

Chefornak Battery Energy Storage Project



U.S. Department of Energy
Office of Indian Energy
Program Review
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Project Overview

Integrate *500/670 kWh* battery energy storage system (BESS) into village, reduce diesel imports.

Targets

- 3500 hours wind only (diesel off).
- 50,000 gallons fuel displaced (from 20,000)
- Reduce power outages
- Serve community 2-4 hours, critical loads
- 20 homes with Heat storage

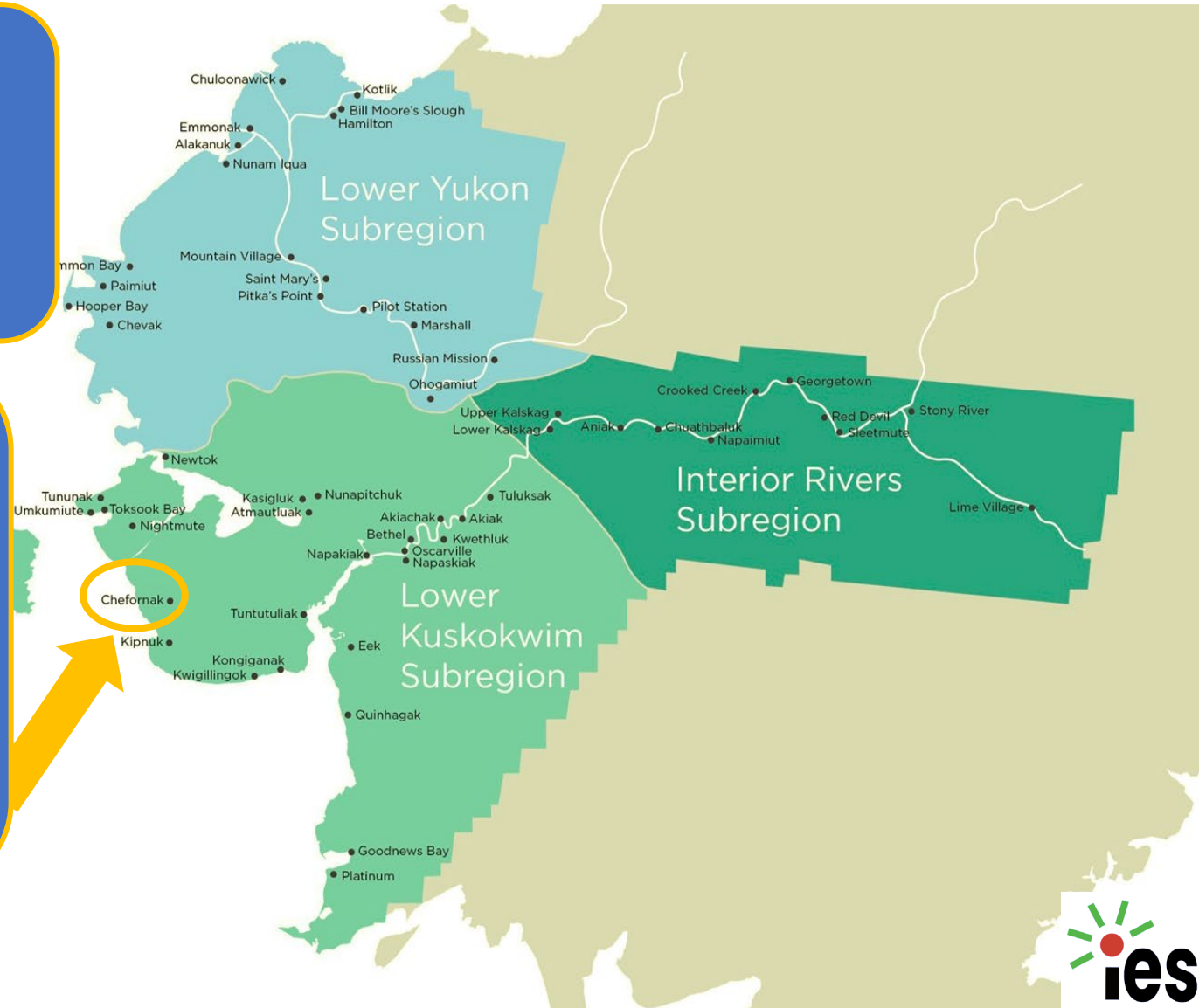




About Chefornak

Western Alaska where the arctic tundra meets the Bering Sea,
On Kinia River (Urrsukvaaq) important for hunting and fishing

No road access:
100 airmiles Bethel (6700) no road
500 miles to Anchorage
(3x cost of Anchorage)
No running water or flushtoilets



About: Chefornak



VOC is the federally recognized tribe,
governing body.
The City partners for progress

- No regional government
- Limited regional corporation assistance
- Self-reliant



About: Chefnak



Subsistence Lifestyle
Yupik Language
Snowmachines, ATV, small boats

Population: 506
Median household income:
\$34,375
Heating fuel: \$7.22/gal;
Gas: \$7.40
Electricity: \$0.74/kWh





Naterqak Light Plant

Naterqak Light Plant (NLP) is the Village of Chefornak's electrical utility.

148 customers

School

Store

Water plant

- Over \$543,216 in Fuel for generators
- +\$14,000 in emergency fuel purchases
- Homes need weatherization
- Outgrown Fuel Storage





Chefornak's Energy System

- 3 diesel-generators
- Heat recovered to school
- 3 (three)-100 KW turbines.

- Generate 1,600,000 kWh
- Peak load is 320 kW.
- average of 6 outages each year.



Village Needs/Efforts:



Reduce fuel dependency
Outgrown fuel storage
Lower energy costs
Create Jobs

Progress:
Energy Plan 2006
Wind monitoring 2010,
Wind system, 2020.
Powerplant upgrade 2021-2023
U.S. DoE – 2021:battery



Project Objectives & Outcomes



- Increase renewable
- Supply emergency power to critical facilities:
 - Health clinic (1,200 sq ft)
 - Tribal Offices and Head Start Center (2,500 sq ft)
 - Washeteria (2,500 sq ft)
 - NLP/powerhouse (2,400 sq ft)
- Summer protect subsistence foods .





Energy Issues Village of

Poverty
Over Crowded
Poor Housing
Limited water/sewer
High Heating Cost

- \$543,216 Powerplant Fuel
- Yearly Emergency Fuel Purchases
- Fall Barge insecurity



Community Challenges



- Poor housing
- Poverty
- No running water
- Permafrost degradation
- No fishing/no business revenues
- No borough/
limited Regional Corp/State assistance
- Match requirement Reimbursable Funding Agreements: Pay First/Wait
- Logistics/long-lead times & 2 a barges:
- Miss schedule, miss year
- Lack of heavy equipment
- Weather



Project Challenges



- Match requirements
- Reimbursable Funding Agreements: Pay First/Wait
- Logistics/long-lead times
- Miss schedule, miss year
- Lack of heavy equipment
- Melting permafrost
- Coordination of other projects
- Limited workforce
- Weather
- Covid





Thank YOU!

USDoE

Office of Indian Energy

SPECIAL THANK YOU

ALASKA VENTURE FUND!

Period of Performance:

10/01/2021 to 6/31/25

