

**UNITED STATES OF AMERICA  
BEFORE THE  
FEDERAL ENERGY REGULATORY COMMISSION**

*Application for Amendment of Project Description and Authorized Normal Operating Pool  
of the License for Swan Lake Hydroelectric Project No. 2911*

**INITIAL STATEMENT**

1. Southeast Alaska Power Agency (SEAPA) applies to the Federal Energy Regulatory Commission (FERC) for a non-capacity license amendment for the Swan Lake Hydroelectric Project, FERC No. 2911, hereinafter referred to as the "Project".

2. The location of the Project is as follows:

State:	Alaska
Borough:	Ketchikan Gateway
Township or nearby town:	Ketchikan, Alaska
Stream or other body of water:	Falls Creek; Carroll Inlet

3. The exact name, business address, and telephone number of the applicant are as follows:

Southeast Alaska Power Agency  
1900 First Avenue, Suite 318  
Ketchikan, Alaska 99901  
(907) 228-2281

4. The person authorized to act as agent for the applicant is as follows:

Trey Acteson, CEO  
Southeast Alaska Power Agency  
1900 First Avenue, Suite 318  
Ketchikan, Alaska 99901  
(907) 228-2281

5. The applicant, a joint action agency established according to the laws of the State of Alaska, is considered a municipality for purposes of the Federal Power Act (FPA), and the licensee of the water power project, designated as Project No. 2911 in the records of FERC, which issued an Order Issuing New License for the Project on July 7, 1980 ("License Order").

6. The amendment of license proposed and the reasons why the proposed changes are necessary:

The purpose of the amendment application is to amend the Project description and the authorized normal maximum reservoir elevation as described in Ordering Paragraph B(2) of the License Order dated July 17, 1980. The applicant proposes to modify the existing Swan Lake Dam to increase reservoir storage capacity by approximately 25.4% (Proposed Action). The dam's crest height would increase by 6 feet. As a result of the Proposed Action, the reservoir's maximum operating pool elevation would increase from 330 feet Mean Sea Level (MSL) to 345 feet MSL, thereby inundating approximately 93 additional acres surrounding the reservoir.

Increasing the storage capacity of Swan Lake Reservoir by approximately 25.4% would provide an average increase of 7,500,000 kilowatt hours (kWh) of winter generation for the Ketchikan to Petersburg service area. This power would offset diesel generation, and help integrate present and expected future run-of-river hydropower projects being planned for the region. With new run-of-the river projects generating during the summer and fall, there would be a reduced summer output at Swan Lake, allowing the larger reservoir to refill. The expanded storage would then be available for higher winter loads.

7. The license exhibits that are being revised by this license amendment are as follows:

Exhibit	Title
E	Statement of the Nature, Extent, and Ownership of the Water Rights for the Project
H	Statement of the Proposed Operation of the Project During Periods of Low, Normal, and Flood Streamflow
I	Statement of the Estimated Dependable Capacity and the Average Annual Energy Produced by the Project
J	General Project Map
K	Detailed Project Maps
L	General Design Drawings
M	General Description of Mechanical, Electrical, and Transmission Equipment
N	Estimated Cost of Project Development
O	Estimated Cost of Project Development
W	Applicant-Prepared Environmental Assessment

In addition to the revised exhibits, the application for license amendment includes the following Exhibit W appendices:

## Appendix

A	Soils Resource Report
B	Aquatics and Watershed Report
C	Wildlife and Subsistence Resource Report
D	Combined Biological Assessment and Biological Evaluation
E	Botany Resource Report
F	Biological Evaluation for Plants
G	Invasive Plant Risk Assessment
H	Wetlands Resource Report

8. Lands of the United States affected by the proposed Project are as follows:

Included in the approximately 93 acres that would be affected as a result of the proposed increase in the reservoir's maximum operating pool elevation are as much as 25.8 acres of Tongass National Forest lands that are currently within the FERC boundary<sup>1</sup>.

