

# Profiles

## *Lower Kuskokwim Subregion*

*Akiachak, Akiak, Atmautluak, Bethel, Chefnak, Eek, Goodnews Bay, Kasigluk, Kipnuk, Kongiganak, Kwethluk, Kwigillingok, Mekoryuk, Napakiak, Napaskiak, Newtok, Nightmute, Oscarville, Platinum, Quinhagak, Toksook Bay, Tuluksak, Tuntutuliak, Tununak*

## Community Profile: Akiachak



**Incorporation** Unincorporated in the Bethel Census Area

**Location**  
Part of the Lower Kuskokwim Subregion. Akiachak is located on the west bank of the Kuskokwim River, on the Yukon-Kuskokwim Delta. It lies 18 miles northeast of Bethel.

<b>Longitude</b>	-161.4314	<b>Latitude</b>	60.9094
<b>ANCSA Region</b>	Calista Corporation		
<b>Borough/CA</b>	Bethel Census Area		
<b>School District</b>	Yupit School District		
<b>AEA Region</b>	Lower Yukon-Kuskokwim		

<b>Taxes</b>	<b>Type (rate)</b>	<b>Per-Capita Revenue</b>
N/A		N/A

**Economy**  
Akiachak is a Yup'ik Eskimo village with a fishing and subsistence lifestyle. The sale, importation, and possession of alcohol is banned. 256 Residents employed: 74 in private sector, 181 local government, 1 state government.

<b>Climate</b>	<b>Avg. Temp.</b>	<b>Climate Zone</b>	<b>Heating Deg. Days</b>
	62/-2	N/A	N/A

**Natural Hazard Plan**  
Akiachak Hazard Mitigation Plan, 2013

<b>Community Plans</b>	<b>Year</b>
N/A	N/A

**Alaska Native Name (definition)**  
"Akiachchagamiut"

**Historical Setting / Cultural Resources**  
The area was used by the Yup'ik Eskimos as a seasonal subsistence site. Called "Akiachchagamiut" in the 1890 census, the village had a population of 43 at that time. A post office was established in 1934. It incorporated as a second-class city on February 7, 1974. The city government was dissolved on January 31, 1990, in favor of traditional village council governance.

<b>Local Contacts</b>	<b>Email</b>	<b>Phone</b>	<b>Fax</b>
Akiachak, Limited		907-825-4328	907-825-4115
Akiachak Native Community	<a href="mailto:anc_tribalcouncils@yahoo.com">anc_tribalcouncils@yahoo.com</a>	907-825-4626	907-825-4029

<b>Demographics</b>	<b>2000</b>	<b>2010</b>	<b>2013</b>
<b>Population</b>	585	627	Percent of Residents Employed 74.30%
<b>Median Age</b>	23	25	<b>Denali Commission Distressed Community</b> Yes
<b>Avg. Household Size</b>	5	5	<b>Percent Alaska Native/American Indian (2010)</b> 95.06%
<b>Median Household Income</b>		\$43,750	<b>Low and Moderate Income (LMI) Percent (201x)</b> N/A

<b>Electric Utility</b>	<b>Generation Sources</b>	<b>Interties</b>	<b>PCE?</b>
Akiachak Native Community (ANC) Electric Company	Diesel	No	Yes

<b>Landfill</b>	<b>Class</b>	III	<b>Permitted?</b>	No	<b>Location</b>	1/4 mi north of town
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<b>Water/Wastewater System</b>		<b>Homes Served</b>	<b>System Volume</b>
<b>Water</b>	Circ	627	10,000-50,000
<b>Sewer</b>	Lagoon	<b>Water/Wastewater Energy Audit?</b>	
<b>Notes</b>		Yes	

<b>Access</b>		<b>Runway 1</b>	3,300'x60'	<b>Runway 2</b>	N/A
<b>Road</b>	No	<b>Runway 3</b>	5,000'x500'	<b>Runway 4</b>	N/A
<b>Air Access</b>	Akiachak Airport, gravel, excellent condition	<b>Barge Access?</b>	Yes	<b>Ferry Service?</b>	No
	Seaplane Base				
<b>Dock/Port</b>	Yes				
<b>Notes</b>					

## Energy Profile: Akiachak

### Diesel Power System

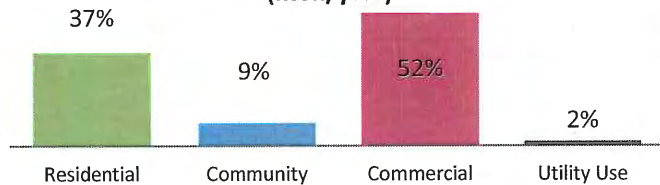
<b>Utility</b>	Akiachak Native Community		
<b>Engine</b>	<b>Make/Model</b>	<b>Condition/Hrs</b>	<b>Gen Capacity</b>
Unit 1	Caterpillar	Good/6,398	500
Unit 2	Caterpillar	Good/18,317	500
Unit 3	Caterpillar	Good/5,837	250
Unit 4	Caterpillar	?/6,201	250
<b>Line Loss</b>	7.0%		
<b>Heat Recovery?</b>	Yes; Water Plant		
<b>Upgrades</b>	<b>Priority</b>	<b>Projects</b>	<b>Status</b>
RPSU Powerhouse	Low		
RPSU Distribution	High		
<b>Outage History/Known Issues</b>			

<b>Operators</b>	<b>No. of Operators</b>	<b>Training/Certifications</b>
	19	PPO, APPO, BFO, Utility Clerk, Elec. Util. Bus. Train, BF Mngr

<b>Maintenance Planning (RPSU)</b>	Good
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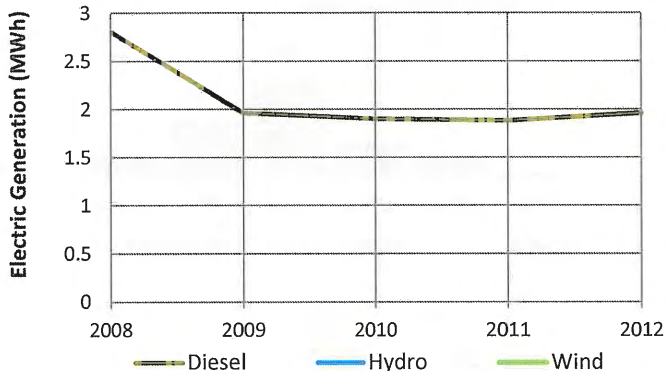
<b>Electric Sales</b>	<b>No. of Customers</b>	<b>kWh/year</b>	<b>kWh/Customer</b>
Residential	163	661,139	4,056
Community	10	164,767	16,477
Commercial	47	936,780	19,931
<b>Utility Use</b>		34,658	

**Electric Sales by Customer Type (kWh/year)**



### Power Production

<b>Diesel (kWh/yr)</b>	1,933,450	<b>Avg. Load (kW)</b>	165
<b>Wind (kWh/yr)</b>		<b>Peak Load (kW)</b>	366
<b>Hydro (kWh/yr)</b>		<b>Efficiency (kWh/gal)</b>	14.29
<b>Total (kWh/yr)</b>	1,933,450	<b>Diesel Used (gals/yr)</b>	135,330



<b>Electric Rates (\$/kWh)</b>	<b>Rate with PCE</b> \$0.23	<b>Residential Rate</b> \$0.60	<b>Commercial Rate</b>
<b>Cost per kWh Sold (\$/kWh)</b>	<b>Fuel Cost</b> \$0.34	<b>Non-fuel Cost</b> \$0.28	<b>Total Cost</b> \$0.62

<b>Fuel Prices (\$)</b>	<b>Utility/Wholesale</b>	<b>Retail</b>	<b>Month/Year</b>
<b>Diesel (1 gal)</b>	\$4.40	\$6.98	6/13; 8/14

<b>Other Fuel? (1 gal)</b>	
<b>Gasoline (1 gal)</b>	
<b>Propane (100#)</b>	
<b>Wood (1 cord)</b>	
<b>Pellets</b>	
<b>Discounts?</b>	

<b>Alternative Energy</b>	<b>Potential</b>	<b>Projects</b>	<b>Status</b>
Hydroelectric	Low	None	
Wind Diesel	Low	Met Tower installed 6-6-12	Suspended
Biomass	Low	None	
Solar	Medium	None	
Geothermal	Low	None	
Oil and Gas	Low	None	
Coal	Low	None	
Emerging Tech	Not Rated	None	
Heat Recovery	Low	Water system	Operational
Energy Efficiency	High	None	

<b>Bulk Fuel</b>	<b>Purchasing</b>	<b>Deliveries/Year</b>	<b>Gallons/Delivery</b>	<b>Vendor(s)</b>
<b>Tank Owner</b>	<b>Fuel Type(s)</b>	<b>Capacity</b>	<b>Age/Condition</b>	
Akiachak		605,000	9 yrs/active	By Barge By Air
Old Elementary	Diesel/Gas		Abandoned	
Water/Pwr Plant	Diesel		Abandoned	
Akiachak Native	Diesel/Gas	40,000/10,000	Good	
Akiachak Ltd.	Diesel	240,000	Good	
Akiachak Ltd.	Gasoline	144,000	Good	
<b>Bulk Fuel Upgrade</b>	<b>Priority</b>	<b>Project</b>	<b>Status</b>	

<b>Cooperative Purchasing Agreements</b>
<b>Notes</b>

## Energy Profile: Akiachak

<b>Housing Units</b>	Occupied	Vacant	% Owner-Occup.
	145	24	80%

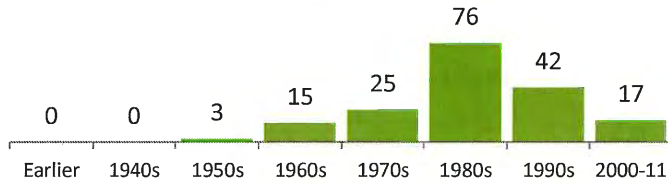
<b>Regional Housing Authority</b>	<b>Weatherization Service Provider</b>
AVCP	AVCP

<b>Housing Need</b>	Overcrowded	1-star
	57.2%	0.6%

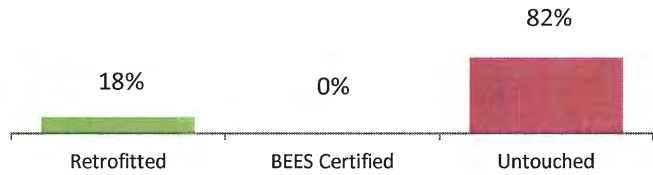
<b>Energy Use</b>	Average Home Energy Rating	Average Square Feet	Avg. EUI (kBtu/sf)
	3-star	701	129

<b>Data Quality</b>	Medium
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**Age of Housing Stock**



**Energy Efficient Housing Stock**



Lighting	Owner	Number/Type	Retrofitted?	Year	Notes

**Non-residential Building Inventory**

Building Name or Location	Year Built	Square Feet	Audited?	Retrofits Done?	In ARIS?
Akiachak K-12 School	2005	42,404			Yes
Armory					No
Clinic		1,536	Yes, VEEP	Yes	No
Community Hall		720	Yes, VEEP	Yes	No
District Office		2,800			No
Equipment Storage	1981	336			No
Generator Sets	1979	320			No
Generge'S Enterprises Store	1980	2,100			No
Indian Reorganization Act Office		1,400	Yes, VEEP	Yes	No
Morvaria Church					No
Native Community Jail	1995	2,490			No
Old High School Shop					No
Post Office	1970				No
Power Plant	1960	1,800			No
School		20,000	Yes, VEEP	Yes	No
SRE Bldg 1 (Heated)		1,250			Yes
SRE Bldg 2		1,250			Yes
Teacher Housing					No
Tribal Council Building		2,304	Yes, VEEP	No	No
United Utilities					No
Village Corporation (Akiachak, Limited)					No
Village Council			Yes, VEEP		No
Village Shop					No
Washeteria		2,400	Yes, VEEP	Yes	No
Water Treatment		9,216	Yes, VEEP	Yes	No
Youth & Elders Building					No
Youth Center		1,680	Yes, VEEP	Yes	No

# Community Profile: Akiak



**Alaska Native Name (definition)**

"Akiak," the other side

**Historical Setting / Cultural Resources**

In 1880, the village of "Ackiagmute" had a population of 175. Akiak was a crossing to the Yukon River basin during the winter for area Eskimos. The Akiak Post Office was established in 1916. A U.S. Public Health Service hospital was built in the 1920s. The city was incorporated in 1970.

**Incorporation** 2nd Class City, 1970

**Location**  
Part of the Lower Kuskokwim Subregion. Akiak is located on the west bank of the Kuskokwim River, 42 air miles northeast of Bethel, on the Yukon-Kuskokwim Delta.

**Longitude** -161.2139      **Latitude** 60.9122  
**ANCSA Region** Calista Corporation  
**Borough/CA** Bethel Census Area  
**School District** Yupiit School District  
**AEA Region** Lower Yukon-Kuskokwim

**Taxes Type (rate)**      **Per-Capita Revenue**  
 Sales, 0%      N/A

**Economy**  
Akiak is a Yup'ik Eskimo village with a reliance on subsistence and fishing activities. The sale and importation of alcohol is banned.

