DOE OFFICE OF INDIAN ENERGY

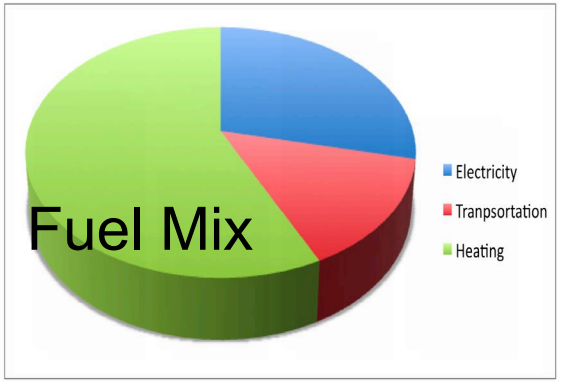
# Chefornak Battery Energy Storage

## Community Energy Transition

## Building Resiliency and Reducing Fuel Dependency

U.S. DEPARTMENT OF ENERGY | Office of Indian Energy

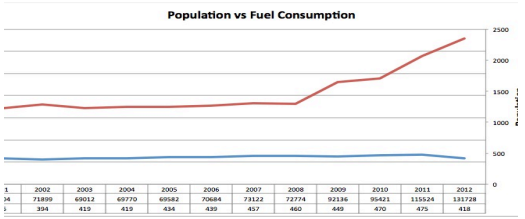
# Chefornak, no intertie, no roads



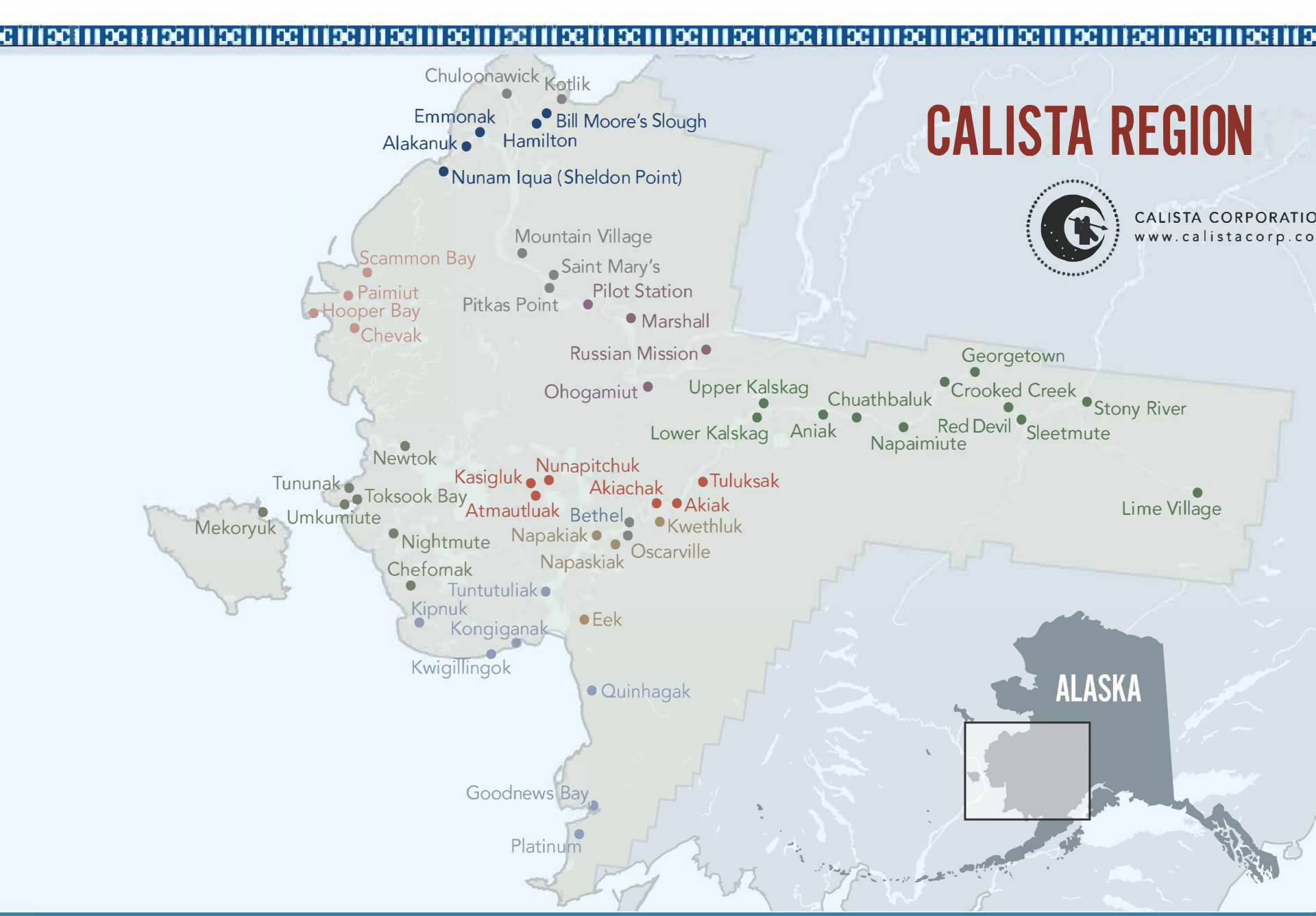

$6.61 Diesel,  $8.00 gasoline

# Chefornak :
# Since 2010 Fuel Storage Shortage

## New School




| | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 34 | 71899 | 69012 | 69770 | 69582 | 70684 | 73122 | 72774 | 92136 | 95421 | 115524 | 131728 |
| | 394 | 419 | 419 | 434 | 439 | 457 | 460 | 449 | 470 | 475 | 418 |


CALISTA REGION
CALISTA CORPORATIO
www.calistacorp.co
Chuloonawick
Kotlik
Emmonak
Bill Moore's Slough
Alakanuk
Hamilton
Nunam Iqua (Sheldon Point)
Mountain Village
Scammon Bay
Saint Mary's
Paimiut
Pitkas Point
Pilot Station
Hooper Bay
Marshall
Chevak
Russian Mission
Georgetown
Ohogamiut
Upper Kalskag
Crooked Creek
Chuathbaluk
Stony River
Lower Kalskag
Aniak
Red Devil
Napaimiute
Sleetmute
Newtok
Nunapitchuk
Kasigluk
Tuluksak
Tununak
Akiachak
Toksook Bay
Akiak
Atmautluak
Bethel
Lime Village
Umkumiute
Kwethluk
Mekoryuk
Napakiak
Nightmute
Oscarville
Napaskiak
Chefornak
Tuntutuliak
Kipnuk
Eek
Kongiganak
Kwigillingok
Quinhagak
ALASKA
Goodnews Bay
Platinum