9. The statutory or regulatory requirements of the State of Alaska that affect the Project as proposed with respect to bed and banks and the appropriation, diversion, and use of water for power purposes, and with respect to the right to engage in the business of developing, transmitting, and distributing power and in any other business necessary to accomplish the purpose of the license under the Federal Power Act are listed below.

- Alaska Water Use Act (AS 46.15)

10. The step the applicant has taken or plans to take to comply with each of the laws cited above is as follows:

- SEAPA requested a Water Rights permit, pursuant to AS 46.15, to provide an additional 97,000 acre-feet. The application was submitted February 6, 2013.

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<sup>1</sup> This excludes 6.3 acres that appear to be on conveyed lands as represented by the Tongass ownership Geographic Information System (GIS) layer, but which are part of the conveyed lands owned by the State of Alaska.

## INTRODUCTION

SEAPA is proposing to increase the active storage of the Swan Lake Hydroelectric Project from 81,704 acre-feet (ac-ft) to 102,467 ac-ft<sup>2</sup>. The dam's crest elevation would increase from elevation 344 feet Mean Sea Level (MSL) to 350 feet MSL, and the maximum surface elevation of the operating pool would increase from 330 feet to 345 feet. The current Probable Maximum Flood (PMF) elevation at 344 feet would increase to 347 feet. A controllable gate would be installed in the spillway to provide storage up to 345 feet MSL, while allowing the Project to pass the PMF when necessary.

The purpose of the amendment application is to amend the Project description and the authorized normal maximum reservoir elevation as described in Ordering Paragraph B(2) of the License Order dated July 17, 1980. The applicant proposes to modify the existing Swan Lake Dam to increase reservoir storage capacity by approximately 25.4%. The dam's crest height would increase by 6 feet. As a result of the Proposed Action, the reservoir's maximum operating pool elevation would increase from 330 feet MSL to 345 feet MSL, thereby inundating approximately 93 additional acres surrounding the reservoir.

Increasing the storage capacity of Swan Lake Reservoir by approximately 25.4% would provide an average increase of 7,500,000 kilowatt hours (kWh) of winter generation for the Ketchikan to Petersburg service area. This power would offset diesel generation, and help integrate present and expected future run-of-river hydropower projects being planned for the region. With new run-of-the river projects generating during the summer and fall, there would be a reduced summer output at Swan Lake, allowing the larger reservoir to refill. The expanded storage would then be available for higher winter loads.

No changes in Project boundary are being sought; however, as described below, a Special Use Permit from the USDA Forest Service will be necessary due to inundation of 25.8 acres of National Forest System (NFS) lands.

## DESCRIPTION OF AND NEED FOR AMENDMENT

### 1. Need for Storage

The Swan Lake Hydroelectric Project is a major electrical supply component of the intertied electrical system that encompasses the communities of Petersburg, Wrangell, and Ketchikan. Planning is currently underway to increase this control area to include Kake and Metlakatla, and additional hydropower sources are being planned. When these new connections and other sources of hydropower are finished, the role of Swan Lake as an energy storage and peaking facility will become more important. The total hydroelectric generating capacity of this system is currently 60 megawatts (MW). Swan Lake represents 36% of that capacity on a power (MW) basis and 21% on a stored energy basis.

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<sup>2</sup> Original engineering documents (R.W. Beck) from the 1980s specify a value of 86,000 ac-ft of active storage; FERC's 1980 Order Issuing License defines the active storage as 80,000 ac-ft. In 2013, SEAPA staff reanalyzed historic documentation and curve-fit the data to derive the revised estimate of 81,704 ac-ft.

