

Meeting: Joint Agency/Public Meeting Transcript (Edited for Clarity)

Date: November 14, 2024, 5:30 pm to 7:30 pm

Draft Application for Capacity Amendment to License for the Tyee Lake Hydroelectric Project, FERC License No. 3015

ATTENDEE LIST

Mark Hilson, P.E., SEAPA Tyee Lake Project Manager

Robert Seidman, P.E., SEAPA Chief Executive Officer

Sharon Thompson, SEAPA Executive Assistant and Contracts Administrator

Bob Sivertsen, SEAPA Board Chair, Mayor of Ketchikan

Betsy McGregor, Senior Scientist and Regulatory Consultant, Kleinschmidt Associates

Laura Cowan, Senior Regulatory Consultant, Kleinschmidt Associates

Finlay Anderson, Principal Consultant, Kleinschmidt Associates

Tsunami Van Winkle, Project Coordinator, Kleinschmidt Associates

Steve Negri, Technical Advisor, Tetra Tech

Deborah Hayden, Economic Development Manager, Ketchikan Gateway Borough

INTRODUCTIONS, PROTOCOL FOR MEETING, AND OVERVIEW

Mark Hilson

We can go ahead and get started.

<Introductions of the list of attendees above>

We have one member of the public by phone. And so I think maybe what we'll do is have people in the room here introduce themselves and then, if Miss Hayden wants to introduce herself, we can then roll on to her.

Deborah Hayden

I attended the meeting with SEAPA during Southeast Conference in which we were finding out that this additional turbine at Tyee is necessary for us to move forward with providing power to data centers and that is essential to our economy and it will be essential revenue for our power company so that we can upgrade our equipment and

have staff up to the level that we need it in order to function. So, it's vitally important to me as an economic developer that I find out what this is all about.

Mark Hilson

Oh, thank you so much for telling us about your interests.

Meeting Overview

Finlay Anderson

We had a meeting earlier today with a number of agencies. We talked through a presentation; we talked through the rationale behind the project. I think we should maybe just be a little more informal. If it's just you on the phone and tell you a little bit about the project and the background behind the project, but kind of dispense with the formality of this and really address your question, which is the need for power and what SEAPA is doing about it. Does that sound OK, Mark?

Mark Hilson

Sounds good to me.

Finlay Anderson

Deborah, to let you know we are recording this meeting and the transcript gets used to help create a record with FERC, which is the government agency that manages or authorizes the activities of the project. So, if that is OK with you, we'll just continue with the recording.

Really what we want to do today is explain the need for the project and the process that we're undertaking to pursue the project. We'll talk a little bit about the environmental effects. But Mark, why don't you just go ahead and get us started with what SEAPA is about and why the need for the (third) turbine has risen to the top of your priorities.

SEAPA SERVICE AREA AND GENERATION SYSTEM

Mark Hilson

Sure. I'd be happy to. I will start with SEAPA service area and generation system. So, who is SEAPA? SEAPA's a not-for-profit state Joint Action Agency. We were created to manage the hydropower assets of Tyee Lake, Swan Lake, and associated transmission lines. We do generation and transmission as a power wholesaler with exactly 3 customers: Petersburg, Wrangell, and Ketchikan. SEAPA has a separate and

independent legal existence from the Public Utilities that both appoint our board members and purchase power from the three projects.

Looking at the map, you see Petersburg is at the northern end of our service area. That purple line is the transmission line that was installed with the Tyee Lake Hydroelectric Project in order to transmit power to Wrangell and Petersburg. You see Tyee lake kind of in the center of that map? That is where the facility was built in 1984. It's a 20-MW facility and was originally built to serve the power needs of Petersburg and Wrangell. Swan Lake, located at the southern end of our system, was originally built also in 1984 to serve Ketchikan's needs. That lighter, thinner blue line is the Swan to Bailey line that delivers power to Ketchikan. In 2009, we were able to connect Swan Lake and Tyee Lake projects, which made a huge difference operationally for SEAPA that I'll describe in in some future slides.

