



Puvurna Power Company

Native Village of Kongiganak

U.S. Department of Energy
Office of Indian Energy
Program Review
Virtual Conference
November 15, 2023

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Short film

- Community energy success
- <https://drive.google.com/file/d/16FE0XNjmVU9-l8X-4x6o61A7EsNZg1hr/view?invite=COjc3s8B&ts=5c6724a1>
- Drone video link
- <https://www.youtube.com/watch?v=OvpTN6ij0vl>



About Kongiganak

Population: 503

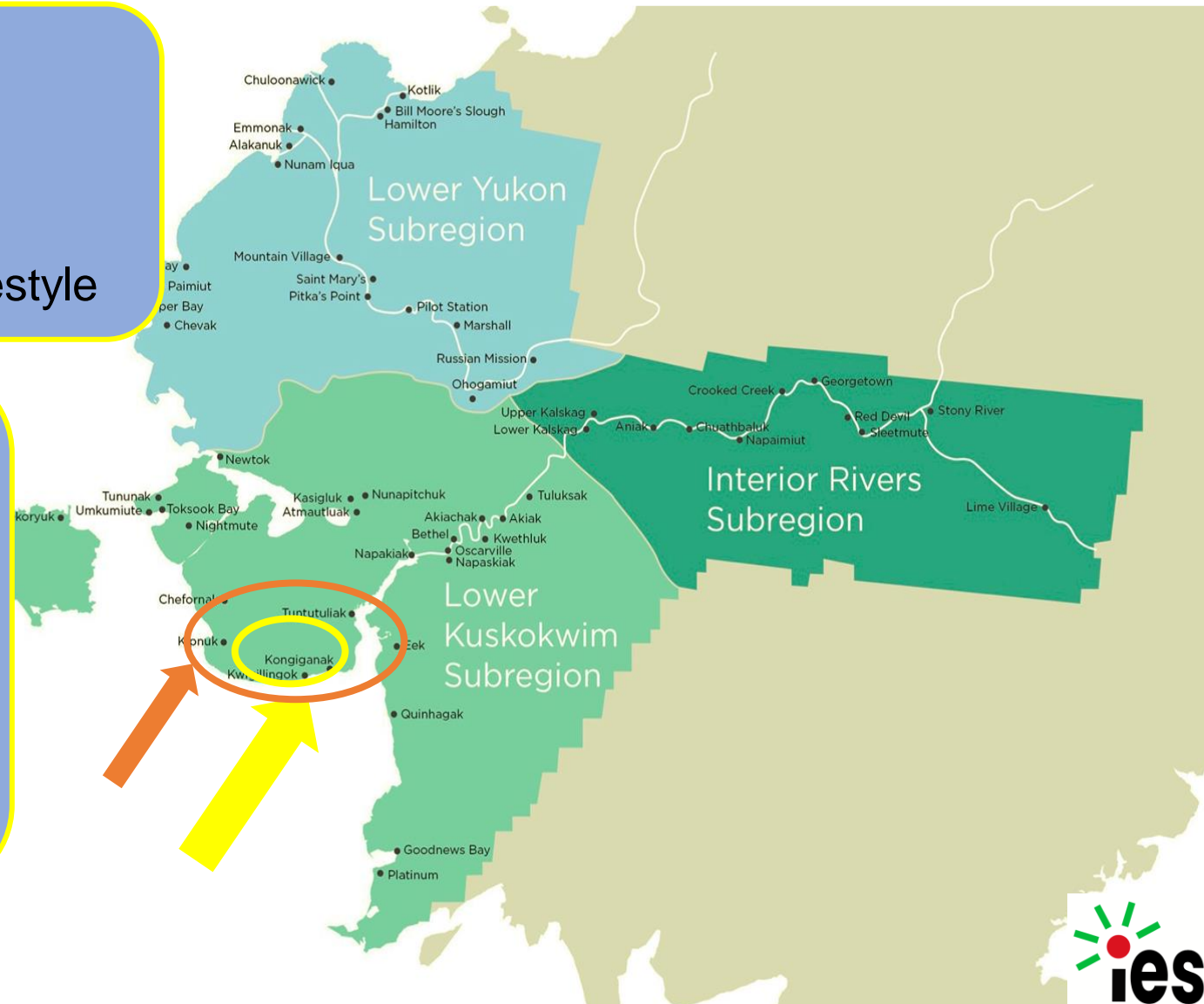
Median household income: \$33,250

Price of diesel: \$6.80/gal

Price of electricity: \$0.72/kWh

90% of residents live a subsistence lifestyle

Kongiganak primarily sits on the eastern bank of the Kongiganak River, a tributary of the Kuskokwim River – the 2nd largest in Alaska, emptying into the Bering Sea. Our rivers are our subsistence hunting and gathering grounds. We just finished our walrus hunting season.





About Puvurnaq Power Company

Puvurnaq Power Company is the Native Village of Kongiganak's only utility. We are a federally recognized tribe in Western Alaska in the Yukon-Kuskokwim Delta.

- Governed by a separate Board of Directors from the Tribal Council
- Managed by the General Manager.
- Employs up to nine people in the community (depending on the time of year and projects).
- Operates on revenues from electricity sales for lights and heat, and PCE subsidy payments from the State of Alaska.





PPC's Current Energy System

Kong has an islanded Wind-Heat-Storage-Diesel Hybrid Power System.

