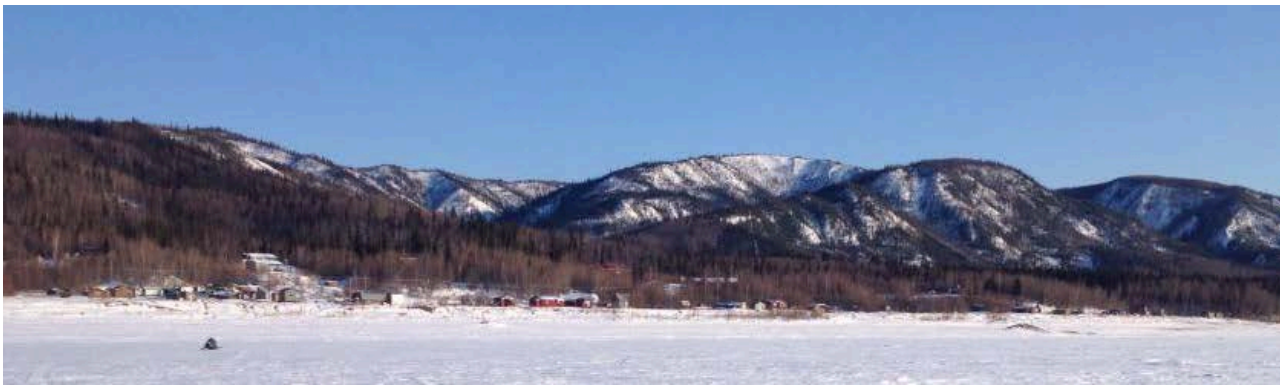

Rampart, AK

Strategic Energy Plan: 2015 - 2020

Rampart Village Council (RVC)

July 10th, 2015

Results of Strategic Energy Planning Session held July 7 – 9, 2015

This Strategic Energy Plan is made possible by support from the U.S. Department of Energy (DOE) Tribal Energy Program and Office of Indian Energy Policy and Programs (DOE Office of Indian Energy). This document was developed as part of the On-Request Technical Assistance Program supported by the Alliance for Sustainable Energy LLC (Alliance), the operator of the National Renewable Energy Laboratory (NREL) for DOE.

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Contents

Background

Throughout rural Alaska, communities produce electricity at local powerhouses through the use of diesel engines paired with generators – often referred to as "gensets." This electricity then goes through a local distribution grid to power the community.

Heat is most often provided through the burning of cord wood or fuel oil in individual homes or buildings. In some places, electrical heaters are also used but the high cost of electricity typically makes this the least economical option.

The diesel and fuel oil for these communities is brought in on barges or planes and stored in bulk storage tanks. This stored fuel is often the only fuel available between freeze-ups (when the rivers freeze over) and break up (when the river ice thaws and breaks apart).

Most rural Alaskan communities are not connected to a larger grid1 and many are accessible only by plane or boat. This isolation from the larger electrical grid and road system result in extremely high costs for energy.

Many rural Alaskan communities also do not have pumped water or wastewater systems. These communities rely on community wells for water and either pit latrines or honey buckets with waste lagoons for wastewater disposal. The addition of pumped water or wastewater systems would significantly increase electrical loads – and thus cost– on the community microgrids.

Village of Rampart:

The Rampart Village Council is the governing body of the Rampart Native Village, a federally recognized tribe in Alaska. Rampart Native Village (hereafter called "Rampart" or "village") is located on the south bank of the Yukon River, approximately 75 miles upstream from its junction with the Tanana River, 100 miles northwest of Fairbanks. It lies at approximately 65.505000 North Latitude and -150.170000 West Longitude.

Rampart was established in the late 1800's as a river supply point for gold placer mines. The boom was short-lived as other gold strikes were discovered. An agricultural experiment station was established by the University of Alaska across the river from Rampart from 1900-1925. Current employment opportunities are part-time or seasonal through the clinic, village council or other community entities. The school was closed in 1999 due to insufficient students. Consequently, a number of families have left the village. In the fall of 2015 the school will be reopened with 12 students enrolled.

The village has 32 year-round residents. This population increases significantly during the summer months. The population is predominately Koyukon Athabascan with an active subsistence lifestyle. Subsistence activities include the harvesting of salmon, whitefish, moose, caribou, waterfowl, and small game. Gardening and berry-picking are also popular.

[1] There are only two large grid interties in Alaska – the railbelt and the Southeast intertie

Rampart Native Village Mission:

Our mission is to build capacity and sustainability within the tribe to manage our local energy resources. Our goal is to develop capacity to design and maintain new and existing power systems while focusing on increasing the grid's efficiency, reliability, and resilience*. While protecting the health and welfare of tribal members, to provide employment and training opportunities for tribal members.*

Energy Baseline:

The Rampart Village Council collected information on transportation fuel, heating fuel, and electrical consumption to help inform the strategic energy plan. This data was used to establish an energy baseline which will be used to benchmark progress against the Council's energy goals.

Energy Context

In 2015 Rampart's population totaled 32 year-round residents, almost triple the 12 year-round residents Rampart had in 2013. Rampart has 30 occupied residential homes, 18 of which are frame and 12 log homes. The housing stock varies in age and quality, with the majority of homes built in the early 1990's.

