

# *DOE Tribal Energy Program*



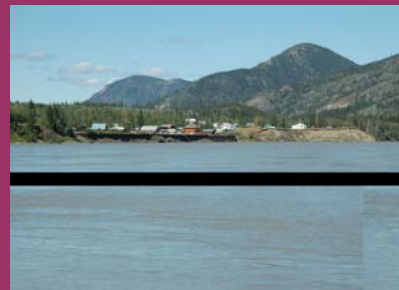
Interior Regional Housing Authority

# About IRHA



- The Interior Regional Housing Authority (IRHA) is a non-profit organization with authority derived from both state and federal law
- IRHA was formed in 1974 along with thirteen other Alaskan housing authorities to administer programs of the U.S. Department of Housing & Urban Development (HUD) throughout the state.
- IRHA serves the 29 tribes of the Doyon Region, encompassing remote traditional villages, and Alaska's second largest city, Fairbanks. Our service area is larger in land area than the entire state of Texas.

Serving this vast region effectively is a tremendous challenge. Through partnership with its member tribes, IRHA develops locally driven plans to improve and expand affordable housing in communities large and small. Employing local residents whenever possible, IRHA contributes to village economies, and provides valuable job training and experience.



# DOE Program overview



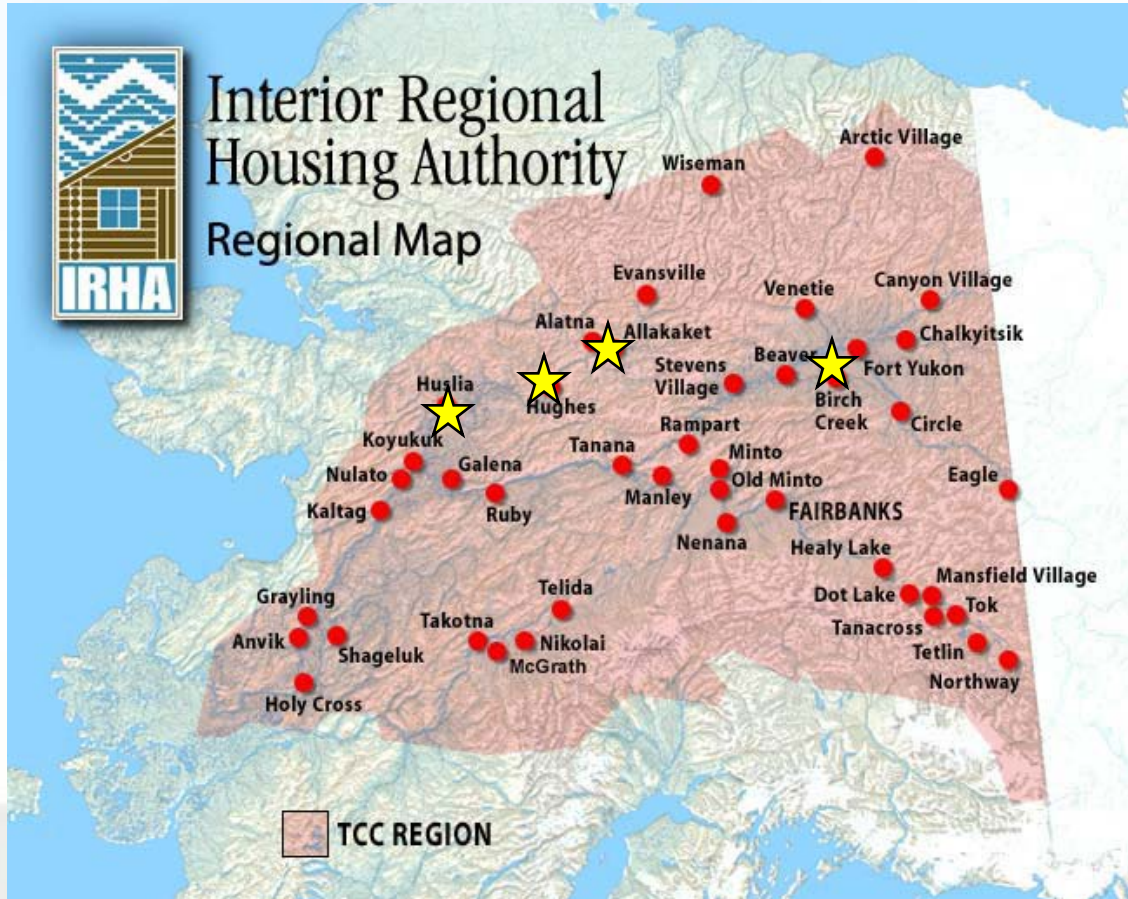
- **Project Objective:** Develop an energy conservation program relevant to each specific community, educate tribe members and provide the tools to implement the conservation plan. The program seeks to achieve both energy savings and provide optimum energy requirements to support each tribe's mission
- **Background:** Villages served by IRHA experience some of the highest energy costs in the nation while earning income is significantly below the national median income. The communities included are off the road system so access is limited to small plane or barge so meeting basic needs such as heat and electricity has been a challenge for the communities.