2317-1567

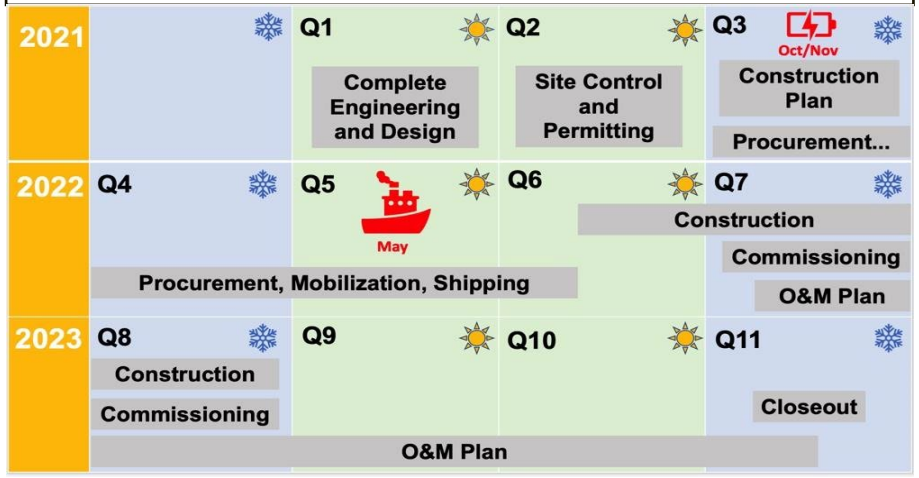
# Village of Chefornak

## Chefornak Battery Energy Storage Project

**3B: RESILIENCY**

## Project Summary

- The Village of Chefornak along with its community utility Naterkaq Light Plant will purchase, install, and integrate a 500kW/677 kWh Battery Energy Storage System (BESS) into the standalone community wind diesel grid. The BESS will enable over 4,000 hours of diesel off/wind only operation and will double the amount of displaced fuel from 23,000 to well over 50,000 gallons.
- The long-term goal of the Tribe is to displace/reduce 50% of our diesel fuel use by 2030. The objective of this project is to increase Tribal Community Resilience. This project does that by providing at least 3 hours of non-fuel emergency power to 5 critical tribal facilities, enabling emergency repairs to be completed; reducing diesel dependency; and providing an estimated fuel cost savings of over $200,000 annually.




## Key Personnel/Organizations

Village of Chefornak, Noel Kairaiuak – Tribal Administrator – Business Point of Contact

Naterkaq Light Plant, Anna Abraham – Utility Manager – Technical Point of Contact

Contractor: Dennis Meiners, Owner/Principal and Patrick Boonstra, Senior Project Manager– Intelligent Energy Systems, LLC

**Federal funds requested: $ 854,964**

**Cost-share proposed: $ 94,996**

**Total Project Costs: $ 949,960**

## Project Outcomes

This project advances Chefornak's long-term goal to reduce dependence on diesel fuel and thereby increase its resilience by:

1) increasing winter fuel displacement so the community will have sufficient fuel in the winter without purchasing expensive, emergency fuel;
2) providing at least 3 hours of non-fuel emergency power to critical tribal facilities and enable repairs to be completed;
3) improving the overall community power system reliability, security, and resiliency; and
4) reducing energy costs, starting with $205,000 annual fuel savings and eliminating the need to spend more than $300,000 on additional bulk fuel tanks.

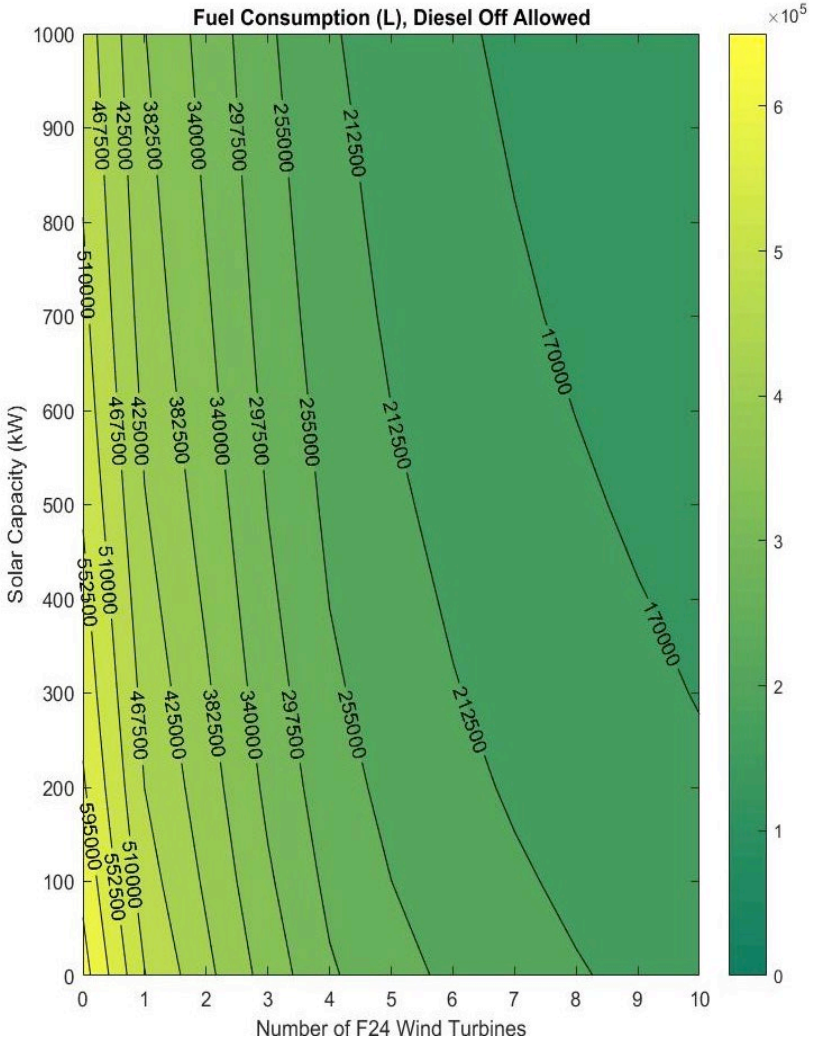
The BESS will enable 4,000+ hours of diesel off/wind only operation and will double the amount of displaced fuel from 23,000 gallons to over 50,000, for a savings ~$206,000 is diesel fuel costs annually.

