## REPORT AND RECOMMENDATION

**TO:** STEVE GIESBRECHT, BOROUGH MANAGER
BOROUGH ASSEMBLY

**FROM:** KARL HAGERMAN, UTILITY DIRECTOR

**SUBJECT:** HYDROELECTRIC STATUS UPDATE

**DATE:** 2/21/2019

**CC:** FILE

As you know, the dry weather of 2018 has been looming and impacting water levels in the hydro site lakes for many months. SEAPA has provided ongoing lake levels, load tables and generation plans the utilities so we know where we stand every week. Unfortunately, the persistent dry, cold weather has brought the water shortage to the point that both Petersburg and Wrangell are now supplementing SEAPA power with diesel runs. As of the writing of this report, Tyee Lake level was at 1263.2 (3.2' capacity remaining for generation), Swan Lake is at 282.1 (2.1' generation capacity remaining before all power is dedicated to Ketchikan) and Crystal Lake is at 10.33' (~4.8' capacity remaining for generation). All lakes are in dire condition as this point.

Although the weather is the primary reason we are in this situation, SEAPA has been transparent that in their efforts to maximize utilization of all water assets and meet the firm power needs of all interconnected communities last summer, the agency sold 32,000 MWh in surplus power to Ketchikan from Tyee Lake. In hindsight, and after multiple failures of long-term weather forecasts that doomed agency decision making, the "surplus" power from Tyee Lake is no longer considered surplus. To mitigate this situation, the agency has struck a deal with Ketchikan to "return" 6,000 MWh to the norther communities from Swan Lake. The process to wheel power north from Swan Lake has been ongoing with varying levels of success due to cold weather impacts on the system demands and of course – lake levels and available generation capacity at Swan Lake.

At the present time, Petersburg is running our generators to provide approximately 4.5 – 5.5 MW to our inter-connected system for 16 hours per day. Wrangell will have started a 24-hour diesel campaign by the time of the Assembly meeting –at an output of 4 MW in the day and down to 2 MW through the night. Both communities are attempting to provide over 50% of the daily power requirements for their prospective local loads, while working closely with the Tyee plant to manage generation levels that work for the system. Tyee is contributing a variable 4 – 9 MW throughout the day and night, dependent upon loads. Swan Lake is also providing power to the North at the present time, however with Swan Lake levels dwindling this will likely not continue for much longer. As soon as Swan Lake reaches 280', all power from that project will be dedicated to Ketchikan. The overall goal is to stabilize the draft (usage) rate of Tyee Lake. The diesel runs to date have slowed the water level decline but have not stopped it completely. Once Tyee Lake reaches an elevation of 1260', it is likely that Petersburg and Wrangell will need to separate from the inter-connected system and provide power to their communities strictly from their own generation facilities. Petersburg will be powered by diesel and supplemented by some hydro generation from Crystal Lake. Wrangell will be powering their community with their diesel plant only.

Where does this put us for short term and long-term considerations? For the short term, Petersburg will continue to operate a long day/swing shift as we are able to contribute the right amount of MWh per day in this mode and it prevents us from stretching our staffing very thin to man a 24-

hour operation. If required and requested by SEAPA, we can transition to a 24-hour operation while still inter-connected to Wrangell and the SEAPA projects. This will shift PMPL to an operations heavy mode that will make other work of the utility harder to accomplish – but the staff is up to the challenge and will do whatever they can to handle any problems that arise.

For the long term, we need warm and wet weather. Warmer weather reduces loads on the system and requires less water and diesel to meet the demand. Wet weather adds inflows to the lakes immediately and melts snow to further increase the benefit to our energy sources. If this weather does not materialize within the next two weeks, it is highly likely that the draft limits set by the SEAPA Board will be met and the Northern communities will need to separate and meet their power needs without the benefit of SEAPA power until inflows provide additional energy that can be utilized. There is a potential for the SEAPA Board to lower the draft levels in the Lakes and utilize water reserves down closer to firm FERC mandated draft limits. The Board has already agreed to lower the Swan draft limit by two feet, but to date the Tyee limit still sits at 1260'. Regardless of the draft limits, the length of the diesel campaign could continue indefinitely in some form until wet weather returns to SE Alaska.

What does this mean for Petersburg rate payers? Under the present operations plan and diesel run, Petersburg is burning approximately 350 gallons per hour. A 16-hour shift burns approximately 5,600 gallons of fuel. The current bulk price for the fuel is at $2.55 per gallon (a special price offered from Petro Marine in recognition of the impacts of this generation emergency) and adds up to a cost to the utility of $14,280 per day. Our ordinance provides for some of the diesel expenses to be supplemented by our rate payers but there is no immediate plan to implement the diesel fuel adjustment charge. In lieu of the immediate implementation of the ordinance the Utility has some options. Firstly, the utility will generally expend the most recent SEAPA rebate to cover fuel costs for the short term. Secondly, the SEAPA Board of Directors may choose to approve a true-up payment for diesel costs to the northern communities to offset unanticipated fuel costs that are partially due to selling of surplus power from Tyee Lake to Ketchikan. At present generation levels we will expend the $202,911 rebate in approximately 14 days of running, or by March 2nd.

After the rebate is expended, I recommend that the fuel adjustment charge in PMC 14.16.720 be implemented. This code provision provides a billing surcharge based upon the price of fuel above $1.50 per gallon, generation efficiency and the ratio of diesel plant generation to total generated and purchased power, over the course of a calendar month. The formula used to calculate the adjustment charge is calculated using one month of complete data and is then applied on the next month's billing based on the customer's usage. The ordinance has long provided for the fuel adjustment charge and it has been used in the past to help recoup costs associated with annual Tyee and transmission line maintenance shutdowns. The Assembly has held in recent years that rebates received from SEAPA be applied to the diesel generation costs prior to implementation of the billing adjustment.

In order to mitigate power demands, sustain lake levels and ultimately delay and reduce the impacts of a fuel adjustment charge, the community is strongly encouraged to conserve electricity as much as possible and to do so until further notice. The utility has developed a PSA with various tips for reducing power usage which is also provided on the Borough's website and on the Borough's Facebook page. New habits of conservation can reduce power usage substantially and if the community starts conserving now, all customers will be in a better position to keep their fuel adjustment charges as low as possible.

I'll be happy to answer any questions at the February 25th Assembly meeting.

Thank you.