→ Communities participating in DOE program



# Energy Crisis in Rural Alaska

- **Why are prices so high?**
  - Alaska is largely road less, and essential supplies that arrive by barge or airplane will cost much more.
- Alaskans in rural areas will spend 40 percent of their annual income on energy this winter compared with 4 percent for the average Alaska household, according to a University of Alaska Anchorage study published in May.
- According to a study by the Institute of Social and Economic Research, the annual net population loss from rural Alaska has more than doubled since 2006. The report says the recent spike in oil prices is a big challenge to rural residents.
- Electricity is so expensive that some communities have been turning off their generators. In Venetie, a Gwich'in village of about 400 people in Interior Alaska, in recent months, the lights have turned off at 8 p.m. and haven't come back on until about 6 a.m. In the winter it's dark almost 22 hours a day.
- In rural Alaska, food prices are double or more than food prices in urban areas





# Allakaket



- Allakaket is located on the south bank of the Koyukuk River, approximately 190 air miles northwest of Fairbanks and 57 miles upriver from Hughes
- The first mission on the Koyukuk River, St. John's-in-the-Wilderness Episcopal Mission, was established in 1906 at the old site of Alatna. A post office was opened in 1925. In 1938, the name of the community was changed to Allakaket (the old name for the mission), and the name Alatna was assumed by the small Eskimo community across the river.
- The population of Allakaket is 125 (2007)
- Allakaket is mainly a Koyukon Athabascan community
- The local government is the Allakaket Traditional Council



# Allakaket Energy Plan



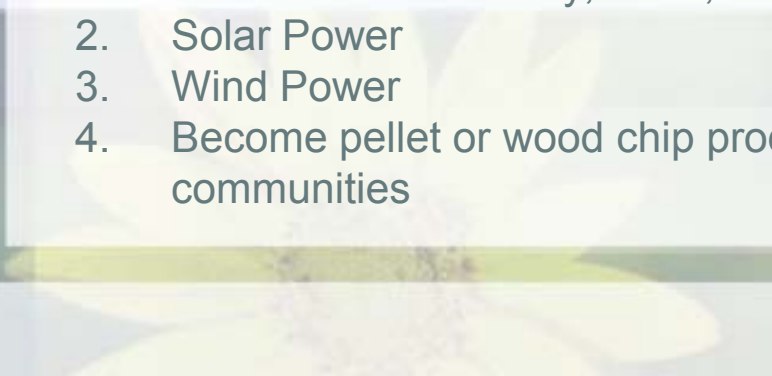
**Vision Statement:** Allakaket will research and invest in affordable green, renewable energy sources available within and surrounding the community. We will also educate our community members on energy efficiency. (May 2008)

**Action Plan** (how we reached the vision):

1. Community planning—started spring 2007, workshops began March 2008
2. Educate community on energy efficiency measures
3. Research/Feasibility studies on new technology and renewable sources
4. Apply for grants
5. Install renewable technologies

**Community Energy Priorities** (in order from most important to least important):

1. Waste Heat Recovery; clinic, washeteria and tribal hall
2. Solar Power
3. Wind Power
4. Become pellet or wood chip producer for surrounding communities







# Allakaket Energy Data

## Timeline

### Energy Related

- **Year One**
  - Waste Heat Recovery; clinic, washeteria and tribal hall
  - Solar Power to the washeteria
- **Year Two**
  - Solar Power to the Clinic
  - Start researching and tracking wind from the airport monitors
- **Year Three**
  - Solar to the Tribal Office
- **Year Four**
  - Wind Power
  - Pellet and/or Chip Producer

### Other Community Priorities

- **Year One**
  - New Health Clinic (no running water)
  - Can starting working on
  - Youth focused activities/facilities
  - A better service from the power provider AP&T
- **Year Two**
  - Moving homes out of flood plane
- **Year Three**
  - Winter road from Allakaket to Bettles/Evansville
- **Year Four**
  - Fixing roads going up and down the hill, should be at a 10% grade

### Suggestions and Ideas

*When a contractor comes into your community, contact them and ask them questions, what their budget, who are the funding sources, what services are they going to provide. Then let them know what you have available in the community, what are the local resources and equipment.*

