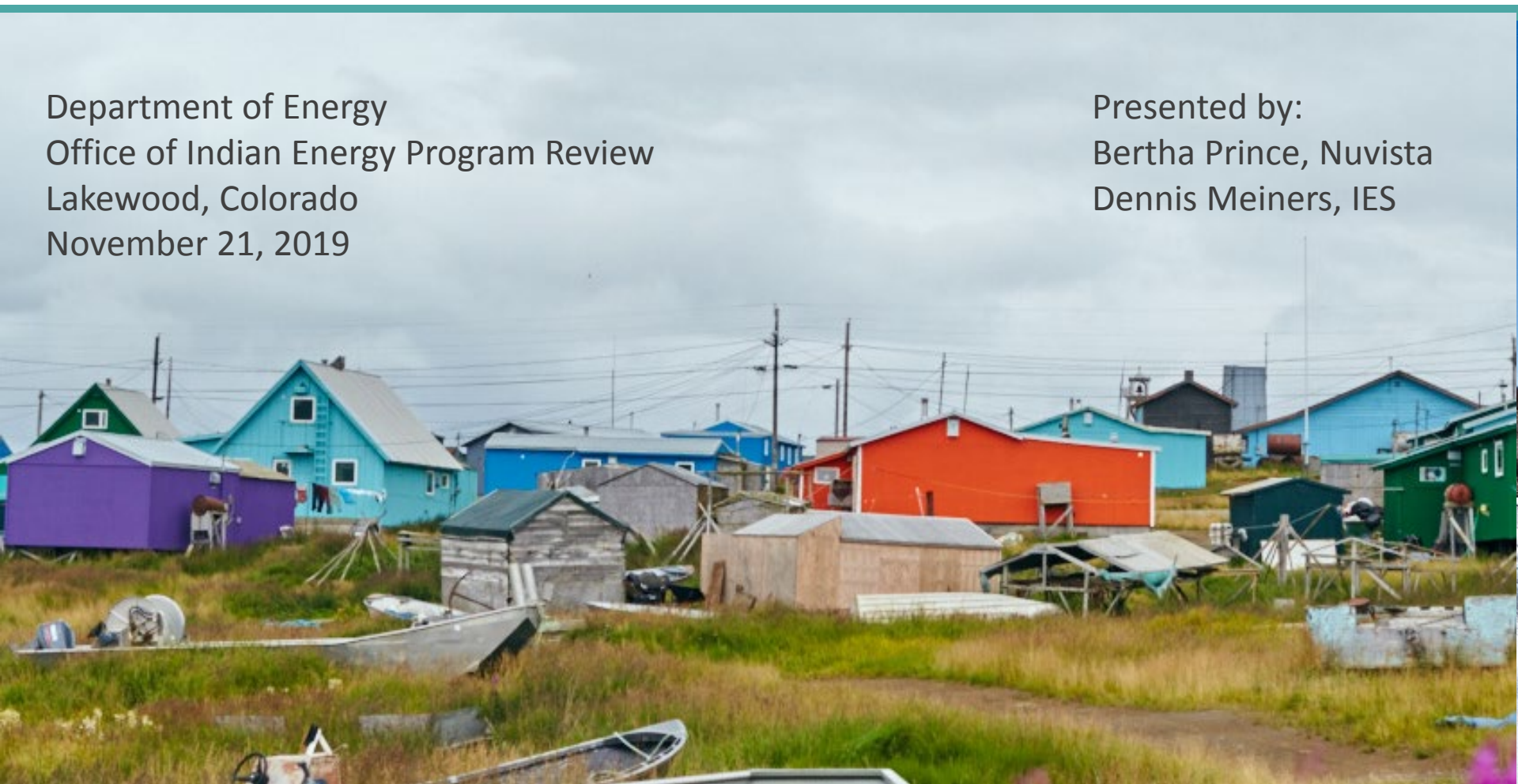




*Kwethluk, Incorporated
Kuiggluum Kallugvia*

Department of Energy
Office of Indian Energy Program Review
Lakewood, Colorado
November 21, 2019

