

2016

**ALASKA VILLAGE
ELECTRIC COOPERATIVE
ANNUAL REPORT**



LETTER TO THE MEMBERSHIP

April 5, 2017

To our AVEC membership:

During 2016, AVEC lost two of its dedicated managers within six months of each other. Steve Gilbert, our Manager of Project Development and Key Accounts, passed away unexpectedly in early April. He had served the AVEC membership since 2012 and was respected across the state and the nation for his leadership in energy innovation. In August Mark Bryan, our Operations Manager and an employee since 1980, also passed away. During his 36 years of service, Mark visited every one of our communities numerous times and had thousands of friends within and without AVEC. These two valued leaders and colleagues are missed deeply.

2016 was a good year financially for AVEC, with Bethel having now been a member community for more than two and a half years. During 2016 we sold about 113 million kWh, almost exactly the same as in 2015. The cost of fuel purchased in 2016 averaged \$2.56 in our village communities and \$3.03 in Bethel, almost 70 cents a gallon lower than 2015 overall. Wind once again accounted for four percent of overall generation and the turbines have saved \$9,100,000 in fuel since 2006.

In late 2016, Oscarville residents were welcomed as members of AVEC. For many years, Oscarville had received electricity from Bethel as a wholesale customer but because the community had not established their own electric utility, they were unable to qualify for PCE. The community upgraded their electric services to meet AVEC requirements and were able to be directly served by AVEC once that was accomplished. We welcome Oscarville, our 57th community!

The addition of Bethel resulted in significant changes to the financial statements that made it very difficult to compare prior years. Now that we have had two full years of Bethel operations, we believe we have more precise year-to-year financial comparisons.

Total revenue in 2016 was \$49,491,009. This was almost \$9 million less than 2015's \$58,642,290 and was almost entirely attributable to the lower cost of fuel, which is a direct pass-through to consumers. Expenses totaled \$48,211,093, resulting in an operating margin or profit of \$1,280,005. Operating margins will be allocated to the membership during 2017.

Earnings on our cash investments as well as patronage capital from affiliated organizations resulted in total margins of \$2,543,517 for the year. Our positive cash position resulted in the Board of Directors approving a refund of \$1,750,000 of patronage capital to the membership, which was distributed in December 2016.

Our two tug and barge sets continue to perform admirably, delivering most of AVEC's fuel to our non-Bethel communities. The operator, Vitus Marine, also delivered fuel to other buyers in AVEC and non-AVEC communities in addition to a large amount of equipment and other deck cargo. Using our own vessels and Vitus Marine for delivery of our fuel continues to result in cost savings of well over \$500,000 each year. Those savings are reflected in lower fuel cost charges on the electric bill.

During 2016, approximately \$16 million was added to total utility plant, with \$12.4 million of that being paid for by grants. \$1.1 million was retired from service. \$16.1 million was spent on grant-funded plant and we received about \$8.3 million in new grant funds from the Denali Commission, U.S. Department of Energy and the State of Alaska. \$27.8 million in grant funds from these granting agencies and the Rural Utilities Service are available to be spent on approved energy projects for which the funds were obtained.

PCE has been fully funded for the current fiscal year and is included in the operating budget for full funding in the next fiscal year. PCE funding is designated to come out of the PCE Endowment Fund, so it has not been subject to the widespread budget-cutting that is currently underway in Juneau.

A top priority for AVEC continues to be the pursuit of feasibility funding for the All Alaska Energy Project, also known as the Alaska Grid. This project incorporates very large-scale gas-fired generation located at the North Slope, with a High Voltage Direct Current (HVDC) transmission system delivering that power across the state of Alaska. We continue to pursue this project.

We also continue to seek funding from the Legislature for a comprehensive statewide contaminated site assessment and clean-up program, but the severe downturn in the Alaskan economy as a result of low oil prices has dampened our expectations for funding at any level.

