrative and general expenses, offsetting revenue from outside parties, and loan repayments.

Source: *Building a World-Class Conservation Power Plant: One Customer at a Time.* 2008 – 2012, Seattle City Light , Conservation Resources Division Action Plan, P.3, September 16, 2008. (SCL 2008b)

The aggressive energy savings goals of the Five-Year Plan provide a cost-effective energy resource consistent with the accelerated path recommended by the 2008 Integrated Resource Plan (SCL 2008c). Significantly, the Five-Year Plan also aligns directly with the City of Seattle's 2006 Climate Action Plan by greatly enhancing energy efficiency efforts in the residential and other sectors. Achieving the energy efficiency goals is necessary to continue the City's momentum toward carbon neutrality. To achieve these impressive goals, the program must ramp up significantly in 2009, with associated increases in staffing, contractor support, and investment by SCL.

The Plan directly supports these goals, and for electricity efficiency establishes a base upon which the other policies can build. Finally, SCL's 2006 Integrated Resource Plan found that accelerated levels of conservation above the existing goal of 7.25 aMW were cost-effective. The Plan recommended study of accelerated levels of conservation. Informed by work done to develop the Conservation Five-Year Plan, the recently adopted 2008 Integrated Resource Plan recommends accelerating conservation to levels consistent with the Plan.

2.8. Comparison of the Impact on the Operations and Planning of the Applicant's Transmission System of Receiving or not Receiving the Project License

SCL has developed its transmission system and contracted for transmission service with the Project as an essential component of SCL's resource portfolio to serve its load (single-line transmission drawings are shown in Exhibit F, Sheets 6 and 7, of this License Application). The contract with the BPA has specific provisions to ensure that SCL can deliver power from the Project to load or wholesale customers. By receiving a new license, SCL can maintain the transmission lines built at the Project and continue contracted services in an orderly manner.

If SCL were not to receive a new license, one result will be stranded SCL transmission lines at the Project. This investment, valued at $5.2 million as of January 1, 2007, will have no use to SCL's ratepayers. Furthermore, SCL will require a replacement source of power with a different set of provisions in the contract with BPA, which may or may not be available.

Without specificity about the location of the replacement power and required transmission, the information to estimate the need for new lines, magnitude of line losses, and redistribution flows is not available. To date, SCL has not conducted power flow studies related to the scenario in which SCL does not receive a new license for the Project.

SCL's transmission system is necessary to the distribution of the Project's power to customers. Boundary Dam is in the northeast corner of Washington State, with insufficient demand in the immediate vicinity to make efficient use of the generation.

2.9. Names and Mailing Addresses of Indian Tribes and Other Native Organizations Consulted

Early in the relicensing process, SCL identified and contacted the following Native American tribes and organizations for the purpose of consultation pursuant to Section 106 of the National Historic Preservation Act (NHPA), and has consulted with these tribes and organizations throughout the relicensing process:

Coeur d' Alene Tribe
850 A. Street
P.O. Box 408
Plummer, ID 83851-9703

Confederated Salish and Kootenai Tribe
Tribal Council
P.O. Box 278
Pablo, Montana 59855

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

Kalispel Tribe of Indians
Tribal Headquarters
P.O. Box 39
Usk, WA 99180

Kootenai Tribe of Idaho
Kootenai Tribal Council
P.O. Box 1269
Bonners Ferry, ID 83805

Spokane Tribe of Indians
P.O. Box 100
Wellpinit, WA 99040

3 Information to be Provided by an Applicant Who is an Existing Licensee

3.1. Measures Taken or Planned by the Applicant to Ensure Safe Management, Operation and Maintenance of the Project

3.1.1. Overview

The Project is normally staffed with a crew of 41 full-time employees. The dayshift includes a full complement of superintendents, technicians, mechanics, electricians, and others necessary to carry out routine operations, inspections, and maintenance activities. In response to recommendations in SCL's 2005 Part 12 Safety Inspection Report (SCL 2005), a surveillance instrumentation technician was added to the Project staff to be responsible for the daily visual dam safety inspections and for the reading of the Project instrumentation. Also in response to recommendations in the 2005 Part 12 Safety Inspection Report, a revised Daily Visual Dam Safety (DVDS) report form was prepared that is more Project-specific and better focused on those elements that have a bearing on dam safety. A description of warning devices is provided in Section 3.1.4 of this Exhibit.

3.1.2. Existing and Planned Operation of the Project During Flood Conditions

The Project has a maximum hydraulic capacity of approximately 56,000 cubic feet per second (cfs). When flows in excess of this capacity are spilled during floods, the spillway gates are opened first until half their discharge capacity (total of approximately 54,000 cfs) is reached, then the sluiceways are opened, with the sluice gates closest to the center of the dam opened first

to reduce the possibility of eroding the abutments on the downstream side of the dam. Half the spillway gate capacity is reserved to maintain a steady forebay elevation while sluice gates are being opened. The sluice gates are either fully open or fully closed, and cannot be throttled. Opening times for the sluice gates are approximately 30 minutes each.

In the new license term, SCL proposes to operate the Project in the same manner for handling flood conditions, although in the future one or more of the sluice gates may have the capacity to be throttled as part of measures implemented for TDG attainment.

