

Alaska Energy Cost Reduction Program Progress Report

Grantee: Alaska Power & Telephone Company

Grant # 313-07

Period of Report: Fourth Quarter 2007 (October 1 through December 31, 2007)

Project Name: Eagle Hydrokinetic River Turbine Project (Denali)

Quarterly project activities completed:

TerraSond completed the data analysis and issued a report on their findings. This study provided important information on the characteristics of the river in and around the project location. The results include accurate surveying coordinates for project features, current velocity, bathymetric transect, and sub-bottom profile data for the three potential turbine deployment sites. In addition they

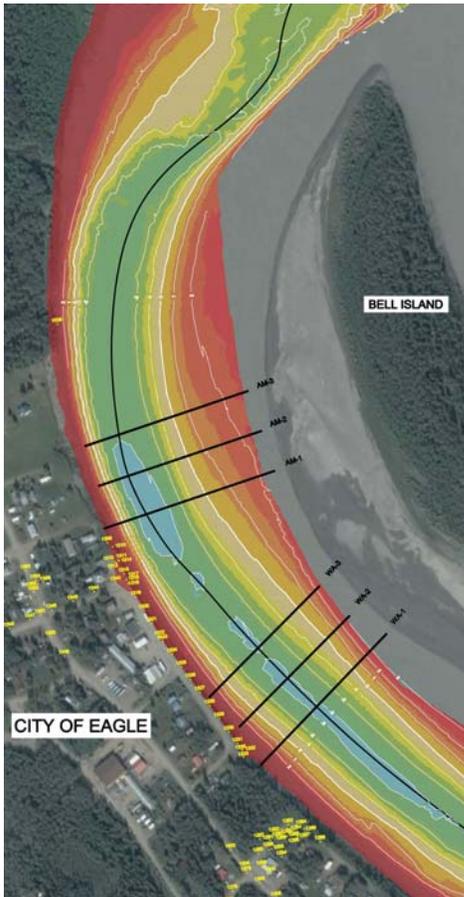


Figure 1 - Bathymetry of Yukon River

provided a full bathymetric map of the project river channel along the island and the regions upstream and downstream of the island (Figure 1). This information established the location of the thalweg and confirmed that any of the three sites selected for study would be satisfactory for the deployment of the turbine.

TerraSond collected the current velocity measurements at the USGS survey location upstream of the project in the main body of the river. These measurements were compared to the historical data of the USGS and confirmed to be the same within the accuracy of the measurements. Current velocity measurements in the channel at the turbine location were compared to the velocities of the USGS survey location and a correlation was established. With this correlation, it is possible to more accurately predict the velocities would be in the project location through out the year.

TerraSond's current velocity data were used to develop a bottom to surface velocity profiles for several locations in the river. These profiles (curves) were plotted together and were found to be very similar and clearly show that the velocities near the surface of the river are far greater than those near the bottom.

With the knowledge gained from the river survey and the historical data from the USGS a study was performed by AP&T to predict the project generation capacity. The USGS information covering 50 years of measurement data

for the Yukon River at Eagle was studied developing a curve that provided an average river velocity throughout a year. Using this average information velocities were calculated at three elevations in the river water column; the bottom, the average velocity point and near the surface. With these

calculated velocities and the generation capability from the manufacturer for the provided turbine the pilot project values were calculated for the expected generation with the turbine operating at each of the three depths throughout the average year. The results of the generation study indicated that a river turbine would have much lower generation while operating on the bottom than at higher locations in the river and that only while operating near the surface would the operation of the turbine be economically feasible, at this particular project location.

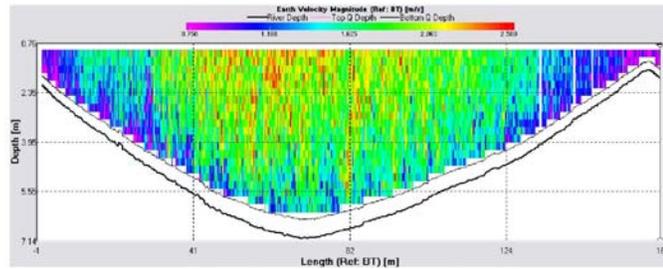
The original plan for the pilot project was to deploy the river turbine on the bottom of the river and to operate for the majority of the year in that location only removing the turbine for annual maintenance and inspection.