**Climate**      **Avg. Temp.**      **Climate Zone**      **Heating Deg. Days**  
 62/-2      N/A      N/A

**Natural Hazard Plan**  
Akiak Hazard Mitigation Plan, 2013

**Community Plans**      **Year**  
 N/A      N/A

Local Contacts	Email	Phone	Fax
Kokarmuit Corporation		907-765-7228	907-765-7619
Akiak Native Community	<a href="mailto:akiarmiui@yahoo.com">akiarmiui@yahoo.com</a>	907-765-7112	907-765-7512
City of Akiak		907-765-7512	907-765-7414

Demographics	2000	2010	2013
Population	309	346	Percent of Residents Employed 69.10%
Median Age	22	25	Denali Commission Distressed Community No
Avg. Household Size	5	4	Percent Alaska Native/American Indian (2010) 92.77%
Median Household Income		\$40,000	Low and Moderate Income (LMI) Percent (201x) 73%

Electric Utility	Generation Sources	Interties	PCE?
City of Akiak	Diesel	No	Yes

Landfill	Class	III	Permitted?	No	Location	East side of community
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Water/Wastewater System			Homes Served	System Volume
Water	Circ		346	10,000-50,000
Sewer	Gravity		Water/Wastewater Energy Audit?	
Notes			Yes	

Access	Road	No	Air Access	Runway 1	3,196'x75'	Runway 2	N/A
				Runway 3	N/A	Runway 4	N/A
			Dock/Port	Barge Access?	No	Ferry Service?	No

Notes

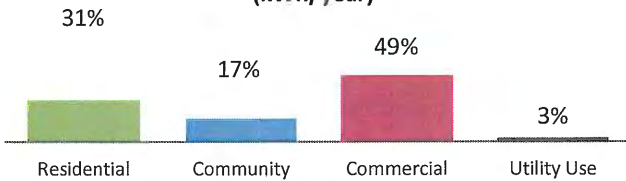
# Energy Profile: Akiak

## Diesel Power System

Utility	City of Akiak		
Engine	Make/Model	Condition/Hrs	Gen Capacity
Unit 1	John Deere	Good/302	230
Unit 2	John Deere	Good/280	230
Unit 3	John Deere	Good/110	230
Unit 4	John Deere	Good/61	230
Line Loss	16.2%		
Heat Recovery?	Yes; Water Plant, Community Bldg.		
Upgrades	Priority	Projects	Status
RPSU Powerhouse	Low		Complete
RPSU Distribution	In Progress		
Outage History/Known Issues			
Operators	No. of Operators	Training/Certifications	
	7	PPO, APPO, Utility Clerk	

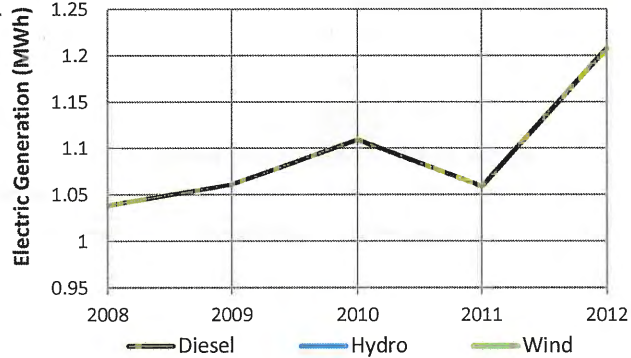
Maintenance Planning (RPSU)	Good		
Electric Sales	No. of Customers	kWh/year	kWh/Customer
Residential	97	306,985	3,165
Community	9	171,726	19,081
Commercial	43	488,534	11,361
Utility Use	28,448		

Electric Sales by Customer Type (kWh/year)



## Power Production

Diesel (kWh/yr)	1,188,049	Avg. Load (kW)	96
Wind (kWh/yr)		Peak Load (kW)	214
Hydro (kWh/yr)		Efficiency (kWh/gal)	16.92
Total (kWh/yr)	1,188,049	Diesel Used (gals/yr)	70,203



Electric Rates (\$/kWh)		Cost per kWh Sold (\$/kWh)	
Rate with PCE	\$0.22	Fuel Cost	\$0.37
Residential Rate	\$0.63	Non-fuel Cost	\$0.19
Commercial Rate		Total Cost	\$0.56
Fuel Prices (\$)	Utility/Wholesale	Retail	Month/Year
Diesel (1 gal)	\$5.25	\$6.85	6/13; 8/14
Other Fuel? (1 gal)			
Gasoline (1 gal)			
Propane (100#)			
Wood (1 cord)			
Pellets			
Discounts?			

Alternative Energy	Potential	Projects	Status
Hydroelectric	Low	None	
Wind Diesel	Low	None	
Biomass	Low	None	
Solar	Medium	None	
Geothermal	Low	None	
Oil and Gas	Low	None	
Coal	Low	None	
Emerging Tech	Not Rated	None	
Heat Recovery	Low	Water system and community building	Operational
Energy Efficiency	High	Sanitation Energy Efficiency	Funded

Bulk Fuel	Fuel Type(s)	Capacity	Age/Condition
Tank Owner			
Elem. School	Petroleum	8,000	Contaminated
High School		5000-9750	Contaminated
Kokarmiut Corp			Removed/Eroded
City of Akiak		24,000	Contaminated
Akiak Native Com.	Diesel	175,000	Good
Akiak Native Com	Gasoline	45,000	Good
Bulk Fuel Upgrade	Priority	Project	Status

Purchasing	Deliveries/Year	Gallons/Delivery	Vendor(s)
By Barge	Fall		
By Air			
Cooperative Purchasing Agreements			

## Notes

## Energy Profile: Akiak

<b>Housing Units</b>	<b>Occupied</b>	<b>Vacant</b>	<b>% Owner-Occup.</b>
	89	9	65%

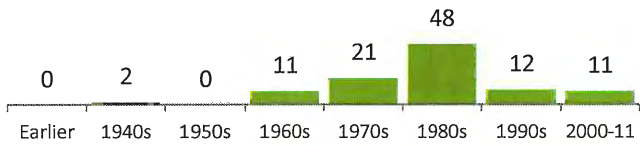
<b>Regional Housing Authority</b>	<b>Weatherization Service Provider</b>
AVCP	AVCP

<b>Housing Need</b>	<b>Overcrowded</b>	<b>1-star</b>
	43.8%	N/A

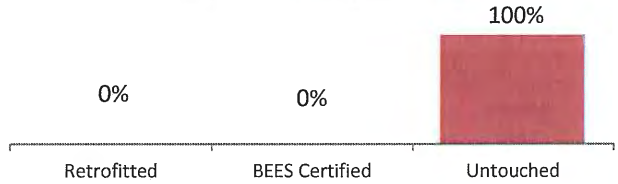
<b>Energy Use</b>	<b>Average Home Energy Rating</b>	<b>Average Square Feet</b>	<b>Avg. EUI (kBtu/sf)</b>
	N/A	N/A	N/A

<b>Data Quality</b>	Low
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**Age of Housing Stock**



**Energy Efficient Housing Stock**



Lighting	Owner	Number/Type	Retrofitted?	Year	Notes

**Non-residential Building Inventory**

Building Name or Location	Year Built	Square Feet	Audited?	Retrofits Done?	In ARIS?
Akiak K-12 School		29,659			Yes
Akiak Native Community	1975	7,900	Yes	No	Yes
Akiak Village Council					No
Akiak Water Plant	1986	1,280	Yes	No	Yes
ANTHC Storage					No
Armory					No
City of Akiak Building		1,920			No
Community Building	2006	2,492			No
Early Childhood Office					No
Generator Set (2)	1994	320			No
Head Start					No
Health Clinic		2,350			No
Kokarmuit Corporation	1984				No
Movarian Church					No
Old Church					No
Old High School Wood Shop					No
Old Kokarmuit Storage					No
Old Post Office					No
Old Power Plant					No
Old Youth Center					No
Post Office					No
Sre Building #1 (Heated)		1,104			Yes
Sre Building #2 (Heated)		1,104			No
Stephen Ivans/Sons Store					No
Storage Van		320			No
United Utilities					No

## Community Profile: Atmautluak



### Alaska Native Name (definition)

N/A

### Historical Setting / Cultural Resources

Yup'ik Eskimos have inhabited this region for thousands of years due to the area's rich resources; however, Atmautluak itself was not settled until the 1960s. People moved to this site on higher ground to avoid flooding and for the rich resources of the area. A city was incorporated in 1976, but it was dissolved on Feb. 7, 1996, in favor of the traditional village council government.

**Incorporation** Unincorporated in the Bethel Census Area

### Location

Part of the Lower Kuskokwim Subregion. Atmautluak lies on the west bank of the Pitmiktakik River in the Yukon-Kuskokwim Delta, 20 miles northwest of Bethel.

**Longitude** -162.2731 **Latitude** 60.8669

**ANCSA Region** Calista Corporation

**Borough/CA** Bethel Census Area

**School District** Lower Kuskokwim School District

**AEA Region** Lower Yukon-Kuskokwim

**Taxes Type (rate)** **Per-Capita Revenue**  
N/A N/A

### Economy

Atmautluak is a traditional Yup'ik Eskimo village with a subsistence and fishing lifestyle. The sale and importation of alcohol is banned.

**Climate** **Avg. Temp.** **Climate Zone** **Heating Deg. Days**  
62/-2 N/A N/A

### Natural Hazard Plan

N/A

### Community Plans

N/A **Year** N/A

Local Contacts	Email	Phone	Fax
Atmautluak Limited		907-553-5428	907-553-5610
Village of Atmautluak	<a href="mailto:atmautluaktc@hughes.net">atmautluaktc@hughes.net</a>	907-553-5610	907-553-5612

Demographics	2000	2010	2013
Population	294	277	Percent of Residents Employed 78.30%
Median Age	25	24	Denali Commission Distressed Community Yes
Avg. Household Size	5	5	Percent Alaska Native/American Indian (2010) 97.83%
Median Household Income		\$45,000	Low and Moderate Income (LMI) Percent (201x) N/A

Electric Utility	Generation Sources	Interties	PCE?
Native Village of Atmautluak	Diesel	No	Yes

Landfill	Class	Permitted?	Location
	III	No	1 mi north of airstrip

Water/Wastewater System	Homes Served	System Volume
Water Washeteria	311	10,000-50,000
Sewer Honey Bucket	Water/Wastewater Energy Audit?	
Notes	Yes	

Access	Road	Air Access	Runway 1	Runway 2	Runway 3	Runway 4
	No	Atmautluak Airport, gravel, good condition	3,000'x75'	N/A	N/A	N/A
		N/A				
	Dock/Port No		Barge Access? No	Ferry Service? No		
Notes						



# Energy Profile: Atmautluak

## Diesel Power System

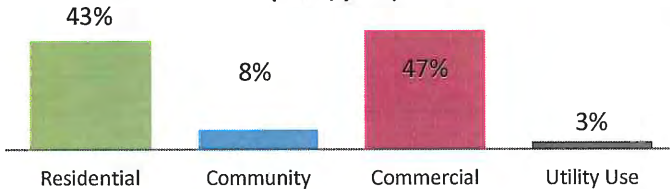
<b>Utility</b>	Atmautluak Joint Utilities		
<b>Engine</b>	<b>Make/Model</b>	<b>Condition/Hrs</b>	<b>Gen Capacity</b>
Unit 1	John Deere	Good/11,997	180
Unit 2	John Deere	Good/14,981	250
Unit 3	John Deere	Good/316	117
Unit 4			
<b>Line Loss</b>	14.5%		
<b>Heat Recovery?</b>	No		
<b>Upgrades</b>	<b>Priority</b>	<b>Projects</b>	<b>Status</b>
RPSU Powerhouse	In Progress		
RPSU Distribution	High		
<b>Outage History/Known Issues</b>			

<b>Operators</b>	<b>No. of Operators</b>	<b>Training/Certifications</b>
	9	PPO, BFO, APPO, Utility Clerk

<b>Maintenance Planning (RPSU)</b>	Acceptable
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<b>Electric Sales</b>	<b>No. of Customers</b>	<b>kWh/year</b>	<b>kWh/Customer</b>
Residential	72	294,083	4,084
Community	5	54,543	10,909
Commercial	15	322,492	21,499
Utility Use		19,663	

**Electric Sales by Customer Type (kWh/year)**

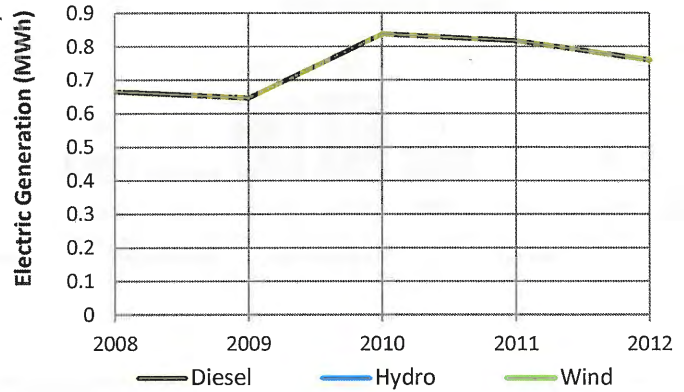


<b>Alternative Energy</b>	<b>Potential</b>	<b>Projects</b>	<b>Status</b>
Hydroelectric	Low	None	
Wind Diesel	Medium	Wind Feasibility and Met Tower Installed	Feasibility
Biomass	Low		
Solar	Medium		
Geothermal	Low		
Oil and Gas	Low		
Coal	Low		
Emerging Tech	Not Rated		
Heat Recovery	Medium	Washeteria Heat Recovery Project	Unknown
Energy Efficiency	High	VEEP	

<b>Bulk Fuel</b>			
<b>Tank Owner</b>	<b>Fuel Type(s)</b>	<b>Capacity</b>	<b>Age/Condition</b>
Vill. Atmautluak	Diesel	50,000	Good
Tank Farm	Unknown	Unknown	Active
<b>Bulk Fuel Upgrade</b>	<b>Priority</b>	<b>Project</b>	<b>Status</b>

## Power Production

Diesel (kWh/yr)	808,342	Avg. Load (kW)	52
Wind (kWh/yr)		Peak Load (kW)	114
Hydro (kWh/yr)		Efficiency (kWh/gal)	14.46
Total (kWh/yr)	808,342	Diesel Used (gals/yr)	55,908



<b>Electric Rates (\$/kWh)</b>	<b>Cost per kWh Sold (\$/kWh)</b>
Rate with PCE \$0.44	Fuel Cost \$0.38
Residential Rate \$0.80	Non-fuel Cost \$0.15
Commercial Rate	Total Cost \$0.53

<b>Fuel Prices (\$)</b>	<b>Utility/Wholesale</b>	<b>Retail</b>	<b>Month/Year</b>
Diesel (1 gal)	\$4.47	\$6.72	6/13; 8/14
Other Fuel? (1 gal)			
Gasoline (1 gal)			
Propane (100#)			
Wood (1 cord)			
Pellets			
Discounts?			