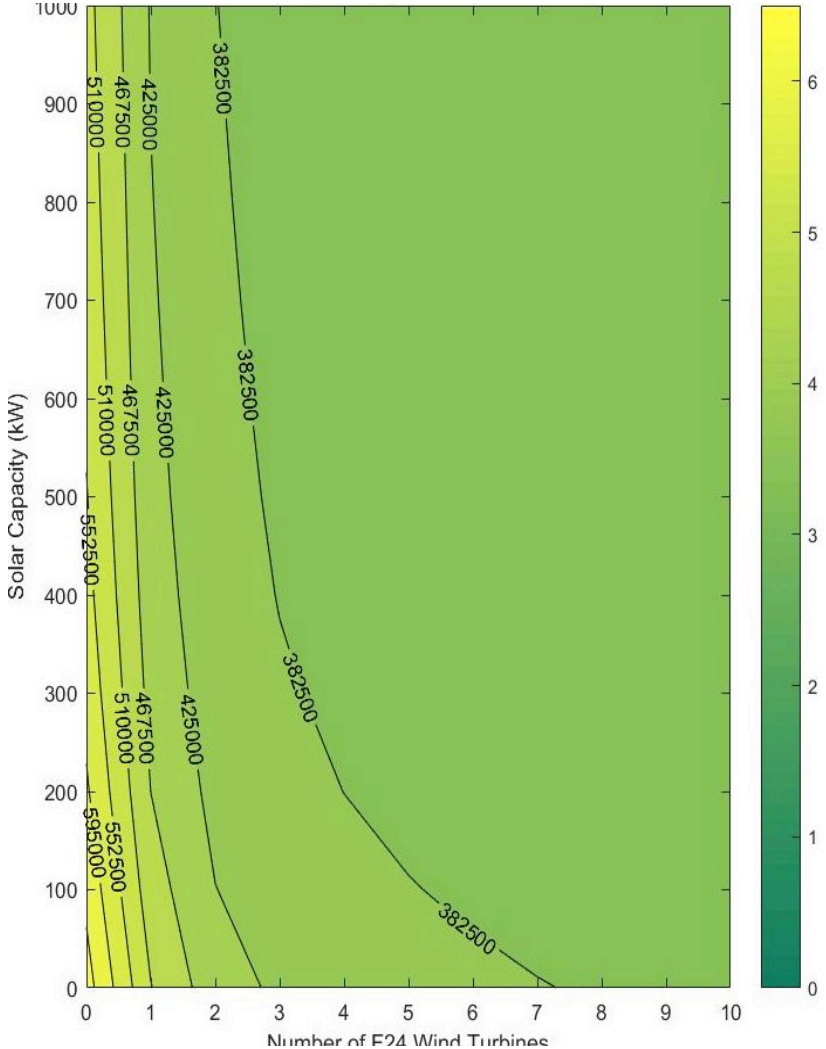
# Resources


Wind Resource of Alaska
205000
455000
705000
955000
1205000
1455000
1705000
1955000
2205000
Barrow
Fairbanks
North Pole
Kodiak