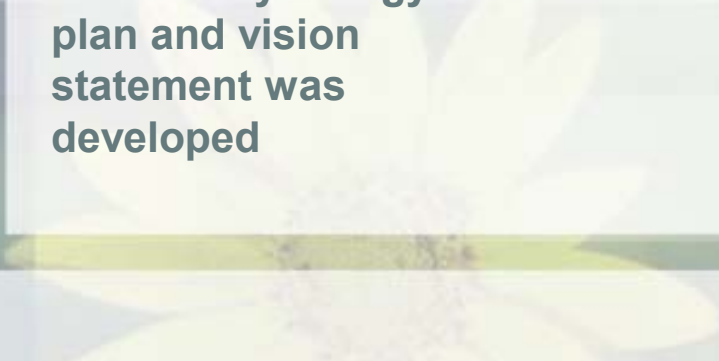
*They're the experts; they know the land and the area. They know what's going to work and what's not. We wanted to coach them to take ownership and share that information with people what will be coming to Allakaket to work.*



# Workshops



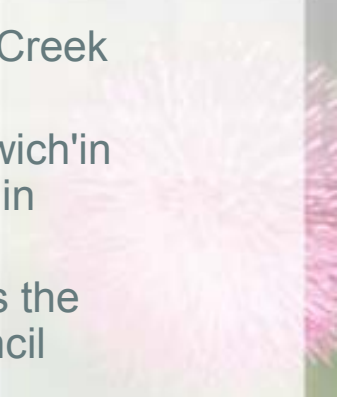
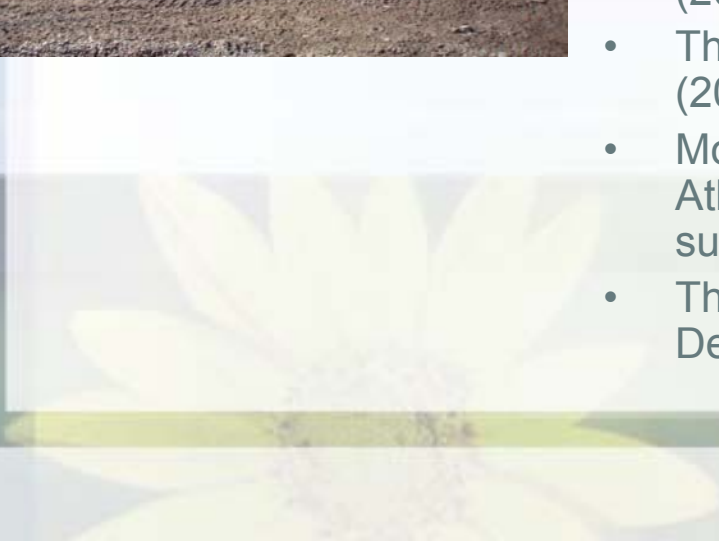
- The main concern for community members is the high cost of energy
- Members discussed ways to reduce energy costs such as using smaller engines and boats when traveling
- Community priorities are alternative energy projects
- Through the workshops, a community energy plan and vision statement was developed



# Birch Creek



- Birch Creek is located along Birch Creek, approximately 26 miles southwest of Fort Yukon
- Birch Creek Jimmy was the founder of Birch Creek. He was joined by other extended family members. In about 1916, the group moved three miles upstream to the site of the present village. It was used as a seasonal base for harvest activities until the early 1950s, when the establishment of a school encouraged village residents to adopt a less nomadic way of life.
- The population of Birch Creek is 26 (2007)
- There are 7 families in Birch Creek (2000)
- Most residents are Dendu Gwich'in Athabascans, and are active in subsistence activities
- The local tribal government is the Denduu Gwich'in Tribal Council





# Birch Creek Energy Plan



**Vision Statement:** Birch Creek will lower the cost of electricity through education and exploring local energy resources to become less dependent on diesel generation while maintaining a high quality of life and creating local jobs. (May 2008)

**Action Plan** (how we reach the vision):

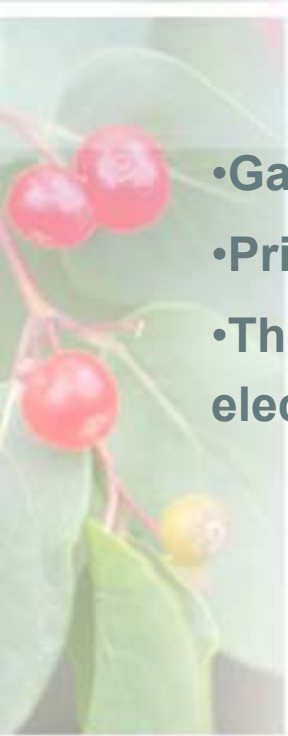
1. Community planning—started spring 2007, workshops began March 2008
2. Education
3. Explore other energy sources
4. Feasibility studies on energy sources
5. Energy camp for education
6. End-Use Efficiencies
7. Install renewable energy technology
8. Look at alternative methods of refrigeration

