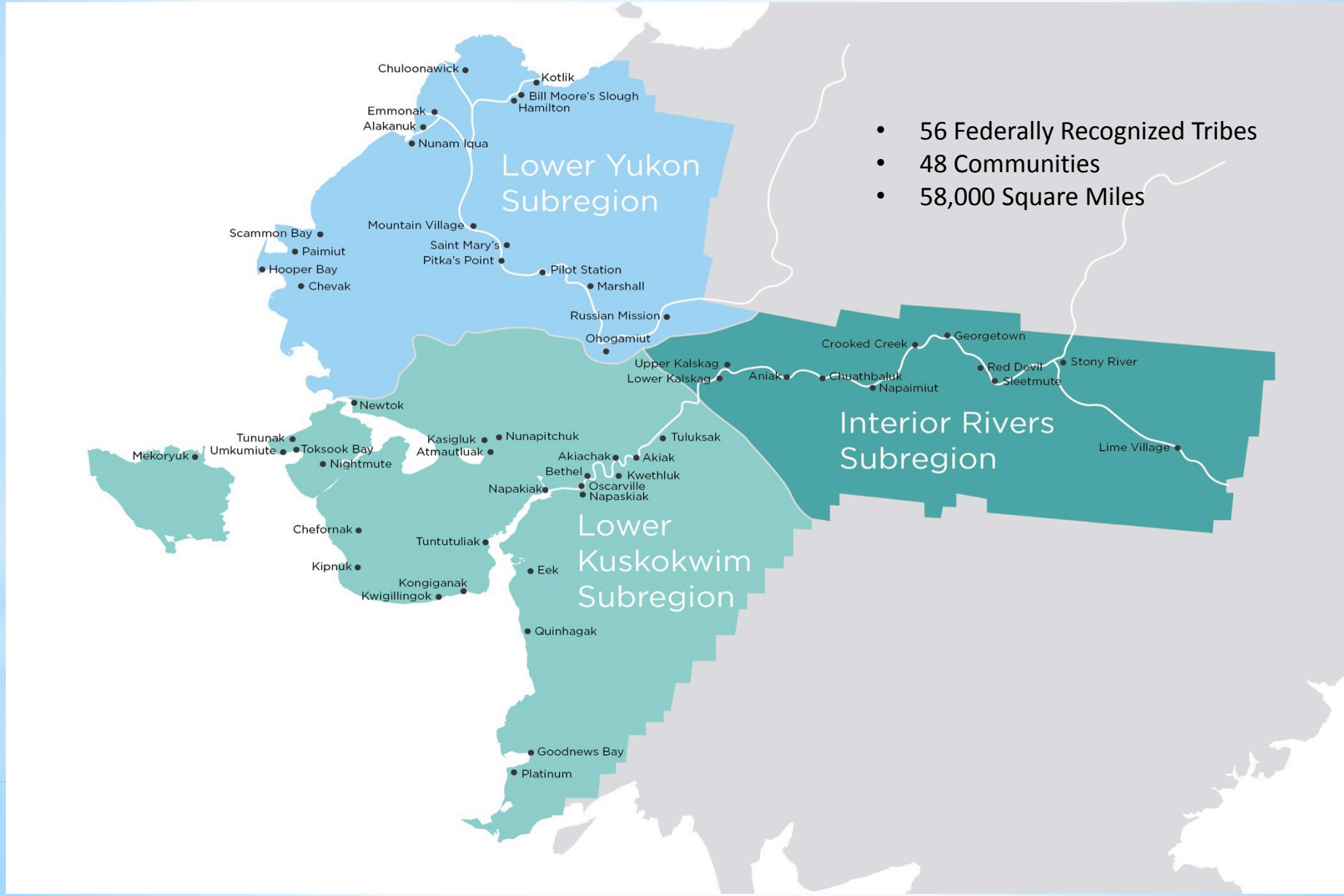
Calista Energy Management Assistance Initiative

