

## **WCA Intertie Project Grant Completion Report**

**Grantee: Whitestone Community Association**

**Project Name: WCA Intertie**

**Grant Number: 2195270**

### **Background:**

The community of Whitestone is located on the west side of the Delta and Tanana Rivers 10 miles north of Delta Junction and 90 miles south of Fairbanks. It has generated its own power for the past twenty-five years, beginning with a small power plant which powered the community since 1984, and which burned down in 1991. This was replaced by a code-compliant power facility through funding from the Department of Emergency Services and Veteran Affairs. This utility served the community for several years, but by 2005 was having difficulty keeping up with the loads required. In 2006, WCA applied for a grant to upgrade the existing power utility to supply the rapidly growing needs of the community. The community was granted the funding through the AEA Energy Cost Reduction Program, but continuing research brought to light that Golden Valley Electric Association controlled power rights to the WCA area. WCA contacted GVEA and they agreed to bring power across the Tanana River to the community of Whitestone, which, in short, met the requirements of the ECR Program.

### **Activities:**

The Project began in November, 2007. Necessary permitting agencies were contacted again for the official project start-up. Fifty percent of the total project survey planning and site analysis was performed. Seventy percent of the procurement planning took place, as well as 40% of actual material procurement. WCA continued to communicate with GVEA and necessary State and Federal agencies about plan development for the intertie. Plans for modifying the power plant structure for heavier prime movers and additional modifications began. The project team met regularly for planning, setting up of occupational safety considerations, and began briefing the labor force. In December of 2007, the intertie easement clearing was surveyed and staked, the power plant building heating design was finished and welding and the various kinds of mechanical work began in the power plant in preparation for the prime movers, as well as the engineering of the power plant heating system. In addition to designing the vibrational mounts for the back-up power units, Hasz Consulting Company engineered and procured the materials for the Above Ground Fuel Storage Facility.

The year 2008 began with the arrival of the first of project materials. The vibration mount designs were finished, the materials were ordered and modification of the power

back-up units began. A staging area for all received materials was designated. The survey for energy-saving T-8 lighting and building roof insulation was performed. The only issue to this point came from SHPO and WCA met with GVEA about possible relevant historical issues that subsequently were resolved. Throughout the spring of 2008, Prime Mover Units 1&2 continued to be constructed and assembled, and the new plant heating system was installed. The 10,000 gallon Fuel Storage Tank was delivered to one of the staging sites, and clearing began for the power corridor.

May of 2008 was remarkably warm, and the physical installation of the power plant upgrade had to wait until all heavy equipment for the project was made ready, along with the batch plant for needed project concrete. GVEA had completed 90% of the power corridor placement for both the north side and the south side of the Tanana River, and Northern Land Use Research, Inc. had sent archeologists to survey possible historical sites that could potentially be disturbed by the river crossing intertie structures.

By June project related heavy equipment had been serviced and was ready for use on the project. Power plant, AST and road access surveys were completed, and the service entrance equipment was installed. In July, 2008, the GVEA pole termination site was excavated on the WCA side of the power project, and 80% of the bulk fuel storage facility site ground work was completed. The installation of the power plant upgrade switch gear progressed, and the #2 power back-up unit was installed; startup was achieved.

August and fall of 2008 targeted the construction of concrete retaining walls for the GVEA service area and storage tank footers. The Fuel Storage Tank and related hardware were painted and set on the footers, and all hardware, piping and electrical service was installed, along with the GVEA service disconnect, current transformers, meter base and conduit runs. Four power outs were planned to install power control panel components to accommodate GVEA power and the switchover of the Whitestone power plant to a back-up system. Air control louvers were installed throughout the power facility, the access drive to the Fuel Storage Facility was completed and all Fuel Facility painting was completed. Power back-up #1 was constructed, and by the end of October had been installed; WCA was ready to be connected to the GVEA grid.

In November, GVEA awarded the electrical work to Grasle and Associates, Inc. based out of Fairbanks, and they began staging for construction. The fuel storage facility control panel was installed and operational, Prime Mover #3 was decommissioned and removed from the power plant. Grasle and Associates began actual installation of the GVEA transformer and vault at the WP&C disconnect in December and began line construction. At this point the last of the power plant facility operations gear was installed, and the Fuel Storage Facility became fully operational. January and February saw continued line construction, and the power plant heating system was completed. In March, 2008, the heating system tested successfully. Grasle and Associates, Inc. completed the intertie construction; the intertie was energized on March 9, 2009 at 9:30 a.m. WCA tested the diesel power back-up successfully, and Whitestone became powered by the GVEA grid, bringing the project to successful completion.

Project Cost:

AEA Grant	\$ 682,928.00
In Kind Funding	<u>254,022.00</u>
Total Project Budget	\$ 936,950.00
Additional Grant Award	<u>\$ 125,000.00</u>
Total Project Funds	\$1,061,950.00
Labor Cost	\$ 262,288.51
Materials Cost	403,006.61
Equipment Cost	60,668.13
Sub-contractor Cost	<u>470,960.39</u>
Total Project Cost	\$1,196,923.64

Project Outcome:

The difference in the project budget and the project cost was due in large part to increased cost of materials between the planning stages of this endeavor and its actual construction and completion. Whitestone Community Association provided another \$150,000 worth of In-Kind beyond what was originally budgeted, due to bringing the power service across the Tanana River instead of just upgrading the existing utility. The Denali Commission awarded an additional \$125,000.00 to complete the funding. The outcome of this project was the successful interconnect to the GVEA power grid, providing the community of Whitestone with adequate power for its growing requirements, as well as the upgrade of the existing utility into a reliable back-up source of power. The switch to GVEA power is saving the community of Whitestone an average of 27 cents per kilowatt hour and approximately 60,000 gallons of #2 diesel per year. Not only are the cost/saving benefits overwhelmingly positive, but the environmental ones are as well. The diesel engines are no longer a constant source of air pollution, and noise pollution was cut by 100%. Less fuel oil will need to be transferred across the Delta River in the winter, thereby lessening the risk of an avoidable hazardous event.

Problems Encountered:

The problems encountered in this project were minimal. In December of 2007, WCA received a letter from the Office of History & Archeology (DNR) requesting a survey of the proposed easement clearing on both sides of the Tanana River. In February of 2008, the heating system purchasing was on hold until system designs were modified. In April of 2008, snow was melting so fast that WCA was trying to beat the clock to finish power easement clearing, as the DNR did not permit clearing of the easement without snow on the root mat. All of these problems were met and worked through to the satisfaction of the involved parties. In conclusion, WCA would like to thank the Alaska Energy Authority for their financial support and assistance through the entire project, as well as GVEA for their tireless efforts in providing the community of Whitestone with the completion of the power intertie.