

ALASKA RURAL UTILITY COLLABORATIVE

2021 REPORT ON ACTIVITIES



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Cover Photo: Noorvik Lagoon



ABOUT ARUC

The Alaska Rural Utility Collaborative (ARUC) is an Alaska Native Tribal Health Consortium (ANTHC) program created to assist and empower its member communities to manage, operate and maintain water and sewer systems in rural Alaska. Each member community's system is operated as a stand-alone, nonprofit business. Money from local customers, generated from user fees and local community and regional support, must be enough to pay the system's direct expenses and build a reserve account. ARUC services include helping set water and sewer rates in each community, billing local water and sewer customers, providing guidance to local water plant operators and more.

Through active management and operations and maintenance support, ARUC strives to pursue its goals of maximizing the public health benefits of sanitation facilities and building local community capabilities. Through safe and reliable sanitation, ARUC focuses on preventive health services. Communities in the ARUC program protect public health and enhance residents' quality of life by:

- ▶ Ensuring qualified staff operate and maintain facilities to provide high-quality drinking water and safe disposal of sewage.
- ▶ Providing emergency utility response.
- ▶ Extending the useful life of water and sanitation systems through preventive maintenance, thereby saving millions of federal, state and local dollars in replacement costs.
- ▶ Hiring and training water plant operators and backup staff in each community and offering good wages and benefits.
- ▶ Setting water/sewer customer rates with community council agreements: Each community's rates are set to be self-supporting and rates vary per community.
- ▶ Working with ANTHC engineers, operations and maintenance specialists, utility managers, and grant specialists to support the utility at no additional cost to customers.



St. Michael's Water Treatment Plant

Many Thanks to the ARUC Advisory Committee

The ARUC Advisory Committee serves a valuable role as the liaison between ARUC and participating communities. Each community selects a member to be on the ARUC Advisory Committee. The ARUC Advisory Committee meets four times a year, once in person and three times via teleconference, to represent their communities and provide direction on water and sewer operation and rates. However, due to the COVID-19 pandemic, the committee opted to meet only via teleconference during 2021.



2019 Anchorage Advisory Meeting

Assisted Billing Program

To be eligible for full ARUC membership, a community must be a member of the assisted billing program for a minimum of one year. This program provides enrolled communities with water and sewer customer billing services. It was developed to provide financial consistency by maintaining a steady and accurate utility billing schedule and helping communities generate revenue. Fees are collected and refunded to the community (minus the monthly service fee).

ARUC Benefits

When ARUC communities do well financially (revenues are greater than expenses) their funds are placed into a cash reserve account. This savings account makes it possible for communities to immediately purchase replacement parts, bulk fuel or to fund emergency expenses and repairs. After ARUC communities meet the required reserve amount, these funds can be used for longer-term projects such as energy efficiency work or facility upgrades. As communities meet their reserve requirements, another benefit is seeing utility rate decreases helping to keep costs lower for our customers.



2021 COMMUNITY MANAGEMENT ACCOMPLISHMENTS

ARUC partners with member communities to use a strength-in-numbers approach in assisting with management, operations, and maintenance of each community's water/wastewater system so communities do not have to manage the system alone. Local community councils participate in utility rate decisions; discuss system financial and infrastructure challenges, billing processes, and collections; and develop roles for ARUC staff, operators, and community representatives.

ARUC engages with community leadership to understand challenges and make decisions together to ensure long-term system sustainability and provide continuous clean water and sanitation in rural communities. We are honored to share a few of the many successful management initiatives by community leadership to improve their community's finances, management and operations.

Chignik Lake

Improvements to the sewer lift station and booster station were completed using funding from the Coronavirus Aid, Relief, and Economic Security (CARES) Act. ARUC collaborated with Bristol Bay Area Health Corporation (BBAHC) to send a remote maintenance worker to assist the local operator in completing the installation.



Chignik Lake

Kiana

Upgrades to the pressure pump panel in the water treatment plant were installed using Kiana's reserve funds. The panel upgrades were needed to provide reliable water pressure after a community wide outage that occurred over the winter.



