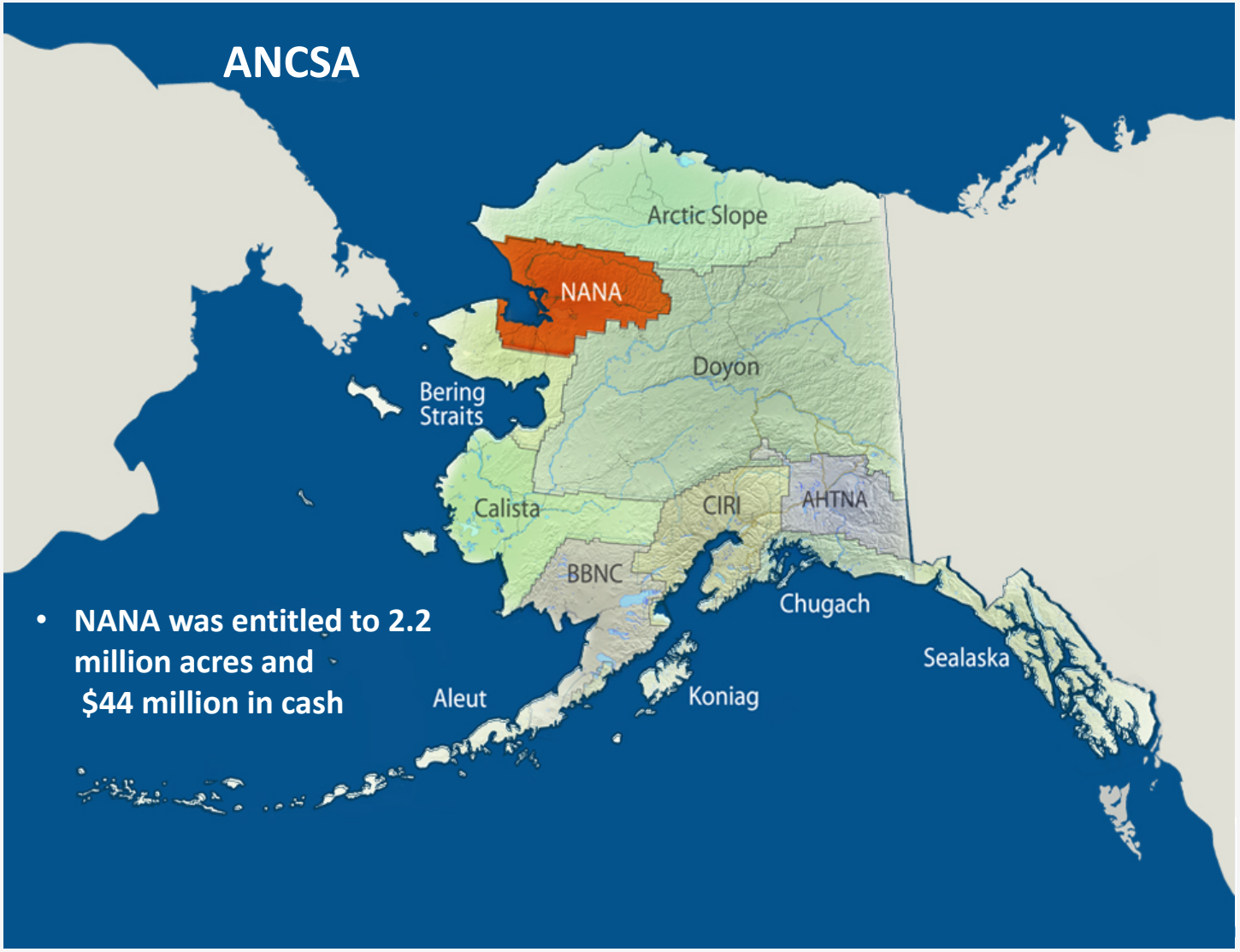
NANA

# DOE Tribal Energy Webinar

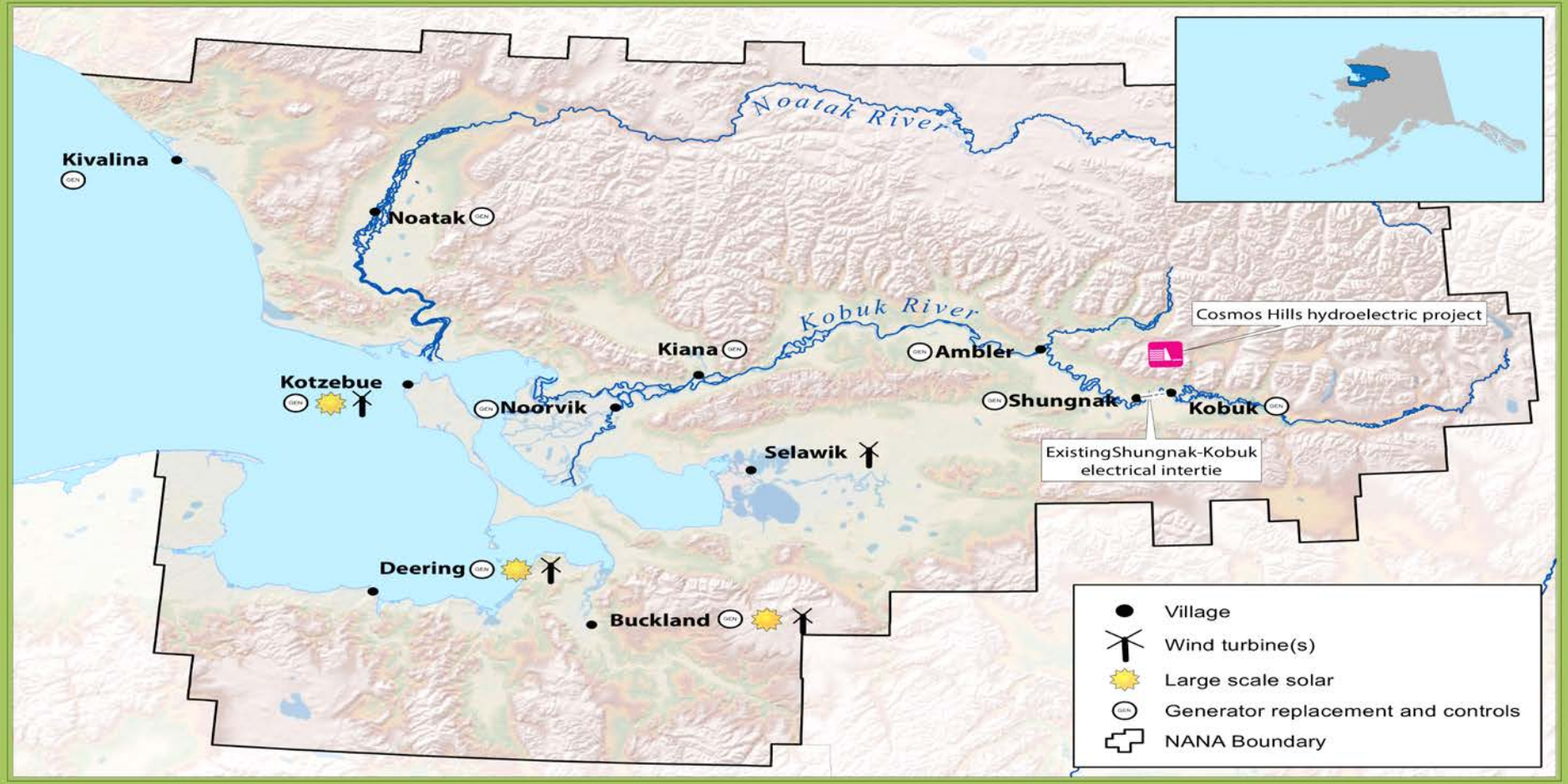
July 29, 2020

# ANCSA




- **NANA was entitled to 2.2 million acres and $44 million in cash**

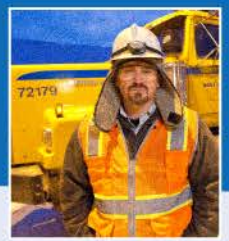
# NANA REGION Introduction




Energy Projects in the NANA Region

**NOT FOR NAVIGATION** Date: 7/6/2016

# A Remote Region







- No roads connect communities
- 61 % more expensive than Anchorage
- High cost goods and fuel

NANA
REGIONAL CORPORATION, INC.



