



MEMORANDUM

EUGENE WATER & ELECTRIC BOARD

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TO: Commissioners Mital, Schlossberg, Helgeson, Brown and Carlson
FROM: Michael McCann, Electric Generation Manager and Patty Boyle, Generation Contracts Supervisor
DATE: February 24, 2020
SUBJECT: Leaburg/Walterville Evaluation Project Update (Organizational Goal #7)
OBJECTIVE: Information Only

Issue

These materials have been prepared to describe the current situation at the Leaburg-Walterville Project and to describe the process for achieving the 2020 EWEB organizational goal #7 to *work with the EWEB Commissioners, FERC, and the McKenzie Valley community to develop a TBL-based plan for the lower McKenzie River Hydroelectric Projects by the end of 2020.*

Background

With approximately 20 years remaining on the FERC issued operating license for the Leaburg-Walterville Project, EWEB must evaluate the near and long term options to resolve significant dam safety concerns associated with the Leaburg Powerhouse and Canal. When in operation, water diverted at Leaburg Dam for power generation passes through a downstream migrant fish screen and enters the 5-mile-long, 15 foot deep cut and fill, partially lined, Leaburg Canal leading to the power plant forebay. The Leaburg Powerhouse contains two Francis turbines with a total installed capacity of 15.9 MW. The Walterville Plant is currently in operation and is supplied water from the McKenzie River by rock drop diversion structures into the 4 mile long, 14 foot deep Walterville Canal. The Walterville Powerhouse has a single 8 MW turbine. The Leaburg plant produces approximately 9 average MW and the Walterville plant produces approximately 5 aMW. Power plant infrastructure is in generally good condition at both plants¹, but will require regular maintenance and periodic capital reinvestment through the remainder of the license period.

Canal Condition - Internal Erosion of the Leaburg Canal

Since the Project was put in operation in the 1930s, there have been seepage areas along the entire length of both canals that have been visually monitored, and in some cases mitigated. On September 25, 2018, as part of a routine annual inspection, the first of two known locations of internal erosion was discovered at a chronic seepage location. This first area, known as Cogswell Creek Seepage Area, is an approximate 8-foot long, 6- inch diameter void where water is seeping out of the toe of the canal embankment. On September 28, 2019 EWEB received direction from the FERC Division

¹ In addition to routine O&M and capital investment, the Leaburg Unit 2 generator will need to be rewound within the next ten years.

of Dam Safety and Inspections -Portland Regional Office that included drawdown of the canal, notification to nearby residents, increased canal inspection requirements, development of a work plan to investigate the erosion, determination of the susceptibility to failure and a plan for repair. The Leaburg Canal was subsequently dewatered beginning in October 2018 and remains dewatered. The second, smaller area of internal erosion above the town of Leaburg and referred to as the Ames Seepage was discovered in April 2019 and is being similarly addressed. While in better condition, the Walterville Canal has similar known seepage issues and will likely be subject to the same level of inspection and improvement requirements as the Leaburg Canal for the remainder of the license.

In 2019, EWEB implemented the FERC approved Drilling Program Plan (DPP) for the Cogswell Creek area to provide greater detail on the condition of the canal and completed temporary repairs to both areas of erosion in preparation for winter time accretion flows from upslope streams. The repairs are not intended to be a solution to the issue but were put in place to stabilize the canal during anticipated winter and spring flows that enter the canal from side streams.

Seismic Stability of the Projects

Additionally, the DPP provided information on the seismic stability of the Leaburg Canal. Seismic stability of the canals is a long-term issue that will need to be addressed in any planning process for the two projects. It is also important to note that both the Leaburg and Walterville powerhouses were built prior to modern seismic design requirements. Upgrades for seismic stability in the powerhouses have not been investigated and are an important consideration when valuing the Project as it relates to local resiliency after a major seismic event. For dam safety purposes, the seismic stability of portions of both canals and forebays are currently being analyzed. Results of that analysis will be available in 2020.

Discussion

Financial Considerations

EWEB must determine the most beneficial approach to resolving the infrastructure issues and plan for the long term management of the Project by conducting a triple bottom line analysis. A team led by Patty Boyle that includes internal resources and outside consultants has been tasked with leading this work.

The monetary value of the energy produced by the project and alternative replacement power costs will be established in coordination with the assumptions used to develop the IRP and historical costs associated with operations and maintenance and capital reinvestment. Additionally, in February the Board authorized a contract with Cornforth Consultants to complete a Risk Informed Decision Making process that will establish the needed reinvestment and help determine the future operations of the project. Fundamentally a decision to invest in the canals to return the project to service or to invest in the canals to convert them to water conveyance only must be made. Close coordination with state and federal regulators will be required to implement either strategy including the resolution of existing water rights along the Leaburg Canal.

Societal Considerations

Both the Leaburg and Walterville projects have been fixtures in the lower McKenzie valley for almost 100 years, and the communities around the projects have grown and developed with the

projects in place. The public uses the canals for recreation (walking and biking) and the withdrawal of water for irrigation. Neighborhoods have developed in areas below the canals, along the Leaburg lake shoreline and along the Walterville tailrace. Any change to project operations will ultimately impact these other uses in the vicinity of the project.

The public also has a reasonable assumption that EWEB will keep them safe. All decisions and actions should consider public safety first, be transparent to all and encourage the public to be aware of the risks of living/recreating at or near the facilities. The local community will also likely have strong opinions on what should happen and will need to be an engaged partner in the development of a plan moving forward.

Environmental Considerations

Both Leaburg and Walterville canals intercept surface water side streams that would otherwise run to the river. Because development over the past 100 years has been made with the canals in place, there are no current streambeds between the canals and the river that would allow water to pass freely to the river without impacting current development. Both projects also provide points of diversion for irrigation of crops along the lower river. Relocating the diversions to the river would require additional cost and infrastructure by the irrigators.

The Leaburg project serves as an unofficial demarcation between the lower and upper portions of the McKenzie River. Hatchery chinook and steelhead are not supposed to exist above Leaburg dam. The dam and fish ladders provide a point of separation. The Leaburg project also serves as a source of gravity fed water for both ODFW fish hatcheries near Leaburg. Both hatcheries would need to procure alternate water supplies should the canal project cease to exist.

The Walterville Canal diversion and tailrace facilities are located on alluvial material that is subject to changes in the McKenzie river route. Over time the river may move away from either or both the diversion and tailrace facilities, rendering them ineffective and requiring a reinvestment in those facilities by EWEB.

Both projects also impact water temperature in the lower McKenzie and extending to its confluence with the Willamette. These impacts are most pronounced and important in the summer and fall during low water conditions. With Oregon summers expected to get hotter and dryer, these impacts are only expected to get worse over time.

A Board meeting has been scheduled for April 23, at the McKenzie Fire Training Center where as part of the Leaburg Canal Update staff will take feedback and present a plan for strategies and tactics to engage the upriver community on these issues. The team will present an update on the technical evaluation and TBL analysis completed to date at the June 2020 Board Meeting. Subsequent updates, either through correspondence or Board presentations will be scheduled throughout the remainder of the year

Recommendation

Staff have no recommendation at this time. These materials are for information only. Please contact Mike McCann or Patty Boyle with questions.

Requested Board Action

None.