Kiana Pressure Pump Upgrades Installation



Quinhagak Structural Engineering Water Treatment Plant Assessment

Quinhagak

Quinhagak used its CARES Act funding to commission a structural engineering assessment of its water treatment plant and to hire a contractor to make the recommended repairs. Construction has been delayed but plans are to start work in summer 2022 when the ground thaws. Quinhagak used its remaining CARES Act funding for additional enhancements to the water treatment plant by acquiring an electronic preventive maintenance plan and 3-D imaging of the plant to assist with troubleshooting. Funding also went toward parts and materials needed to operate and maintain the system.

Savoonga

Bering Straits Regional Housing Authority (BSRHA) collaborated with the City of Savoonga to make improvements to their lift station that BSRHA built in 2017. The funding covered a complete overhaul of the lift station plumbing including new pumps. Work was complete in 2021, at that point the city agreed to take over the lift station's operations and maintenance. Ownership of the building was also transferred to the city when work was complete.



Savoonga Lift Station



American Rescue Plan Act

ARUC received about \$1.2 million from the American Rescue Plan Act to be applied toward customer accounts as a pre-payment for water and sewer services. This funding allowed communities to help customers by providing financial relief during the COVID-19 pandemic.

Below are the ARUC communities and the funding they received:

- | | | |
|--------------------------|---------------------------|---------------------------|
| ▶ Chevak: \$407,610 | ▶ Newhalen: \$15,850 | ▶ Quinhagak: \$164,590 |
| ▶ Goodnews Bay: \$29,390 | ▶ New Stuyahok: \$76,930 | ▶ Saint Michael: \$80,280 |
| ▶ Kiana: \$15,350 | ▶ Noorvik: \$25,600 | ▶ Savoonga: \$137,000 |
| ▶ Kotlik: \$3,940 | ▶ Pitka's Point: \$34,500 | ▶ Shungnak: \$90,960 |



ARUC Engineering Goals:

Engineering projects in ARUC communities focus on three major goals:

1. Reducing energy, fuel and operational costs.
2. Increasing the number of customers through service connection construction.
3. Providing operator guidance and assistance for issues that may arise during normal operation.

2021 ENGINEERING ACCOMPLISHMENTS

In 2021, the ARUC engineering team and local operators worked to achieve these goals through several projects. ARUC partners with member communities to secure additional funding for necessary system repairs or upgrades, ensuring continuous safe service is provided to customers.

Effluent Pump House Installation in Upper Kalskag

For the past few years during heavy rainfall, the Upper Kalskag's sewage lagoon would fill with water due to a faulty siphon pump and line. The lagoon's wastewater level came close to breaching several times. Levels were kept in check by local water and sewer operators who ran pumps at the site until levels were safe again. This short-term solution was labor intensive and costly for the community. If the lagoon were to overflow, the wastewater could potentially contaminate the ground around it as well as many communities downstream, causing major health issues.

The city applied for a State of Alaska Infrastructure Protection Funding (IPF) grant for \$103,000 to pressure test the lagoon siphon line and replace piping as well as construct a small pump house for the new discharge pump. The city contributed \$12,705 of in-kind operator labor funded by their water and sewer operations reserve account. In early summer 2021, ARUC and local operators repaired the siphon line and replaced sections of the piping. The pump house, electrical and plumbing work, and a new 20-horsepower pump completed the project installation and the system is now fully operational. With these new installations and upgrades the community is now able to control the level of the lagoon and discharge it safely.



Upper Kalskag Pump House

Flexible Service Connection/Arctic Box Replacement in Holy Cross

Funded by the Denali Commission for \$190,000, ARUC engineers and local operators replaced three failing arctic boxes with flexible connections in Holy Cross. Arctic boxes are the wooden covers that protect and insulate a home's water and wastewater service connections. Unfortunately, the thawing of the ground and permafrost can cause homes to shift and boxes become damaged, basically rendering their insulation useless, causing the lines to freeze.

New flexible connections consist of upgraded materials that include aluminum and high-grade water-resistant insulation better suited for Arctic climates. These new connections can move and flex better with the home, preventing costly freeze-ups and service outages.



Saint Michael Heat Exchangers

Heat Exchanger Replacement in Saint Michael

In 2020, the City of Saint Michael experienced a freeze-up on all of its water-sewer loops. These freeze-ups have been a recurring problem in the cold winter months. In 2021, ARUC and local operators replaced the failed heat exchangers at the Saint Michael's water treatment plant. This replacement stopped any significant freezing issues for the following winter. The project was funded by the State of Alaska (IPF) grant for \$60,000.