**Other community goals:**

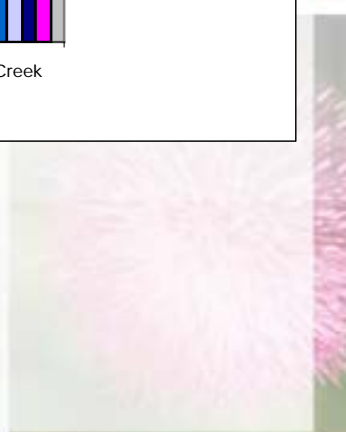
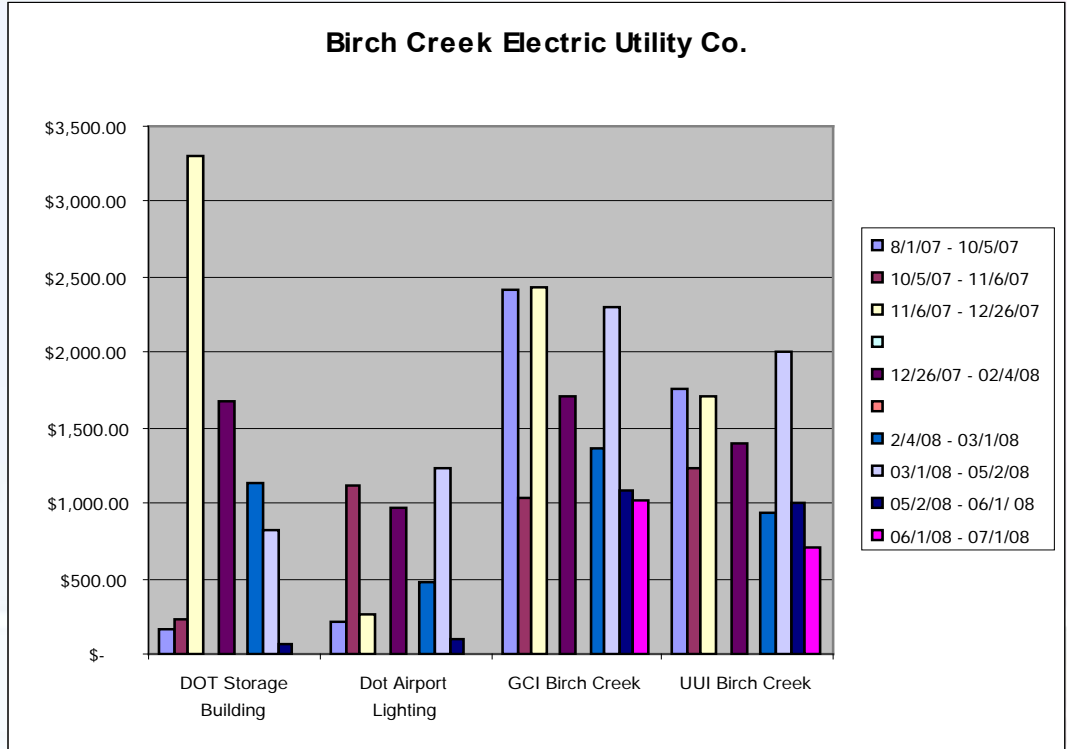
- Elder's travel for artwork workshops
- Fill community health aide position
- Seek funding for cultural activities
- Plan meetings at a campsite
- Get people to move home (in-migration)
- Create education/vocational programs (GED preparation, computer lab)
- Create higher education preparation programs
- Build a community library/recreation room
- Create jobs
- Create more stores
- Create position for a counselor in the community
- Create athletic programs



# Birch Creek Energy Data



- Gas: \$7.50 per gallon
- Price per Kwh: \$0.60
- The tribe owns the electric company



# Birch Creek Energy Plan



## Timeline

### Energy Action Plans

- Year One
  - Planning & Feasibility
  - Explore
  - Install
  - Washeteria: Upgrade & Remodel
- Year Two
  - Construction of a Multipurpose Building
  - Install End Use Efficiencies
- Year Three
  - Energy Camps: with UAF Credit – (w/ Voc. Ed Programs)

### Community Goals

- Year One
  - Start a small store selling gas, food, miscellaneous items
  - Hire a Health Aide
  - Upgrade the electrical lines
- Year Two
  - Build a home, so a Tribal Member can move home. Use the village saw mill, will need funding for fuel, gas, electrical, and plumbing. People will move home, if they have a house.
  - Community Library and Recreation Room
- Year Three
  - Art, Athletics, Educational Programs: Fire Training, Energy, & Construction
- Year Four
  - Upgrade Barge, have 2-4 tribal members get their 6 pack license



