

## **Attachment A**

### **EES Consulting, Inc. Hydropower Projects**

#### **Grand Coulee/John W. Keys III Pump Generating Plant, Washington – 600 MW Technical Review and Cost Allocation Study of Upgrade Alternatives**

EES Consulting performed technical reviews of plans and costs for upgrading the pump-generating plant for this 600 MW facility, including reservoir and water conveyance systems, turbines, generators, pumps/turbines, motor/generators, transformers, bus duct, control systems, and plant electrical and mechanical auxiliary systems. Following the reviews, EES Consulting prepared a cost allocation study showing how the upgrade costs should be split between the project stakeholders. The work was completed in 2013.

#### **Ross Dam Hydroelectric Project, Washington – 352 MW Upgrade of Dam Station Service and Related Infrastructure**

EES Consulting is currently performing a study of upgrade alternatives for the ac and dc station service systems at the dam, including control systems and communication systems. After the completion of the study, EES Consulting will prepare detailed engineering plans and specifications for the upgrade alternative selected by Seattle City Light.

#### **Blue Lake Expansion Project – 8.6 MW Construction and Commissioning**

EES Consulting is currently assisting in final construction and commissioning of Blue Lake hydroelectric project expansion consisting of three 8.56 MW generators and one 1.6 MW fish valve unit for the City and Borough of Sitka, AK. Scope includes all electrical and control systems, including switchgear, turbine-generator control panels, transformers, SCADA systems, and the balance of plant electrical systems.

#### **Allison Creek Hydroelectric Project – 6.5 MW Electrical and Control System Design**

EES Consulting has provided the electrical and control system designs for the 6.5 MW hydroelectric project in Valdez, AK. EES Consulting is currently assisting in electrical construction, factory testing, and shop drawing reviews for generator, switchgear, control panels, transformers, and the balance of plant electrical system.

#### **Guayacan Hydroelectric Project, Guatemala – 1.6 MW Design-Build**

EES Consulting has provided the electrical design criteria and equipment requirements for a design-build hydroelectric project consisting of two 1.6 MW units located approximately 100 km from Guatemala City, Guatemala. The plant is currently undergoing commissioning phase. EES Consulting reviewed the contractor and shop drawings and assisted in installation details.

**Cowlitz County PUD  
Swift Dam #2 Litigation**

EES Consulting presented expert testimony on the impacts of Swift #2 hydro project failure.

**Calligan and Hancock Creek Hydroelectric Projects, Washington – 6 MW and 6.5 MW  
Design Services**

EES Consulting is currently designing these two nearly identical projects. The scope includes drawings and specifications for the intakes/diversion, penstocks, powerhouses and equipment supply. They are scheduled to begin commercial operation in late 2016.

**Gay & Robinson Hydroelectric Expansion Project, Kauai – 6.5 MW  
Design Services**

EES Consulting is currently designing this high head project. The project will use water from an existing project to generate power at a new powerhouse located further downhill. The scope includes construction drawings and specifications for a forebay, penstock and powerhouse, and contract documents for procuring the turbine and generator. This project is scheduled to begin commercial operation in late 2017.

**Youngs Creek Hydroelectric Project, Washington – 7.5 MW  
Design and Construction Services**

EES Consulting provided project management, engineering final design, final construction drawings, specifications and contracting documents, prepared and managed water to wire equipment supply package, and is presently assisting with construction management. The project began commercial operation in 2011.

**Candelaria Hydroelectric Project, Guatemala – 4.6 MW  
Design and Commissioning**

EES Consulting provided project management, engineering final design, final construction drawings, specifications and contracting documents, prepared and managed water to wire equipment supply package, and led the commissioning team. The project began commercial operation in June 2006.

**Eldorado Reservoir Hydroelectric Project, British Columbia, Canada – 1.1 MW  
Final Design and Construction Services**

This project is located in Lake Country, British Columbia, Canada and is designed on an existing domestic water supply system to function in parallel with existing pressure reducing valves. EES Consulting developed the final conceptual design, plans and specifications to support a turbine and generator supply contract, contracts for electrical controls equipment and construction to build the powerhouse and tailrace, install all equipment and start up the plant. Project began operation in spring of 2009.

**Verdi Hydroelectric Project, Nevada – 4 MW**  
**Penstock Replacement**

The project's aging wood stave pipeline leaked and was deteriorating. EES Consulting provided engineering services to replace the wood stave pipe with a 108-inch diameter steel pipe. The work involved designing the new pipeline, writing technical specifications and preparing contract documents. The installation of the pipe began on schedule in April 2005 and was completed on time and within budget.

**Anyox Hydroelectric Project, British Columbia, Canada – 30 MW**  
**Design and Construction Services**

This project originally operated in the early 1900s to serve the electrical needs of the mine, smelter, and town of Anyox, which are now abandoned, and included a large dam, pipelines, and a powerhouse. EES Consulting designed measures to rehabilitate the dam structure and to bring the project back into generating service. This includes designing a new 3,000 meter unlined tunnel and a steel 108-inch penstock to convey water to the powerhouse from the dam, a new powerhouse, and submarine transmission line that will connect the Anyox Project to BC Hydro's existing transmission system near Kitsault, B.C.

**Box Canyon Hydroelectric Project, Washington – 90 MW**  
**Turbine/Generator Upgrade**

EES Consulting is working with the Pend Oreille County PUD to upgrade the four original turbines with new fish friendly design and increased generating capacity from 60 MW to 90 MW. Work also includes upgrading the generators and electrical controls. Construction on replacing the first turbine commenced in July 2009 and all four new units are scheduled to be in operation by mid-2014. EES Consulting also acted for the PUD as expert witness in a Box Canyon relicensing dispute in federal court.

**Carmen Smith Hydroelectric Project, Oregon – 100 MW**  
**Turbine/Generator Rehabilitation**

EES Consulting worked with the Eugene Water and Electric Board to rehabilitate the two powerhouses. Work included new runners and rewind generators at the Carmen powerhouse and turbine refurbishment at the Trail Bridge powerhouse. EES performed condition assessments and developed cost estimates, followed by preparation of construction and procurement contracts.

**Verdi Hydroelectric Project, Nevada – 4 MW**  
**Powerhouse Rehabilitation**

The generator was rewind and new controls were provided for this turn-of-the-century project. EES Consulting provided engineering including writing technical specifications and preparing contract documents. The rehabilitation was completed on time and within budget in 2006.

**Fleish Hydroelectric Project, Nevada – 4 MW**  
**Powerhouse Rehabilitation**

The control panel and governor was replaced for this turn-of-the-century project. EES Consulting provided engineering including writing technical specifications and preparing contract documents. The rehabilitation was completed on time and within budget in 2008.

**PPL Montana  
Clark Fork Dispute**

EES Consulting acted for PPL Montana in state court over a dispute involving PPL Montana's hydro generation resources.

**Avista Corporation, Inc.  
Spokane River Hydro Plants**

EES Consulting acted as technical experts in a federal court mediation involving Avista's Spokane River hydro generation projects.

**Douglas County PUD  
Wells Dam**

EES Consulting acted as technical experts in a mediation over the Wells Dam relicensing process.