



Department of Energy
OIE Virtual Program Review
December 2020
Presented by Natalie Hanson



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

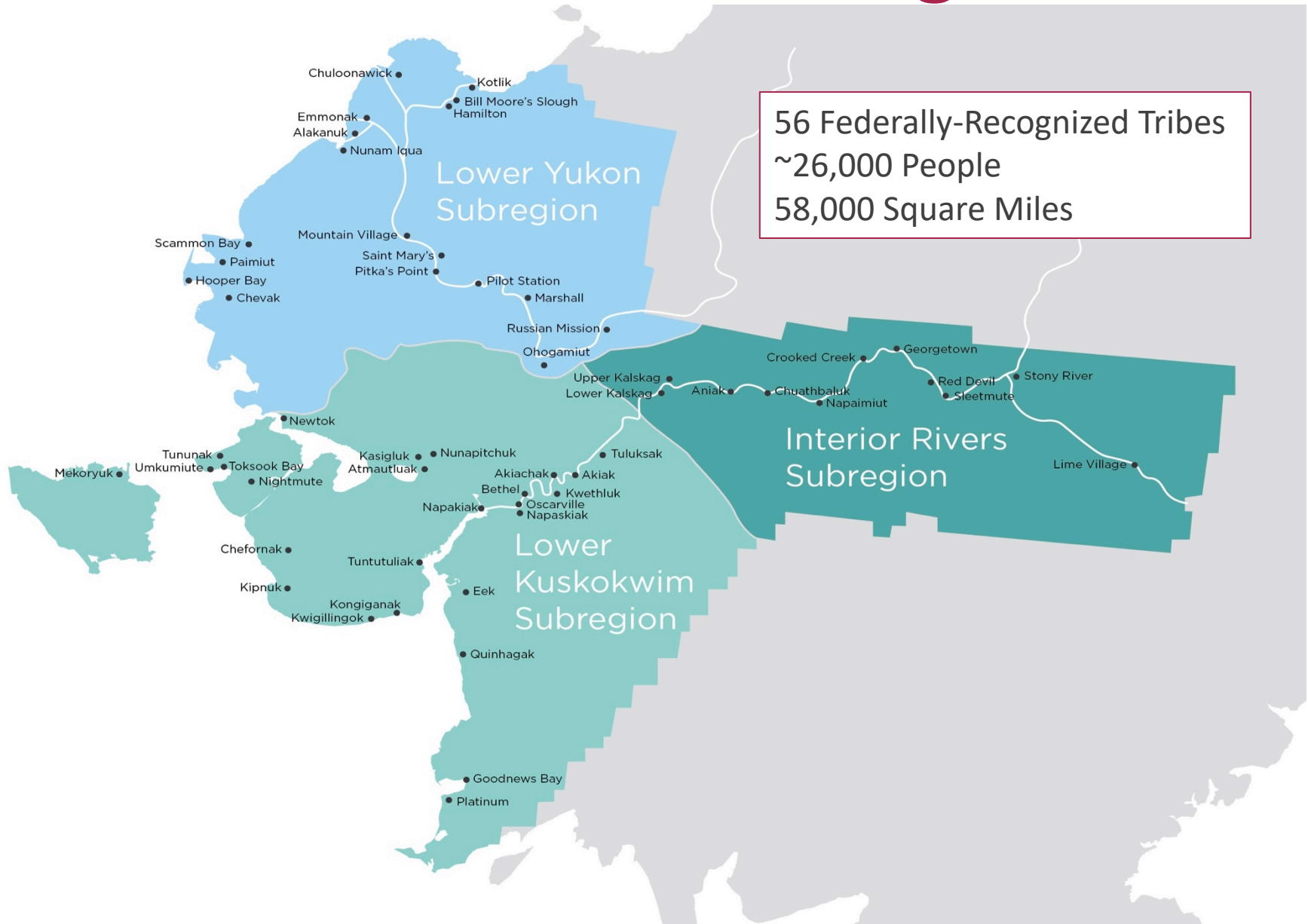
About Nuvista



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



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.



TEDO Partners



Kwethluk Incorporated (Kuiggluum Kallugvia)

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: 756 (2018) 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

Design complete

Battery energy storage system and building materials arrived by barge in October 2020

Local hires built and installed shelter and platform adjacent to power plant (October 2020)

Remaining Milestones:

Completion of construction and installation

Shipping and install of batteries

12 months of monitoring



Quyana Cakneq / Thank You

Natalie Hanson
Executive Director, Nuvista
nhanson@nuvistacoop.org

George Guy
Business Manager, Kwethluk Inc.
g.guy_kwtinc@yahoo.com

Senka Guy
Tribal Administrator, OVK
kwethlukira@gmail.com