The recently completed Southeast Alaska Integrated Resource Plan (SEIRP) (Black & Veatch 2012) reviewed Southeast Alaska's hydroelectric capability, load profiles, economic activity, and population growth. This report, which provides the foundation of future planning, emphasized the need for a new hydroelectric project, increased reservoir storage, and demand side management. Selection of a new hydroelectric project is ongoing, but sites with suitable storage characteristics are limited. Therefore, the need for additional storage at Swan Lake is important for integrating any future project.

Additional hydropower plants in Southeast Alaska will help displace diesel-generated electrical power. Unless the new hydropower project is always offsetting existing thermal load (diesel), a portion of the output will be under-utilized. In Southeast Alaska, under-utilization usually occurs during spring runoff or during the fall wet season, or, as with SEAPA's Tye Lake Hydroelectric Project in the first 20 years of operation, for the entire June through November period. The proposed additional storage at Swan Lake would provide a mechanism for shifting excess summer and fall output into the winter when present-day diesel generation occurs. In the future, as summer and fall loads build and new hydropower projects are commissioned, these projects will generate during the summer. Reduced electrical output from Swan Lake in the summer would continue to allow refilling of the expanded reservoir. In the very near-term, the new plant would be the Whitman Project, scheduled for commissioning in June 2014. As this plant became fully utilized, the next new hydropower plant would fulfill the role of replacing the Swan Lake "turn-down". Thus, the larger reservoir would help avoid stranding a portion of the under-utilized capacity of the newest plant.

The principal impact from the pool raise would be the inundation of approximately 93 acres of land, of which 25.8 acres are lands within NFS and managed by the Tongass National Forest (TNF). Impacts to natural resources are described in the Applicant-Prepared Environmental Assessment (APEA), which incorporates, by reference, Final Resource Reports prepared for the TNF.

In order to effect this change, SEAPA is requesting the following changes:

a) Ordering Paragraphs:

Existing Ordering Paragraph B(2) of the 1980 license:

Project works consisting of: (a) a concrete arch dam, 174 feet high and 430 feet long at its crest, located approximately 3/4-mile downstream from the mouth of the existing Swan Lake and having an uncontrolled ogee spill-way section, 100 feet long, with a crest elevation of 330 feet; (b) Swan Lake Reservoir, with a surface area of 1,500 acres at normal maximum reservoir elevation and a usable storage capacity of 80,000 acre-feet between elevations 330 and 271.5 feet; (c) a power tunnel, 2,200 feet long and 11 feet in diameter, leading from an intake structure at the north abutment upstream of the dam to the powerhouse where it would bifurcate into two steel-lined penstocks, 5.5 feet in diameter; (d) an indoor-type, remotely controlled, concrete powerhouse

containing two generating units with a total rated capacity of 22,000 kW and located on Carroll Inlet immediately north of the mouth of Falls Creek; (e) a 13.8/115-kV substation located adjacent to the powerhouse; (f) access facilities comprised of port facilities 1,000 feet north of the powerhouse, a staging area adjacent to the port facilities, and access roads from the port facilities to the powerhouse and dam; (g) a 115-kV transmission line extending from the powerhouse substation 30.5 miles to the existing S.W. Bailey Substation; and (appurtenant facilities).

Proposed Ordering Paragraph B(2):

Project works consisting of: (a) a concrete arch dam, 174 feet high and 430 feet long at its crest, located approximately 3/4-mile downstream from the mouth of the historic Swan Lake and having an ogee spillway section 100 feet long, controlled with a 15-foot-tall Obermeyer gate between elevations 330 feet and the crest elevation of 345 feet; (b) Swan Lake Reservoir, with a surface area of 1,567 acres at normal maximum reservoir elevation and a usable storage capacity of 102,467 acre-feet between elevations 345 and 271.5 feet; (c) a power tunnel, 2,200 feet long and 11 feet in diameter, leading from an intake structure at the north abutment upstream of the dam to the powerhouse where it would bifurcate into two steel-lined penstocks, 5.5 feet in diameter; (d) an indoor-type, remotely controlled, concrete powerhouse containing two generating units with a total rated capacity of 22,000 kW and located on Carroll Inlet immediately north of the mouth of Falls Creek; (e) a 13.8/115-kV substation located adjacent to the powerhouse; (f) access facilities comprised of port facilities 1,000 feet north of the powerhouse, a staging area adjacent to the port facilities, and access roads from the port facilities to the powerhouse and dam; (g) a 115-kV transmission line extending from the powerhouse substation 30.5 miles to the existing S.W. Bailey Substation; and (appurtenant facilities).

