Nuvista Kwethluk Energy Storage

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

Tribal Energy Development Organization (TEDO) Partners:
Nuvista Light & Electric Cooperative, Inc.
Kwethluk, Incorporated
Organized Village of Kwethluk

Period of Performance: 10/01/2019 through 9/30/2023
About Nuvista

Nuvista is a non-profit cooperative created by regional leaders of the Yukon-Kuskokwim Delta to help our people find energy opportunities that carry our culture and traditional way of life into the future.
Yukon-Kuskokwim Delta Region

- 56 Federally-Recognized Tribes
- ~26,000 People
- 58,000 Square Miles
Nuvista’s Focus

Our mission is to achieve a more resilient and connected region while empowering our communities with access to affordable, sustainable energy infrastructure.

Our approach focuses on locally-driven energy planning and education, community energy efficiency efforts, energy generation and transmission projects.
Kwethluk, Inc. is the village corporation for the community formed under the Alaska Native Claims Settlement Act (ANCSA) to manage money and lands of the people of Kwethluk. Kwethluk, Inc. owns and operates Kwethluk Light Plant, the electric utility.

Organized Village of Kwethluk

OVK is the federally recognized Tribe of Kwethluk and is governed by a Tribal Council.
Kwethluk, Alaska

Yup'ik: "Kuiggluk" translates to “bad river”
About Kwethluk

- Population: 814 and has grown 5+% since 2000
- Median age of residents is 23.8 years old
- Median Household Income: $47,500
- Unemployment rate: 26%
- Price of gasoline: $5.83/gal, heating fuel: $5.56/gal
Project Overview

Installation of an ABB 500/670 kW E-Mesh PowerStore battery energy storage system (BESS) into the Kwethluk power plant with 2 primary goals:

1. Improve the Tribal community’s energy resilience and energy security

2. Provide grid stability to supplement the addition of renewables to the Kwethluk system
Kwethluk’s Electric System

- Kwethluk’s current electrical system is a standalone diesel power plant with 3 generators
- Peak load is 450 kW
- Average load is 180 kW
- Kwethluk has an average of 9 outages per year
- **Project in progress**: installation of 4 100-kW wind turbines with an estimated production of 200,000 kWh/year for each turbine
Energy Security & Resilience

The BESS will provide a renewable, rechargeable, non-fossil fuel emergency power back up for community facilities during outages.

In the event of an outage, the BESS will provide emergency power to:

- The **power plant**, so that operators can complete necessary repairs
- The local **clinic, Tribal buildings and offices**, and the **Headstart building**
- Residential customers to prevent the thawing of **subsistence foods** stored in freezers

The battery will provide power for an estimated 3 hours for essential services, or 1 hour at the community’s average load.
Progress To-Date

Assembly and construction began in October 2020. Local hires built a raised platform and shelter for the battery and placed the PowerStore inside.

Electrical work was completed in September/October 2021 and the shelter was finished, including the installation of an HVAC system and the batteries.

Remaining Milestones:
Commissioning (targeting the end of 2021)

12 months of monitoring
Quyana Cakneq / Thank You

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