

Thayer Creek Hydroelectric Update - 2015



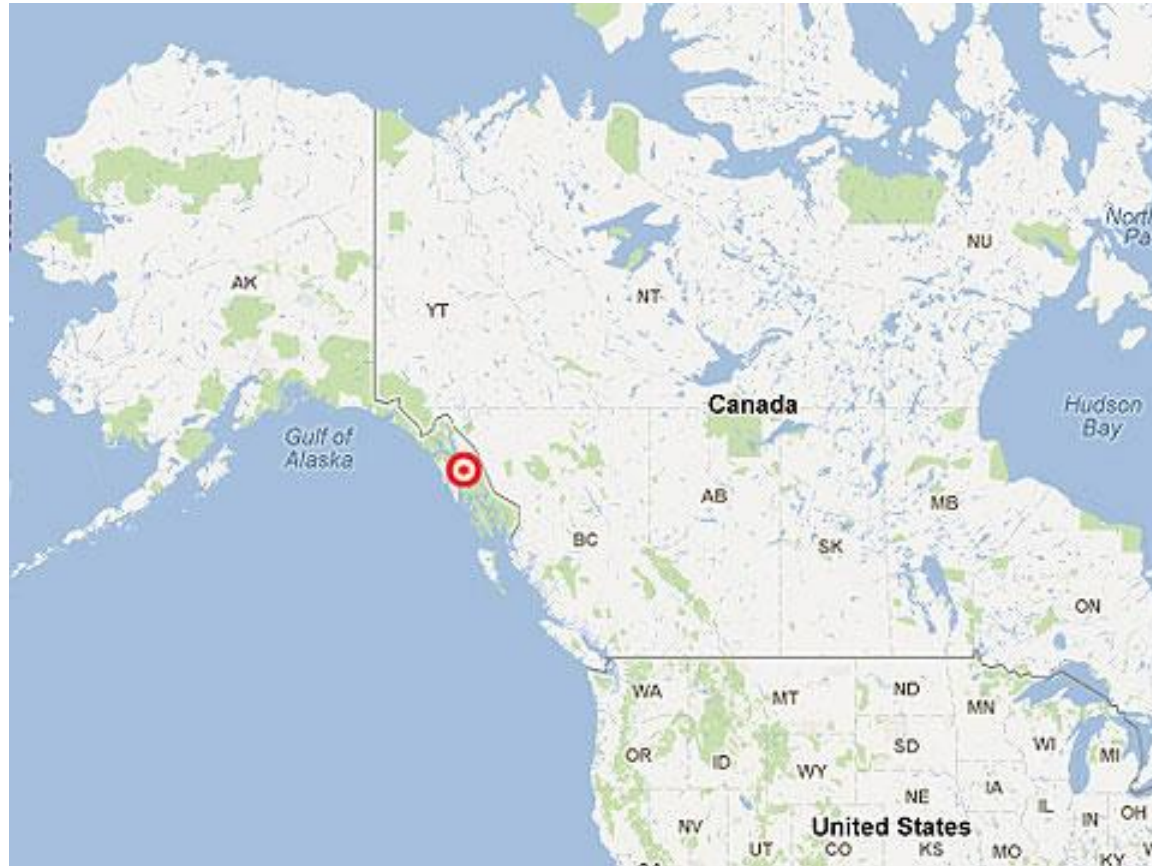
2015 Program Review Meeting
DOE Tribal Energy Program
Denver, Colorado
May 5, 2015

Sharon Love

General Manger/President
Kootznoowoo, Inc.

Harold Frank, Jr., M.S.

Land and Environmental Planner
Kootznoowoo, Inc.



Angoon, Alaska Vicinity Map

Angoon, Alaska

- City of Angoon – 457 people (2013)
- Angoon Community Association (IRA tribe)
- Kootznoowoo, Inc. – 1,000(+) shareholders (629 original)
 - ANCSA village corporation
- Angoon area inhabited at least 10,000 years
 - Drainage management/ownership



Traditional Territory for 10,000(+) years

Angoon aerial looking east and west.