Rampart has two major streets, both lined with homes. The powerhouse lies in the center of the community along with the Laundromat, clinic and school. Homes are dispersed throughout the community (see Figure 1 below). There is an airport to the far east of town, to which fuel is flown into on a monthly basis.

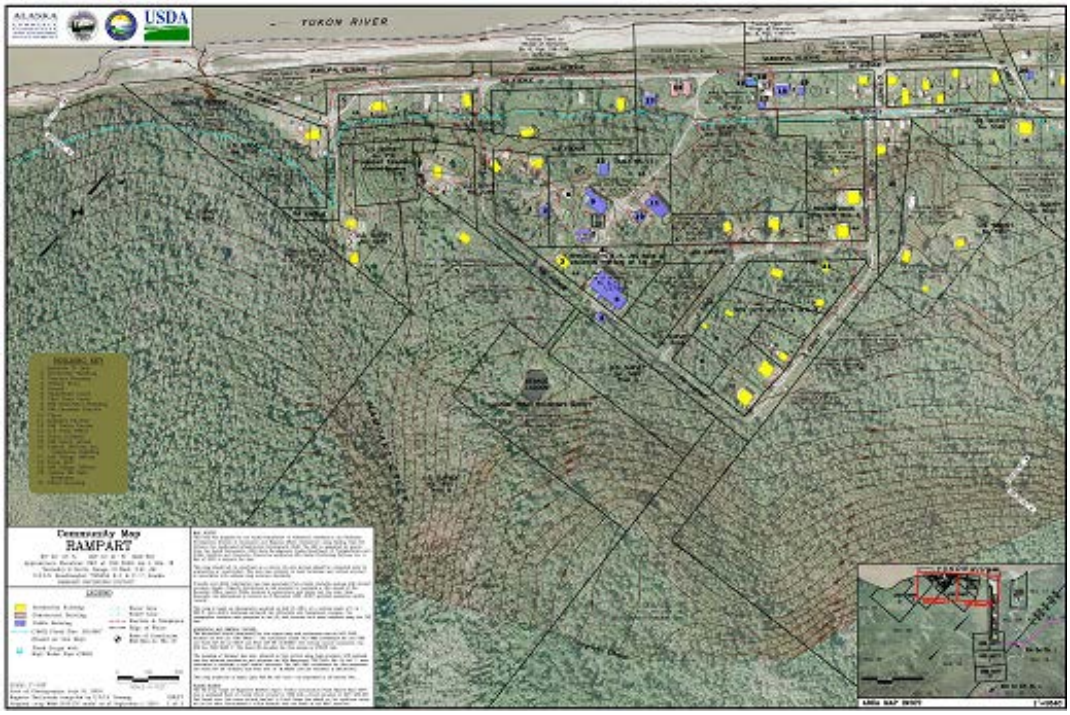

Figure 1. Aerial Map of Rampart

Current Energy Baseline

From the beginning of July 2014 to the end of June 2015, the Native Village of Rampart consumed a total to 219,553kWh. Community facilities consumed the greatest amount of electricity, at 44%. Residences were a close second at 37% (see Figure 2 below). Federal and State facilities, consisting primarily of the various electrical loads at the airport, accounted for 10% of the electricity consumed and commercial facilities, consisting of a single rental unit that the Village Council owns and the phone utility (United Utilities) consumed the least at 9%.

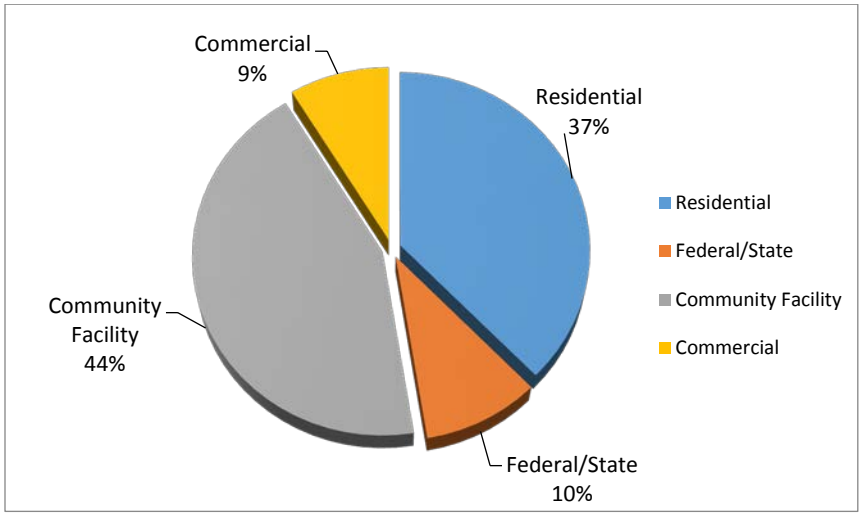

Figure 2. Electricity Consumption in Rampart Village by Customer Class

Rampart has six community facilities: council office, community hall, clinic, laundromat/washeteria, a new multipurpose building and a new post office. Between July 2014 and June 2015 the community facilities used 96,243 kWh. The Laundromat is by far the largest energy user in the community, accounting for over 80% of the kWh consumed by community facilities (See Figure 3 below). Across the entire portfolio of non-residential buildings in Rampart, the laundromat accounts for almost 60% of the electric load—United Utilities (phone) is second at 14%, the post office is third and 10% and the clinic and council office are both tied for fourth at around 5%.