<b>Purchasing</b>	<b>Deliveries/Year</b>	<b>Gallons/Delivery</b>	<b>Vendor(s)</b>
By Barge	June & October		
By Air			

### Cooperative Purchasing Agreements

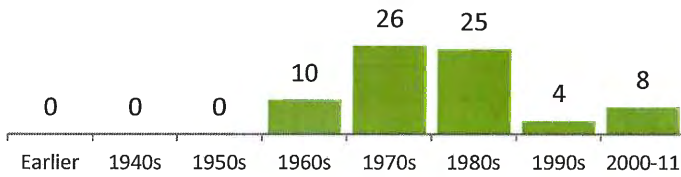
### Notes

## Energy Profile: Atmautluak

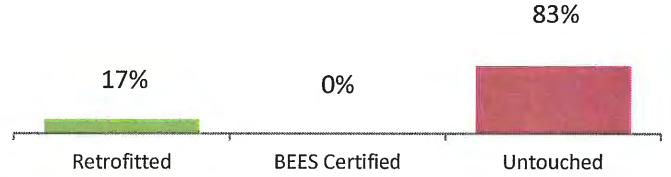
<b>Housing Units</b>	Occupied 63	Vacant 3	% Owner-Occup. 81%
<b>Housing Need</b>		Overcrowded 66.7%	1-star N/A
<b>Data Quality</b>	Low		

<b>Regional Housing Authority</b>	AVCP		
<b>Weatherization Service Provider</b>	AVCP		
<b>Energy Use</b>	Average Home Energy Rating N/A	Average Square Feet N/A	Avg. EUI (kBTU/sf) N/A

**Age of Housing Stock**



**Energy Efficient Housing Stock**



Lighting	Owner	Number/Type	Retrofitted?	Year	Notes
N/A					

**Non-residential Building Inventory**

Building Name or Location	Year Built	Square Feet	Audited?	Retrofits Done?	In ARIS?
All Atmautluak Bldg.		20,195			Yes
Army National Guard					No
Atc Shop					No
Atmautluak Clinic					No
Bingo Hall					No
Elementary School	1973	3,406			No
Generator Module	1972	320			No
Joanne A Alexie Memorial School	2006	12,470			No
Joint Utilities					No
Washeteria					No
Moravian Church					No
Old Church					No
Portable Classroom #1	1990	1,200			No
Portable Classroom #2	1990	1,200			No
Post Office					No
Public Safety Building					No
Russian Orthodox Church					No
Sre Building (Heated)		1,104			No
Storage Warehouse	1975	768			No
United Utilities					No
Utility Warehouse					No
Village Corporation					No
Village Council					No
Warehouse	1960	768			No

## Community Profile: Bethel



### Alaska Native Name (definition)

"Mumtrekhlogamute," Smokehouse People

### Historical Setting / Cultural Resources

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 was serving as a trading, transportation, and distribution center for the region, which attracted Natives from surrounding villages.

**Incorporation** 2nd Class City, 1957

### Location

Part of the Lower Kuskokwim Subregion. Bethel is located at the mouth of the Kuskokwim River, 40 miles inland from the Bering Sea. It lies in the Yukon Delta National Wildlife Refuge, 400 air miles west of Anchorage.

**Longitude** -161.7558 **Latitude** 60.7922

**ANCSA Region** Calista Corporation

**Borough/CA** Bethel Census Area

**School District** Lower Kuskokwim School District

**AEA Region** Lower Yukon-Kuskokwim

### Taxes Type (rate)

Sales, 6%

### Per-Capita Revenue

\$1,430

### Economy

Subsistence activities and commercial fishing are major contributors to residents' livelihoods.

### Climate

**Avg. Temp.**

63/-4

**Climate Zone**

Transitional

**Heating Deg. Days**

11,043

### Natural Hazard Plan

N/A

### Community Plans

City of Bethel Comprehensive Plan 2035

**Year**

2011

### Local Contacts

Bethel Native Corporation

**Email**

[zbrink@nativecouncil.org](mailto:zbrink@nativecouncil.org)

**Phone**

907-543-2124

**Fax**

907-543-2897

Orutsararmuit Native Village

907-543-2608

907-543-2639

City of Bethel

[lstrickler@cityofbethel.net](mailto:lstrickler@cityofbethel.net)

907-543-2047

907-543-4171

### Demographics

**2000**

**2010**

**2013**

**Population**

5471

6080

**Percent of Residents Employed**

88.30%

**Median Age**

30

28

**Denali Commission Distressed Community**

No

**Avg. Household Size**

3

4

**Percent Alaska Native/American Indian (2010)**

65.02%

**Median Household Income**

\$90,779

**Low and Moderate Income (LMI) Percent (201x)**

42%

### Electric Utility

Bethel Utilities Corporation

**Generation Sources**

Diesel

**Interties**

No

**PCE?**

Yes

### Landfill

**Class**

II

**Permitted?**

Yes

**Location**

Northeast of community

### Water/Wastewater System

**Water**

Haul

**Homes Served**

N/A

**System Volume**

N/A

**Sewer**

Honey Bucket

**Water/Wastewater Energy Audit?**

Yes

### Access

**Road**

Yes: 38 miles of public roads; 28-mile seasonal ice road

**Air Access**

Bethel Airport; Runway 1: asphalt;  
Runway 2: asphalt; Runway 3: gravel

**Runway 1**

6,400'x150'

**Runway 2**

4,000'x75'

**Runway 3**

1,858'x75'

**Runway 4**

N/A

**Dock/Port**

Yes

**Barge Access?**

Yes

**Ferry Service?**

No

**Notes**

## Energy Profile: Bethel

### Diesel Power System

<b>Utility</b>	AVEC (2014)		
<b>Engine</b>	<b>Make/Model</b>	<b>Condition/Hrs</b>	<b>Gen Capacity</b>
Unit 1	EMD	Good/227	2250
Unit 2	EMD	Good/26,234	2250
Unit 3	EMD	Good/19,854	2250
Unit 4	EMD	Good/14,132	2250
Unit 5	EMD	Good/27,273	2250
Unit 6	EMD	Good/15,911	2250
<b>Line Loss</b>	5.5%		
<b>Heat Recovery?</b>	Yes; State Office, YKHC Hospital, UAF		
<b>Upgrades</b>	<b>Priority</b>	<b>Projects</b>	<b>Status</b>
RPSU Powerhouse	Low		Planned
RPSU Distribution	High		Planned

### Outage History/Known Issues

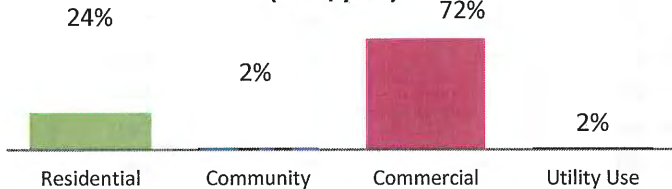
Part of Bethel/Oscarville service area. PCE data includes both

<b>Operators</b>	<b>No. of Operators</b>	<b>Training/Certifications</b>
	No Record	

<b>Maintenance Planning (RPSU)</b>	Excellent
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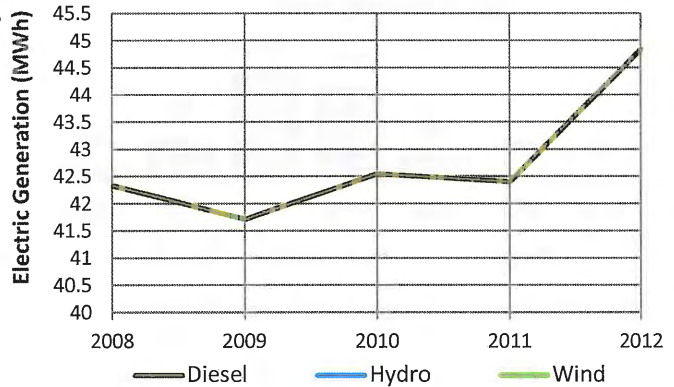
<b>Electric Sales</b>	<b>No. of Customers</b>	<b>kWh/year</b>	<b>kWh/Customer</b>
Residential	1,743	10,258,912	5,886
Community	16	735,422	45,964
Commercial	1,010	30,252,426	29,953
Utility Use		647,200	

**Electric Sales by Customer Type  
(kWh/year)**



### Power Production

Diesel (kWh/yr)	44,326,400	Avg. Load (kW)	4,497
Wind (kWh/yr)		Peak Load (kW)	9,994
Hydro (kWh/yr)		Efficiency (kWh/gal)	13.86
<b>Total (kWh/yr)</b>	<b>44,326,400</b>	<b>Diesel Used (gals/yr)</b>	<b>3,197,401</b>



<b>Electric Rates (\$/kWh)</b>		<b>Cost per kWh Sold (\$/kWh)</b>	
Rate with PCE	\$0.17	Fuel Cost	\$0.47
Residential Rate	\$0.60	Non-fuel Cost	\$0.11
Commercial Rate		Total Cost	\$0.57
<b>Fuel Prices (\$)</b>	<b>Utility/Wholesale</b>	<b>Retail</b>	<b>Month/Year</b>
Diesel (1 gal)	\$6.07	\$7.21	6/13; 8/14
<b>Other Fuel? (1 gal)</b>			
Gasoline (1 gal)		\$7.13	2013
Propane (100#)		\$7.50	8/14
Wood (1 cord)			
Pellets			
Discounts?			

<b>Alternative Energy</b>	<b>Potential</b>	<b>Projects</b>	<b>Status</b>
Hydroelectric	Medium	None	
Wind Diesel	High	Bethel Wind Farm/Turbine	Final Design
Biomass	Low	None	
Solar	Medium	None	
Geothermal	Low	None	
Oil and Gas	Low	None	
Coal	Low	None	
Emerging Tech	Not Rated	None	
Heat Recovery	High	Public buildings	Operational
Energy Efficiency	High	None	

<b>Bulk Fuel</b>	<b>Purchasing</b>	<b>Deliveries/Year</b>	<b>Gallons/Delivery</b>	<b>Vendor(s)</b>
Tank Owner	Fuel Type(s)	Capacity	Age/Condition	
Crowley Marine	Gas/Diesel	14,658,000	Active	By Barge
Crowley Marine	Gas/Diesel	5,460,000	Active	By Air
<b>Cooperative Purchasing Agreements</b>				

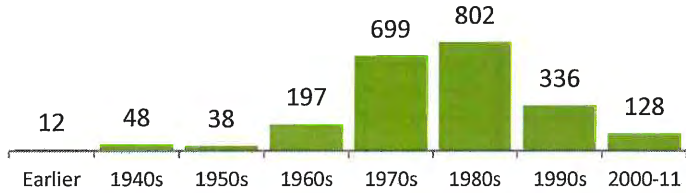
<b>Bulk Fuel Upgrade</b>	<b>Priority</b>	<b>Project</b>	<b>Status</b>	<b>Notes</b>
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## Energy Profile: Bethel

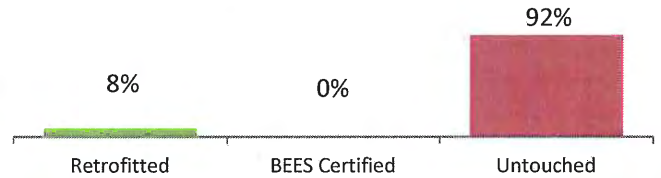
<b>Housing Units</b>	Occupied 1679	Vacant 582	% Owner-Occup. 52%
<b>Housing Need</b>	Overcrowded 23.3%		1-star 4.6%
<b>Data Quality</b>	High		

<b>Regional Housing Authority</b>	AVCP		
<b>Weatherization Service Provider</b>	AVCP		
<b>Energy Use</b>	Average Home Energy Rating 3-star	Average Square Feet 1,237	Avg. EUI (kBtu/sf) 132

**Age of Housing Stock**



**Energy Efficient Housing Stock**



Lighting	Owner	Number/Type	Retrofitted?	Year	Notes

**Non-residential Building Inventory**

Building Name or Location	Year Built	Square Feet	Audited?	Retrofits Done?	In ARIS?
ADF&G Game Insp. Station		600			Yes
ARFF Bldg		3,200			Yes
Bethel Bunkhouse 125B		1,057			Yes
Bethel Bunkhouse 145A		1,057			Yes
Bethel Office Lease					Yes
Bethel Shop		1,296			Yes
Bethel Storage Facility		1,152			Yes
Bethel Youth Facility		11,392			Yes
Bus Barn	1979	4,800			Yes
City Hall	1976	7,623	Yes	No	Yes
City Shop	1983	35,925	Yes	No	Yes
Combined Facility		3,627			Yes
Community Services Health Service Bldg		67,000			Yes
Court Building	2000	28,820	Yes	No	Yes
Dog Pound	1965	1,536			Yes
Fire Dept	1962	9,912			Yes
Landfill Building	1991	200			Yes
Log Cabin		1,941			Yes
Maintenance Shop/SEF		4,800			Yes
Police Annex		5,874			Yes
Police Department	1960	3,500			Yes
Port Bldg	1987	384			Yes
Sackett Hall		10,631			Yes
Sand Storage		2,800			Yes
Sand Storage (Heated)		7,000			Yes
SRE Bldg		2,400			Yes
Utility Maintenance Building	1963	1,600			Yes
Voc-Tech Bldg.		12,123			Yes
Water Treatment Plant	2001	4,800			Yes
Water Treatment Plant	1983	35,925			Yes
Yukon Kuskokwim Correctional Center (YKCC)		27,240			Yes
Yup'ik Museum, Library & Cultural Center		17,711			Yes

# Community Profile: Chefnak



**Alaska Native Name (definition)**

N/A

**Historical Setting / Cultural Resources**

The area has historically been occupied by Yup'ik Eskimos. In the early 1950s, Alexie Amagiqchik founded a small general store at the site. He had moved from a village on the Bering Sea to the new location one mile inland to escape potential floodwaters. Others from the original village followed and settled in Chefnak.

**Incorporation** 2nd Class City, 1974

**Location**  
Part of the Lower Kuskokwim Subregion. Located on the junction of the Kinia River and the Keguk River, in the Yukon-Kuskokwim Delta. The village lies within the Clarence Rhode National Wildlife Refuge, established for migratory waterfowl protection. Chefnak is 98 air miles southwest of Bethel and 490 miles southwest of Anchorage.

**Longitude** -164.2658      **Latitude** 60.16

**ANCSA Region** Calista Corporation

**Borough/CA** Bethel Census Area

**School District** Lower Kuskokwim School District

**AEA Region** Lower Yukon-Kuskokwim

Taxes	Type (rate)	Per-Capita Revenue
Sales, 2%		\$110

**Economy**  
A traditional Yup'ik Eskimo community, Chefnak residents practice a subsistence lifestyle with some commercial fishing. The sale and importation of alcohol is banned. 240 residents employed: 117 in private sector, 120 in local government, and 3 in state government.