3.1.3. Measures Taken to Evaluate Seismicity and Related Hazards that Could Affect the Project

3.1.3.1. Seismic Hazard Potential

The Project is located in an area of low seismicity. The most notable past earthquake to occur was the October 28, 1983, Borah Peak, Idaho earthquake; this magnitude 7.3 earthquake at an epicentral distance of 625 kilometers (388 miles) was felt in nearby communities but not at the Project. SCL, as a component of its existing operations, inspects the Project following the occurrence of any earthquake that is felt at the site or the occurrence of a significant earthquake that is reported in the vicinity. If unusual conditions are noted, a follow-up inspection is conducted by engineers from SCL's Dam Safety Department or engineering staff. A significant earthquake or extreme event includes seismic events that exceed 0.1 g free field ground motion measured at the strong motion accelerometer (SMA) located in the Project mucking tunnel, SMA No. 3 (SCL 2004).

Seismic data for the Project region have been collected continuously since 1909 at stations in Spokane, Washington (1909-1969), Nordman, Idaho (1969-1975), and Newport, Washington (1966-present) (SCL 1994).

3.1.3.2. Integrity of the Dam under Seismic Loading

The Supporting Technical Information (STI) report in Exhibit F of this License Application contains a detailed discussion concerning the suitability of existing structures under various seismic loading events.

3.1.3.3. Existing Geological Hazards

The Project is periodically assessed for seismic and other geologic hazards through the required Part 12 dam safety inspections under FERC's authority. No significant seismic hazards or geologic hazards have been identified at the Project.

3.1.4. Warning Devices Used to Ensure Downstream Public Safety

SCL has prepared and filed with FERC an Emergency Action Plan (EAP) (SCL 2008d) for the Project that provides a detailed action plan and notification procedure in the event of a major discharge from any of the Project dams or spillways.

The power plant is staffed at all times. Various procedures and systems are in place for surveillance and detection of an emergency situation should one occur. These range from daily dam inspections by operations staff to a redundant Dam Failure Detection System (DFDS), which will trip an alarm both at the power plant control room and at the SCL System Control Center (SCC) in Seattle. Both audio and visual alarms will occur. Because of the short time period between a sudden dam failure and flooding of the power plant, the SCC dispatcher will have responsibility for initiating the EAP notifications. Three separate DFDSs are installed at the dam and are identified as follows:

- Hardwire Dam Failure Alarm – An electric current transmitted through a wire looped across the dam crest and through the dam gallery will activate an alarm if severed. Failure of the DC electric power supply is also separately alarmed.
- Reservoir Rapid-Level-Change Alarm – A software package built into the Supervisory Control and Data Acquisition-Emergency Management System (SCADA-EMS) monitors reservoir elevation data and trip an alarm in response to a rapid change in reservoir elevation (visual alarm only at power plant).
- Gallery High-Inflow Alarm – Float switches mounted in the drainage gutter in the dam gallery will trip an alarm if inflow to the dam exceeds preset limits.

The Gallery High-Inflow Alarm is intended to detect development of a potentially hazardous situation, whereas the other two alarms are primarily intended to detect a sudden dam failure. When a Gallery High-Inflow Alarm is received, operations personnel investigate the dam gallery immediately. If the power plant operator is out in the plant, the SCC dispatcher may be the first to notice the alarm. The SCC dispatcher will call the power plant to arrange for an inspection of the dam (The operator can hear a phone call anywhere in the plant.). The cause of the alarm could vary from a malfunctioning sump pump to the appearance of new seepage. If the situation is serious, senior SCL operations and engineering personnel are notified in accordance with the procedures set forth under the "Potentially Hazardous Situation is Developing" branch of the EAP Notification Chart No. 2.

When a DFDS alarm that could indicate a sudden dam failure is received, the SCC dispatcher immediately attempts to contact the power plant to clear the alarm. It is possible that any one of the DFDSs could malfunction and send a false alarm. If a false alarm or an alarm indicating a DFDS malfunctioning is received, repairs will be made at the first opportunity during regular working hours.

If a hardwire DFDS alarm is received, then the Project control room will be contacted immediately to determine if the alarm is false.

If communications cannot be established with the power plant staff, the BPA dispatcher at Ditmar will be contacted via the dedicated line. The BPA dispatcher will be requested to determine if BPA is receiving any indications that the alarm is false (such as continued generation at the Project). If BPA cannot immediately confirm that the alarm is false, the EAP warnings will be implemented.

The SCC in Seattle has primary responsibility for contacting local entities (BC Hydro and Fortis B.C. Canada) in the event of a failure of Boundary Dam. BC Hydro has satellite phones at Seven Mile Dam and the Control Centers.

The primary means of voice communication for Project personnel is via telephone circuits. These circuits include:

1. One direct line between the Project, SCC, Box Canyon Power plant, and Avista Corporation Control in Spokane via BPA.
2. Thirty (30) PAX trunks (SCL telephone system) connect the Project to Seattle and Skagit.
3. One Seattle commercial direct access (in Seattle it starts out as Qwest, at the Project it changes to Pend Oreille Telephone Co.) telephone drop. Between 7:00 a.m. and 3:30 p.m., Monday through Friday, the power plant office personnel answer these lines.

Alternative means of voice communications out of the Project include the following:

1. Seven drops into the local telephone company facilities.
2. One PAX trunk into Avista Utilities PAX system in Spokane and one Qwest drop (one way to Spokane).
3. Two satellite phones. One fixed station and another hand-held.

Alternative means of voice communications from the SCC include the following:

1. Six analog PAX trunks through T1 via NOANET and fiber optic.
2. Twenty three (23 ISDN) through NOANET and fiber optic.
3. One dedicated line to BPA (DATS).
4. Two commercial lines to the Project.
5. Two satellite phone.

Alternative communication (800) 700-2236 with the Pend Oreille and Stevens County sheriffs will be made through the Washington State Patrol, (Spokane) 24-hour dispatch by contacting them at (800) 283-7804.

