



ALASKA VILLAGE ELECTRIC COOPERATIVE

Celebrating 50 Years of Service To Rural Alaska

Co-op battles weather, politics and terrain to ensure members have power



An 8,000-pound generator is loaded on a sled using a block and tackle and brute strength.

CONGRATULATIONS ON 50 YEARS!



STG is proud of our 20-year history serving AVEC and helping rural communities around our state.

STG is committed to pioneering solutions for Alaska's toughest jobs.



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ALASKA VILLAGE ELECTRIC COOPERATIVE

Foreword

More than 50 years ago, rural Alaskans started looking for solutions to bring electricity to their remote communities. When the concept of an electric cooperative was suggested, it was widely panned since never before had a cooperative been established to deliver electricity to communities that were not geographically connected. The concept of a power plant to serve each village and an administrative hub in a distant community to manage all of those disparate electric systems was considered completely unworkable by experts in the utility world.

Given that rural Alaskans had always overcome seemingly insurmountable challenges in the past, they set to the task with determination and ingenuity, and Alaska Village Electric Cooperative was born. Against all odds, Alaskans banded together to make the impossible possible. What really made it all work was the men and women who wouldn't take no for an answer.

The steadfast commitment of AVEC's staff and board members are what prevailed through the years, guiding the cooperative forward through the turbulent '70s, the boom and bust '80s and the technological advances of the 21st century.

Through these last 50 years, what stands out is the loyalty and steadfastness of the



AVEC village workers—the power plant operators who keep the lights on in the villages. And the AVEC field technicians who fly across the state, dodging storms as they meet the needs of communities hammered by the weather.

All of AVEC's dedicated staff have a single goal—to serve our members to the best of our ability. We aim to keep the lights on, adopt technology to drive down the cost of power while improving reliability and to be The Best Alaskan Utility!

Meera Kohler
President and CEO

“ It takes more than a couple years to understand Alaska. ”

People who know, know BDO.



BDO and its staff would like to congratulate Alaska Village Electric Cooperative for 50 years of serving communities in Alaska!

We are Alaska's largest accounting and advisory firm - and one of its oldest. Our Anchorage-based professionals provide deep personal attention to clients in a wide range of industries. BDO provides audit, tax, advisory, and specialty services.

Find out for yourself why so many businesses and organizations in Alaska trust BDO to help them successfully serve their communities.

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Chairman's Message

More than 50 years ago, Gov. Wally Hickel recognized the pressing need to bring quality of life to rural Alaska through basic electrical services and created a task force to explore how that might be accomplished. Out of this task force, a unique utility was conceived. In 1967 Alaska Village Electric Cooperative was incorporated. Willie Hensley, Diane Carpenter, Jimmy Hoffman, Morris Thompson and David Peterson were the first board members. Willie was AVEC's first president.

Through the federal Rural Electrification Administration program—now known as the Rural Utilities Service—they electrified three communities: Hooper Bay, Nulato and Old Harbor in 1968, laying the foundation of AVEC. Building on this foundation, AVEC has grown to be a utility that elected leaders, industry colleagues and financial institutions point to as “this is how it should be done” in rural Alaska.

Through teamwork, commitment, innovation and the willingness to think outside of the box, today we are 58 rural communities strong. This would not have been possible if it were not for the vision of the board, commitment and loyalty of the administration and staff and, above all, the faithfulness and patience of the membership.

AVEC's first annual meeting was in early



Robert Beans, Board Chairman

1969, making 2019 the 50th anniversary of that first celebration. With this publication, we look back over our 50 years of village electrification and look forward to what the future may bring.

Every one of us should be proud of AVEC. We have forged a path where none existed before. We have united in a common mission to bring safe, reliable electricity to some of the smallest communities in Alaska, and we do this because these are our values:

Honesty and integrity will govern our activities; All individuals will be treated with dignity and respect; Commitments made will be fulfilled.



Chevak wind turbines dot the horizon.

AVEC Board Members



**Robert Beans,
Board Chairman
(Mountain Village)**

Robert was elected board chairman in April 2014, and has served on the

board since 1987. Robert served in the Army National Guard for 18 years in addition to eight years in law enforcement. Robert is from Mountain Village, where he owns a home, and has lived in several other Alaska locations.



**Fred Sagoonick,
Board Vice Chairman
(Shaktoolik)**

Fred was elected to the board in 2007. He served in the U.S. Navy as a radar-

man in the early 1970s. Before he retired, Fred was general manager of the Shaktoolik Native Corporation. He previously served on the city council and as mayor for two terms in the early 1990s. He serves on the board of the Bering Straits Native Corporation and is active in commercial fishing.



**Helena Jones, Board
Secretary (Ambler)**

Helena lives in Ambler, having first been elected in 1982. She is AVEC's longest-serving board member

and previously served as treasurer. Helena is a licensed practical nurse and served in that capacity for many years in Sitka, Kotzebue and Ambler. Helena also served on the Northwest Arctic School board for many years.



**Peter Demoski, Board
Treasurer (Nulato)**

Peter lives in Nulato and was elected to the board in March 2012. Peter has been

the tribal administrator for the Village of Nulato for more than 18 years. He is a tribal council member and serves on the Tanana Chiefs Conference executive board.



**Walter Sampson,
Director (Noorvik)**

Walter was first elected to the board in 1989. He is from Noorvik, where he owns a residence. Walter is

a decorated veteran of the Vietnam War. He worked for the NANA Corporation for 42 years, retiring as vice president of Lands and Regional Affairs in 2014. He also served on numerous state, regional and local boards and commissions.



**Robert "Bobby"
Hoffman, Director
(Bethel)**

Bobby was elected to the board in April 2017.

He spent 23 years in the

Alaska National Guard, serving in the 297th Eskimo Scout Battalion and retiring as a major. He has served on the board of directors for Calista Regional Corporation, Orutsarmiut Native Council and Bethel Native Corporation.



**Robert Okitkun,
Director (Kotlik)**

Robert was elected to the board in 2018. He served in the U.S. Navy as an aircraft hydraulics mechanic.

He has worked in various positions for the tribe, village and regional corporations. Past board experience includes Lower Yukon School District, Kotlik Yupik Corporation, Kotlik Traditional Council and several others. He also serves on the Yukon River Drainage Fisheries Association.

AVEC Management Team

Meera Kohler, President and CEO

Originally from India, Meera came to Alaska in 1976 and started in the Alaska electric utility industry in 1979 as a book-keeper at Cordova Electric Cooperative. She was hired as general manager of Naknek Electric Association in 1990, and general manager of Anchorage Municipal Light & Power in 1997. Since May 2000, Meera has been president and CEO of AVEC. Meera has a bachelor's degree in economics and a master's degree in business administration from the University of Delhi, India.

Bill Thomson, Engineering and Technology Advisor

Bill advises the president and CEO on engineering and technology enhancements to augment efficiencies of the Operations and Engineering departments. A naturalized U.S. citizen from Canada, Bill earned his engineering degree in British Columbia and has an Alaska professional engineer license with specialty in arctic engineering. Bill has been an inventor for several decades and has been the primary engineer of AVEC's successful renewables integration program. He started work at AVEC in March 2001, and has held the positions of engineer, technology supervisor and operations manager.

Bill Stamm, Manager of Engineering

This June, Bill and his wife will celebrate their 25th wedding anniversary. When he started at AVEC in 1993, he wasn't yet married. Bill has had many titles at AVEC, starting as a seasonal employee. He has worked as a warehouseman, engineer, assistant construction manager, line superintendent and is now manager of engineering. He is a licensed professional engineer and is in charge of assigning and reviewing design work for all construction and maintenance activities, including power plants, tank farms, wind and solar projects, power

distribution, new services and heat recovery. With his team, he develops technical standards, business policies and safe work procedures to keep AVEC productive and fulfilling the needs of its members.

Scott Sanner, Chief Information Officer

Scott has been at AVEC for two years. His responsibilities cover all aspects of computing, networking, telephony and data storage. He supports all of the peripheral components such as printing, scanning, faxing and mobile devices. He is in the process of future-proofing AVEC's computing environments with a focus toward building stable systems that incorporate enhanced cybersecurity. He enjoys working at AVEC because every day brings new opportunities to make improvements and help our staff and members.

Forest Button, Manager of Project Development and Key Accounts

Forest manages the development of capital projects with an emphasis on alternatives to diesel generation for AVEC. He also manages relationships with AVEC's largest customers and is the project manager for AVEC's many construction projects funded by various state and federal agencies. He has 30 years of experience in management and engineering, and has successfully negotiated contracts and managed projects throughout Alaska in various industries. He has worked for state and federal agencies, private corporations and has been self-employed. He came to AVEC in 2012 as a contract project manager charged with management of capital projects.

Lenny Welch, Operations Manager, Bethel

Lenny is the operations manager for Bethel and has been an AVEC employee since Bethel joined AVEC in May 2014. He is responsible for all Bethel operations, generation, distribution, maintenance, metering, warehouse and Bethel staff. He began his electrical career in 1975 with Bethel Utilities Corporation, working as a laborer building the Bethel power plant. He became a journeyman electrical lineman in 1983. In 1994, he became the operations manager for Bethel and has continued those duties as an AVEC employee.

Stacey Smith, Member Services Manager

Stacey is one of the newer additions to the AVEC management team, joining in May 2017. She previously provided fuel and logistics services to AVEC for 13 years through other partners. In 2011, she served as Vitus Marine’s project manager, overseeing construction of AVEC’s two articulated tugs and barges in Texas. Once the vessels were built, she served as Vitus Marine’s operations manager for five years until she joined the Member Services department at AVEC. Stacey is a lifelong Alaskan, with a United States Coast Guard captain’s license. She has visited most every AVEC location delivering fuel or freight. Her current duties include overseeing the Member Services team, billing, collections, capital credits, annual meeting coordination, new services and resolving member issues.

Debbie Bullock, Manager of Administrative Services

Debbie has been employed with AVEC since 1993. She is responsible for all administrative and financial records, information technologies, purchasing, human resources and payroll for the cooperative. She is responsible for preparing U.S Department of Agriculture-Rural Utilities Service reports, Regulatory Commission of Alaska filings, financial forecasts, budgets and Power Cost Equalization reports. She also oversees the day-to-day office operations within the department. She has a bachelor’s of business administration in accounting and has attended specialized training programs in her area of expertise.

Dan Allis, Operations Manager

Dan has been with AVEC for 14 years. His duties include working with the generation and construction crews and the plant operators to keep the lights on. Prior to being appointed to his office position, Dan spent most of his time in the field. He has first-hand knowledge of the conditions and facilities in our communities.



The Stebbins power plant in the early years.

AVEC Wind Program Recap

AVEC expanded its fleet of wind turbines to 36 in 2018, with the installation of two EWT 900-kilowatt turbines in the communities of Bethel and Pitka's Point, which will serve St. Mary's, Pitka's Point and Mountain Village with the completion of an intertie in spring 2019. This brings the total wind generation capacity to 5,064 kilowatt-hours systemwide.

Our newest additions in Bethel and Pitka's Point represent a major step forward as the EWT 900kW turbines have variable output and pitch control. AVEC has installed wind generation in 13 communities, with interties to an additional seven:

- Chevak—400kW, installed in 2010.
- Emmonak—400kW, installed in 2011 (intertie to Alakanuk).
- Gambell—300kW, installed in 2009.
- Hooper Bay—300kW, installed in 2008.
- Kasigluk—300kW, installed in 2006 (interties to Nunapitchuk/Akula Heights).
- Mekoryuk—200kW, installed in 2010.
- Quinhagak—300kW, installed in 2010.
- Savoonga—200kW, installed in 2008.
- Selawik—264kW, installed in 2003.

- Shaktoolik—200kW, installed in 2011.
- Toksook Bay—400kW, installed in 2006 (interties to Nightmute and Tununak).
- Bethel—900kW, installed in 2018 (interties to Oscarville and Napakiak).
- Pitka's Point/St. Mary's—900kW, installed in 2018 (intertie to Mountain Village spring of 2019).

As a major component of the planning phase of wind projects, AVEC has operated or installed meteorological towers in many of our communities. Resource assessment projects and the installation of meteorological measurement towers in Teller, Marshall, Scammon Bay, New Stuyahok, Eek, Goodnews Bay and Stebbins are guiding us in evaluating future projects.

The design for an EWT 900kW turbine in Stebbins is 95 percent complete. AVEC is pursuing grant funding and hopes to construct in 2021. The communities of Stebbins and St. Michael are connected via an intertie. Both have pledged their Norton Sound Economic Development funds to make this project a reality.



Wind turbines in Emmonak offset the amount of diesel fuel used to generate power.

2019 Innovations Review

In early 2019, Bill Thomson assumed the position of engineering and technology advisor. This position will be instrumental in enhancing the integration of rapidly changing technologies in ongoing and new innovation projects.

- A second EWT 900kW turbine is now generating power at St. Mary's. The ease of control and smoothness of the power is a welcome improvement from turbine installations in previous years. A dispatch and control system is being programmed and installed to integrate the St. Mary's power plant and the Mountain Village power plant. A grid bridging system will allow increased power reliability and even more reductions in diesel consumption.

- The grid bridging system has been released to procurement with the intent of proceeding with purchase and testing this year. Several major design changes have been made to the concept during vendor discussions. The result should be a more capable and less expensive installation.