Service Line Installations in Chevak, Golovin, Noorvik and Shungnak

In 2021, new water and/or wastewater flexible service lines were provided in four ARUC member communities:

- ▶ Two homes in Chevak, one home in Golovin and one home in Noorvik received service connections funded by the Indian Health Services (IHS) for a total of about \$441,000.
- ▶ The Community Cook House building in Shungnak also received connection lines funded by the Northwest Arctic Borough's Village Improvement Fund and the NANA Economic Development for \$137,000.



Chevak Service Line Installation

Solar Panel Installation in Holy Cross

ARUC engineers teamed with local operators in Holy Cross to complete solar panel grid installations that provide power to the water treatment plant. The project was funded by the U.S. Department of Agriculture (USDA) for approximately \$75,000. A total of 36 panels were installed on the water plant roof. The system is expected to save 8,853 kWh annually with a savings of approximately \$5,000 annually.



Holy Cross Solar Panel

Waste Heat Recovery Installation in Chevak, Holy Cross and Noorvik

Waste heat recovery systems use excess heat from the community's power plant to heat other buildings and water treatment plants.

In Chevak, a heat recovery system installation was completed and passed final inspection in 2021. The water treatment plant and vacuum sewer plant now receives recovered heat from the local power plant. This project was funded by the Alaska Energy Authority for \$695,000.



Golovin Water and Sewer Installation



Chevak Waste Heat Recovery

Holy Cross also completed their installation of its heat recovery system in 2021. The water treatment plant and the city office building now receive recovered heat from the local power plant when heat is available. This project was funded by the USDA and the United States Department of Energy for \$886,000.



Holy Cross Heat Recovery System

Noorvik expanded its heat recovery system to provide recovered heat to their tribal office building in 2021. This project was funded by the USDA and the State of Alaska Department of Commerce, Community and Economic Development for \$380,000.

Well Inspection and Cleaning in Kobuk

ARUC engineers and local operators inspected and cleaned both of Kobuk's water wells to increase flow rates. While water output increased, the inspection revealed the wells could not be sufficiently rehabilitated to provide the desired level of water production.



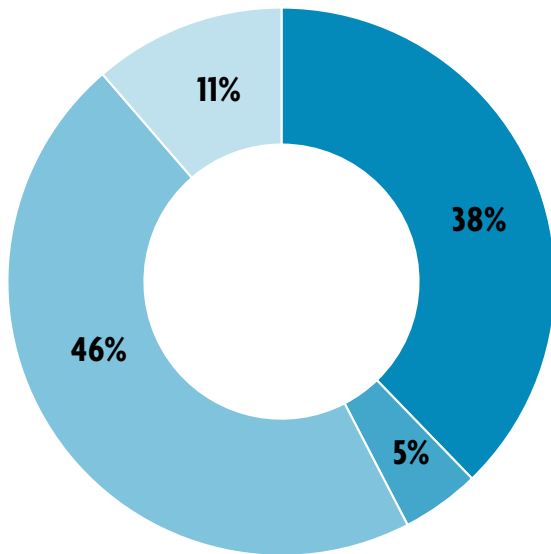
Noorvik Heat Recovery Expansion

The community has applied for additional funding to remedy this issue. The inspection and cleaning was funded by IHS for a total of \$171,000.