In 2015, the AVEC membership voted overwhelmingly to transfer the director election from the hands of the delegates to those of the 8,000+ members. As a result, ballots were sent to all members of record in February and ballots were returned through April 4th. We do not yet know the results of the vote but will be publishing them on our website as soon as they are available.



Robert Beans, Chairman of the Board



Meera Kohler, President and CEO

Front cover photo credit: Jimmie Lincoln of Toksook Bay took this photo of Carl Lincoln walking with his daughter Gillian Alikar.

REPORT TO THE MEMBERSHIP

SCHOLARSHIPS

AVEC's Board of Directors awarded scholarships totaling \$14,000. Corilyn Adams received the Ted Stevens Memorial Scholarship in the amount of \$5,000. Madison Attla, Nellie Jones, Matthew DeBilt, Regina Therchik, Ashley Johnson, Danielle Lowrey and Joseph Bifelt received scholarships worth \$1,000 and Raisa Gust, Andre Simon, Nellie Okpowruk and Kaylyn Riley were each awarded \$500.

CAPITAL CREDITS

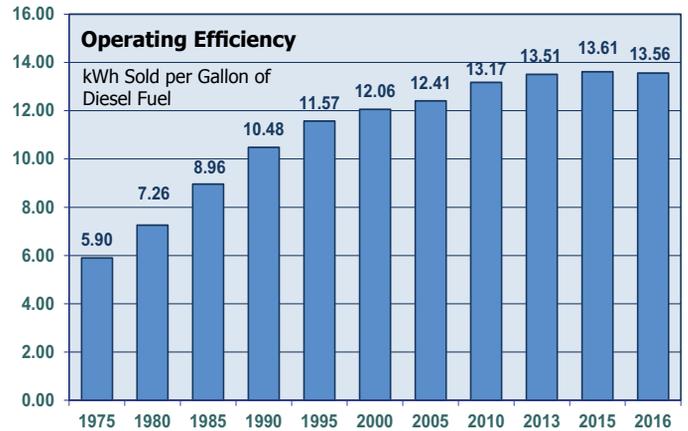
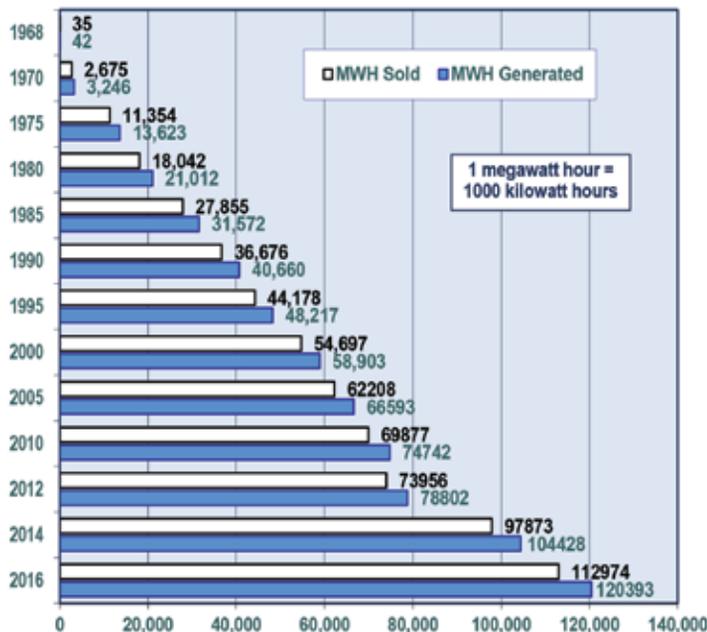
During 2016, the Board of Directors approved disbursement of \$1,750,000 to retire one fifteenth of accumulated capital credits in the system. With this disbursement, AVEC has returned \$22 million of a total of \$46 million in allocated capital credits.