Most ongoing and proposed innovations are designed to address the unique AVEC challenge of having so many small communities separated by such large distances. Current and potential projects include:

- AVEC is now communicating with our power plants in a controlled and secure centralized network, having developed our own solutions through the last few years.

- Our investment partner, 60Hertzenergy, is gearing up to deliver tablet computers and power plant maintenance applications to our power plant operators. We expect to improve training and performance, provide more job satisfaction, and provide more operator performance and proficiency information.



New meter technology has greatly improved efficiency at Alaska Village Electric Cooperative.

- Our automated meter reading system installed some years ago is being used more extensively now, with more frequent reads, better data analysis and more functions, such as power loss calculations and outage reporting.

- Devices that are not critical to keeping the lights on often fail for long periods before being noticed and repaired. For this and many other reasons, using system control and data acquisition (SCADA) to obtain better information from the field will keep plants running efficiently and allow more accurate maintenance efforts. Heat recovery particularly should benefit from more constant and complete monitoring.

- AVEC is reviewing ways to maintain real-time fuel inventories. Satisfactory equipment cannot be bought at a reasonable cost, so AVEC expects to develop its own system. This data would tie into both SCADA and accounting systems.

Power Cost Equalization Program

Although electricity first appeared in some rural Alaska villages as a result of military, cannery, mining or logging operations, its introduction into many villages began in the late 1950s as the Bureau of Indian Affairs installed small generators for lighting its schools. Some schools extended electricity to neighboring homes, but few villages had central power supply before 1970. The exceptions were rural hub communities such as Bethel, Cordova, Dillingham, Kodiak, Naknek, Nome, Kotzebue, Unalakleet and a few others.

When the Trans-Alaska Pipeline System began operations in 1977 and royalties flowed into state coffers, an early mission of the state was to provide affordable energy to its citizens. As a result, more than \$1 billion was invested in hydropower projects and transmission lines that served southeast and southcentral Alaska and the Fairbanks area. Despite best efforts, solutions for rural Alaska could not be identified. It was clear that reliance on petroleum fuels would continue into the future.

Rising oil prices in the late 1970s led to establishment of the Power Production Cost Assistance Program in 1980, which was converted into the Power Cost Assistance Program the following year. In 1984, the Power Cost Equalization Program was put in place, with the goal of reducing the cost of power in rural Alaska to the average of the cost in Anchorage, Fairbanks and Juneau.

To qualify for PCE, a community must have received at least 75 percent of its electricity from diesel fuel in calendar year 1983. Utilities must file an annual report with the Regulatory Commission of Alaska, which then calculates PCE. The formula is the utility's allowable costs per kilowatt-hour, less the floor (now \$0.19) times 95 percent. Costs above \$1 per kWh are not covered.

Once the PCE rate is computed, utilities must comply with the program rules as administered by the Alaska Energy

A major improvement to the PCE program occurred in 2000 when the Legislature established the PCE endowment fund.

Authority. Utilities calculate the credit to be posted to customers' accounts on their monthly bills and then submit a bill to AEA for all PCE credited to customers. AEA determines eligibility for accounts that seek to be considered as community facilities. Approved accounts receive PCE on all kWh consumed up to a monthly limit of 700kWh per community resident.

In 1984, the floor was set at \$0.085 and all customers could receive PCE on up to 750kWh. With the cost of diesel averaging \$1.17 during fiscal year 1986—the first full year in the program—a total of \$18 million was disbursed in PCE credits. Utility operating expenses that year were \$55 million, so PCE accounted for about 32 percent of those costs. The cost of power across all eligible utilities worked out to \$0.244 per kWh, and the average PCE rate was \$0.164. Almost 50 percent of electricity sold in rural Alaska was eligible for PCE.

The collapse of the oil markets in 1986 wreaked havoc on the state's finances, but PCE continued to be fully funded by the Legislature for a few years. In 1991, however, the Legislature lowered the cost of the program by reducing the amount of electricity eligible for PCE and by appropriating less funds for the program. This resulted in pro-rated payments for all PCE customers at 82 percent of full funding. The underfunding continued for several years as PCE



One of the charms of living in rural Alaska is the surrounding beauty, such as this sunset near Elim.

became a virtual football during the legislative session.

In 1999, the PCE program saw major changes, with the floor being raised to \$0.12 per kWh. The cap on residential consumption was lowered to 500kWh, and only one residential account per customer is allowed. Commercial customers were removed from eligibility, and the floor was set to be revised annually based on rising urban rates.

A major improvement to the PCE program occurred in 2000 when the Legislature established the PCE endowment fund. Between then and 2011, \$767 million was deposited in the fund, which has been the source of PCE's annual funding for several years. Recent legislative changes to the endowment fund have reduced the risk profile of the investment and created a mechanism to fund community assistance—formerly known as revenue sharing—and funding for renewable energy grants. Funds for those programs become available when

earnings on the endowment exceed the amount needed to pay for PCE. At the end of 2018, the endowment fund balance was just over \$1 billion.

In 2018, only about 30 percent of kWhs sold are eligible for PCE. Utility operating costs are now \$170 million—with fuel costing more than three times what it did in 1984—and PCE annual credits total about \$32 million. Eighty-one percent of the cost of producing electricity in rural Alaska is now borne by rural residents. PCE continues to be an extremely important program for rural Alaska, without which many residents would be unable to afford electricity. It is particularly valuable to local municipal and tribal governments that provide critical public services to their residents. Community Facility PCE covers as much as two-thirds of the cost of electricity, and makes the difference between keeping the lights on and shutting down essential services.

Ely Stone, AVEC Logo Designer

Eight years ago, one of our welders, Greg “Tip” Tiplady, was in Hooper Bay when someone tapped him on the shoulder.

“Are you from AVEC?” he was asked.

“Yes, I am,” he replied. “How can I help you?”

As it turned out, Tip was wearing a sweatshirt with the AVEC logo on it. The man who tapped him on his shoulder was none other than the man who designed the logo more than 35 years ago.

Elias Stone, better known as Ely, was a young lad when his parents moved from Chevok to Hooper Bay. He didn’t want to

leave his friends and family in Chevok, so Ely stayed behind with relatives. Eventually, he rejoined his parents in Hooper Bay and enrolled in high school. Shortly after, his new teachers discovered Ely had excellent art skills and encouraged him to submit a drawing to AVEC, which was advertising a contest for a new logo.

Ely drew a hunter in a winter parka, looking out across Alaska, with a lightning bolt in his right hand instead of a harpoon.

AVEC has used the “AVEC Man” logo for decades. It has become the symbol of the cooperative.



Ely Stone, the artist who designed the AVEC logo, is pictured with his daughter, Mayu. AVEC sent Ely a number of logo items in appreciation of his contribution to the utility’s identity.

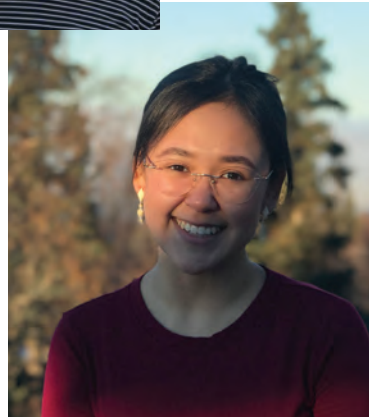
AVEC Scholarship Program

In 1988, the AVEC Board of Directors established a scholarship program to help fund education costs for AVEC members and dependents. In 1993, the board awarded the first three scholarships. In 2008, the board revised the scholarship program to award scholarships twice a year instead of once a year.

The AVEC Scholarship Committee now awards up to \$20,000 in vocational, technical and academic scholarships each new school year, with one outstanding student being awarded the Ted Stevens Memorial

Scholarship in the amount of \$5,000. Half of the total annual dollar amount is available for fall applications and the other half is available for spring applications. Fall semester applications are due by April 15. Spring semester applications are due by August 15. After winners are announced, distribution of funds to a university or trade school begin.

Funded by unclaimed capital credits, the program has grown through the years, with more than \$234,000 awarded in scholarships that have helped further the educational pursuits of some of our members.



Past scholarship winners, clockwise from above, Corilyn Adams of Noatak, Misty Sundown of Scammon Bay, Andrea Johnson of Bethel and Thomasina Tall of Chevak.

Vitus Marine

In early 2010, the AVEC Board of Directors approved the purchase of two tug-and-barge sets for the delivery of fuel in western Alaska to help alleviate ever-increasing fuel costs. This new venture was planned to stabilize the cooperative's fuel and transportation costs from 2011 through 2015. AVEC had two shallow draft tugs and barges built specifically to serve villages with fuel and freight. The two identical tug boats were christened and named the *Naniq* and *Cavek*.

Because of steep increases in transportation costs in recent years, the board decided to invest in assets projected to bring at least \$2.5 million in cost savings to members who have seen drastic increases in energy costs since 2007. The vessels were to be chartered and operated for the five-year term of the contract by Vitus Marine LLC, a newly formed company managed by experienced western Alaska mariners.

The AVEC board decided to act on this bold plan for the principal purpose of bringing much-needed competition to the western Alaska fuel delivery market. While AVEC certainly could not guarantee rural Alaska would see a significant drop in the cost of delivering their petroleum fuels, it

could be assured the pricing would reflect the presence of at least two suppliers in almost all areas of the state.

In 2012, AVEC's two sets of tugs and barges went into full operation and delivered almost 85 percent of AVEC's fuel to its communities. While AVEC cannot control the cost of wholesale fuel, which is determined by world markets, using its own vessels for delivery allowed it to reduce the cost of transporting that fuel by about 20 cents a gallon the first full season of fuel deliveries.

Since partnering in 2010, AVEC and Vitus Marine have brought exceptional value to western Alaska energy consumers. Effective transport rates in the entire western Alaska region remain on average below the market rates of 2010. Cost savings and efficiencies—including freight and linehaul participation credit—resulted in an additional \$500,000 in benefits for AVEC and our members in 2018.

This is the seventh year Vitus has returned substantial funds to the cooperative. The continued presence of Vitus in the marketplace has provided much-needed balance to keep fuel prices in check.



The tugboat *Cavek* and fuel barge *AVEC 208* upon arrival in Seward.

Lloyd Hodson

Less than two years after AVEC energized its first three communities, the board of directors conducted a nationwide search to find the right leader to guide the fledgling utility in its mission to bring electricity to Alaska's small, rural communities. The board selected Lloyd Hodson.

Born in Wichita, Kansas, Lloyd joined the Marine Corps shortly after graduating from high school. While in the Marine Corps Reserve, he earned a degree in electrical engineering from Kansas State University. Lloyd served during the Korean War and attended the U.S. Army Signal Corps Officers School, gaining expertise in electronics and acoustical devices.

Lloyd worked for the Bendix Corporation and later transferred to the Martin Company—now Lockheed Martin—as a design engineer and manager on the Titan Missile Project. He drove up the Alcan Highway in 1960—with his wife and two young children—to join RCA as a project engineer for the Ballistic Missile Early Warning System at Clear Air Force Base. In 1962, during the Cuban Missile Crisis and at the height of the Cold War with Russia, he was site manager—and later general manager—of operations and maintenance.

Lloyd became general manager of AVEC when the young co-op was foundering on the brink of bankruptcy. It is a testament to his intestinal fortitude that he took on the monumental task and, almost single-handedly, turned the good ship AVEC around.

There were many more pitfalls along the way, including staying afloat during the oil embargo, enduring the nation's greatest period of double-digit inflation and surviving myriad well-meaning federal agencies with no understanding of the challenges of rural Alaska.

Lloyd loved the people of rural Alaska and worked tirelessly for many years to help



bring them electricity. He was an advocate of Power Cost Equalization and the driving force behind the establishment of it and its predecessors. Working with other electric utilities, Lloyd helped establish a commercial insurance program for nonprofit utilities. He worked with the Rural Electric Association to establish a loan program for the electric cooperatives in Alaska and a mutual fund program for employees of electric companies.

Lloyd retired from AVEC in January 1992. He remained actively engaged on electric utility matters until his passing in February 2018. He leaves behind his wife, Loretta; his children, Ilona Farr, Robert Hodson, Lenna (Bob) Carson, Lora (Eric) Reinbold and Lisa (Jim) Gentemann; 17 grandchildren; and three great-grandchildren.

Rest in peace, Lloyd. Your AVEC family grieves your passing and we are forever grateful for your leadership.



Members gather for the first Alaska Village Electric Cooperative Annual Meeting in October 1969.



Manual labor and old-school methods were used to build the original power plants.



The 1972 AVEC Board of Directors: Eugene Geffe, George Sipary, Lester Wilde, Wanda Burket (secretary), Wilbert Nicholas, Daniel Johnson, Morris Coffey and Axel Johnson.



Above, stringing wire in Kasigluk.



Left, the original power plants had wood flooring and framing.



The second AVEC Annual Meeting held in 1971.



In 1968 children in Hooper Bay got to see a Christmas tree decorated with lights for the first time.

Congratulating AVEC on 50 years of service to rural Alaska!



When it comes to Alaska... We Deliver.

Delta Western Petroleum, LLC. offers direct deliveries from our Alaska terminals of fuel and lubricants to towns, villages, marine vessels, as well as logging and mining facilities, and construction operations.