# NANA's Energy Vision

- **The energy vision for the NANA Region is to be 50 percent reliant on alternative energy sources, both renewable and non-renewable.**

- 10 percent decrease of imported diesel fuels by 2020
  - ✓ **We are on-track to meet this goal, in part thanks to DOE and significant community effort**

- 25 percent decrease of imported diesel fuels by 2030

- 50 percent decrease of imported diesel fuels by 2050

| WHY ARE WE DOING THIS??? 2019 ENERGY PRICES IN… | Gas/G | Stove Oil/G | Kwh (1-500) PCE | Kwh (>501) NO PCE |
|---|---|---|---|---|
| Kotzebue | $5.88 | $5.92 | $0.18 | $0.45 |
| Ambler | $10.04 | $10.04 | $0.21 | $0.61 |
| Kobuk | $9.27 | $9.27 | $0.21 | $0.60 |
| Shungnak | $8.50 | $8.50 | $0.21 | $0.60 |
| Kiana | $5.15 | $5.67 | $0.20 | $0.57 |
| Noorvik | $6.06 | $5.64 | $0.20 | $0.57 |
| Selawik | $5.30 | $6.36 | $0.20 | $0.52 |
| Buckland | $6.15 | $6.15 | $0.20 | $0.48 |
| Deering | $3.35 | $3.35 | $0.32 | $0.71 |
| Kivalina | $5.10 | $4.53 | $0.20 | $0.56 |
| Noatak | $9.26 | $9.26 | $0.21 | $0.75 |

# Covid-19 Pandemic Impacts

- Fewer planes
- Less jobs
- Higher food prices
- Increased sense of urgency on energy and food security

