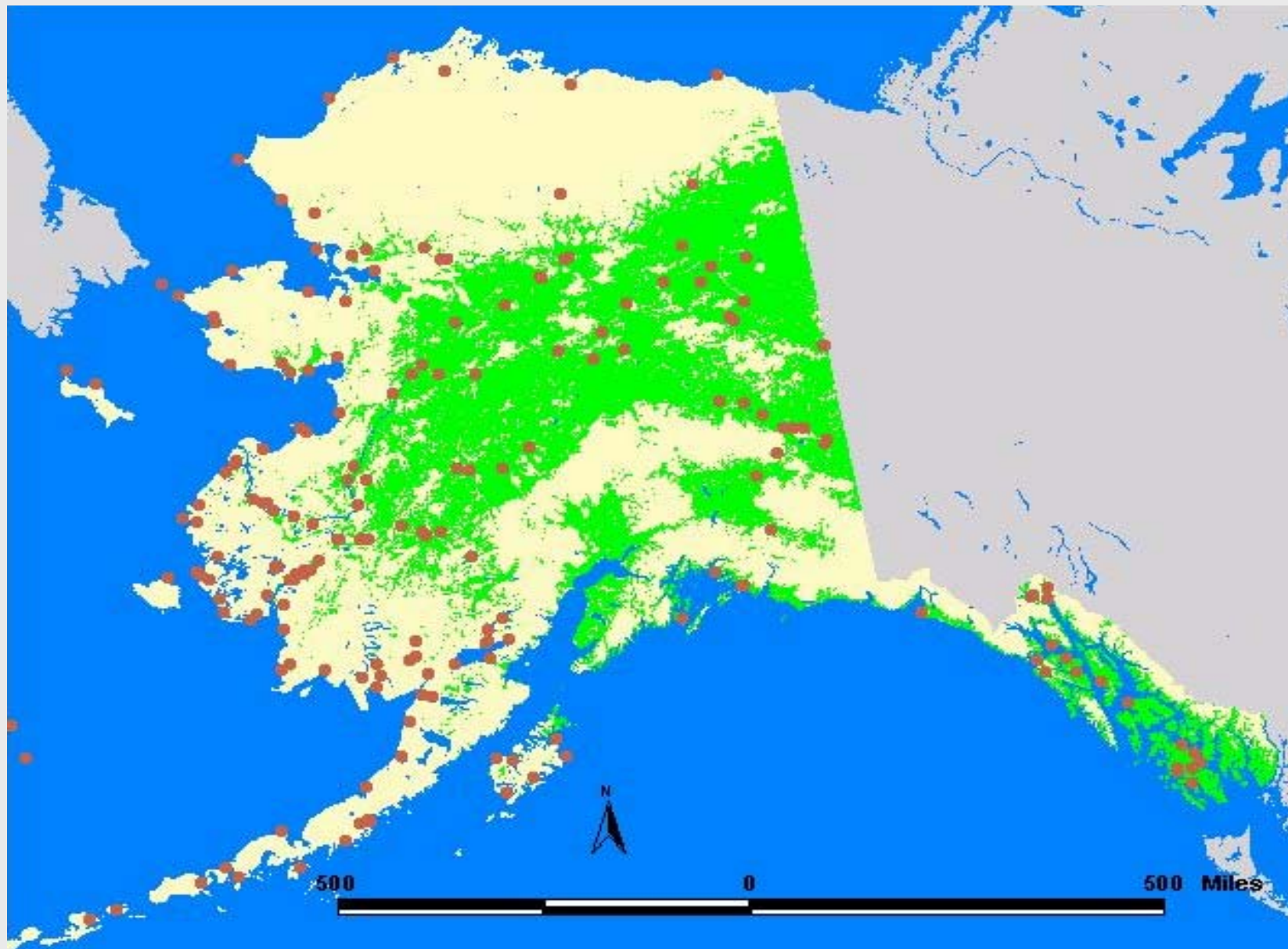


Wood Energy Opportunities For Alaska

**Alaska Wood Energy Conference
November 14-16, 2007
Fairbanks, AK**

**Daniel J. Parrent
Program Director, Wood Utilization Specialist
Juneau Economic Development Council**

Distribution of Alaska Communities and Forest Resources



Alaska Wood Energy Development Task Group

Team of 14 local, state and federal agencies and organizations:

**Alaska Energy Authority
Alaska Village Initiatives
Alaska DNR Division of Forestry
Denali Commission
Juneau Economic Development Council
USDA Farm Services Agency
USDA Forest Service Alaska Region
USDA Natural Resources Conservation Service
USDA Pacific Northwest Research Station
USDA Rural Development
USDI Bureau of Indian Affairs
USDI Bureau of Land Management Alaska Office
USDOE National Renewable Energy Lab
UAF Cooperative Extension Service**

Alaska Wood Energy Development Task Group

USDA Forest Service and Alaska Energy Authority have been the lead agencies; provide expertise and bulk of funding

Juneau Economic Development Council provides primary “point of contact”, resource information, technical assistance, site reconnaissance, and pre-feasibility assessments

Alaska Energy Authority is available to assist with design and construction

USDA Rural Development may be able to provide direct loans and/or grants

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AWEDTG Goals

1. Assist Alaska facility operators decrease heating costs
2. Expand opportunities to displace petroleum-based fuels with local wood resources:
 - a. high-hazard forest fuels
 - b. dead and diseased trees
 - c. sawmill by-products
 - d. by-products of habitat improvement/restoration
 - e. forest thinnings and other residues

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AWEDTG Implementation Strategy

Pick The “Low-Hanging Fruit” First

Heating applications are the low hanging fruit

(compared to bio-oil, cellulosic ethanol, combined heat and power, fuel densification, etc.)