Need for Additional Generation

Mark Hilson

So why are we doing this? Well, there is a need for additional generation. How do we know that? We know that because we completed a load growth study in 2023, but also because in December of 2022, our grid consumption was 65 megawatts. So our communities were one diesel failure away from not being able to meet our demands. Here in Southeast Alaska, energy demand is directly proportional to, and I should say peak energy demand, is directly proportional to temperature and it's important to note that December of 2022 was not the coldest December on record.

We know that the 2028 energy demand projection exceeds sources of generation driven mostly by converting heating fuel to electric. We know that there's been grant funding to the tune of \$54,000,000 and both federal and state grants for heat pump conversions and electric vehicle charging stations, \$38 million of that was specifically allocated for residential heat pump conversions from fossil fuels in coastal Alaska communities. We also have plans for dock electrification in the future and for electrification of Alaska Marine Highway System ferries.

Value of Third Unit at Tyee

Mark Hilson

So, what's the value of a of a third unit at Tyee? We have two existing units. What's the value of that third one? Well, first and foremost, as I mentioned, we need the power. We need additional hydrogenation to meet current and future demand. Deborah,

you mentioned data centers with the rise of artificial intelligence. Those data centers are limited by transmission of power to their location or generation of power. So that is another good example of why we need the power.

It would provide increased operational flexibility to operate, and to optimize other hydro resources. The spring and summer of 2024 was a really good example of not being able to balance the lakes with Swan hovering at around 50% capacity and Tyee at 85% or more full. Ideally, we like to balance those lakes and we were not able to do that. We just couldn't get the water out of Tyee, even despite our best efforts. Adding a third turbine will allow us to optimize our hydro resources, and improved water management via lake balancing can minimize spill.

Also, Tyee equipment was designed to rotate offline on a fairly regular basis. That is currently difficult to do because of current loads and Tyee is in the lead position for our system.

We can also reduce dependence on diesel generation. So, the third turbine would result in a more stabilized cost of energy. Diesels are expensive. This meeting is not really a financial presentation. But a recent look at costs of diesel generation in Southeast indicates that the cost of diesel is about 10 times that of SEAPA's current wholesale power rate. Diesels are less reliable. We know that our member municipalities who generate with diesel do their best to have emissions that are clean and meet standards, but they are not as clean and green as hydro. They are also inherently riskier. They're mechanical equipment, older technology, and things breakdown more frequently with diesels.

We can also experience increased resiliency in system reliability. With frequency and voltage support, our initial inertia increases reserves and system reliability. As I mentioned, we have potential for shore power both through Alaska Marine Highway System and the cruise industry. This project would facilitate servicing of summer interruptible loads. In other words, shore power that would use energy that otherwise would be lost to spill.

And last, as we go through the presentation, I would hope that you would agree with us that there will be minimal, if any environmental impact as a result of putting the third turbine inside the existing powerhouse.

OVERVIEW OF EXISTING PROJECT AND PROPOSED INSTALLATION OF THE THIRD UNIT

Existing Project

Mark Hilson

Here's our existing project. This is an old black and white photo that was included in the original FERC application. The areas outlined in green are the subject of today's meeting. The area in blue indicates the transmission line, and that is the thin black line that goes from Tyee up to Wrangell and then on to Petersburg. While that is in our FERC license, there's no changes proposed. There's no impact. This project has nothing to do with that line or any other transmission line.

We are going to focus on the areas in green. That little blow up section shows Tyee Lake. That is the source of our water that we generate power from. The water transmits via a lake tap, which we will talk about in future slides. The appendage that goes directly toward the top of the page, I think that is north, is our tunnel system. That transmits water to our penstocks and into the powerhouse. Our power tunnels are 8,300-feet-long and 10-foot diameter and the penstocks are 1,350 feet long. And then of course, we have a powerhouse and a switchyard that we will talk about a little bit later. And all of this is located at the head of Bradfield Canal, about 40 miles southeast of the city of Wrangell.

Tyee Lake itself has a big drainage area. It's 14 square miles and a lot of that is at alpine, so it locks up in the winter. It's frozen in the winter and can in various years get very, very deep snowfall. The bottom of the lake is at elevation of about 1,080 feet and our lake tap is about 1,225 feet. So, we do not tap the actual bottom of the lake. And the lake goes up to about 1,398 feet elevation. We will look at that on a future slide.