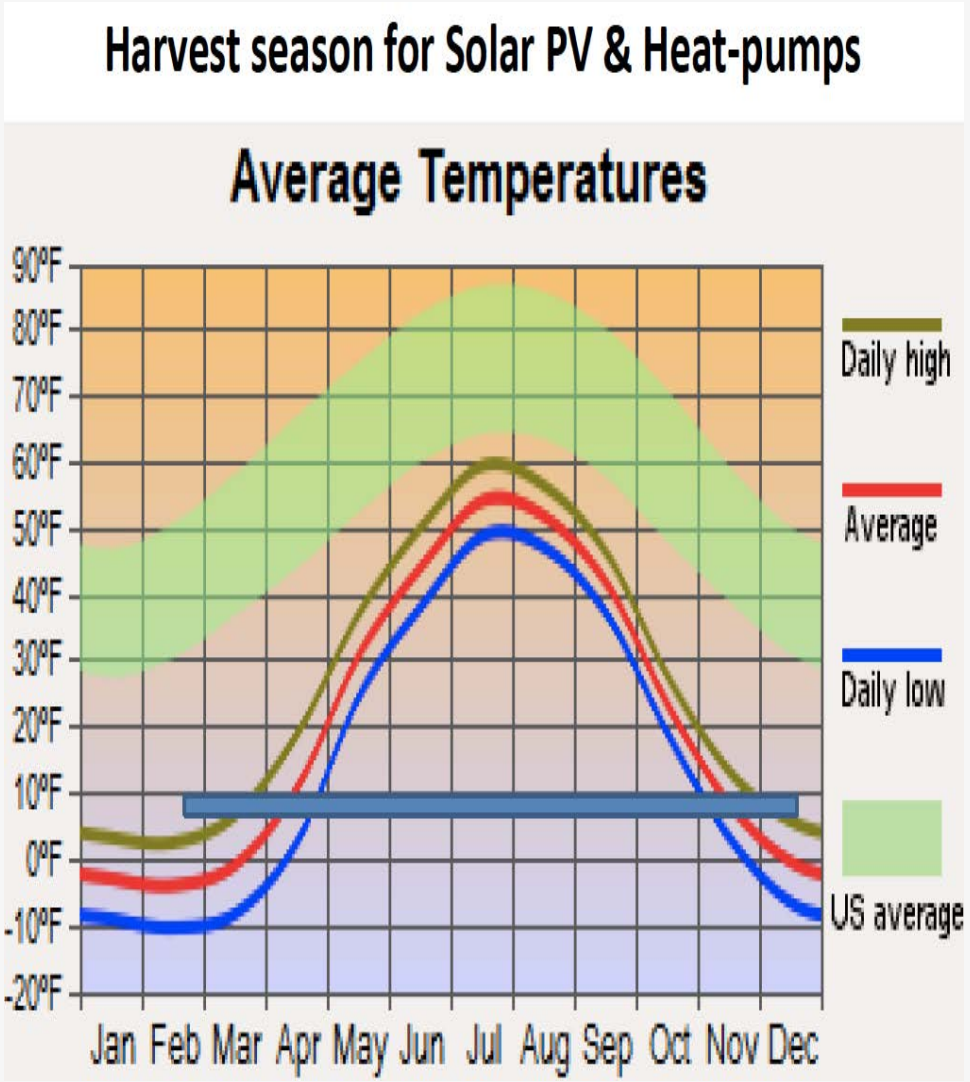
# NANA's Village Energy Program History

1. 2007 DOE IE Grants – NANA Strategic Energy Plan (SEP), NANA Wind Resource Assessment Plan (WRAP), NANA Geothermal Assessment Plan (GAP)
2. NANA Strategic Energy Plan (SEP) - Lead to formation of the Energy Steering Committee (ESC), Regional Energy Plan, Energy Option Analysis, 2009 Energy Summit in Kotzebue, Energy Survey
3. NANA Wind Resource Assessment Plan (WRAP) – Wind data collection lead to the Northwest Arctic Borough (NWAB) installing wind turbines in Deering and Buckland. **Wind turbines funded by the State of Alaska (for Deering and Buckland).**
4. NANA Geothermal Assessment Plan (GAP) – Report completed. Heat resource too far from the villages. (Cost of transmission line)

# Energy- What We've Learned So Far

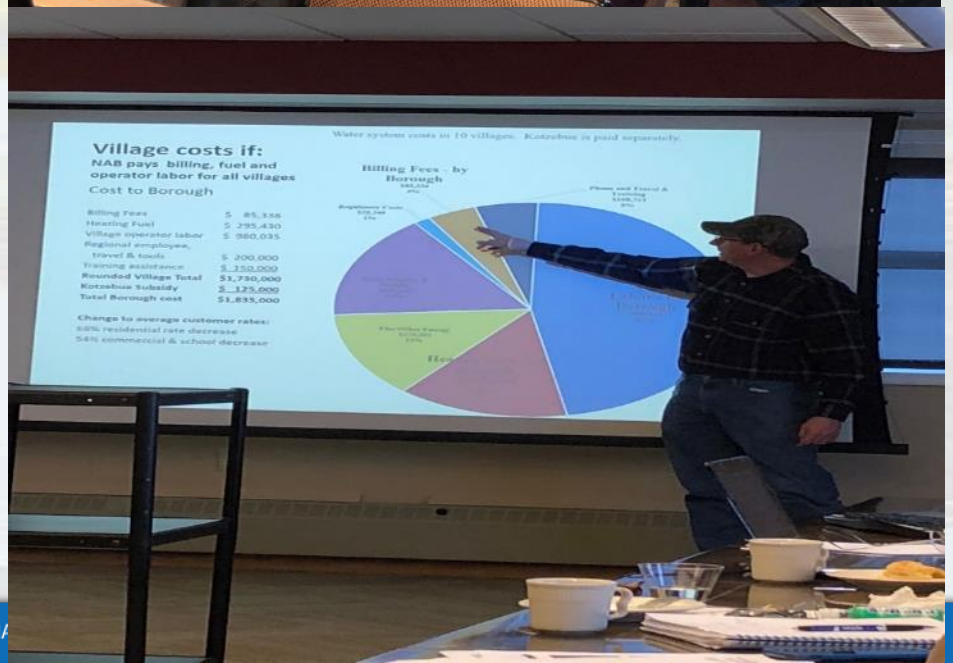
**NANA/NWAB Role in energy for our region**

1. **Project development**, including stakeholder coordination
2. **Grant writer/fund seeker** – innovative approaches
3. Advocating for change in State and Federal policies
4. Infrastructure planner
5. Communicating NWALT (NorthWest Arctic Leadership Team) energy priorities to stakeholders
6. **Update Energy plan**
7. **Research arctic-appropriate technologies** (e.g., heat pumps-NWAB, batteries, solar, diesels-off)
8. Regional Energy Authority/Joint Action Agency



# DOE Inter-Tribal Technical Assistance Grant

- Department of Energy has awarded NANA $495,460 to create an Inter-Tribal Network in the Northwest Arctic
- 3-year effort (began in October 2016), now revised to 5 years
- Local capacity building and economic development
- Regional Coordination for all 11 communities
- Other AK Regionals also received grant (with potential for cross regional collaboration), including in Bering Strait & Calista regions, attendance at ESC meetings in Kotzebue



