A Remote Region

- No roads and few electrical interties to connect communities
- 61% more expensive than Anchorage
- High cost goods and fuel
### ALASKA VILLAGE ELECTRIC COOPERATIVE

**Account Number**

**Bill Date**

**Payments Received Through**

**Due Date**

**Service Dates**
- From 07/31/16
- To 08/31/16

**Days in Cycle**
- 31

---

**Customer Name & Village**

**Service Address**

**NOATAK**

---

<table>
<thead>
<tr>
<th>Meter Serial #</th>
<th>Previous Reading</th>
<th>Current Reading</th>
<th>Rate Code</th>
<th>kWh Used</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>96640</td>
<td>97786</td>
<td>142</td>
<td>1146</td>
</tr>
</tbody>
</table>

---

**Billing Description**

- **Prior Balance Due**: 1295.45
- **Payment 08/12/16**: 1295.45
- **Adjustments**: 0.00

**Customer Charge**

<table>
<thead>
<tr>
<th>Rate</th>
<th>ChargeAmount</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.00</td>
<td>5.00</td>
</tr>
</tbody>
</table>

**Energy**

<table>
<thead>
<tr>
<th>kWh Used X Rate</th>
<th>ChargeAmount</th>
</tr>
</thead>
<tbody>
<tr>
<td>700 x 0.000000</td>
<td>210.00</td>
</tr>
<tr>
<td>446 x 0.000000</td>
<td>89.20</td>
</tr>
<tr>
<td>1146 x 0.000003</td>
<td>573.34</td>
</tr>
<tr>
<td>500 x 0.000005</td>
<td>289.05</td>
</tr>
</tbody>
</table>

**Total**: 614.82

---

### ENDING BALANCE

**Total for the Billing Period**: 614.82

---

**ACCOUNT STATUS**

<table>
<thead>
<tr>
<th>Current</th>
<th>Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

---

**LAST DATE TO PAY before Disconnections is September 26th, 2016.**
Inter-Tribal Technical Assistance
Energy Providers Network
Energy – Recap of what was accomplished at NANA Regional Corporation

Strategic Energy Plan (SEP)

1. The goal of the NANA SEP is improved energy security through strategic energy planning and improved understanding of available energy options

2. SEP branded as the NWALT Energy Plan to show collaboration and partnerships within the region

3. Energy Steering Committee formed to improve communication on energy issues
Energy – Recap of what was accomplished at NANA Regional Corporation

Energy Option Analysis

**Purpose** – identify and develop energy resources for each community

1. Six feasible options – wind, hydro, biomass, solar, fossil fuels
   - Low hanging fruit – energy efficiency and conservation

2. Not every village has a renewable energy source nearby

3. Shallow rivers impacting fuel delivery to the Upper Kobuk villages and Noatak
Energy – Recap of what was accomplished at NANA Regional Corporation

NANA/Rural Cap Energy Wise Program

1. Energy Wise Program – merges household-based energy efficiency measures with a community-based outreach and education to reduce energy costs

2. NANA contributed $1.9M to create jobs and perform moderate weatherization upgrades to the homes
Energy – Recap of what was accomplished at NANA Regional Corporation

Energy Summit

The purpose of the Summit –

• For residents of the NWAB communities to become knowledgeable of the current energy crisis and what it means to their communities
• Share and discuss ideas, produce goals and recommendations
• Work collectively to find short and long term energy solutions
Energy – Recap of what was accomplished at NANA Regional Corporation

Energy Survey

1. Community survey questionnaires were developed and completed for all NANA Communities
2. These questionnaires were developed specifically for each community
3. Surveys completed indicated support for renewable energy projects
## Energy – What we’ve learned