Now serving most Alaskan communities with direct barge services, Delta Western Petroleum is proud to be called "Alaska's Petroleum Distributor".

For more information, please visit www.deltawestern.com

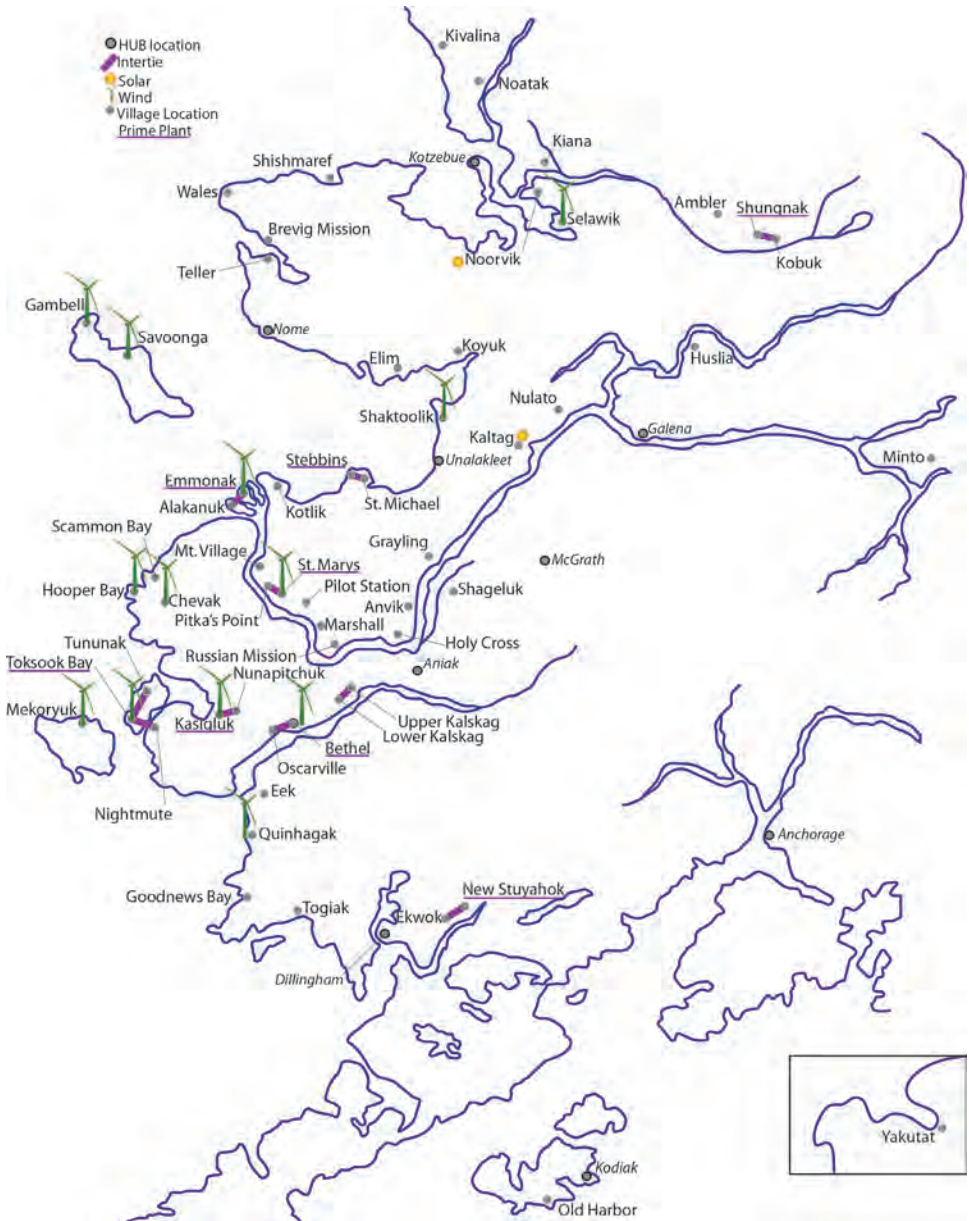
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ALASKA TERMINALS

Southeast Alaska: Haines, Juneau, Yakutat
Western Alaska/Bristol Bay: Bethel, Dillingham, Naknek
Aleutians/Pribilofs: Dutch Harbor, St. George

MAP OF VILLAGES



ALAKANUK



Alakanuk is a Yup'ik word meaning “wrong way,” aptly applied to a village on this maze of watercourses. The village was first reported by G.R. Putnam of the U.S. Coast & Geodetic Survey in 1899. It was originally settled by a Yup'ik shaman named Anguksuar and his family. A Catholic mission school was built near the village. A post office was established in 1946. The school was relocated to St. Mary's in 1948. Many families moved from the old school site to Alakanuk. It incorporated as a second-class city in 1969.

Alakanuk receives power from the power plant in Emmonak via an electric intertie, including renewable energy from four wind turbines located in Emmonak.

Date Energized: 12/18/1971

Population in 1970: 265

Population in 2018: 706

Standby Generating Capacity: 800kW

Caterpillar C27, 800kW



Alakanuk's new standby module.

AMBLER

Ambler is named after Dr. James M. Ambler, a U.S. Navy surgeon on the *USS Jeannette*, who perished in 1881 in the Lena River Delta while with the Arctic expedition under the command of Lt. Cmdr. G.W. DeLong (1879-1880). Ambler was permanently settled in 1958 when people from Shungnak and Kobuk moved upstream because of the variety of fish, wild game and spruce trees in the area. An archaeological site is located nearby at Onion Portage. A post office was established in 1963. The city was incorporated in 1971.



Date Energized: 02/01/1977

Population in 1970: 169

Population in 2018: 284

Generating Capacity: 1,031kW

Cummins K19G2 1200, 271kW

Cummins K19G2 1800, 397kW

Detroit Diesel S60K4c 1800, 363kW

Average Load in 2017: 149kW

Peak Load in 2017: 317kW



The Ambler power plant.

ANDREAFSKY

By 1899, the village had become a supply depot and winter quarters for the Northern Commercial Company's riverboat fleet. The village was named for the Andrea family, which settled here, and was originally called Clear River. The family built a Russian Orthodox church. A Catholic mission was established nearby in 1949. A number of Yup'ik families moved to the area in the 1950s. The area adjacent to the mission became the incorporated city of St. Mary's in 1967, although Andreafsky chose to remain independent. In 1980, residents of Andreafsky voted for annexation into the city.



Andreafsky receives power from the St. Mary's power plant via an electric intertie.

Date Energized: 12/28/1969

Population in 2018: 93



The annual Andreafski Sled Dog Race.

ANVIK

Anvik has historically been an Ingalik Indian village. It has been known as American Station, Anvic, Anvick, Anvig, Anvig Station and Anwig. The Russian Glazanov reported it as having 100 people in 1834. Originally, it was on other side of the river to the northeast, at a place called The Point. Residents gradually moved across the river with the establishment of an Episcopal mission and school in 1887. A post office opened in 1897. After the flu epidemic of 1918-19 and another in 1927, many orphans became wards of the mission. Some children came from as far away as Fort Yukon. Stern-wheelers carried supplies to the village in the early 1920s. Some residents had contracts to cut wood for the stern-wheeler's fuel, and fish and furs were sold to traders. The early 1930s brought the first arrival of a plane on skis. The city was incorporated in 1969.



Date Energized: 11/06/1970

Population in 1970: 83

Population in 2018: 85

Generating Capacity: 503kW

Caterpillar 3304, 128kW

Cummins LTA10 1200, 168kW

Detroit Diesel S60D3 1200, 207kW

Average Load in 2017: 46kW

Peak Load in 2017: 109kW



Anvik's power plant.

BETHEL

Bethel was first established by Yup'ik Eskimos, who called the village Mumtrekhlogamute, meaning "Smokehouse People," named for the nearby fish smokehouse. There were 41 people in Bethel during the 1880 U.S. Census. At that time, it was an Alaska Commercial Company Trading Post. The Moravian Church established a mission in the area in 1884. The community was moved to its present location due to erosion at the prior site. A post office was opened in 1905. Before long, Bethel served as a trading, transportation and distribution center for the region, which attracted Natives from surrounding villages. The city was incorporated in 1957. Over time, federal and state agencies established regional offices in Bethel.



Bethel provides power to Oscarville and Napakiak via an electric intertie.

Date Energized: May 2014

Population in 1970: 2,416

Population in 2018: 6,151

Generating Capacity: 14,220kW

EMD 16-645-E4B, 2,220kW

EMD 16-645-E4B, 2,220kW

EMD 16-645-E4B, 2,220kW

EMD 16-645-E4B, 2,220kW

EMD 16-645-E4B, 2,220kW

EMD 16-645-E4B, 2,220kW

(1) Emergya Wind Technologies 900-52,
900kW (wind)

Average Load in 2017: 4,800kW

Peak Load in 2017: 7,300kW



A new wind turbine goes up in Bethel.

BREVIK MISSION

The Kauwerak Eskimos in this area lived in migratory communities in pursuit of hunting and fishing grounds, and traded furs with Siberia, Little Diomed and King Island. They formed alliances with Wales, Little Diomed and others for protection. The Teller Reindeer Station opened near this site in 1892. It was operated by the U.S. government until 1900. Norwegian Reverend Tollef L. Brevig, a pioneer Lutheran missionary, began serving the reindeer station on August 1, 1894, as pastor and teacher to the Laplanders and Eskimos.



Rev. Brevig traveled between villages by dog team along the beach and often performed services in Nome. A Lutheran mission was constructed at the present site in 1900, and the village became known as Teller Mission. The mission was given 100 reindeer on a five-year loan from the government. By 1906, the government's role had diminished, and the mission became dominant. In 1963, the Brevig Mission post office was established. The city was incorporated in 1969. Reindeer were the economic base of this community until 1974, but the industry has since declined.

Date Energized: 06/01/1993

Population in 1970: 123

Population in 2018: 425

Generating Capacity: 1,104kW

Caterpillar 3456, 505kW

Detroit Diesel S60K4 1200, 236kW

Detroit Diesel S60K4 1800, 363kW

Average Load in 2017: 136kW

Peak Load in 2017: 263kW



Brevik Mission's new power plant.

CHEVAK

Eskimos have inhabited the region for thousands of years. The current location is also known as New Chevak, because residents inhabited another village called Chevak before 1950. “Old” Chevak, on the north bank of the Keoklevik River, 9 miles east of Hooper Bay, was abandoned because of flooding from high storm tides. The name Chevak refers to “a connecting slough” on which Old Chevak was situated.

The new site was first reported by the U.S. Coast and Geodetic Survey in 1948. A post office was established in 1951. The city government was incorporated in 1967.



Date Energized: 04/11/1971

Population in 1970: 387

Population in 2018: 1,033

Generating Capacity: 2,228kW

Caterpillar 3456, 505kW

Cummins QSK23 G7, 824kW

Cummins QSX15 G9, 499kW

(4) Northern Power Systems 100B-21, 400kW (wind)

Average Load in 2017: 293kW

Peak Load in 2017: 530kW



Chevak's new power plant, bulk fuel tank farm and wind turbines.



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EEK

The village was originally located on the Apokok River. It moved to its present location in the 1930s when constant flooding and erosion forced a relocation. A Bureau of Indian Affairs school and a Moravian church were constructed at the new site. A post office was established in 1949. The city was incorporated in 1970.



Date Energized: 02/14/1971

Population in 1970: 186

Population in 2018: 353

Generating Capacity: 962kW

Detroit Diesel S60 1800, 363kW

Detroit Diesel S60 1800, 363kW

Detroit Diesel S60K4 1200, 236kW

Average Load in 2017: 105kW

Peak Load in 2017: 210kW



Eek's power plant.

EKWOK

Ekwok means “end of the bluff,” and is the oldest continuously occupied Yup’ik Eskimo village on the river. During the 1800s, the settlement was used in the spring and summer as a fish camp and in the fall as a base for berry picking. By 1923 it was the largest settlement along the river. In 1930, a Bureau of Indian Affairs school was built. Mail was delivered by dog sled from Dillingham until a post office opened in Ekwok in 1941. Many of the earliest homes in Ekwok were located in a low, flat area near the riverbank. After a severe flood in the early 1960s, villagers relocated to the current location on higher ground. The city was incorporated in 1974.



Ekwok receives power from New Stuyahok via an electric intertie.

Date Energized: 08/01/2011

Population in 1970: 103

Population in 2018: 98

Standby Generating Capacity: 344kW

John Deere 6O81HF070, 220kW

Perkins PKXL05-9YH1, 124kW



Ekwok's power plant.

ELIM

This settlement was formerly the Malemiut Inupiat Eskimo village of Nuviakchak. The Native culture was well-developed and well-adapted to the environment. Each tribe possessed a well-defined subsistence harvest territory. The area became a federal reindeer reserve in 1911. In 1914, the Rev. L.E. Ost founded a Covenant mission and school called Elim Mission Roadhouse. The city was incorporated in 1970. When the Alaska Native Claims Settlement Act was passed in 1971, Elim decided not to participate and instead opted for title to the 298,000 acres of land in the former Elim Reserve. The Iditarod Sled Dog Race passes through Elim each year.