TUGS AND BARGES

AVEC's tug-and-barge sets, chartered and operated by Vitus Marine, completed their fifth full season, delivering nearly four million gallons of fuel to a majority of AVEC's communities. Vitus was able to coordinate fuel delivery with AVEC construction projects allowing projects to continue on schedule. Vitus Marine's entry into the market has provided downward price pressure on fuel prices in Western Alaska.

TOTAL MEGAWATT HOURS GENERATED AND SOLD

In 2016 AVEC generated a total of 120,393 MWH and sold 112,974 MWH.



SAVINGS FROM HEAT RECOVERY

AVEC has been partnering with the Alaska Native Tribal Health Consortium and local authorities to make heat from our diesel engines available for water plants and public buildings. This makes better use of every gallon of diesel burned, benefitting the communities with lower-cost heat and providing additional revenue for the cooperative. New systems are being constructed in Stebbins and Russian Mission and a new system was completed in Emmonak. Upgrades were done to the system in Noorvik.

SAVINGS FROM RENEWABLE ENERGY

Thanks to funding received from the Denali Commission, Rural Utilities Service and the State of Alaska, AVEC has installed 34 wind turbines serving fifteen communities. In 2016, wind turbines generated 5,473,059 kWh (net) and displaced an estimated 385,211 gallons of diesel fuel, saving \$1,073,322 in diesel generating costs. Combined with fuel savings realized in 2006 through 2016, AVEC's consumers saved 2,518,100 gallons of fuel equaling \$9,053,222 in fuel costs over the past ten years.

TOP 10 PLANT OPERATORS OF THE YEAR

Each year AVEC has the difficult task of choosing the Top 10 power plant operators out of numerous excellent operators who are top performers. We have been refining the selection process in order to reward the operators with the best overall performances for the entire year. The winners receive a heavy-duty jacket along with a cash bonus. Congratulations to the following outstanding plant operators who were deemed the Top 10 Plant Operators for 2016: David Peterson of Mt. Village, Robert Nicholas of Kaltag, Evan Hunt of Kotlik, Freddie John of Toksook Bay, Francis Nollner of Huslia, James Bright, Jr. of Goodnews Bay, Jim Duffy of Russian Mission, Jason Jones of Anvik, Megan Esmailka of Kaltag. Peter Lincoln of Toksook Bay and Frank Brown of Eek had a tie score.

CONSUMERS

As of December 31, 2016

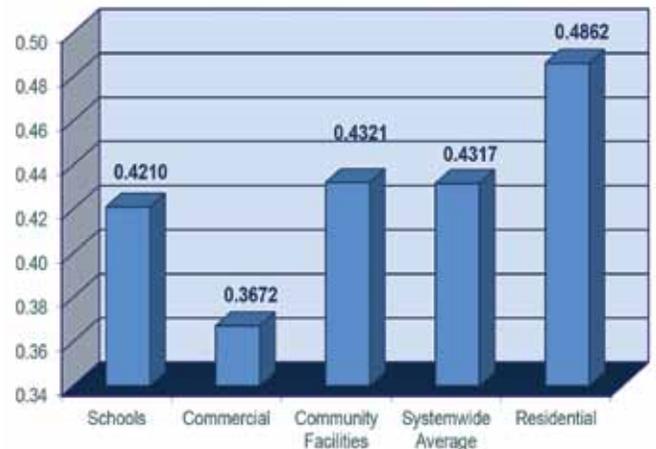
The system overall showed a decrease of 17 consumers for the year. Eighteen villages showed an increase in consumers, 32 villages had slight decreases in consumers and seven communities remained the same. The total number of meters connected is 10,862.