The primary communication circuits from Seattle to the Project are via NOANET fiber from Seattle to BELL Sub in Spokane, then via Pend Oreille PUD and Seattle City Light fiber to the Project power plant.

The secondary communication circuits from Seattle to the Project are via NOANET fiber from Seattle to BELL Sub in Spokane, then via Pend Oreille PUD and Seattle City Light fiber to the Project power plant.

Communication between personnel at the Project site is accomplished by a 450-megahertz (MHz)(UHF) radio system (which includes base stations and portable units) and an in-plant PAX

telephone system. The base stations may be accessed from any PAX phone, thus increasing the capability for communicating in the event of a major catastrophe.

Four Pend Oreille County Sheriff 150-MHz mobile radios are available at the Project. Three North Pend Oreille County Sheriff vehicles are equipped with the Project 450-MHz radios, as well as one installed in the Fire District Paramedic vehicle.

The alternate communication circuits to the Project from BPA, POTC (Pend Oreille Tel), BC Hydro, and Fortis B.C. Canada are via POTC circuits to the Boundary Forebay Communications Room, then via in-plant fiber cable to the power plant. These circuits will remain intact during a total dam failure, assuming no other disturbances. Access to most Emergency Communications Links is also located in the Boundary Forebay Communications Room which is located above and upstream of the dam.

The BPA substation has the following communication systems available, which are safeguarded from rapid dam failure.

1. One BPA DATS Circuit.
2. One Telephone Drop.
3. One B.C Hydro and West Kootenay Telephone Drop.

If necessary, additional communication systems are also available at the BPA substation. Personnel can relocate to the BPA substation and establish a communication headquarters with others safely stationed in strategic places, such as the dam access road, the Vista House, and the forebay. On-site communication will be through portable hand-held or mobile 450-MHz radios.

In addition to the communication equipment and circuits, an alarm system has been put into service that monitors the status of various communication equipment, i.e., battery chargers, communication building temperature limits, radio receivers, and transmitters, etc. This alarm system is designed to provide the Project operator with notification of potential communication trouble.

An April 2003 dam safety agreement between SCL and downstream dam owners limits discharges for reservoir evacuation at Boundary Dam to 150,000 cfs, including power plant flow (SCL 2003). This limit will be reached only in a critical emergency condition and only after notifying downstream dam owners.

3.1.5. Any Proposed Changes to the Operation of the Project that Might Affect the Existing Emergency Action Plan on File with the Commission

The Project's EAP is available at the Project power plant control room and is current with the most recent update issued December 2008 (SCL 2008d). Inundation mapping was current as of December 1994 for both the sunny day and Probable Maximum Flood (PMF) failure scenarios. The PMF failure scenario is based on the previous PMF peak flow of 490,000 cfs, whereas the new PMF peak flow is 316,400 cfs. The 1994 inundation mapping for the PMF failure scenario involved a peak release of 4,400,000 cfs from the Project five minutes after the dam failure. The

difference of 73,600 cfs (490,000-316,400) is the contribution of the PMF flow to total PMF plus dam break peak flow of 4,400,000 cfs and represents 1.6 percent of the peak flow. This difference is small within the accuracy limits of such inundation mapping studies, and is on the conservative side in that the new PMF is lower than the previous PMF.

The proposed changes to operations are not expected to impact the existing EAP.

3.1.6. Existing and Planned Monitoring Devices to Detect Structural Movements or Stress, Seepage, Uplift, Equipment Failure, or Water Conduit Failure, Including a Description of the Maintenance and Monitoring Programs Used or Planned in Conjunction with the Devices

The Project has implemented an Operator Surveillance Program, through which operators are trained to observe each of the principal Project features with a view toward detecting any change that might suggest unsatisfactory performance. Operators also are instructed to thoroughly inspect and check functionality of important systems, such as gate operability, following any felt earthquake or after a major flood. In addition, active instrumentation and measurements include:

- Precise survey of crest monuments (trilateration)
- Borehole extensometers in the abutments
- Plumb lines at the downstream face of the dam and in the foundation
- Piezometers
- Drain flows
- Crack meters
- Strong motion accelerometers
- Temperature gages
- Concrete Temperatures
- Extensometers

Of these, many are integrated into an evolving automated data acquisition system (ADAS), allowing for real-time monitoring of dam behavior. These instruments have a regular system of inspection, which is described in the Project's existing Part 12 Safety Inspection Report (SCL 2005).

At this time, no changes to monitoring devices are planned for the new license term.

3.1.7. The Project's Employee Safety and Public Safety Record, Including the Number of Lost-Time Accidents Involving Employees and the Record of Injury or Death to the Public Within the Project Boundary

3.1.7.1. Project Employee Safety Record

SCL's records regarding employee safety include information from 2004 through 2008. The record of lost-time accidents for SCL employees working at the Project (including temporary employees hired for short-term projects) during this timeframe is summarized in Table H.3-1.

Table H.3-1. Record of employee accidents at the Boundary Project resulting in lost work time (2004-2008).