### *Suggestions -*

*Currently Birch Creek is currently running a 65 kW generator with a load of 13 kW. The generator can be replaced with a smaller model so they are not running such a big generator. Birch Creek has the opportunity to explore for other natural resources such as natural gas and oil which is vast in their area and may need the extra power in the near future.*





# Workshops



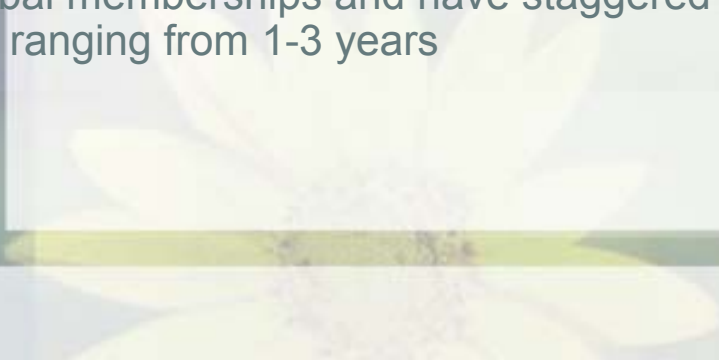
- Birch Creek residents were concerned with energy costs and developing infrastructure
- Community priorities are lowering energy costs, developing community programs and emphasizing education for the youth
- Birch Creek has completed a community energy plan and a vision statement



# Hughes



- Hughes is about 210 air miles northwest of Fairbanks, and it is on a bluff on the east bank of the Koyukuk River
- Hughes was a riverboat land and supply port for the nearby gold fields. Many of the local Natives remained in Hughes and the community began to grow slowly. Incorporated in 1973, the city was gradually modernized
- The population of Hughes is approximately 72 (2004)
- The approximate number of families is 39 (2000)
- Hughes is a Koyukon Athabascan village
- The local government is the Hughes Village Council. This is a board consisting of a 1st Chief, 2nd Chief, and (3) three Council Members. These tribal officials are elected by the tribal memberships and have staggered terms ranging from 1-3 years



# Hughes Energy Plan



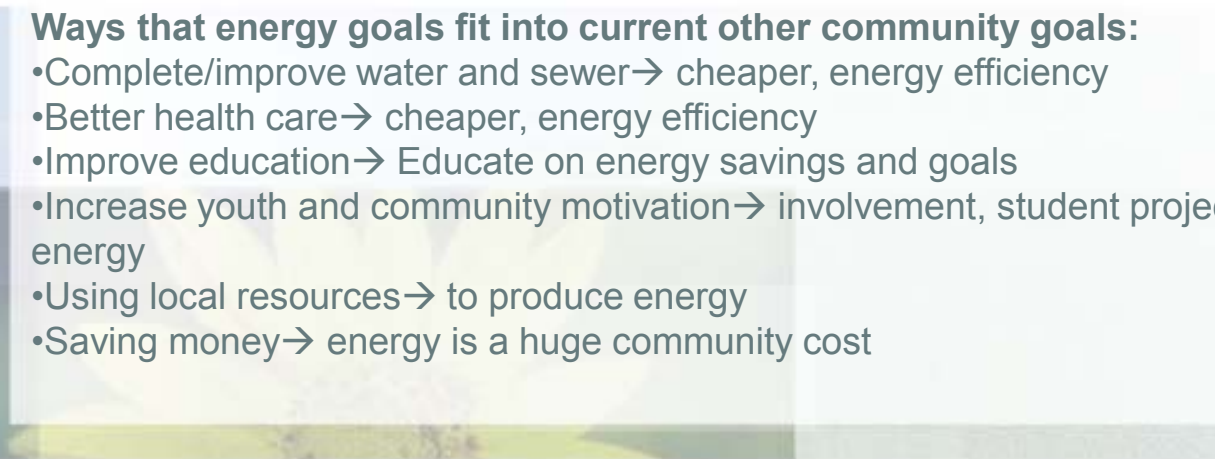
**Vision Statement:** Hughes will use efficient cheaper energy, while investing in appropriate alternative energy sources.

**Action Plan** (how we reach the vision):

1. Community planning
2. Energy Education—Started December 2007, finished October, continues informally
3. Increase end-use efficiency—Start spring 2008, done December 2008 (ABSN)
4. Plan future grant proposals for community infrastructure (including energy)—start spring 2008, on-going
5. Applying for feasibility grants for alternative energy—April/May 2008-December 2008
6. Installing/implementing alternative energy sources—5 years or less  
Get on smaller 37kW generator (currently on 78kW generator) –One year