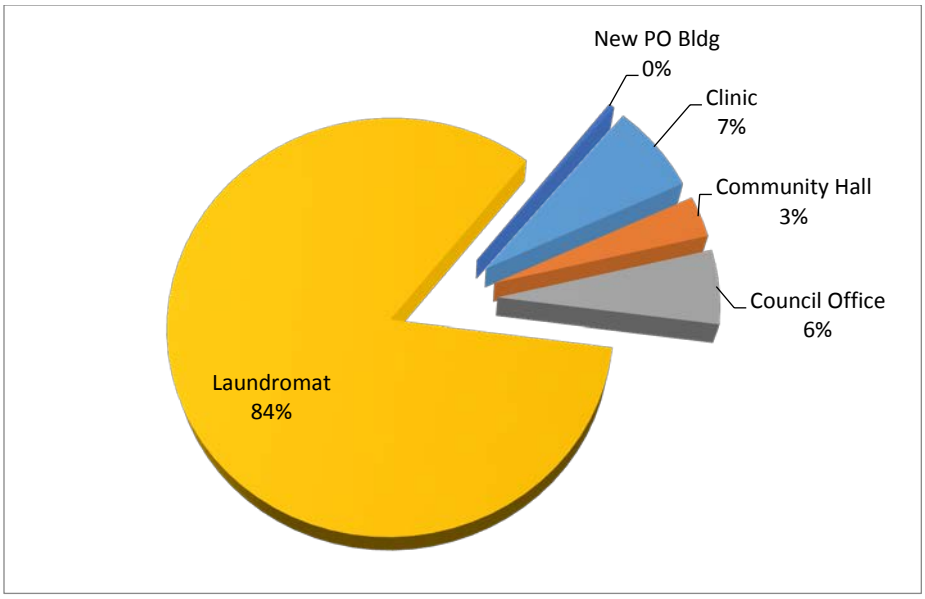

Figure 3. Electricity Consumption Breakdown for Community Facilities

Across Rampart's 30 homes a total of 82,762 kWh were used.

Electrical use in Rampart during the reporting period peaked in the summer and fall. This is consistent with the trend of families returning to Rampart during the summer months to visit and fish. The summer-time peak in demand will be obscured by the permanent, year-round return of many of these families to Rampart. Figure 4 shows the annual electric load profile for Rampart over the reporting period by month and customer class.

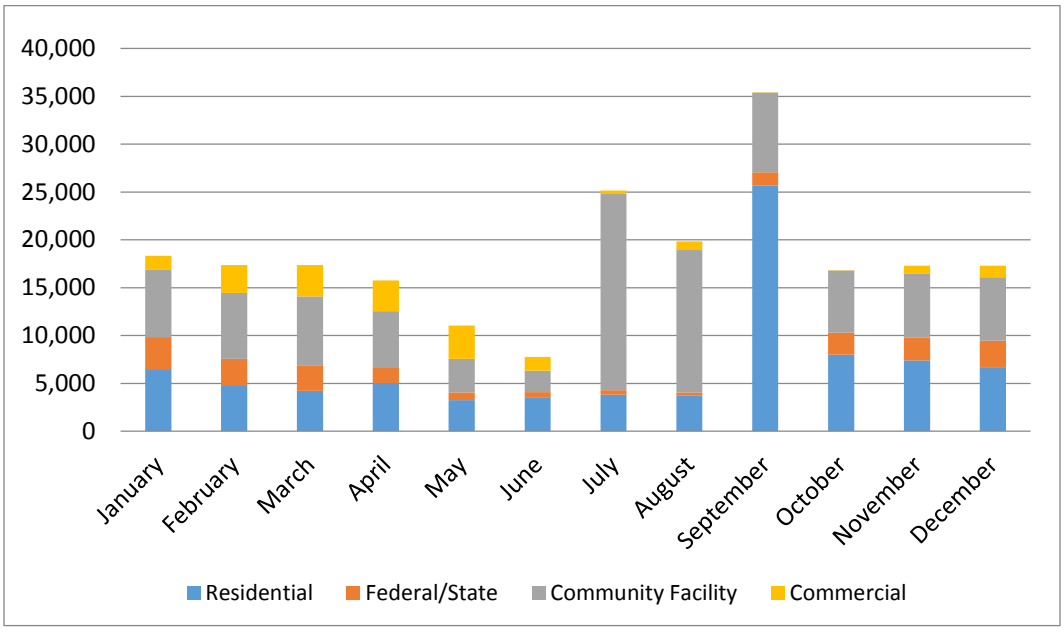

Figure 4. Annual Electric Load Profile for Rampart

Four months (March–June, 2015) of peak demand data was available when this plan was written. Over those four months, demand never peaked over 50kW—demand peaked in May at 44.37kW. The average monthly-max peak demand was 38.75kW. In 2014 Rampart used 31,300 gallons of heating fuel. Average transportation fuel used in Rampart annually is 1,450 gallons.