# Department of Energy Solar Grant

- Department of Energy has awarded NANA $1M to install community solar arrays in Deering, Buckland, and Kotzebue; Requires $1 M cost share ($200K Deering & Buckland, $610K Kotzebue)
- Kotzebue Electric Association to finance the $600K cost share for the project (NWAB VIF)
- NANA & KEA to form Joint Venture to show ownership of solar equipment during grant period, JV agreement signed.
- Both Deering & Buckland using Village Economic Development Committee (VEDC) $ for their cost share
- Solar Arrays operational. Worked with Boxpower, Alaska Native Renewable Industries, and the villages. Funders include DOE, NANA VEDC, NWAB VIF, KEA Ratepayers

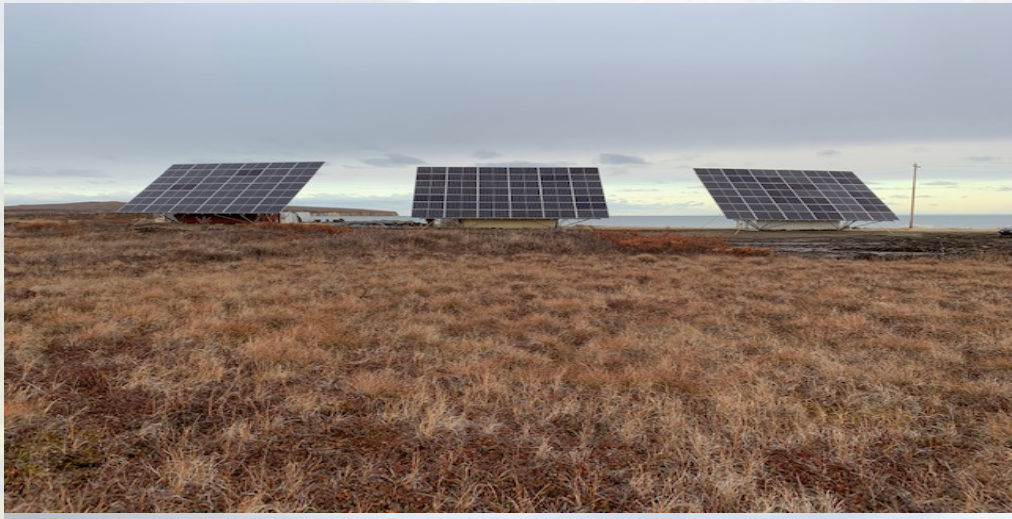
# Department of Energy Solar Grant

- Buckland Community Solar array is operational, but still needs performance monitoring & communication integration

- Completion Date - Dec 2019
- First BoxPower installation in Alaska
- Modified foundation & racking based on site-specific needs
- Community training and major in-kind contributions

# Department of Energy Solar Grant

- Deering Solar Array Installation complete
- Contributes to significant diesel generator-off operation with wind turbine, energy storage batteries and controls
- Supersacks, gravel, & duckbill foundation/anchoring
- Single 50 kW inverter
- Maximum local hire via Ipnatchiaq Electric, Tribe, City