Alakanuk	206	New Stuyahok	153
Ambler	123	Nightmute	86
Anvik	68	Noatak	153
Bethel	2,746	Noorvik	182
Brevig Mission	125	Nulato	143
Chevak	256	Nunapitchuk	166
Eek	137	Old Harbor	135
Ekwok	76	Oscarville	23
Elim	133	Pilot Station	174
Emmonak	288	Pitkas Point	40
Gambell	223	Quinhagak	225
Goodnews Bay	99	Russian Mission	98
Grayling	90	St. Mary's/Andreafsky	246
Holy Cross	102	St. Michael	142
Hooper Bay	341	Savoonga	213
Huslia	135	Scammon Bay	165
Kaltag	101	Selawik	240
Kasigluk	152	Shageluk	54
Kiana	155	Shaktoolik	94
Kivalina	115	Shishmaref	200
Kobuk	54	Shungnak	89
Kotlik	168	Stebbins	186
Koyuk	131	Teller	110
Lower Kalskag	104	Togiak	320
Marshall	152	Toksook Bay	178
Mekoryuk	126	Tununak	126
Minto	98	Upper Kalskag	98
Mountain Village	248	Wales	71

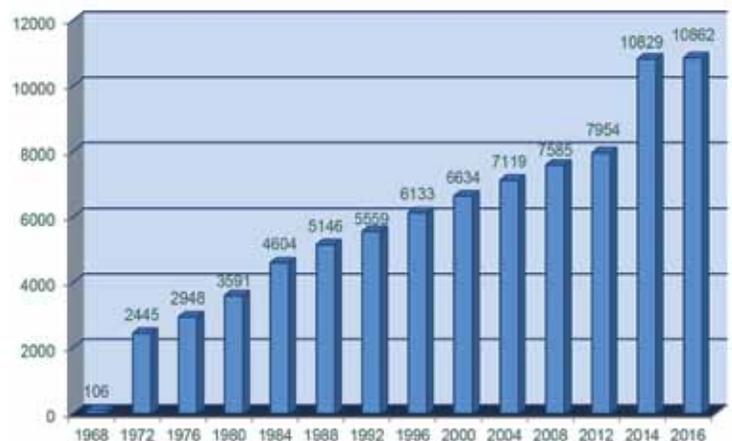


This home belongs to one of the residents of Oscarville, which became AVEC's 57th community in 2016. They enjoy their new, lower rates.

AVERAGE REVENUE PER KWH BY CONSUMER CLASS



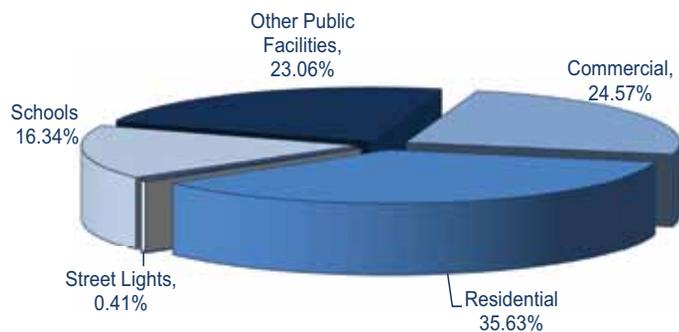
CONSUMERS SERVED AT YEAR'S END



Vitus Marine delivered fuel to Mt. Village. Photo by Karl Haddow.