Community Development Projects and Goals

The Native Village of Rampart has a number of community and economic development projects planned for the next 5 – 10 years. Some of these projects are explicitly related to energy, but many are not. In either case, each project has an impact on Ramparts energy landscape—most projects will add thermal and electric loads to the village energy mix. Figure 5 separates Rampart's community development goals and projects by sector and shows the effect each project will have on energy in the community.

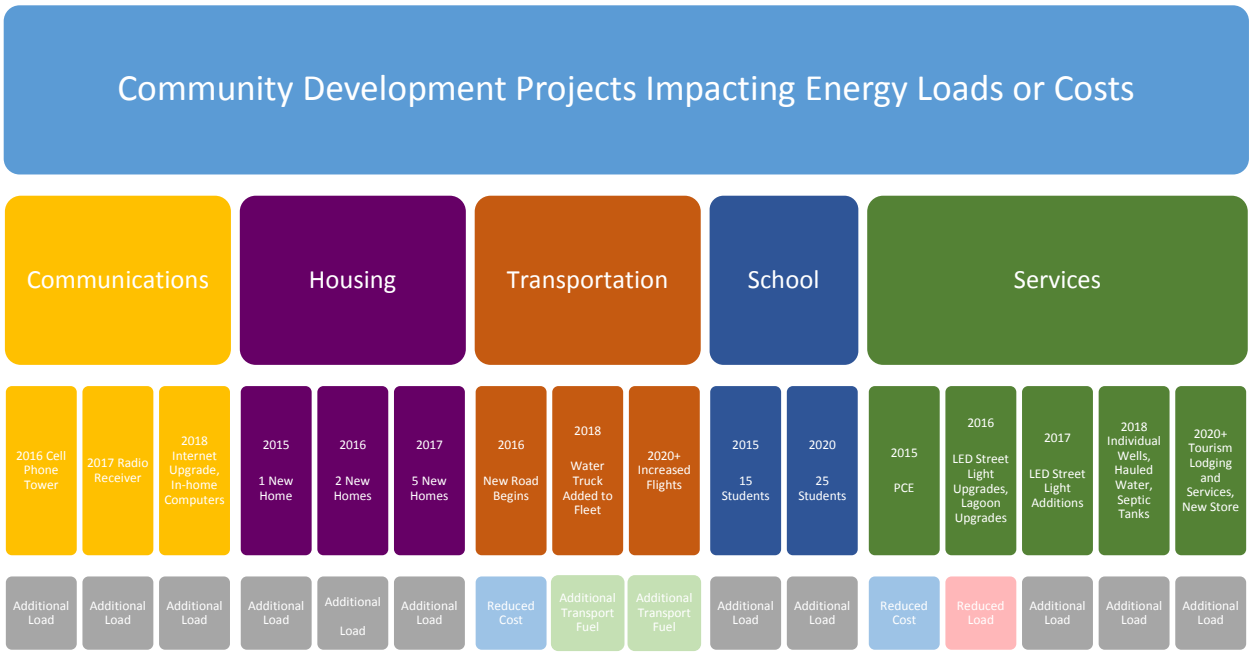

Figure 5. Planned and In-Progress Community Development Projects

As shown above, Rampart has multiple community development projects either planned or in process. Each of the above listed projects will impact energy issues in the village.

Projects that will require additional heat and/or electrical energy include construction of a cellular tower, connection of a radio receiver, internet upgrades (with additional in-home computers in the community), additional housing, the new school and projected growth the school population, additional street lights, individual pumped wells, and the creation of business enterprises such as a new store or tourism industry. Projects that will reduce load include energy efficiency projects such as changing current lights to LED lights.

Two projects will increase transportation energy usage. These include implementing a hauled water system for the village and increasing the number of flights in and out of Rampart's airport.

Finally, the new road will reduce costs of transportation of fuel which will decrease the cost of electricity. Price Cost Equalization (PCE) will also reduce the cost of electricity born by village residents.

These projects will follow the general timeline below (Figure 6). Note that the listed projects will begin in the respective year shown. Some of these projects may not be completed in the calendar year in which they begin.