Date Energized: 03/01/1971

Population in 1970: 174

Population in 2018: 369

Generating Capacity: 1,105kW

Detroit Diesel S60K4 1200, 236kW

Detroit Diesel S60K4 1800, 363kW

MTU 8V2000, 506kW

Average Load in 2017: 147kW

Peak Load in 2017: 264kW



Elim's new power plant.

EMMONAK

The village was originally called Kwiguk, a Yup'ik word meaning "big stream." Villagers call themselves "Kuigpagmuit" or "people from the Yukon River." It has also been called "Emanguk" by the Census Bureau. The original settlement was first reported by the U.S. Coast and Geodetic Survey in 1899. A post office was established there in 1920. Later, commercial fishing became a major industry in the village. The Northern Commercial Company built a cannery. In 1964, the cannery was washed away by floods. That same year, the city government was incorporated. Due to increasing flooding and erosion, the village was relocated 1.4 miles north of Kwiguk in 1964-65. The new location was renamed Emmonak, which means "blackfish."



Emmonak provides power to Alakanuk via an electric intertie.

Date Energized: 09/02/1970

Population in 1970: 439

Population in 2018: 845

Generating Capacity: 3,623kW

Caterpillar 3456, 505kW

Caterpillar 3456, 505kW

Caterpillar 3512, 908kW

Caterpillar 3516, 1,305kW

(4) Northern Power Systems 100B-21, 400kW (wind)

Average Load in 2017: 653kW

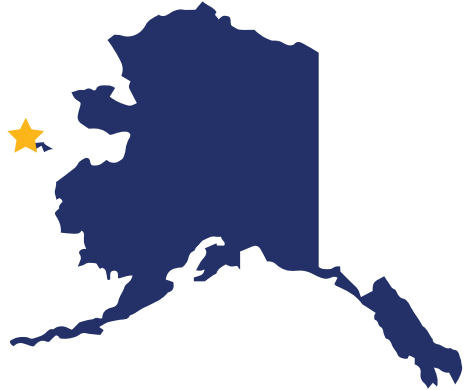
Peak Load in 2017: 1,040kW



The Emmonak intertie to Alakanuk.

GAMBELL

St. Lawrence Island has been inhabited intermittently for the past 2,000 years by Yup'ik Eskimos. In the 18th and 19th centuries, more than 4,000 people inhabited the island in 35 villages. Sivuqaq is the Yup'ik name for the village and for the island. The city was renamed for Mr. and Mrs. Vene C. Gambell, missionaries to the town. A tragic famine between 1878 and 1880 decimated the population. In 1900, reindeer were introduced to the island for local use. In 1903 President Theodore Roosevelt established a reindeer reservation. During the 1930s, some residents moved to Savoonga to establish a permanent settlement there. The city was incorporated in 1963. When the Alaska Native Claims Settlement Act was passed in 1971, Gambell and Savoonga decided not to participate and instead opted for title to the 1.136 million acres of land in the former St. Lawrence Island Reserve. The island is jointly owned by Savoonga and Gambell.



Date Energized: 02/15/1971

Population in 1970: 372

Population in 2018: 714

Generating Capacity: 2,008kW

Cummins QSX15 G9, 499kW

Cummins QSX15 G9, 499kW

MTU 12V2000, 710kW

(3) Northern Power Systems 100A-19, 300kW (wind)

Average Load in 2017: 222kW

Peak Load in 2017: 375kW



Gambell's power plant buried by snow.

GOODNEWS BAY

The community of Goodnews Bay is on the north shore of Goodnews Bay at the mouth of the Goodnews River. Yup'ik Eskimos called this village Mumtraq. It was moved to its present location due to constant flooding and storms at the old site. Shortly thereafter, in the 1930s, a government school and post office were built. The city was incorporated in 1970. A high school was built in 1979.



Date Energized: 12/02/1971

Population in 2018: 277

Generating Capacity: 661kW

Allis Chalmers 685I, 175kW

Cummins LTA10 1800, 250kW

Detroit Diesel S60K4 1200, 236kW

Average Load in 2017: 83kW

Peak Load in 2017: 170kW



Goodnews Bay's power plant.

GRAYLING

In 1900, the U.S. Revenue steamer *Nunivak* reported 75 inhabitants, a store and a large woodyard to supply steamers. Between 1962 and 1966, 25 families moved from Holikachuk on the Innoko River to Grayling. Holikachuk was prone to annual spring flooding, and low water levels made the return trip from Yukon fish camps each year difficult. The city government was incorporated in 1969. Since 1977, the Athabaskan village has seen a surge of interest on odd-numbered years, when it is the site of a checkpoint during the Iditarod Trail Sled Dog Race. It is situated after the checkpoint at Anvik and before Eagle Island.



Date Energized: 11/13/1969

Population in 1970: 139

Population in 2018: 185

Generating Capacity: 607kW

Cummins LTA10 1200, 168kW

Cummins LTA10 1800, 203kW

Detroit Diesel S60K4c 1200, 236kW

Average Load in 2017: 71kW

Peak Load in 2017: 139kW



Many of AVEC's members still live a subsistence lifestyle and catch fish year-round.



Snow covers the power plant yard in Grayling.

HOLY CROSS



Holy Cross first had contact with Europeans in the early 1840s, when Russian explorers led by Lt. Lavrenty Zagoskin traveled the Yukon River. They reported on Anilukhtapak, which had 170 people. In 1880, the village was reported as Askhomute with 30 residents. A Catholic mission and school were established in the 1880s by Father Aloysius Robaut, who came to Alaska across the Chilkoot Trail. Ingaliiks migrated to Holy Cross to be near the mission and school. A post office was opened in 1899 under the name Koserefsky. In 1912, the name of the town was changed to Holy Cross after the mission. In the 1930s and '40s, stern-wheelers brought the mail and supplies two or three times a year. The course of the river changed during the 1930s. By the mid-1940s, the slough on which the village is now located was formed. The mission church and many additional buildings were torn down after the boarding school ceased operations in 1956. The city government was incorporated in 1968.

Date Energized: 02/05/1971

Population in 1970: 199

Population in 2018: 167

Generating Capacity: 693kW

Cummins LTA10 1800, 250kW

Detroit Diesel S60 1800, 236kW

Detroit Diesel S60D3 1200, 207kW

Average Load in 2017: 72kW

Peak Load in 2017: 154kW



Holy Cross's new engine.

HOOPER BAY

Askinuk or Askinaghamiut are the early Eskimo names for Hooper Bay. The village was first reported in 1878 by E.W. Nelson of the U.S. Signal Service. The 1890 Census found 138 persons living in 14 homes.

The city is separated into two sections—a heavily built-up townsite located on gently rolling hills and a newer section in the lowlands. The name Hooper Bay came into common use after a post office with this

name was established in 1934. The present-day Eskimo name Naparyarmiut is derived from the Napareayak slough. Thus, the Yupik village name Naparyarmiut means residents of Hooper Bay. The city government was incorporated in 1966.



Date Energized: 12/12/1968

Population in 1970: 490

Population in 2018: 1,243

Generating Capacity: 2,729kW

Caterpillar 3412 1200, 350kW

Caterpillar 3456, 505kW

Cummins K38G2 1800, 824kW

Cummins QST30, 750kW

(3) Northern Power Systems 100A-20, 300kW (wind)

Average Load in 2017: 393kW

Peak Load in 2017: 687kW



Hooper Bay's wind turbines and cemetery.

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HUSLIA



The Koyukon Athabascans lived between the south fork of the Koyukuk River and the Kateel River. They had spring, summer, fall and winter camps, and moved as the wild game migrated. In the summer, many families floated on a raft to the Yukon to fish for salmon. The Koyukon often traded with the Kobuk River Eskimos. By 1843, Russian explorers had made contact with Athabascans approximately 50 miles

downriver from the current site. The Western Union Telegraph Company explored the river around 1867. Missionary activity increased after 1870. Cutoff Trading Post—also called Old Town—was established in the 1920s about 4 miles overland or 16 river miles from modern Huslia. In 1949, the community moved to the present site because Cutoff flooded frequently, and the ground was swampy. Huslia—originally spelled Huslee—was named after a local stream. Huslia had been used as a burial site since 1886. By the time of the move, most of the old cemetery had been destroyed by erosion. In 1950, the first school was established, followed by a post office, airport and road construction in 1952. At this time, families began to live year-round at Huslia. In 1960, a health clinic was constructed. In 1963, 29 individual hand-pumped water wells were installed. The city government was incorporated in 1969. Running water and indoor plumbing arrived in 1974.

Date Energized: 11/22/1969

Population in 1970: 159

Population in 2018: 293

Generating Capacity: 800kW

Cummins LTA10 1800, 250kW

Detroit Diesel S60D3 1800, 314kW

Detroit Diesel S60K4 1200, 236kW

Average Load in 2017: 124kW

Peak Load in 2017: 267kW



Huslia's power plant.

KALTAG



Kaltag is in Koyukon Athabascan territory and was used as a cemetery for surrounding villages. It was located on an old portage trail that led east through the mountains to Unalakleet. The Athabascans had spring, summer, fall and winter camps, and moved as the wild game migrated. There were 12 summer fish camps on the Yukon River between the Koyukuk River and the Nowitna River. The village was named

by Russians for the Yukons called Kaltaga. A smallpox epidemic—the first of several major epidemics—struck the Koyukon in 1839. A military telegraph line was built along the north side of the Yukon around 1867. Missionary activity was intense along the Yukon. A Roman Catholic mission and school opened upriver in Nulato in 1887. The number of steamboats on the Yukon—which supplied gold prospectors—peaked in 1900 with 46. During 1900, food shortages and a measles epidemic struck down one-third of the Native population. Kaltag was established shortly thereafter, when survivors from three nearby seasonal villages moved to the area to regroup. A post office opened in 1903, but closed in 1904. Gold seekers left the mid-Yukon after 1906, but other mining activity—such as the Galena lead mines—began operating in 1919. As a downriver village on a major transportation route, Kaltag witnessed rapid economic change. The post office reopened in 1909 and operated until 1920. Kaltag's first school opened in 1925. The post office reopened in 1933. The old cemetery—which was located on Front Street—caved into the river around 1937. A watering point, airport and clinic were built during the 1960s. The city government was incorporated in 1969.

Date Energized: 11/23/1972

Population in 1970: 206

Population in 2018: 161

Generating Capacity: 845kW

Detroit Diesel S60K4 1200, 236kW

Detroit Diesel S60K4 1200, 236kW

Detroit Diesel S60K4 1800, 363kW

Solar Array, 10kW

Average Load in 2017: 80kW

Peak Load in 2017: 211kW



Kaltag's new power plant and bulk fuel tank farm.

KASIGLUK

Kasigluk is along the Johnson River in the Yukon–Kuskokwim Delta of western Alaska. It is approximately 20 miles northwest of Bethel. It is an Eskimo village listed as one of the Tundra Villages in the 1939 U.S. Census, with a population of 66. Kasigluk first appeared on the 1940 U.S. Census as an unincorporated Native village named Kaseglok. In 1950 and 1960, it appeared as Kasiglook. In 1969, Kasigluk and the nearby village of Nunapitchuk merged to form the city of Akolmiut. It incorporated as a city in 1982, but was dissolved October 21, 1996, in favor of the traditional village council. A post office was established in 1962.



Kasigluk provides power to Nunapitchuk via an electric intertie, including renewable energy generated by three wind turbines.

Date Energized: 02/28/1969

Population in 2018: 631

Generating Capacity: 1,878kW

Caterpillar 3456, 505kW

Detroit Diesel S60K4 1800, 363kW

MTU 12V2000, 710kW

(3) Northern Power Systems 100A-20, 300kW (wind)

Average Load in 2017: 347kW

Peak Load in 2017: 638kW



An aerial view of the power plant and wind generators in Kasigluk.

KIANA



Katyaag means “a place where rivers meet.”

It was established several centuries ago as the central village of the Kobuk River Kowagmiut Inupiat Eskimos. Before Kiana became a village, the Inupiat Eskimos tended to travel with certain animal herds, constantly hunting for meat and furs. The Inupiat lived in sod houses, and did not live in them twice, because they would move to where the animals were. When someone died inside the house they abandoned it, believing they would catch a contagious disease. Instead of building coffins or digging graves, the villagers wrapped the bodies of the deceased in cloths and put poles in the cloth to make a teepee shape. In 1909, Kiana became a supply center for the Squirrel River placer mines. A post office was established in 1915. The city government was incorporated in 1964. Prior to the formation of the Northwest Arctic Borough in 1976, the Bureau of Indian Affairs High School taught students from Noatak, Shugnak, Kobuk and Ambler, who boarded with local residents.

Date Energized: 01/12/1970

Population in 1970: 278

Population in 2018: 417

Generating Capacity: 1,173kW

Cummins K19G2 1200, 350kW

Cummins K19G4 1800, 499kW

Detroit Diesel S60K4c 1800, 324kW

Average Load in 2017: 184kW

Peak Load in 2017: 401kW



Digging out the Kiana power plant from a deep snow.