- (4) diesel-generators in the powerplant
- (5) 95 KW wind turbines
- (1) Load regulating boiler
- (50) ETS electric thermal stoves in homes
- 250kW/300kWh BESS
- Diesel heat recovery loop heats community buildings
- Hybrid Microgrid controller and SCADA for remote monitoring



- Revenues come from electricity sales , PCE subsidy payments from the State of Alaska, and electricity sales for heat.
- Peak load is 230.
- Kong averages few outages each year - 1-2.



PPC 200kW Solar/PV Project



Department of Energy
Office of Indian Energy - Energy
Infrastructure Deployment on Tribal
Lands

Puvurna Power Company, a tribally
owned utility of the Native Village of
Kongiganak

Period of Performance:
10/01/2022 to 5/31/2025



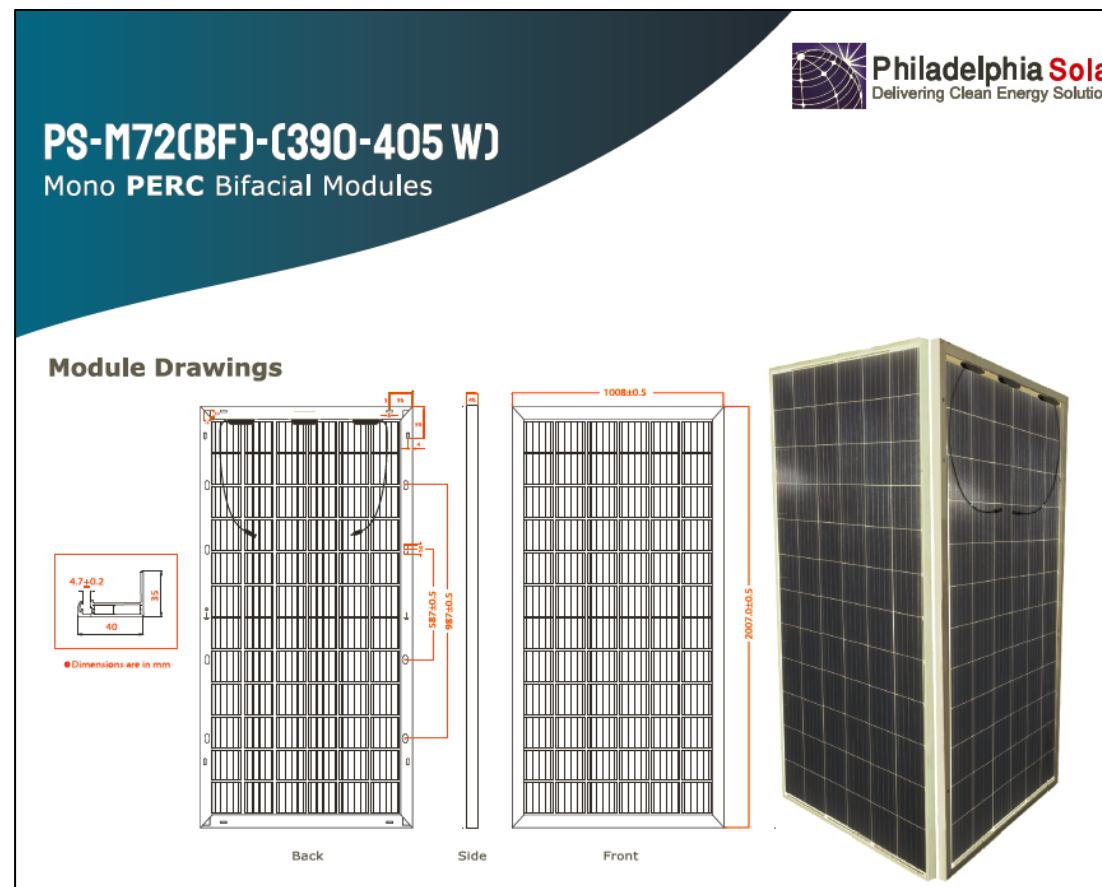


Solar Project Overview

Install/Integrate 200 kW solar array to expand our existing hybrid renewable and storage system.

Outcomes

- Improve Kong's energy resilience and security by increasing local, renewable energy use and reducing diesel consumption – especially during summer.
- HOMER Analysis: Increase diesel-off/wind only generation by another 840 hours. Displace a total of over 9,000 gallons of diesel.
- Local labor will be used to install array located on tribal lands by the wind farm.



Project Objectives & Outcomes of Solar Array Installation



- Solar installation will serve to demonstrate innovative design and engineering to maximize system efficiency, including 12' earth screw discontinuous racking and bifacial solar panels to maximize reflections off the snow.
- Provide jobs for local work force
- PV training to increase local capacity
- Provide estimated 9,000 gallons in fuel savings



Project Challenges



- Match at 50 % reduced
- Budget was based on pre-COVID pricing:
Since then prices have changed considerably causing a budget shortfall
- PPC has submitted proposals for additional funding to Alaska Energy Authority – Renewable Energy Fund and USDA to meet the budget needs.
- We should hear Spring of 2024 if funded.
- If we are – purchasing and installation could be done in Fall 2024-Winter 2025.
- This allows us to complete within our agreed to period of performance.

Quyana Thank you



- DoE office of Indian Energy
- Alaska Energy Authority
- USDA HEC
- Calista
- Alaska State Legislature
- Intelligent Energy Systems
- Frontier Power Systems
- ACEP
- Traditional council of Kongiganak
- Tribal members of Kongiganak