Blue Lake Hydroelectric Expansion Project

Grantees	City and Borough of Sitka (Local Government)
Technology Type	HYDRO
Region	Southeast
AEDG Project Code	10416

REF Grants Received

Round	App	Grant Title	Grant #	AEA Project #	Phase	Start Date	End Date	Status
6	917	Blue Lake Hydroelectric Expansion Project	7060917	407088	Construction	7/1/13	6/30/17	Active

Grant 7060917: Blue Lake Hydroelectric Expansion Project

Project Scope: The proposed Blue Lake Hydroelectric Expansion Project, a comprehensive upgrade of an existing hydroelectric project at Blue Lake, began construction in 2013. When completed in 2015, the project will increase the nameplate capacity of the Blue Lake facility from 7.54 to 16.9 MW and increase the annual energy generation by 32,000 MWh. It will result in an increase of the total annual hydroelectric generation of the City and Borough of Sitka (CBS) by 27%, from 120,000 to 152,000 MWh.

Some of the major features of this project include the following: The dam crest would be raised by 83 feet to a spillway crest elevation of 425 feet msl and a parapet elevation of 428 feet msl. The existing intake structure would be replaced by a new intake structure located at a higher elevation and closer to the dam. The existing power conduit intake would be abandoned in place. A new underground power conduit would be installed from the new intake structure to an interconnection point with the existing underground power conduit. The portion of the existing power conduit from the existing intake structure to the point of interconnection would be plugged at the point of interconnection. The steel liners at the portals to the power conduit would be lengthened. An underground 20-foot-diameter surge chamber would be installed along the power conduit with venting to the surface at elevation 465 feet msl. The existing 7-foot-diameter penstock would be replaced with a new 9-foot-diameter penstock between the lower portal and the new powerhouse. The existing powerhouse would be decommissioned and a new powerhouse would be constructed housing three new generating units. The existing 670-kW fish valve unit would be replaced with a new 1-MW generating unit. The existing 870-kW pulp mill feeder unit would be decommissioned. The existing powerhouse transformers would be replaced with new transformers. Equipment access and dam site staging facilities would be developed. Timber and other vegetation around the reservoir and in Blue Lake Creek Valley would be left in place and not cleared prior to inundation to the new water surface elevation. A 1,400-foot-long dam site power distribution line from the fish valve unit would travel along the tunnel alignment to Blue Lake Road and then follow Blue Lake Road to the dam site. The alignment of Blue Lake Road would be changed to accommodate heavy equipment transport. The project boundary would be expanded from 1,602 acres to 1,730 acres to accommodate the increased reservoir area. CBS was issued the capacity related amendment to its existing FERC license for the hydroelectric expansion project in May 2012.

The CBS advertised the construction contract in May, 2012 and opened bids in July. The bids received were well above the engineers estimate. CBS evaluated the bids and opted to select one of the bidders and then negotiate with them. A Notice to Proceed was issued on November 1 and the official ground breaking ceremony took place on December 21, 2012. A two year construction cycle is anticipated.

Funding for the $142,305,487 project began in 2009 under Grant 2195311 with a legislative appropriation of $12,500,000 and a CBS cash match. A portion of these funds, were used to complete project development, including licensing, permits and engineering design and initial payments for owner-purchased equipment. In FY 2010, a legislative grant provided $8,000,000 in new funding was added to the existing grant by an amendment. Grant 7910013 provided some funding for this project based on a combination of city funds, an FY 2012 state legislative grant and municipal utility revenue bonds. (AEA reserved $50,000 from the FY 2012 grant to pay for its grant administration costs.)

Funding for Grant 7060917 comes from Round VI of the Renewable Energy Fund Grant Program. The scope of work and the total of the overall project cost remain unchanged under this grant and the other two grants already issued. Because the total project cost is unchanged, Amendment 1 to Grant 7910013 will be created to reduce the CBS cash match in that grant by $8,000,000, being offset by this grants $4,000,000 increase in the Renewable Energy Fund grant funding and $4,000,000 in CBS cash match.

Project Status: The grant agreement was signed August 2, 2013. Substantial completion is scheduled for January 2015. Grant reporting is current through November 2014.