Date	Reported Injury [1,2]	Source of Information
01/13/04	Hit head on the cooling pipe.	Seattle City Light Safety Division
02/03/04	Masking off doors while working on knees and felt pain in back of right knee.	Seattle City Light Safety Division
04/07/04	Lifting baffle plates and injured back and left leg.	Seattle City Light Safety Division
04/20/04	Left thumb got pulled into pinch of chuck/key apparatus on drill bit.	Seattle City Light Safety Division
08/20/04	Sandblasting a piece of steel. Attempted to flip over and felt pain in low back and left leg immediately. Given prescription for physical therapy and had numerous follow-up visits.	Seattle City Light Safety Division
06/22/05	Removing piece of broken lighting and cut right hand. Received stitches for 3-cm wound.	Seattle City Light Safety Division
08/11/05	Slipped while climbing out of an oil sump bruising left arm and tail bone.	Seattle City Light Safety Division
08/23/05	Work-related hearing loss.	Seattle City Light Safety Division
07/05/06	Bilateral knee strain after tripping going up stairs.	Seattle City Light Safety Division
11/22/06	Slipped on oil spill and strained right thigh muscle.	Seattle City Light Safety Division
12/14/06	Climbing up ladder and foot slipped causing a fall and right hip bruise.	Seattle City Light Safety Division
01/29/07	Returning to workplace parking lot after lunch and slipped on the ice straining the left elbow and shoulder and lacerating my head.	Seattle City Light Safety Division
02/24/07	Exiting a truck and right knee buckled causing a sprain. Multiple doctor visits and possible surgery.	Seattle City Light Safety Division
05/10/07	Pushing gate open and strained neck. Physical therapy prescribed.	Seattle City Light Safety Division
09/17/07	Knocked down by vehicle.	Seattle City Light Safety Division
11/30/07	Descending ships ladder in elevator shaft. Foot slipped and fell approximately five feet until right foot became lodged in handrail stopping fall but spraining right ankle.	Seattle City Light Safety Division & Fire District #4
10/03/08	Strained back while insulating bus bars. Given prescription for physical therapy.	Seattle City Light Safety Division

Notes:
1 All injuries occurred at the power plant.
2 All injuries were Occupational Health and Safety Administration (OSHA) work-related.

3.1.7.2. Record of Public Injuries and Deaths at the Project

The Project is a popular public destination for overnight camping, fishing, and numerous other recreation activities. Listed in Table H.3-2 is a brief description (with dates) of reported public safety incidents that have occurred within the Project boundary during the period 2000-2008. None of the items listed in Table H.3-2 was the result of Project operations.

Table H.3-2. Summary of public injuries and deaths at the Boundary Project (2000-2008).

Date	Location	Reported Injury	Source
04/01/00	Boundary Powerhouse, Metaline Falls	Unknown medical emergency: Guard assisted with gates and setup of landing zone for helicopter.	Olympic Security & Fire District #2
07/29/00	Project Vicinity	Unknown medical emergency: Guard went out the camp area and assisted a person with a broken bone until a medic arrived.	Olympic Security
07/04/05	Metaline Waterfront Park	Nonfatal accident: Two children injured by fireworks.	Fire District #2
08/09/05	Project Vicinity	Fatal incident: A man contacted that guard station stating that his friend, who he was camping with had passed away during the night and was on Everett Island where the two had been camping.	Olympic Security Records
09/21/05	Project Vicinity	Fatal plane accident: A small plane hit a Pend Oreille County PUD distribution line that crosses Boundary Reservoir just downstream from the Box Canyon Motel and crashed. The pilot of the aircraft was killed. No passengers were on board.	Dam Safety Records, Olympic Security Records
04/12/06	Project Vicinity	Unknown medical emergency: Medical call at dam.	Fire District #2
05/23/06	Project Vicinity	Fatal automobile accident: Auto accident involving a 24-year-old woman 13 miles upstream of the dam; vehicle retrieved from River without driver. On June 11, two boaters on the Boundary reservoir discovered the body of the missing woman.	Dam Safety Records, Olympic Security Records
02/27/07	Project Vicinity	Unknown medical emergency: Medical call at dam.	Fire District #2
06/11/07	Project Vicinity	Unknown medical emergency: Medical call at dam.	Fire District #2
07/01/07	Project Vicinity	Nonfatal accident: A water skier behind a boat was hit by a jet ski, injuring his hip.	Olympic Security Records & Fire District #2

3.2. A Description of the Current Operation of the Project, Including any Constraints that Might Affect the Manner in Which the Project is Operated

3.2.1. Overview of Project Operations

The Project is operated in a load-following mode that shapes available water to deliver power during peak-load hours with a total plant capability of approximately 1,040 MW from its six turbines (FERC 2007). This operating regime allows SCL to meet continued service area load growth and support regional system reliability. The normal maximum water surface is at elevation 1,994 feet North American Vertical Datum (NAVD) 88 at the forebay. The reservoir has relatively little active storage (40,843 acre-feet) within the maximum drawdown of 40 feet (active storage from elevation 1,994 NAVD 88 to elevation 1,954 NAVD 88 feet) authorized under the current license.

The load-following mode of the Project primarily affects instream flow releases on a daily or hourly interval. Project operations affect hydrologic conditions in the Pend Oreille River upstream to Box Canyon Dam, as well as the Pend Oreille River downstream of the Project. Upstream effects are associated with water surface elevation fluctuations in the reservoir, and downstream effects are associated with flow release fluctuations from the Project to the Pend Oreille River/Seven Mile Reservoir.

During the summer recreation season, SCL voluntarily restricts and maintains the summer forebay pool to a water surface elevation above 1,984 feet, NAVD 88 from 6:00 am through 8:00 pm from Memorial Day weekend (starting Friday evening) through Labor Day weekend (on Monday evening) to facilitate reservoir access and related recreational activities during daytime hours. At night during the summer, from 8:00 pm to 6:00 am, the forebay water surface elevation is maintained above elevation 1,982 feet, NAVD 88. For the remainder of the year, the water surface fluctuates between elevations 1,994 feet and 1,974 feet NAVD 88. Storage between elevation 1,974 feet NAVD 88 and elevation 1,954 feet NAVD 88 is reserved for extreme system load requirements. Flood storage is not provided, and other than the operating goals noted above there are no seasonal or minimum flow requirements.

