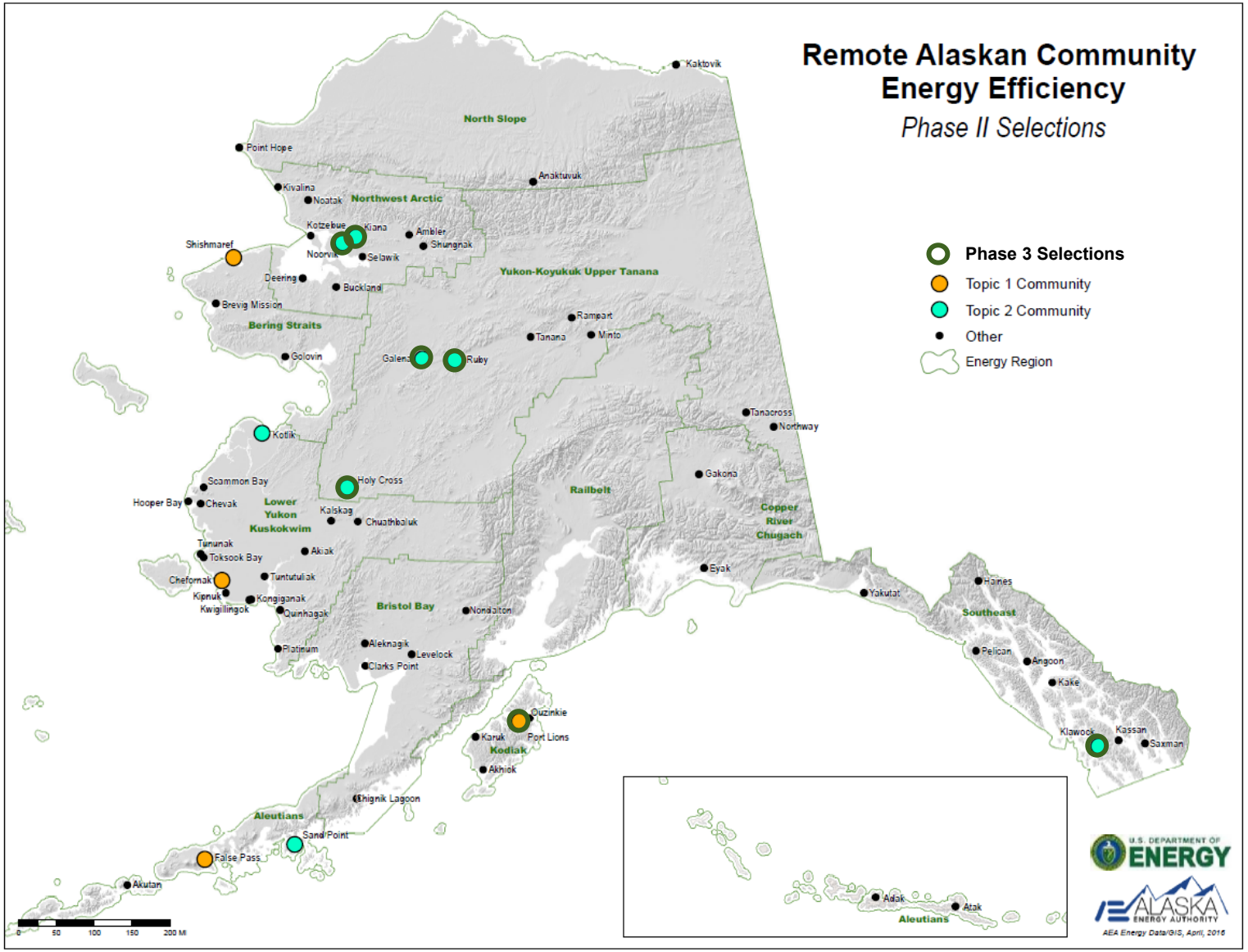
Remote Alaska Communities Energy Efficiency Peer Network

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy



Webinar Operations

- All participants have been automatically muted.
- If you have a question during the presentation, please type it into the Question panel on the right side of your computer screen. We will pose the question at the end.
- Please check the RACEE website after 7/15/17 for a link to the recording and transcription of this webinar.

http://energy.gov/eere/racee-competition-peer-exchange-network

- DOE plans to collect information for announcement on the next Peer Network call.
  - This can include useful information on funding and project ideas and opportunities
  - Email your input to Fletcher.Souba@ee.doe.gov for June's Webinar.

Welcome to the RACEE Peer Network

- The RACEE Peer Exchange Network is intended to provide a fundamental benefit to the 64 communities that pledged to reduce per capita energy usage by 15% by 2020.

