Profiles

Lower Kuskokwim Subregion

Akiachak, Akiak, Atmautluak, Bethel, Chefornak, Eek, Goodnews Bay, Kasigluk, Kipnuk, Kongiganak, Kwethluk, Kwagalingok, Mekoryuk, Napakiak, Napaskiak, Newtok, Nightmute, Oscarville, Platinum, Quinhagak, Toksook Bay, Tuluksak, Tuntutuliak, Tununak
### Community Profile: Akiachak

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

**Historical Setting / Cultural Resources**
The area was used by the Yup'ik Eskimos as a seasonal subsistence site. Called "Akiakchagamiut" 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.

**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.

<table>
<thead>
<tr>
<th>Longitude</th>
<th>-161.4314</th>
<th>Latitude</th>
<th>60.9094</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ANCSA Region</strong></td>
<td>Calista Corporation</td>
<td><strong>Borough/CA</strong></td>
<td>Bethel Census Area</td>
</tr>
</tbody>
</table>

**Taxes**
Type (rate) | Per-Capita Revenue | 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.

**Climate**
<table>
<thead>
<tr>
<th>Avg. Temp.</th>
<th>Climate Zone</th>
<th>Heating Deg. Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>62/-2</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

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

**Community Plans**
Year | N/A

**Local Contacts**

<table>
<thead>
<tr>
<th><strong>Email</strong></th>
<th><strong>Phone</strong></th>
<th><strong>Fax</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Akiachak, Limited</td>
<td>907-825-4328</td>
<td>907-825-4115</td>
</tr>
<tr>
<td>Akiachak Native Community</td>
<td>907-825-4626</td>
<td>907-825-4029</td>
</tr>
</tbody>
</table>

**Demographics**

<table>
<thead>
<tr>
<th>2000</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>585</td>
</tr>
<tr>
<td>Median Age</td>
<td>23</td>
</tr>
<tr>
<td>Avg. Household Size</td>
<td>5</td>
</tr>
<tr>
<td>Median Household Income</td>
<td>$43,750</td>
</tr>
</tbody>
</table>

**Electric Utility**

<table>
<thead>
<tr>
<th>Akiachak Native Community (ANC) Electric Company</th>
<th>Generation Sources</th>
<th>Interties</th>
<th>Percent of Residents Employed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diesel</td>
<td>No</td>
<td>Yes</td>
<td>74.30%</td>
</tr>
</tbody>
</table>

**Landfill**

<table>
<thead>
<tr>
<th>Class</th>
<th>Permitted?</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>III</td>
<td>No</td>
<td>1/4 mi north of town</td>
</tr>
</tbody>
</table>

**Water/Wastewater System**

<table>
<thead>
<tr>
<th>Water/Wastewater Energy Audit?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Water/Wastewater System</th>
<th>Homes Served</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>627</td>
</tr>
</tbody>
</table>

**Access**

<table>
<thead>
<tr>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dock/Port</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Road</th>
<th>Air Access</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>Akiachak Airport, gravel, excellent condition</td>
<td>Runway 1: 3,300'x60'</td>
</tr>
<tr>
<td></td>
<td>Seaplane Base</td>
<td>Runway 2: N/A</td>
</tr>
<tr>
<td></td>
<td>Barge Access?</td>
<td>Runway 3: 5,000'x500'</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>Runway 4: N/A</td>
</tr>
<tr>
<td></td>
<td>Ferry Service?</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>System Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>10,000-50,000</td>
</tr>
</tbody>
</table>
# Energy Profile: Akiachak

## Diesel Power System

<table>
<thead>
<tr>
<th>Utility</th>
<th>Akiachak Native Community</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine Make/Model</td>
<td>Caterpillar</td>
</tr>
<tr>
<td>Condition/Hrs</td>
<td>Good</td>
</tr>
<tr>
<td>Gen Capacity</td>
<td>500</td>
</tr>
</tbody>
</table>

| Unit 1          | Caterpillar               |
| Unit 2          | Caterpillar               |
| Unit 3          | Caterpillar               |
| Unit 4          | Caterpillar               |

| Line Loss       | 7.0%                      |
| Heat Recovery?  | Yes; Water Plant          |
| Upgrades PriorityProjects Status |
| RPSU Powerhouse | Low                       |
| RPSU Distribution| High                     |

## Outage History/Known Issues

### Operators

<table>
<thead>
<tr>
<th>No. of Operators</th>
<th>Training/Certifications</th>
</tr>
</thead>
</table>

### Maintenance Planning (RPSU)

| Electric Sales Planning (RPSU) | Good |

### Electric Sales

<table>
<thead>
<tr>
<th>No. of Customers</th>
<th>kWh/year</th>
<th>kWh/Customer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>163</td>
<td>661,139</td>
</tr>
<tr>
<td>Community</td>
<td>10</td>
<td>164,767</td>
</tr>
<tr>
<td>Commercial</td>
<td>47</td>
<td>936,780</td>
</tr>
</tbody>
</table>

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

- Residential: 37%
- Community: 9%
- Commercial: 52%
- Utility Use: 2%

## Power Production

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

## Electric Rates ($/kWh)

- Rate with PCE: $0.23
- Residential Rate: $0.60
- Commercial Rate: $0.62

### Fuel Prices ($)

- Diesel (1 gal): $4.40
- MDO (1 gal): $6.98
- Fuel Oil: $6.13
- Kerosene: $6.13

## Alternative Energy

<table>
<thead>
<tr>
<th>Potential</th>
<th>Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydroelectric Low</td>
<td>None</td>
</tr>
<tr>
<td>Wind Diesel Low</td>
<td>Met Tower Installed 6-6-12 Suspended</td>
</tr>
<tr>
<td>Biomass Low</td>
<td>None</td>
</tr>
<tr>
<td>Solar Medium</td>
<td>None</td>
</tr>
<tr>
<td>Geothermal Low</td>
<td>None</td>
</tr>
<tr>
<td>Oil and Gas Low</td>
<td>None</td>
</tr>
<tr>
<td>Coal Low</td>
<td>None</td>
</tr>
<tr>
<td>Emerging Tech Not Rated</td>
<td>None</td>
</tr>
<tr>
<td>Heat Recovery Low</td>
<td>Water system Operational</td>
</tr>
</tbody>
</table>

## Bulk Fuel

<table>
<thead>
<tr>
<th>Tank Owner</th>
<th>Fuel Type(s)</th>
<th>Capacity</th>
<th>Age/Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Akiachak</td>
<td>Diesel/Gas</td>
<td>605,000</td>
<td>9 yrs/active</td>
</tr>
<tr>
<td>Old Elementary</td>
<td>Diesel/Gas</td>
<td>Abandoned</td>
<td></td>
</tr>
<tr>
<td>Water/Pwr Plant</td>
<td>Diesel</td>
<td>Abandoned</td>
<td></td>
</tr>
<tr>
<td>Akiachak Native</td>
<td>Diesel/Gas</td>
<td>40,000/10,000 Good</td>
<td></td>
</tr>
<tr>
<td>Akiachak Ltd.</td>
<td>Diesel</td>
<td>240,000</td>
<td>Good</td>
</tr>
<tr>
<td>Akiachak Ltd.</td>
<td>Gasoline</td>
<td>144,000</td>
<td>Good</td>
</tr>
<tr>
<td>Bulk Fuel Upgrade</td>
<td>Priority</td>
<td>Project</td>
<td>Status</td>
</tr>
</tbody>
</table>

## Notes

- Purchasing Delivery/Year Gallons/Delivery Vendor(s)
  - By Barge Fall
  - By Air

## Cooperative Purchasing Agreements
## Energy Profile: Akiachak

### Housing Units

<table>
<thead>
<tr>
<th>Occupied</th>
<th>Vacant</th>
<th>% Owner-Occup.</th>
</tr>
</thead>
<tbody>
<tr>
<td>145</td>
<td>24</td>
<td>80%</td>
</tr>
</tbody>
</table>

### Housing Need

- Overcrowded: 1-star
- 57.2%: 0.6%

### Data Quality

- Medium

### Region Housing Authority

- AVCP

### Weatherization Service Provider

- AVCP

### Energy Use

- Average Home Energy Rating
- 3-star 701
- Avg. EUI (kBTU/sf) 129

### Age of Housing Stock

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>3</td>
<td>15</td>
<td>25</td>
<td>76</td>
<td>42</td>
<td>17</td>
</tr>
</tbody>
</table>

### Energy Efficient Housing Stock

- 18% Retrofitted
- 0% BEES Certified
- 82% Untouched

### Lighting

<table>
<thead>
<tr>
<th>Lighting</th>
<th>Owner</th>
<th>Number/Type</th>
<th>Retrofitted?</th>
<th>Year</th>
<th>Notes</th>
</tr>
</thead>
</table>

### Non-residential Building Inventory

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

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.

Local Contacts
- Email: akiarmiu@yahoo.com
- Phone: 907-765-7228
- Fax: 907-765-7619

Demographics
- Median Age: 22, 25
- Avg. Household Size: 5, 4
- Median Household Income: $40,000

Electric Utility
- City of Akiak
- Generation Sources: Diesel

Landfill
- Class: III
- Permitted: No

Water/Wastewater System
- Water: Circ
- Sewer: Gravity

Access
- Road: No
- Air Access: Akiak Airport, gravel, fair condition
- Dock/Port: No

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: Yupiiq School District
AEA Region: Lower Yukon-Kuskokwim

Taxes
- Type (rate): N/A
- Per-Capita Revenue: 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.: 62/-2
- Climate Zone: N/A
- Heating Deg. Days: N/A

Natural Hazard Plan
- Akiak Hazard Mitigation Plan, 2013

Community Plans
- Year: N/A

Homes Served: 346
Water/Wastewater Energy Audit?: Yes
System Volume: 10,000-50,000
Energy Profile: Akiak

Diesel Power System
Utility: City of Akiak

<table>
<thead>
<tr>
<th>Engine</th>
<th>Make/Model</th>
<th>Condition/Hrs</th>
<th>Gen Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit 1</td>
<td>John Deere</td>
<td>Good/302</td>
<td>230</td>
</tr>
<tr>
<td>Unit 2</td>
<td>John Deere</td>
<td>Good/280</td>
<td>230</td>
</tr>
<tr>
<td>Unit 3</td>
<td>John Deere</td>
<td>Good/110</td>
<td>230</td>
</tr>
<tr>
<td>Unit 4</td>
<td>John Deere</td>
<td>Good/61</td>
<td>230</td>
</tr>
</tbody>
</table>

Line Loss: 16.2%
Heat Recovery? Yes; Water Plant, Community Bldg.