Presented by:
Bertha Prince, Nuvista
Dennis Meiners, IES



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 thru 9/30/2023

US Department of Energy Office of Indian Energy FOA: 2032

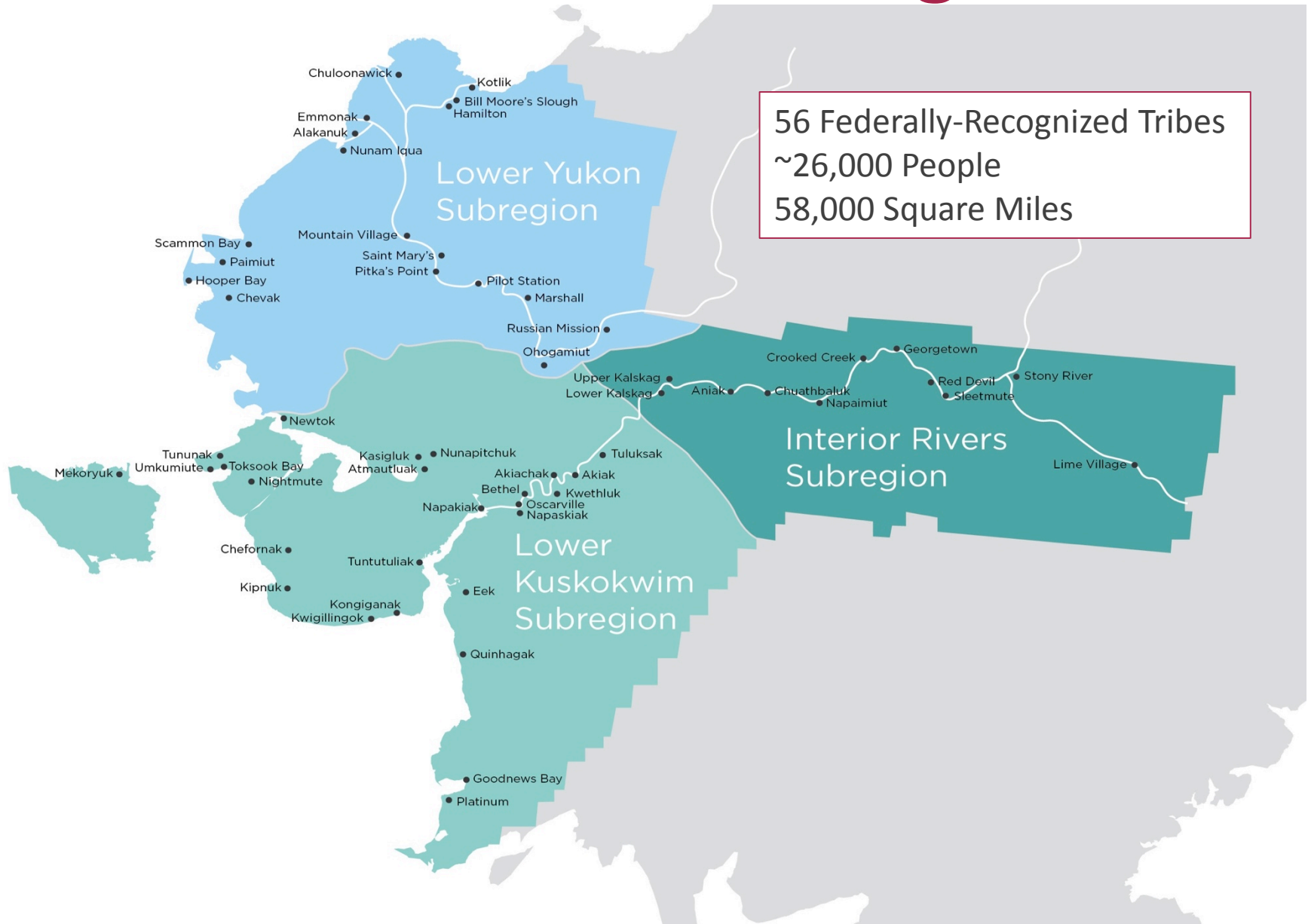
About Nuvista



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.

