

# **KWIGILLINGOK** **ENERGY EFFICIENCY** **PROJECT**

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Darrel John

DOE program review  
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# Native Village of Kwigillingok

- Alaska Native Village of 377 people.
- People live a subsistence lifestyle, relying on fish, walrus, seal, and sea bird eggs for food.
- The village is governed by an I.R.A. Council.
- People speak Yup'ik language and participate in traditional arts and dance.
- The village is connected via boardwalk system over tundra underlain by permafrost.



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# Background

- Kwigillingok has a long-term goal to reduce energy costs in the community through reducing energy use and diversifying sources.
- Kwigillingok is a member of the Chaninik Wind Group that uses wind turbines, diesel generators, and storage systems with smart grid controls to reduce the cost of electricity.
- Previously, Kwigillingok completed an energy audit on the Water Treatment Plant.

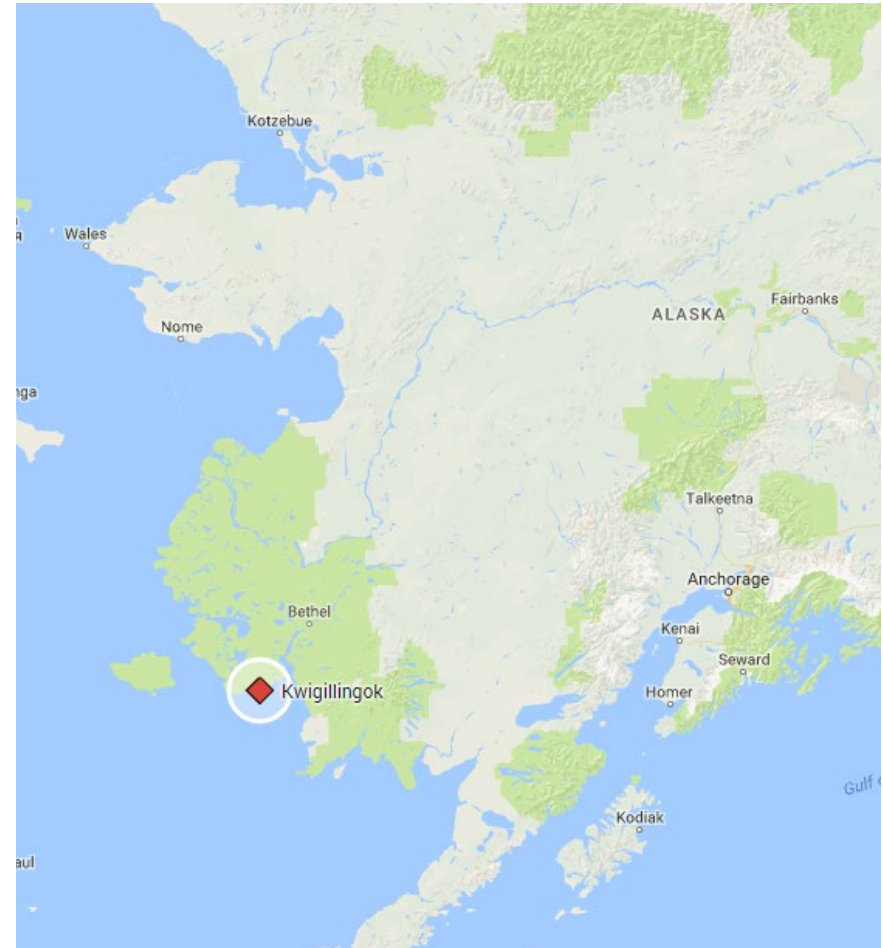


# Project overview

- This project will address the high energy costs in Kwigillingok.
  - Electricity is \$0.37, with the PCE program
  - Gallon of fuel oil is \$5.69
- The goal of the project is to reduce the fuel oil and electrical energy use of tribal buildings.
- Strategy:
  - Identify tribal buildings with high energy use.
  - Conduct ASHRAE Level II energy audits.
  - Develop an Energy Action Plan for each building.