- It will consist of three components:
  - RACEE website
  - Monthly technical webinars
  - In-person meetings
    - For, example, the RACEE Competition Summit at end of RACEE Phase 3

- For more details, see the RACEE Website:

http://energy.gov/eere/racee-competition-peer-exchange-network

RACEE Peer Exchange

- The goal of the network is to empower Alaskan communities and native Alaskan villages to develop effective tools to advance the use of reliable, affordable, and energy efficient solutions that are replicable throughout Alaska and other Arctic regions.

- The Department leverages the existing convening power of the AEA and other regional energy efficiency organizations to form the Peer Exchange Network to build a community of energy efficiency information sharing and action by peer exchange through webinars, and events.

Future Webinar Topics

- **Biomass Heat Recovery Systems**
  - Devany Plentovich (AEA)
- **Heat Recovery Systems and Benefits**
  - Tashina Duttle (ANTHC)
- **Diesel Part 1: Efficiency**
- **Diesel Part 2: Transition from 2-Stroke to 4-Stroke Engines**
- **Line Loss Mitigation**
- **AKEnergySmart - More about Renewable Energy in Alaska**

The Alaska Wood Energy Development Task Group

Karen Petersen – Facilitator
Devany Plentovich – State Lead
Dan Parrent – Federal Lead

ALASKA ENERGY AUTHORITY

The AWEDTG consists of a coalition of 18 Federal agencies, State agencies , Tribal and not-for-profit organizations that have signed a Memorandum of Understanding (MOU) to explore opportunities to increase the utilization of wood for heating projects in Alaska.

ALASKA ENERGY AUTHORITY

History of the AWEDTG

- Established in 2004 with Dan Parrent as the facilitator and primary contact.
- Peter Crimp was the brain child of this group
- JEDC – Juneau Economic Development Council hired Dan and studies were done “in house”, with State and USFS funding
- Formalized in it’s current structure in 2010
- Has funded over 150 feasibility studies in 12 years – which has resulted in over **36** systems operating in the State.

Alaska's Biomass Development Process

- Regional Planning
- Outreach
- Statements of Interest
- Pre-feasibility Studies
  - Sustainable Fuel Supply
  - Technology Options
  - Economics
- Education
- **STOP and WAIT** for a Community Champion

Photo by Devany Plentovich

Alaska's Development Process – cont.

- **Community members** develop a Business Plan
  - Fuel Harvest Plan
  - Operations and Maintenance
  - Financial Management
- Involve operators and mechanics in the design
- Identify funding for construction
- Hands-on training for operators and mechanics during construction
- Operator working group (in development)

Photo by Amanda Byrd

AWEDTG Meetings – how we work

- The Committee meets Ad Hoc about once a month
- Karen convenes the meeting and takes notes
- Once a year we have a face-to-face meeting where we review progress and set priorities for the following year.
- **WE ARE SOLICTIING NOW FOR FALL SELECTION!**

Photos by Dan Bihn

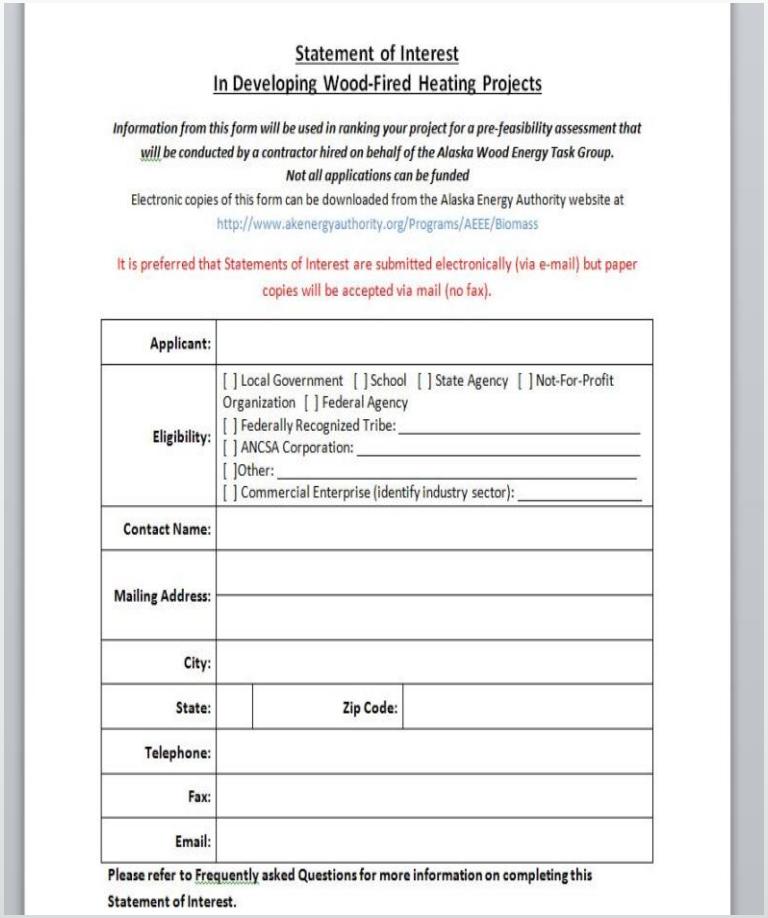
How communities can use our services

- Any Community /Tribe /School/non-profit etc. can apply
- They will end up with a report that can be used to go forward IF the results are favorable
- Even if a community does not decided to fund a project now we know they are interested

Photos by Dan Bihn

Selection of Statements of Interest

- Statements of Interest are sent to Karen
- When evaluation is needed they are sent out to the entire committee with a score sheet
- Scores are tabulated and projects selected for pre-feasibility.