b) Revised Exhibits

The following exhibits are included in this application. SEAPA requests that these exhibits replace those exhibits currently on file with the commission in their entirety:

Exhibit	Title
E	Statement of the Nature, Extent, and Ownership of the Water Rights for the Project
H	Statement of the Proposed Operation of the Project During Periods of Low, Normal, and Flood Streamflow
I	Statement of the Estimated Dependable Capacity and the Average Annual Energy Produced by the Project
J	General Project Map
K	Detailed Project Maps
L	General Design Drawings

Exhibit	Title
M	General Description of Mechanical, Electrical, and Transmission Equipment
N	Estimated Cost of Project Development
O	Estimated Cost of Project Development
W	Applicant-Prepared Environmental Assessment

## 2. Need for Special Use Permit

The new maximum surface elevation of the operating pool and the PMF would be entirely contained within the existing FERC boundary, which roughly follows the 350-foot elevation contour. Therefore, no changes in the Project boundary are being sought. However, the applicant has determined that the existing FERC boundary includes 25.8 acres of NFS lands. Previously, lands around the Project were conveyed to the State from the federal government through the National Forest Community Grant selection process, pursuant to the Alaska Statehood Act of July 7, 1958, Pub. L. 85-508, 72 Stat. 339 as amended. However, survey work conducted by the applicant in 2012, and follow-up work in 2013, determined that the 350-foot contour extends into NFS lands along Lost Creek. The USDA Forest Service has determined that while inundation of these 25.8 acres can likely be approved under the Tongass National Forest Management Plan (USFS 2008), a Special Use Permit will be necessary. Accordingly, Appendices A through H of the attached APEA contain Final Resource Reports as well as a Combined Wildlife Biological Assessment and Biological Evaluation, Biological Evaluation for Plants, and Invasive Plant Risk Assessment that have been reviewed and commented on by TNF staff.

SEAPA requests that FERC adopt license articles consistent with anticipated terms and conditions required by the USDA Forest Service, pursuant to Section 4(e) of the Federal Power Act.

## 3. Updated Project Lands

**Note to reviewers** – due to FERC issued deadlines for submitting revised Exhibit K maps, this submittal may be filed separately and in advance of the non-capacity amendment. In this event, the following text will be removed from the application

As described above, no changes in the Project boundary are proposed. However, SEAPA has completed an analysis of Project lands that were conveyed to the State of Alaska, but reserved under Section 24 of the FPA. In 2013, SEAPA submitted a non-capacity amendment of Article 45 to FERC for an adjustment of its annual charges. By Order dated March 5, 2014, FERC approved the proposed changes to Article 45 and required SEAPA to submit updated Exhibit K maps, consistent with FERC's standards, pursuant to 18 CFR 4.39 and 18 CFR 4.41(h). By letter dated March 25, 2014, FERC agreed with SEAPA's proposal to file its revised exhibits with this Draft License Application. Exhibits K and J, attached hereto, meet this obligation.

## MITIGATION MEASURES

In consultation with agencies, no significant environmental effects have been noted that would warrant specific mitigation measures. There are no proposed operational restrictions that would prevent SEAPA from utilizing the full extent of the reservoir's active storage for its intended use. During the development and review of Final Revised Resource Reports, Best Management Practices (BMPs), consistent with NFS guidelines and management objectives, have been noted and described.