Climate	Avg. Temp.	Climate Zone	Heating Deg. Days
	57/6	Marine	N/A

**Natural Hazard Plan**  
N/A

Community Plans	Year
N/A	N/A

Local Contacts	Email	Phone	Fax
Chefnakmute, Inc.		907-867-8115	907-867-8895
Village of Chefnak		907-867-8502	907-867-8711
City of Chefnak	<a href="mailto:citychefnak@yahoo.com">citychefnak@yahoo.com</a>	907-867-8147	907-867-8704

Demographics	2000	2010	2013
Population	394	418	Percent of Residents Employed 69.71%
Median Age	21	22	Denali Commission Distressed Community No
Avg. Household Size	6	5	Percent Alaska Native/American Indian (2010) 95.69%
Median Household Income		\$53,438	Low and Moderate Income (LMI) Percent (201x) 67%

Electric Utility	Generation Sources	Interties	PCE?
Naterkaq Light Plant	Diesel	No	Yes

Landfill	Class	Permitted?	Location
	III	Yes	Southwest of village

Water/Wastewater System	Homes Served	System Volume
Water Washeteria	408	N/A
Sewer Honey Bucket	Water/Wastewater Energy Audit?	
Notes	Yes	

Access	Road	Air Access	Runway 1	Runway 2
Road	No	Chefnak Airport, gravel, good condition	3,230'x60'	N/A
Air Access	N/A		N/A	N/A
Dock/Port	No		Barge Access? No	Ferry Service? No

Notes

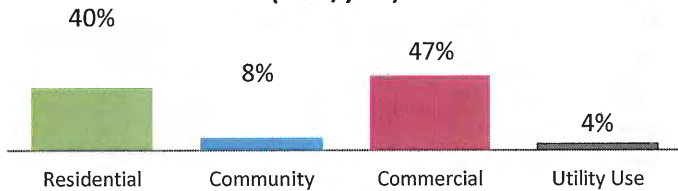
# Energy Profile: Chefornak

## Diesel Power System

Utility	Naterkaq Light Plant		
Engine	Make/Model	Condition/Hrs	Gen Capacity
Unit 1	John Deere	Good/15,945	371
Unit 2	John Deere	Good/18,327	371
Unit 3	John Deere	Good/7,854	179
Unit 4			
Line Loss	40.8%		
Heat Recovery?	Yes; Water & Sewer Lines		
Upgrades	Priority	Projects	Status
RPSU Powerhouse	Low		Complete
RPSU Distribution	High		
Outage History/Known Issues			
Gen. 3 keeps shutting down due to "reverse power".			
Operators	No. of Operators	Training/Certifications	
	23	BFO, Elec. Util. Bus., PPO, Clerk	

Maintenance Planning (RPSU)	Good		
Electric Sales	No. of Customers	kWh/year	kWh/Customer
Residential	101	428,102	4,239
Community	7	89,473	12,782
Commercial	43	508,482	11,825
Utility Use		46,289	

Electric Sales by Customer Type (kWh/year)

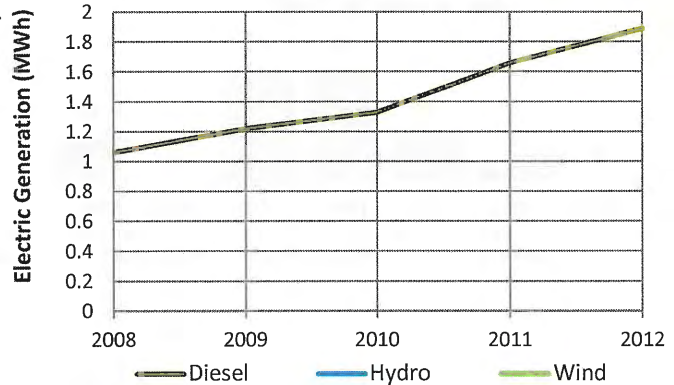


Alternative Energy	Potential	Projects	Status
Hydroelectric	Low	None	
Wind Diesel	High	Met Tower Installed	Feasibility
Biomass	Low	None	
Solar	Medium	None	
Geothermal	Low	None	
Oil and Gas	Low	None	
Coal	Low	None	
Emerging Tech	Not Rated	None	
Heat Recovery	High	Water system	Operational
Energy Efficiency	High	Sanitation Energy Efficiency	Funded

Bulk Fuel			
Tank Owner	Fuel Type(s)	Capacity	Age/Condition
Utility	Heating Oil	76,840	Good
Village	Heating Oil	76,344	Good
Village	Gasoline	58,960	Good
Chefarnmute		84,300	
Light Plant		44,900	
Bulk Fuel Upgrade	Priority	Project	Status

## Power Production

Diesel (kWh/yr)	1,812,860	Avg. Load (kW)	78
Wind (kWh/yr)	0	Peak Load (kW)	173
Hydro (kWh/yr)	0	Efficiency (kWh/gal)	13.71
Total (kWh/yr)	1,812,860	Diesel Used (gals/yr)	132,248



Electric Rates (\$/kWh)		Cost per kWh Sold (\$/kWh)	
Rate with PCE	\$0.38	Fuel Cost	\$0.67
Residential Rate	\$0.90	Non-fuel Cost	\$0.24
Commercial Rate		Total Cost	\$0.91
Fuel Prices (\$)	Utility/Wholesale	Retail	Month/Year
Diesel (1 gal)	\$6.63	\$6.78	6-13; 8-14
Other Fuel? (1 gal)			
Gasoline (1 gal)			
Propane (100#)		\$205.71	8-14
Wood (1 cord)			
Pellets			
Discounts?			

Purchasing	Deliveries/Year	Gallons/Delivery	Vendor(s)
By Barge	5		
By Air			
Cooperative Purchasing Agreements			

## Notes

Barge delivery in May/June & Aug./Sept. to Utility. Heating Oil in July and Gasoline in June/July & Sept./Oct. to Village.





# Community Profile: Eek



**Incorporation** 2nd Class City, 1970

**Location**  
Part of the Lower Kuskokwim Subregion. Eek lies on the south bank of the Eek River, 12 miles east of the mouth of the Kuskokwim River. It is 35 air miles south of Bethel and 420 miles west of Anchorage.

**Longitude** -162.0244      **Latitude** 60.2189  
**ANCSA Region** Calista Corporation  
**Borough/CA** Bethel Census Area  
**School District** Lower Kuskokwim School District  
**AEA Region** Lower Yukon-Kuskokwim

**Taxes Type (rate)**      **Per-Capita Revenue**  
 Sales, 2%      N/A

**Economy**  
Eek is a traditional Yup'ik Eskimo village with a subsistence lifestyle and salmon is a dominant food source.

**Climate**      **Avg. Temp.**      **Climate Zone**      **Heating Deg. Days**  
    41/6      Marine      N/A

**Natural Hazard Plan**  
N/A

**Community Plans**      **Year**  
 Eek Community Comprehensive Plan, 2004      2004

**Alaska Native Name (definition)**

N/A

**Historical Setting / Cultural Resources**

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 BIA school and a Moravian church were constructed at the new site. A post office was established in 1949. The city was incorporated in 1970.

Local Contacts	Email	Phone	Fax
Iqfijouaq Company		907-536-5211	907-536-5733
Native Village of Eek	<a href="mailto:etcgov@yahoo.com">etcgov@yahoo.com</a>	907-536-5128	907-536-5711
City of Eek	<a href="mailto:cityofeek@yahoo.com">cityofeek@yahoo.com</a>	907-536-5129	907-536-5711

Demographics	2000	2010	2013
Population	280	296	Percent of Residents Employed 73.52%
Median Age	24	35	Denali Commission Distressed Community Yes
Avg. Household Size	4	4	Percent Alaska Native/American Indian (2010) 97.64%
Median Household Income		\$36,250	Low and Moderate Income (LMI) Percent (201x) 74%

Electric Utility	Generation Sources	Interties	PCE?
AVEC	Diesel	No	Yes

Landfill	Class	III	Permitted?	No	Location	1/4 mile south of the school
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Water/Wastewater System		Homes Served	System Volume
Water	Washeteria	280	50,001-100,000
Sewer	Honey Bucket	Water/Wastewater Energy Audit?	
Notes		Yes	

Access		Runway 1	Runway 2	Runway 3	Runway 4	Barge Access?	Ferry Service?
Road	No	3242'x60'	N/A	N/A	N/A	Yes	No
Air Access	Eek Airport, gravel, fair condition						
	N/A						
Dock/Port	Yes						

**Notes**

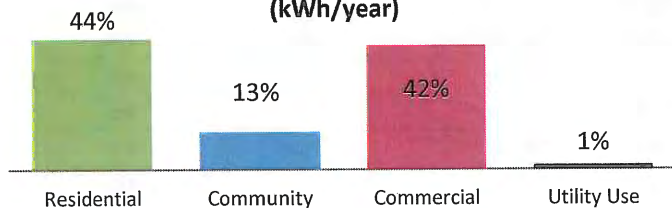
## Energy Profile: Eek

### Diesel Power System

Utility	AVEC		
Engine	Make/Model	Condition/Hrs	Gen Capacity
Unit 1	Cummins	Fair/19,094	168
Unit 2	Detroit Diesel	Fair/38,337	236
Unit 3	Caterpillar	Fair/48,200	175
Unit 4			
Line Loss	4.1%		
Heat Recovery?	Yes; AVEC Connex, Power Plant		
Upgrades	Priority	Projects	Status
RPSU Powerhouse	High		
RPSU Distribution	High		
Outage History/Known Issues	Most outages are weather related.		
Operators	No. of Operators	Training/Certifications	
	4	PPO, BFO, Itin BFO	

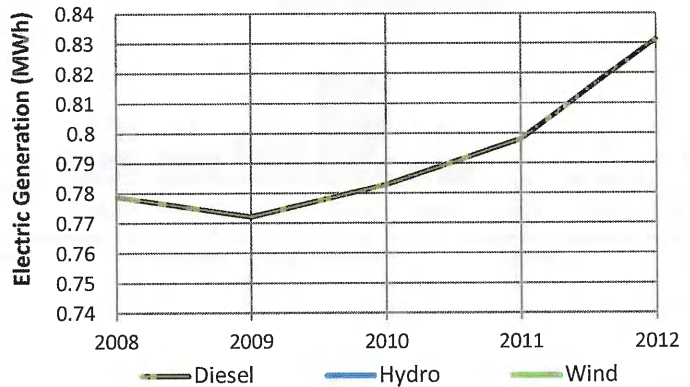
Maintenance Planning (RPSU)	Good		
<b>Electric Sales</b>	No. of Customers	kWh/year	kWh/Customer
Residential	101	355,292	3,518
Community	9	102,280	11,364
Commercial	20	337,668	16,883
Utility Use		11,931	

**Electric Sales by Customer Type (kWh/year)**



### Power Production

Diesel (kWh/yr)	841,666	Avg. Load (kW)	96
Wind (kWh/yr)		Peak Load (kW)	225
Hydro (kWh/yr)		Efficiency (kWh/gal)	13.56
Total (kWh/yr)	841,666	Diesel Used (gals/yr)	65,178



<b>Electric Rates (\$/kWh)</b>		<b>Cost per kWh Sold (\$/kWh)</b>	
Rate with PCE	\$0.20	Fuel Cost	\$0.31
Residential Rate	\$0.63	Non-fuel Cost	\$0.27
Commercial Rate		Total Cost	\$0.58
<b>Fuel Prices (\$)</b>	Utility/Wholesale	Retail	Month/Year
Diesel (1 gal)	\$3.85	\$6.57	6/13; 8/14
Other Fuel? (1 gal)			
Gasoline (1 gal)			
Propane (100#)			
Wood (1 cord)			
Pellets			
Discounts?			

Alternative Energy	Potential	Projects	Status
Hydroelectric	Low	None	
Wind Diesel	Medium	Eek Wind, Met Tower installed 12-20-12	Feasibility
Biomass	Low	None	
Solar	Medium	None	
Geothermal	Low	None	
Oil and Gas	Low	None	
Coal	Low	None	
Emerging Tech	Not Rated	None	
Heat Recovery	High	Eek Water System Heat Recovery	Design & Construction
Energy Efficiency	High	Sanitation EE	Funded

Bulk Fuel	Purchasing	Deliveries/Year	Gallons/Delivery	Vendor(s)
Tank Owner	Fuel Type(s)	Capacity	Age/Condition	
City of Eek	Diesel	10,000		
AVEC	Diesel	65,116	Active	
Iqfijouaq Co.	Gas/Diesel	78,400	Active	
L Kuskokwim SD	Diesel	30,000-50,000	4 yrs/Active	
City of Eek	Diesel	16,400	20 yrs/Active	
Bulk Fuel Upgrade	Priority	Project	Status	
By Barge Spring and Fall				
By Air				
Cooperative Purchasing Agreements				
Notes				

## Energy Profile: Eek

<b>Housing Units</b>	Occupied	Vacant	% Owner-Occup.
	68	26	82%

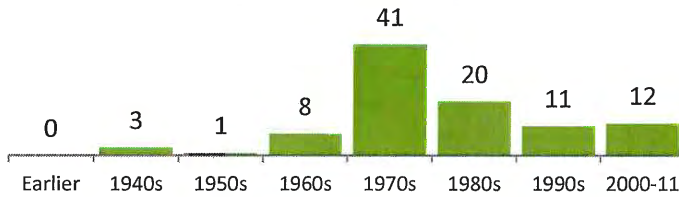
<b>Regional Housing Authority</b>	<b>Weatherization Service Provider</b>
AVCP	AVCP

<b>Housing Need</b>	Overcrowded	1-star
	20.6%	17.2%

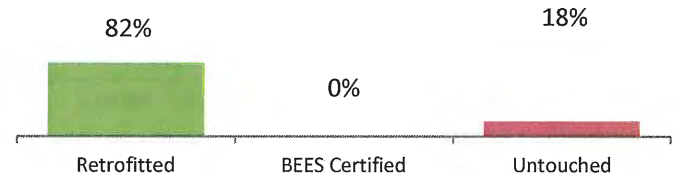
<b>Energy Use</b>	Average Home Energy Rating	Average Square Feet	Avg. EUI (kBtu/sf)
	2-star	696	135

<b>Data Quality</b>	High
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**Age of Housing Stock**



**Energy Efficient Housing Stock**



Lighting	Owner	Number/Type	Retrofitted?	Year	Notes
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**Non-residential Building Inventory**

Building Name or Location	Year Built	Square Feet	Audited?	Retrofits Done?	In ARIS?
City of Eek Bldg		1,440			No
City/Tribal Office	1980	805	Yes, AHFC-C	No	Yes
Eek Clinic	1990	2,350	Yes, AHFC-C	No	Yes
Eek High School		10,677			Yes
Eek Portable Classrooms		740			Yes
Eek Preschool		1,364			Yes
Eek School	1982	20,531			No
Eek Water Treatment Plant/Washeteria	2003	2,032	Yes, AHFC-C	No	Yes
Fire Dept.					No
Generator Module	1979	320			No
IGAP Office/AVCP/Child Care	1980	961	Yes, AHFC-C	No	Yes
Iqfijouaq Company, Inc.					No
Jail					No
Laundromat					No
Maintenance Shop	1980	480			No
Portable Classroom	1998	740			No
SRE Building #1 (Heated)		1,104			Yes
SSR Building #2					No
Warehouse	1980	864			No
Warehouse BIA	1970	300			No

## Community Profile: Goodnews Bay



**Alaska Native Name (definition)**

N/A

**Historical Setting / Cultural Resources**

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. A high school was built in 1979.

