

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

Alaska Energy Authority - Kongiganak Power System Upgrade

State Funding Requested: \$1,996,000
One-Time Need**House District: 38 / S****Brief Project Description:**

Electrical power system upgrade.

Funding Plan:

Total Project Cost:	\$1,996,000
Funding Already Secured:	(\$0)
FY2013 State Funding Request:	<u>(\$1,996,000)</u>
Project Deficit:	\$0

Detailed Project Description and Justification:

The community's current wind-diesel power 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.

The community has developed a cost estimate and project plan; upgrades will include pole, transformer, and conductor installation throughout the community. Major physical work will be completed during the winter when the tundra is frozen hard enough to support heavy equipment. Project labor will come primarily from local electrical crews from Kongiganak and surrounding communities, guided by experienced management.

The upgrades will improve safety and efficiency. See attached backup for further information.

Project Timeline:

Expenditures will begin immediately upon receipt of funds, and will be complete as soon as possible.

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

Puvurnaq Power Company

Grant Recipient Contact Information:

Name:	Daniel Azean, Sr.
Title:	President
Address:	Puvurnaq Power Company Kongiganak, Alaska 99559
Phone Number:	(907)465-6576
Email:	

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

2012 Legislative Request – Electrical Distribution Systems

Puvurnaq Power Company

Kongiganak

Utility Board President: Daniel Azean, Sr.
907-557-5616
Puvurnaq@hughes.net

Total project request - \$1,995,635

This project will replace the worn out sections of electric power distribution system in the village of Kongiganak, Alaska.

The electrical distribution grid in Kongiganak was installed in the early 1970's. Currently large portions of the village experiences repeated and 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 months, when reliability is most critical. 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 about 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 101 power poles, 60 transformers, and 26,000 feet of conductor throughout the village of Kongiganak. 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.

The project will be completed primarily with a multi-village local electrical crew 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.

Cost items for the new distribution systems are described in the attached sheet:

Total project cost - \$1,995,635

				PUVURNAQ POWER COMPANY DISTRIBUTION UPGRADE	UNIT MATERIAL	TOTAL	UNIT WEIGHT	TOTAL	UNIT LABOR	TOTAL COST
1.)	26,000	FT	4-5 weeks	#2 ACSR SPARE	\$0.48	\$12,480.00	105 LBS FT	2,730.00 LBS	\$2.00	\$52,000.00
2.)	101	EA	7 weeks	35' CLASS 4 FULL LENGTH TREATED PENTA DOUGLAS FIR POLE PER ANSL-RUS	\$869.00	\$87,769.00	875 LRS FA	88,575.00 LRS	\$4,000.00	\$404,000.00
3.)	101	EA	STOCK	C1.41, 15KV-30.4W FLAT TANGENT SUPPORT NEUTRAL ON CROSSARM	\$284.00	\$28,684.00	85 LRS FA	8585.00 LRS	\$250.00	\$25,250.00
4.)	202	EA	STOCK	C2.51, 15KV-30.4W FLAT DOUBLE SUPPORT - SMALL ANGLE, NEUTRAL ON CROSSARM	\$345.00	\$69,690.00	167 LRS FA	33734.00 LRS	\$315.00	\$63,630.00
5.)	101	EA	STOCK	C3.2X, 15KV-30 SUSPENSION ANGLE	\$245.00	\$24,745.00	40 LRS FA	4040.00 LRS	\$125.00	\$12,625.00
6.)	101	EA	STOCK	C5.31X, 15KV-30 SINGLE DEADEND - 3/ARM	\$395.00	\$39,895.00	200 LRS FA	20200.00 LRS	\$300.00	\$30,300.00
7.)	202	EA	STOCK	F1.1X, SINGLE DOWN GUY ASSY.	\$165.00	\$33,330.00	35 LRS FA	7070.00 LRS	\$312.00	\$63,024.00
8.)	202	EA	STOCK	F3.2X, DOUBLE DOWN GUY ASSY.	\$310.00	\$62,620.00	80 LRS FA	16160.00 LRS	\$225.00	\$45,450.00
9.)	101	EA	STOCK	Screw pile anchor assembly, Hubble	\$125.00	\$12,625.00	35 LRS FA	3535.00 LRS	\$175.00	\$17,675.00
10.)	101	EA	STOCK	H1.1, POLE GROUND ASSY.	\$65.00	\$6,565.00	15 LRS FA	1515.00 LRS	\$50.00	\$5,050.00
11.)	360	EA	STOCK	A1.011, PIN AND GLASS ASSY.	\$15.50	\$5,580.00	6 LRS FA	2160.00 LRS	\$35.00	\$12,600.00
12.)	3	EA		3 PHASE FUSE CUTOUT	\$870.00	\$2,610.00	250	750.00 LBS	\$1,975.00	\$5,925.00
13.)	60	EA		35 KVA TRANSFORMER 480V TO 12.47KV	\$1,576.00	\$94,560.00	3000	180000.00 LRS	\$2,200.00	\$132,000.00
14.)	110	EA		10x 57 steel piling x 40 foot	\$3,280.00	\$1,500.00	2280	250800.00 LRS	\$700.00	\$77,000.00
15.)	1	EA	SHIPPING	Approximate Shipping costs to Kwigillingok	\$309,827.00	\$309,827.00				
					TOTAL	\$792,480.00	TOTAL WT.	619,854.00 LBS		\$946,529.00
					Subtotal cost	\$1,739,009.00				
					Equipment rental					\$65,000.00
					Travel					\$12,000.00
					Room board, per diem					\$6,500.00
					Subtotal					\$1,822,509.00
					Contingency			5%		\$91,125.45
					Engineering and Inspections					\$22,000.00
					Project Management and Supervision					\$60,000.00
					Total					\$1,995,634.45