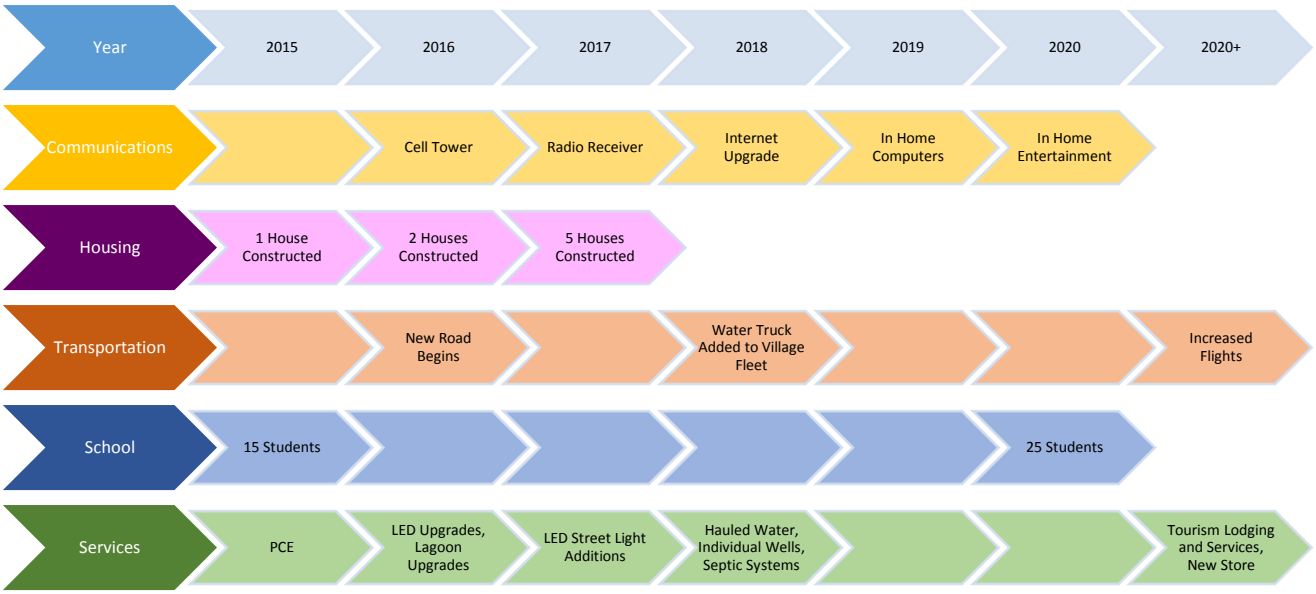

Figure 6. Rampart Community Development Goals Timeline

Rampart Energy Goals

To meet the current energy needs and prepare for future energy demand, the Native Village of Rampart needs to address energy infrastructure (delivery and operation), energy conservation, and alternative/renewable energy generation. Each of these three components plays a unique and important role in Rampart's energy landscape now and in the future.

The Rampart energy goals are summarized in Table 1 below:

Table 1. Rampart Energy Projects and Goals

	Project/Goal	< Year 2	Year 2	Year 3	Year 4	Year 5	6+ Years
Generation, Distribution & Operation	Get on PCE		■				
	Upgrade Generators		■	■	■		
	Establish Rate Structure		■	■			
	Guyed Wires For Distribution Poles		■	■			
	Distribution Line Upgrades			■	■		
Energy Efficiency & Conservation	Waste Heat for Clinic & Laundromat				■	■	
	Energy Efficiency for Laundromat			■	■		
	Energy Efficiency for Other Community Facilities				■	■	■
	Energy Efficiency for Residences				■	■	■
	LED Streetlight Retrofit		■	■			
Renewable / Alternative Energy	Biomass Heat for New Multi-Purpose Building				■	■	
	Biomass Heat for Other Community Facilities						■
	Solar Electricity (PV)			■	■		
	Hydro-Electric						■

Energy Delivery & Operation

The Rampart electricity grid is currently very outdated. The powerhouse consists of three generators: one 120kW generator, one 90 kW generator and one 45 kW generator. The 45 kW generator has been out-of-service for over 10 years. The other two generators are operational, but are both very old— 24 years old—and, based on the village baseline electricity consumption, are oversized for the community.

Figure 7. Rampart powerhouse (left) and generators (right)

In addition to the outdated and oversized generators, Rampart also has not been on the State of Alaska's Power Cost Equalization (PCE) program for the last 22 years. The result has been exorbitantly high electricity costs for the community and its residents. The Rampart Village Council has found it difficult to make necessary investments in the community because general funds have been tied up in paying for diesel fuel. Getting PCE support from the Alaska Energy Authority (AEA) will help alleviate this financial burden on the community's general fund and on the residents and will allow the Rampart Village Council to make new investments in the community and the infrastructure.

Only after the community is back on PCE can the Rampart Village Council move away from a flat rate structure for electricity. Currently the community charges a monthly flat rate of $100.00 to all the residential customers, flat rate of $60 or $30 to summer residential and business accounts varies. This practice is unsustainable and does not promote efficient use of energy. The community will need to craft a rate structure that residents can accept and implement the change slowly. Rapid introduction of a new, consumption-based rate structure will counteract the village council's attempts to encourage individuals and families to move back to Rampart.

The community also plans to stabilize the electrical pole with guyed wires within the next year and also address some low lying issues in the distribution lines (Figure 8 below).

Figure 8. Rampart distribution lines (left) and leaning power poles (right)

Table 2 shows the sequence of steps Rampart will take in order to achieve each of the energy goals pertaining to the operation and maintenance of their generation and transmission infrastructure.

Table 2. Generation, Distribution & Operation Goals — Detailed

	Project/Goal	< Year 2	Year 2	Year 3	Year 4	Year 5	6+ Years
Generation, Distribution & Operation	**Get on PCE**						
	Get PCE Training	✓					
	Update Records and Record Maintenance/Training	✓					
	Apply For PCE	✓					
	Upgrade Generators	✓					
	Get Expert Advice on Generator Size and Configuration	✓					
	Grant Application/Financing						
	Establish Rate Structure						
	Guyed Wires For Dist. Poles						
	Distribution Line Upgrades						

Energy Efficiency & Conservation

The Rampart Village Council recognizes energy efficiency and conservation as the most important energy resource available to the community. Rampart is a community with an old building stock in need of repairs and upgrades. The village also anticipates fairly significant growth in the year-round population, which will require adding significant housing capacity and will also mean increased heating and electrical load. Growing the community in the most efficient way possible is a priority for Rampart.