**Incorporation** 2nd Class City, 1970

**Location**  
Part of the Lower Kuskokwim Subregion. The community is located on the north shore of Goodnews Bay at the mouth of Goodnews River. It is 116 air miles south of Bethel, 110 miles northwest of Dillingham, and 400 miles west of Anchorage.

**Longitude** -161.5875      **Latitude** 59.1189  
**ANCSA Region** Calista Corporation  
**Borough/CA** Bethel Census Area  
**School District** Lower Kuskokwim School District  
**AEA Region** Lower Yukon-Kuskokwim

**Taxes** Type (rate)      **Per-Capita Revenue**  
 Sales, 3%      N/A

**Economy**  
 Goodnews Bay is a traditional Yup'ik Eskimo village practicing a subsistence, trapping, and fishing lifestyle.

**Climate**      **Avg. Temp.**      **Climate Zone**      **Heating Deg. Days**  
                          57/6      Transitional      N/A

**Natural Hazard Plan**  
 N/A

**Community Plans**      **Year**  
 Goodnews Bay Community Plan, 2005      2005

Local Contacts	Email	Phone	Fax
Kuitsarak, Incorporated		907-967-8428	907-967-8226
Native Village of Goodnews Bay	<a href="mailto:goodnews907@hotmail.com">goodnews907@hotmail.com</a>	907-967-8929	907-967-8330
City of Goodnews Bay	<a href="mailto:city_of_goodnewsbay@yahoo.com">city_of_goodnewsbay@yahoo.com</a>	907-967-8614	907-967-8124

Demographics	2000	2010	2013
Population	230	243	Percent of Residents Employed 76.22%
Median Age	31	25	Denali Commission Distressed Community Yes
Avg. Household Size	4	4	Percent Alaska Native/American Indian (2010) 94.65%
Median Household Income		\$22,917	Low and Moderate Income (LMI) Percent (201x) 97%

Electric Utility	Generation Sources	Interties	PCE?
AVEC	Diesel	No	Yes

Landfill	Class	Permitted?	Location
	III	No	North of community

Water/Wastewater System	Homes Served	System Volume
Water Pressure	250	50,001-100,000
Sewer Gravity	Water/Wastewater Energy Audit?	
Notes	Yes	

Access	Road	Air Access	Runway 1	Runway 2
	No	Goodnews Airport, gravel, good condition	3,300'x75'	N/A
		N/A	N/A	N/A
	No		Barge Access? Yes	Ferry Service? No

Notes

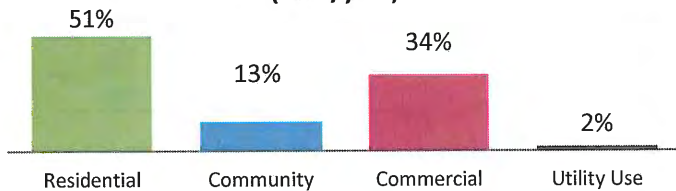
## Energy Profile: Goodnews Bay

### Diesel Power System

Utility	AVEC		
Engine	Make/Model	Condition/Hrs	Gen Capacity
Unit 1	Allis Chalmers	Fair/4,243	175
Unit 2	Cummins	Fair/6,805	250
Unit 3	Detroit Diesel	Fair/55,838	236
Unit 4			
Line Loss	2.5%		
Heat Recovery?	Yes; BIA, School, Jail, Clinic		
Upgrades	Priority	Projects	Status
RPSU Powerhouse	Med.	Heat Rec.	Planned
RPSU Distribution	Med.		
Outage History/Known Issues			
Last outage when installed new totalizing meter.			
Operators	No. of Operators	Training/Certifications	
	2	PPO, BFO, Itin BFO	

Maintenance Planning (RPSU)	Good		
Electric Sales	No. of Customers	kWh/year	kWh/Customer
Residential	81	392,527	4,846
Community	11	99,668	9,061
Commercial	11	259,682	23,607
Utility Use		14,648	

**Electric Sales by Customer Type (kWh/year)**

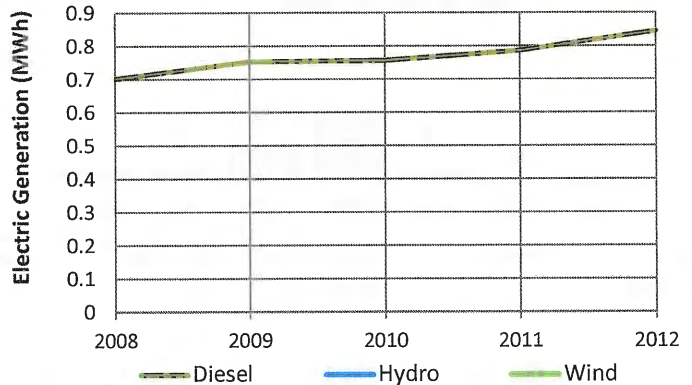


Alternative Energy	Potential	Projects	Status
Hydroelectric	Low	None	
Wind Diesel	High	None	
Biomass	Low	None	
Solar	Medium	None	
Geothermal	Low	None	
Oil and Gas	Low	None	
Coal	Low	None	
Emerging Tech	Not Rated	None	
Heat Recovery	High	Public buildings	Operational
Energy Efficiency	High	EECBG	

Bulk Fuel			
Tank Owner	Fuel Type(s)	Capacity	Age/Condition
Village Corp.	Stove Oil	78,000	20 yrs/active
Village Corp.	Diesel	30,000	20 yrs/active
Village Corp.	Gasoline	300	20 yrs/active
AVEC	Diesel	79,610	active
Goodness Bay SD	Diesel	60,000	34 yrs/active
Bulk Fuel Upgrade	Priority	Project	Status

### Power Production

Diesel (kWh/yr)	788,752	Avg. Load (kW)	85
Wind (kWh/yr)		Peak Load (kW)	212
Hydro (kWh/yr)		Efficiency (kWh/gal)	13.41
Total (kWh/yr)	788,752	Diesel Used (gals/yr)	58,335



Electric Rates (\$/kWh)		Cost per kWh Sold (\$/kWh)	
Rate with PCE	\$0.20	Fuel Cost	\$0.31
Residential Rate	\$0.63	Non-fuel Cost	\$0.27
Commercial Rate		Total Cost	\$0.59
Fuel Prices (\$)	Utility/Wholesale	Retail	Month/Year
Diesel (1 gal)	\$3.85	\$5.44	6/13; 8/14
Other Fuel? (1 gal)			
Gasoline (1 gal)			
Propane (100#)		\$11.22	8/14
Wood (1 cord)			
Pellets			
Discounts?			

Purchasing	Deliveries/Year	Gallons/Delivery	Vendor(s)
By Barge			
By Air			
Cooperative Purchasing Agreements			

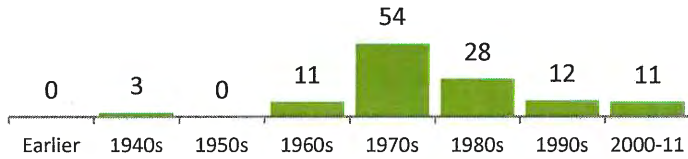
**Notes**  
Planned upgrades top tank farm

## Energy Profile: Goodnews Bay

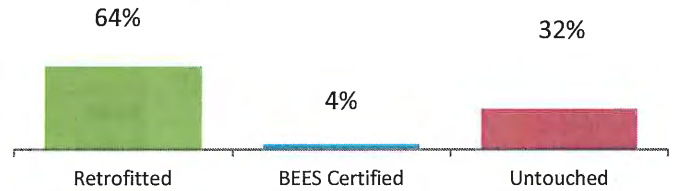
<b>Housing Units</b>	Occupied 98	Vacant 4	% Owner-Occup. 72%
<b>Housing Need</b>	Overcrowded 20.6%		1-star 17.2%
<b>Data Quality</b>	Medium		

<b>Regional Housing Authority</b>	AVCP		
<b>Weatherization Service Provider</b>	AVCP		
<b>Energy Use</b>	Average Home Energy Rating 3-star plus	Average Square Feet 760	Avg. EUI (kBtu/sf) 145

**Age of Housing Stock**



**Energy Efficient Housing Stock**



Lighting	Owner	Number/Type	Retrofitted?	Year	Notes
Street lights		19/HPS	Yes		17 lights replaced with LEDs

**Non-residential Building Inventory**

Building Name or Location	Year Built	Square Feet	Audited?	Retrofits Done?	In ARIS?
City Complex		4,219			Yes
General Store and Office Building	1997	5,664			No
Generator Module	1971				No
Health Clinic	2009 or 2007	2,572	Yes, AHFC-C	No	Yes
Mist Module	2009				No
Public Safety	1956	600	Yes, AHFC-C	No	Yes
Shop Building	1981				No
SRE Building (Heated)		2,200			Yes
Tribal Office		1,608			Yes
Water Treatment Plant		2,196			No

## Community Profile: Kasigluk



### Alaska Native Name (definition)

N/A

### Historical Setting / Cultural Resources

It is an Eskimo village listed as one of the "Tundra Villages" in the 1939 U.S. Census, with a population of 66. A post office was established in 1962. It incorporated as a city in 1982 but was dissolved on Oct. 21, 1996, in favor of the traditional village council.

**Incorporation** Unincorporated in the Bethel Census Area

### Location

Part of the Lower Kuskokwim Subregion. Kasigluk is on the Johnson River in the Kuskokwim River Delta, 26 miles northwest of Bethel. The community is comprised of Old and New Kasigluk, surrounded by the Johnson River and a network of lakes.

**Longitude** -162.518      **Latitude** 60.8951

**ANCSA Region** Calista Corporation

**Borough/CA** Bethel Census Area

**School District** Lower Kuskokwim School District

**AEA Region** Lower Yukon-Kuskokwim

**Taxes Type (rate)**      **Per-Capita Revenue**  
N/A      N/A

### Economy

Kasigluk is a Yup'ik Eskimo community practicing a fishing and subsistence lifestyle. The sale and importation of alcohol is banned.

**Climate**      **Avg. Temp.**      **Climate Zone**      **Heating Deg. Days**  
62/-2      N/A      N/A

### Natural Hazard Plan

N/A

### Community Plans

N/A      **Year**  
N/A

Local Contacts	Email	Phone	Fax
Kasigluk, Incorporated		907-447-6113	907-477-6026
Kasigluk Traditional Elders Council	<a href="mailto:kasigluk.admin@gmail.com">kasigluk.admin@gmail.com</a>	907-477-6405	907-477-6212

Demographics	2000	2010	2013
Population	543	569	Percent of Residents Employed 74.47%
Median Age	21	27	Denali Commission Distressed Community Yes
Avg. Household Size	6	6	Percent Alaska Native/American Indian (2010) 94.73%
Median Household Income		\$37,143	Low and Moderate Income (LMI) Percent (201x) N/A

Electric Utility	Generation Sources	Interties	PCE?
AVEC	Diesel, Wind	No	Yes

Landfill	Class	Permitted?	Location
	III	No	Banks of large pond

Water/Wastewater System	Homes Served	System Volume
Water N/A	648	<10,000
Sewer N/A	Water/Wastewater Energy Audit?	
Notes	No	

Access	Road	Air Access	Runway 1	Runway 2	Runway 3	Runway 4
	No	Kasigluk Airport, gravel, fair condition	3,000'x60'	N/A	N/A	N/A
		N/A	N/A	N/A	N/A	N/A
	No	Dock/Port	Barge Access? Yes	Ferry Service? No		

Notes

# Energy Profile: Kasigluk

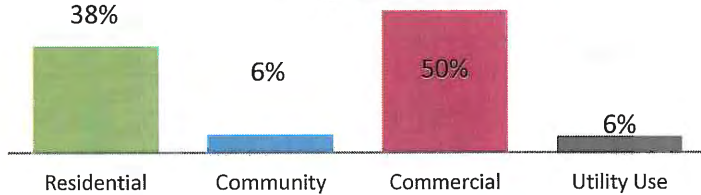
## Diesel Power System

Utility	AVEC		
Engine	Make/Model	Condition/Hrs	Gen Capacity
Unit 1	Detroit Diesel	Fair/7,900	363
Unit 2	Caterpillar	Fair/11,374	505
Unit 3	MTU	Fair/1,076	710
Unit 4			
Line Loss	41.4%		
Heat Recovery?	Yes; Plant, Community Center		
Upgrades	Priority	Projects	Status
RPSU Powerhouse	Low	Heat Rec.	Complete
RPSU Distribution	High		
Outage History/Known Issues			

<b>Operators</b>	No. of Operators	Training/Certifications
	13	PPO, BFO, BF-Book, Mgr

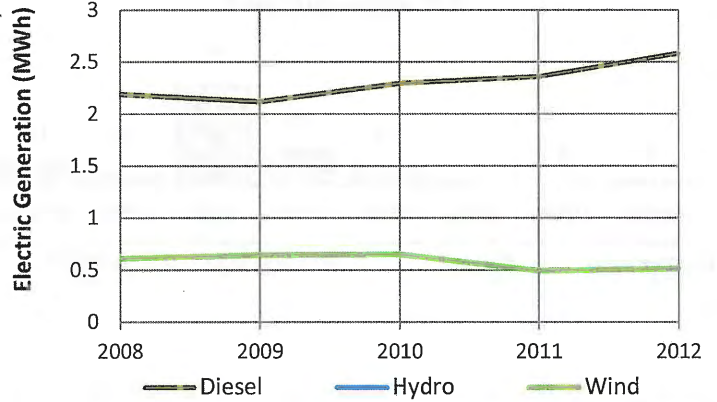
Maintenance Planning (RPSU)	Good		
<b>Electric Sales</b>	No. of Customers	kWh/year	kWh/Customer
Residential	113	694,778	6,148
Community	7	119,708	17,101
Commercial	31	927,882	29,932
Utility Use		105,947	

**Electric Sales by Customer Type  
(kWh/year)**



## Power Production

Diesel (kWh/yr)	2,548,852	Avg. Load (kW)	352
Wind (kWh/yr)	603,586	Peak Load (kW)	639
Hydro (kWh/yr)		Efficiency (kWh/gal)	13.25
Total (kWh/yr)	3,152,438	Diesel Used (gals/yr)	192,362



<b>Electric Rates (\$/kWh)</b>		<b>Cost per kWh Sold (\$/kWh)</b>	
Rate with PCE	\$0.19	Fuel Cost	\$0.46
Residential Rate	\$0.58	Non-fuel Cost	\$0.27
Commercial Rate		Total Cost	\$0.74
<b>Fuel Prices (\$)</b>	Utility/Wholesale	Retail	Month/Year
Diesel (1 gal)	\$4.23	\$7.22	6/13; 8/14
Other Fuel? (1 gal)			
Gasoline (1 gal)			
Propane (100#)		\$10.90	8/14
Wood (1 cord)			
Pellets			
Discounts?			

