

# Tyonek Energy Efficiency Project

Justin Trenton, Native Village of Tyonek

A collaboration between Native Village of Tyonek, the Tyonek Tribal Conservation District, and Cold Climate Housing Research Center (part of National Renewable Energy Laboratory)

2021 Virtual Program Review

US Department of Energy, Office of Indian Energy

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# Project partners to Native Village of Tyonek

- Tyonek Tribal Conservation District - providing “technical and financial assistance to landowners and stakeholders within the District to help them achieve their conservation goals”
- Cold Climate Housing Research Center - “promoting and advancing the development of healthy, durable and sustainable shelter for Alaskans and other circumpolar people.”

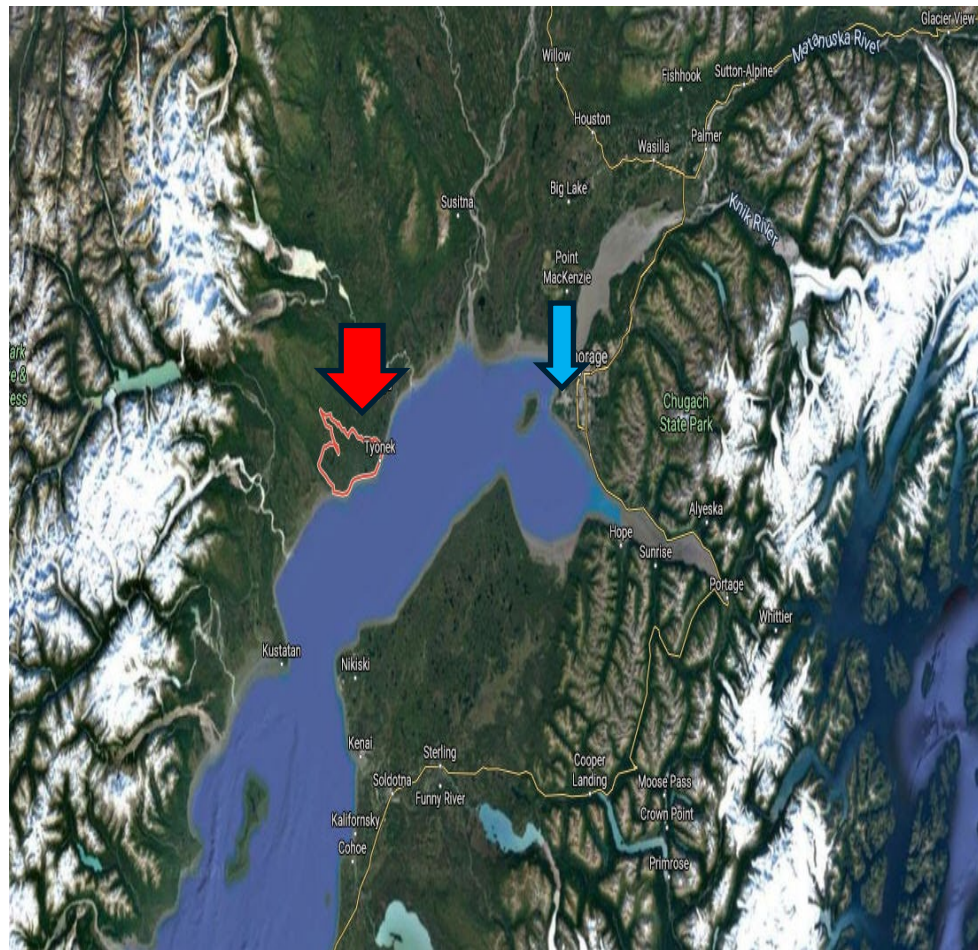
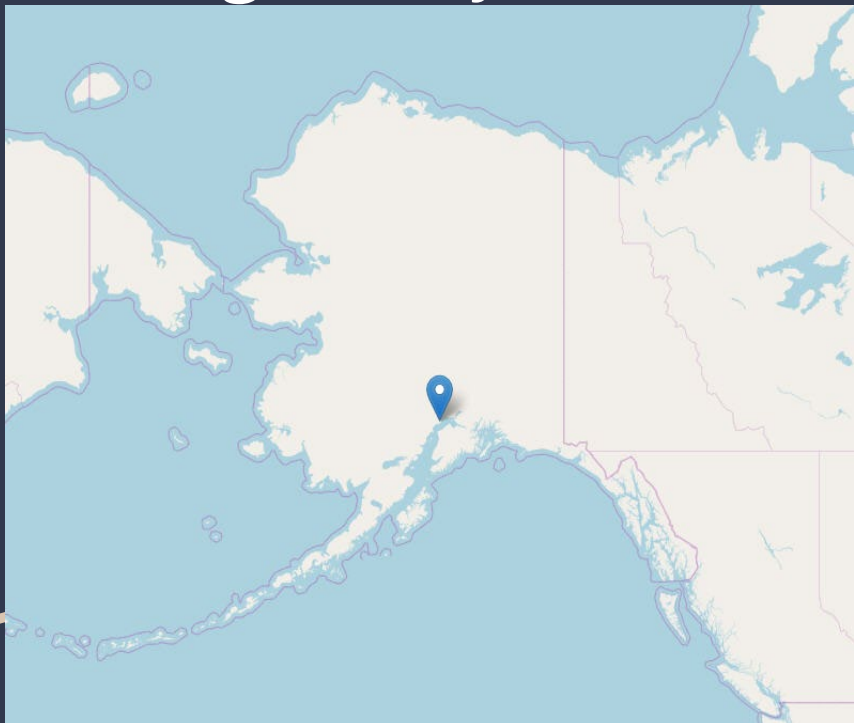