Finlay Anderson

Mark, can we pause here for a minute? Deborah, does that pretty much answer your question in regard to what we are planning to do? You were concerned that we have enough power for economic growth in the community and right now we have enough gas in the tank. But we do not have enough horsepower to provide it all the time.

Deborah Hayden

Well, that is what I thought. We needed this other turbine in order to take advantage of the capacity that we have. I am just interested to find out the plans for it and the

timelines and what it is going to do and that kind of thing. I really don't have any questions. I'm an observer.

Finlay Anderson

Thank you. The timeline on this depends on the permitting. Mark can talk a little bit about what construction would consist of.

Mark Hilson

So continuing with our existing project, this is an interesting look at the profile of the lake relative to Bradfield Canal. There's a picture of the lake lower left and there's a weir at the outlet of the lake. This lake has a natural outfall. The weir was constructed to measure flows out of the lake in accordance with our FERC permit. We have a gatehouse. This is fairly remote, so there is a helicopter landing pad. To get to that gatehouse, you take a helicopter up there. Water flows through the intake gate then passes through a gate shaft, where there is another screen and eventually down to the power tunnel bulkhead.

Here is our powerhouse, you can see in the left, that it is constructed into the rock face. If you look at the tailrace, Deborah, you can see water coming out from one unit and water discharging from generation at the second unit. The third unit, once installed, would discharge power right next to those other two. Here is our 1,100-foot-long tailrace that goes out to the Bradfield Canal.

Currently we have water rights permit for 135,000 acre-feet per year. We do not use all of that water. We do not have a minimum requirement of flow to Tyee Creek. Spill to Tyee Creek occurs occasionally. It is cyclical. During El Nino periods, the lake tends to spill generally and during the La Nina periods, dryer periods the lake tends not to spill to Tyee Creek.

Proposed Action

Mark Hilson

We are going to install a third turbine to increase capacity by 50%. There are two turbines. The third turbine will be of the same output and very similar in terms of generation capacity to the other two. So what is that going to do for us? That is going to allow us to manage peak loads better. It is going to allow us to meet growing energy demands. It is our most cost-effective way to increase our capacity while minimizing the overall environmental impact of that.

The type of turbine is a Pelton style turbine. They have a great range of generation and are much more resilient to system disturbances when compared to Francis turbines. And again, we will operate that unit within the existing licensed lake levels and permitted water rights.

Deborah, if I am going too fast, just tell me and I will slow down.

Deborah Hayden

No, this is great.

Proposed Action – Construction

Mark Hilson

OK. This is our site. It is a beautiful site. I frequently say it's a little slice of heaven. We have a dock and a ramp. We have an existing gravel road. We have a barge bulkhead and right behind that barge bulkhead is a ramp. We can barge equipment and materials in via that ramp or the barge bulkhead. We have our maintenance buildings and crew housing. We have an airstrip and a powerhouse and our facility. After construction it would pretty much look exactly the same as this. There are no new ground disturbing activities proposed.

So how do we build this? Well, here's a look at a couple things. First picture on the left, which is our switchyard. So, if you can envision another transformer next to the other two that are there, that would serve the third turbine. There is a familiar picture of our powerhouse and then to the right is the inside of our powerhouse. You can see the existing penstock comes in and this white concrete box. That absorbs energy if that pipe is flowing with water. It directs the pipe below the floor there and out through an energy dissipator to the tailrace. So, these things are already constructed and ready for the third unit. In the upper picture you see the first unit and then the second unit. You could imagine the third unit looking similar and being in the back of that photo. That is how that will look once built.

That concludes the construction. Of course, our standard best management practices will be implemented for construction and those will cover spill and erosion control, limitations on accessible areas, use of existing facilities, etcetera to protect the site and the environment.

Proposed Action – Operations at Tyee Lake

Mark Hilson

The third unit would be operated again in accordance with existing water rights of 135,000 acre-feet per year and within the current range of normal pool operations under our current FERC license, which is 1,250 feet to 1,398 feet.

The third turbine would allow increased flexibility to manage peak loads and reduce need for diesel generation at other facilities, which are that are managed by Petersburg, Wrangell, or Ketchikan Public Utilities.