Upgrades
- RPSU Powerhouse: Priority Low, Projects: Complete
- RPSU Distribution: In Progress
- Outage History/Known Issues

Operators: 7
- PPO, APPO, Utility Clerk

Maintenance Planning (RPSU): Good

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

Electric Sales by Customer Type (%)
- Residential: 31%
- Community: 17%
- Commercial: 49%
- Utility Use: 3%

Power Production
- Diesel (kWh/yr): 1,188,049
- 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)
- Rate with PCE: $0.22
- Residential Rate: $0.63

Cost per kWh Sold ($/kWh)
- Fuel Cost: $0.37
- Non-fuel Cost: $0.19
- Total Cost: $0.56

Fuel Prices ($)
- Diesel (1 gal): $5.25
- Gasoline (1 gal): $6.85
- Propane (100#): 6/13; 8/14
- Wood (1 cord): None
- Pellets: None
- Discounts: None

Alternative Energy
- Potential: Low
- Projects: None

Emerging Tech: None
- Status: Operational

Hydroelectric
- Potential: Low
- Projects: None

Wind Diesel
- Potential: Low
- Projects: None

Biomass
- Potential: Low
- Projects: None

Solar
- Potential: Medium
- Projects: None

Geothermal
- Potential: Low
- Projects: None

Oil and Gas
- Potential: Low
- Projects: None

Coal
- Potential: Low
- Projects: None

EcoTech: Not Rated
- Status: None

Heat Recovery
- Potential: Low
- Projects: Water system and community building
- Status: Operational

Fuel Efficiency
- Potential: High
- Projects: Sanitation Energy Efficiency
- Status: Funded

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

Purchasing Deliveries/Year Gallons/Delivery Vendor(s)
- By Barge: Fall
- By Air: None

Cooperative Purchasing Agreements

Notes
# Energy Profile: Akiak

## Housing Units
- **Occupied:** 89
- **Vacant:** 9
- **% Owner-Occupied:** 65%

## Housing Need
- **Overcrowded:** 43.8%
- **1-star:** N/A

## Data Quality
- **Low**

## Age of Housing Stock

<table>
<thead>
<tr>
<th>Year</th>
<th>1940s</th>
<th>1950s</th>
<th>1960s</th>
<th>1970s</th>
<th>1980s</th>
<th>1990s</th>
<th>2000-11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Count</td>
<td>2</td>
<td>0</td>
<td>11</td>
<td>21</td>
<td>48</td>
<td>12</td>
<td>11</td>
</tr>
</tbody>
</table>

## Energy Use
- **Average Home Energy Rating:** N/A
- **Average Square Feet:** N/A
- **Avg. EUI (kBtu/sf):** N/A

## Energy Efficient Housing Stock
- **Retrofitted:** 0%
- **BEES Certified:** 0%
- **Untouched:** 100%

## Lighting
- **Owner:**
- **Number/Type:**
- **Retrofitted?:**
- **Year:**
- **Notes:**

## Non-residential Building Inventory

<table>
<thead>
<tr>
<th>Building Name or Location</th>
<th>Year Built</th>
<th>Square Feet</th>
<th>Audited?</th>
<th>Retrofits Done?</th>
<th>In ARIS?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Akiak K-12 School</td>
<td>1950s</td>
<td>29,659</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Akiak Native Community</td>
<td>1975</td>
<td>7,900</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Akiak Village Council</td>
<td>1986</td>
<td>1,280</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Akiak Water Plant</td>
<td>1986</td>
<td>1,280</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>ANTHC Storage</td>
<td>1994</td>
<td>320</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Armory</td>
<td>2006</td>
<td>1,920</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>City of Akiak Building</td>
<td>2006</td>
<td>2,492</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Community Building</td>
<td>2006</td>
<td>1,920</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Early Childhood Office</td>
<td>2006</td>
<td>1,920</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Generator Set (2)</td>
<td>1994</td>
<td>320</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Head Start</td>
<td>2006</td>
<td>1,920</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Health Clinic</td>
<td>2006</td>
<td>1,920</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Kokarmuit Corporation</td>
<td>1984</td>
<td>2,350</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Movarian Church</td>
<td>1994</td>
<td>320</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Old Church</td>
<td>1994</td>
<td>320</td>
<td>No</td>
<td>No</td>
<td>No</td>
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<tr>
<td>Old High School Wood Shop</td>
<td>1984</td>
<td>320</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Old Kokarmuit Storage</td>
<td>1984</td>
<td>320</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Old Post Office</td>
<td>1984</td>
<td>320</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Old Power Plant</td>
<td>1984</td>
<td>320</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Old Youth Center</td>
<td>1984</td>
<td>320</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Post Office</td>
<td>1984</td>
<td>320</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Sre Building #1 (Heated)</td>
<td>1984</td>
<td>1,104</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Sre Building #2 (Heated)</td>
<td>1984</td>
<td>1,104</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Stephen Ivan/Sons Store</td>
<td>1984</td>
<td>320</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Storage Van</td>
<td>1984</td>
<td>320</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>United Utilities</td>
<td>1984</td>
<td>320</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>
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 Pimikatik 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. 62/-2
Climate Zone N/A
Heating Deg. Days N/A

Natural Hazard Plan
N/A

Community Plans
Year N/A

Local Contacts
Email
Atmautluak Limited
atmautluak@hughes.net
Village of Atmautluak

Phone
907-553-5428
907-553-5610
Fax
907-553-5612

Demographics
Population 2000 294
2010 277
Median Age 25
24
Avg. Household Size 5
5
Median Household Income $45,000

Electric Utility
Native Village of Atmautluak Generation Sources Diesel

Landfill Class III Permitted? No

Water/Wastewater System
Water Washeteria
Sewer Honey Bucket

Notes

Access
Road No
Air Access Atmautluak Airport, gravel, good condition
N/A
Dock/Port No

Notes

Percent of Residents Employed
78.30%

Denali Commission Distressed Community
Yes

Percent Alaska Native/American Indian (2010)
97.83%

Low and Moderate Income (LMI) Percent (201x)
N/A

Electric Utility

Generation Sources Diesel

Interties No

Per-Capita Earnings
Yes

Homes Served
311

Water/Wastewater Energy Audit?
Yes

System Volume
10,000-50,000

Runway 1 3,000'x75'
Runway 2 N/A
Runway 3 N/A
Runway 4 N/A
Barge Access? No
Ferry Service? No
Energy Profile: Atmautluak

**Diesel Power System**

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

**Power Production**

<table>
<thead>
<tr>
<th>Power Production</th>
<th>808,342 Avg. Load (kW)</th>
<th>52</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wind (kWh/yr)</td>
<td>Peak Load (kW)</td>
<td>114</td>
</tr>
<tr>
<td>Hydro (kWh/yr)</td>
<td>Efficiency (kWh/gal)</td>
<td>14.46</td>
</tr>
<tr>
<td>Total (kWh/yr)</td>
<td>808,342 Diesel Used (gals/yr)</td>
<td>55,908</td>
</tr>
</tbody>
</table>

**Electric Generation (MWh)**

<table>
<thead>
<tr>
<th>Year</th>
<th>Diesel</th>
<th>Hydro</th>
<th>Wind</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>0.3</td>
<td>0.2</td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>0.4</td>
<td>0.3</td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>0.5</td>
<td>0.4</td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>0.6</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>0.7</td>
<td>0.6</td>
<td></td>
</tr>
</tbody>
</table>

**Operators**

- No. of Operators: 9
- Training/Certifications: PPO, BFO, APPO, Utility Clerk

**Electric Sales**

<table>
<thead>
<tr>
<th>Customer Type</th>
<th>No. of Customers</th>
<th>kWh/year</th>
<th>kWh/Customer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>72</td>
<td>294,083</td>
<td>4,084</td>
</tr>
<tr>
<td>Community</td>
<td>5</td>
<td>54,543</td>
<td>10,909</td>
</tr>
<tr>
<td>Commercial</td>
<td>15</td>
<td>322,492</td>
<td>21,499</td>
</tr>
<tr>
<td>Utility Use</td>
<td></td>
<td>19,663</td>
<td></td>
</tr>
</tbody>
</table>

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

- Residential: 43%
- Community: 8%
- Commercial: 47%
- Utility Use: 3%

**Maintenance Planning (RPSU)**

- Acceptable

**Electric Rates ($/kWh)**

- Rate with PCE: $0.44
- Residential Rate: $0.80
- Commercial Rate: $0.53

**Fuel Prices ($)**

- Diesel (1 gal): $4.47
- Gasoline (1 gal): $6.72
- Propane (100#): $0.38
- Pellets: $0.15

**Fuel Prices (Month/Year)**

- 6/13; 8/14

**Alternative Energy**

<table>
<thead>
<tr>
<th>Potential</th>
<th>Projects</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydroelectric</td>
<td>Low</td>
<td>None</td>
</tr>
<tr>
<td>Wind Diesel</td>
<td>Medium</td>
<td>Wind Feasibility and Met Tower Installed</td>
</tr>
<tr>
<td>Biomass</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>Solar</td>
<td>Medium</td>
<td></td>
</tr>
<tr>
<td>Geothermal</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>Oil and Gas</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>Coal</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>Emerging Tech</td>
<td>Not Rated</td>
<td></td>
</tr>
<tr>
<td>Heat Recovery</td>
<td>Medium</td>
<td>Washeteria Heat Recovery Project</td>
</tr>
<tr>
<td>Energy Efficiency</td>
<td>High</td>
<td>VEEP</td>
</tr>
</tbody>
</table>

**Bulk Fuel**

<table>
<thead>
<tr>
<th>Tank Owner</th>
<th>Fuel Type(s)</th>
<th>Capacity</th>
<th>Age/Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vill. Atmautluak</td>
<td>Diesel</td>
<td>50,000</td>
<td>Good</td>
</tr>
<tr>
<td>Tank Farm</td>
<td>Unknown</td>
<td>Unknown</td>
<td>Active</td>
</tr>
</tbody>
</table>

**Bulk Fuel Upgrade**

- Priority: |
- Project: |
- Status: |

**Purchasing**

- Deliveries/Year: June & October
- Gallons/Delivery: By Barge
- Vendor(s): |

**Cooperative Purchasing Agreements**

**Notes**
# Energy Profile: Atmautluak

<table>
<thead>
<tr>
<th>Housing Units</th>
<th>Occupied</th>
<th>Vacant</th>
<th>% Owner-Occup.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>63</td>
<td>3</td>
<td>81%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Housing Need</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overcrowded</td>
</tr>
<tr>
<td>66.7%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Data Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
</tr>
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</table>

## Age of Housing Stock

<table>
<thead>
<tr>
<th>Year</th>
<th>1940s</th>
<th>1950s</th>
<th>1960s</th>
<th>1970s</th>
<th>1980s</th>
<th>1990s</th>
<th>2000-11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blocks</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td>26</td>
<td>25</td>
<td>4</td>
<td>8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Energy Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Home Energy Rating</td>
</tr>
<tr>
<td>N/A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Regional Housing Authority</th>
<th>Weatherization Service Provider</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVCP</td>
<td>AVCP</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Energy Efficient Housing Stock</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retrofitted: 17%</td>
</tr>
<tr>
<td>BEES Certified: 0%</td>
</tr>
<tr>
<td>Untouched: 83%</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Lighting</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
</tr>
</tbody>
</table>

## Non-residential Building Inventory

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

**Alaska Native Name (definition)**
"Mumtrekhiulgamute," Smokehouse People

**Historical Setting / Cultural Resources**
Bethel was first established by Yup'ik Eskimos, who called the village "Mumtrekhiulgamute," 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**

<table>
<thead>
<tr>
<th>Email</th>
<th>Phone</th>
<th>Fax</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bethel Native Corporation</td>
<td>907-543-2124</td>
<td>907-543-2897</td>
</tr>
<tr>
<td>Orutsararmuit Native Village</td>
<td>907-543-2608</td>
<td>907-543-2639</td>
</tr>
<tr>
<td>City of Bethel</td>
<td>907-543-2047</td>
<td>907-543-4171</td>
</tr>
</tbody>
</table>

**Demographics**

<table>
<thead>
<tr>
<th>Population</th>
<th>Median Age</th>
<th>Avg. Household Size</th>
<th>Median Household Income</th>
<th>Electric Utility</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>30</td>
<td>3</td>
<td>$90,779</td>
<td></td>
</tr>
<tr>
<td>5471</td>
<td>28</td>
<td>4</td>
<td></td>
<td></td>
</tr>
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</table>