CEMAI

DOE Indian Energy Program Review
May 21, 2019
Washington, DC

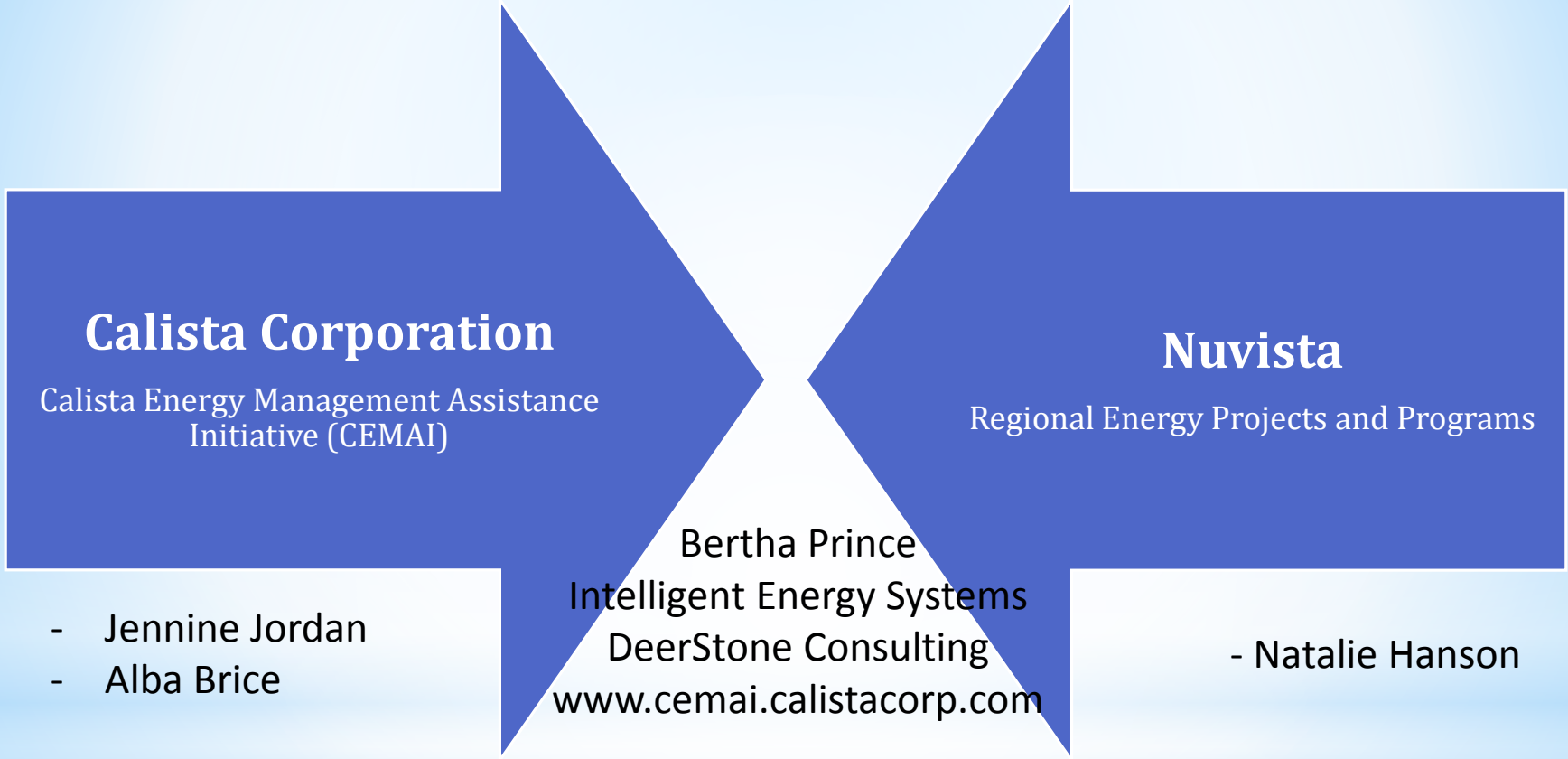
CEMAI Technical Team

Yukon-Kuskokwim Delta Region



- 56 Federally Recognized Tribes
- 48 Communities
- 58,000 Square Miles

Regional Energy Project Partnership



Goals & Objectives:

- Identify common energy needs & reduce energy costs
- Align YK Delta energy & economic resources, strengthen regional capacity
- Provide Technical Assistance and training to develop local capacity in the energy field; and to create jobs