KIVALINA



Kivalina has long been a stopping-off place for seasonal travelers between Arctic coastal areas and Kotzebue Sound communities. It is the only village in the Northwest Arctic Borough region where people hunt bowhead whales. At one time, the village was located at the north end of the Kivalina Lagoon. However, when the Bureau of Indian Affairs came to build a new school in 1905, they built the school

on the camp site island, which is now called Kivalina. It was reported as Kivualinagmut in 1847 by Lt. Lavrenty Zagoskin of the Russian Navy. Lt. G.M. Stoney of the U.S. Navy reported the village as Kuveleek in 1885. A post office was established in 1940. An airstrip was built in 1960 using metal mattings. Kivalina incorporated as a city in 1969. During the 1970s, new houses, a new school and an electric system were constructed in the village. Prior to 1976, high school students from Noatak would attend school in Kivalina and board with local families. In 1911, a discussion took place about relocating Kivalina to another site. Relocation was put to a vote again in 1953, but the majority voted to remain on the current site. It came to a vote again in 2000. The majority voted to relocate due to severe erosion and wind-driven ice damage. The public voted by election to move to a new site called Kinikturaq, 2.5 miles away. Those plans fell through when several representatives from outside entities went to the site and deemed it inadequate for a relocation site.

In 2011, the school district and representatives met with local officials to discuss the new school for Kivalina. They had until 2016 to construct the school. A site was selected based on the recommendations of the planners because of the time frame. An election was held in January 2012 to make the site official. Plans began for constructing an evacuation road leading to the new site, Kisimigiqtuq, 7 miles North of Kivalina. Construction of the road is still in progress.

Date Energized: 08/08/1971

Population in 1970: 188

Population in 2018: 417

Generating Capacity: 1,179kW

Caterpillar D353, 337kW

Cummins LTA10 1800, 250kW

Detroit Diesel S60D3 1200, 229kW

Detroit Diesel S60K4 1800, 363kW

Average Load in 2017: 151kW

Peak Load in 2017: 278kW



A lineworker in Kivalina drags his tools to work on a sled.

KOBUK



Kobuk was founded in 1899 as a supply point for mining activities in the Cosmos Hills to the north. It was then called Shungnak. A trading post, school and Friends mission drew area residents to the settlement. Due to river erosion and flooding, the village was relocated in the 1920s to a new site 10 miles downstream called Kochuk, now called Shungnak. The few who remained at the village renamed

it Kobuk. Ice jams on the river cause high water each year. In May 1973, a flood covered the entire village. In October 1973, the city was incorporated. The economy of Kobuk is based on subsistence hunting for caribou and moose.

Kobuk receives power from Shungnak via an electric intertie.

Date Energized: 01/01/2013

Population in 1970: 54

Population in 2018: 145

Standby Generating Capacity: 171kW

Caterpillar C9, 171kW



A Kobuk sunset.

KOTLIK

The community grew during the mid-1960s when a Bureau of Indian Affairs school was constructed at Kotlik, and residents of the nearby villages of Channiliut, Hamilton, Bill Moore's Slough and Pastolaik relocated. Kotlik is located on the east bank of the Kotlik Slough, 35 miles northeast of Emmonak in the Yukon-Kuskokwim Delta. Due to its location, with easy access by large riverboats and barges, Kotlik became one of the larger ports and commercial centers of the lower Yukon River. Many residents are descendants of Russian traders who settled in the area surrounding St. Michael after 1867. The city was incorporated in 1970.



Date Energized: 09/01/2007

Population in 1970: 228

Population in 2018: 640

Generating Capacity: 1,698kW

Cummins K19G2 1200, 350kW

Cummins K19G2 1200, 350kW

Cummins K19G4 1800, 499kW

Cummins K19G4 1800, 499kW

Average Load in 2017: 222kW

Peak Load in 2017: 396kW



A power pole is towed upriver to Kotlik.

KOYUK

The site of Iyatayet on Cape Denbigh to the south has traces of human habitation that are 6,000 to 8,000 years old. Villagers were historically nomadic. Lt. Lavrenty Zagoskin of the Russian Navy noted the village of Kuykhak-miut here in 1842-44. A Western Union Telegraph expedition in 1865 found the village of Konyukmute. Around 1900, the present townsite—where supplies could easily be lightered to shore—began to be populated. Two boomtowns grew up in the Koyuk region around 1914—Dime Landing and Haycock. The Norton Bay Station, 40 miles upriver, was established to supply miners and residents in 1915. In addition to gold, coal was mined a mile upriver to supply steam ships and for export to Nome. The first school began in the church in 1915. The U.S. government built a school in Koyuk in 1928. The city was incorporated in 1970. The village is located on the northern bank of the Koyuk River where it drains into Norton Bay.



Date Energized: 11/22/1970

Population in 1970: 122

Population in 2018: 342

Generating Capacity: 1,098kW

Cummins QSX15 G9, 499kW

Detroit Diesel S60K4 1200, 236kW

Detroit Diesel S60K4 1800, 363kW

Average Load in 2017: 151kW

Peak Load in 2017: 292kW



An AVEC barge approaches Koyuk to make a fuel delivery.

LOWER KALSKAG

The site was originally used as a fish camp for families from Kalskag, 2 miles to the northeast. In 1930, people began to establish year-round homes. The Russian Orthodox residents of Upper Kalskag, a predominantly Roman Catholic village, moved to Lower Kalskag in the 1930s because of religious differences. The Russian Orthodox chapel of St. Seraphim was built in 1940. A school was built in 1959, followed by a post office in 1962, a sawmill in 1965 and a power plant in 1969. A new church was built in the late 1970s. The city of Lower Kalskag was incorporated in 1969. Lower Kalskag—referred to by the locals as Lower—is linked to Upper Kalskag (Upper) by a 2-mile maintained gravel/dirt road. Lower Kalskag is accessible only by small plane, boat and vehicles via the river ice road (winter only).



Lower Kalskag receives power from Upper Kalskag via an electric tieline.

Date Energized: 9/22/1970

Population in 1970: 183

Population in 2018: 275



The retired Lower Kalskag power plant.

MARSHALL

An expedition came upon an Eskimo village called Uglovaia at this site in 1880. Gold was discovered on nearby Wilson Creek in 1913. Fortuna Ledge became a placer mining camp, named after the first child born at the camp, Fortuna Hunter. Its location on a channel of the Yukon River was convenient for riverboat landings. A post office was established in 1915. The population grew to more than 1,000. Later, the village was named for Thomas Riley Marshall, vice president of the United States under Woodrow Wilson from 1913-21.



The community became known as Marshall's Landing. When the village incorporated as a second-class city in 1970, it was named Fortuna Ledge, but was commonly referred to as Marshall. The name was officially changed to Marshall in 1984.

Date Energized: 02/07/1971

Population in 1970: 175

Population in 2018: 449

Generating Capacity: 1,104kW

Caterpillar 3456, 505kW

Detroit Diesel S60K4 1800, 363kW

Detroit Diesel S60K4c 1200, 236kW

Average Load in 2017: 151kW

Peak Load in 2017: 292kW



Marshall's Detroit Diesel Series 60.

MEKORYUK

Nunivak Island has been inhabited for 2,000 years by the Nuniwarmiut people, who are Cup'ik (Choop'ik) Eskimos. The first non-native contact was in 1821 by the Russian-American Company, which recorded 400 people living in 16 villages on the island. A summer camp called Koot was noted at the current site of Mekoryuk in 1874. In 1891, Ivan Petroff found 702 Cup'iks in nine villages, including 117 people at Koot. An epidemic in 1900 decimated the population, leaving only four surviving families in the village.



In the 1930s, the Evangelical Covenant Church was built by a Native missionary, followed by a Bureau of Indian Affairs school in 1939. People moved to the village from other areas of the island to be near the school. Reindeer were introduced for commercial purposes in 1920 by an Eskimo-Russian trader. The operation was purchased by BIA in the 1940s. A slaughterhouse was built in 1945. Thirty-four musk-ox from Greenland were transferred to the island in 1934 in an effort to save the species from extinction. Today, the musk-ox herd numbers around 500, and calves from this herd have been relocated and introduced to other areas of Alaska. A post office was opened in 1940. In the 1940s, the women lived in semi-subterranean sod houses and the men stayed at one or more “kasigi,” men’s community houses. Traditional ceremonies and religious beliefs were still practiced. The 1950s and ‘60s brought considerable change. An airstrip was built in 1957, and the Territorial Guard was formed. Men went to Fort Richardson in Anchorage for training. By this time, Mekoryuk was the only permanent community on the island. During this time, many families moved to Bethel to be near the high school, returning during late spring for fishing and sea mammal hunting. The city was incorporated in 1969.

Date Energized: 12/10/1970

Population in 1970: 249

Population in 2018: 208

Generating Capacity: 1,049kW

Cummins LTA10 1800, 250kW

Detroit Diesel S60K4c 1200, 236kW

Detroit Diesel S60K4c 1800, 363kW

(2) Northern Power Systems 100A-20,
200kW (wind)

Average Load in 2017: 104kW

Peak Load in 2017: 293kW



Mekoryuk crews renovate the power plant by removing rust and adding new paint.

MINTO

Minto is in the western-most portion of traditional Tanana Athabascan territory. During the late 1800s, some members of the Minto band traveled to Tanana, Rampart and Fort Yukon to trade furs for manufactured goods, tea and flour. With the discovery of gold north of Fairbanks in 1902, steamboats began to navigate the Tanana River, bringing goods and new residents into the area. Old Minto became

a permanent settlement when some members of the Minto band built log cabins there, on the bank of the Tanana River. Other families lived in tents on a seasonal basis. A Bureau of Indian Affairs school was established in 1937, but most families still did not live in Minto year-round until the 1950s. The Minto band was eventually joined by families from Nenana, Toklat, Crossjacket and Chena. In 1969, the village was relocated to its present location, 40 miles north of the old site, due to repeated flooding and erosion. The present site had been used as a fall and winter camp since the early 1900s. New housing and a new school were completed by 1971.



Date Energized: 08/18/1971

Population in 1970: 168

Population in 2018: 201

Generating Capacity: 647kW

Cummins LTA10 1200, 168kW

Cummins LTA10 1800, 250kW

Detroit Diesel S60D3 1200, 229kW

Average Load in 2017: 72kW

Peak Load in 2017: 160kW



Minto gets streetlights.

MOUNTAIN VILLAGE

Located on the Yukon River near the Yukon-Kuskokwim Delta, Mountain Village was a summer fish camp until the opening of a general store in 1908. This prompted residents of Liberty Landing and Johnny's Place to immigrate. A Covenant Church missionary school was built that same year. A post office was established in 1923, followed by a salmon saltery in 1956 and a cannery in 1964. All three have since ceased operating. The city government was incorporated in 1967. Mountain Village became a regional education center in 1976 when it was selected as headquarters for the Lower Yukon School District.



A new electric intertie is being built between St. Mary's and Mountain Village. Plans call for a new prime power plant to be built in St. Mary's, with a standby generating module built in Mountain Village. After these projects are funded, constructed and commissioned, Mountain Village will receive power from St. Mary's, including renewable energy from the new Emergya Wind Technologies 900-52 wind turbine installed in St. Mary's.

Date Energized: 08/30/1970

Population in 1970: 419

Population in 2018: 811

Generating Capacity: 2,315kW

Caterpillar 3412 1200, 350kW

Caterpillar 3456, 505kW

Cummins QST30, 750kW

MTU 12V2000, 710kW

Average Load in 2017: 314kW

Peak Load in 2017: 517kW



The Mountain Village power plant.



Fifteen snow machines are hitched to an engine and generator to transport it more than a mile over frozen and snow-covered tundra.

NEW STUYAHOK

The present location is the third site villagers can remember. The village moved downriver to the Mulchatna area from the Old Village in 1918. During the 1920s and '30s, the village was engaged in herding reindeer for the U.S. government. However, by 1942, the herd had dwindled to nothing, the village had been subjected to flooding, and the site was too far inland to receive barge service. In 1942, the village moved downriver again to its present location. Stuyahok appropriately means “going downriver place.” The first school was built in 1961. A post office was also established that year. An airstrip was built soon thereafter. During the 1960s, village population increased by 40 percent. The city was incorporated in 1972.



New Stuyahok provides power to Ekwok via an electric intertie.

Date Energized: 12/14/1972

Population in 1970: 216

Population in 2018: 504

Generating Capacity: 1,367kW

Caterpillar 3456, 505kW

Cummins QSX15 G9, 499kW

Detroit Diesel S60K4c 1800, 363kW

Average Load in 2017: 197kW

Peak Load in 2017: 358kW



New Stuyahok power plant renovation.

NIGHTMUTE

Nightmute is on Nelson Island near Toksook Bay. The two villages connect by snowmachine trail in winter. Nelson Island has been inhabited by the Qaluyaarmiut—dip net people—for 2,000 years. The area is relatively isolated from outside contact and has kept its traditions and culture. Umkumiut is the traditional fish camp. In 1964, several residents moved to Toksook Bay to obtain more cost-effective goods. The city was incorporated in 1974.

Nightmute receives power from Toksook Bay via an intertie, including renewable energy from four Northwind 100kW wind turbines.