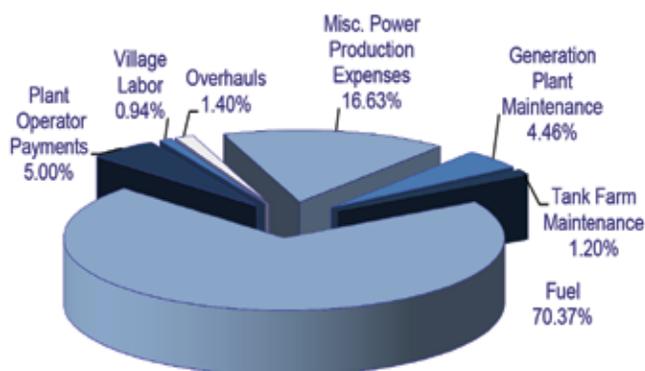
BALANCE SHEET

SOURCE OF ELECTRIC REVENUE

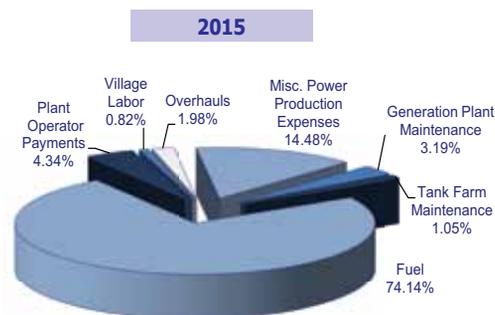
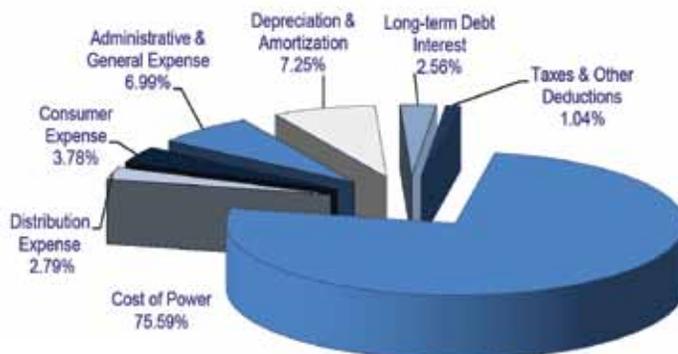


POWER PRODUCTION EXPENSES

2016
vs 2015



TOTAL COST OF SERVICE BY ITEM



ASSETS

	12/31/16	12/31/15
Total Utility Plant	\$151,796,868	\$147,782,158
Accumulated Provision for Depreciation	<u>83,298,254</u>	<u>80,941,225</u>
Net Utility Plant	\$68,498,613	\$66,840,933
Other Property & Investments	7,528,355	7,518,307
Current & Accrued Assets	48,566,760	47,289,382
Deferred Debits	<u>253,959</u>	<u>383,133</u>
TOTAL ASSETS	\$124,847,687	\$122,031,755

LIABILITIES

Equities	\$50,820,451	\$49,845,178
Long Term Debt	50,592,589	41,228,161
Current & Accrued Liabilities	22,221,572	29,408,944
Deferred Credits	<u>1,213,075</u>	<u>1,549,471</u>
TOTAL LIABILITIES	\$124,847,687	\$122,031,755

Equities As Percent Of Assets

40.71% **40.85%**

STATEMENT OF OPERATIONS

	12/31/16	12/31/15
Operating Revenue	\$49,491,009	\$58,642,290
Cost of Power	36,443,649	43,444,779
Distribution Expense	1,346,571	1,343,691
Consumer Expense	1,820,536	2,693,370
Administrative & General Expense	3,372,083	3,349,366
Depreciation & Amortization Expense	3,497,392	3,278,531
Interest Expense	1,234,850	1,252,159
Taxes & Other Deductions	<u>495,922</u>	<u>500,347</u>
Total Cost of Electric Service	\$48,211,003	\$55,862,243
Operating Margin	\$1,280,005	2,780,047
Interest Income	614,080	303,439
Other Non-Operating Income	<u>649,432</u>	<u>868,011</u>

TOTAL MARGIN **\$2,543,517** **\$3,951,497**

PROJECTS/FACILITY UPGRADES

Denali Commission

AVEC continues as a partner with the Denali Commission. When AVEC is upgrading its bulk fuel facilities we are often asked to upgrade community tanks as well. By combining projects, funding is more efficiently used and benefits to the community are broadened. In tandem with a bulk fuel upgrade for the community, AVEC works with community leaders to develop a business plan which must be adopted by cities and corporations to enhance sustainability. The business plan outlines policies such as establishing accounts for Operations and Maintenance, Repair and Rehabilitation, and Spill Response Fund accounts so ongoing operations are self-funded.