Angoon aerial from the north and from the water.



Angoon from the beach.

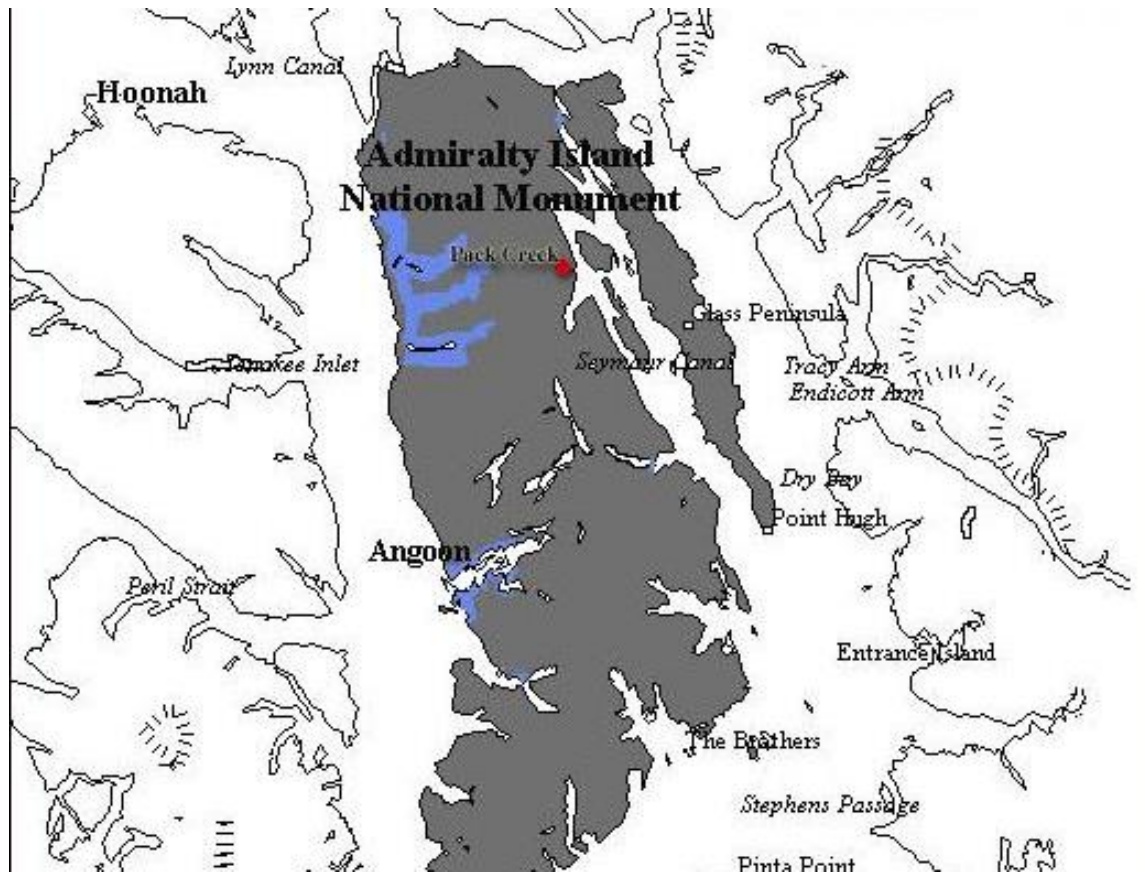


Kootznoowoo, Inc. – “...right to develop hydroelectric resources....”