As a result of operation, we will have a more rapid change to the lake level but the water surface elevation will still be within the normal pool ranges. There will be less likelihood for spill to Tyee Creek, which does not currently occur every year.

Proposed Action – Operations at Tailrace

Mark Hilson

At maximum capacity, which is very, very infrequent, each turbine discharges 117 cubic feet per second. The third turbine would add up to 117 cubic feet per second to the other two, which results in a 50% increase.

QUESTIONS

Mark Hilson

That is a little bit about the project history, what we have and what we're proposing to do. If you have any questions, I would be happy to try to answer them for you. Or perhaps someone else here in the in our meeting could answer them for you, Deborah.

Deborah Hayden

That was great. I learned a lot. It was good. And wonderful to see those photos of the area. I'm wondering, will this create enough capacity for a company like Greenspark to install some data processing centers such as the ones that they have as a pilot project in I believe it's Cordova?

Robert Siedman

So the intent of this project is not to supplement AI or server farms. The real intent is to maintain reliability and have outputs from SEAPA facilities to meet the needs of our current customers and as Mark mentioned that is Ketchikan, Petersburg, and Wrangell. And we're seeing that need with natural load growth, which would be the heat pump fuel conversions. And then just natural growth with additional housing and business

construction, we're seeing in Ketchikan on order between 1 and 3% per year, and Wrangell half a percent per year. You mentioned we're nearly out of capacity, so adding additional capacity would help us to at least not have to burn diesel for our existing community members.

When it comes to new technologies, for example, we got an outreach at one point by a company that wanted to put in carbon sequestration facilities on the island. And that was something that we definitely wanted to know and consider because additional load is obviously good for not only the agency, but for our member communities or our member utilities with additional sales. That did not come to fruition.

When it comes to AI server farms like Greenspark, I'm careful with the path forward in that we have to be very methodical. For example, Microsoft or HP, I think it's Microsoft, is investing \$7 billion in Three Mile Island for a nuclear facility for the sole purpose of providing energy to AI and server farms. There is a lot of need or a lot of want for renewable, affordable energy for the purpose of supplying power to AI and server farms. So, if we are not careful, we could get an outside investor, if you will or an outside company that says, hey, we'll take everything you got. And they could come in and install a server farm at 10 megawatts, for example. And then we would be operating diesel generators year-round to supply our current loads for a current residents and community, and as Mark mentioned, diesel is 10 times the cost. I thought that was a little high, but I got the real numbers from one of our member utilities and that is the true operating cost including the cost for personnel, costs for the equipment, and then of course the cost for fuel which we know varies a lot. It can go from \$4 a gallon, and is \$6 a gallon right now. Currently, Petersburg is paying \$6 a gallon for diesel fuel, and who knows where it's going to go in into the future. So, to answer your question, the answer is yes and no. But we have to be careful with how we bring in outside investment if it impacts all communities.

Bob Seiverton

Deborah, this is Bob, if I may. That decision is not SEAPA's decision. SEAPA's a wholesale power company, and our job, and our only job, is to provide power to the three communities when they ask for it. So, anything such as Greenspark as we talked about earlier, that would be a customer of KPU, Wrangell or Petersburg and they would have to determine that load factor. We would provide power until we could not provide power. So, the decision about how much to bring into the system is definitely going to be that of the communities because they would be customers of the community. All we do is provide the power.

Deborah Hayden

Well, I'm not pushing that. I just was curious. We need more revenue for our power company, KPU, and that was a possibility. But I'm doing my very best to create more houses and more heat pumps and more usage of power. So, I'm very glad that perhaps this third turbine will be able to supply that and that is good enough for me that it will. It's looking for the natural increase of usage that will be happening with energy conversions to electricity. So that is good.

I'd just like to be informed about the possibility and the capacity, and where we sit with those things. They did put a couple of servers in Cordova. I don't know how they're faring, supplying those and not supplying the local needs. You know my thought is if they want to come here, they can pay for some new turbines.

Mark Hilson

Yeah, their willingness to invest in the infrastructure is necessary if they decided to come here.