<b>Alternative Energy</b>	Potential	Projects	Status
Hydroelectric	Low	None	
Wind Diesel	High	Wind, 300 kW	Operating
Biomass	Low	None	
Solar	Medium	None	
Geothermal	Low	None	
Oil and Gas	Low	None	
Coal	Low	None	
Emerging Tech	Not Rated	None	
Heat Recovery	Low	Plant & Community Center	
Energy Efficiency	High	VEUEM	Complete

<b>Bulk Fuel</b>			
Tank Owner	Fuel Type(s)	Capacity	Age/Condition
School		15,000	active
Kasigluk Trd. Eld.	Diesel	100,000	Good
Kasigluk Trd. Eld.	Gasoline	150,000	Good
Bulk Fuel Upgrade	Priority	Project	Status

Purchasing	Deliveries/Year	Gallons/Delivery	Vendor(s)
By Barge	June		
By Air			
<b>Cooperative Purchasing Agreements</b>			
Notes			





# Community Profile: Kipnuk



**Incorporation** Unincorporated in the Bethel Census Area

**Location**  
Part of the Lower Kuskokwim Subregion. Kipnuk is located on the west bank of the Kugkaktlik River in the Yukon-Kuskokwim Delta, 85 air miles southwest of Bethel. It lies four miles inland from the Bering Sea coast.

<b>Longitude</b>	-164.0414	<b>Latitude</b>	59.9389
<b>ANCSA Region</b>	Calista Corporation		
<b>Borough/CA</b>	Bethel Census Area		
<b>School District</b>	Lower Kuskokwim School District		
<b>AEA Region</b>	Lower Yukon-Kuskokwim		

**Alaska Native Name (definition)**

N/A

**Historical Setting / Cultural Resources**

Yup'ik Eskimos have inhabited the region for thousands of years. According to early BIA records, the village was established around 1922.

<b>Taxes Type (rate)</b>		<b>Per-Capita Revenue</b>
N/A		N/A

**Economy**  
Kipnuk is a traditional Yup'ik Eskimo community, maintaining a subsistence lifestyle. Commercial fishing is an important income source. The sale and importation of alcohol is banned. 300 residents employed, 200 in the private sector, 100 in local government, and 2 in state government.

<b>Climate</b>	<b>Avg. Temp.</b>	<b>Climate Zone</b>	<b>Heating Deg. Days</b>
	57/6	Marine	11,310

**Natural Hazard Plan**  
Kipnuk Hazard Mitigation Plan, 2013

<b>Community Plans</b>	<b>Year</b>
N/A	N/A

<b>Local Contacts</b>	<b>Email</b>	<b>Phone</b>	<b>Fax</b>
Kugkaktlik, Limited		907-896-5414	907-896-5140
Native Village of Kipnuk	<a href="mailto:ktc99614@yahoo.com">ktc99614@yahoo.com</a>	907-896-5515	907-896-5240

<b>Demographics</b>	<b>2000</b>	<b>2010</b>	<b>2013</b>
<b>Population</b>	644	639	<b>Percent of Residents Employed</b> 73.31%
<b>Median Age</b>	21	25	<b>Denali Commission Distressed Community</b> Yes
<b>Avg. Household Size</b>	5	5	<b>Percent Alaska Native/American Indian (2010)</b> 97.65%
<b>Median Household Income</b>		\$37,083	<b>Low and Moderate Income (LMI) Percent (201x)</b> N/A

<b>Electric Utility</b>	<b>Generation Sources</b>	<b>Interties</b>	<b>PCE?</b>
Kipnuk Light Plant	Diesel	No	Yes

<b>Landfill</b>	<b>Class</b>	III	<b>Permitted?</b>	Yes	<b>Location</b>	N/A
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<b>Water/Wastewater System</b>	<b>Homes Served</b>	639	<b>System Volume</b>	N/A
<b>Water</b>	Pressure			
<b>Sewer</b>	N/A		<b>Water/Wastewater Energy Audit?</b>	No
<b>Notes</b>				

<b>Access</b>	<b>Road</b>	No	<b>Air Access</b>	Kipnuk Airport, gravel, good condition	<b>Runway 1</b>	3,200'x60'	<b>Runway 2</b>	N/A
				N/A	<b>Runway 3</b>	N/A	<b>Runway 4</b>	N/A
	<b>Dock/Port</b>	No	<b>Barge Access?</b>	Yes	<b>Ferry Service?</b>	No		
<b>Notes</b>								

## Energy Profile: Kipnuk

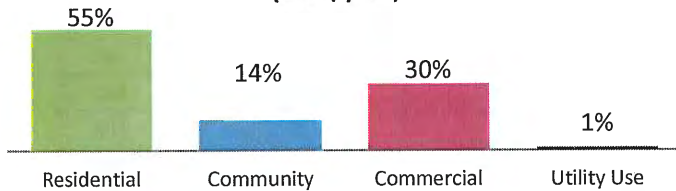
### Diesel Power System

<b>Utility</b>	Kipnuk Light Plant		
<b>Engine</b>	<b>Make/Model</b>	<b>Condition/Hrs</b>	<b>Gen Capacity</b>
Unit 1			
Unit 2			
Unit 3			
Unit 4			
<b>Line Loss</b>	4.9%		
<b>Heat Recovery?</b>			
<b>Upgrades</b>	<b>Priority</b>	<b>Projects</b>	<b>Status</b>
RPSU Powerhouse			In Progress
<b>RPSU Distribution</b>			
<b>Outage History/Known Issues</b>	No RPSU data.		
<b>Operators</b>	<b>No. of Operators</b>	<b>Training/Certifications</b>	
	21	PPO, BFO, Clerk, APPO	

### Maintenance Planning (RPSU)

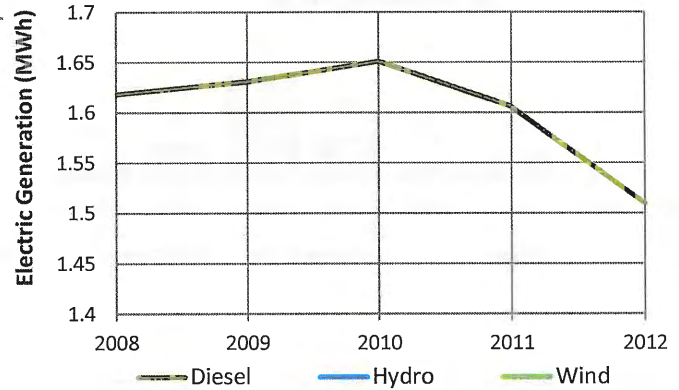
<b>Electric Sales</b>	<b>No. of Customers</b>	<b>kWh/year</b>	<b>kWh/Customer</b>
Residential	163	819,990	5,031
Community	7	204,629	29,233
Commercial	88	452,671	5,144
Utility Use		20,665	

**Electric Sales by Customer Type (kWh/year)**



### Power Production

<b>Diesel (kWh/yr)</b>	1,574,880	<b>Avg. Load (kW)</b>	179
<b>Wind (kWh/yr)</b>	0	<b>Peak Load (kW)</b>	397
<b>Hydro (kWh/yr)</b>	0	<b>Efficiency (kWh/gal)</b>	14.38
<b>Total (kWh/yr)</b>	1,574,880	<b>Diesel Used (gals/yr)</b>	109,499



### Electric Rates (\$/kWh)

<b>Rate with PCE</b>	\$0.19
<b>Residential Rate</b>	\$0.43
<b>Commercial Rate</b>	

### Cost per kWh Sold (\$/kWh)

<b>Fuel Cost</b>	\$0.31
<b>Non-fuel Cost</b>	\$0.24
<b>Total Cost</b>	\$0.55

### Fuel Prices (\$)

	<b>Utility/Wholesale</b>	<b>Retail</b>	<b>Month/Year</b>
<b>Diesel (1 gal)</b>	\$4.16	\$6.31	6-13; 8-14

### Other Fuel? (1 gal)

Gasoline (1 gal)

Propane (100#)

Wood (1 cord)

Pellets

Discounts?

<b>Alternative Energy</b>	<b>Potential</b>	<b>Projects</b>	<b>Status</b>
Hydroelectric	Low	None	
Wind Diesel	Medium	Met Tower Installed	Data collection underway
Biomass	Low	None	
Solar	Medium	None	
Geothermal	Low	None	
Oil and Gas	Low	None	
Coal	Low	None	
Emerging Tech	Not Rated	None	
Heat Recovery	High	Heat Recovery System	Construction
Energy Efficiency	High	1) Health Clinic Energy Efficiency 2) VEEP	Both Complete

### Bulk Fuel

<b>Tank Owner</b>	<b>Fuel Type(s)</b>	<b>Capacity</b>	<b>Age/Condition</b>
Village	Heating Oil	119,000	Fair
Village	Gasoline	100,000	Fair

<b>Purchasing</b>	<b>Deliveries/Year</b>	<b>Gallons/Delivery</b>	<b>Vendor(s)</b>
By Barge	2		
By Air			

### Cooperative Purchasing Agreements

<b>Bulk Fuel Upgrade</b>	<b>Priority</b>	<b>Project</b>	<b>Status</b>

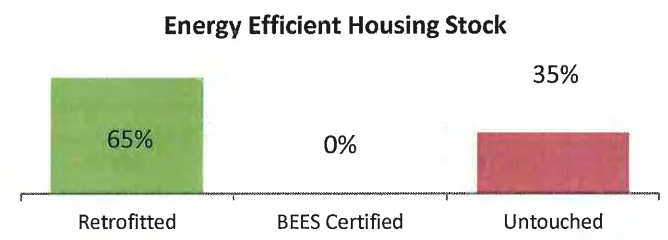
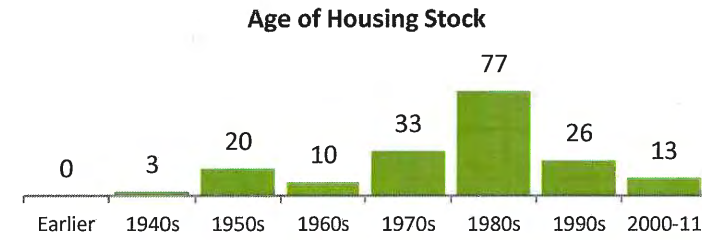
### Notes

Barge delivery in Spring & Fall.

## Energy Profile: Kipnuk

<b>Housing Units</b>	Occupied 136	Vacant 29	% Owner-Occup. 83%
<b>Housing Need</b>	Overcrowded 41.2%		1-star 6.1%
<b>Data Quality</b>	High		

<b>Regional Housing Authority</b>	AVCP		
<b>Weatherization Service Provider</b>	AVCP		
<b>Energy Use</b>	Average Home Energy Rating 3-star plus	Average Square Feet 927	Avg. EUI (kBtu/sf) 86



Lighting	Owner	Number/Type	Retrofitted?	Year	Notes

### Non-residential Building Inventory

Building Name or Location	Year Built	Square Feet	Audited?	Retrofits Done?	In ARIS?
ANTHC Office					No
ANTHC Pump House & Fuel Tanks					No
Armory Bldgs.					No
City Office		2,000	Yes		No
Clinic		3,200	Yes		Yes
Corp. Office					No
Corp. Warehouses					No
Council					No
FAA Conex					No
Generators					No
Grocery Store					No
Halibut Plant					No
Hardware Store		1,200			No
Jail House					No
Lodge & Garage					No
Moravian Church Bldgs.					No
New Washeteria					No
Old Power Plant					No
Police Dept.		897	Yes		Yes
Post Office					No
Power Plant				Yes	No
Repair Shop					No
School Bldgs.					No
Storage					No
Storage 2					No
Store					No
Teacher Housing					No
Trading Company					No
Tribal Bldg/Old School		8,000	Yes		Yes
United Utilities Inc. Conex					No
Water Plant, Storage & Repair Shop		1,760	Yes		No

# Community Profile: Kongiganak



**Alaska Native Name (definition)**

N/A

**Historical Setting / Cultural Resources**

The area has been occupied historically by Yup'ik Eskimos. The village was permanently settled in the late 1960s by former residents of Kwigillingok, who were seeking higher ground to escape periodic flooding.

**Incorporation** Unincorporated in the Bethel Census Area

**Location**

Part of the Lower Kuskokwim Subregion. Kongiganak is located on the west shore of Kuskokwim Bay, west of the mouth of the Kuskokwim River. It lies 70 miles southwest of Bethel and 451 miles west of Anchorage.

**Longitude** -163.054      **Latitude** 59.8800

**ANCSA Region** Calista Corporation

**Borough/CA** Bethel Census Area

**School District** Lower Kuskokwim School District

**AEA Region** Lower Yukon-Kuskokwim

**Taxes Type (rate)**      **Per-Capita Revenue**  
N/A      N/A

**Economy**

Kongiganak is a traditional Yup'ik Eskimo village with a fishing and subsistence lifestyle and culture. The sale, importation and possession of alcohol is banned. 212 residents employed: 109 in private sector, 97 in local government, 6 in state government.