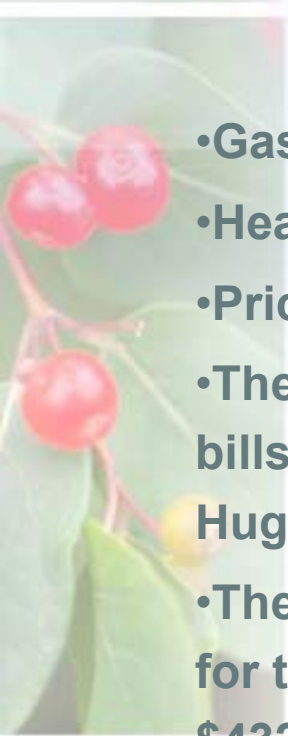
**Ways that energy goals fit into current other community goals:**

- Complete/improve water and sewer→ cheaper, energy efficiency
- Better health care→ cheaper, energy efficiency
- Improve education→ Educate on energy savings and goals
- Increase youth and community motivation→ involvement, student projects re: energy
- Using local resources→ to produce energy
- Saving money→ energy is a huge community cost

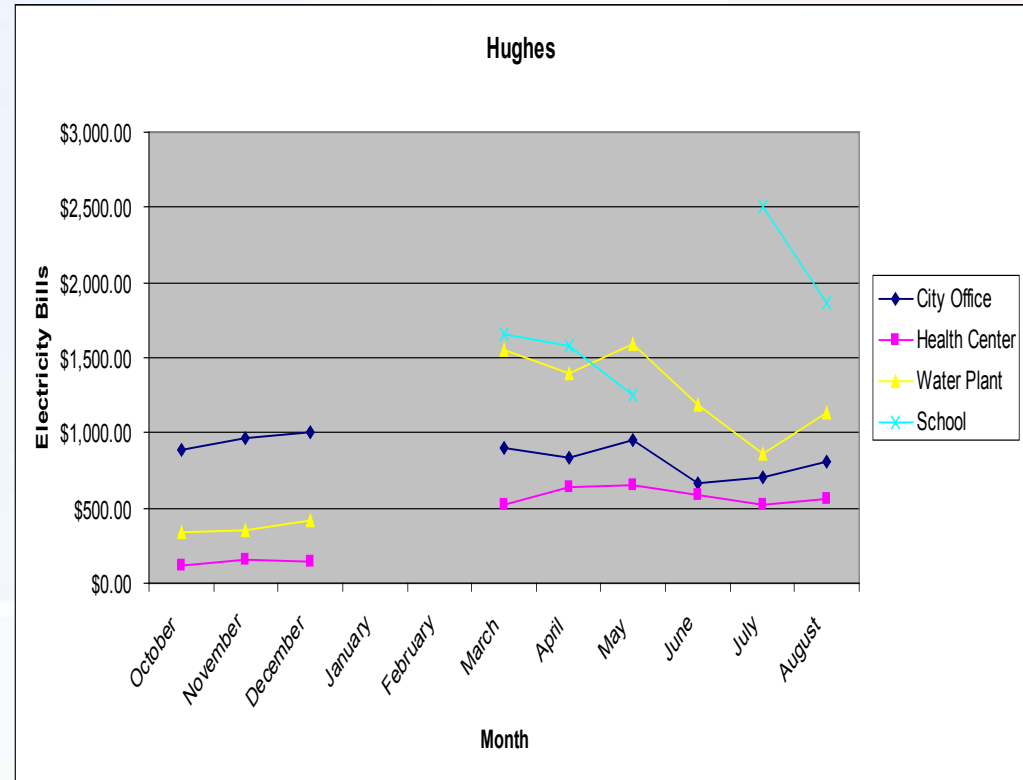




# Hughes Energy Data



- Gas: \$8.50 per gallon
- Heating Oil: \$7.50
- Price per Kwh: \$0.61
- The chart is the electric bills for 4 facilities in Hughes
- The average electric bill for the health center is \$432.17
- The health center is 24x36 sq. ft.



# Hughes Energy Plan



## Timeline

### Energy Related

- **Year One**
  - Biomass – Apply for AEA grant
  - Start wind study
- **Year Two**
  - Solar Power on a community building
  - Continue Energy Education
  - Increase End Use Efficiencies
- **Year Three**
  - Solar to the Clinic
  - Power Plant – might get waste heat recovery
  - Thought Geothermal was way too expensive. Heard it was \$650,000 per mile.

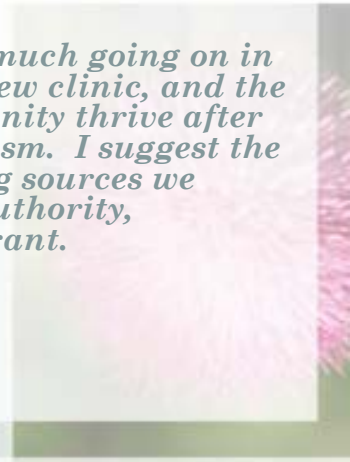


### Other Community Priorities

- **Year One**
  - Start a community tourism business to have a self sufficient economy.