- ANCSA settlement
 - ANILCA, Section 506(a)(3)(B) defined hydropower reserve.
- Admiralty Island National Monument
 - Angoon isolated
- Original intent – affordable energy
 - ~67 (+) cents/kwh before PCE
 - Kootznoowoo goal – 22 cents/kwh (my goal is 11-13 cents/kwh)

“...right to...” continued

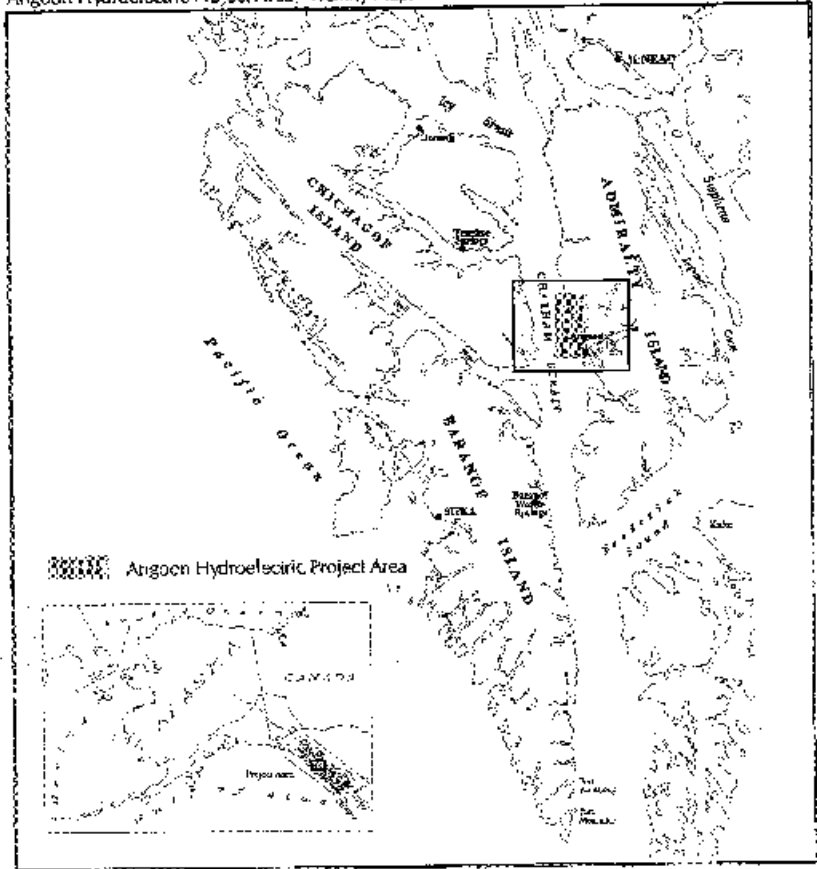
- No size defined in ANILCA hydro reserve
 - Demand influences design
 - Run of the river (small hydro)
 - Resident/anadromous fish – barrier falls
- The corporation’s original land planner was correct by including this hydro right into the ANCSA settlement.



Angoon isolated within Federal lands.

Angoon Hydroelectric Project Final EIS

Figure 1-1
Angoon Hydroelectric Project Area - Vicinity Map.