**Climate**      **Avg. Temp.**      **Climate Zone**      **Heating Deg. Days**  
57/6      Marine      N/A

**Natural Hazard Plan**

N/A

**Community Plans**

N/A

**Year**

N/A

Local Contacts	Email	Phone	Fax
Qemirtalek Coast Corporation		907-557-5529	907-557-5517
Native Village of Kongiganak	<a href="mailto:kong.tribe@gmail.com">kong.tribe@gmail.com</a>	907-557-5226	907-557-5224

Demographics	2000	2010	2013
Population	359	439	Percent of Residents Employed 72.92%
Median Age	22	22	Denali Commission Distressed Community Yes
Avg. Household Size	5	5	Percent Alaska Native/American Indian (2010) 95.67%
Median Household Income		\$33,750	Low and Moderate Income (LMI) Percent (201x) N/A

Electric Utility	Generation Sources	Interties	PCE?
Puvurna Power Company	Diesel, Wind	No	Yes

Landfill	Class	Permitted?	No	Location	.7 mi northwest of community
	III				

Water/Wastewater System	Homes Served	System Volume
Water Washeteria	294	10,000-50,000
Sewer Honey Bucket	Water/Wastewater Energy Audit?	
Notes	Yes	

Access	Road	Air Access	Runway 1	Runway 2	Runway 3	Runway 4	Ferry Service?
	No	Kongiganak Airport, gravel-dirt, good condition	2,400'x75'	N/A	N/A	N/A	
		N/A	Barge Access?	Yes	Ferry Service?	No	

Notes

# Energy Profile: Kongiganak

## Diesel Power System

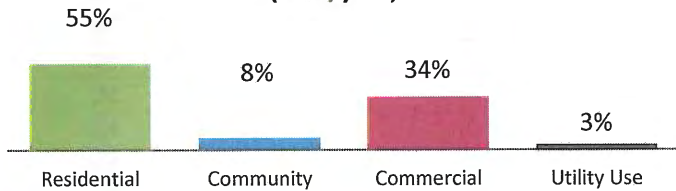
<b>Utility</b>	Puvurnaq Power Company		
<b>Engine</b>	<b>Make/Model</b>	<b>Condition/Hrs</b>	<b>Gen Capacity</b>
Unit 1	John Deere	Fair/9,040	235
Unit 2	John Deere	Fair/8,071	275
Unit 3	John Deere	Fair/10,993	275
Unit 4	John Deere	Fair/13,990	140
<b>Line Loss</b>	18.2%		
<b>Heat Recovery?</b>	Yes; Water Plant, Laundromat		
<b>Upgrades</b>	<b>Priority</b>	<b>Projects</b>	<b>Status</b>
RPSU Powerhouse	Med.		
RPSU Distribution	In Progress		
<b>Outage History/Known Issues</b>			

<b>Operators</b>	<b>No. of Operators</b>	<b>Training/Certifications</b>
	19	APPO, BFO, Elec. Util. Bus.

<b>Maintenance Planning (RPSU)</b>	Acceptable
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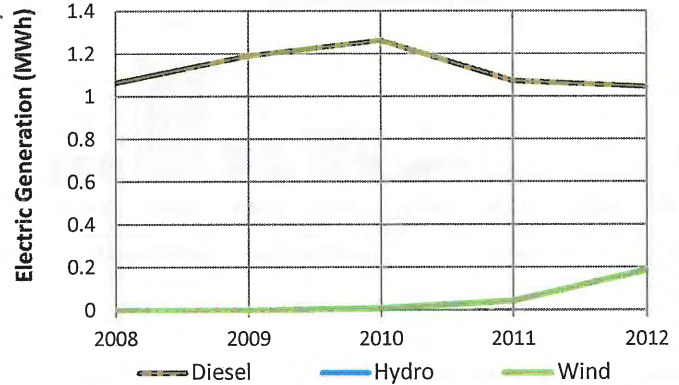
<b>Electric Sales</b>	<b>No. of Customers</b>	<b>kWh/year</b>	<b>kWh/Customer</b>
Residential	100	589,573	5,896
Community	5	83,345	16,669
Commercial	23	362,472	15,760
Utility Use		33,913	

**Electric Sales by Customer Type (kWh/year)**



## Power Production

Diesel (kWh/yr)	861,659	Avg. Load (kW)	99
Wind (kWh/yr)	318,848	Peak Load (kW)	219
Hydro (kWh/yr)	0	Efficiency (kWh/gal)	11.81
Total (kWh/yr)	1,306,761	Diesel Used (gals/yr)	72,956



<b>Electric Rates (\$/kWh)</b>	<b>Cost per kWh Sold (\$/kWh)</b>		
Rate with PCE	\$0.30	Fuel Cost	\$0.32
Residential Rate	\$0.65	Non-fuel Cost	\$0.33
Commercial Rate		Total Cost	\$0.65

<b>Fuel Prices (\$)</b>	<b>Utility/Wholesale</b>	<b>Retail</b>	<b>Month/Year</b>
Diesel (1 gal)	\$4.46	\$6.30	6-13; 8-14
Other Fuel? (1 gal)			
Gasoline (1 gal)			
Propane (100#)		\$422.62	8-14
Wood (1 cord)			
Pellets			
Discounts?			

<b>Alternative Energy</b>	<b>Potential</b>	<b>Projects</b>	<b>Status</b>
Hydroelectric	Low	None	
Wind Diesel	High	High Penetration Wind-Diesel Smrt Grid, 450 kW	Operational
Biomass	Low	None	
Solar	Medium	None	
Geothermal	Low	None	
Oil and Gas	Low	None	
Coal	Low	None	
Emerging Tech	Not Rated	None	
Heat Recovery	High	Water system	Operational
Energy Efficiency	High	Sanitation Energy Efficiency	In progress

<b>Bulk Fuel</b>	<b>Purchasing</b>	<b>Deliveries/Year</b>	<b>Gallons/Delivery</b>	<b>Vendor(s)</b>
Tank Owner	Fuel Type(s)	Capacity	Age/Condition	
Village	Heating Oil	96,000	Good	
Village	Gasoline	96,000	Good	
Utility	Heating Oil	60,000	Good	
Qemirtalek C.	Heating Oil	96,000	Good	
Qemirtalek C.	Gasoline	98,000	Good	
<b>Bulk Fuel Upgrade</b>	<b>Priority</b>	<b>Project</b>	<b>Status</b>	

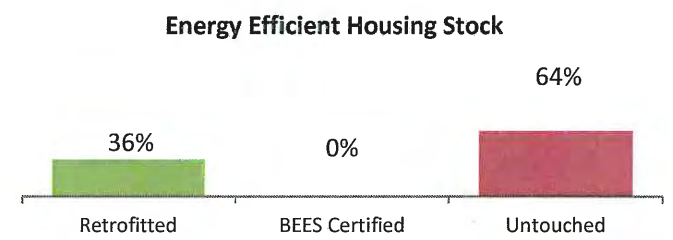
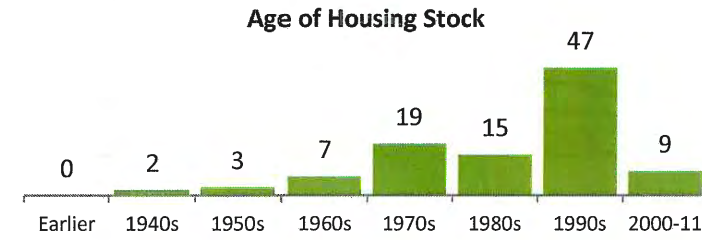
By Barge	6
By Air	
<b>Cooperative Purchasing Agreements</b>	

**Notes**  
Barge delivery in Spring, & Fall to Village. June-Sept. to Utility. Spring & Fall to Qemirtalek Coast Corp.

## Energy Profile: Kongiganak

<b>Housing Units</b>	Occupied	Vacant	% Owner-Occup.
	78	15	67%
<b>Housing Need</b>	Overcrowded		1-star
	55.1%		N/A
<b>Data Quality</b>	Low		

<b>Regional Housing Authority</b>	Weatherization Service Provider		
AVCP	AVCP		
<b>Energy Use</b>	Average Home Energy Rating	Average Square Feet	Avg. EUI (kBtu/sf)
	N/A	N/A	N/A



Lighting	Owner	Number/Type	Retrofitted?	Year	Notes

### Non-residential Building Inventory

Building Name or Location	Year Built	Square Feet	Audited?	Retrofits Done?	In ARIS?
AT&T Facility					No
Airport Maintenance Bldg					No
Child Welfare Office					No
Community Center					No
Fuel Tank Farm					No
Health Clinic	1980	1,350	Yes		Yes
Lift Station					No
Moravian Church					No
Moravian Church Parsonage					No
Moravian Church Warehouse					No
New Armory					No
Old Armory					No
Old Marina Fuel Station					No
Orthodox Church					No
PHS Bldg					No
Police Station					No
Post Office		1,656			No
Power Co. Office					No
Power Plant					No
Safe Water Storage					No
Safe Water/Laundromat					No
School					No
School Power Plant					No
Search & Seizure					No
Store					No
Teacher Housing					No
Tribal Bldg					No
United Utilities Inc					No
Variety Store					No
Warehouse					No
Water Treatment Plant/Tribal Offices/Hotel	1980	8903	Yes		Yes

## Community Profile: Kwethluk



### Alaska Native Name (definition)

"Kwethluk," Dangerous River

### Historical Setting / Cultural Resources

Archaeological finds indicate that the area has been inhabited since prehistoric times. In the late 1860s and early 1870s Russian Orthodox missionaries from Russian Mission founded a small congregation. The Moravian Church built a chapel in 1896 and a Russian Orthodox church was built in 1912. Discovery of gold in nearby creeks in 1909 attracted prospectors until 1911. In 1939, the villagers owned 31,000 reindeers and harvested the herd for food and skins. The tuberculosis epidemic of the late 1930s impacted the local population. The community has a post office since 1947, and a store since 1948.

**Incorporation** 2nd Class City, 1975

### Location

Part of the Lower Kuskokwim Subregion. Kwethluk is a Yup'ik community located 12 air miles east of Bethel on the Kwethluk River at the junction with the Kuskokuok Slough of the Kuskokwim River. It is the second largest community along the Lower Kuskokwim River.

**Longitude** -161.4358 **Latitude** 60.8122

**ANCSA Region** Calista Corporation

**Borough/CA** Bethel Census Area

**School District** Lower Kuskokwim School District

**AEA Region** Lower Yukon-Kuskokwim

**Taxes Type (rate)** **Per-Capita Revenue**  
Sales, 5% \$110

### Economy

Kwethluk is predominantly a Yup'ik Eskimo village that practices a subsistence lifestyle.

**Climate** **Avg. Temp.** **Climate Zone** **Heating Deg. Days**  
62/-2 N/A 3,685

### Natural Hazard Plan

City of Kwethluk Local Multi-Hazard Mitigation Plan, 200

**Community Plans** **Year**  
N/A N/A

Local Contacts	Email	Phone	Fax
Kwethluk Incorporated		907-757-6212	
Organized Village of Kwethluk	<a href="mailto:kwтира@gmail.com">kwтира@gmail.com</a>	907-757-6714	907-757-6328
City of Kwethluk	<a href="mailto:kwcityclerk@gmail.com">kwcityclerk@gmail.com</a>	907-757-6022	907-757-6497

Demographics	2000	2010	2013
Population	713	721	Percent of Residents Employed 76.50%
Median Age	20	28	Denali Commission Distressed Community Yes
Avg. Household Size	5	5	Percent Alaska Native/American Indian (2010) 94.17%
Median Household Income		\$47,500	Low and Moderate Income (LMI) Percent (201x) 85%

Electric Utility	Generation Sources	Interties	PCE?
Kwethluk Incorporated	Diesel	No	Yes

Landfill	Class	III	Permitted?	Yes	Location	5/8 mi south of downtown
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Water/Wastewater System		Homes Served	System Volume
Water	Washeteria	766	10,000-50,000
Sewer	Honey Bucket	Water/Wastewater Energy Audit?	
Notes		Yes	

Access		Runway 1	Runway 2	Runway 3	Runway 4
Road	No	3,199'x75'	N/A	N/A	N/A
Air Access	Kwethluk Airport, gravel, fair condition	Barge Access?	Yes	Ferry Service?	No
	N/A				

Notes



## Energy Profile: Kwethluk

### Diesel Power System

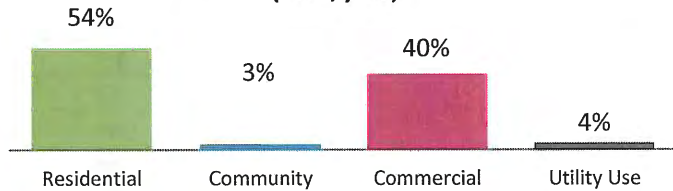
<b>Utility</b>	Kwethluk, Inc.		
<b>Engine</b>	<b>Make/Model</b>	<b>Condition/Hrs</b>	<b>Gen Capacity</b>
Unit 1	Caterpillar	Good/8,500	410
Unit 2	Caterpillar	Good/9,586	410
Unit 3	John Deere	Good/3	280
Unit 4			
<b>Line Loss</b>	12.8%		
<b>Heat Recovery?</b>	Yes; High School		
<b>Upgrades</b>	<b>Priority</b>	<b>Projects</b>	<b>Status</b>
RPSU Powerhouse	Low		Complete
RPSU Distribution	Med.		
<b>Outage History/Known Issues</b>			

<b>Operators</b>	<b>No. of Operators</b>	<b>Training/Certifications</b>
	19	PPO, BFO, Utility Clerk, BF Mgr.

