Fort Yukon Wood Energy Program: Wood Boiler Deployment

Department of Energy
Tribal Program Review
Golden, Colorado
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Please contact me for a full list of citations. kelda@catg.org
CATG is a consortium of 10 Gwich'in and Koyukon Athabascan tribes located throughout the Yukon Flats. Arctic Village, Beaver, Birch Creek, Canyon Village, Chalkyitsik, Circle, Fort Yukon, Rampart, Stevens Village and Venetie are the remote villages comprising CATG. The Yukon River and its tributaries, including the Porcupine, Chandalar, Birch Creek and Black Rivers, tie the people of the Yukon Flats villages together.
The Village of Fort Yukon is located 8 miles North of the Arctic Circle.

Only accessible by boat during the summer, snow machine during winter, and plane. The FYU Biomass Project will be the first off grid, off road system biomass CHP in the world.
Power Costs In Alaska Are Among The Highest The Nation

Gasoline = Ranges from $7.50- $8.50 per gallon. No 1 Diesel = $6.3798 per gallon. Average house hold cost for oil = $3,500 per year. Oil cost per year for school = $210,000 Fuel cost for electrical generation = $1.4 M Cord Wood = $275 – $300 per cord Kwh = $0.77 (rate increase coming) Propane = $203.89 per 100 lbs tank
Project Objectives

- First off grid, off road system biomass CHP in the world
- New Power House (CHP) Facility construction
- Wood Chip Boiler
- District Heating loop providing heat to commercial buildings
  I.e. School, AC, Radio Station, Water Plant,
- Sustainable Forest Management program
- Create a for profit in-village wood energy utility to displace diesel energy
- Support training needs for field forestry technicians and supports workshops for education on key biomass issues for Fort Yukon and the Yukon Flats Villages.
Gwitchyaa Zhee Corporation (GZ Corp)
Alaska Village Initiatives (AVI)
Department of Energy (DOE)
Denali Commission
Council of Athabascan Tribal Government (CATG)
Alaska Energy Authority (AEA)
State of Alaska Division of Forestry (DOF)
This Project has multiple funding source (9.8 million secured)
Planning/Trainings/Permitting (3 Million)
Final Design and Construction (6.8 million)
Construction Funding
   Rural Utility Services (RUS $3.5 million)
   AEA Rural Energy Fund $2.3 Million
   DOE Tribal Energy Fund 990,000
Proposed Timeline

- Site Development
  Summer 2014

- CHP Plant Foundation/
  Building Construction
  Early Fall 2015

- Clinic Stand Alone Boiler
  Summer 2016
Why:
- Develop forest technician work force.
- Apply field data collection, and best practices
- Maintain sustainable harvest
Forestry Technician Training

- Measure portion of Harvest Area 1 near Ylotta Slough

Involvement

- Fort Yukon tribal members and Salish Kootenai Tribal College
  - basic forest skills - DBH tree measurement, GPS, and data collection.
Harvest Equipment Operator and Safety Training

November 4th – 7th: Classroom instruction, field time instruction, and FRPA training.

Selections based on:
- Previous experience
- Attentiveness
- Safety Awareness
- Work Ethic
- Comradery
- Common Sense

Overall Objectives:
- Operational Safety
- Operational efficiency
- Regulatory compliance

Gerald James pictured above (Fig 5) operating the Kubota
Pictured below (Fig 6), Cynthia James training on the New Holland.
Harvest Process Development

Activities Associated with Biomass
- Harvesting, piling, drying, transporting, and chipping
- Weather Conditions
- Harvest Sites
- Transportation
- Safety

Outcomes:
- Train people
- Start harvest
- Data collection
- Document the process
Once a program has been established in Fort Yukon, it is the intent of CATG Natural Resource Department in collaboration with the Village Tribes, Native Corporations and Private Lands to support the installation of programs in each of the villages in the Yukon Flats Region. The model program being developed in Fort Yukon will serve as the basis for all projects in interior Alaska.
Conclusion

There is no right or wrong.

All of the Harvest Equipment needed additional Arctic Weatherization

Documentation is key to Improving Harvest

“Indigenize It”
The Future:

- Sample of the Biomass boiler
- Possible Future of installing more stand alone Boilers
- Plans to manage harvesting and Fuel samplings
- Summer 2015 wood fuel specifications data
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