### Project Timelines

<table>
<thead>
<tr>
<th>Description</th>
<th>Range in years</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>0</td>
<td>Current deployment mix</td>
</tr>
<tr>
<td>Immediate</td>
<td>0-1</td>
<td>Conservation, Energy Efficiency, weatherization, biomass, coordination</td>
</tr>
<tr>
<td></td>
<td></td>
<td>of feasibility studies, assure access to PCE and other energy assistance</td>
</tr>
<tr>
<td>Short</td>
<td>1-3</td>
<td></td>
</tr>
<tr>
<td>Mid-term</td>
<td>2-10</td>
<td>Wind, infrastructure development, biomass, and other alternative</td>
</tr>
<tr>
<td></td>
<td></td>
<td>development.</td>
</tr>
<tr>
<td>Long-Term</td>
<td>5-15</td>
<td>Natural Gas, geothermal, large scale infrastructure, development,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>disruptive technologies</td>
</tr>
<tr>
<td>Stretch Goals</td>
<td>15+</td>
<td>Advanced storage technologies</td>
</tr>
</tbody>
</table>
Energy – What we’ve learned

Data collection

1. State and Federal funding is getting more competitive

2. Data collection is crucial, but can’t study to death
   A. 1 year of wind data
   B. 5 years of stream flow
   C. Project performance data for investment payback
   D. TED & ECO meters for Conservation – with NWAB

3. Energy audits, energy assessments, market basket study, etc.
Energy – What we’ve learned

NANA’s Role in energy for our region

1. Project development, including stakeholder coordination
2. Grant writer/fund seeker – innovative approaches
3. Advocating for change in State and Federal policies
4. Infrastructure planner
5. Communicating NWALT energy priorities to stakeholders
6. Update Energy plan
7. Research emerging technologies
## Completed Projects

<table>
<thead>
<tr>
<th>Project</th>
<th>Date</th>
<th>Initial effort from NANA</th>
<th>NANA’s $ Contrib.</th>
<th>$ Awarded</th>
<th>Project Man/Proponent</th>
<th>Status</th>
<th>Next steps/milestones</th>
<th>$ Needed</th>
<th>Comm date</th>
<th>B/C ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>NANA SEP</td>
<td>10/8/2007</td>
<td>Applied for grant funding</td>
<td>$95,922</td>
<td>$ 100,000.00</td>
<td>NANA</td>
<td>On-going</td>
<td>Strategic Energy Plan Energy Option Analysis Energy Summit Energy Steering Committee formed Energy Survey</td>
<td></td>
<td>Completed</td>
<td></td>
</tr>
<tr>
<td>NANA GAP</td>
<td>10/8/2007</td>
<td>Applied for grant funding</td>
<td>$46,840</td>
<td>$ 149,988.00</td>
<td>NANA</td>
<td>Completed</td>
<td>Geothermal Assessment Report Field trips completed</td>
<td></td>
<td>Completed</td>
<td></td>
</tr>
<tr>
<td>NANA WRAP</td>
<td>10/8/2007</td>
<td>Applied for grant funding</td>
<td>$44,323</td>
<td>$ 149,990.00</td>
<td>NANA</td>
<td>On-going</td>
<td>Wind resource assessment completed Secured funding for turbine installation 2014 turbine installation for Deering and Buckland</td>
<td></td>
<td>2014</td>
<td></td>
</tr>
<tr>
<td>Energy Wise</td>
<td>2011</td>
<td>Partnered with Rural Cap</td>
<td>$1.9M</td>
<td>N/A</td>
<td>Rural Cap</td>
<td>Completed</td>
<td>10.5 villages completed Jobs created Energy education provided Moderate weatherization improvements</td>
<td></td>
<td>2011</td>
<td></td>
</tr>
<tr>
<td>Biomass</td>
<td></td>
<td>Applied for grant funding</td>
<td>Grant app cost</td>
<td>$58,000.00</td>
<td>NANA</td>
<td>Completed</td>
<td>Kobuk River Valley Woody Biomass Feasibility Study</td>
<td></td>
<td>2014</td>
<td></td>
</tr>
</tbody>
</table>
## Current Projects