### Suggestions and Ideas

- *One of the community concerns is self sufficiency. There is so much going on in Hughes right now, the construction of two homes, building a new clinic, and the water sewer project. They want to continue to see their community thrive after all these projects are completed. A solution they saw was tourism. I suggest the Alaska Marketplace for seed money, along the with the funding sources we suggested for the community energy projects: Alaska Energy Authority, Rasmuson Foundation, and Community Development Block Grant.*



# Workshops

- Hughes residents were primarily concerned with rising energy costs
- Keeping the community self-sufficient and improving the community are other priorities

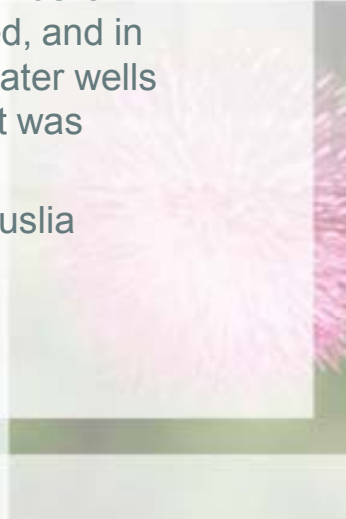




# Huslia



- Huslia is located on the north bank of the Koyukuk River, about 170 river miles northwest of Galena and 290 air miles west of Fairbanks
- Huslia's population is 255 (2007)
- Most residents are Koyukon Athabascan
- Cutoff Trading Post (also called Old Town) was established in the 1920s about 4 miles overland, or 16 river miles, from modern Huslia. In 1949, the community moved to the present site because Cutoff flooded frequently and the ground was swampy. Huslia (originally spelled Huslee) was named after a local stream. In 1950, the first school was established, followed by a post office, airport and road construction in 1952. At this time, families began to live year-round at Huslia. In 1960, a health clinic was constructed, and in 1963, 29 individual hand-pumped water wells were installed. The City government was incorporated in 1969.
- The local tribal government is the Huslia Traditional Council



# Huslia Energy Plan



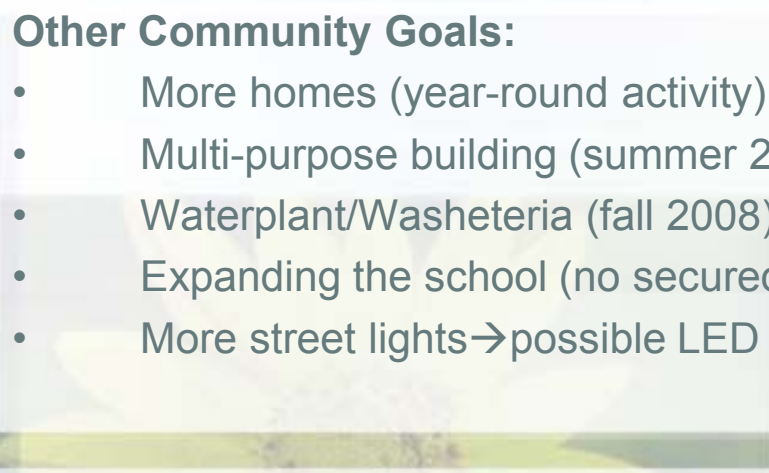
**Vision Statement:** Huslia has a vision to see cheaper costs of energy, and educate our community on energy efficiency. We will use the resources we have now and explore other alternative energy sources.

## **Action Plan:**

1. Assess appliances in homes/buildings
2. Weatherization
3. Research/educate on energy (January 2008-present)
4. Share information with other communities (through TCC council, IRHA newsletter)
5. Feasibility study on alternative energy options
6. Research new technology (example: wood boilers)