The Rampart Village Council is in the process of pursuing waste heat recovery for the Laundromat and clinic. The Alaska Native Tribal Health Consortium (ANTHC) conducted an assessment on June 18th, 2015. A prefeasibility study report will be completed at the end of July. Utilizing the waste heat will help Rampart save on fuel costs and provide savings to the Rampart community facilities operations.

In addition to conducting a pre-feasibility study of using recovered heat for the Laundromat, ANTHC also conducted an energy audit of the facility—a final report will be issued in August 2015. ANTHC will be including the Rampart Laundromat into their energy efficiency grant application for 2016. If funded, the upgrades will help ease the financial burden operating the Laundromat puts on the community.

The Rampart Village Council is researching funding opportunities to start the process of getting energy efficiency upgrades for their community buildings. Energy efficiency upgrades to the community facility building will help alleviate the costs through energy conservation while benefiting the environment and community. Community facility buildings consist of the council office, community hall, clinic, laundromat/washeteria, a new multipurpose building/school and a new post office.
The Rampart Village Council is also in the process of becoming a direct NAHASDA recipient. In the near future we will be able to provide energy efficiency audits and repair to qualifying residential homes. Once implemented, this will decrease the energy loads on the generators and will be a cost savings not only for residents but for the utility, as well.

In 2012 the Interior Regional Housing Authority (IRHA) retrofitted 6 of the 15 streetlights in Rampart with LED lights. Rampart Village Council is in the process of researching grant funding to retrofit the remaining 9 streetlights and to also install 6 more streetlights to the airport for safety purposes.

Renewable / Alternative Generation

Rampart is also interested in meeting new energy demands with renewable energy. The Rampart Village Council has started the process of pursuing a biomass boiler for the multipurpose building. The pre-feasibility study was conducted in May 2015 and the Rampart Village Council received the draft report from Wes Engineering in July 2015. If implemented, this project will reduce the cost of heating fuel and create self-reliance and sustainability for the community. The preliminary results of the pre-feasibility study are listed in Appendix A.

A hydroelectric assessment was also conducted by ANTHC in June 2015. ANTHC is interested in possibly exploring a small or micro hydropower project. The preliminary results of the site assessment are listed in Appendix C.

Solar photovoltaic (PV) is being explored by the Rampart Village Council and Tanana Chiefs Conference. Solar PV on the community facility buildings will help offset the high use kw's and help mitigate fuel costs. A summary of Rampart's available solar resource using PVWatts can be found in Appendix D.

Project and Program Development

Several state and national level programs offer financial programs, technical assistance, and procurement support to help Native Alaska communities achieve their energy goals. The programs below represent various assistance programs that may be leveraged to complete Rampart's energy related projects.

- ❖ Grants:
  - Programs that offer grants relevant to the above listed energy programs and projects include:
    - US Department of Energy
      - Energy Efficiency and Renewable Energy
      - http://www.energy.gov/indianenergy/office-indian-energy-policy-and-programs
    - US Department of Agriculture
      - Energy Efficiency and Community Upgrades
      - http://www.usda.gov/wps/portal/usda/usdahome?navid=otr
    - Housing and Urban Development
      - Energy Efficiency and Housing Weatherization
      - http://portal.hud.gov/hudportal/HUD?src=/topics/grants
    - Bureau of Indian Affairs
      - Renewable Energy and Energy Offices
      - http://www.bia.gov/WhoWeAre/AS-IA/IEED/DEMD/TT/TF/index.htm
    - Bureau of Indian Education
      - School Energy Programs
      - http://bie.edu/Programs/index.htm
    - Alaska Energy Authority
      - Energy Efficiency, Renewable Energy, Bulk Fuel, Powerhouse Upgrades
      - http://www.akenergyauthority.org/
    - Alaska Housing Finance Corporation
      - Energy Efficiency, Weatherization, Electrical Systems, and Water and Sewer Facilities
      - https://www.ahfc.us/efficiency/energy-programs/
    - Alaska Native Tribal Housing Consortium
      - https://www.ahfc.us/efficiency/energy-programs/

