

Agency: Commerce, Community and Economic Development**Grant Recipient: Community & Economic Dev****Project Title:****Project Type:** Remodel, Reconstruction and Upgrades

Alaska Energy Authority - Kipnuk Power Plant Replacement, System Upgrades and Tank Farm Construction

State Funding Requested: \$7,500,000**House District: 38 / S**

One-Time Need

Brief Project Description:

Replace the Kipnuk Power Plant and upgrades to the power system.

Funding Plan:

Total Project Cost:	\$7,500,000
Funding Already Secured:	(\$0)
FY2013 State Funding Request:	<u>(\$7,500,000)</u>
Project Deficit:	\$0

Detailed Project Description and Justification:

The community's current wind-diesel system dates back to the 1970's. Now, the village experiences year-round power outages due to rotten and falling poles, worn and sagging conductors and overloaded transformers. As time passes, the outages severity and length quickly worsen.

A new school is under construction in the community and expected to come onto the power system soon.

The tank farm would provide Kipnuk with better efficiencies and have proper containment and sufficient storage for all of the village's electric generation needs.

The electrical distribution grid in Kipnuk was installed in the early 1970's. Currently the village experiences repeated frequent power outages due to rotten and falling power poles, worn and sagging conductors, and over-loaded transformers. These outages are occurring at all times of the year and with increasing severity and length during the winter. The electrical distribution system represents serious safety hazards for repair personnel and members of the community.

In some instances, summer distribution problems have become irreparable due to inability of the ground, and weakness of the poles to support equipment and personnel. The growing number of distribution faults has significantly reduced the reliability of the community power system. Winter conditions represent an increasingly serious safety hazard as conductors don't have sufficient safe clearance above the ground. While power poles, transformers and conductors have been replaced and repaired on an emergency basis, the communities have grown beyond the capacity of the current distribution

systems. The layout of the distribution system must be completely reconfigured and all of the power poles, conductors and a majority of the transformers must be replaced to ensure grid reliability and stability. Besides safety the distribution upgrades are estimated to increase power system efficiency up to 4%.

A field survey level cost estimate and project plan has been developed. The project will involve the installation of 140 power poles, 40 transformers, and 40,000 feet of conductor throughout the village of Kipnuk. To prevent frost jacking the poles must be installed on 30' to 40' driven steel H piles. The power poles will then be bolted to pilings, and new conductors and transformers installed. This installation will involve the redistribution and partial replacement of a limited number of residential service drops. The work must be completed during the winter when the ground is frozen and will support heavy equipment. will be completed primarily with multi-village local electrical crews under the guidance of an experienced project manager and electrical superintendent. The project will create between 6 to 8 well paid jobs lasting six to eight months for local residents, in villages, with 30%+ unemployed and with 26% of families are below the poverty line. These jobs will build local capacity to install and service electrical distribution systems throughout the region.

Replacement of the distribution system is necessary due to improve safety and increase the energy efficiency of the community's wind-diesel system. The distribution replacement will enable a higher displacement of diesel fuel, saving money for all local residents.

Project Timeline:

As soon as the budget is approved expenditures will begin immediately.

Entity Responsible for the Ongoing Operation and Maintenance of this Project:

Kipnuk Traditional Council

Grant Recipient Contact Information:

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Has this project been through a public review process at the local level and is it a community priority? Yes No