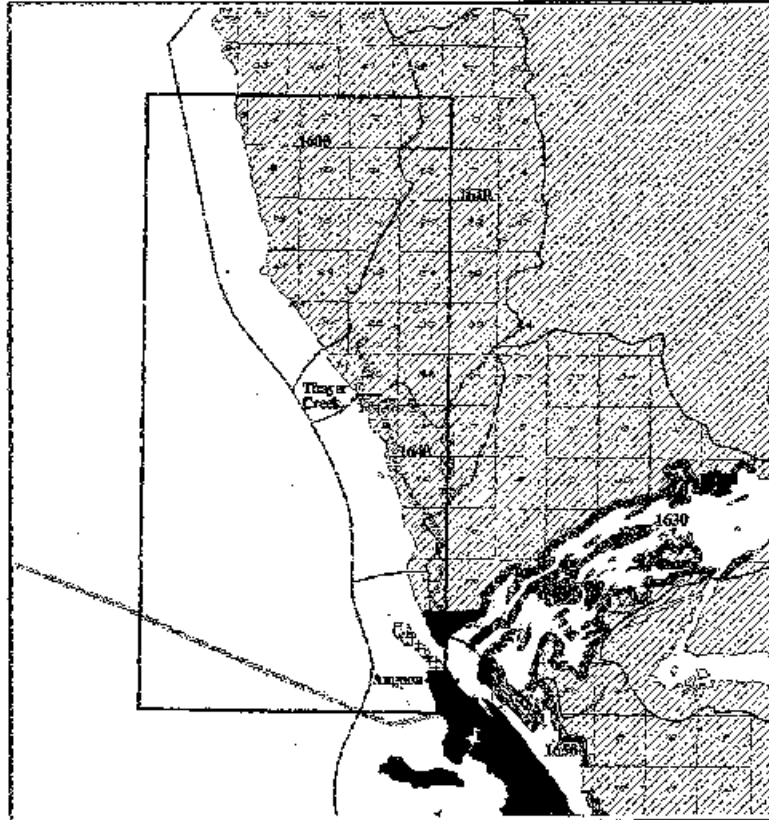


0 5 10 20 Miles
Scale in Miles










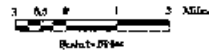
Angoon Hydroelectric Project Final EIS - Purpose and Need

Figure 1-2
Project Area Land Use Designation (LUD) Map



Source: JTMF 2008

- | | | | |
|---|---|---|------------------------------------|
|  | Wilderness Manual | 1650 | VCL Number |
|  | Semi-Remote Recreation |  | Value Comparison Limit (VCL) |
|  | Non-National Forest Land |  | Project Boundary |
|  | F.L. 26-487 S.e. 5000x3000 Corridor Lands |  | Transitional Forest Treatment Area |



Participants

- Department of Energy
- Alaska Energy Authority
- USDA, Forest Service (no FERC)
- Angoon Community Association
- City of Angoon
- Inside Passage Electric Authority
- Alaska Power & Telephone
- Orenco Hydropower, Inc.
- Kootznoowoo, Inc.

Orenco Hydropower, Inc.

- Specialize in small hydro and value engineering
- Experienced, pragmatic project managers
 - Complete service if needed
- San Francisco based company
 - Feature Chinese products, but will fit to specs
- Committed to success
- www.orencohydropower.com

Objectives

- Energy independence
- Energy security
- Affordable & reliable power
 - At most 22 cents/kwh (my goal 11-13 cents/kwh)
- Anticipate community and economic growth
 - Airport and business growth
- Freedom from diesel
 - AEA metric – displaced cost of diesel

Objectives continued

- 1.2 megawatt through NEPA
- Changed to 6.2 megawatt design
 - Lidar and geotech done
- Project refocused back to 1.2 megawatt capacity
 - Phased capacity increase when demand grows.

New Projects

- Changed focus – hence new management
- Need new geotech work at barrier falls
- Choose between 3 possible designs
 - Original 6,300 ft. penstock; 4,800 ft. bored penstock; impoundment at barrier falls with penstock
- New feasibility study and permit effort
 - Amend NEPA???
- Refine transmission & delivery options
- Seek more funding and possibly finance

Accomplishments

- Lidar data set
- Geotech (old design)
- Fisheries data gathered
- Flow data
- Construction grant (AEA)

Lessons learned

- Planning – saves time and money
 - Retrofitting is time consuming and expensive
- Assess your resource before hand if possible
 - Influences design and cost
- Focus – (i.e. 6.2 mw vs 1.2 mw)
- Hire good people after defining project
- Whenever or wherever, talk about your project – helps find funding/financing

Remaining activities

- Geotech (new design)
- Feasibility study
- Permits – 404, ADFG, etc.
 - NEPA included
- More funding/financing
- Build

Future plans

- Explore other resources in hydro reserve
 - Notch Creek ~ 0.5 mw potential
- Explore tidal and wind energy
- Share experience
- Make new land plans - Angoon

Questions?



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