CEA Transmission Line to Renewable Energy Resources

Grantees	Chugach Electric Association, Inc. (Utility-Cooperative)
Technology Type	TRANSMISSION
Region	Railbelt
AEDG Project Code	10279

REF Grants Received

Round	App	Grant Title	Grant #	AEA Project #	Phase	Start Date	End Date	Status
4	615	CEA Transmission Line to Renewable Energy Resources	7040033	409031	Feasibility	7/1/11	12/31/12	Closed

Grant 7040033: CEA Transmission Line to Renewable Energy Resources

Project Scope: Chugach Electric Association, Inc. (CEA) has applied for a grant through the Alaska Renewable Energy Fund to evaluate the construction of a transmission line between the proposed Mount Spurr geothermal site (to be developed by Ormat Nevada, Inc.) and its existing Beluga generation plant. Phase I of the grant application is funded and will accomplish an initial feasibility study consisting of an analysis of permitting requirements, route selection, and a preliminary design. The narrative below outlines the anticipated time, cost estimates and deliverables for these tasks. CEA will provide in-house management as "other contributions." Consequently, these costs will be tracked and reported to the Alaska Energy Authority.

Permitting Requirements - CEA anticipates permitting application and approval to be a major driver in ultimate route selection. A clear and comprehensive study of existing land owners within the project region and their individual requirements for third-party land use will ultimately help clarify routing options. CEA expects some overlap between route selection and permitting since the two are heavily dependent on each other. CEA anticipates bringing a consultant on-board immediately upon approval of the grant with expectation of a completed study within six months (August 2011 through January 2012) at an estimated cost of $200,000. The completed study will include a comprehensive listing of land-owners and detailed analysis of necessary permitting to build/maintain facilities on their respective properties.

Preliminary Route Selection - CEA will explore multiple routing options: a) Use of an existing road ROW and the proposed new road extension into the geo-thermal site. "Piggybacking" the transmission line alongside new and existing roads can create lower construction costs and eliminate many of the permitting issues. b) Routing based on "least resistance," i.e. a potentially longer line, but situated where geographical and permitting issues are limited or nonexistent. c) Access to future potential energy sources or loads. The development of Lake Chakachamna, the Chulitina coal fields or future Coal to Liquids projects may require the addition of (future) substations, switchyards and/or tap lines off the main transmission corridor. d) A direct route from Beluga to the geo-thermal site. This option would minimize the line length but may have permitting and access issues.

Route selection and construction cost will be dependent on applicable permits, ancillary infrastructure requiring future electrical service and a more "finalized" proposal from Ormat Nevada, Inc. for construction access to the geo-thermal site. CEA would expect a decision on routing within three months (February through April 2012) at an estimated cost of $200,000.

Deliverables would include detailed topographic maps identifying the individual candidate routes with accompanying analysis highlighting pros and cons of each route. Evaluation of geographic barriers, permitting issues and access to other planned development in the area would be typical "commentary" for each route option. A final summary identifying the prime candidate would be included.

Preliminary Design - The transmission line design template is obviously heavily dependent on final route selection. In addition, CEA must consider potential customers along the chosen route such as the Chuitna Coal project, the proposed Lake Chakachamna Hydroelectric Facility and future Coal - to - Liquid (CTL) plants. Once a preliminary route is selected, a preliminary design is to be available within 3-4 months (April through July 2012) at an estimated cost of $200,000. This time frame and cost estimate assumes minimal field investigation by the consultant and a fairly well-defined accessible route. Deliverables would include a comprehensive project cost estimate, breakdown of major structures (wire sizes, type of tower(s), location of substations/switchyards, etc.) and analysis of the proposed right-of-way with detailed descriptions of individual transmission line segments and infrastructure.

Project Status: The grant award document has been prepared and signed by CEA. However, the grant award has not been issued. AEA is awaiting the results of ongoing exploration activities by Ormat to discover and define significant geothermal resources on Mt Spur. The appropriated Renewable Energy Fund budget for this project is $600,000, with a $20,000 anticipated local match.

As of Nov. 30, 2013	Budget	Expenditures
Renewable Energy Funding	$600,000.00	$0.00
Other State Funding	$0.00	$0.00
Total State	**$600,000.00**	**$0.00**
Required Local Match	$0.00	$0.00
Federal Grant Funding	$0.00	$0.00
Total Project Costs	**$600,000.00**	**$0.00**