CEMAI-Current Initiatives

Technical Assistance & Training

- Utility Financial Management for Managers and Clerks
- Upcoming Equipment O&M training

Home Energy Survey Project

- Project kick-off in Atmautluak (February 2018)
- Energy use data collection
- Whole Community aggregation
- 4 communities so far, 3/year for next 3 years

Energy Efficiency Implementation Assistance

- Energy use data collection
- Assisting YK Delta Tribes with energy efficiency program development

Community Energy Action Plans

Energy focus areas:

- Improving residential energy efficiency
- Increasing effectiveness of the utility
- Develop renewable resources to reduce dependency on fossil fuels

Methodology for Capturing Data:

- Community energy scorecard
- PCE annual report
- Trend analysis
- Home energy use survey results
- Renewable energy resources
- Train local people – workforce development & Energy Education

Atmautluak

At a glance:

Region: Southwest — Population 2010: 277
Hub: Bethel — Population 2016: 315
PCE: Yes — Population Growth: 14%
Utility: Atmautluak Joint Utilities

Electricity Consumption

Figure	Atmautluak	Median	Rating
Electrical demand growth (6 years).	7%	7%	2/3
What percent of the electricity sales are residential?	44%	43%	2/3
Annual residential load per customer.	4203 kWh	4575 kWh	4/6
Houses without retrofits.	83%	63.5%	0/3
Percent efficient appliances.	No Data	No Data	0/3
How much more electricity does community use in the winter?	37%	44.5%	
			Total: 8/15

Electricity Production

What percent of electricity doesn't get sold?	-177%	10%	3/3
Non-fuel costs.	$0.088	$0.27	3/3
kWh / Diesel (gal)	4.715 kWh	13.5 kWh	0/3
Percent of Electricity from Diesel.	100%	100%	0/3
Functioning Generators.	3 sets	3 sets	9/9
kWh / Operator / Month	6395 kWh	14504.5 kWh	2/3
Employee Certifications on Record:	PPO, BFO, APPO, Utility Clerk		3/3
			Total: 20/27

Areas of Most Interest:

- Residential Efficiency
- Appliance Efficiency
- Diesel Efficiency
- And Others...

Totals

Consumption:	Production:	Total:
8/15	20/27	28/42

Energy Use Scorecard

Community Results For Sustainability!

Atmautluak Home Energy Survey Project

Atmautluak Home Energy Survey

The Calista Energy Management Assistance Initiative (CEMAI) is a growing partnership between the Calista Corporation and the Nuvista Light & Electric Cooperative, funded by the U.S. Department of Energy.

This project is designed to help identify ways to save money on energy costs. Your time will help your family and community in many ways. Participating homeowners will be entered into a drawing for door prizes! We are collecting information on:

Lighting

Windows, doors, ceilings & floors

Refrigerators, TVs & other appliances

How you heat your home, and more!

After taking part in the survey, you will receive a home energy report. Your village will receive a whole-community energy report for future planning, grants, and other funding opportunities.

Want to learn more?
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Technology at our finger tips!

- Data Collection
- Data Mapping
- Data Uploads
- Home-owner Reports
- Community Reports
- Local hire-short term labor

Home Energy Use Report

- Scorecard
- Utility Inventory
- Building Inventory
- Alternative Energy Options
- Electrical Usage
- Home Heating Methods
- Tips to Save Energy and Money!

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Home Window Report Summary

Provided By
Intelligent Energy Systems

Windows

Window Sizes

Size of Windows	Number of Windows
46 in. x 34 in.	1 window
33 in. x 34 in.	1 window
22 in. x 34 in.	1 window
22 in. x 23 in.	1 window
23 in. x 23 in.	1 window

Issues

Drafty — Drafts mean that excessive hot air is leaking out of your house, and being replaced with cold air from outdoors.

Broken — Everyone knows broken windows let in air, but even after boarding them up, they can still cost you money on your heating bill.

Solutions

Replacing a Window:
Replacing a window can fix any issue, but it is not always the best way. Other fixes can be faster and cheaper, while saving you just as much fuel.

Storm Window Insert:
Even thick windows lose heat directly through the glass. A storm window insert is a frame that you put inside the window that adds extra insulation while keeping your window transparent.