# USDA High Energy Cost Grant

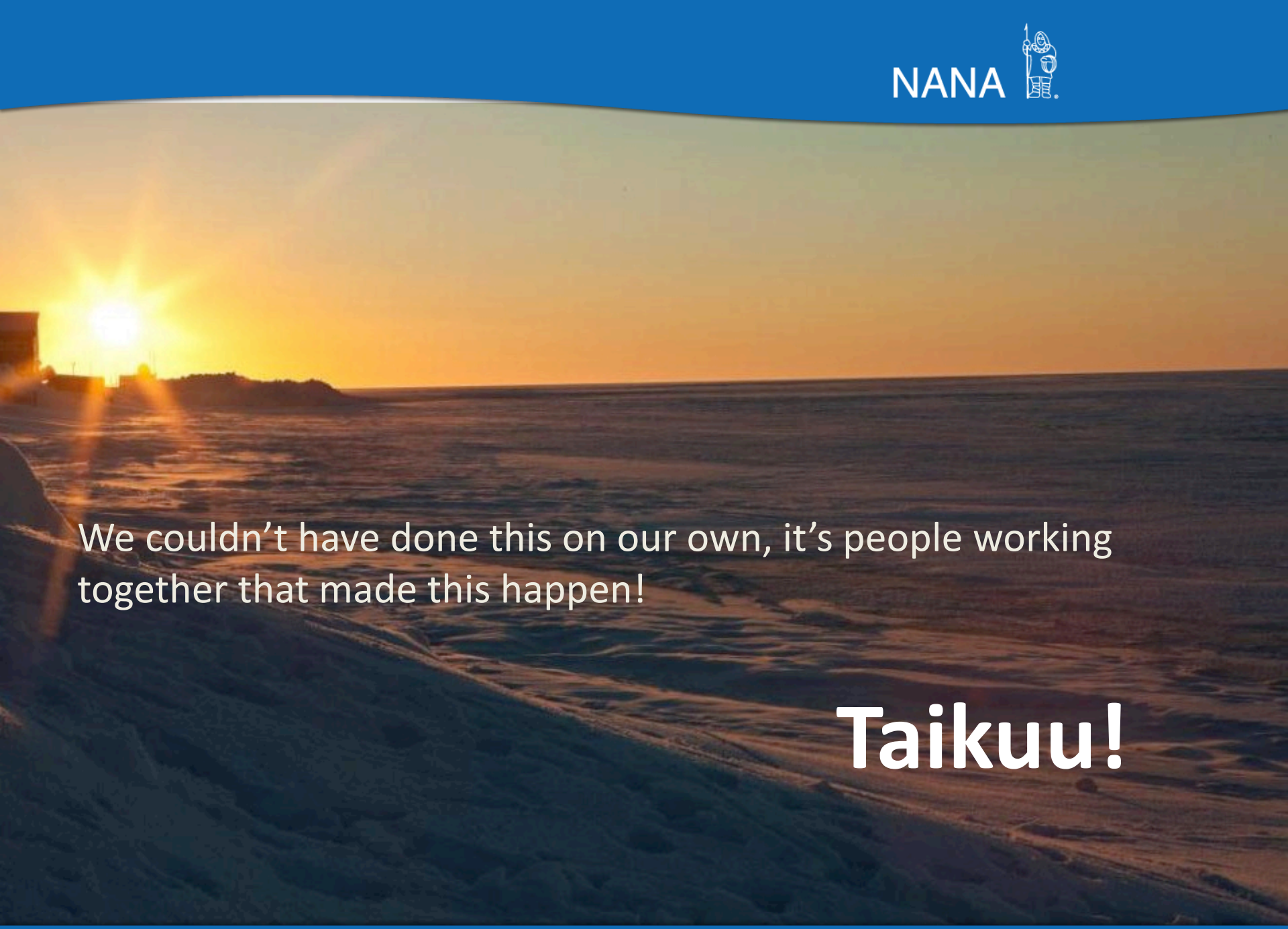
- NANA selected for High Energy Cost Grant – $1.6M to install energy storage batteries and controls in Deering and Buckland
- USDA completed environmental review
- **ABB Control system and SAFT batteries operational in Buckland & Deering**
- Working with IES, ABB, Saft, KEA, DeerStone, NWAB for system integration
- Allows for high penetration renewables (wind & solar) to turn diesels off when enough renewable energy available
- Also controls electric boiler for additional diesel displacement

# USDA High Energy Cost Grant – Breaking Trail

- First (**and second!**) utility scale wind-solar-battery-diesel hybrid system in rural AK
- Diesels-off in Buckland on July 24, 2019 & in Deering on October 11, 2019
- Expect Significant Fuel Savings
- Developing Institutional and Financial Structures to Monetize Fuel Savings
- Still Need to Address heating diesel engines and powerhouse under long-duration diesels-off (good problem to have!)
- Enables high penetration & high quality renewable generation, like wind and solar energy, without destabilizing the system

# Upcoming Energy Projects

- USDA High Energy Cost Grant (HECG) – Install community solar array and energy storage batteries in Shungnak and solar in Kobuk
- BIA Tribal Energy Development Capacity – Continue formation of Joint Action Agency
- Submit DOE grant application for solar and energy storage batteries for Noatak
- Support for all other villages in region


We couldn’t have done this on our own, it’s people working together that made this happen!
Taikuu!