The prescribed mode of operation of the spillway tainter gates and sluice gates is to operate the spillway tainter gates first to maintain a relatively level forebay elevation. The sluice gates are next operated when one-half the discharge capacity of the spillway tainter gates is reached to provide a reserve spillway tainter gate capacity in the event of a plant load rejection and to limit erosion of abutments in the plunge pool area. This reserve spillway tainter gate capacity is necessary, as it requires 30 minutes to open each sluice gate. The operating sequence of the spillway gates is currently being reviewed as part of a TDG mitigation effort. Any proposed changes to spillway gate operation sequencing for this purpose will need to be carefully evaluated to ensure there will be no adverse effects on dam safety.

The City of Seattle's 1961 FERC License to operate the Project includes a requirement to be able to evacuate the reservoir if flooding occurs in mines partially below the reservoir. License Article 43 requires the City to take appropriate measures to assure the water-tightness of the reservoir both prior to and after first filling and expresses FERC's intention of exercising its continuing jurisdiction in the interest of the safety and protection of the mines. There have been no mine safety incidents or issues concerning the water-tightness of the reservoir since the Project began operation.

Article 44 of the license required construction of the low-level sluice gates with the capacity to evacuate the reservoir within specific time limits for various inflow conditions. With the forebay at normal maximum elevation 1,994 feet NAVD 88, the combined discharge capacity of the spillway and low-level sluice gates is 360,000 cfs. FERC may order SCL to evacuate the reservoir under License Article 43. Following a 1997 functional test of the Boundary Dam EAP, FERC sent a letter to SCL indicating that emergency reservoir evacuation procedures need to be coordinated with downstream dam owners, because those dams could be at risk of failure if Boundary Reservoir was evacuated too quickly. In April 2003, a dam safety agreement between SCL and downstream dam owners limited discharges for reservoir evacuation at Boundary Dam

to 150,000 cfs, including power plant flow. This limit will be reached only in a critical emergency condition and only after notifying downstream dam owners.

3.2.2. Power and Operating Schedule

Staff at SCL's System Control Center and Power Management Division in Seattle, Washington currently schedule output from the Project on an hourly basis. The schedule seeks to provide peaking capacity as required by the system load and to optimize the use of the available water within the constraints of inflows, reservoir storage changes and pool level fluctuations, equipment operating limits, and scheduled maintenance. Throughout any given day, short-term system load adjustments are made as necessary and as described above.

3.3. A Discussion of the History of the Project and Record of Programs to Upgrade the Operation and Maintenance of the Project

The history and chronology of development and construction of the original Project facilities are described in Exhibit C of this License Application. The record of subsequent upgrades to the operation and maintenance of the Project is summarized below.

SCL filed an application for a license amendment in October 1981 to install two additional turbine-generator units (Units 55 and 56) in the previously excavated bays. FERC approved addition of the units and issued its Order Amending License in April 1982. Construction activity on the upgrade began in July 1983, and Units 55 and 56 came on line in 1986.

Other modifications and enhancements under the existing license are summarized in Table H.3-3 and include SCL's responses to seismic activity and slope stability concerns as noted in the table.

Table H.3-3. Summary of construction milestones and other significant events relating to operation of the Boundary Project.

Event	Date
License Issued for Units 51 through 54	October 1, 1961
Construction Initiated	June 24, 1963
Dam Topped Out	June 1967
First Power Generated	September 1967
Reservoir Drawdown to El. 1,953 feet NAVD 88	May 2-6, 1970
Sudden Drop of Unit 53 Head Gate	November 22, 1975
Reservoir Drawdown to El. 1,907 feet NAVD 88	August 23-26, 1979
Sluice Gate Put In Operating Position With Reservoir Drawdown to El. 1,964.6 NAVD 88	August 21-22, 1981
License Amendment Issued for Units 55 and 56	April 26, 1982
New Upstream Dam Triangulation Network Installed	1982
Piezometers (DH 101, DH 102) Installed	December 1985
Units 55 and 56 On Line	April 5, 1986
Extensometers Installed (E-1 to E-6)	March 1990

Table H.3-3, continued…

Event	Date
Extensometer Installed (E-7)	March 1991
Piezometers (BL-1, BL-2) Installed	April 1991
Left Abutment Drains Completed (D-1 to D-9 and X-2 to X-7)	December 13, 1991
Tiltmeters Installed	December 8, 1992
Left Abutment Anchors Installed	April 1, 1993
Inverted Pendulums Installed in Foundation	June 1994
Epoxy Grouting of Dam Crack Completed	July 17, 1994
Left Abutment Drains Cleaned and Installation of Additional Drains (LA1-6)	December 20, 1996
Unit Overhaul and Turbine Runner Replacements (Units 51 through 56)	1996-2003
Replacement of Log Boom	April 1996
Strengthening of Elevator Tower Connections	July 1998
Installation of Test Dam Plumbline	October 15, 1999
Pavement of Lower Mucking Tunnel	June 2000
New Dam Deflection Survey System Installed	August 2000
Construction Of Station Service Center	December 2002
Completed Installation Of 4 Strong Motion Acceleromenters	2002-2004
Card Key Access To Key Areas And $1.2 Million Security Upgrade (New Cameras)	2002-2003
Completed Fiber-Optic At Plant, Ring Configuration	2002-2003
Installed New Roll-Up Door At Level 6 Entrance	2002-2003
Construction Of Instrumentation Houses And Installation Of Plumblines	2003
Installation Of Permanent Portal Cover To Visitor Center Tunnel Entrance	2003
Replaced All Unit Protective Relays	2003
Draft Tube Gate Rehab	2003-2004
Level 4 Rockfall Mitigation	2003-2004
Service Area Water Supply System	2003-2004
Tailrace Recreational Improvements	2003-2004
Vista House Recreation and Water Improvement	2003-2004
Sluice Gate Seal System Modifications	2003-2004
Generator Air Cooler Replacements	2003-2004
Fiber Optic Cable and Terminal Equipment Installation	2003-2004
Internal Fiber Optic Ring and Comm System	2003-2004
Generator Protective Relay Improvements	2003-2004
Generator Synchronization Improvements	2003-2004
Headgate Rehabilitation	2003-2004
Control Systems Fiber Backbone Installation	2003-2004
Station Service Switchyard Improvements	2003-2004
Unit 51 Runner Replacement	2003-2004
Unit 52 Runner Replacement	2003-2004
Security System	2003-2004
Draft Tube Gate Slot Safety Modification	2005
Dam Safety Instrumentation	2005