**Landfill**

<table>
<thead>
<tr>
<th>Class</th>
<th>Permitted?</th>
</tr>
</thead>
<tbody>
<tr>
<td>II</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Water/Wastewater System**

<table>
<thead>
<tr>
<th>Water</th>
<th>Sewer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haul</td>
<td>Honey Bucket</td>
</tr>
</tbody>
</table>

**Access**

<table>
<thead>
<tr>
<th>Road</th>
<th>Access</th>
<th>Dock/Port</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Bethel Airport; Runway 1: asphalt; Runway 2: asphalt; Runway 3: gravel</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Runway**

<table>
<thead>
<tr>
<th>Runway 1</th>
<th>Runway 2</th>
<th>Runway 3</th>
<th>Runway 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>6,400'x150'</td>
<td>4,000'x75'</td>
<td>1,858'x75'</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Barge Access?**
Yes

**Ferry Service?**
No
# Energy Profile: Bethel

## Diesel Power System

<table>
<thead>
<tr>
<th>Utility</th>
<th>AVEC (2014)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine</td>
<td>Make/Model</td>
</tr>
<tr>
<td>Unit 1</td>
<td>EMD</td>
</tr>
<tr>
<td>Unit 2</td>
<td>EMD</td>
</tr>
<tr>
<td>Unit 3</td>
<td>EMD</td>
</tr>
<tr>
<td>Unit 4</td>
<td>EMD</td>
</tr>
<tr>
<td>Unit 5</td>
<td>EMD</td>
</tr>
<tr>
<td>Unit 6</td>
<td>EMD</td>
</tr>
<tr>
<td>Line Loss</td>
<td></td>
</tr>
<tr>
<td>Heat Recovery?</td>
<td>Yes; State Office, YKHC Hospital, UAF</td>
</tr>
</tbody>
</table>

### Upgrades
- **RPSU Powerhouse Priority**: Low, Planned
- **RPSU Distribution Priority**: High, Planned

### Outage History/Known Issues
Part of Bethel/Oscarville service area. PCE data includes both

## Operators

<table>
<thead>
<tr>
<th>No. of Operators</th>
<th>Training/Certifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Record</td>
<td></td>
</tr>
</tbody>
</table>

### Maintenance Planning (RPSU)
Excellent

## Electric Sales

<table>
<thead>
<tr>
<th>No. of Customers</th>
<th>kWh/year</th>
<th>kWh/Customer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>1,743</td>
<td>10,258,912</td>
</tr>
<tr>
<td>Community</td>
<td>16</td>
<td>735,422</td>
</tr>
<tr>
<td>Commercial</td>
<td>1,010</td>
<td>30,252,426</td>
</tr>
<tr>
<td>Utility Use</td>
<td>647,200</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Residential</th>
<th>Community</th>
<th>Commercial</th>
<th>Utility Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>24%</td>
<td>2%</td>
<td>72%</td>
<td>2%</td>
</tr>
</tbody>
</table>

## Power Production

- **Total (kWh/yr)**: 44,326,400
  - **Diesel Used (gals/yr)**: 3,197,401
  - **Avg. Load (kW)**: 4,497
  - **Peak Load (kW)**: 9,994
  - **Efficiency (kWh/gal)**: 13.86

## Electric Rates ($/kWh)

<table>
<thead>
<tr>
<th>Rate with PCE</th>
<th>Residential Rate</th>
<th>Commercial Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>$0.17</td>
<td>$0.60</td>
<td>$0.57</td>
</tr>
</tbody>
</table>

## Fuel Prices ($)

<table>
<thead>
<tr>
<th>Fuel Type</th>
<th>Utility/Wholesale</th>
<th>Retail</th>
<th>Month/Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diesel (1 gal)</td>
<td>$6.07</td>
<td>$7.21</td>
<td>6/13; 8/14</td>
</tr>
<tr>
<td>Gasoline (1 gal)</td>
<td>$7.13</td>
<td></td>
<td>2013</td>
</tr>
<tr>
<td>Propane (100#)</td>
<td>$7.50</td>
<td></td>
<td>8/14</td>
</tr>
<tr>
<td>Wood (1 cord)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Alternative Energy

### Potential
- **Hydroelectric**: Medium
- **Wind Diesel**: High
- **Biomass**: Low
- **Solar**: Medium
- **Geothermal**: Low
- **Oil and Gas**: Low
- **Coal**: Low
- **Emerging Tech**: Not Rated
- **Heat Recovery**: High

### Projects
- **Bethel Wind Farm/Turbine**: Final Design
- **Public buildings**: Operational

### Status

### Bulk Fuel

<table>
<thead>
<tr>
<th>Tank Owner</th>
<th>Fuel Type(s)</th>
<th>Capacity</th>
<th>Age/Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crowley Marine</td>
<td>Gas/Diesel</td>
<td>14,658,000</td>
<td>Active</td>
</tr>
<tr>
<td>Crowley Marine</td>
<td>Gas/Diesel</td>
<td>5,460,000</td>
<td>Active</td>
</tr>
</tbody>
</table>

### Bulk Fuel Upgrade

<table>
<thead>
<tr>
<th>Priority</th>
<th>Project</th>
<th>Status</th>
</tr>
</thead>
</table>

## Purchasing

- By Barge
- By Air

## Cooperative Purchasing Agreements

### Notes
Energy Profile: Bethel

Housing Units | Occupied | Vacant | % Owner-Occup.
---|---|---|---
1679 | 582 | 52%

Housing Need | Occupied | Vacant | % Owner-Occup.
---|---|---|---
Overcrowded | 23.3% | 4.6%

Data Quality | High

Age of Housing Stock

| Year | 1940s | 1950s | 1960s | 1970s | 1980s | 1990s | 2000-11 |
---|---|---|---|---|---|---|---|
12 | 48 | 38 | 197 | 699 | 802 | 336 | 128 |

Regional Housing Authority | Weatherization Service Provider
---|---|---|---|---|
AVCP | AVCP

Energy Use | Average Home Energy Rating | Average Square Feet | Avg. EUI (kBTU/sf)
---|---|---|---|
3-star | 1,237 | 132

Energy Efficient Housing Stock

| Retrofitted | BES Certified | Untouched |
---|---|---|
8% | 0% | 92%

Lighting

| Owner | Number/Type | Retrofitted? | Year | Notes |
---|---|---|---|---|

Non-residential Building Inventory

| Building Name or Location | Year Built | Square Feet | Audited? | Retrofits Done? | In ARIS? |
---|---|---|---|---|---|
ADFF & G Game Insp. Station | | 600 | | |
ARFF Bldg | 3,200 |
Bethel Bunkhouse 125B | 1,057 |
Bethel Bunkhouse 145A | 1,057 |
Bethel Office Lease | |
Bethel Shop | 1,296 |
Bethel Storage Facility | 1,152 |
Bethel Youth Facility | 11,392 |
Bus Barn | 1979 | 4,800 |
City Hall | 1976 | 7,623 | Yes | No | Yes |
City Shop | 1983 | 35,925 | Yes | No | Yes |
Combined Facility | 3,627 |
Community Services Health Service Bldg | 67,000 |
Court Building | 2000 | 28,820 | Yes | No | Yes |
Dog Pound | 1965 | 1,536 |
Fire Dept | 1962 | 9,912 |
Landfill Building | 1991 | 200 |
Log Cabin | 1961 | 1,941 |
Maintenance Shop/SEF | 4,800 |
Police Annex | 5,874 |
Police Department | 1960 | 3,500 |
Port Bldg | 1987 | 384 |
Sackett Hall | 10,631 |
Sand Storage | 2,800 |
Sand Storage (Heated) | 7,000 |
SRE Bldg | 2,400 |
Utility Maintenance Building | 1963 | 1,600 |
Voc-Tech Bldg | 12,123 |
Water Treatment Plant | 2001 | 4,800 |
Water Treatment Plant | 1983 | 35,925 |
Yukon Kuskokwim Correctional Center (YKCC) | 27,240 |
Yup'ik Museum, Library & Cultural Center | 17,711 |
Community Profile: Chefornak

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. Chefornak 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)
Sales, 2% $110

Economy
A traditional Yup’ik Eskimo community, Chefornak 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. 57/6
Climate Zone Marine
Heating Deg. Days N/A

Natural Hazard Plan
N/A

Community Plans
N/A
Year N/A

Local Contacts
Email
Chefarnmute, Inc.
citychefornak@yahoo.com
Village of Chefornak
City of Chefornak

Phone
907-867-8115
907-867-8502
907-867-8147

Fax
907-867-8895
907-867-8711
907-867-8704

Demographics
2000 2010
Population 394 418
Median Age 21 22
Avg. Household Size 6 5
Median Household Income $53,438

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

Landfill
Class III Permitted?
Yes Location Southwest of village

Water/Wastewater System

Water Washeteria
Sewer Honey Bucket

Access
Road No
Air Access Chefornak Airport, gravel, good condition

Dock/Port No

Notes

Homes Served 408

Water/Wastewater Energy Audit? Yes

System Volume N/A

Runway 1 3,230'x60'
Runway 2 N/A
Runway 3 N/A
Runway 4 N/A

Barge Access? No
Ferry Service? No
Energy Profile: Chefornak

Diesel Power System
Utility: Narterqaq Light Plant

<table>
<thead>
<tr>
<th>Engine</th>
<th>Make/Model</th>
<th>Condition/Hrs</th>
<th>Gen Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit 1</td>
<td>John Deere</td>
<td>Good/15,945</td>
<td>371</td>
</tr>
<tr>
<td>Unit 2</td>
<td>John Deere</td>
<td>Good/18,327</td>
<td>371</td>
</tr>
<tr>
<td>Unit 3</td>
<td>John Deere</td>
<td>Good/7,854</td>
<td>179</td>
</tr>
<tr>
<td>Unit 4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Line Loss: 40.8%
Heat Recovery? Yes; Water & Sewer Lines

Upgrades
RPSU Powerhouse Priority Projects Status
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)

<table>
<thead>
<tr>
<th>Customer Type</th>
<th>kWh/year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>40%</td>
</tr>
<tr>
<td>Community</td>
<td>8%</td>
</tr>
<tr>
<td>Commercial</td>
<td>47%</td>
</tr>
<tr>
<td>Utility Use</td>
<td>4%</td>
</tr>
</tbody>
</table>

Alternative Energy
Hydroelectric Potential Projects Status
Low None Feasibility
Wind Diesel Potential Projects
High Met Tower Installed Operational
Biomass Potential Projects
Low None
Solar Potential Projects
Medium None
Geothermal Potential Projects
Low None
Oil and Gas Potential Projects
Low None
Coal Potential Projects
Low None
Emerging Tech Potential Projects
Not Rated None
Heat Recovery Potential Projects
High Water system Operational
Energy Efficiency Potential Projects
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
Chefnarmute 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 (gal/yr) 132,248

Electric Rates ($/kWh)
- Rate with PCE: $0.38
- Residential Rate: $0.90
- Commercial Rate: $0.63

Cost per kWh Sold ($/kWh)
- Fuel Cost: $0.67
- Non-fuel Cost: $0.24
- Total Cost: $0.91

Fuel Prices ($)
- Diesel (1 gal): $6.63
- Propane (100#): $205.71
- Wood (1 cord): 8-14

Pellets
Discounts?