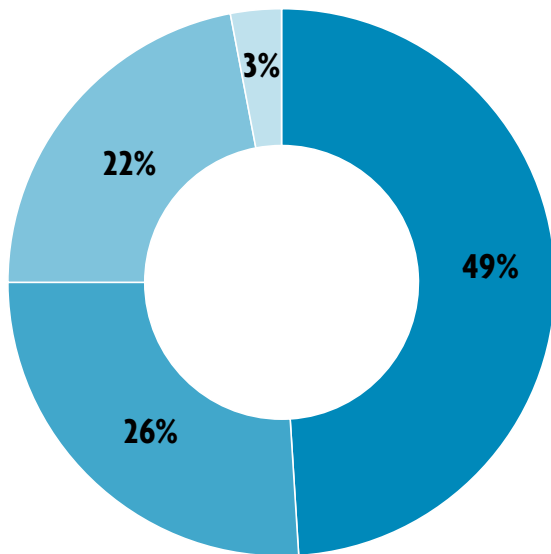
Kobuk Well Inspection

FINANCIALS



ARUC FY21 OPERATING COSTS

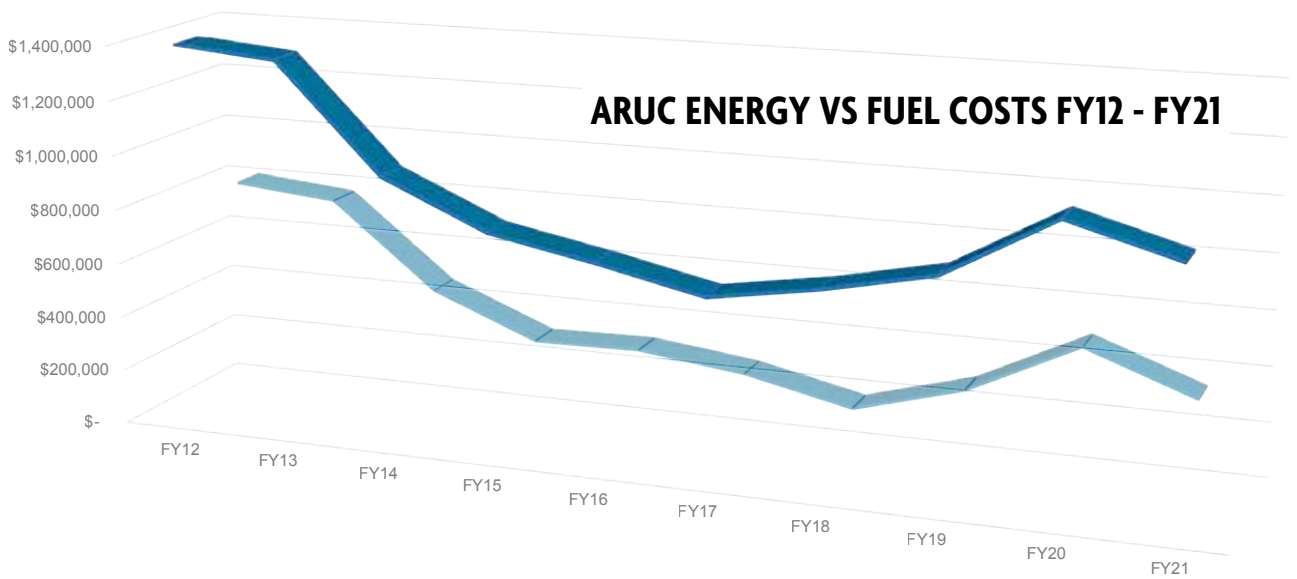
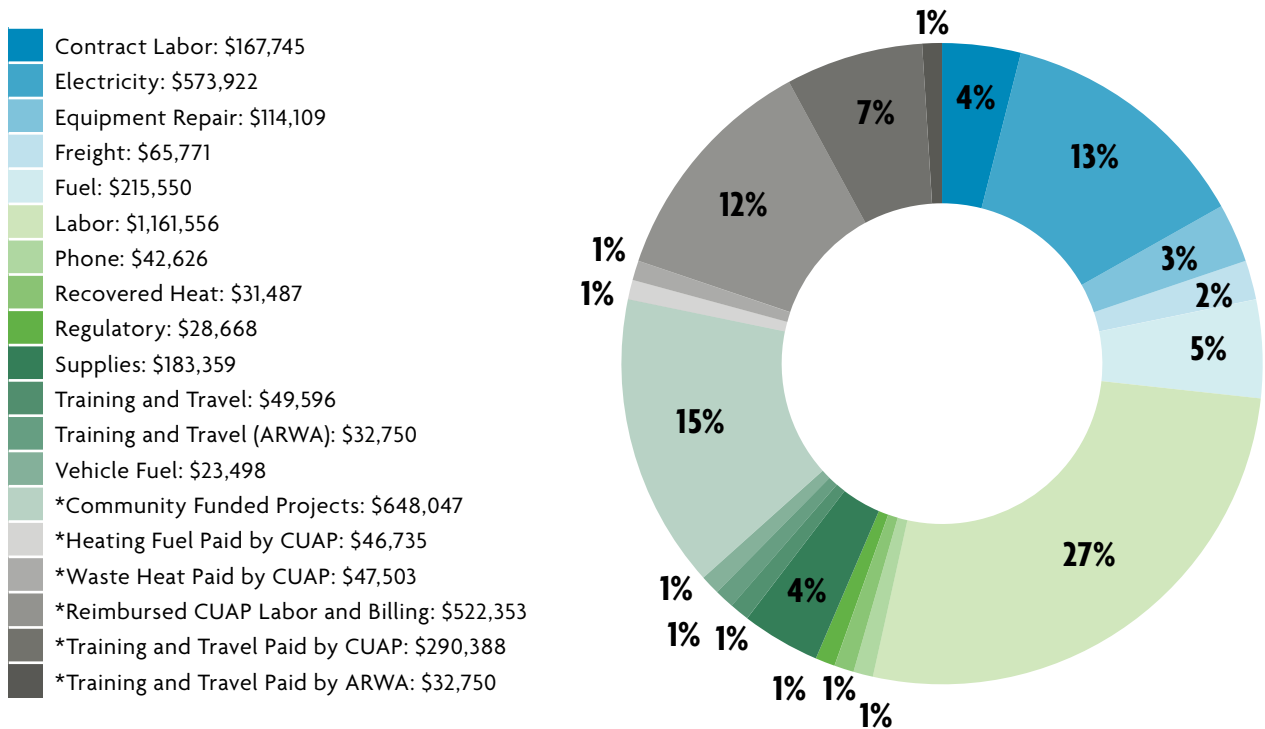
- ARUC Management Costs Paid by Others: \$2,160,154
- ARUC Billing Costs Paid by Community: \$264,786
- Community Operating Costs Paid by Users Only: \$2,647,335
- Community Funded Projects Paid by Users: \$648,047