Table H.3-3, continued…

Event	Date
Units 55 and 56 Linkage Bushing Replacement	2006
36" Fill Line Bulkhead Installation	2006
Units 51 and 56 Governor Controls Replacement	2006
Units 55 and 56 Intake Gate Rock Guard Installation	2006
Lightning Arrestors	2006
Level 4 & 6 Tunnel Doors	2007
Rehab As-builts and Closeout	2007
Dam East Access Road Culvert-Drainage Provisions	2007
Fall Protection & Ladder Upgrades	2007
Units 51 through 54 Spare Turbine Bearing	2007
Units 51 through 56 Governor Controls Replacement	2007
Security Systems Upgrades	2007
Transformer Bay Fall Protection	2007
Unit 51 Current Transformer Replacement	2008
Air Compressor Replacement	2008

3.4. A Summary of Any Generation Lost at the Project Since 2004 Because of Unscheduled Outages, Including the Cause, Duration, and Corrective Action Taken

SCL's comprehensive maintenance program has allowed the Project to operate with relatively little lost generation during the first license term. A summary of all unplanned outages that have occurred at the Project over the last five years is provided in Table H.3-4. A summary of percentage plant availability for the period 2004-2008 is shown in Table H.3-5.

Table H.3-4. Unplanned outages at the Boundary Project for the period 2004-2008 that resulted in lost power generation.

Date(s)	Unit	Duration (unit-hours)	MWh Loss [1]	Comment
06/22-23/05	53	23.73	137	East phase lightning arrestor failed.
05/25-26/06	51	11.07	1,329	Governor shutdown.
06/01/06	55	2.97	852	SCR Bank A. Short in Bank B caused excessive current on Bank A, burning a fuse.
06/01/06	56	2.17		SCR Bank B. Bank B overheated due to month end transfers. Transferred to Bank A.
06/05-07/06	56	48.52	10,327	Exciter SCR replacement module testing.
06/06-08/06	56	48.68		Exciter SCR replacement. Original modules put back into service.
06/06/06	54	0.22	84	R.A.S. test (runback). Reboot Atlas pc, restore unit.
06/06/06	55	0.23		R.A.S. test (runback). Plant runback to 650 MW.
06/19/06	52	1.12	134	ZVPU failing. Adjusted clearance and tightened.
5-yr total			**12,863**	

Note:
1 Calculated loss of generation based on assumption that loss occurred during spill only.

Table H.3-5. Summary of percentage plant availability for the Boundary Project, 2004-2008.

Year	Percent
2004	86.89
2005	88.22
2006	81.16
2007	86.80
2008	85.25

3.5. Record of Compliance with the Terms and Conditions of the Existing License

The existing FERC license for the Project, as amended, contains a total of 56 license articles. SCL has reviewed the compliance history for the Project and found no instances of recurring non-compliance.

FERC's regional office, located in Portland, Oregon, conducts an annual operation inspection with SCL's Dam Safety engineers and Project personnel. The last inspection was performed on August 11, 2009. A separate annual SCL inspection is now conducted to FERC standards.

In addition, a Part 12 Independent Consultant Safety Inspection is also mandated every five years, with the next inspection scheduled for 2010. The last Part 12 inspection was performed on April 14, 2005 concurrently with a FERC annual operations inspection and following a Potential

Failure Modes Analysis (PFMA) held on April 13, 2005. SCL's 2005 Part 12 Safety Inspection Report presented the results of the eighth five-year inspection in compliance with Part 12, Subpart D of FERC's regulations (SCL 2005).

The field inspection and subsequent evaluations found that the dam, spillways, sluiceways and power plant were in satisfactory condition, adequately maintained and operated, and capable of performing with adequate margins of safety over the range of conditions that can be reasonably expected. No problems were noted that required immediate action.

To address recommendations made within the 2005 Part 12 Safety Inspection Report, capital projects were created to: (1) install a mobile emergency generator and circuitry to address a PFM that would provide yet another redundant power system to the spillway and sluiceway hoists and (2) install structural reinforcement between the sluice gate hoist deck roof and the dam to reduce the potential for additional cracking of the support beams and the risk of a roof collapse in the event of a large earthquake. Inspection programs were also initiated to visually inspect anchor heads of wedge 6X-1 post-tensioned anchors and to monitor by photographic record on a biannual basis the cracks at the dam/foundation contact on the lower right side of the dam.

Per an April 28, 2009 letter, FERC has recently initiated strict new compliance standards for all Category 1 tainter gates, and as a result a detailed inspection of the Project will be conducted as part of the 2010 Part 12 Independent Consultant Safety Inspection. EAP Functional and Tabletop Exercises are conducted every five years, as are complete EAP reprints that encompass all revisions and updates made during this time.