Notes
# Energy Profile: Chefornak

**Housing Units**
- Occupied: 72
- Vacant: 10
- % Owner-Occup.: 79%

**Regional Housing Authority**
- AVCP

**Weatherization Service Provider**
- AVCP

**Energy Need**
- Overcrowded
- 1-star

**Data Quality**
- Low

### Age of Housing Stock

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
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<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>4</td>
<td>14</td>
<td>32</td>
<td>31</td>
<td>0</td>
<td>13</td>
</tr>
</tbody>
</table>

### Energy Use

- Average Home Energy Rating: N/A
- N/A

### Energy Efficient Housing Stock

- Retrofitted: 0%
- BEEs Certified: 0%
- Untouched: 100%

<table>
<thead>
<tr>
<th>Lighting</th>
<th>Owner</th>
<th>Number/Type</th>
<th>Retrofitted?</th>
<th>Year</th>
<th>Notes</th>
</tr>
</thead>
</table>

### Non-residential Building Inventory

<table>
<thead>
<tr>
<th>Building Name or Location</th>
<th>Year Built</th>
<th>Square Feet</th>
<th>Audited?</th>
<th>Retrofits Done?</th>
<th>In ARIS?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apt. Storage</td>
<td>1980</td>
<td>336</td>
<td></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Chefornak Elementary School</td>
<td>1981</td>
<td>2,000</td>
<td></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Chefornak High School</td>
<td>1995</td>
<td>17,571</td>
<td></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>City Building</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corporation Office</td>
<td>2007</td>
<td>3,200</td>
<td></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Generator Module</td>
<td>1981</td>
<td>320</td>
<td></td>
<td></td>
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</tr>
<tr>
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<td>1995</td>
<td>320</td>
<td></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Health Clinic</td>
<td>2005</td>
<td>2,351</td>
<td>Yes</td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>IGAP Bldg.</td>
<td>1980</td>
<td>805</td>
<td>Yes</td>
<td></td>
<td>Yes</td>
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<tr>
<td>Tribal Council</td>
<td>1988</td>
<td>1,034</td>
<td>Yes</td>
<td></td>
<td>No</td>
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<tr>
<td>Washeteria</td>
<td>2008</td>
<td>350</td>
<td>Yes</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Water Treatment Plant</td>
<td>1982</td>
<td>600</td>
<td>Yes</td>
<td></td>
<td>No</td>
</tr>
</tbody>
</table>
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)
Sales, 2%  
Per-Capita Revenue: 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.  
41/6
Climate Zone: Marine
Heating Deg. Days: N/A

Natural Hazard Plan
N/A

Community Plans
Eek Community Comprehensive Plan, 2004  
Year: 2004

<table>
<thead>
<tr>
<th>Local Contacts</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iñiqiująq Company</td>
<td><a href="mailto:etcgov@yahoo.com">etcgov@yahoo.com</a></td>
</tr>
<tr>
<td>Native Village of Eek</td>
<td></td>
</tr>
<tr>
<td>City of Eek</td>
<td><a href="mailto:cityofeek@yahoo.com">cityofeek@yahoo.com</a></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Demographics</th>
<th>2000</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>280</td>
<td>296</td>
</tr>
<tr>
<td>Median Age</td>
<td>24</td>
<td>35</td>
</tr>
<tr>
<td>Avg. Household Size</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Median Household Income</td>
<td>$36,250</td>
<td></td>
</tr>
</tbody>
</table>

Electric Utility
AVEC

<table>
<thead>
<tr>
<th>Generation Sources</th>
<th>Interties</th>
<th>PCE?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diesel</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Landfill
Class III
Permitted? No
Location 1/4 mile south of the school

Water/Wastewater System

Water Washeteria
Sewer Honey Bucket

Access
Road No
Air Access Eek Airport, gravel, fair condition  
N/A
Dock/Port Yes

Notes

Homes Served 280

Water/Wastewater Energy Audit? Yes

Runway 1 3242'x60'
Runway 2 N/A
Runway 3 N/A
Runway 4 N/A

Barge Access? Yes
Ferry Service? No

System Volume 50,001-100,000
### Energy Profile: Eek

#### Diesel Power System

<table>
<thead>
<tr>
<th>Utility</th>
<th>AVEC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine</td>
<td>Make/Model</td>
</tr>
<tr>
<td>Unit 1</td>
<td>Cummins</td>
</tr>
<tr>
<td>Unit 2</td>
<td>Detroit Diesel</td>
</tr>
<tr>
<td>Unit 3</td>
<td>Caterpillar</td>
</tr>
<tr>
<td>Unit 4</td>
<td></td>
</tr>
<tr>
<td>Line Loss</td>
<td></td>
</tr>
<tr>
<td>Heat Recovery?</td>
<td>Yes; AVEC Connex, Power Plant</td>
</tr>
</tbody>
</table>

#### Upgrades

<table>
<thead>
<tr>
<th>Projects</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>RPSU Powerhouse</td>
<td>High</td>
</tr>
<tr>
<td>RPSU Distribution</td>
<td>High</td>
</tr>
</tbody>
</table>

#### Outage History/Known Issues

Most outages are weather related.

#### Operators

<table>
<thead>
<tr>
<th>No. of Operators</th>
<th>Training/Certifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>PPO, BFO, Itin BFO</td>
</tr>
</tbody>
</table>

#### Maintenance Planning (RPSU)

- Good

### Electric Sales

<table>
<thead>
<tr>
<th>Customer Type</th>
<th>No. of Customers</th>
<th>kWh/year</th>
<th>kWh/Customer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>101</td>
<td>355,292</td>
<td>3,518</td>
</tr>
<tr>
<td>Community</td>
<td>9</td>
<td>102,280</td>
<td>11,364</td>
</tr>
<tr>
<td>Commercial</td>
<td>20</td>
<td>337,668</td>
<td>16,883</td>
</tr>
</tbody>
</table>

#### Electric Sales by Customer Type

- Residential: 44%
- Community: 13%
- Commercial: 42%
- Utility Use: 1%

### Alternative Energy

<table>
<thead>
<tr>
<th>Potential</th>
<th>Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydroelectric</td>
<td>None</td>
</tr>
<tr>
<td>Wind Diesel</td>
<td>Medium, Eek Wind, Met Tower installed 12-20-12, Feasibility</td>
</tr>
<tr>
<td>Biomass</td>
<td>Low</td>
</tr>
<tr>
<td>Solar</td>
<td>Medium</td>
</tr>
<tr>
<td>Geothermal</td>
<td>Low</td>
</tr>
<tr>
<td>Oil and Gas</td>
<td>Low</td>
</tr>
<tr>
<td>Coal</td>
<td>Low</td>
</tr>
<tr>
<td>Emerging Tech</td>
<td>Not Rated</td>
</tr>
<tr>
<td>Energy Efficiency</td>
<td>High, Sanitation EE</td>
</tr>
</tbody>
</table>

### Bulk Fuel

<table>
<thead>
<tr>
<th>Vendor(s)</th>
<th>Purchasing</th>
<th>Deliveries/Year</th>
<th>Gallons/Delivery</th>
</tr>
</thead>
<tbody>
<tr>
<td>City of Eek</td>
<td>By Barge</td>
<td>Spring and Fall</td>
<td></td>
</tr>
<tr>
<td>AVEC</td>
<td>By Air</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iqfijouaq Co.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L Kuskokwim SD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>City of Eek</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bulk Fuel Upgrade</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Electric Generation (MWh)

- Data from 2008 to 2012

#### Electric Rates ($/kWh)

- Rate with PCE: $0.20
- Residential Rate: $0.63

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

- Fuel Cost: $0.31
- Non-fuel Cost: $0.27
- Total Cost: $0.58

#### Fuel Prices ($)

- Diesel (1 gal): $3.85
- Gasoline (1 gal): $6.57
- Propane (100#): $6.57
- Wood (1 cord): $6.57
- Pellets: $6.57
- Discounts: $6.57

### Notes
Energy Profile: Eek

Housing Units
Occupied 68
Vacant 26
% Owner-Occup. 82%

Regional Housing Authority
AVCP

Weatherization Service Provider
AVCP

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

Data Quality
High

Age of Housing Stock

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>3</td>
<td>1</td>
<td>8</td>
<td>41</td>
<td>20</td>
<td>11</td>
</tr>
</tbody>
</table>

Energy Efficient Housing Stock

<table>
<thead>
<tr>
<th>Retrofitted</th>
<th>BEIS Certified</th>
<th>Untouched</th>
</tr>
</thead>
<tbody>
<tr>
<td>82%</td>
<td>0%</td>
<td>18%</td>
</tr>
</tbody>
</table>

Non-residential Building Inventory

<table>
<thead>
<tr>
<th>Building Name or Location</th>
<th>Year Built</th>
<th>Square Feet</th>
<th>Audited?</th>
<th>Retrofits Done?</th>
<th>In ARIS?</th>
</tr>
</thead>
<tbody>
<tr>
<td>City of Eek Bldg</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>City/Tribal Office</td>
<td>1980</td>
<td>805</td>
<td>Yes, AHFC-C</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Eek Clinic</td>
<td>1990</td>
<td>2,350</td>
<td>Yes, AHFC-C</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Eek High School</td>
<td></td>
<td>10,677</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eek Portable Classrooms</td>
<td></td>
<td>740</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eek Preschool</td>
<td></td>
<td>1,364</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eek School</td>
<td>1982</td>
<td>20,531</td>
<td></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Eek Water Treatment Plant/Washeteria</td>
<td>2003</td>
<td>2,032</td>
<td>Yes, AHFC-C</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Fire Dept.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generator Module</td>
<td>1979</td>
<td>320</td>
<td></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>IGAP Office/AVCP/Child Care</td>
<td>1980</td>
<td>961</td>
<td>Yes, AHFC-C</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Iqñjuaq Company, Inc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Jail</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Laundromat</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Maintenance Shop</td>
<td>1980</td>
<td>480</td>
<td></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Portable Classroom</td>
<td>1998</td>
<td>740</td>
<td></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>SRE Building #1 (Heated)</td>
<td></td>
<td>1,104</td>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>SSR Building #2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Warehouse</td>
<td>1980</td>
<td>864</td>
<td></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Warehouse BIA</td>
<td>1970</td>
<td>300</td>
<td></td>
<td></td>
<td>No</td>
</tr>
</tbody>
</table>
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)
Sales, 3%

Per-Capita Revenue
N/A

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

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

Natural Hazard Plan
N/A

Community Plans
Goodnews Bay Community Plan, 2005
Year 2005

Local Contacts
Email
Kuitsarak, Incorporated
goodnews907@hotmail.com
Native Village of Goodnews Bay
City of Goodnews Bay
city_of_goodnewsbay@yahoo.com

Phone
Fax
907-967-8428
907-967-8226
907-967-8929
907-967-8330
907-967-8614
907-967-8124

Demographics
2000 2010
Population 230 243
Median Age 31 25
Avg. Household Size 4 4
Median Household Income $22,917

Electric Utility
Generation Sources Diesel
Interites No
PCE? Yes

Landfill
Class III
Permitted? No
Location North of community

Water/Wastewater System
Water Pressure
Sewer Gravity

Notes

Access
Road No
Air Access Goodnews Airport, gravel, good condition
Runway 1 3,300'x75'
Runway 2 N/A
Runway 3 N/A
Runway 4 N/A
Dock/Port No
Barge Access? Yes
Ferry Service? No

System Volume 50,001-100,000

Percent of Residents Employed 76.22%
Denali Commission Distressed Community Yes
Percent Alaska Native/American Indian (2010) 94.65%
Low and Moderate Income (LMI) Percent (201x) 97%

Notes

Homes Served 250
Water/Wastewater Energy Audit? Yes
# Energy Profile: Goodnews Bay

## Diesel Power System

<table>
<thead>
<tr>
<th>Utility</th>
<th>AVEC</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Engine</th>
<th>Make/Model</th>
<th>Condition/Hrs</th>
<th>Gen Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit 1</td>
<td>Allis Chalmers</td>
<td>Fair/4,243</td>
<td>175</td>
</tr>
<tr>
<td>Unit 2</td>
<td>Cummins</td>
<td>Fair/6,805</td>
<td>250</td>
</tr>
<tr>
<td>Unit 3</td>
<td>Detroit Diesel</td>
<td>Fair/55,838</td>
<td>236</td>
</tr>
<tr>
<td>Unit 4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Line Loss    | 2.5%       |

**Heat Recovery?** Yes; BIA, School, Jail, Clinic

**Upgrades**

<table>
<thead>
<tr>
<th>Priority</th>
<th>Projects</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Med.</td>
<td>Heat Rec.</td>
<td>Planned</td>
</tr>
</tbody>
</table>

**RPSU Powerhouse**

- Med.

