Upper Tanana Biomass CHP Project

Grantees	Alaska Power and Telephone (For Profit Entity)
Technology Type	BIOMASS
Region	Yukon-Koyukuk/Upper Tanana
AEDG Project Code	10270

REF Grants Received

Round	App	Grant Title	Grant #	AEA Project #	Phase	Start Date	End Date	Status
4	665	Upper Tanana Biomass CHP Project	7040045	402049	Feasibility	7/1/11	12/31/12	Active
6	925	Upper Tanana Biomass CHP Project 2	7060925	402049	Final Design	7/1/13	12/31/14	Active

Grant 7040045: Upper Tanana Biomass CHP Project

Project Scope: Alaska Power & Telephone (AP&T) will conduct an assessment that will be Phase II of the project. This will complete the Feasibility Analysis, Biomass Resource Assessment and Conceptual Design for a 2MWe biomass gasification CHP (combined heat and power) system. AP&T, in partnership with the Upper Tanana communities of Tok, Tetlin, Dot Lake and Tanacross, the State of Alaska Department of Natural Resources (DNR), contracted consultants, foresters and economists, will assess the feasibility of a system utilizing locally sourced woody biomass as fuel. The deliverables of the project will be the sustainable supply and projected costs of the biomass resource, the conceptual design, permitting and environmental analysis of the proposed project site, refined economic/financial analysis, and a conceptual business/operational plan.

AP&T must coordinate the feasibility assessment with the Tok School Biomass Project and the Yerrick Creek Hydro Project.

Project Status: The project is complete and began closeout process.

As of Nov. 30, 2013	Budget	Expenditures
Renewable Energy Funding	$362,882.62	$362,882.62
Other State Funding	$0.00	$0.00
Total State	**$362,882.62**	**$362,882.62**
Required Local Match	$42,619.60	$42,619.60
Federal Grant Funding	$0.00	$0.00
Total Project Costs	**$405,502.22**	**$405,502.22**

Grant 7060925: Upper Tanana Biomass CHP Project 2

Project Scope: Alaska Power and Telephone will develop the conceptual design for a Biomass Fueled Combined Heat and Power System, building on the feasibility study that was conducted with funding from Round 5 of the Renewable Energy Fund.

Even though biomass generation may not be the immediate power solution for Tok, AP&T believes that utilizing this abundant local resource would provide benefits to the Tok community. Harvesting and processing the timber would employ many and would stimulate the economy. Refocusing the use of this resource to primarily provide heat would better utilize the resource available and AP&T believes would provide the greatest benefit to the community.

This conceptual design will develop a harvest plan per the standards developed by AEA with AK Division of Forestry and determine the best methods for delivering heat to the greatest number of residents by performing a heat consumption analysis for residential and commercial (Tok, Tanacross, Tetlin), and analyzing potential loads, modeling energy consumption, and determining the best use of energy. AP&T will also perform an analysis for plant locations (CHP, heat, and pellet) and evaluate land ownership and acquisition costs, perform Environmental Impact Studies (air quality, fish & game, land use, traffic, and other required areas), determine the economics of developing a heat utility and develop a business plan, and compete 35% engineering design.

Business concepts to be considered and expanded upon through the study include the construction of multiple CHP plants, the development of a pellet manufacturing industry, the application of isolated pellet fueled heat stations, district heating using hot water heat loops and the integration heat supply into such a system from independent heat producers.

The Feasibility Study found that the proposed 2MW CHP system would only be feasible if the heat downstream of the steam turbine could be utilized and there were no nearby heat demands. Subsequently, AP&T indicated that the proposed Biomass CHP