We have modified the turbine deployment plan, bringing its operation near the surface during the ice free months. The turbine will be deployed after break-up and evacuated prior to ice choking of the river or roughly from the end of April until early October.

With the revised operating requirements, preliminary turbine design was completed with the

manufacturer's cooperation. UEK Corporation provided a equipment proposal and the an order was awarded for the fully tested turbine system, support platform barge and all deployment materials necessary for a three year period. The contract schedule includes the final engineering and design of the equipment in the first quarter of 2008; the manufacturing of the equipment during the second and third quarters of 2008; the testing of the equipment during the third and fourth quarters of 2008; and delivery, installation and commissioning during the first and second quarter of 2009.

Current Velocity Washington St. Turbine Transect



Proposed Washington St. Turbine Transect

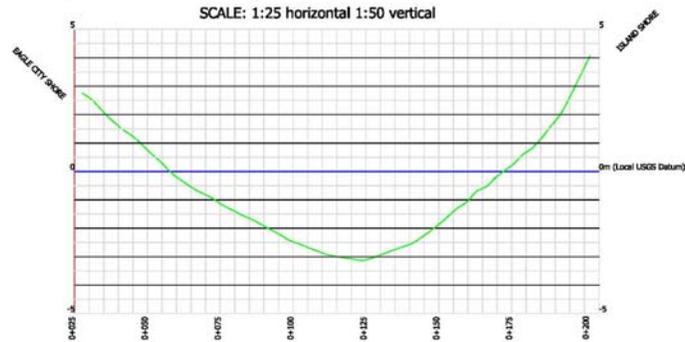


Figure 2 - Yukon River Data

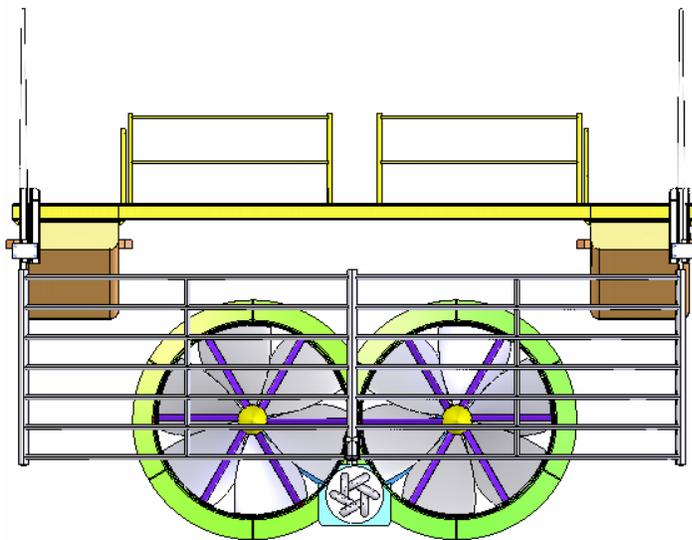


Figure 3 - of UEK turbine deployed from pontoon barge

Permitting

AP&T has elected to seek an operating license from the FERC. The application has been fully drafted and is in final review at this time.

Project existing or potential problems:

None known at this time

Activities Targeted for Next Reporting Period, First Quarter 2008:

- UEK final turbine equipment design reviewed by AP&T.
- FERC operating license completed and submitted.
- Using bottom and sub-bottom conditions data provided by TerraSond survey initiate preliminary design of the mooring anchor. Anchor design is dependant on load information contained in the UEK final turbine design.
- Preliminary design of the shore facilities and turbine interconnection. Clifton Labs of Seattle, Washington, was contracted to determine and evaluate the electrical interconnection options between the turbine and the utility. The results of these studies will help to determine the final configuration of the electrical system and the specification of the components.