# Starting Components

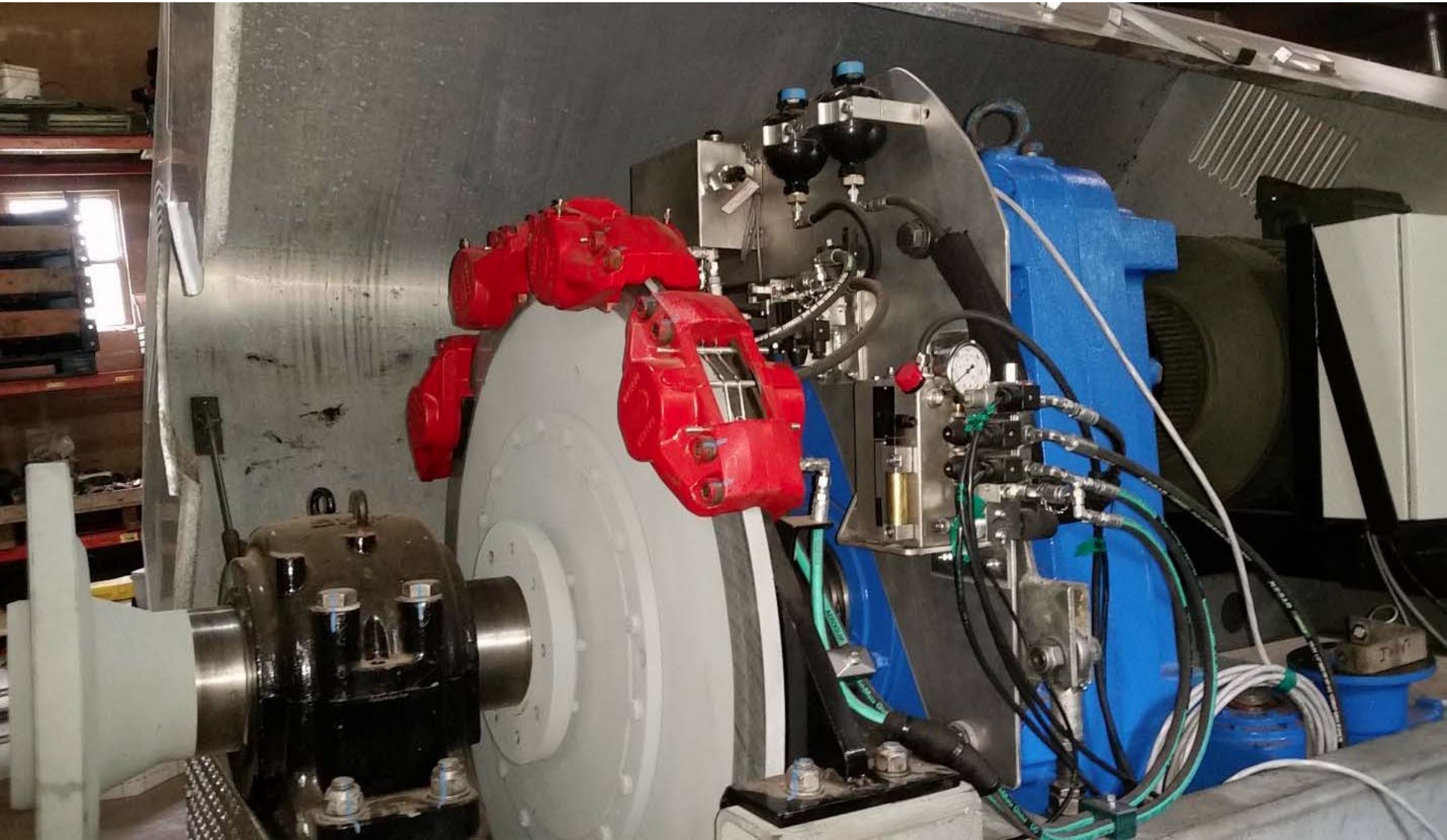

# targets for diesel off



# Adapt Technology

# Turbine advancements




# Battery Energy Storage System (BESS)


# Electric Thermal Stove (ETS)

ETS installed in a residence

Photo via https://news.uaf.edu/study-will-explore-thermal-storage-heaters-to-reduce-pollution/

# Project Timeline

- Battery delivery scheduled
- Installation  Summer 2023