The funding the Denali Commission receives is far less than in past years. With reduced funding, capital project funding to AVEC gets decreased. In 2016 AVEC was advised we would be building the last large bulk fuel replacement. AVEC and the Denali Commission are focusing on life extension where tanks are repaired and refurbished. While refurbished tanks will not last as long as new tanks, the program allows us to make the best use of available funding.

Reduced funding for capital projects, tank farms, power plants interties and wind farms are the norm. AVEC will work closely with funding agencies to assure that the most is made of available funding and projects are designed to accommodate upgrades when, in the future, new funds become available.

Interties

Brevig Mission – Teller: The intertie completed in 2011 was damaged by a fall storm in 2011 and again in 2013. The barrier land form that the tieline was initially buried in has repeatedly eroded. AVEC had been working with FEMA to acquire disaster assistance funding to repair the line. AVEC and FEMA have agreed to an alternative project to replace the Teller Power Plant and decommission the Brevig Mission Teller Tieline.

Ekwook to New Stuyahok: Physical construction was complete this spring. AVEC crews completed the work on both ends and energized it during February 2017.

Emmonak to Alakanuk: The intertie, completed in April 2011, was utilized for a brief period in the spring of 2015 to provide power from Alakanuk to Emmonak when a fire damaged and shut down the Emmonak plant. With the new power plant

and fuel storage facilities commissioned the intertie was permanently energized in August 2016.

St. Mary's to Mt. Village: AVEC was awarded \$3 million from the RUS High Energy Cost Grant program toward construction of the tieline and is seeking additional funding for the estimated \$6.5 million project. Permits are being acquired from the State DOT to construct the line. It is hoped that construction will start in the winter of 2017/2018.

Generation Projects

New Engine and Power Plant Installations/Renovation

Brevig Mission: A Series 60 engine is being relocated from St. Michaels to take the place of the CAT 3456 in Position #3.

Goodnews Bay: A Series 60 will be moved from Ekwook to replace the old Position #1.

Huslia: The long-delayed conversion to 3 phase is scheduled for 2017. In preparation for this project, the #4 engine module from the old Emmonak plant is being moved here to replace Position #2.

Kasigluk: An uprate of the Kasigluk power plant is scheduled for 2017, installing a QST30 in position #1.

Holy Cross: The Series 60 install to Position #2 is scheduled for 2017.

Old Harbor: A Series 60 is being moved from the old St. Michael's power plant to Old Harbor for installation next to the existing power plant, scheduled for 2017.

Pilot Station: A CAT 3456 is scheduled to be installed during 2017.

Mt. Village: The new Cummins QST30 was installed during 2016 and is now operational.

Hooper Bay: The new Cummins QST30 750 kW generator was installed and is operational. Some calibration issues remain.

Emmonak: The power plant came on line in May of 2016. The new tank farm was completed the previous year. The new facilities with 515,000 gallons of fuel storage and generators ranging in size from 500kW to 1.3MW now have the capacity to power both Emmonak and Alakanuk year round.

Alakanuk: The Pos#4 Generation Module was converted to a stand alone back-up power plant for the community of Alakanuk. A new pipeline was construction to allow fuel transfer the module from the School tank farm. The AVEC tank farm and Butler Building have been decommissioned and are scheduled for removal during 2017.

Togiak: Design of the Power Plant and Tank

Farm is finished with construction scheduled for spring/summer of 2017 & 2018. This project design includes new tank farms for the City and Corporation, but additional funding must be secured for the Corporation portion to move forward.

Teller: Power plant module shell construction started year-end 2016. The module will be outfitted and shipped to Teller for installation and commissioning in fall 2017.

Pilot Station: Power plant relocation was accomplished and commissioned October 2016. The City and Corporation tank farms will be completed in 2017.

Bethel: AVEC upgraded the voltage regulators, engine governors and associated electronics during 2016 and early 2017 to allow for renewable energy to be integrated into the system.