Finally, an environmental inspection takes place every four to five years. Other FERC inspections have been conducted in response to unique circumstances, such as landslides caused by heavy rains or for purposes of following up on dam safety related items such as fault monitoring. All necessary corrective measures to restore Project features and mitigate damage resulting from these circumstances have been completed.

Of the articles in the license, numbers 9, 15, 16, 17, 23, 24 and 45 no longer apply or have been superseded and/or replaced.

License articles that require direct cooperation with federal and other resources include the following: Article 6 provides funding and support to the U.S. Geological Survey (USGS) for steam-gaging stations; Article 21 states that any federal agency shall be allowed to construct trails, roads, ditches, power and communication lines, and any other transportation means through project lands; Article 30 reinforces that SCL cooperate with the USFS and the Washington State Parks and Recreation Commission in studies of recreational use of the land by the public; Article 47 provides for gaging stations in and along the Pend Oreille River to establish water surface profiles for various flow conditions from Box Canyon to the Canadian border (A February 9, 1968 San Francisco Regional Office memo stated that SCL has no further obligations with regard to this article); Article 53 requires that the Washington Department of Game (WDG)and the USFWS be consulted prior to any additional clearing of transmission line right-of-ways.

The following license articles contain specific references to fish and wildlife resources: Article 31 requires SCL to cooperate with the USFWS, the WDG and the Washington Department of Fish and Wildlife (WDFW) to "assure adequate protection of fish and wildlife resources." Article 32 requires that SCL construct, maintain, and operate protective devices for fish and wildlife as may be prescribed by FERC. Article 51 notes that SCL must consult with the WDG and the USFWS to identify areas of sub-impoundments and construct those areas upon review and approval.

Additionally, CFR 18, Part 8 titled "Recreational Opportunities and Development at Licensed Projects" defines Form 80 requirements that SCL must meet by periodically submitting a Project recreation report. SCL submitted the FERC Form 80 in 1967, 1982, 1991, 1996, and 2002. This form contains general Project information related to annual recreation costs and revenues, length of season, and inventory of recreational resources listing use and capacity for boating, fishing, parks, and camps.

An outstanding condition from the 1982 license amendment was the implementation of a proposed recreation plan for the Project. Proposed conceptual modifications and additions to the Project recreation and landscape elements intended to mitigate Project impacts were included in the amendment. The amendment application describes a Phase I as well as subsequent phases of effort. SCL's Phase I design and contract drawings were nearing completion when the FERC inspection for compliance with environmental and public use (EPUI) requirements was conducted on May 14, 1987, and the plans were shown to the inspector at that time. In a letter dated June 26, 1987, FERC noted that, "…it appears that the facilities and plans for development differ from the plan approved by the Commission" (FERC 1987). This letter further states, "If the licensee is proposing to deviate from the project recreation plan as approved, it will be necessary to seek an amendment of the plan prior to such development. An application for an amendment should be prepared in consultation with the National Park Service and the Washington Parks and Recreation Commission."

SCL responded to FERC on September 8, 1987, stating "[SCL feels] the project as developed...fulfills the intent and is generally consistent with that exhibit." On April 4, 1988, SCL sent letters to the National Park Service (NPS) and the Washington Parks and Recreation Commission (WPRC) regarding the improvements. NPS responded in a letter dated May 4, 1988 that "it appears that recreation development is in compliance with the recreation plan." WPRC responded in a letter dated April 22, 1988, that "Parks does not wish to make any comments at this time." SCL submitted recreation "as-built" drawings to FERC on July 18, 1988, with a letter describing how it attempted to meet commitments and included the letters from the NPS and WPRC.

A FERC recreation inspector made a site visit on August 20, 1997. FERC's EPUI report of November 18, 1997, concluded that the existing recreation facilities appeared to be in substantial compliance with the recreation plan. In 2003, SCL consulted with FERC on the status of completing the recreation improvements contained in the 1982 license amendment. SCL explained that limited water supply and the presence of a large, buried grounding structure at the Forebay Recreation Area constrained recreation development potential at the site. Because

relicensing was imminent, FERC advised that any potential remaining recreation improvements should be evaluated within the context of that process.

3.6. Actions Taken by Existing Licensee Related to the Project which Affect the Public

During the nearly 50 years as the Project licensee, SCL has been an integral part of the community in which it operates and has consistently gone beyond the requirements of the license. The relicensing process itself is perhaps the most widely visible and contemporary example of SCL's long history of commitment to open communications and environmental stewardship. Other specific examples of SCL's actions related to the Project that have involved public outreach and environmental stewardship are briefly described below.

Economic Support

- At-cost Electricity – Annually, SCL provides up to 48 MW of electricity at cost to the Pend Oreille County PUD. In 2007, 367,944 MWh of energy was provided to the PUD, at a market value of $20.6 million. The PUD paid $1.4 million for the energy, resulting in a net benefit to the Pend Oreille County ratepayers of $19.2 million.
- Compensatory Payments – SCL provides annual payment to Pend Oreille County, three local towns, and three local school districts. These payments vary by a negotiated amount but totaled about $1.315 million for 2008, part of which the County distributes to local towns and school districts.
- Fire Protection Control – SCL contracts for fire protection service from the Pend Oreille County Fire District #2, which in 2008 totaled $42,035 annually.
- In-kind Participation in Local Events – SCL supports a number of local events (e.g. Down River Days, County Fair) with staff time ($7,302 estimated for 2008).
- Training – SCL provides joint training sponsorship for local First Responders, and Volunteer rescue operations (part of fire district support – in-kind contributions through use of employees).