<table>
<thead>
<tr>
<th>Project</th>
<th>Date</th>
<th>Initial effort from NANA</th>
<th>NANA’s $ Contrib.</th>
<th>$ Awarded</th>
<th>Project Man/Proponent</th>
<th>Status</th>
<th>Next steps/milestones</th>
<th>$ Needed</th>
<th>Comm. date</th>
<th>B/C ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kobuk Biomass</td>
<td>Aug. 2011</td>
<td>Letter of support Land staff support</td>
<td>In-kind staff time</td>
<td>401,873</td>
<td>ANTHC NANA</td>
<td>Completed</td>
<td>Commission wood burning boiler Approved Harvesting plan</td>
<td>N/A</td>
<td>Mar-15 Project complete</td>
<td>1.17</td>
</tr>
<tr>
<td>Cosmos Hills Hydro</td>
<td>Oct. 2008</td>
<td>Received grant from AEA NANA hydrology costs since 2009</td>
<td>500,000</td>
<td>150,000</td>
<td>NANA AVEC</td>
<td>Feasibility</td>
<td>Advance concept design to 65% and start permitting Preparing DOI grant application</td>
<td>500 k 30 M</td>
<td>Jun-15</td>
<td>1.30 - 1.8</td>
</tr>
<tr>
<td>Ambler Biomass</td>
<td>Jan. 2015</td>
<td>Letter of support Staff support</td>
<td>In-kind staff time</td>
<td></td>
<td>ANTHC NANA</td>
<td>AEA recommended funding to the legislature.</td>
<td>$379,583</td>
<td></td>
<td>Application submitted</td>
<td></td>
</tr>
<tr>
<td>Wind Turbine Installation</td>
<td>Sept. 2007</td>
<td>Received grant from DOE</td>
<td>194,313</td>
<td>10 M</td>
<td>NWAB NWAB</td>
<td>Operating</td>
<td>Deering Wind Turbine Installation Buckland Wind Turbine Installation Noorvik - Hotham Peak concept</td>
<td>Dec. 31, 2015 May-15</td>
<td>0.97</td>
<td></td>
</tr>
<tr>
<td>Kiana HS Energy Audit</td>
<td>June, 2013</td>
<td>Paid for energy assessment audit</td>
<td>$20,000</td>
<td></td>
<td>NANA AHFC WHPacific</td>
<td>Data analysis</td>
<td>Complete report by Nov. 30, 2013 Seek funding to perform Energy Efficiency Measures on NANA Region Schools Loans vs. Grant</td>
<td>$15,300</td>
<td>Report done by Nov. 30 2014 Completed</td>
<td>N/A</td>
</tr>
<tr>
<td>Shungnak Wind Project</td>
<td>Jan-15</td>
<td>Purchased met tower Paid for grant app prep</td>
<td>$5,000</td>
<td></td>
<td>NANA WHPacific</td>
<td>AEA recommended funding to the legislature</td>
<td>$95,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Noatak Fuel Haul Project</td>
<td>2011</td>
<td>Applied for grant funding</td>
<td>Grant app cost $425,000</td>
<td></td>
<td>NANA/NWAB</td>
<td>On-going</td>
<td>Partnered with Cruz Construction for operator training and spills plan dev. Fuel route selected Fuel equipment delivered to Portsites</td>
<td>2015</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solar Energy Project</td>
<td>2016</td>
<td>Applied for grant funding</td>
<td>Grant app cost $992,000</td>
<td></td>
<td>NANA</td>
<td>On-going</td>
<td>Receive award, negotiate scope and budget</td>
<td>$592,000</td>
<td>Jul-17</td>
<td></td>
</tr>
</tbody>
</table>
Inter-Tribal TA Project Objectives

- Two Energy Steering Committee (ESC) meetings per year (instead of one currently)
- A day of technical training/workforce development added to each ESC meeting
- Energy and business planning for individual tribes and the overall region
- Technology reviews for unique arctic applications
- Promote economies of scale in energy & power projects for the NANA Region
- Conduct topical research, including the development of a Regional Energy Authority
Energy – What we’ve learned

Critical Path / needs

1. Interties between villages

2. Roads

3. Power Cost Equalization Reform – Current formula decreases state subsidy if diesel consumption decreases
   - This current model discourages energy efficiency & renewable energy development
Potential Intertie Routes

- Ambler and Shungnak/Kobuk
- Noorvik-Kiana-Selawik
- Kivalina and Red Dog Port site
- Existing intertie: Shungnak – Kobuk
- Major Challenge: Large Capital Funding
Energy Steering Committee Goals & Outcomes

- Public Private Partnerships
- Village Economic Development
- Fostering Sustainable Behavior
- Roads & Inter-ties
- Powerhouse Upgrades to Integrate RE
- Workforce Development & Skills Training
Taikuu!