**RPSU Distribution**

- Med.

**Outage History/Known Issues**

- Last outage when installed new totalizing meter.

**Operators**

- No. of Operators: 2
- Training/Certifications: PPO, BFO, Itin BFO

**Maintenance Planning (RPSU)**

Good

### Electric Sales

<table>
<thead>
<tr>
<th>Residential</th>
<th>Commercial</th>
<th>Utility Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Customers</td>
<td>kWh/year</td>
<td>kWh/Customer</td>
</tr>
<tr>
<td>81</td>
<td>392,527</td>
<td>4,846</td>
</tr>
<tr>
<td>11</td>
<td>99,668</td>
<td>9,061</td>
</tr>
<tr>
<td>11</td>
<td>259,682</td>
<td>23,607</td>
</tr>
<tr>
<td>14,648</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

- Residential: 51%
- Community: 13%
- Commercial: 34%
- Utility Use: 2%

## 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)
- 58,355

### Electric Generation (MWh)

- 2008: 0.9
- 2009: 0.8
- 2010: 0.7
- 2011: 0.6
- 2012: 0.5

### Electric Rates ($/kWh)

- Rate with PCE: $0.20
- Residential Rate: $0.63
- Commercial Rate: $3.85

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

- Fuel Cost: $0.31
- Non-fuel Cost: $0.27
- Total Cost: $0.59

### Fuel Prices ($/gal)

- Diesel (1 gal): $3.85
- Gasoline (1 gal): $5.44
- Propane (100#): $11.22
- Wood (1 cord): $6/13; 8/14

### Alternative Energy

- Hydroelectric: Low
- Wind Diesel: High
- Biomass: Low
- Solar: Medium
- Geothermal: Low
- Oil and Gas: Low
- Coal: Low
- GreenTech: Not Rated
- Heat Recovery: High
- Energy Efficiency: High

### Status

- Operational

### Bulk Fuel

<table>
<thead>
<tr>
<th>Tank Owner</th>
<th>Fuel Type(s)</th>
<th>Capacity</th>
<th>Age/Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Village Corp.</td>
<td>Stove Oil</td>
<td>78,000</td>
<td>20 yrs/active</td>
</tr>
<tr>
<td>Village Corp.</td>
<td>Diesel</td>
<td>30,000</td>
<td>20 yrs/active</td>
</tr>
<tr>
<td>Village Corp.</td>
<td>Gasoline</td>
<td>300</td>
<td>20 yrs/active</td>
</tr>
<tr>
<td>AVEC</td>
<td>Diesel</td>
<td>79,610</td>
<td>active</td>
</tr>
<tr>
<td>Goodness Bay SD</td>
<td>Diesel</td>
<td>60,000</td>
<td>34 yrs/active</td>
</tr>
</tbody>
</table>

### Purchasing

- Diesel: By Barge
- Gasoline: By Air

### Notes

- Planned upgrades top tank farm
Energy Profile: Goodnews Bay

<table>
<thead>
<tr>
<th>Housing Units</th>
<th>Occupied</th>
<th>Vacant</th>
<th>% Owner-Occup.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>98</td>
<td>4</td>
<td>72%</td>
</tr>
</tbody>
</table>

**Housing Need**
- Overcrowded
- 1-star
- 20.6%
- 17.2%

**Data Quality**
- Medium

### Age of Housing Stock

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>11</td>
<td>54</td>
<td>28</td>
<td>12</td>
</tr>
</tbody>
</table>

### Energy Efficient Housing Stock
- 64%
- 4%
- 32%

### Energy Use
- Regional Housing Authority: AVCP
- Weatherization Service Provider: AVCP
- Energy Use: Average Home
- Energy Rating: 3-star plus
- Average Square Feet: 760
- Avg. EUI: 145 (kBTU/sf)

### Lighting
- Street lights
- Owner: 19/HPS
- Retrofitted: Yes
- Year: 2017
- Notes: 17 lights replaced with LEDs

### Non-residential Building Inventory

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

<table>
<thead>
<tr>
<th>Longitude</th>
<th>Latitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>-162.518</td>
<td>60.8951</td>
</tr>
</tbody>
</table>

### 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

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

### Climate

<table>
<thead>
<tr>
<th>Avg. Temp.</th>
<th>Climate Zone</th>
<th>Heating Deg. Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>62/-2</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

### Natural Hazard Plan
N/A

### Community Plans
Year
N/A

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

### Demographics

<table>
<thead>
<tr>
<th>2000</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>543</td>
<td>569</td>
</tr>
<tr>
<td>21</td>
<td>27</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>$37,143</td>
<td></td>
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</table>

### Electric Utility

<table>
<thead>
<tr>
<th>Generation Sources</th>
<th>Interties</th>
<th>PCE?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diesel, Wind</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### Landfill

<table>
<thead>
<tr>
<th>Class</th>
<th>Permitted?</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>III</td>
<td>No</td>
<td>Banks of large pond</td>
</tr>
</tbody>
</table>

### Water/Wastewater System

<table>
<thead>
<tr>
<th>Water</th>
<th>Sewer</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

### Access

<table>
<thead>
<tr>
<th>Road</th>
<th>Air Access</th>
<th>Dock/Port</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>Kasigluk Airport, gravel, fair condition</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Runway 1</td>
<td>Runway 2</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>3,000'x60'</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Runway 3</td>
<td>Runway 4</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>N/A</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Barge Access?</td>
<td>Ferry Service?</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Homes Served</th>
<th>Water/Wastewater Energy Audit?</th>
</tr>
</thead>
<tbody>
<tr>
<td>648</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>System Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;10,000</td>
</tr>
</tbody>
</table>
Energy Profile: Kasigluk

**Diesel Power System**
- **Utility**: AVEC
- **Engine**
  - Unit 1: Detroit Diesel, Fair/7,900, 363
  - Unit 2: Caterpillar, Fair/11,374, 505
  - Unit 3: MTU, Fair/1,076, 710
- **Upgrades**: Priority Projects Status
  - RPSU Powerhouse: Low Heat Rec. Complete
  - RPSU Distribution
- **Heat Recovery**: Yes; Plant, Community Center
- **Outage History/Known Issues**

**Operators**
- **No. of Operators**: 13
- **Training/Certifications**: PPO, BFO, BF-Book, Mgr

**Maintenance Planning (RPSU)**
- **Electric Sales**
  - 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)**
- Residential: 38%
- Community: 6%
- Commercial: 50%
- Utility Use: 6%

**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

**Electric Rates ($/kWh)**
- Rate with PCE: $0.19
- Residential Rate: $0.58

**Cost per kWh Sold ($/kWh)**
- Fuel Cost: $0.46
- Non-fuel Cost: $0.27
- Total Cost: $0.74

**Fuel Prices ($)**
- Utility/Wholesale: $4.23
- Retail: $7.22
- Month/Year: 6/13; 8/14
- Other Fuel? (1 gal)
  - Propane (100#): $10.90
  - Wood (1 cord)
  - Pellets

**Alternative Energy**
- Potential: High
- Projects: Operating

**Bulk Fuel**
- **Tank Owner**: School
  - Capacity: 15,000
  - Age/Condition: active
- **Kasigluk Trd. Eld.**
  - Diesel: 100,000, Good
  - Gasoline: 150,000, Good
- **Bulk Fuel Upgrade**: Priority
- **Status**
  - Purchasing: By Barge
  - Deliveries/Year: June
  - Gallons/Delivery: By Air
  - Vendor(s): Cooperative Purchasing Agreements
  - Notes
### Energy Profile: Kasigluk

<table>
<thead>
<tr>
<th>Housing Units</th>
<th>Occupied</th>
<th>Vacant</th>
<th>% Owner-Occup.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>117</td>
<td>13</td>
<td>56%</td>
</tr>
</tbody>
</table>

#### Housing Need
- Overcrowded
- 1-star
- 56.4%
- N/A

#### Data Quality
- Low

#### Age of Housing Stock

<table>
<thead>
<tr>
<th>Year</th>
<th>1940s</th>
<th>1950s</th>
<th>1960s</th>
<th>1970s</th>
<th>1980s</th>
<th>1990s</th>
<th>2000-11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Count</td>
<td>3</td>
<td>0</td>
<td>2</td>
<td>15</td>
<td>25</td>
<td>9</td>
<td>16</td>
</tr>
</tbody>
</table>

#### Energy Use
- Regional Housing Authority: AVCP
- Weatherization Service Provider: AVCP

<table>
<thead>
<tr>
<th>Energy Use</th>
<th>Average Home Energy Rating</th>
<th>Average Square Feet</th>
<th>Avg. EUI (kBTU/sf)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

#### Energy Efficient Housing Stock

<table>
<thead>
<tr>
<th>Lighting</th>
<th>Owner</th>
<th>Number/Type</th>
<th>Retrofitted</th>
<th>BEES Certified</th>
<th>Untouched</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>0%</td>
<td>0%</td>
<td>100%</td>
</tr>
</tbody>
</table>

#### Non-residential Building Inventory

<table>
<thead>
<tr>
<th>Building Name or Location</th>
<th>Year Built</th>
<th>Square Feet</th>
<th>Audited?</th>
<th>Retrofits Done?</th>
<th>In ARIS?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Akula Eltinauvik School</td>
<td>4,104</td>
<td></td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Community Center</td>
<td>4,104</td>
<td></td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Generator/Water Treatment Building</td>
<td>1,000</td>
<td></td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Housing Authority Building</td>
<td>21,629</td>
<td></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Kasigluk School K 12</td>
<td>900</td>
<td></td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Mist Module</td>
<td>1,104</td>
<td></td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Police Station</td>
<td>900</td>
<td></td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Shop/Storage Building</td>
<td>1,104</td>
<td></td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Sre Building</td>
<td>1,104</td>
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<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Storage Building</td>
<td>1,104</td>
<td></td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Vocational Ed Shop</td>
<td>1,104</td>
<td></td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Warehouse</td>
<td>1,104</td>
<td></td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Water Treatment</td>
<td>1,104</td>
<td></td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>
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.

Longitude  -164.0414  Latitude  59.9389

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
Kipnuk is a traditional Yupik 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.