Heat Recovery Projects

Stebbins: AVEC assisted Alaska Native Tribal Health Consortium with the design of future heat recovery projects in many communities, including Stebbins. ANTHC began construction of the Heat Recovery Project in 2016 with commissioning scheduled for spring 2017. The project will provide heat to a number of community buildings including the water treatment plant and the school.

Emmonak: The previous heat recovery system was upgraded and connected to the new power plant.

Quinhagak and Marshall: working with ANTHC, heat recovery systems were installed.

Bethel: Using Renewable Energy grant funds AVEC completed assessment of the heat recovery piping and foundation. Recommendations for repairs were received and we are evaluating. The heat recovery module design reached 95% and we will advertise for bids in early 2017. Further evaluation is ongoing to maximize supplying heat recovery to additional off takers.

Wind Projects

St. Mary's/Pitka's Point/Mt. Village Wind Project design is 95% complete. The turbine purchase agreement was signed and the first installment payment was made. Foundation construction is scheduled for fall 2017 with turbine installation and commissioning in fall 2018. AVEC is the recipient of a Round 8 REF grant and a Department of Energy grant.

Stebbins/St. Michael wind project is to be designed in 2016 /2017. A construction timeline has not been established.

MAJOR PROJECTS

Emmonak and Alakanuk Multi-Year Intertie Project With New Power Plant, Tank Farm and Wind Turbines



Emmonak's old power plant, first built in 1970.



Emmonak's new power plant.



Alakanuk's new stand-by power module.



Emmonak's four 100kW wind turbines also provide power to Alakanuk via an intertie.



Local residents were hired to help with the construction projects.



Spring break-up conditions sometimes caused flooding at the old power plant and throughout Emmonak.

AVEC will pursue grant funding through the RUS High Cost of Energy program.

Bethel wind project is progressing. The turbine purchase agreement was signed and the first installment payment was made. AVEC is working with Bethel Native Corporation to find a suitable location for the turbine installation. We are also currently working to secure a Department of Energy grant to help offset the cost of the project to AVEC.

Tank Farm Projects

Noatak: The four fuel tanks closest to the river are scheduled for cleaning and removal during 2017.

Togiak: Bulk fuel upgrade was designed and funded with construction scheduled for spring/summer of 2017 & 2018.

Teller: Bulk fuel upgrade was designed and funded with construction scheduled for spring/summer of 2018.

Pilot Station: Tank farm replacement was accomplished with commissioning in September. The community tank farm will be complete in fall 2017.

Mt. Village: Five 27,000-gallon horizontal fuel tanks retired from other projects were transported to Mt. Village and installed in a new earthen dike with an impermeable liner. The tanks were in place and filled with fuel from the last fuel barge of the season. Additional piping work is expected to be complete in spring 2017.

Fence Projects

Shishmaref, Kobuk, and Kivalina: are all scheduled for new fence installations during 2017

Distribution

Energized Alakanuk from Emmonak plant.

Emmonak – work related to new power plant.

Completed St. Michael-Stebbins Intertie. Energized St. Michael from Stebbins power plant.

Installed additional street lights in Ambler and Nunapitchuk.

Installed poles in Bethel, Chevak, Emmonak, Goodnews Bay and Stebbins.

3-phase upgrades in Kalskag, Bethel, Emmonak, Shishmaref and Nulato.

Service to three private co-generation services.

Temporary and single-phase residential services: 77.

400A service in Alakanuk.

600A services in Bethel and Pilot Station.

Relocated power plant in Pilot Station.

GCI upgrades in 14 communities.

Service to biomass boilers in Minto and Anvik.

Pole relocation for road upgrades in Shishmaref.

Rerouted distribution line in Tununak.

Teacher housing in Kivalina and Minto.

Restored power to Kotlik School after fire.

Installed AMR meters in Oscarville.