Deborah Hayden

Yeah, right. So, I'm very glad that you see this. Very good planning for the current needs and future needs that you see coming with the energy conversions. I'm shopping for an electric car myself.

Finlay Anderson

Deborah, I have a question. We have this presentation that we developed and we gave to the agencies earlier. We could go into detail about the environmental aspects of this project, which is what the agencies were primarily concerned about. We could talk a little bit about the process that we're proposing and the schedule or we can adapt this conversation to what you're interested in.

Deborah Hayden

I'll keep looking, if you would just post the schedule somewhere, but I don't need the environmental impact. I'm sure that is being taken care of by the people whose job that is. I will have faith in that, knowing how assiduous they are about making sure that the environmental situations are taken care of, I don't need to get involved in that. I am sure that it will be.

PROPOSED AMENDMENT SCHEDULE

Finlay Anderson

I think this is a really benign project and the fact that it's happening within the footprint of a building that has already been constructed, it's relatively straightforward. I think this is what you're maybe interested in. Let me talk to you a little bit about the process that SEAPA is pursuing to try to accelerate this amendment process. Normally a process like this would take five to six years to play out between consulting with the agencies and conducting studies. That is about how long it took for the Swan Lake pool raise. And that timeline is sort of driven by regulations that the Federal Energy Regulatory Commission has about analyzing information and assessing project effects.

But because of the way this project has come about, because it's low impact, we talked to the agencies today about gaining their support and working together with them and saying this is a really straightforward project. We would like to streamline, basically bypass a number of steps in the process. You know, bypass do not collect \$200, go straight to jail, right? Is that how the phrase went? So that is the hope. We did not get full throated endorsement today from the agencies, but I think they are considering it.

This is where we are at today. We gave the agencies a draft amendment. And the amendment, ultimately, is going to the Federal Energy Regulatory Commission, or FERC. But the agencies have a chance to review it and provide input on it. They have had it since early October. We're having the joint agency and public meeting today. We'll keep talking to the agencies and answering their questions in the meantime. And we are going to ask them for letters of support in December so that we can file a final application in January. And then FERC would start their process, and that process could take a while.

In the meantime, SEAPA is going to take a while to procure the equipment. So, while FERC is considering the amendment and evaluating, SEAPA will be procuring equipment and planning construction. And hopefully, by the time they're ready to proceed with construction, FERC will have completed its work. So, Mark, if you want to talk a little bit about when you would like to start construction.

Mark Hilson

Yeah, sure. Procurement, as Finlay mentioned takes a while with this type of equipment. Sometimes transformers take more than a year. A turbine and generator could be a little quicker than the transformers, but still take quite a long time. So, construction would be starting probably in 2026. How long that takes just depends on

some of the procurement and other things that we run into. I think in the earlier meeting, I said 2026 but we would probably not commission until 2027. But certainly, this would be online prior to Tyee's license renewal, which is due in 2031. So, we would be able to collect data on this in advance of that license renewal. That gives you a sense of the construction timeline.

Deborah Hayden

That is great. It sounds lightning fast to me from my experiences.

Mark Hilson

It's about as fast as government moves these days. So yes, it is actually pretty impressive.

Deborah Hayden

Yes. It's like lightning fast. Oh great. Thank you very much. It gives me a picture of when this might be available and of course, none of us are going to slow down getting all those heat pumps out.

Mark Hilson

We skipped over quite a bit of information, but you know there is a group here that would answer any question you have. We are delighted you're here.

Deborah Hayden

Thank you. I'm just delighted to see that the capacity is going to be there regardless of how long it takes and that you have got this great plan for it. It's delightful.

Mark Hilson

I think that is probably all we need to cover today, unless you've got other things that you would like to talk about. Thanks, Deborah. I appreciate your engagement and attending our meeting. I think you had some thoughtful insights and your input is valued and much appreciated. So thank you, and thanks to all the team members that are both here in person at the meeting and attending virtually. All your help is greatly appreciated. Thank you.

Deborah Hayden

Thank you very much. I feel like you've done all this just for me.

Mark Hilson

We did, yeah and we are happy to do it. And we had a good meeting earlier today. So, this is a dual purpose.

Adjourned.