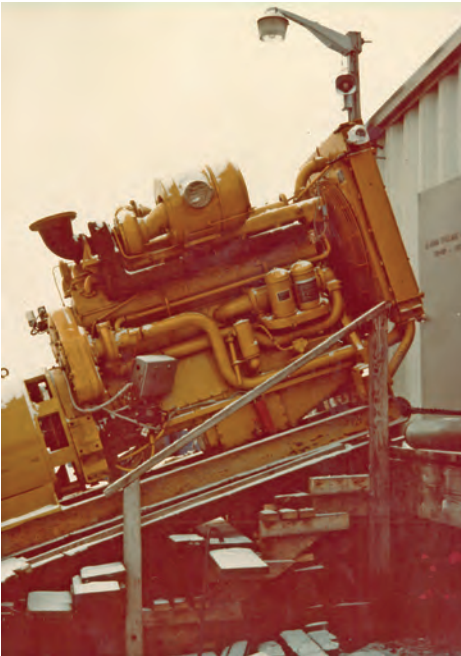
Date Energized: 07/01/1998

Population in 1970: 127

Population in 2018: 282

Standby Generating Capacity: 344kW

Detroit Diesel S60K4 1800, 344kW



A Nightmute power pole stands out at sunset.

Left, back in the early days, engines were hauled into the power plants using chains and come-alongs. Today some engines are still moved using this old-school method, but cranes are more commonly used for bigger projects.

NOATAK



Noatak was established as a fishing and hunting camp in the 19th century. Two identifiable groups of Inupiat live on the Noatak River. The rich resources of this region enabled the camp to develop into a permanent settlement. The 1880 census listed the site as Noatagamut, which means “inland river people.” Noatak village lies near the western boundary of the 6.6-million acre Noatak National Preserve. It is the only settlement on the 400-plus-mile long Noatak River. A post office was established in 1940.

Date Energized: 12/20/1971

Population in 1970: 293

Population in 2018: 580

Generating Capacity: 1,268kW

Caterpillar 3456, 455kW

Cummins QSX15 G9, 499kW

Detroit Diesel S60D3 1800, 314kW

Average Load in 2017: 212kW

Peak Load in 2017: 417kW



An aerial view of Noatak.

NOORVIK

Noorvik means “a place that is moved to” and is located on the right bank of the Nazuruk Channel of the Kobuk River, 47 miles east of Kotzebue. The village was established by Kowagmuit Inupiat Eskimo fishermen and hunters from Deering in the early 1900s. The village was also settled by people from Oksik, a few miles upriver. A post office was established in 1937. The city government was incorporated in 1964.



Date Energized: 01/01/1970

Population in 1970: 462

Population in 2018: 669

Generating Capacity: 1,595kW

Cummins K19G4 1800, 499kW

Detroit Diesel S60K4c 1800, 363kW

MTU 12V2000, 710kW

Solar Array, 23kW

Average Load in 2017: 222kW

Peak Load in 2017: 442kW



An aerial view of Noorvik.

NULATO



The Koyukon Athabascans traditionally had spring, summer, fall and winter camps, and moved as wild game migrated. There were 12 summer fish camps located on the Yukon river between the Koyukuk and Nowitna Rivers. Nulato was the trading site between Athabascans and Inupiat Eskimos from the Kobuk area. Western contact increased rapidly after the 1830s. The Russian explorer Mikhail Malakov established a trading post at Nulato in 1839. A smallpox epidemic—the first of several major epidemics—struck the region in 1839. Disputes over local trade may have been partly responsible for the Nulato massacre of 1851, in which Koyukuk River Natives decimated a large portion of the Nulato Native population. The Western Union Telegraph Company explored the area around 1867. Nulato was a center of missionary activity. Many area Natives moved to the village after a Roman Catholic mission and school, Our Lady of Snows Mission, was completed in 1887. Epidemics took heavy tolls on Native lives after the onset of the Yukon and Koyukuk gold rush in 1884. Food shortages and a measles epidemic combined to kill as much as one-third of the Nulato population during 1900.

In 1900, steamboat traffic peaked, with 46 boats in operation. Through the turn of the century, two steamers a day stopped at Nulato to buy firewood. A post office was opened in 1897. Gold seekers left the Yukon after 1906. Lead mining began in the Galena area in 1919. Nulato incorporated as a city in 1963. A clinic, water supply, new school and telephone and television services were developed through the 1970s. In 1981, large-scale housing development began at a new townsite on the hills north of the city, about 2 miles from the old townsite.

Date Energized: 09/17/1968

Population in 1970: 308

Population in 2018: 239

Generating Capacity: 989kW

Cummins K19G2 1800, 397kW

Detroit Diesel S60D3 1200, 229kW

Detroit Diesel S60K4c 1800, 363kW

Average Load in 2017: 118kW

Peak Load in 2017: 208kW



The Nulato power plant.

NUNAPITCHUK



Nunapitchuk is an Eskimo village first listed in the 1939 U.S. Census with a population of 121. The community was incorporated as a second-class city in 1969. During the 1970 U.S. Census, Nunapitchuk and the nearby villages of Atmautluak and Kasigluk were enumerated as Akolmiut. Nunapitchuk is part of the Yukon-Kuskokwim Delta and, as such, sits on swampy tundra. There are no roads to or within Nunapitchuk. Buildings are connected by a network of boardwalks. The village is accessible by small aircraft, boats and hovercraft, as weather permits.

Nunapitchuk receives power from Kasigluk through an electric intertie, including renewable energy generated by Northwind 100kW wind turbines.

Date Energized: 1/28/1969

Population in 1970: 526

Population in 2018: 622

Standby Generating Capacity: 484kW

Cummins K19G4 1800, 484kW



Nunapitchuk's standby generator.

OLD HARBOR



The area around Old Harbor is thought to have been inhabited for nearly 2,000 years. The area was visited by the Russian Grigori Shelikov and his *Three Saints* flagship in 1784. On August 14, 1784, Grigory Shelikhov with 130 Russian fur traders massacred several hundred Qik’rtarmiut Sugpiat tribe of Alutiiq men, women and children at Refuge Rock—a tiny stack island off the eastern coast of Sitkalidak Island. In Alutiiq, this sacred place is known as Awa’uq (to become numb). Three Saints Bay became the first Russian colony in Alaska. In 1788, a tsunami destroyed the settlement. Two more earthquakes struck before 1792. In 1793, the town relocated from the northeast coast to St. Paul’s, now known as Kodiak. A settlement was re-established at Three Saints Harbor in 1884. The town was recorded as Staruigavan, meaning “old harbor” in Russian. The present-day Natives are Alutiiq (Russian-Aleuts).

The Old Harbor post office was opened in 1931. In 1964, the Good Friday Earthquake and resulting tsunami destroyed the community. Only two homes and the church remained standing. The community was rebuilt at the same location. The city government was incorporated in 1966.

Date Energized: 10/17/1968

Population in 1970: 290

Population in 2018: 214

Generating Capacity: 706kW

Caterpillar 3306DI, 235kW

Caterpillar 3306DI, 235kW

Detroit Diesel S60K4 1200, 236kW

Average Load in 2017: 98kW

Peak Load in 2017: 171kW



The Old Harbor bulk fuel tank farm.

OSCARVILLE

In 1908, Oscar Samuelson and his wife, a Yup'ik from the Nushagak region, moved from Napaskiak across the river and opened a trading post. A few Native families settled nearby and the site came to be known as Oscarville. Samuelson managed the store for 45 years, until his death in 1953. By 1955, there were 13 homes and two warehouses in the village. The Samuelson family continued to operate the store until 1975, when it was sold. It closed in the early 1980s. A school was built by the Bureau of Indian Affairs in 1964.



Oscarville receives power from Bethel via an electric intertie.

Population in 1970: 41

Population in 2018: 60



Oscarville in the foreground and Napaskiak in the background.

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PILOT STATION

The village was first called Ankachak and was later moved one-third of a mile upriver to a site called Potiliuk. The old village site of Kurgpallermuit is located nearby. This village is a designated historic place. It was occupied during the bow-and-arrow wars between the Yukon and Coastal Eskimos. According to locals, the Chevak and Pilot Station people periodically fought when the coastal people traveled up the Kashunak River.



A Russian Orthodox church was built in the early 1900s and is one of the oldest structures in the region. R.H. Sargent of the U.S. Geological Survey first noted the village name of Pilot Station in 1916. Local riverboat pilots who used the village as a checkpoint were responsible for this name change. The community incorporated as a second-class city in 1969.

Date Energized: 12/13/1970

Population in 1970: 290

Population in 2018: 651

Generating Capacity: 1,220kW

Cummins K19G2 1800, 397kW

Cummins QSX, 499kW

Detroit Diesel S60K4c 1800, 324kW

Average Load in 2017: 230kW

Peak Load in 2017: 452kW



The Pilot Station power plant.

PITKAS POINT

Eskimos who first settled there called it Nigiklik, a Yup'ik word meaning “to the north.” It was first reported in 1898 by the U.S. Geological Survey. The village was later renamed for a trader who opened a general store that was a branch of Northern Commercial Company.

Pitkas Point receives power from St. Mary's via an electric intertie.



Population in 1970: 70

Population in 2018: 131



The Pitka's Point spring cleanup.

QUINHAGAK

The Yup'ik name is Kuinerraq, meaning "new river channel." Quinhagak is a long-established village whose origin has been dated to 1,000 A.D. It was the first village on the Lower Kuskokwim to have sustained contact with Europeans. Gavril Sarichev reported the village on a map in 1826. After the purchase of Alaska in 1867, the Alaska Commercial Company sent annual supply ships to Quinhagak with goods for Kuskokwim River trading posts. Supplies were lightered to shore from the ship and stored in a building on Warehouse Creek. A Moravian mission was built in 1893. There were many non-Natives in the village at that time, most waiting for boats to go upriver. In 1904, a mission store opened, followed by a post office in 1905 and a school in 1909. Between 1906 and 1909, more than 2,000 reindeer were brought to the Quinhagak area. They were managed for a time by the Native-owned Kuskokwim Reindeer Company, but the herd had scattered by the 1950s. In 1915, the Kuskokwim River was charted, so goods were barged directly upriver to Bethel.

In 1928, the first electric plant opened. The first mail plane arrived in 1934. The city was incorporated in 1975.



Date Energized: 12/15/1970

Population in 1970: 340

Population in 2018: 734

Generating Capacity: 1,512kW

Cummins K19G2 1200, 350kW

Cummins K19G4 1800, 499kW

Detroit Diesel S60K4c 1800, 363kW

(3) Northern Power Systems 100B-23.6,
300kW (wind)

Average Load in 2017: 257kW

Peak Load in 2017: 548kW



Quinhagak's three wind turbines.

RUSSIAN MISSION

The first Russian-American Company fur trading post on the Yukon River was established here in 1837. The settlement was recorded in 1842 as an Eskimo village called Ikogmiut, meaning “people of the point,” by the Russian explorer Zagoskin. The first Russian Orthodox mission in Interior Alaska was established here in 1857 by the Russian-Aleut priest Jacob Netzuetov. The mission was called Pokrovsкая Mission. The village name was changed to Russian Mission in 1900. It was often confused with a village on the Kuskokwim that was also called Russian Mission, but was renamed Chuathbaluk. The city was incorporated in 1970.



Date Energized: 03/01/1985

Population in 1970: 146

Population in 2018: 331

Generating Capacity: 842kW

Cummins LTA10 1800, 250kW

Detroit Diesel S60K4c 1200, 229kW

Detroit Diesel S60K4c 1800, 363kW

Average Load in 2017: 114kW

Peak Load in 2017: 235kW



The Russian Mission power plant.

ST. MARY'S



In 1899, Andreafsky was established as a supply depot and winter headquarters for the Northern Commercial Company's riverboat fleet. The village took its name from the Andrea family, which settled on the river and built a Russian Orthodox church. In 1903, Jesuit missionaries set up a mission 90 miles downriver at Akulurak to educate and care for children orphaned by the flu epidemic of 1900-'01. Akulurak means "in between place," aptly describing the village, which was on an island in a slough connecting two arms of the Yukon River.

The mission school flourished. By 1915 there were 70 full-time students. Through the years, the slough surrounding Akulurak silted in severely. In 1948, the villagers decided to move to higher ground. Materials from an abandoned hotel built during the gold rush were used to build the new mission and several village homes at the present site. In 1949, an unused 15-foot-by-30-foot building and other building materials from Galena Air Force Station were barged to St. Mary's by Father Spills, a Jesuit priest. These materials—along with a tractor borrowed from Holy Cross—were used to build a school.

During the 1950s, a number of Yup'ik families moved into the Andreafsky area, a short distance from the mission. Dormitories and a large house for the Jesuits were built during the 1960s. In 1967, the area adjacent to the mission incorporated as the city of St. Mary's, although Andreafsky chose to remain independent. In 1980, the residents of Andreafsky voted for annexation into the city. In 1987, the Catholic church closed the mission school.

St. Mary's provides power to Andreafsky and Pitka's Point via an intertie. A new intertie is being built between St. Mary's and Mountain Village. Once funding is received, a new power plant and bulk fuel tank farm will be built in St. Mary's.

Date Energized: 12/28/1969

Population in 1970: 384

Population in 2018: 566

Generating Capacity: 2,918kW

Caterpillar 3508, 611kW

Caterpillar 3512, 908kW

Cummins QSX15 G9, 499kW

(1) Emergya Wind Technologies 900-52,
900kW (wind)

Average Load in 2017: 348kW

Peak Load in 2017: 606kW



St. Mary's EWT 900 wind turbine.

ST. MICHAEL

A fortified trading post called Redoubt St. Michael was built by the Russian-American Company at this location in 1833. It was the northernmost Russian settlement in Alaska.