- Technical Assistance
  - Programs that offer technical assistance relevant to the above listed energy programs and projects include:
    - US Department of Energy:
      - Energy Efficiency and Renewable Energy (all technologies)
      - http://www.energy.gov/indianenergy/office-indian-energy-policy-and-programs
    - Housing and Urban Development
      - Energy Efficiency, Weatherization
      - http://portal.hud.gov/hudportal/HUD?src=/topics/grants
    - Bureau of Indian Affairs
      - Renewable Energy
      - http://www.bia.gov/WhoWeAre/AS-IA/IEED/DEMD/TT/TF/index.htm
    - Alaska Native Tribal Housing Consortium
      - Renewable Energy (Hydroelectric, Water/Wastewater Systems, District Heating
      - https://www.ahfc.us/efficiency/energy-programs/
    - Alaska Wood Energy Task Group
      - Biomass
      - http://www.akenergyauthority.org/AEEE/Biomass/AWEDTG
- Procurement
  - The tribe will seek to procure resources in a cost effective manner. To do so, multiple procurement options will be considered. The following entities offer procurement assistance:
    - Alaska Energy Authority
      - Powerhouse equipment
      - http://www.akenergyauthority.org/
    - Alaska Native Tribal Housing Consortium
      - Water/Wastewater Utility Supplies
      - http://anthctoday.org/dehe/tribal_util.html
    - GSA
      - Comprehensive
      - https://www.gsaglobalsupply.gsa.gov/

Next Steps/Conclusion

In the next 1-3 years these are the energy efficiency and renewable energy priorities for the Rampart Village Council:

1) Get on PCE~ Application has been submitted, just waiting for approval
2) Upgrade Generators~ Grant application for EPA Clean Diesel submitted 7/15/15
3) Establish Rate Structure~ This will be processed once PCE is approved
4) Guyed Wires For Distribution Poles - Two grant applications were submitted 5/15, waiting on notification

In years 3-5 these are the energy efficiency and renewable energy priorities for the Rampart Village Council:

1) Waste Heat for Clinic & Laundromat - Audit conducted 6/15, Rampart Village Council will apply for Round 9 ANTHC Grant Funding once the audit report is received
2) Energy Efficiency for Laundromat - Audit conducted 6/15, Rampart Village Council will be added to the ANTHC Energy Efficiency Grant Proposal for 2016
3) Energy Efficiency for Other Community Facilities - RVC is researching grant funding
4) Energy Efficiency for Residences - Rampart Village Council will offer energy efficiency to residence after they Become a NAHASDA Recipient
5) Biomass Heat for New Multi-Purpose Building - Prefeasibility draft was submitted for approval July 2015. Once approved, Rampart Village Council will start the next step processes that Wes Engineer suggests.
6) Solar Electricity (PV) - Rampart Village Council will work with stakeholder Tanana Chiefs Conference to start the process of obtaining solar electricity for all community facility buildings

In years 6 plus years these are the energy efficiency and renewable energy priorities for the Rampart Village Council:

1) Biomass Heat for Other Community Facilities~
2) Hydro-Electric - ANTHC conducted an assessment on Minook Creek in June 2015 for possible hydro projects. Rampart Village Council is waiting for the audit report.

Appendices

The following appendices include completed resource assessments, prefeasibility studies, and feasibility studies for Rampart Village energy Projects. Some of the studies may be represented by their executive summaries. Full length documents are available upon request.

Appendix A: Biomass Pre-Feasibility (Executive Summary)
Appendix B: Waste Heat for Community Multipurpose Building and School
Appendix C: Hydroelectricity Resource Assessment
Appendix D: PVWatts Summary of Available Solar Resource
Appendix E: Generator Inventory

Appendix A: Biomass Pre-Feasibility (Executive Summary)

This preliminary feasibility study evaluates options for Rampart Village Council (RVC) to utilize high efficiency low emission wood fired technologies at the Multipurpose Building and Laundromat. Installation of a wood fired heating system would present RVC with the opportunity to reduce operating costs and utilize a renewable fuel for heating. The Multipurpose Building was previously used as a school and will be repurposed to accommodate offices for RVC employees and potentially sublet a portion to reopen a school. An aerial map of Rampart is provided in Appendix A that identifies the buildings evaluated in this study.
The multipurpose building was the school for the community from 1986 to 1999. The building was closed in 1999 and has been unused since. RVC received a grant to renovate and repurpose the building, which will begin in 2015. Hot water boilers firing on #1 fuel oil were used for space heating and domestic hot water when the building was in operation. The boilers are planned to be retrofitted with new burners and reused. Historic fuel use is unavailable.

The laundromat was constructed in 1998 and provides community access to showers, restrooms, and coin operated washers & dryers. Historic fuel oil use was provided by RVC. #1 fuel oil is used for space heating, domestic hot water heating, and for clothes dryers equipped with hot water coils.

Both buildings utilize #1 fuel oil fired boiler plants for space heating and domestic hot water heating. Three options are evaluated using factory containerized gasification style indoor cord wood boilers. Option 1 considers heating the RVC offices that are planned to be constructed in the unused Multipurpose Building, Option 2 considers heating the laundromat, and Option 3 considers heating both buildings using a district system. A summary of the costs and benefits for each option are listed in Table ES1.