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

Natural Hazard Plan
Kipnuk Hazard Mitigation Plan, 2013

Local Contacts

<table>
<thead>
<tr>
<th>Email</th>
<th>Phone</th>
<th>Fax</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kukaktlik, Limited</td>
<td>907-896-5414</td>
<td>907-896-5140</td>
</tr>
<tr>
<td>Native Village of Kipnuk</td>
<td>907-896-5515</td>
<td>907-896-5240</td>
</tr>
</tbody>
</table>

Demographics

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>644</td>
<td>21</td>
<td>5</td>
<td>$37,083</td>
<td></td>
<td>Yes</td>
<td>97.65%</td>
<td>N/A</td>
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</tr>
<tr>
<td>2010</td>
<td>639</td>
<td>25</td>
<td>5</td>
<td></td>
<td>73.31%</td>
<td>Yes</td>
<td>N/A</td>
<td>N/A</td>
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</table>

Landfill

<table>
<thead>
<tr>
<th>Class</th>
<th>Permitted?</th>
<th>Yes</th>
<th>Location</th>
<th>N/A</th>
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</thead>
<tbody>
<tr>
<td>III</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Water/Wastewater System

<table>
<thead>
<tr>
<th>Water</th>
<th>Pressure</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sewer</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

Access

<table>
<thead>
<tr>
<th>Road</th>
<th>Air Access</th>
<th>Dock/Port</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>Kipnuk Airport, gravel, good condition</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

Notes

Water/Wastewater Energy Audit?
No

System Volume
N/A

Homes Served
639

Runway 1
3,200'x60'
Runway 2
N/A
Runway 3
N/A
Runway 4
N/A

Barge Access?
Yes
Ferry Service?
No

Alaska Native Name (definition)
N/A

Historical Setting / Cultural Resources
Yupik Eskimos have inhabited the region for thousands of years. According to early BIA records, the village was established around 1922.
## Energy Profile: Kipnuk

### Diesel Power System

<table>
<thead>
<tr>
<th>Utility</th>
<th>Kipnuk Light Plant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine</td>
<td>Make/Model</td>
</tr>
<tr>
<td>Condition/Hrs</td>
<td>Gen Capacity</td>
</tr>
<tr>
<td>Unit 1</td>
<td></td>
</tr>
<tr>
<td>Unit 2</td>
<td></td>
</tr>
<tr>
<td>Unit 3</td>
<td></td>
</tr>
<tr>
<td>Unit 4</td>
<td></td>
</tr>
<tr>
<td>Line Loss</td>
<td>4.9%</td>
</tr>
<tr>
<td>Heat Recovery?</td>
<td>Priority</td>
</tr>
<tr>
<td>RPSU Powerhouse</td>
<td>Projects</td>
</tr>
<tr>
<td>RPSU Distribution</td>
<td>Status</td>
</tr>
<tr>
<td>Outage History/Known Issues</td>
<td>No RPSU data.</td>
</tr>
</tbody>
</table>

### Operators

<table>
<thead>
<tr>
<th>No. of Operators</th>
<th>Training/Certifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>21</td>
<td>PPO, BFO, Clerk, APPO</td>
</tr>
</tbody>
</table>

### Maintenance Planning (RPSU)

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

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

<table>
<thead>
<tr>
<th>Residential</th>
<th>Community</th>
<th>Commercial</th>
<th>Utility Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>55%</td>
<td>14%</td>
<td>30%</td>
<td>1%</td>
</tr>
</tbody>
</table>

### Power Production

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

### Electric Generation (MWh)

<table>
<thead>
<tr>
<th>Year</th>
<th>Diesel</th>
<th>Hydro</th>
<th>Wind</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Electric Rates ($/kWh)

- **Rate with PCE**: $0.19
- **Residential Rate**: $0.43
- **Commercial Rate**: $0.55

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

- **Fuel Cost**: $0.31
- **Non-fuel Cost**: $0.24
- **Total Cost**: $0.55

### Fuel Prices ($) Utility/Wholesale Retail Month/Year

- **Diesel (1 gal)**: $4.16 $6.31 6-13; 8-14
- **Other Fuel? (1 gal)**
- **Gasoline (1 gal)**
- **Propane (100#)**
- **Wood (1 cord)**
- **Pellets**
- **Discounts?**

### Alternative Energy

<table>
<thead>
<tr>
<th>Potential</th>
<th>Projects</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydroelectric</td>
<td>Low</td>
<td>None</td>
</tr>
<tr>
<td>Wind Diesel</td>
<td>Medium</td>
<td>Met Tower Installed</td>
</tr>
<tr>
<td>Biomass</td>
<td>Low</td>
<td>None</td>
</tr>
<tr>
<td>Solar</td>
<td>Medium</td>
<td>None</td>
</tr>
<tr>
<td>Geothermal</td>
<td>Low</td>
<td>None</td>
</tr>
<tr>
<td>Oil and Gas</td>
<td>Low</td>
<td>None</td>
</tr>
<tr>
<td>Coal</td>
<td>Low</td>
<td>None</td>
</tr>
<tr>
<td>Emerging Tech</td>
<td>Not Rated</td>
<td>None</td>
</tr>
<tr>
<td>Heat Recovery</td>
<td>High</td>
<td>Heat Recovery System</td>
</tr>
<tr>
<td>Energy Efficiency</td>
<td>High</td>
<td>1) Health Clinic Energy Efficiency 2) VEEP</td>
</tr>
</tbody>
</table>

### Bulk Fuel

<table>
<thead>
<tr>
<th>Tank Owner</th>
<th>Fuel Type(s)</th>
<th>Capacity</th>
<th>Age/Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Village</td>
<td>Heating Oil</td>
<td>119,000</td>
<td>Fair</td>
</tr>
<tr>
<td>Village</td>
<td>Gasoline</td>
<td>100,000</td>
<td>Fair</td>
</tr>
</tbody>
</table>

### Bulk Fuel Upgrade

<table>
<thead>
<tr>
<th>Priority</th>
<th>Project</th>
<th>Status</th>
</tr>
</thead>
</table>

### Notes

- Barge delivery in Spring & Fall.
# Energy Profile: Kipnuk

<table>
<thead>
<tr>
<th>Housing Units</th>
<th>Occupied</th>
<th>Vacant</th>
<th>% Owner-Occup.</th>
</tr>
</thead>
<tbody>
<tr>
<td>136</td>
<td>29</td>
<td>47</td>
<td>83%</td>
</tr>
</tbody>
</table>

## Housing Need
- Overcrowded: 41.2%
- 1-star: 6.1%

## Age of Housing Stock

<table>
<thead>
<tr>
<th>Year</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1940s</td>
<td>0</td>
</tr>
<tr>
<td>1950s</td>
<td>3</td>
</tr>
<tr>
<td>1960s</td>
<td>20</td>
</tr>
<tr>
<td>1970s</td>
<td>10</td>
</tr>
<tr>
<td>1980s</td>
<td>33</td>
</tr>
<tr>
<td>1990s</td>
<td>26</td>
</tr>
<tr>
<td>2000-11</td>
<td>13</td>
</tr>
</tbody>
</table>

## Data Quality
- High

## Regional Housing Authority
- AVCP

## Energy Use
- Average Home Energy Rating: 3-star plus
- Average Square Feet: 927
- Avg. EUI (kBTU/sf): 86

## Energy Efficient Housing Stock
- 65% Retrofitted
- 0% BEES Certified
- 35% Untouched

## Lighting

<table>
<thead>
<tr>
<th>Lighting Type</th>
<th>Number/Type</th>
<th>Retrofitted?</th>
<th>Year</th>
<th>Notes</th>
</tr>
</thead>
</table>

## Non-residential Building Inventory

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

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)
N/A
Per-Capita Revenue
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. Marine
57/6
Heating Deg. Days N/A

Natural Hazard Plan
N/A

Community Plans
Year
N/A

Local Contacts
Email
Qemirtalek Coast Corporation
kong.tribe@gmail.com
Native Village of Kongiganak
Phone
907-557-5529
907-557-5226
Fax
907-557-5517
907-557-5224

Demographics

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th>2010</th>
</tr>
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<tr>
<td>Population</td>
<td>359</td>
<td>439</td>
</tr>
<tr>
<td>Median Age</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>Avg. Household Size</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Median Household Income</td>
<td>$33,750</td>
<td></td>
</tr>
</tbody>
</table>

Electric Utility
Puvunnaq Power Company

Landfill
Class III
Permitted? No

Water/Wastewater System
Water Washeteria
Sewer Honey Bucket

Access
Road No
Air Access Kongiganak Airport, gravel-dirt, good condition
N/A
Dock/Port No

Notes

Percent of Residents Employed 72.92%
Denali Commission Distressed Community Yes
Percent Alaska Native/American Indian (2010) 95.67%
Low and Moderate Income (LMI) Percent (201x) N/A
PCE? Yes

Homes Served 294
Water/Wastewater Energy Audit? Yes

Spatial Referencing System

System Volume 10,000-50,000
Energy Profile: Kongiganak

Diesel Power System

<table>
<thead>
<tr>
<th>Engine</th>
<th>Make/Model</th>
<th>Condition/Hrs</th>
<th>Gen Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit 1</td>
<td>John Deere</td>
<td>Fair/9,040</td>
<td>235</td>
</tr>
<tr>
<td>Unit 2</td>
<td>John Deere</td>
<td>Fair/8,071</td>
<td>275</td>
</tr>
<tr>
<td>Unit 3</td>
<td>John Deere</td>
<td>Fair/10,993</td>
<td>275</td>
</tr>
<tr>
<td>Unit 4</td>
<td>John Deere</td>
<td>Fair/13,990</td>
<td>140</td>
</tr>
<tr>
<td>Line Loss</td>
<td></td>
<td></td>
<td>18.2%</td>
</tr>
</tbody>
</table>

Heat Recovery? Yes; Water Plant, Laundromat

Upgrades

<table>
<thead>
<tr>
<th>Projects</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>RPSU Powerhouse</td>
<td>Med.</td>
</tr>
<tr>
<td>RPSU Distribution</td>
<td>In Progress</td>
</tr>
</tbody>
</table>

Outage History/Known Issues

Operators

<table>
<thead>
<tr>
<th>No. of Operators</th>
<th>Training/Certifications</th>
</tr>
</thead>
</table>

Maintenance Planning (RPSU)

<table>
<thead>
<tr>
<th>Electric Sales</th>
<th>No. of Customers</th>
<th>kWh/year</th>
<th>kWh/Customer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>100</td>
<td>589,573</td>
<td>5,896</td>
</tr>
<tr>
<td>Community</td>
<td>5</td>
<td>83,345</td>
<td>16,669</td>
</tr>
<tr>
<td>Commercial</td>
<td>23</td>
<td>362,472</td>
<td>15,760</td>
</tr>
<tr>
<td>Utility Use</td>
<td>33,913</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Electric Sales by Customer Type (kWh/year)

- Residential: 55%
- Community: 8%
- Commercial: 34%
- Utility Use: 3%

Alternative Energy

<table>
<thead>
<tr>
<th>Potential</th>
<th>Projects</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydroelectric</td>
<td>Low</td>
<td>None</td>
</tr>
<tr>
<td>Wind Diesel</td>
<td>High</td>
<td>High Penetration Wind-Diesel Smrt Grid, 450 kW</td>
</tr>
<tr>
<td>Biomass</td>
<td>Low</td>
<td>None</td>
</tr>
<tr>
<td>Solar</td>
<td>Medium</td>
<td>None</td>
</tr>
<tr>
<td>Geothermal</td>
<td>Low</td>
<td>None</td>
</tr>
<tr>
<td>Oil and Gas</td>
<td>Low</td>
<td>None</td>
</tr>
<tr>
<td>Coal</td>
<td>Low</td>
<td>None</td>
</tr>
<tr>
<td>Emerging Tech</td>
<td>Not Rated</td>
<td>None</td>
</tr>
<tr>
<td>Heat Recovery</td>
<td>High</td>
<td>Water system</td>
</tr>
<tr>
<td>Energy Efficiency</td>
<td>High</td>
<td>Sanitation Energy Efficiency</td>
</tr>
</tbody>
</table>