The Native village of Tachik stood to the northeast. When the Russians left Alaska in 1867, several of the post's traders remained.

Fort St. Michael, a U.S. military post, was established in 1897. During the gold rush of 1897, it was a major gateway to the interior via the Yukon River. As many as 10,000 people were said to live in St. Michael

during the gold rush. St. Michael was also a

popular trading post for Eskimos to trade their goods for Western supplies. Centralization of many Yup'iks from the surrounding villages intensified after the measles epidemic of 1900 and the influenza epidemic of 1918. The village remained an important trans-shipment point until the Alaska Railroad was built. The city government was incorporated in 1969.

St. Michael receives electric power from Stebbins via an intertie.



Date Energized: 02/19/1970

Population in 1970: 207

Population in 2018: 389

Standby Generating Capacity: 710kW

MTU 12V2000, 710kW



St. Michael's standby generating module.

SAVOONGA

St. Lawrence Island has been inhabited intermittently for the past 2,000 years by Yup'ik Eskimos. The island had numerous villages with a total population of around 4,000 by the 19th century. A tragic famine occurred on the island between 1878 and 1880, severely reducing the population. In 1900, a herd of reindeer was moved to the island. By 1917, the herd had grown to more than 10,000 animals. A reindeer camp was established in 1916 at the present village site, where grazing lands were better and the herd tended to remain. Good hunting and trapping in the area attracted more residents. A post office was established in 1934. The city was incorporated in 1969. When the Alaska Native Claims Settlement Act was passed in 1971, Gambell and Savoonga decided not to participate and instead opted for title to the 1.136 million acres of land in the former St. Lawrence Island Reserve. The island is jointly owned by Savoonga and Gambell.



Date Energized: 07/16/1971

Population in 1970: 364

Population in 2018: 758

Generating Capacity: 1,886kW

Cummins QSK23 G1, 824kW

Cummins QSX15 G9, 499kW

Detroit Diesel S60K4 1800, 363kW

(2) Northern Power Systems 100A-20, 200kW (wind)

Average Load in 2017: 264kW

Peak Load in 2017: 439kW



Savoonga's original power plant and bulk fuel tank farm.

SCAMMON BAY

Known in Eskimo as Maraayaq, and its residents were called Maraayarmiut. The nearby bay was named after Captain Charles Scammon, who served as the marine chief of the Western Union Telegraph Expedition from 1856 to 1867. The name came into use when the Scammon Bay Post Office was established in 1951. The city government was incorporated in 1967.



Date Energized: 07/15/1971

Population in 1970: 166

Population in 2018: 573

Generating Capacity: 1,212kW

Cummins K19G2 1200, 350kW

Cummins QSX15 G9, 499kW

Detroit Diesel S60K4 1800, 363kW

Average Load in 2017: 193kW

Peak Load in 2017: 376kW



Building the foundation for Scammon Bay's power plant.

SELAWIK

Lt. Lavrenty Zagoskin of the Imperial Russian Navy first reported the village in the 1840s as Chilivik. Ivan Petroff counted 100 Selawigamute people in his 1880 census. Selawik is an Eskimo name for a species of fish. Around 1908, the site had a small wooden schoolhouse and church. The village has continued to grow and has expanded across the Selawik River onto three banks, linked by bridges. Selawik is located near the Selawik National Wildlife Refuge—a breeding and resting area for migratory waterfowl. Selawik incorporated as a first-class city in 1974, but in 1977 changed to a second-class city government.



Date Energized: 03/18/1970

Population in 1970: 429

Population in 2018: 861

Generating Capacity: 1,762kW

Cummins K38G4 1800, 900kW

Cummins QSX15 G9, 499kW

Detroit Diesel S60, 363kW

Average Load in 2017: 324kW

Peak Load in 2017: 669kW



Selawik's new power plant, bulk fuel tank farm and wind turbines during a blizzard.

SHAGELUK

Shageluk is an Ingalik Indian village first reported as Tie'goschitno in 1850 by Russian Navy Lt. Lavrenty Zagoskin. In 1861, a historian for the Russian-American Company reported six villages on the Innoko. These were collectively called the Chageluk settlements during the 1880 Census. Shageluk became one of the permanent communities in the area. A post office was established in 1924. Residents of Shageluk moved in 1966 from a flood-prone location to a higher site 2 miles southeast. The Bureau of Indian Affairs built 20 homes and a school at the new site. The city was incorporated in 1970.



Date Energized: 04/14/1971

Population in 1970: 167

Population in 2018: 74

Generating Capacity: 418kW

Cummins 6BTA5.9-G1, 100kW

Cummins LTA10 1200, 150kW

Cummins LTA10 1200, 168kW

Average Load in 2017: 48kW

Peak Load in 2017: 90kW



Shageluk's new engine.

SHAKTOOLIK

Shaktoolik was the first and southernmost Malemiut settlement on Norton Sound, occupied as early as 1839. Twelve miles northeast, on Cape Denbigh, is Iyatayet—a site that is 6,000 to 8,000 years old. Reindeer herds were managed in the Shaktoolik area around 1905. The village was originally located 6 miles up the Shaktoolik River. It moved to the mouth of the river in 1933. This site was prone to severe storms and winds, so the village relocated to its present, more sheltered, location in 1967. The city was incorporated in 1969.



Date Energized: 01/24/1971

Population in 1970: 151

Population in 2018: 278

Generating Capacity: 1000kW

Cummins LTA10 1800, 250kW

Detroit Diesel S60D3 1800, 314kW

Detroit Diesel S60K4c 1200, 236kW

(2) Northern Power Systems 100B-21, 200kW (wind)

Average Load in 2017: 122kW

Peak Load in 2017: 290kW



An aerial view from the top of a Shaktoolik wind turbine.



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SHISHMAREF



The original Inuit name for the island of Shishmaref was Kigiktaq. In 1816, Lt. Otto Von Kotzebue named the inlet Shishmaref, after a member of his crew. Excavations at Keekiktuk by archaeologists around 1821 provided evidence of Inuit habitation from several centuries ago. Shishmaref has an excellent harbor. Around 1900, it became a supply center for gold mining activities to the south. The village was named after the inlet. A post office was established in 1901. The city government was incorporated in 1969. During October 1997, a severe storm eroded more than 30 feet of the north shore, requiring 14 homes and the National Guard Armory to be relocated. Five additional homes were relocated in 2002. Storms have continued to erode the shoreline an average of three to five feet a year on the north shore. In July 2002, residents voted to relocate the community.

Date Energized: 10/14/1970

Population in 1970: 267

Population in 2018: 561

Generating Capacity: 1,609kW

Caterpillar D353, 350kW

Cummins K19G2 1800, 397kW

Cummins QSX15 G9, 499kW

Detroit Diesel S60K4c 1800, 363kW

Average Load in 2017: 189kW

Peak Load in 2017: 336kW



Shishmaref's bulk fuel tank farm.

SHUNGNAK



Founded in 1899 as a supply point for mining activities in the Cosmos Hills, this Inupiat Eskimo village was forced to move in the 1920s because of river erosion and flooding. The old site, 10 miles upstream, was renamed Kobuk by those who remained there. The new village was named Kochuk, but later reverted to Shungnak. This name is derived from the Eskimo word Issingnak, which means jade—a stone found extensively throughout the surrounding hills. The city government was incorporated in 1967.

Shungnak provides power to Kobuk via an electric intertie.

Date Energized: 9/28/1971

Population in 1970: 165

Population in 2018: 291

Generating Capacity: 1,258kW

Caterpillar 3406B, 335kW

Cummins K19G2 1800, 397kW

Detroit Diesel S60K4c 1800, 324kW

John Deere 6619AF, 202kW

Average Load in 2017: 184kW

Peak Load in 2017: 344kW



Shungnak's power plant.

STEBBINS

Redoubt St. Michael was built at nearby St. Michael by the Russian-American Company in 1833. The Eskimo village of Atroik or Atowak was recorded north of here in 1898 by the U.S. Coast and Geodetic Survey. The Yup'ik name for the village is Tapraq. The name Stebbins was first recorded in 1900. The first U.S. Census occurred in 1950, indicating 80 Yup'ik Eskimos. The city government was incorporated in 1969.



Stebbins provides power to St. Michael via an electric intertie.

Date Energized: 03/19/1970

Population in 1970: 231

Population in 2018: 645

Generating Capacity: 2,020kW

Caterpillar 3456, 505kW

Caterpillar 3456, 505kW

Caterpillar 3456, 505kW

Caterpillar 3456, 505kW

Average Load in 2017: 397kW

Peak Load in 2017: 682kW



The Stebbins power plant and bulk fuel tank farm.

TELLER

The Eskimo fishing camp called Nook was reported 20 miles south of Teller in 1827. A Western Union Telegraph expedition wintered at the present site in 1866 and 1867. It was then called Libbyville or Libby Station. The Teller Reindeer Station was operated by the U.S. government at a nearby site from 1892 to 1900. The station was named in 1892 by Sheldon Jackson for U.S. Senator and Secretary of the Interior Henry Moore Teller. Teller Mission—a Norwegian Evangelical Lutheran mission—was built in 1900 across the harbor at the current site of Brevig Mission. It was renamed Brevig Mission in 1903 after the Rev. T.L. Brevig. Present-day Teller was also established in 1900 after the Bluestone Placer Mine discovery 15 miles to the south.



During these boom years, Teller had a population of about 5,000 and was a major regional trading center, attracting Natives from Diomedede, Wales, Mary's Igloo and King Island. In May 1926, bad weather caused the dirigible *Norge* to detour to Teller on its first flight over the North Pole from Norway to Nome. A city was formed in 1963.

Date Energized: 01/01/2005

Population in 1970: 220

Population in 2018: 251

Generating Capacity: 708kW

Detroit Diesel S60 1200, 236kW

Detroit Diesel S60 1200, 236kW

Detroit Diesel S60 1200, 236kW

Average Load in 2017: 95kW

Peak Load in 2017: 199kW



Teller's power plant.



Traditional blanket toss.

TOGIAK

In 1880, Old Togiak, or Togiagamute, was located across the bay and had a population of 276. Heavy winter snowfalls made wood gathering difficult at Old Togiak, so gradually people settled at a new site on the opposite shore, where the task was easier. Many residents of the Yukon-Kuskokwim region migrated south to the Togiak area after the devastating influenza epidemic in 1918-'19. A school was established in an old church in 1950. A school building and a National Guard Armory were constructed in 1959. Togiak was flooded in 1964. Many fish racks and stores of gas, fuel oil and stove oil were destroyed. Three or four households left Togiak after the flood and developed the village of Twin Hills upriver. The city government was incorporated in 1969.



Date Energized: 03/09/1970

Population in 1970: 383

Population in 2018: 870

Generating Capacity: 2,697kW

Caterpillar 3456, 455kW

Caterpillar 3456, 570kW

Caterpillar 3456, 570kW

Caterpillar 3512, 1,102kW

Average Load in 2017: 351kW

Peak Load in 2017: 699kW



Togiak's power plant and bulk fuel tank farm.



Richard Nanuk and Clarence Smith install underground wiring.

TOKSOOK BAY

The area has been inhabited and used by Yup'iks for thousands of years. Toksook Bay was established in 1964 along the Tuqsuk River by residents of Nightmute. Cyril Chanar, Tom Sunny and Nasgauq Tangkaq were the earliest inhabitants. Toksook Bay was settled to be more accessible to the annual freighter ship, the *North Star*. The city was incorporated in 1972.



Toksook Bay provides power, including renewable energy, to Tununak and Nightmute via an electric intertie.

Date Energized: 08/02/1970

Population in 1970: 257

Population in 2018: 673

Generating Capacity: 2,018kW

Cummins QSX15 G9, 499kW

Detroit Diesel S60K4 1800, 363kW

MTU 12V2000, 756kW

(4) Northern Power Systems 100A-20, 400kW (wind)

Average Load in 2017: 411kW

Peak Load in 2017: 716kW



AVEC's crew is retensioning lines on the Toksook Bay to Tununak intertie.

TUNUNAK

In 1878, Nelson Island was named after Edward Nelson, a Smithsonian naturalist who noted six people, including one non-Native trader, living in Tununak. In 1889, the Jesuits opened a small chapel and school. They found the villagers difficult to convert due to the migratory nature of their traditional culture and because the shamans were still quite powerful. The mission closed in 1892.



In 1925, a government school was built. A Northern Commercial Company store was opened in 1929. From 1934 to 1962, a missionary named Father Deshout lived on Nelson Island. His long-standing relationship and work with the people in the area had a great influence. The 1950s brought great changes to the islanders' lifestyle through their involvement with the Territorial Guard and work in fish canneries, high schools and health care treatment for tuberculosis. For many, this was their first exposure outside the community. By the 1970s, snowmachines replaced dog-sled teams, and the last qasgiq—men's community houses—was abandoned. The city was incorporated in 1975, but was dissolved February 28, 1997, in favor of traditional council governance.

Tununak receives power, including renewable energy, from Toksook Bay via an intertie.

Date Energized: 08/01/1970

Population in 1970: 274

Population in 2018: 362

Standby Generating Capacity: 344kW



A crew works on the intertie between Toksook Bay and Tununak.