Recaulking Windows:
Caulking Windows is a great way to seal up drafts. As houses age, they open up gaps within the frame of the window. Caulking is the quickest way to fix these drafts.

Cleaning Mold:
A mixture of warm water and bleach is the best tool for cleaning mold. After getting rid of mold, wiping the bottom of the window with a rag will keep it dry and mold-free.

Tips and Tricks!
Windows and Doors lose the vast majority of the heat that goes through your walls.

Home Appliance Report Summary

ies Provided By Intelligent Energy Systems

Appliances

Make	Model	Year	Rating	Comments	Photo
Maytag	Heavyduty	2000	2/10	This is a very old dryer. Depending on how often you use it, it could be a significant portion of your electric bill. If you ever have the opportunity to replace this dryer, we recommend it.	
Frigidaire	Chest Freezer	2016	10/10	This is a very new energy star freezer! Appliances like this will use very little electricity. If possible, use this freezer instead of others.	
?	LED HDTV	2016	10/10	This is an energy star tv! LED TV's won't use much electricity, but remember to turn it off when nobody is using it. Even if it is efficient.	
?	Refrigerator	2012	?/10	We couldn't tell if this refrigerator is efficient. Since it is newer, we think it isn't that bad.	

Home Lighting and Home Data

Lighting

Labels	Count	Percent
CFL	5	100%
Incandescent	0	0%
LED	0	0%

The lighting in this house is efficient but outdated. CFL's are great in terms of energy usage, but when they break, you have to be very careful with the glass pieces. We now recommend LED's which are efficient and robust. Look for LED bulbs next time you buy lightbulbs.

Home Facts

Year of Construction:	1960
Attic-Insulation:	1 layer fiberglass
Attic-R-rating:	R15
Basement-Insulation:	None
Basement-R-rating:	R0
High Efficiency Heater:	Yes
Internet Connection:	Via Cell Phone
Efficient Appliances:	2 out of 4

Project Partnerships and Workplan Components

- Coordinate with CCHRC, ANTHC, AEA, and DOE First Step Grantees of:

  Aniak, Akiachak, Atmautluak and Kwigillingok
- Community & Tribal Council Meetings
- Utility Financial Management Training
- Public Education and Outreach
- Home Energy Assessments to Complement Other Efforts
- Extend Program from 3 to 5 years
- Work with regional stakeholders, eg, Association of Village Council Presidents

Utility Financial Management Training

September 2018 in Bethel

- 3-day Training for Tribal owned utilities:
  - Kwethluk
  - Atmautluak
  - Tuntutuliak
  - Akiachak
  - Chefornak
- Quick Books and Excel Spread sheets
- PCE-Power Cost Equalization
- Utility Rate Setting
- Budgeting