Bulk Fuel

<table>
<thead>
<tr>
<th>Tank Owner</th>
<th>Fuel Type(s)</th>
<th>Capacity</th>
<th>Age/Condition</th>
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</thead>
<tbody>
<tr>
<td>Village</td>
<td>Heating Oil</td>
<td>96,000</td>
<td>Good</td>
</tr>
<tr>
<td>Village</td>
<td>Gasoline</td>
<td>96,000</td>
<td>Good</td>
</tr>
<tr>
<td>Utility</td>
<td>Heating Oil</td>
<td>60,000</td>
<td>Good</td>
</tr>
<tr>
<td>Qemirtalek C.</td>
<td>Heating Oil</td>
<td>96,000</td>
<td>Good</td>
</tr>
<tr>
<td>Qemirtalek C.</td>
<td>Gasoline</td>
<td>98,000</td>
<td>Good</td>
</tr>
</tbody>
</table>

Bulk Fuel Upgrade

<table>
<thead>
<tr>
<th>Priority</th>
<th>Project</th>
<th>Status</th>
</tr>
</thead>
</table>

Power Production

<table>
<thead>
<tr>
<th>Power Type</th>
<th>kWh/yr</th>
<th>Avg. Load (kW)</th>
<th>Peak Load (kW)</th>
<th>Efficiency (kWh/gal)</th>
<th>Diesel Used (gals/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diesel</td>
<td>861,659</td>
<td>99</td>
<td>219</td>
<td>11.81</td>
<td>72,956</td>
</tr>
<tr>
<td>Wind</td>
<td>318,848</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Hydro</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1,306,761</td>
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</tbody>
</table>

Electric Rates ($/kWh)

- Rate with PCE: $0.30
- Residential Rate: $0.65
- Commercial Rate: $4.46

Cost per kWh Sold ($/kWh)

- Fuel Cost: $0.32
- Non-fuel Cost: $0.33
- Total Cost: $0.65

Fuel Prices ($)

- Diesel (1 gal): $4.46
- Gasoline (1 gal): $6.30
- Propane (100#): $422.62
- Wood (1 cord): 8-14
- Pellets: 8-14
- Discounts?

Notes

- Barge delivery in Spring, & Fall to Village. June-Sept. to Utility. Spring & Fall to Qemirtalek Coast Corp.
### Energy Profile: Kongiganak

<table>
<thead>
<tr>
<th>Housing Units</th>
<th>Occupied</th>
<th>Vacant</th>
<th>% Owner-Occup.</th>
</tr>
</thead>
<tbody>
<tr>
<td>78</td>
<td>15</td>
<td></td>
<td>67%</td>
</tr>
</tbody>
</table>

**Housing Need**

- Overcrowded
- 1-star
- 55.1%
- N/A

**Data Quality**

- Low

### Age of Housing Stock

<table>
<thead>
<tr>
<th>Decade</th>
<th>Count</th>
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<tbody>
<tr>
<td>Earlier</td>
<td>0</td>
</tr>
<tr>
<td>1940s</td>
<td>2</td>
</tr>
<tr>
<td>1950s</td>
<td>3</td>
</tr>
<tr>
<td>1960s</td>
<td>7</td>
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<tr>
<td>1970s</td>
<td>19</td>
</tr>
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<td>1980s</td>
<td>15</td>
</tr>
<tr>
<td>1990s</td>
<td>47</td>
</tr>
<tr>
<td>2000-11</td>
<td>9</td>
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### Energy Use

<table>
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<tr>
<th>Average Home Energy Rating</th>
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<tr>
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<table>
<thead>
<tr>
<th>Average Square Feet</th>
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<td>N/A</td>
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<table>
<thead>
<tr>
<th>Avg. EUI (kBTU/sf)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
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</tbody>
</table>

### Regional Housing Authority

- AVCP

### Weatherization Service Provider

- AVCP

### Energy Efficient Housing Stock

- 36% retrofitted
- 0% BEES certified
- 64% untouched

### Lighting

<table>
<thead>
<tr>
<th>Lighting</th>
<th>Number/Type</th>
<th>Retrofitted?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner</td>
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### Non-residential Building Inventory

<table>
<thead>
<tr>
<th>Building Name or Location</th>
<th>Year Built</th>
<th>Square Feet</th>
<th>Audited?</th>
<th>Retrofits Done?</th>
<th>In ARIS?</th>
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<tbody>
<tr>
<td>AT&amp;T Facility</td>
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<td></td>
<td></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Airport Maintenance Bldg</td>
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<td></td>
<td></td>
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<tr>
<td>Child Welfare Office</td>
<td></td>
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</tr>
<tr>
<td>Community Center</td>
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</tr>
<tr>
<td>Fuel Tank Farm</td>
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<td></td>
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<td></td>
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<tr>
<td>Health Clinic</td>
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<td>1,350</td>
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<tr>
<td>Lift Station</td>
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<tr>
<td>Moravian Church</td>
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<td></td>
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</tr>
<tr>
<td>Moravian Church Parsonage</td>
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</tr>
<tr>
<td>Moravian Church Warehouse</td>
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<tr>
<td>New Armory</td>
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<td>Old Armory</td>
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<td>No</td>
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<tr>
<td>Old Marina Fuel Station</td>
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</tr>
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<td>Orthodox Church</td>
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<tr>
<td>PHS Bldg</td>
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<td>Police Station</td>
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<tr>
<td>Power Co. Office</td>
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<td>No</td>
</tr>
<tr>
<td>Power Plant</td>
<td></td>
<td></td>
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<td>No</td>
</tr>
<tr>
<td>Safe Water Storage</td>
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<td></td>
<td>No</td>
</tr>
<tr>
<td>Safe Water/Laundromat</td>
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<td></td>
<td></td>
<td>No</td>
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<tr>
<td>School</td>
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<td></td>
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<td></td>
<td>No</td>
</tr>
<tr>
<td>School Power Plant</td>
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<td></td>
<td></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Search &amp; Seizure</td>
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<td></td>
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<tr>
<td>Store</td>
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<td></td>
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<td></td>
<td>No</td>
</tr>
<tr>
<td>Teacher Housing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Tribal Bldg</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>United Utilities Inc</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Variety Store</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Warehouse</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Water Treatment Plant/Tribal Offices/Hotel</td>
<td>1980</td>
<td>8903</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>
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. 62/-2
Climate Zone N/A
Heating Deg. Days 3,685

Natural Hazard Plan
City of Kwethluk Local Multi-Hazard Mitigation Plan, 200

Community Plans Year
N/A 2013

Local Contacts
Kwethluk Incorporated
Organized Village of Kwethluk kwitira@gmail.com
City of Kwethluk kwtcityclerk@gmail.com

Phone 907-757-6212
Fax 907-757-6714
Phone 907-757-6022
Fax 907-757-6497

Demographics
Population 2000 713 2010 721
Median Age 20 28
Avg. Household Size 5 5
Median Household Income $47,500

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

Landfill
Class III
Permitted? Yes
Location 5/8 mi south of downtown

Water/Wastewater System
Water Washeteria
Sewer Honey Bucket
Notes

Access
Road No
Air Access Kwethluk Airport, gravel, fair condition
N/A
Dock/Port No

Notes

Homes Served 766
Water/Wastewater Energy Audit?
Yes

System Volume 10,000-50,000
Runway 1 3,199'x75'
Runway 2 N/A
Runway 3 N/A
Runway 4 N/A
Barge Access? Yes
Ferry Service? No
## Energy Profile: Kwethluk

### Diesel Power System

<table>
<thead>
<tr>
<th>Feature</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utility</td>
<td>Kwethluk, Inc.</td>
</tr>
<tr>
<td>Engine</td>
<td>Make/Model</td>
</tr>
<tr>
<td>Unit 1</td>
<td>Caterpillar</td>
</tr>
<tr>
<td>Unit 2</td>
<td>Caterpillar</td>
</tr>
<tr>
<td>Unit 3</td>
<td>John Deere</td>
</tr>
<tr>
<td>Unit 4</td>
<td></td>
</tr>
<tr>
<td>Heat Recovery?</td>
<td>Yes; High School</td>
</tr>
<tr>
<td>Upgrades</td>
<td>Priority Projects</td>
</tr>
<tr>
<td>RPSU Powerhouse</td>
<td>Low</td>
</tr>
<tr>
<td>RPSU Distribution</td>
<td>Medium</td>
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</tbody>
</table>

### Operators

<table>
<thead>
<tr>
<th>No. of Operators</th>
<th>Training/Certifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>PPO, BFO, Utility Clerk, BF Mgr.</td>
</tr>
</tbody>
</table>

### Electric Sales

<table>
<thead>
<tr>
<th>Category</th>
<th>No. of Customers</th>
<th>kWh/year</th>
<th>kWh/Customer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>180</td>
<td>693,535</td>
<td>3,853</td>
</tr>
<tr>
<td>Community</td>
<td>4</td>
<td>38,323</td>
<td>9,581</td>
</tr>
<tr>
<td>Commercial</td>
<td>36</td>
<td>516,359</td>
<td>14,343</td>
</tr>
</tbody>
</table>

### Electric Sales by Customer Type

- Residential: 54%
- Community: 3%
- Commercial: 40%
- Utility Use: 4%

### Alternative Energy

- Hydroelectric: Low
- Wind Diesel: Low
- Biomass: Low
- Solar: Medium
- Geothermal: Low
- Oil and Gas: Low
- Coal: Low
- Emerging Tech: Not Rated
- Heat Recovery: High
- Energy Efficiency: High

### Power Production

<table>
<thead>
<tr>
<th>Source</th>
<th>kWh/yr</th>
<th>Avg. Load (kW)</th>
<th>Peak Load (kW)</th>
<th>Efficiency (kWh/gal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diesel</td>
<td>1,483,150</td>
<td>134</td>
<td>298</td>
<td>13.67</td>
</tr>
<tr>
<td>Wind</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydro</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Electric Generation (MWh)

<table>
<thead>
<tr>
<th>Year</th>
<th>Diesel</th>
<th>Hydro</th>
<th>Wind</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>1.35</td>
<td>0.2</td>
<td>0.25</td>
</tr>
<tr>
<td>2009</td>
<td>1.3</td>
<td>0.15</td>
<td>0.2</td>
</tr>
<tr>
<td>2010</td>
<td>1.25</td>
<td>0.1</td>
<td>0.15</td>
</tr>
<tr>
<td>2011</td>
<td>1.17</td>
<td>0.05</td>
<td>0.1</td>
</tr>
<tr>
<td>2012</td>
<td>1.1</td>
<td>0.05</td>
<td>0.05</td>
</tr>
</tbody>
</table>