Recreational Opportunities

- Recreation Facilities – SCL currently operates three recreation sites in the vicinity of the Project—the Forebay Recreation Area, Tailrace Recreation Area/Machine Hall Visitors' Gallery, and Vista House. The Forebay and Tailrace recreation sites have boat ramps that provide boat access to the reservoir and river, respectively. SCL designed the interpretive exhibits at the Vista House.
- Reservoir Summer Pool – During the summer recreation season (Memorial Day through Labor Day) SCL voluntarily restricts the daytime forebay water surface fluctuations to a 10-foot range (between 1,984 and 1,994 feet NAVD 88) to facilitate reservoir access and related recreational activities.
- Tours – SCL offers free guided group tours of the Project from Memorial Day weekend through Labor Day. The Visitors' Gallery, which provides views of the

power plant and interpretive displays of Project history, is open Thursday through Monday.

- Fish Stocking – For the period 2001 through 2008, SCL stocked Boundary reservoir with triploid trout, which are sterile but have high growth rates and are therefore a popular recreational fish. WDFW plans to discontinue permits for triploid trout stocking in Boundary Reservoir after 2009 because of concern about potential triploid rainbow trout competition with native salmonids, low catch rates, poor salmonid habitat conditions, and low survival and retention in the reservoir (personal communication, D. Robison and N. Baker, WDFW, March 20, 2009).

Regional Tourism Promotion:

- Video Production – SCL cooperated with local businesses to develop a series of six videos on regional tourism and recreational opportunities. These videos are shown at the Vista House and at other locations in the county.
- Regional Advertising – In 2008, SCL funded and installed a kiosk in Newport that shows videos of recreational opportunities available in Pend Oreille County.
- Local Events – SCL has been a promotional partner in local events, such as the Lavender Festival and Downriver Days.
- Tourism Development – SCL participates in two tourism development forums: the Selkirk International Loop and the Pend Oreille River Tourism Alliance. SCL has also worked with Seattle area newspapers and television stations to promote tourism and recreational opportunities in the region.

Environmental Stewardship

- Flume Creek Mountain Goat Viewing Area – SCL teamed with the Colville National Forest to assist in the development of this wildlife viewing area, which is located along the County Road 2675 between Highway 31 and Crawford State Park.
- Noxious Weed Control – In 2001, SCL contracted with the Pend Oreille Weed Control Board for a weed survey in the vicinity of Project facilities and conducted a more thorough inventory in 2005. SCL coordinates with the Weed Control Board in the control of purple loosestrife, leafy spurge, and Japanese knotweed in the Project area.
- Wildlife Habitat Protection – SCL owns the Boundary Wildlife Preserve (BWP) which protects 149 acres [3] of wetlands and riparian and upland forest habitat, as well as a number of rare plant populations. The area provides habitat for native wildlife, including waterfowl, migratory birds, and big game. In addition, SCL owns an adjacent parcel of 89 acres [4] of upland conifer forest which also provides wildlife habitat and acts as a buffer for the BWP.

[3] Due to parcel delineation updates, the summation has been changed from the previously cited value of 155 acres.
[4] The size of the adjoining SCL-owned parcels is 89 acres, not 88 acres as previously reported.

- Wildlife Education – In the past SCL has partnered with Selkirk High School students to monitor bald eagle nest site use on the BWP. This program is not currently active.
- Fish and Aquatics Monitoring and Research — SCL conducted fish and aquatic studies associated with the 1982 license amendment authorizing the addition of Units 55 and 56, and since that time SCL has voluntarily funded the following additional studies of fish and aquatic resources:
    - Shoreline erosion and hydrology
    - Bull trout distribution and abundance in Boundary Reservoir and tributaries
    - Water quality in Boundary Reservoir and tributaries
    - Literature review of fish resources in Seven Mile Reservoir
    - Fish population and habitat assessments in Seven Mile Reservoir and tributaries
    - Boundary Reservoir primary and secondary productivity
    - Acquisition of literature relevant to Boundary Project vicinity
    - Sturgeon presence/absence

3.7. Summary of the Ownership and Operating Expenses that Would be Reduced if the Project License Were Transferred from the Existing Licensee

If the Project license were transferred from SCL, then SCL will no longer be responsible for operating and maintaining the Project or paying the associated taxes, land use, and administrative fees. Costs related to operations, maintenance, FERC fees for the Project, and upstream benefits related to the Project will be reduced by approximately $13.8 million annually as described in Exhibit D, Section 6, of the License Application.

In the future, these expenses will likely increase either with general price inflation or due to factors specific to the category. Furthermore, future expenses at the Project include the license terms and conditions. If the Project license were transferred from SCL, then SCL will avoid these future expenses.

3.8. Annual FERC Fees Paid Under Part I of the Federal Power Act

Since the initial construction of the Project, SCL has paid annual FERC administrative charges and significant fees under Section 10(e) of the FPA. FERC fees include Water for Power (FERC Account 536), Upstream Benefits (FERC Account 536), and use of federal lands managed by the USFS and BLM (FERC Account 540). Table H.3-6 shows the total FERC fees paid by SCL from 1998 through 2007. In 2007, charges for the Project totaled $2,675,152.

Table H.3-6. FERC fees for the Boundary Project, 1998-2007.

Year	Total
1998	$3,423,923
1999	$2,854,094
2000	$2,647,745
2001	$2,147,956
2002	$2,899,738
2003	$3,151,950
2004	$3,023,831
2005	$1,697,911
2006	$1,696,611
2007	$2,675,152

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