UPPER KALSKAG

In 1898, Nicholas Kameroff Sr., Olinga (Avakumoff) Kameroff and their eight children first settled the community. The village was a fish camp known as Kessiglik. Around 1900, residents of Kalthagamute began to move to the village. In 1930, the Bureau of Indian Affairs established a government school. By 1932, residents of neighboring communities had relocated to Kalskag. In 1940, Paul Kameroff Sr. established a general store, post office, coffee shop and barging company. The community owned and worked a herd of 2,100 reindeer. During the 1930s, Russian Orthodox practitioners in the village relocated to establish Lower Kalskag 3 miles to the southwest. The villagers who remained were primarily Roman Catholic practitioners. The city was incorporated in 1975.



Upper Kalskag provides power to Lower Kalskag via an electric intertie.

Date Energized: 09/22/1970

Population in 1970: 122

Population in 2018: 235

Generating Capacity: 1,098kW

Cummins QSX15 G9, 499kW

Detroit Diesel S60K4 1200, 236kW

Detroit Diesel S60K4 1800, 363kW

Average Load in 2017: 177kW

Peak Load in 2017: 132kW



The Upper Kalskag power plant.

WALES



A burial mound of the Birnirk culture (500 A.D. to 900 A.D.) was discovered near Wales and is now a national landmark.

In 1827, the Russian Navy reported the Eskimo villages of Eidamoo near the coast and King-a-ghe further inland.

In 1890, the American Missionary Association established a mission here. In 1894, a reindeer station was organized. A post office was established in 1902.

Wales became a major whaling center due to its location along migratory routes. It was the region's largest and most prosperous village, with more than 500 residents. The influenza epidemic in 1918-19 claimed the lives of many of Wales' finest whalers. The city government was incorporated in 1964.

Date Energized: 11/7/1972

Population in 1970: 131

Population in 2018: 178

Generating Capacity: 572kW

Cummins LTA10 1200, 168kW

Cummins LTA10, 168kW

Detroit Diesel S60K4 1200, 236kW

Average Load in 2017: 74kW

Peak Load in 2017: 132kW



Deep snow covers the Wales power plant.

YAKUTAT

Yakutat has a diverse cultural history. The original settlers are believed to have been Eyak-speaking people from the Copper River area who were conquered by the Tlingits. Yakutat means “the place where the canoes rest.”

In the 18th and 19th centuries, English, French, Spanish and Russian explorers came to the region. Fur traders were attracted to the region’s sea otters. The Russian-

American Company built a fort in Yakutat in 1805 to harvest sea otter pelts. Because the Russians would not allow local Tlingits access to their traditional fisheries, a Tlingit war party attacked and destroyed the post. In 1884, the Alaska Commercial Company opened a store in Yakutat. By 1886, the black sand beaches in the area were being mined for gold.

In 1889 the Swedish Free Mission Church had opened a school and sawmill in the area. A cannery, sawmill, store and railroad were built beginning in 1903 by the Stimson Lumber Company. Most residents moved to the current site of Yakutat to be closer to the cannery, which operated through 1970.

During World War II, a large aviation garrison and paved runway were built. Troops were withdrawn after the war, but the runway is still in use. The city of Yakutat was formed in 1948, but in 1992 the city was dissolved and a borough was organized for the region.



Date Energized: 06/01/2017

Population in 1970: 190

Population in 2018: 552

Generating Capacity: 4,160kW

Caterpillar 3508 BDITA, 600kW

Caterpillar 3512 BDITA, 990kW

Caterpillar 3516 BDITA, 1,285kW

Caterpillar 3516, 1,285kW

Average Load in 2017: 410kW

Peak Load in 2017: 1,499kW



The Yakutat power plant.

CONGRATULATIONS

50

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AVEC Timeline

- 1967** > AVEC incorporated.
- 1968** > First general manager hired. Leo Rhodes, April 1968 to June 1970.
 - > Determination made to build underground distribution systems.
 - > Nulato, Hooper Bay, Old Harbor energized.
 - > Two REA loans executed (\$3 million).
 - > Inflation in 1968 to 1977 averaged 6.2 percent annually.
- 1969** > Nine villages added: Angoon, Grayling, Huslia, Kasigluk, Nunapitchuk, St. Mary's, Andreafsky, Lower Kalskag, Pitkas Point.
- 1970** > 17 villages added: Anvik, Emmonak, Kiana, Koyuk, Mekoryuk, Mountain Village, Noorvik, Pilot Station, Quinhagak, St. Michael, Selawik, Shishmaref, Stebbins, Togiak, Toksook Bay, Tununak and Upper Kalskag.
 - > Second general manager hired. Loyd Hodson, September 1970 to January 1992.
- 1971** > 16 villages added: Alakanuk, Chevak, Eek, Elim, Gambell, Goodnews Bay, Holy Cross, Kivalina, Marshall, Minto, Noatak, Savoonga, Scammon Bay, Shageluk, Shaktoolik and Shungnak.
 - > First year of positive margins.
 - > Determination made to construct above-ground distribution systems.
 - > Fourth REA loan executed (\$1.2 million).
 - > Developed BIA school contracts to guarantee revenue.
 - > Co-started rural newsletter Village Voice.
- 1972** > Three villages added: Kaltag, New Stuyahok and Wales.
 - > Fuel costs rose due to oil embargo.
 - > Helped launch a village telephone system.
- 1973** > Scammon Bay power plant destroyed by fire.
 - > Major increase in fuel cost.
 - > Underground distribution systems failing.
 - > School growth required capacity increases.
 - > Environmental regulations caused cost increases.
- 1974** > Inflation up to 9 percent.
 - > Power plant fires in St. Mary's and Noorvik.
 - > Renegotiated school contracts bring in higher revenue for operations.
- 1975** > Adopted pre-fab modular power plant system.
 - > Schools account for 25 percent of gross revenue.
 - > Barge capsized with modular power plants for Ambler and Noorvik.

1976	<ul style="list-style-type: none"> ➤ Started converting underground to overhead distribution. ➤ Built and occupied new headquarters building at 4831 Eagle St. ➤ Transferred Point Hope to North Slope Borough.
1977	<ul style="list-style-type: none"> ➤ Added Ambler. ➤ Holy Cross power plant destroyed by fire. ➤ Transferred Angoon to THREA. ➤ Started Power Plant Operator of the Year recognition. ➤ Regional school districts formed; BIA minimum contracts disappear.
1978	<ul style="list-style-type: none"> ➤ First major rate case approved by APUC. ➤ Collections are ongoing problem.
1979	<ul style="list-style-type: none"> ➤ Fuel costs double. ➤ Collaboration with statewide association launches commercial self-insurance program.
1980	<ul style="list-style-type: none"> ➤ Power Production Cost Assistance came into effect, lowering energy costs to residential and public facilities.
1981	<ul style="list-style-type: none"> ➤ Power Cost Assistance program developed.
1982	<ul style="list-style-type: none"> ➤ Gross revenues cross the \$10 million mark and consumers pass 4,000. ➤ Overall fuel efficiency improved by a substantial amount, offsetting some price increases.
1983	<ul style="list-style-type: none"> ➤ Seventh year with no rate increase.
1984	<ul style="list-style-type: none"> ➤ Power Cost Equalization Program replaced PCA. ➤ Regional plant operator training implemented.
1985	<ul style="list-style-type: none"> ➤ Added Russian Mission. ➤ Gambell power plant destroyed by fire.
1986	<ul style="list-style-type: none"> ➤ Membership grew to more than 5,000. ➤ Approved policy to make contribution to city retirement plans for power plant operators.
1988	<ul style="list-style-type: none"> ➤ Ratification of IBEW contract covering Operations and Maintenance personnel.
1989	<ul style="list-style-type: none"> ➤ Overall fuel efficiency exceeds 10kWh sold per gallon of diesel fuel used.
1991	<ul style="list-style-type: none"> ➤ Kemppe, Huffman and Ginder selected as AVEC general counsel .
1992	<ul style="list-style-type: none"> ➤ Switched from in-house production of Lightlines newsletter to Ruralite magazine.
1994	<ul style="list-style-type: none"> ➤ Board approved proceeding with development of village-based rates.

1996	<ul style="list-style-type: none"> ➤ Restructured electric rates to track the cost of providing services for various classes of consumers.
1997	<ul style="list-style-type: none"> ➤ Added Nightmute. ➤ Membership voted to remove AVEC from economic regulation by the APUC.
1999	<ul style="list-style-type: none"> ➤ PCE Endowment Fund created by the Legislature.
2000	<ul style="list-style-type: none"> ➤ O&M employees voted out of the IBEW union. ➤ Joint project with Kotzebue Electric to develop wind project in Wales.
2001	<ul style="list-style-type: none"> ➤ Became a Denali Commission partner. ➤ Changed PPO recognition program to Top 10 PPOs of the year instead of just one.
2002	<ul style="list-style-type: none"> ➤ Developed plant operator training stipend. ➤ Adopted investment policy; hired external manager to handle portion of investments.
2003	<ul style="list-style-type: none"> ➤ RUS mortgage note No. 1 for \$1.5 million paid in full. ➤ Four wind turbines installed in Selawik (260kW)
2004	<ul style="list-style-type: none"> ➤ Distributed checks totaling \$550,000 to past operators in lieu of retirement benefits, pro-rated based on length of service.
2005	<ul style="list-style-type: none"> ➤ Added Teller. ➤ Three wind turbines installed in Kasigluk (300kW), with tie line to Nunapitchuk. ➤ AMR pilot project implemented in five communities: Wales, Teller, Old Harbor, Nunapitchuk and Kasigluk. ➤ Won 2005 AMR Project of the Year by Utility Automation and Engineering T&D magazine.
2006	<ul style="list-style-type: none"> ➤ Three wind turbines installed in Toksook Bay (300kW). ➤ Tununak and Nightmute power plants shut down; tie lines built to Toksook Bay.
2007	<ul style="list-style-type: none"> ➤ Added Kotlik.
2008	<ul style="list-style-type: none"> ➤ Three wind turbines installed in Hooper Bay (300kW). ➤ Two wind turbines installed in Savoonga (200kW). ➤ Won 2007 Wind Cooperative of the Year award from U.S. DOE's Wind Power America program. ➤ Crude oil reached all-time high of \$147 a barrel. ➤ Alaska Renewable Energy Fund program established with \$100 million.
2009	<ul style="list-style-type: none"> ➤ Three wind turbines installed in Gambell (300kW). ➤ Started installing electronic meters in all communities. ➤ AVEC average fuel cost reaches high of \$4.45 a gallon, creating rate shock. ➤ Denali Commission grant funding begins steep decline, limiting capital projects.

2010	<ul style="list-style-type: none"> ➤ Four wind turbines installed in Chevak (400kW). ➤ Two wind turbines installed in Mekoryuk (200kW). ➤ Three wind turbines installed in Quinhagak (300kW). ➤ Fourth wind turbine installed in Toksook Bay (400kW). ➤ Rate decrease of 2 cents per kWh implemented. ➤ Board authorized construction of two tug-and-barge sets to lower the delivered cost of fuel. ➤ AVEC contracts with Vitus Marine to operate vessels and add competition to fuel delivery.
2011	<ul style="list-style-type: none"> ➤ Two wind turbines installed in Shaktoolik (200kW). ➤ Four wind turbines installed in Alakanuk/Emmonak (400kW), with tie line. ➤ Added Ekwok. ➤ New tug-and-barge sets arrive in Alaska. ➤ Major remodel and expansion of headquarters building completed.
2012	<ul style="list-style-type: none"> ➤ Added Kobuk. ➤ Developed the All Alaska Energy Project concept (Alaska Grid) and sought seed funding. ➤ Tug-and-barge sets in operation for entire fuel season; reduced fuel transportation cost by about 20 cents/gallon.
2013	<ul style="list-style-type: none"> ➤ Installed heat recovery projects in collaboration with ANTHC to save on heating costs for villages and provide revenue for AVEC.
2014	<ul style="list-style-type: none"> ➤ Added Bethel and Oscarville. ➤ Approved a tariff change to establish a renewable energy surcharge and lower the installation cost for streetlights, restricting new installations to LED.
2015	<ul style="list-style-type: none"> ➤ AVEC membership voted to transfer the board of director elections from the delegates to the 8,000-plus members. ➤ Fire damaged Emmonak's generation and control module. ➤ Fire damaged one of Mekoryuk's wind turbines.
2016	<ul style="list-style-type: none"> ➤ AVEC achieves diesel efficiency of 13.5 kWh sold per gallon of diesel. ➤ Line losses are at 4.5 percent, amongst the lowest in the U.S.
2017	<ul style="list-style-type: none"> ➤ Added Yakutat; now have 58 villages.
2018	<ul style="list-style-type: none"> ➤ Installed 900kW wind turbine in Bethel . ➤ Installed 900kW wind turbine in St. Mary's . ➤ Longtime general manager Loyd Hodson passed away in February. ➤ AVEC Celebrated 50 years of providing power to rural Alaska.

Congratulations AVEC on your 50th Anniversary!





Alaska Village Electric Cooperative President and CEO Meera Kohler watches as one of AVEC's two tug-and-barge sets head out on their first full season of delivering fuel to AVEC communities after being blessed and christened. The photo symbolizes the end of a bold, major project and represents the start of a dream to reduce ever-increasing fuel costs and maintain competition in the western Alaska fuel market.