Resource	Proposed Environmental Measures
Geology/Soils	<ul style="list-style-type: none"> <li>• Implement BMPs described in the Soil and Water Conservation Handbook (USFS 2006a), Standards and Guidelines in the Forest Plan (USFS 2008a), and National BMPs for Water Quality Management on National Forest System Lands (USFS 2012).</li> <li>• Apply construction-specific BMPs related to erosion control and contamination prevention (see Section 4.2.2.1) around construction area.</li> </ul>
Water Resources	<ul style="list-style-type: none"> <li>• Implement National BMPs for Water Quality Management on National Forest System Lands (USFS 2012), where applicable.</li> <li>• Develop a site-specific Storm Water Pollution Prevention Plan (SWPPP) and a Spill Prevention and Control Plan (SPCP) to guide construction activities</li> </ul>
Fish and Aquatic Resources	<ul style="list-style-type: none"> <li>• Implement National BMPs for Water Quality Management on NFS Lands (USFS 2012), where applicable</li> <li>• Follow Forest Plan Standards and Guidelines as well as NFS or state BMPs should any trees require removal.</li> </ul>
Wildlife Resources	<ul style="list-style-type: none"> <li>• Implement Forest Plan (USFS 2008a) standards and guidelines on NFS lands.</li> <li>• Adhere to all federal and state laws and guidelines that apply to threatened, endangered, and candidates species and sensitive species.</li> </ul>
Botanical and Riparian Resources	<p><u>Sensitive plants:</u></p> <ul style="list-style-type: none"> <li>• None (no Forest Service-listed sensitive plant species identified in the survey area).</li> </ul> <p><u>Rare plants:</u></p> <ul style="list-style-type: none"> <li>• Conduct pre-construction surveys for rare plants in areas of potential habitat.</li> <li>• Place exclusion fencing/flagging around rare plant populations to protect them during construction.</li> <li>• Salvage rare plants from inundation zones and transplant if warranted.</li> <li>• Site construction activities to avoid rare plants.</li> <li>• Notify the USFS botanist/ecologist if any previously undiscovered rare or sensitive plants are encountered on NFS lands.</li> <li>• Use certified weed-free fill material during construction.</li> </ul> <p><u>General vegetation:</u></p> <ul style="list-style-type: none"> <li>• On state lands, conduct a timber cruise and develop a logging plan, cut merchantable trees.</li> <li>• On NFS lands, conduct a timber cruise and conclude a settlement with USFS; no timber removal would occur on NFS lands.</li> </ul> <p><u>Invasive plants:</u></p> <ul style="list-style-type: none"> <li>• Follow the prevention measures specified in FSM 2000-National Forest Resource Management, Chapter 2080-Noxious Weed Management, Tongass National Forest Supplement–R10-TNF-2000-20007-1.</li> </ul>



Resource	Proposed Environmental Measures
Wetland Resources	<ul style="list-style-type: none"> <li>• Implement Forest Plan Standards and Guidelines as well as BMPs on NFS lands</li> <li>• Locate temporary staging areas and conduct road modification activities in areas away from wetlands, where possible.</li> </ul>
Recreation, Land Use, and Aesthetics	<ul style="list-style-type: none"> <li>• Implement all Forest Plan (USFS 2008a) standards and guidelines on NFS lands.</li> </ul>
Cultural and Tribal Resources	<ul style="list-style-type: none"> <li>• If future consultation with Native people identifies traditional and/or religious locations in the Project area, determine and evaluate potential effects of the Project.</li> <li>• Identify BMPs to be implemented during construction in the bid documents.</li> <li>• Agree upon avoidance or mitigation measures with appropriate state and tribal entities if cultural or tribal resources are encountered.</li> </ul>
Socio-economic Resources	<ul style="list-style-type: none"> <li>• None (no impacts are anticipated).</li> </ul>

With respect to NFS lands, SEAPA anticipates the Special Use Permit issued by the USFS will specify how the BMPs described above will be applied. Other conditions are anticipated to be included in permitting from the US Army Corps of Engineers.