<b>Maintenance Planning (RPSU)</b>	Good
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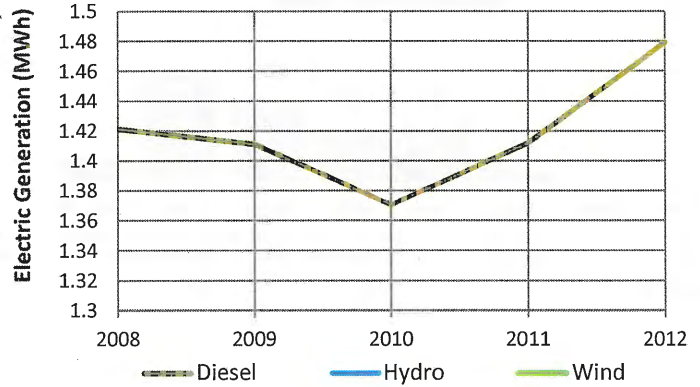
<b>Electric Sales</b>	<b>No. of Customers</b>	<b>kWh/year</b>	<b>kWh/Customer</b>
Residential	180	693,535	3,853
Community	4	38,323	9,581
Commercial	36	516,359	14,343
Utility Use		45,292	

**Electric Sales by Customer Type (kWh/year)**



### Power Production

<b>Diesel (kWh/yr)</b>	1,483,190	<b>Avg. Load (kW)</b>	134
<b>Wind (kWh/yr)</b>		<b>Peak Load (kW)</b>	298
<b>Hydro (kWh/yr)</b>		<b>Efficiency (kWh/gal)</b>	13.67
<b>Total (kWh/yr)</b>	1,483,190	<b>Diesel Used (gals/yr)</b>	108,472



<b>Electric Rates (\$/kWh)</b>		<b>Cost per kWh Sold (\$/kWh)</b>	
Rate with PCE	\$0.20	Fuel Cost	\$0.38
Residential Rate	\$0.52	Non-fuel Cost	\$0.10
Commercial Rate		Total Cost	\$0.48
<b>Fuel Prices (\$)</b>	<b>Utility/Wholesale</b>	<b>Retail</b>	<b>Month/Year</b>
Diesel (1 gal)	\$4.45	\$7.19	6/13; 8/14
Other Fuel? (1 gal)			
Gasoline (1 gal)			
Propane (100#)		\$7.12	8/14
Wood (1 cord)			
Pellets			
Discounts?			

<b>Alternative Energy</b>	<b>Potential</b>	<b>Projects</b>	<b>Status</b>
Hydroelectric	Low	None	
Wind Diesel	Low	Met Tower installed 6-12-12	Suspended
Biomass	Low	None	
Solar	Medium	None	
Geothermal	Low	None	
Oil and Gas	Low	None	
Coal	Low	None	
Emerging Tech	Not Rated	None	
Heat Recovery	High	High school	Operational
Energy Efficiency	High	EECBG Streetlight LED Replacement	Complete

<b>Bulk Fuel</b>				<b>Purchasing</b>	<b>Deliveries/Year</b>	<b>Gallons/Delivery</b>	<b>Vendor(s)</b>
<b>Tank Owner</b>	<b>Fuel Type(s)</b>	<b>Capacity</b>	<b>Age/Condition</b>	By Barge	Spring & Fall		
Kwethluk, Inc.	Diesel	230,000	Good	By Air			
Kwethluk, Inc.	Gasoline	115,000	Good	<b>Cooperative Purchasing Agreements</b>			
Bulk Tank Farm	unknown	439,500	8 yrs/active				
Kwethluk, Inc.	Unknown	Unknown	Abandoned				
Old Tank Farm	Unknown	Unknown	Abandoned				
<b>Bulk Fuel Upgrade</b>	<b>Priority</b>	<b>Project</b>	<b>Status</b>	<b>Notes</b>			

## Energy Profile: Kwethluk

<b>Housing Units</b>	Occupied	Vacant	% Owner-Occup.
	159	69	62%

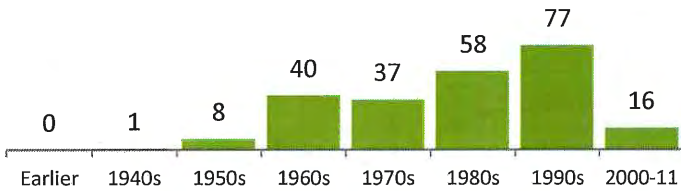
<b>Regional Housing Authority</b>	<b>Weatherization Service Provider</b>
AVCP	AVCP

<b>Housing Need</b>	Overcrowded	1-star
	43.4%	24.8%

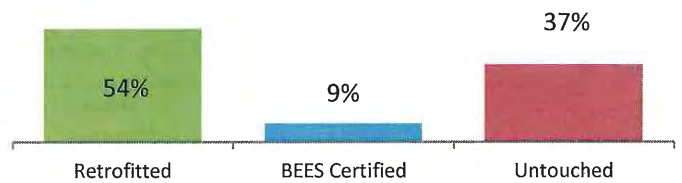
<b>Energy Use</b>	Average Home Energy Rating	Average Square Feet	Avg. EUI (kBtu/sf)
	2-star	702	187

<b>Data Quality</b>	Medium
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**Age of Housing Stock**



**Energy Efficient Housing Stock**

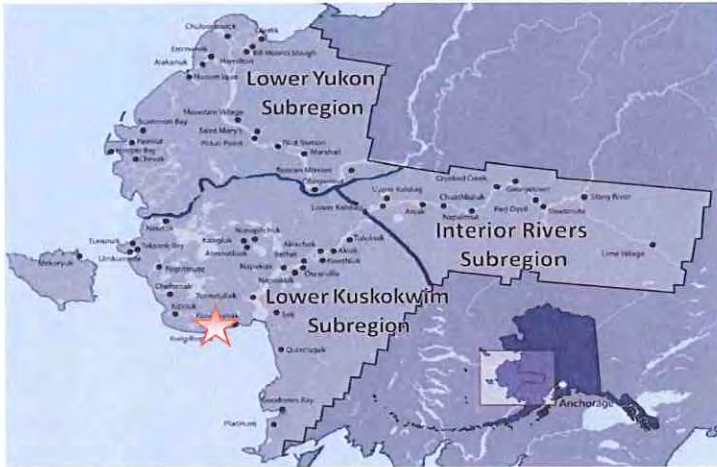


Lighting	Owner	Number/Type	Retrofitted?	Year	Notes
Streetlights		50	Yes		45 replaced with LEDs

**Non-residential Building Inventory**

Building Name or Location	Year Built	Square Feet	Audited?	Retrofits Done?	In ARIS?
ANICA Store		5,000			No
Band Room					No
Boat House					No
City Office	1994	1,800			Yes
Generator Module					No
Kwethluk BIA School					No
Kwethluk Community School					No
Old Fire Station	1994	1,500			Yes
Old Head Start	1984	3,000			Yes
Portable Classroom					No
Portable Classroom					No
Portable Classroom					No
Portable Classroom					No
Power House		2,400			No
Propane House		8,000			No
Public Safety Building	1985	4,800			Yes
Sports Store		64,000			No
Sports Store Office		1,600			No
Sre Building (Heated)					No
Tank Farm #1					No
Tank Farm #2					No
Tank Farm #3					No
Vocational Education Shop					No
Washeteria	1986	2,000			Yes
Water Treatment					No
Betty Guy Memorial Health Clinic					No

# Community Profile: Kwigillingok



**Alaska Native Name (definition)**

N/A

**Historical Setting / Cultural Resources**

The area has long been occupied by the Yup'ik Eskimos. The first record of the village was in 1927 on an Alaska map, when it was noted as "Quillingok." A Moravian church was established around 1920.

**Incorporation** Unincorporated in the Bethel Census Area

**Location**

Part of the Lower Kuskokwim Subregion. Kwigillingok is on the western shore of Kuskokwim Bay near the mouth of the Kuskokwim River. It lies 77 miles southwest of Bethel and 388 miles west of Anchorage. The village of Kongiganak is nearby.

<b>Longitude</b>	-163.1332	<b>Latitude</b>	59.8639
<b>ANCSA Region</b>	Calista Corporation		
<b>Borough/CA</b>	Bethel Census Area		
<b>School District</b>	Lower Kuskokwim School District		
<b>AEA Region</b>	Lower Yukon-Kuskokwim		

<b>Taxes Type (rate)</b>	<b>Per-Capita Revenue</b>
N/A	N/A

**Economy**

Kwigillingok is a traditional Yup'ik Eskimo village, practicing a commercial fishing and subsistence lifestyle.

<b>Climate</b>	<b>Avg. Temp.</b>	<b>Climate Zone</b>	<b>Heating Deg. Days</b>
	57/6	Marine	N/A

**Natural Hazard Plan**

N/A

<b>Community Plans</b>	<b>Year</b>
N/A	N/A

<b>Local Contacts</b>	<b>Email</b>	<b>Phone</b>	<b>Fax</b>
Kwik Incorporated		907-588-8112	907-588-8313
Native Village of Kwigillingok	<a href="mailto:kwktribal@yahoo.com">kwktribal@yahoo.com</a>	907-588-8114	907-588-8429

<b>Demographics</b>	<b>2000</b>	<b>2010</b>	<b>2013</b>
<b>Population</b>	338	321	<b>Percent of Residents Employed</b> 78.66%
<b>Median Age</b>	26	19	<b>Denali Commission Distressed Community</b> No
<b>Avg. Household Size</b>	5	4	<b>Percent Alaska Native/American Indian (2010)</b> 95.02%
<b>Median Household Income</b>		\$39,167	<b>Low and Moderate Income (LMI) Percent (201x)</b> N/A

<b>Electric Utility</b>	<b>Generation Sources</b>	<b>Interties</b>	<b>PCE?</b>
Kwigillingok Power Company	Diesel, Wind	No	Yes

<b>Landfill</b>	<b>Class</b>	III	<b>Permitted?</b>	Yes	<b>Location</b>	1/2 mi from village
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<b>Water/Wastewater System</b>		<b>Homes Served</b>	<b>System Volume</b>
<b>Water</b>	Washeteria	338	100,001-500,000
<b>Sewer</b>	N/A	<b>Water/Wastewater Energy Audit?</b>	
<b>Notes</b>		No	

**Access**

<b>Road</b>	No	<b>Runway 1</b>	1,835'x40'	<b>Runway 2</b>	N/A
<b>Air Access</b>	Kwigillingok Airport, gravel-dirt, good condition	<b>Runway 3</b>	N/A	<b>Runway 4</b>	N/A
	N/A	<b>Barge Access?</b>	No	<b>Ferry Service?</b>	No

**Notes**

# Energy Profile: Kwigillingok

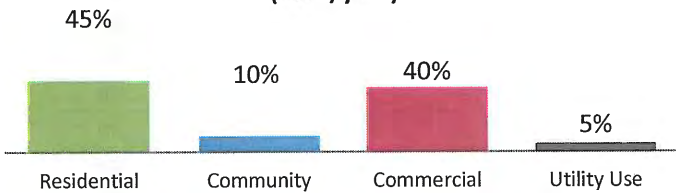
## Diesel Power System

<b>Utility</b>	Kwigillingok Power Company		
<b>Engine</b>	<b>Make/Model</b>	<b>Condition/Hrs</b>	<b>Gen Capacity</b>
Unit 1	John Deere	Fair/15,548	168
Unit 2	John Deere	Fair/9,063	190
Unit 3	John Deere	Fair/9,645	275
Unit 4	John Deere	Fair/5,981	90
<b>Line Loss</b>	8.4%		
<b>Heat Recovery?</b>	Yes; Water Plant		
<b>Upgrades</b>	<b>Priority</b>	<b>Projects</b>	<b>Status</b>
RPSU Powerhouse	Low		Complete
RPSU Distribution	In Progress		
<b>Outage History/Known Issues</b>			

<b>Operators</b>	<b>No. of Operators</b>	<b>Training/Certifications</b>
	15	APPO, BFO, Elec. Util. Bus., PPO

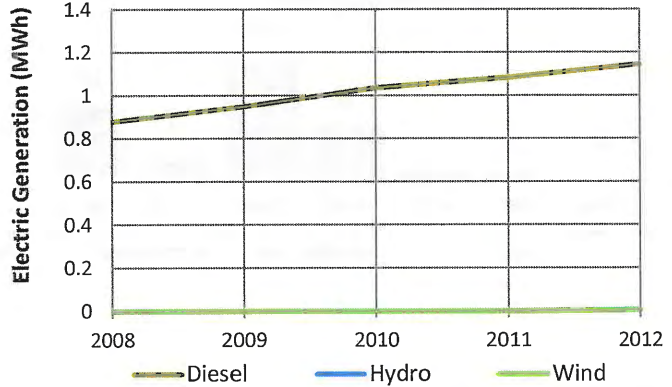
<b>Maintenance Planning (RPSU)</b>	Unacceptable		
<b>Electric Sales</b>	<b>No. of Customers</b>	<b>kWh/year</b>	<b>kWh/Customer</b>
Residential	96	484,963	5,052
Community	3	106,805	35,602
Commercial	31	437,000	14,097
Utility Use	57,260		

**Electric Sales by Customer Type (kWh/year)**



## Power Production

<b>Diesel (kWh/yr)</b>	1,125,730	<b>Avg. Load (kW)</b>	85
<b>Wind (kWh/yr)</b>	59,295	<b>Peak Load (kW)</b>	189
<b>Hydro (kWh/yr)</b>	0	<b>Efficiency (kWh/gal)</b>	13.19
<b>Total (kWh/yr)</b>	1,185,025	<b>Diesel Used (gals/yr)</b>	85,324



<b>Electric Rates (\$/kWh)</b>	<b>Cost per kWh Sold (\$/kWh)</b>		
Rate with PCE	\$0.20	Fuel Cost	\$0.37
Residential Rate	\$0.61	Non-fuel Cost	\$0.34
Commercial Rate		Total Cost	\$0.71

<b>Fuel Prices (\$)</b>	<b>Utility/Wholesale</b>	<b>Retail</b>	<b>Month/Year</b>
Diesel (1 gal)	\$4.44	\$6.02	6-13; 8-14
Other Fuel? (1 gal)			
Gasoline (1 gal)			
Propane (100#)			
Wood (1 cord)			
Pellets			
Discounts?			

<b>Alternative Energy</b>	<b>Potential</b>	<b>Projects</b>	<b>Status</b>
Hydroelectric	Low	None	
Wind Diesel	High	High Penetration Wind-Diesel Smrt Grid, 450 kW	Operational
Biomass	Low	None	
Solar	Medium	None	
Geothermal	Low	None	
Oil and Gas	Low	None	
Coal	Low	None	
Emerging Tech	Not Rated	None	
Heat Recovery	Medium	Water treatment plant	Operational
Energy Efficiency	High	EECBG	Complete

<b>Bulk Fuel</b>	<b>Purchasing</b>	<b>Deliveries/Year</b>	<b>Gallons/Delivery</b>	<b>Vendor(s)</b>
Tank Owner	Fuel Type(s)	Capacity	Age/Condition	
Utility	Heating Oil	83,000	Good	

By Barge	2		
By Air			
<b>Cooperative Purchasing Agreements</b>			

<b>Bulk Fuel Upgrade</b>	<b>Priority</b>	<b>Project</b>	<b>Status</b>
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**Notes**  
Barge delivery in June & Sept.