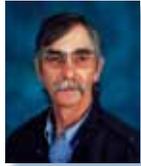
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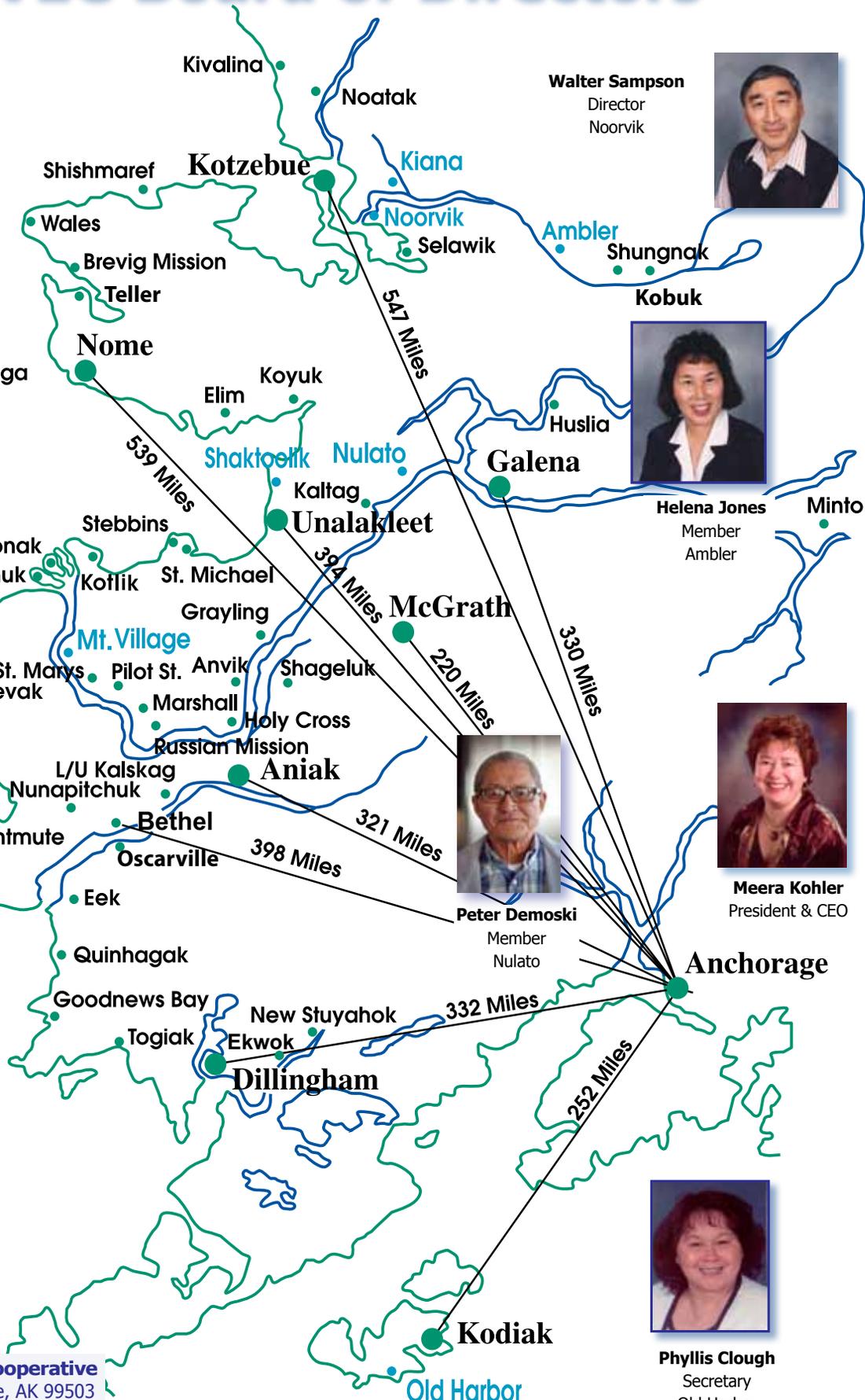
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Alaska Village Electric Cooperative
4831 Eagle Street; Anchorage, AK 99503
(907) 561-1818 * www.avec.org