## **Other Community Goals:**

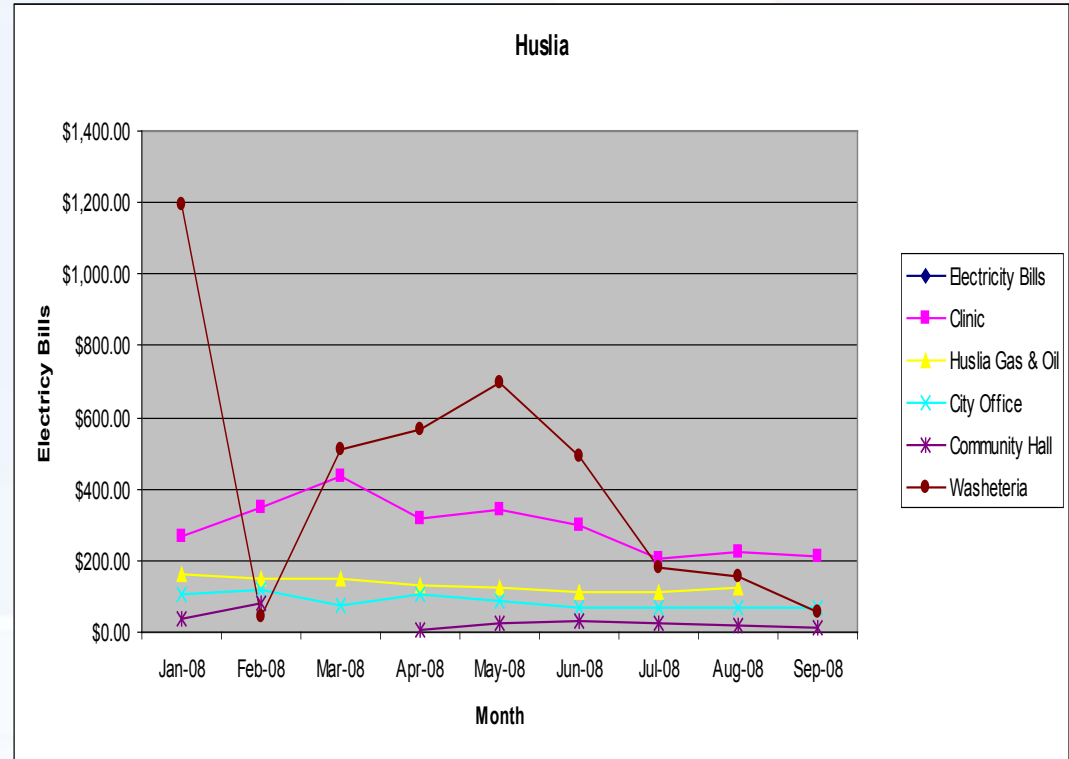
- More homes (year-round activity)
- Multi-purpose building (summer 2008)
- Waterplant/Washeteria (fall 2008)
- Expanding the school (no secured funding yet)
- More street lights → possible LED lights (no secured funding yet)



# Huslia Energy Data



- Gas: \$6.25 per gallon
- Heating Oil: \$7.00 per gallon
- Price per Kwh: \$0.32
- The chart shows the electric bills for 5 facilities in Huslia



The drop in cost for the Washeteria is due to prepayment

# Huslia Energy Data



## Timeline

### Energy Related

- Year One
  - Wind – wind tracking station 2 miles out
  - Energy Education
- Year Two
  - Hydro – study Koyukuk River as an energy source
  - Solar Power – find out if AVEC charges out to other applicants for solar
  - Weatherization – will help with up grading appliances in residential homes. Buying energy star appliances for those homes who needed it.



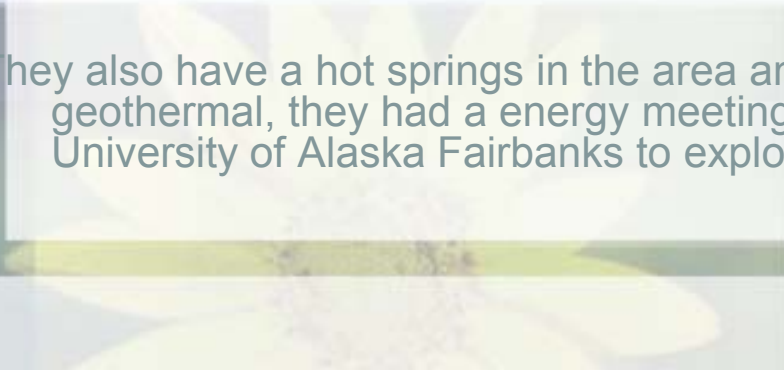
### Other Community Priorities

- Year One
  - Find funding for LED lighting

Main interest was weatherization services

IRHA will be providing weatherization services to Huslia this spring

They also have a hot springs in the area and are interested in the possibility of geothermal, they had a energy meeting this spring and is working with the University of Alaska Fairbanks to explore their options.





# Workshops



- Huslia residents main concerns were lowering the cost of energy and other costs associated with energy
- Top priorities include implementing solar power and educating community members in energy efficiency
- Other community goals are more homes and new facilities, such as a multi-purpose building and new washeteria
- Huslia has completed a community energy plan and vision statement



# Project Status



## Accomplishments

- All 4 Workshops were conducted
- Energy Plan created for all 4 communities
- Assessments of community buildings were conducted
- Energy Use Data is continually being tracked
- Awareness of energy use

## Lessons Learned

- Teaching people about phantom loads
- Going into the schools and educating about energy

## Activities yet to be completed

- Finish tracking energy use data for community buildings
- Can revise plans when applying for funding

## Future plans

- The community of Huslia is in the process of using the data collected and their Energy Vision Statement to apply for funding through the Denali Commission, which they have a current relationship with, while seeking funding opportunities as they become available.