ARUC FY21 OPERATING REVENUE

- Operating Revenue Paid by Community: \$4,908,101
- Construction Projects: \$2,550,270
- Management Costs Paid by Others: \$2,160,154
- Billing Fees Paid by Community: \$648,047

ARUC FY21 OPERATING, COMMUNITY FUNDED PROJECTS AND CUAP EXPENSES



	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21
YEARLY ENERGY COSTS	\$1,399,335	\$1,366,164	\$976,419	\$808,063	\$734,598	\$651,239	\$715,616	\$799,893	\$1,024,302	\$915,197
TOTAL FUEL COSTS	\$806,796	\$770,860	\$461,912	\$307,580	\$313,518	\$265,972	\$179,869	\$290,013	\$486,048	\$341,275

QUYANA/TAIKUU TO OUR PARTNERS

Alaska Energy Authority	City of Noorvik	Norton Sound Health Corporation
Alaska Rural Water Association	City of Quinhagak	Norton Sound Economic Development Corporation
Alaska Vocational Technical Center	City of Russian Mission	Pitkas Point Village Council
Bristol Bay Area Health Corporation	City of Saint Michael	Rural Community Assistance Corporation
Bristol Bay Borough	City of Savoonga	State of Alaska Department of Environmental Conservation
Chignik Lake Traditional Village Council	City of Scammon Bay	State of Alaska Division of Community and Regional Affairs
City of Ambler	City of Shungnak	State of Alaska Remote Maintenance Worker Program
City of Chevak	City of Toksook Bay	State of Alaska Village Safe Water Program
City of Deering	City of Upper Kalskag	Sleetmute Traditional Council
City of Golovin	Indian Health Service	United States Department of Agriculture
City of Holy Cross	Lake & Peninsula Borough	Native Village of Goodnews Bay
City of Kiana	Maniilaq Association	Yukon-Kuskokwim Health Corporation
City of Kobuk	NANA Regional Corporation	
City of Kotlik	National Tribal Water Center	
City of Lower Kalskag	Native Village of South Naknek	
City of New Stuyahok	Native Village of Tyonek	
City of Newhalen	Northwest Arctic Borough	
	Northwest Arctic Borough School District	



Deering

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