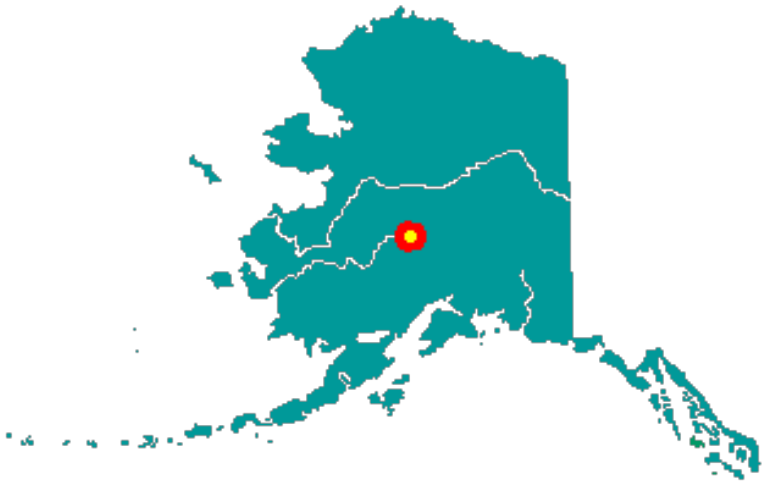
Tanana Chiefs Conference

122 1st Avenue
Fairbanks, AK 99701
907-452-8251
www.tananachiefs.org

Community Energy Action Plan

Nikolai, AK



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November 2019

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Introduction

The high cost of energy and living is no surprise to rural Alaska. Simple, efficient design coupled to an innovative and determined mindset is the winning combination that allows us to survive and maintain a quality life in such a unique place with respect to our surroundings.

This Community Energy Action Plan or (CEAP) was designed to produce tangible energy project results for the community. It was created with the cooperative input of your respected community leaders. Use this CEAP as a basic manual to set each action item into motion and to generate conversation with other residents in your community. If you've read this far, that leader is likely you. Keep this CEAP on top of your desk, kitchen table or back pocket. Don't be afraid to wrinkle the pages or get it dirty. It is meant to be used.

The Tanana Chiefs Conference Energy Department is available to assist you with your community energy projects. If you have questions, please don't hesitate to call us at: 452-8251 x3130.

Nikolai Energy Action Items

Efficient Wood Stove Integration or Change Out

Integrating an efficient wood stove into the design of a new home to offset the consumption of heating fuel is good common sense throughout the interior. Upgrading to efficient catalytic models such as a Blaze King is a great idea if older, inefficient models such as barrel stoves are still used in existing homes.

The TCC Energy Assistance Program can assist with the purchase of efficient wood stoves and the necessary hardware for a safe installation.

For questions how to apply, call TCC Energy Assistance Coordinator, Tawnya Peter at 452-8251 x3457.

Community Wide LED Lighting Upgrade

Converting incandescent or florescent bulbs and fixtures to high efficiency LED units will decrease the electrical load in the village and allow the utility to operate smaller capacity generators which will reduce diesel consumption. This is being done with great success across many interior villages. It will make good sense to upgrade not only the entire community but the airport runway lights as well since they add a significant load to the power generation equipment.

Edwin Bifelt, founder & CEO of Alaska Native Renewable Industries has completed many LED upgrade projects throughout interior villages and is a knowledgeable and experienced contact to assist in spearheading your LED upgrade project. Edwin can be reached at: 687-2296.

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Residential Primary Heating System Upgrade

The United States Department of Agriculture can assist with upgrading existing furnaces or boilers to modern efficient units. Applicants must be income eligible to participate and 62 or older for grant based services. If the applicant is under the age of 62, they are eligible for a 1% interest loan that can be applied to a heating system or weatherization building supplies.

For additional information and application assistance, USDA Rural Development Officer, Spud Williams can be contacted at 479-3159

Power Plant Waste Heat Recovery

Currently the Nikolai powerplant is an older powerplant with a simple control scheme that is carved out of a larger community shop. The plant was put together by a former city manager and not designed with best practice learned in other remote powerhouse in mind. There is no load sharing between generators and one generator handles the load in the entire community. The generator area is only heated by the heat from the generator and heat is exhausted from large louvers in the side of the powerhouse. Other generators in the powerhouse must be kept heated with a block heater between uses to ensure they are ready to run in the event of an issue with the unit that is online. Proper maintenance on the powerplants is often a challenge given the high turnover of the position and in the past operators have not changed oil on a regular schedule. Since the original writing of this report the Alaska Energy Authority has announced they have funding for a new powerplant in the community which will incorporate a waste heat loop over to the school building.

Power Plant Operator Training

The power plant operator is responsible for keeping the lights on in your community. It is known that having a well trained PPO performing consistent scheduled maintenance on the power generation equipment is the most cost effective way to run an efficient and reliable utility.

It is highly recommended that the tribe arrange to have each PPO attend an AVTEC Power Plant Operator training course in Seward. The training course is sponsored by the Alaska Energy Authority and is free of charge to all employed PPO's throughout Alaska. The TCC Employment & Training Department can assist with travel expenses to and from Seward.

For additional information, the AVTEC training facility can be reached at 478-5389. The TCC Employment & Training contact is Evelyn Ekada. She can be reached at 452-8251 x3199.

Solar Electricity

Solar panels or photo voltaic systems are a proven and reliable means to capture renewable energy throughout interior Alaska. The systems offset electrical consumption and perform best during summer when there is an abundance of sunlight and continue to produce a significant

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amount of electricity well into the shoulder seasons. Solar energy capacity is growing across interior Alaska and TCC Energy continues to support many villages with their PV projects by assisting with finding sources of funding, procurement, design, and construction. Projects in the TCC region range in size from smaller systems that supply electricity to individual buildings up to larger, more sophisticated utility scale systems with integrated energy storage that serve the whole community.

Motivation

The action items mentioned in this CEAP are a just a few attainable examples to reduce energy consumption. There are many more and the village is only limited by its imagination and ingenuity.

All it takes is for you to set the ball in motion to make Minto more energy independent and self-sufficient.