Parts of the Home    Retrofits

**INNOVATIVE  
HOUSING DESIGN  
& RESEARCH**



# Location of Native Village of Tyonek



# Native Village of Tyonek

The Native Village of Tyonek is a Dena'ina Athabascan village located 43 miles southwest of Anchorage on the coast of Alaska. Tyonek, located on the Cook Inlet, is accessible by plane or boat. It is home to the Tebughna, or "Beach People."



Photo courtesy of Tebughna Foundation.

# Native Village of Tyonek

Tyonek is a closed and isolated community with plane transportation at a cost of \$240 Roundtrip from Anchorage, AK. There is no regular marine transportation in place. Gas also must be shipped in via air cargo and sells for \$5.25 Per Gallon to tribal members. wood generally cost \$150-\$200 per small pick-up truck load.



Photo courtesy of Tebughna Foundation.

# Native Village of Tyonek

Population:  
957 Tribal members  
124 in Tyonek

The area encompassed by the Tribal village is 22.3 square miles of land and 3.3 square miles of water. Winter temperature typically ranges from 4-22 F; summer temperatures average from 46-65 F, extremes have been recorded -27 to 91 F and average precipitation is 23 inches with 82 inches in snow.

First reported in 1880 as “Toyonok” which means “little chief” and has also been called Moquawkie. Tyonek tribal members continue to practice a subsistence lifestyle.

Community buildings:

Tyonek Tribal Center (Native village of Tyonek)

Tyonek Native Corporation Satellite office

Indian Creek health Department

Tebughna School k-12

# Past activities



## Brief relevant past activities

- Inspected Native village of Tyonek Tribal Center with thermal camera to reveal cold drafts and openings that take away heat from the building.
- Have been putting Frost King window insulating kits shrink film for indoor use to decrease energy cost. Its great for trapping in heat. very easy to install and results are immediate.



# Project:

Energy efficiency improvements on two Tribal buildings

- Tyonek Native Corporation Satellite Office
- Tyonek Tribal Center
- Both buildings are central to the community and house office staff Monday through Friday in addition to hosting community events on nights and weekends.





# Tyonek Native Corporation Satellite Office



The building is occupied from 9:00AM to 4:00PM five days per week as standard operating hours for the offices. The bedroom is used on occasion when guests are staying in the building.

# Tyonek Tribal Center



The building is occupied from 9:00AM to 5:00PM five days per week as standard operating hours for the offices. The building is also used on weekends and during some evenings for community gatherings.

# Energy efficiency improvements based on 2017 audits

Audits were completed in 2017 by staff from Alaska Native Tribal Health Consortium.

Main recommended improvements from audits include replacements of lights with LED lights and installation of set-back thermostats, maintenance of boilers and insulation of pipes; as well as air tightening and addition of insulation.

In this project, an electrician will switch lighting to LED bulbs and install setback thermostats to decrease the energy use of the buildings.

# Project objectives and impacts

To reduce energy use in the rural village of Tyonek for better efficiency

To reduce the impacts on climate change

To keep the subsistence lifestyle

Retrofit and update older buildings into current

To better secure buildings for food security

# Project objectives and impacts

To reduce energy use of the Tyonek Native Corporation Satellite Office by **21%** and to reduce energy use of the Tribal Center by **18%** through implementation of recommendations from the 2017 energy audits of those buildings.

Projected annual energy savings of \$2,859 for the Tyonek Native Corporation Satellite Office and \$2,500 for the Tribal Center.

Projected annual reduction in fuel oil #1 of 518 gallons for the Tyonek Native Corporation Satellite Office and 280 gallons for the Tribal Center.

Projected annual reduction in electricity (produced by Chugach Electric) of 2,499 kWh for the Tyonek Native Corporation Satellite Office and 7,310 kWh for the Tribal Center.

# Project status

Just starting!



Image courtesy of Tyonek Native Corporation at [tyonek.com](http://tyonek.com)

# Activities

## Throughout:

- outreach and communication with community, funders, others.

## Activities completed:

- Just starting!
- Got in touch with energy auditor who will review current conditions and create scoping document, and got on his calendar

## Activities to be completed:

- Keep track of fuel and electricity usage
- Complete scoping for electrician
- Send scope out for bids
- Evaluate bids, hire electrician
- Retrofit work
- Analyze savings
- Report

# Next steps

- Within this next three months the following will be getting completed
- Start tracking fuel and electricity usage
- Get the scope in order to request bids for electrical work



# Lessons learned

- The helpline for fedconnect is very useful if the website has an old email address for you that no longer exists

Chin'an!  
Thank you!

Dena'ina

Chin'an gheli.

*Thank you very much.*

Q'uch'a.

*That's all.*