Table ES1 – Cost and Benefit Summary

Option	Estimated Capital Cost	1st Year Net Annual Operating Savings	Simple Payback, Years	20 Year Net Present Value	20 Year B/C Ratio
1 : RVC Offices	$135,556	$4,343	31.2	$ (50,621)	0.63
2 : Laundromat	$158,700	$4,992	31.8	$ (61,031)	0.62
3 : District System	$324,013	$8,495	38.1	$ (157,704)	0.51

Notes:
1 – Net Annual Operating Savings include costs for wood fuel, supplemental fossil fuel, and operation and maintenance (O&M) costs.
2 – 20 Year Net Present Value takes the present value of the operating savings for each year using a nominal discount rate of 3.1% as published in the "Energy Price Indices and Discount Factors for Life-Cycle Cost Analysis - 2014" and the initial capital outlay of the total project cost. A value greater than zero means that savings are greater than expenses over 20 years in the value of today's dollars.
3 – 20 Year Benefit/Cost (B/C) Ratio is calculated by dividing the present value of net annual operating savings over a 20 year period with a discount rate of 3.1% by

Appendix B: Waste Heat for Community Multipurpose Building and School

Appendix C: Hydroelectricity Resource Assessment

The following observations were made by Daniel J. Hertrich of the AEA during a site visit to Rampart in June 2015.

Approximate Discharge (June 19):

- Rampart Creek 0.3 cfs (visual estimate)
- Hunter Creek 8 cfs
- Minook Creek 45 cfs

Power Generation Potential:

- Rampart Creek 10 kW
- Hunter Creek 25 kW
- Minook Creek +100 kW

Based on these observations, Daniel suggested that the only resource worth considering for hydro development would be Minook Creek. Even so, the cost to construct the project will probably not make hydro the best alternative for Rampart. Verification would require collection of elevation, hydrology, and aquatic data followed by a feasibility analysis.

Appendix D: PVWatts Summary of Available Solar Resource

The following is the solar potential per kilowatt DC of solar photovoltaic systems in Rampart

RESULTS

1,034 kWh per Year *

Month	Solar Radiation (kWh / m^2 / day)	AC Energy (kWh)	Energy Value ($)
January	0.61	19	16
February	2.14	58	49
March	4.19	116	99
April	5.81	153	130
May	6.01	161	137
June	5.51	140	119
July	4.94	129	110
August	4.46	113	96
September	2.99	75	64
October	1.69	47	40
November	0.66	19	16
December	0.14	4	4
Annual	3.26	1,034	$ 880

PV System Specifications *(Residential)*	
DC System Size	1 kW
Module Type	Standard
Array Type	Fixed (open rack)
Array Tilt	60°
Array Azimuth	180°
System Losses	14%
Inverter Efficiency	96%
DC to AC Size Ratio	1.1

Initial Economic Comparison	
Average Cost of Electricity Purchased from Utility	0.85 $/kWh
Initial Cost	7.00 $/Wdc
Cost of Electricity Generated by System	0.53 $/kWh

Appendix E: Generator Inventory

The following is the current generators in place in the powerhouse in Rampart. Inventory was completed in 2012.

From: 07/07/2015 10:03 #797 P.001/001

ALASKA ENERGY AUTHORITY
VILLAGE POWER SYSTEM INVENTORY

DATE	Oct 6, 2012	TIME START	2:00pm	TIME END 3:00pm
COMMUNITY	Rampart	UTILITY	Weisner Trading Co	
OWNERSHIP	Weisner Trading Co	CONTACT		
OPERATOR		PHONE	907-358-8001	

	G-1	G-2	G-3	G-4	G-5
ENGINE MAKE	John Deere	John Deere	John Deere		
ENGINE MODEL	6068T F150	6068HF285	4045TF003		
ENGINE RPM	1800	1800	1800		
SERIAL NUMBER	PE6068T575345	PE6068L025471	T040457S98879		
GOVERNOR TYPE	Woodward	Woodward	Woodward		
MODEL ACTUATOR	8256	8256	8256-022		
MODEL SPEED CONTROL	8290-040	8290-040	8290-140		
DC VOLTAGE	32VDC	32VDC	32VDC		
UNIT CIRCUIT BREAKER	GE TJK436F000	GE TJK436F000	GE TJG436F008		
TYPE/AMP/VOLT	400A/600V	400A/600V	250A/600V		
CURRENT HOURS	42498	39848	29249		
GENERATOR MAKE	Stamford	Stamford	Stamford		
GENERATOR MODEL #	UCI274D	UCD274E3L 3490	UCI224G1L-60D		
GENERATOR SERIAL #	M04B012238-2	M07K221490-01	M07G080013-2		
GENERATOR CAPACITY (kW)	110kW	357kW	70kW		
GENERATOR VOLTAGE	120/208	120/208	120/208		
VOLTAGE REGULATOR, MAKE & MODEL	Newage MX321	Newage MX321	Newage SX460		
PARALLEL SWITCH GEAR (Y or N)	Y	Y	Y		

kWh METER(Yes or No)	YES
POWERHOUSE kWh METER TYPE	GE
CATALOG # or TYPE	JM-345
DEMAND ?	
CT RATIO	300:5
STATION SERVICE METER (Yes or No)	N/A
STATION SERVICE METER TYPE	
CATALOG # or TYPE	
BATT. CHARGER/TYPE/MODEL	SENS NRG12-10 RC / SENS FC12-10 2301U
FUEL DAY TANK TYPE	100 GAL
PUMP #	No Data
MOTOR #	LEESON EQA 56S17D2006J 7
FUEL DAY TANK METER	N/A
FIRE PROTECTION TYPE/ OPERATIONAL?	ABC Fire Extinguishers
ORIGINAL CONTRACTOR	

Page 9