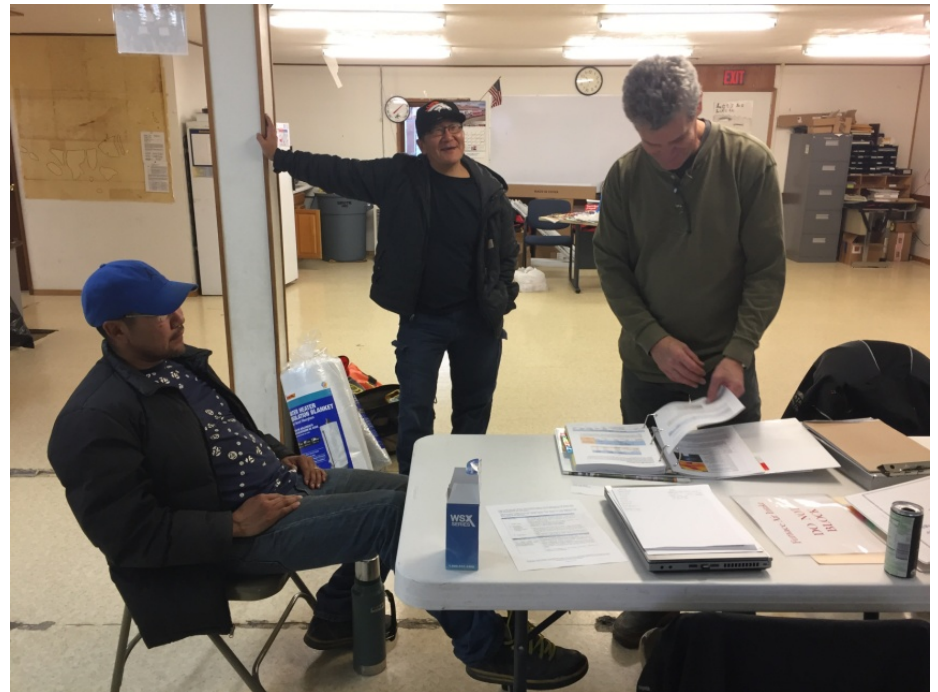
# Project location

- Located on the Kuskokwim River in Southwest Alaska.
- Kwigillingok is not connected to the road system. Travel is by small plane or by boat when the river is free of ice.
- Community has one school with 122 students.



# Participants

- Darrel John – Tribal administrator
- Jon Lewis – KPC manager and technical contact
- The Kwigillingok I.R.A. Council - Project direction and oversight
- Cold Climate Housing Research Center (CCHRC) – Alaska nonprofit organization that conducted the energy audits and helped develop the Energy Action Plan.



# Project objectives



- To reduce and stabilize energy costs in tribal buildings by setting energy efficiency improvement goals.
- These efficiency goals will provide direction for future retrofit projects.
- Demonstrate sustainable practices and behaviors to the entire community.

# Project buildings

The Kwigillingok I.R.A. Council chose 6 buildings to participate in the project:

- YKHC Clinic
- Fisheries Support Center
- US Post office
- Tribal Police Office
- Kwigillingok I.R.A. Council office
- ANTHC bunkhouse





# Accomplishments

- The Traditional Council decided on goals for each building in the project.
  - Reduce energy use
- The project team collected baseline data for each building.
  - Data monitoring plan
  - Energy use and building condition
- The project team completed energy audits for each building.
  - Recommendations to reduce energy use
- The project team presented final audit results and draft report to the Council and went on a building walk-through with maintenance staff and tribal administration to show them each recommendation.

# Final activities

- The project team will complete an Energy Action Plan for the tribal buildings.
  - Project information
  - Building descriptions and baseline data
  - Data monitoring plan
  - Energy audit summaries
  - Maintenance plan
  - Funding opportunities
  - Scope of work for contractors
- The project team will showcase the project to the community via a flyer and video, as they look toward next steps.



# Lessons learned



- Energy audits show how to reduce the energy use of buildings by listing improvements to the building.
- The Native Village of Kwigillingok will benefit from this project by seeing how to reduce operating costs of the tribal buildings.
- Energy audits provide perspective on when to invest in a building by improving it and when to look for funding to replace the building with one that is worth investing in.

# Future plans

- The I.R.A. Council will use the Energy Action Plan as a resource to search and apply for funding for a comprehensive retrofit project.
- The maintenance staff will immediately begin to address recommendations in the energy audits, such as deferred maintenance, lighting upgrades, and occupancy sensors.
- The building occupants will immediately begin to address energy conservation recommendations in the energy audits, such as utilizing programmable thermostats and performing maintenance checks.



# Questions

- For additional information, please contact:
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