### Electric Rates ($/kWh)

- Rate with PCE: $0.20
- Residential Rate: $0.52
- Commercial Rate: $0.48

### Fuel Prices ($)

- Diesel (1 gal): $4.45
- Gasoline (1 gal): $7.19
- Propane (100#): $7.12

### Bulk Fuel

<table>
<thead>
<tr>
<th>Feature</th>
<th>Fuel Type(s)</th>
<th>Capacity</th>
<th>Age/Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tank Owner</td>
<td>Diesel</td>
<td>230,000</td>
<td>Good</td>
</tr>
<tr>
<td>Kwethluk, Inc.</td>
<td>Gasoline</td>
<td>115,000</td>
<td>Good</td>
</tr>
<tr>
<td>Bulk Tank Farm</td>
<td>unknown</td>
<td>439,500</td>
<td>8 yrs/active</td>
</tr>
<tr>
<td>Old Tank Farm</td>
<td>Unknown</td>
<td>Unknown</td>
<td>Abandoned</td>
</tr>
</tbody>
</table>

### Notes

- Cooperatives Purchasing Agreements

### Bulk Fuel Upgrade

<table>
<thead>
<tr>
<th>Priority</th>
<th>Project</th>
<th>Status</th>
</tr>
</thead>
</table>

- Cooperatives Purchasing Agreements

### Maintenance Planning (RPSU)

<table>
<thead>
<tr>
<th>Type</th>
<th>Condition Hrs</th>
<th>Gen Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diesel</td>
<td>Good/8,500</td>
<td>410</td>
</tr>
<tr>
<td>Wind</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydro</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Outage History/Known Issues

- Diesel: 108,472 gals/yr
Energy Profile: Kwethluk

<table>
<thead>
<tr>
<th>Housing Units</th>
<th>Occupied</th>
<th>Vacant</th>
<th>% Owner-Occup.</th>
</tr>
</thead>
<tbody>
<tr>
<td>159</td>
<td>69</td>
<td></td>
<td>62%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Housing Need</th>
<th>Overcrowded</th>
<th>1-star</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>43.4%</td>
<td>24.8%</td>
</tr>
</tbody>
</table>

| Data Quality | Medium |

<table>
<thead>
<tr>
<th>Age of Housing Stock</th>
</tr>
</thead>
<tbody>
<tr>
<td>---------</td>
</tr>
<tr>
<td>%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Regional Housing Authority</th>
<th>Weatherization Service Provider</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVCP</td>
<td>AVCP</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Energy Use</th>
<th>Average Home Energy Rating</th>
<th>Average Square Feet</th>
<th>Avg. EUI (kBTU/sf)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2-star</td>
<td>702</td>
<td>187</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Energy Efficient Housing Stock</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retrofitted</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lighting</th>
<th>Owner</th>
<th>Number/Type</th>
<th>Retrofitted?</th>
<th>Year</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Streetlights</td>
<td>50</td>
<td>Yes</td>
<td></td>
<td>45 replaced with LEDs</td>
<td></td>
</tr>
</tbody>
</table>

Non-residential Building Inventory

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

**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.

**Longitude** -163.1332
**Latitude** 59.8639

**ANCSA Region** Calista Corporation
**Borough/CA** Bethel Census Area
**School District** Lower Kuskokwim School District

**AEA Region** Lower Yukon-Kuskokwim

**Taxes**
N/A

**Type (rate)**
N/A

**Per-Capita Revenue**
N/A

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

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

**Natural Hazard Plan**
N/A

**Community Plans**
N/A

**Year**
N/A

---

**Local Contacts**

<table>
<thead>
<tr>
<th>Name</th>
<th>Email</th>
<th>Phone</th>
<th>Fax</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kwik Incorporated</td>
<td></td>
<td>907-588-8112</td>
<td>907-588-8313</td>
<td>907-588-8114</td>
</tr>
<tr>
<td>Native Village of Kwigillingok</td>
<td><a href="mailto:kkwtribal@yahoo.com">kkwtribal@yahoo.com</a></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Demographics**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>321</td>
<td>19</td>
<td>4</td>
<td>$39,167</td>
<td>Kwigillingok Power Company</td>
<td>78.66%</td>
<td>No</td>
<td>95.02%</td>
<td>N/A</td>
<td>338</td>
<td>100,001-500,000</td>
</tr>
</tbody>
</table>

---

**Landfill**

<table>
<thead>
<tr>
<th>Class</th>
<th>Permitted?</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>III</td>
<td>Yes</td>
<td>1/2 mi from village</td>
</tr>
</tbody>
</table>

**Water/Wastewater System**

<table>
<thead>
<tr>
<th>Name</th>
<th>Notes</th>
<th>Water/Wastewater Energy Audit?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>Washeteria</td>
<td>No</td>
</tr>
<tr>
<td>Sewer</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

**Access**

<table>
<thead>
<tr>
<th>Road</th>
<th>Air Access</th>
<th>Dock/Port</th>
<th>Runway 1</th>
<th>Runway 2</th>
<th>Runway 3</th>
<th>Runway 4</th>
<th>Barge Access?</th>
<th>Ferry Service?</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>Kwigillingok Airport, gravel-dirt, good condition</td>
<td>No</td>
<td>1,835' x 40'</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>
Energy Profile: Kwillingingok

Diesel Power System

<table>
<thead>
<tr>
<th>Utility</th>
<th>Kwillingingok Power Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine</td>
<td>Make/Model</td>
</tr>
<tr>
<td>Unit 1</td>
<td>John Deere Fair/15,548 168</td>
</tr>
<tr>
<td>Unit 2</td>
<td>John Deere Fair/9,063 190</td>
</tr>
<tr>
<td>Unit 3</td>
<td>John Deere Fair/9,645 275</td>
</tr>
<tr>
<td>Unit 4</td>
<td>John Deere Fair/5,981 90</td>
</tr>
<tr>
<td>Line Loss</td>
<td>8.4%</td>
</tr>
<tr>
<td>Heat Recovery?</td>
<td>Yes; Water Plant</td>
</tr>
<tr>
<td>Upgrades</td>
<td>Priority Projects Status</td>
</tr>
<tr>
<td>RPSU Powerhouse</td>
<td>Low Projects Complete</td>
</tr>
<tr>
<td>RPSU Distribution</td>
<td>In Progress</td>
</tr>
</tbody>
</table>

Outage History/Known Issues

Operators

<table>
<thead>
<tr>
<th>No. of Operators</th>
<th>Training/Certifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>APPO, BFO, Elec. Util. Bus., PPO</td>
</tr>
</tbody>
</table>

Maintenance Planning (RPSU) Unacceptable

Electric Sales

<table>
<thead>
<tr>
<th>No. of Customers</th>
<th>kWh/year</th>
<th>kWh/Customer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>96</td>
<td>484,963</td>
</tr>
<tr>
<td>Community</td>
<td>3</td>
<td>106,805</td>
</tr>
<tr>
<td>Commercial</td>
<td>31</td>
<td>437,000</td>
</tr>
</tbody>
</table>

Electric Sales by Customer Type (kWh/year)

45% Residential, 10% Community, 40% Commercial, 5% Utility Use

Power Production

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

Electric Generation (MWh)

Electric Rates ($/kWh)

| Rate with PCE | $0.20 |
| Residential Rate | $0.61 |

Cost per kWh Sold ($/kWh)

<table>
<thead>
<tr>
<th>Fuel</th>
<th>Utility/Wholesale</th>
<th>Retail</th>
<th>Month/Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diesel (1 gal)</td>
<td>$4.44</td>
<td>$6.02</td>
<td>6-13; 8-14</td>
</tr>
</tbody>
</table>

Other Fuel? (1 gal)

- Gasoline
- Propane (100#)
- Wood (1 cord)
- Pellets
- Discounts?

Alternative Energy

<table>
<thead>
<tr>
<th>Potential</th>
<th>Projects</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydroelectric</td>
<td>Low</td>
<td>None</td>
</tr>
<tr>
<td>Wind Diesel</td>
<td>High</td>
<td>High 500kW Grid, Operational</td>
</tr>
<tr>
<td>Biomass</td>
<td>Low</td>
<td>None</td>
</tr>
<tr>
<td>Solar</td>
<td>Medium</td>
<td>None</td>
</tr>
<tr>
<td>Geothermal</td>
<td>Low</td>
<td>None</td>
</tr>
<tr>
<td>Oil and Gas</td>
<td>Low</td>
<td>None</td>
</tr>
<tr>
<td>Coal</td>
<td>Low</td>
<td>None</td>
</tr>
<tr>
<td>Emerging Tech</td>
<td>Not Rated</td>
<td>None</td>
</tr>
<tr>
<td>Heat Recovery</td>
<td>Medium</td>
<td>Water treatment plant, Operational</td>
</tr>
<tr>
<td>Energy Efficiency</td>
<td>High</td>
<td>EECBG</td>
</tr>
</tbody>
</table>

Bulk Fuel

<table>
<thead>
<tr>
<th>Tank Owner</th>
<th>Fuel Type(s)</th>
<th>Capacity</th>
<th>Age/Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utility</td>
<td>Heating Oil</td>
<td>83,000</td>
<td>Good</td>
</tr>
<tr>
<td>Bulk Fuel Upgrade</td>
<td>Priority</td>
<td>Project</td>
<td>Status</td>
</tr>
</tbody>
</table>

Purchasing

<table>
<thead>
<tr>
<th>Deliveries/Year</th>
<th>Gallons/Delivery</th>
<th>Vendor(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>By Barge</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>By Air</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Cooperative Purchasing Agreements

Notes

Barge delivery in June & Sept.
Energy Profile: Kwillingok

<table>
<thead>
<tr>
<th>Housing Units</th>
<th>Occupied</th>
<th>Vacant</th>
<th>% Owner-Occup.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>58</td>
<td>20</td>
<td>72%</td>
</tr>
</tbody>
</table>

**Housing Need**
- Overcrowded
- 1-star
- 50.0%
- N/A

**Data Quality**
- Low

---

**Age of Housing Stock**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>19</td>
<td>43</td>
<td>9</td>
</tr>
</tbody>
</table>

**Energy Use**
- Average Home Energy Rating
- N/A

<table>
<thead>
<tr>
<th>Weatherization Service Provider</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVCP</td>
</tr>
</tbody>
</table>

---

**Energy Efficient Housing Stock**

<table>
<thead>
<tr>
<th>Retrofitted</th>
<th>BEES Certified</th>
<th>Untouched</th>
</tr>
</thead>
<tbody>
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**Non-residential Building Inventory**

<table>
<thead>
<tr>
<th>Building Name or Location</th>
<th>Year Built</th>
<th>Square Feet</th>
<th>Audited?</th>
<th>Retrofits Done?</th>
<th>In ARIS?</th>
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<tbody>
<tr>
<td>Armory</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>BIA Fuel Storage (not in use)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Chief Paul Memorial School</td>
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<td></td>
<td>No</td>
</tr>
<tr>
<td>Co-op Store</td>
<td></td>
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<tr>
<td>IRA Council Office</td>
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</tr>
<tr>
<td>IRA Council Storage</td>
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</tr>
<tr>
<td>IRA Property</td>
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</tr>
<tr>
<td>IRA Rental House &amp; Storage</td>
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</tr>
<tr>
<td>Jail (not in use)</td>
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<tr>
<td>K12 School/Housing/Power/Storage</td>
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<tr>
<td>Moravian Church</td>
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<tr>
<td>Moravian Church Parsonage &amp; Storage</td>
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<tr>
<td>Old BIA Property</td>
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<td>Old Head start Bldg</td>
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<td>Orthodox Church</td>
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<td>Proposed Fisheries Support Ctr.</td>
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<td>Public Safety Bldg</td>
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<td>Water treatment plant</td>
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