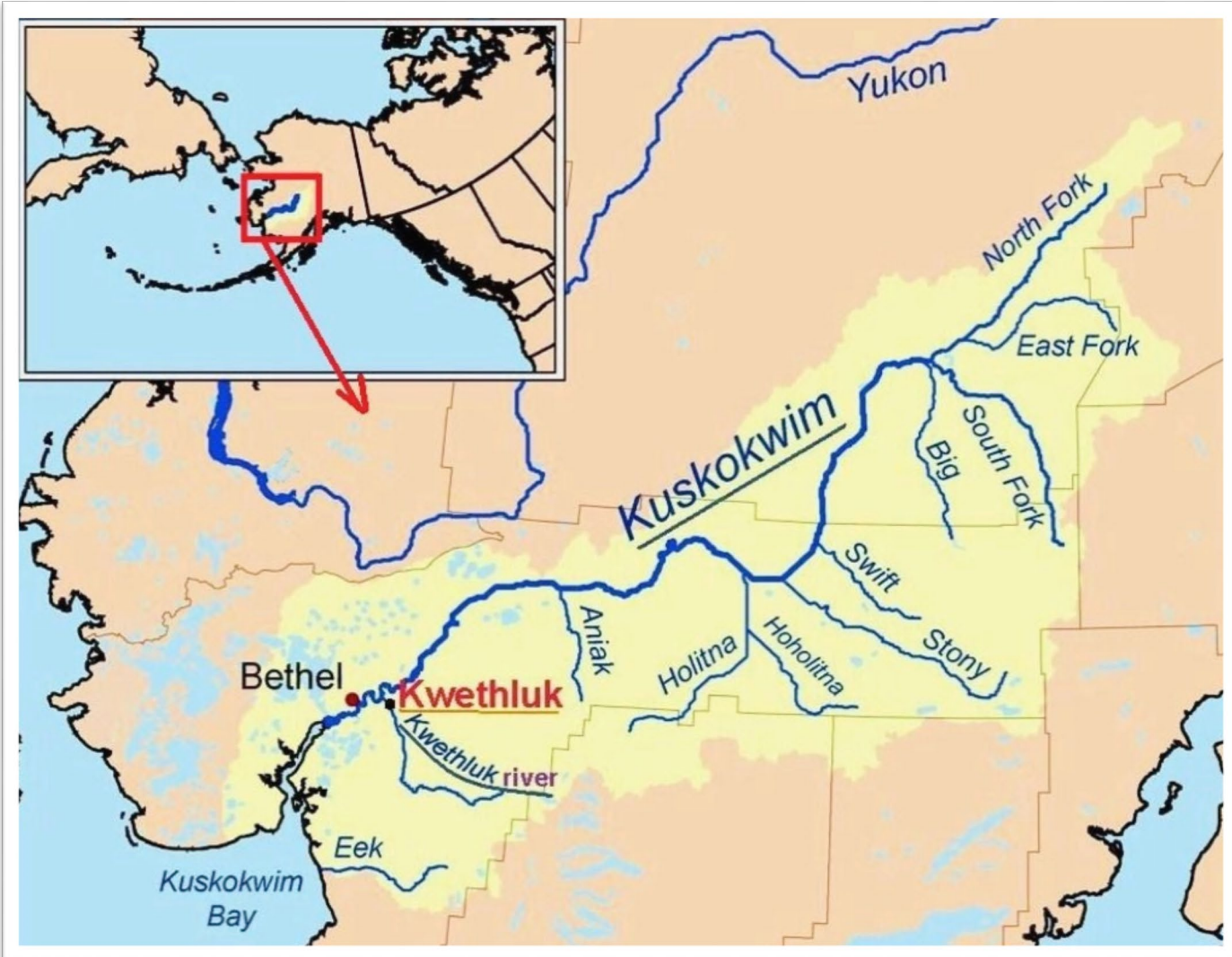
Our approach focuses on **locally-driven** energy planning and education, community **energy efficiency** efforts, energy **generation and transmission** projects.



Kwethluk, Alaska



Yup'ik: "Kuiggluk" translates to "bad river"



About Kwethluk



- Median Household Income: \$47,500
- 49% of residents live in households with 5 or more people
- 2nd highest of people in poverty 28.7%
- Price of gasoline: \$5.83 gal, diesel: \$5.56 gal
- Highest heating fuel retail price in the state; price of 100lb propane tank: \$274
- 26% of family income is spent on heating fuel and electricity

Even as our overall power plant efficiency has improved, our demand for fuel increased by nearly 40% between fiscal years 2011 and 2017



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.



Left to right: George Guy, Martha Jackson, Olinka Lawrence, Joshua Sergie. Not pictured: James Guy, Jr.



Organized Village of Kwethluk

- Federally recognized Tribe of Kwethluk
- Tribal Council is the governing body
- Legislative authority appropriating funds and oversight of the Tribal Administrator and Tribal employees





Project Overview

- Installation of an ABB 500/670 kW E-Mesh PowerStore battery energy storage system (BESS) into the Kwethluk power plant
- Improving the Tribal community's energy resilience and energy security
- Provides a method of grid stability



Kwethluk's Energy 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
- Anticipated installation and integration of 3 100-kW wind turbines with the estimated projection of 200,000 kWh/year for each turbine beginning in 2020.



Project Objectives

BESS installation, provides a renewable, rechargeable non-fossil fuel emergency power back up for community facilities

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

- The power plant to complete necessary repairs
- The local clinic, Tribal buildings and offices, and the Headstart building
- Minimal power to homes primarily to prevent the thawing of subsistence foods stored in freezer(s)

BESS will provide power for an estimate of 3 hours for essential services, or 1 hour at the average load.

Quyana Cakneq / Thank You

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