Small Scale Applications (500 to 2,000 gpy equivalent):

Wood Stoves, Pellet Stoves, Pellet Furnaces

Medium Sized Applications (1,500 to 30,000 gpy equivalent):

High-efficiency, low-emission units

Manual, cordwood boilers with large thermal storage

Meet or exceed new EPA standards for emissions and efficiency

Large Scale Applications (more than 25,000 gpy equivalent):

Commercial/industrial hog fuel/wood chip boilers

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2005 AWEDTG Program Implementation:

Solicited Statements of Interest from public and not-for-profit facilities across Alaska

Conducted site reconnaissance and prepared pre-feasibility assessments for projects in Craig, Thorne Bay, Delta Junction and Venetie

Provided financial and technical assistance to the City of Craig for their wood-fueled heating system

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2006 AWEDTG Program Implementation:

Solicited Statements of Interest from public and not-for-profit facilities across Alaska

Conducted site reconnaissance for projects in Haines, Tetlin, Northway, Tok, Mentasta, Chistochina, Gulkana, Copper Center, Kenny Lake, Tanacross, Dot Lake, Fairbanks, Tanana, Kokhanok, Elim, Aniak and Klawock

Completed pre-feasibility assessments for projects in Tetlin, Tok, Northway, Mentasta, Chistochina, Tanacross, Dot Lake, Tanana, Kokhanok

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2007 AWEDTG Program Implementation:

Solicited Statements of Interest from public and not-for-profit facilities across Alaska

Conducted site reconnaissance for projects in Tok, Tanacross, Kasilof, Fort Yukon, Coffman Cove, Nenana, Dot Lake, Mentasta Lake, Northway, Ketchikan, Klukwan, Tyonek, Pedro Bay and McGrath

Applied for and received grant funding to

- A) install wood-fired boilers in Tanana and Kasilof, and
- B) develop engineering plans for projects in Haines and Gulkana

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2008 AWEDTG Program Implementation:

Solicit Statements of Interest from public and not-for-profit facilities across Alaska

Conduct site reconnaissance for selected projects

Complete pre-feasibility assessments for selected projects

Complete projects in Tanana, Kasilof, Gulkana, Haines and Craig

Initiate new design and/or construction projects commensurate with available funding

Is It Worth It?

Fuel Oil (#2)

	Btu/gal (gross)	Conversion Efficiency	Btu/gal (net)	Price per gal	\$ per million Btu
1 gal	138,000	80 %	110,400	3.50	31.70
				4.50	40.76
				5.50	49.82

Cordwood (white spruce, 30% moisture content)

	Btu/lb (HHV)	Btu/cd (RHV)	Conversion Efficiency	Btu/cd (DHV)	Price per cord	\$ per million Btu
1 cord	8,890	11,778,000	75 %	8,833,500	150	16.98
					200	22.64
					250	28.30

Using the figures above, 1 cord of wood will replace 80 gallons of fuel oil. For every 1,000 gallons of fuel oil consumed, you would have to burn 12.5 cords of wood. At the median prices of \$4.50/gallon and \$200/cord, you would save \$2,000 per thousand gallons of fuel oil displaced. (At \$3.50/gallon and \$150 per cord, savings would amount to \$1,625 per thousand gallons displaced.)

Making It Happen -- Keys To Success

At the community level:

Resolve to change - refuse to maintain/accept the status quo

Reduce/conserve

Exhaust passive/natural opportunities

Realize the benefits of unique assets

Partner where possible

Reclaim energy

Use renewables

Recommission – make sure systems are operating properly

Share the knowledge

Require equal performance from all your fuel suppliers

Making It Happen -- Keys To Success

At the project level:

Committed facility manager

Fuel – quality, quantity, price, delivery

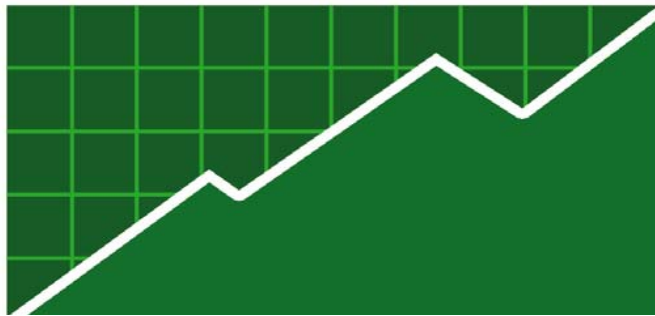
Control total project cost

Prepare for contingencies

General contractor / wood vendor interface

Project schedule

Address regulatory issues



Juneau Economic Development Council

Wood Products Development Service

Daniel J. Parrent

Program Director, Wood Utilization Specialist

204 Siginaka Way

Sitka, AK 99835

Tel: (907) 747-5688

E-mail: dparrent@ptialaska.net

Our mission is to help foster diversification and growth within Alaska's wood products and wood energy industries, thereby expanding the State's economy, improving the utilization of forest resources, and retaining and creating jobs.