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Aniak Energy Fair

September 2018

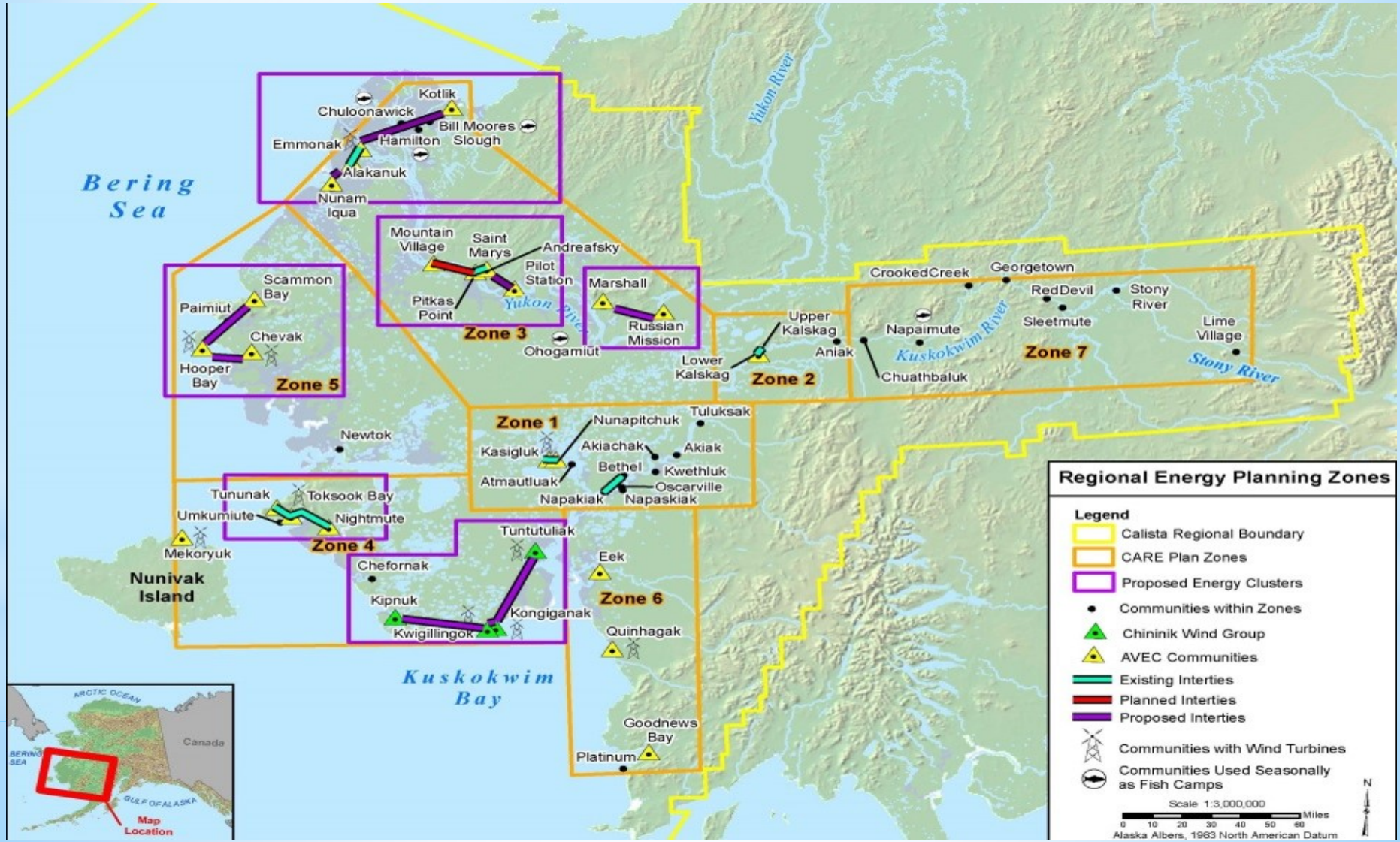
Energy Technical Assistance Request
Native Village of Kwigillingok

CEMAI grant covered Rod Phillip, Manager of Puvurnaq Power Company (Kongiganak), to travel to Kwig and do an assessment of the turbines and equipment.

He will return to Kwig to educate community members on Electric Thermal Stoves (ETS) that are being used in both communities.

Technology Transfer occurred in Yup'ik

Sub-Regional Intertie Opportunities



Impacts of Interties

- Improved Economics
- Lower Maintenance Costs
- More Cost Effective Renewables – increase scale!
- Facilitates future regional development opportunities
- BUT, challenged by high capital costs, especially with existing limitations on power pole cross-member lengths, distance between poles

Challenges and Lessons Learned

- Staff Turnover
- Logistics in remote area
- Large region to serve
- Limited Infrastructure
- Limited Resources
- Plan Early/Plan Often
- Find & Cultivate Local Champions
- Regional stakeholders & statewide partners/peers

Capacity Building and Next Steps

- Ongoing Technical Assistance and Training – More communities
- Utility Workshops and Curriculum Development – Expand subject matter: Powerplant maintenance, renewables
- Home Energy Surveys, data collection, reports, & Community Energy Plans – Streamline & more communities
- Increase Public Awareness on Energy Efficiency and Renewable Energy – Outreach, newsletter, website, more community visits
- Y-K Regional Energy Summit w/ AVCP
- 12-credit Energy Sustainability Certificate Program through Univ of Alaska – Fairbanks, began in Spring 2019

A Path Towards Sustainability

- Culture, Traditions, and Knowledge of our People first
- Align our Resources
- Identify Funding Sources
- Expand our Partnerships
- Develop a path forward

Quyana Cakneq! Thank You!

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