### AGENCY CONSULTATION

Before filing the amendment, 18 CFR §4.38 requires SEAPA to consult with federal, state, and interstate resource agencies, Indian tribes, and any other stakeholders who may be affected by the Proposed Action. The non-capacity amendment process for the Swan Lake expansion has been marked by early consultation and collaborative efforts to identify the necessary environmental analysis. Initiation of three-stage consultation was preceded by stakeholder meeting and scoping efforts. A summary of the consultation process follows.

#### 2012

SEAPA implemented early consultation to present the Proposed Action and solicit feedback on the types of issues that would need to be analyzed. SEAPA met with agencies in Ketchikan in May 2012 to discuss key resource questions; this was followed by development of study plans, which were reviewed and implemented between June 2012 and December 2012. The 2012 field efforts focused primarily on the area above the dam within the proposed inundation zone around Swan Lake and its major tributaries, and reports describing the 2012 field efforts were provided to the agencies for review.

#### 2013

In February 2013, SEAPA met with the agencies to discuss the results of the 2012 studies and agency comments on the study reports. At this meeting, it was agreed that a series of National Environmental Policy Act (NEPA) supporting resource reports would address the majority of the comments received on the various study reports. The resource reports would comprehensively describe all fieldwork and analysis conducted in support of the Proposed Action at an appropriate scale for each resource, and break out the potential impacts by land ownership, as appropriate. It was acknowledged that the

remaining fieldwork needs were limited after the 2012 effort, but additional analysis and desktop work would be done to complement the existing data in 2013. SEAPA agreed to develop the resource reports following U.S. Department of Agriculture, Forest Service (USFS) guidelines and to provide drafts and final versions before submitting the non-capacity amendment to FERC.

In April 2013, SEAPA began Stage 1 Consultation as set forth in 18 CFR §4.38(b) by filing an Initial Consultation Document (ICD). The ICD consolidated into a single document the information needed by federal, state, and interstate resource agencies, Indian tribes, and other stakeholders to understand the Project, identify any environmental issues, identify any information needs or studies, and provide comments and recommendations. In its appendices the ICD also provided revised 2012 resource reports and responses to general and resource-specific agency comments. A Jointing Meeting and a Public meeting were held on May 22, 2014; comments on the ICD were received from the agencies in July 2013.

In August 2013, SEAPA initiated Stage 2 Consultation by providing draft resource reports to the agencies that included information on the 2012 field studies as well as the additional analyses performed in 2013. Agency comments on the draft resource reports were provided on September 16, 2013.

## **2014**

SEAPA revised the resource reports based on agency comments, and at agency request, submitted the final resource reports to the agencies in January 2014 and revised final reports in March 2014. Appendices A through H of the APEA (Exhibit W) contain the Final Resource Reports as well as a Combined Wildlife Biological Assessment/Biological Evaluation, a Biological Evaluation for Plants, and an Invasive Plant Risk Assessment. Each resource report has a response to comments table summarizing comments received and how they were addressed in the final reports.

Stage 2 Consultation also includes submittal of the draft APEA as part of the Draft Amendment Application. Comments on the Draft Amendment Application will be solicited and a joint meeting held, as necessary, as part of the consultation process.

## **WATER RIGHTS**

By separate filing, SEAPA has requested that the Alaska Department of Natural Resources determine, pursuant to AS 46.15, whether the requested allocation of 97,000 additional acre-feet of water can be permitted. A copy of SEAPA's water rights application is appended in Exhibit E of this application.

## **CONCLUSION**

For the foregoing reasons, SEAPA respectfully requests that FERC amend the license of the Swan Lake Hydroelectric Project to (i) authorize a new maximum operating elevation of the reservoir and the modifications of the existing facilities, pending final design and dam safety approvals; and (ii) implement mitigation measures described above.