Statement of Interest
In Developing Wood-Fired Heating Projects

Information from this form will be used in ranking your project for a pre-feasibility assessment that will be conducted by a contractor hired on behalf of the Alaska Wood Energy Task Group. Not all applications can be funded

Electronic copies of this form can be downloaded from the Alaska Energy Authority website at http://www.akenergyauthority.org/Programs/AEEE/Biomass

It is preferred that Statements of Interest are submitted electronically (via e-mail) but paper copies will be accepted via mail (no fax).

Applicant:	
Eligibility:	[ ] Local Government [ ] School [ ] State Agency [ ] Not-For-Profit Organization [ ] Federal Agency [ ] Federally Recognized Tribe: _____ [ ] ANCSA Corporation: _____ [ ]Other: _____ [ ] Commercial Enterprise (identify industry sector): _____
Contact Name:	
Mailing Address:	
City:	
State:	**Zip Code:**
Telephone:	
Fax:	
Email:	

Please refer to Frequently asked Questions for more information on completing this Statement of Interest.

Photos by Dan Bihn

Selection of Contractors

- List of selected projects sent to FEDCO
- FEDCO prepares an RFP
- The AWEDTG evaluates and selects contractor(s) based on a standard procurement selection process..
- FEDCO prepares contract and manages the contractor, timeline and payment.

Photos by Dan Bihn

Presenting the Studies

- The contractor is required conduct a public meeting in the community during the site visit.
- AFTER the study is done we have a teleconference with an AWEDTG member and the community to review and discuss the Pre-Feasibility Study and consider next steps

Photos by Dan Bihn

Why we succeed!

- Our application requires a community advocate
- We have a diverse composition of the Task Group
- The Task Group speaks with ONE VOICE
- We include maintenance personnel and operators early in the discussions

More things to discuss

- Cost effectiveness!
- Our Application is easy to fill out
- EVERYONE on the committee does outreach
- We have more success when we have collaboration

Biomass Decision Makers Field Trips

- We are now beginning to offer tours to SHOW people actual installed systems in Alaska
- We have several regions in the State where we can offer a tour of a number of facilities.

QUESTIONS?

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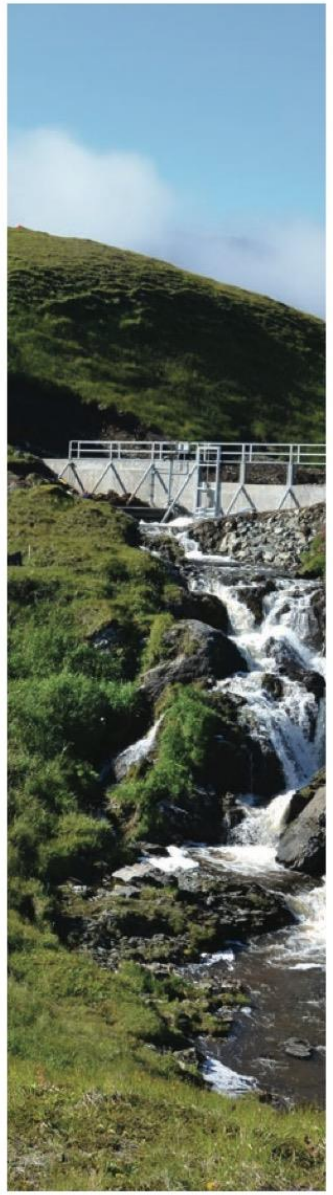
Thank you!

AKEnergyAuthority.org

Alaska Energy Authority

Wood Heating Update

Devany Plentovich, Program Manager – Biomass and CHP



The 1st Step - Energy Efficiency

- Make our homes, workplaces and communities energy efficient
  - Energy Efficiency appliances
  - Upgraded lighting
  - Tighten the shell (windows, insulation, etc.)
- Energy Efficiency is far cheaper than renewable energy
- Once efficient, pursue renewable energy

Why Biomass?

- **Lowers energy costs with a local fuel**
- **Maintains cash flow within a community**
- **Creates local jobs and businesses**
  - Construction
  - Operation/Maintenance
  - Harvest/Thinning/Resource Management
  - Heat Utilities
- **Supports the Forest Products Industry**
  - Use for sawmill waste
  - Use for forest health/thinning residue

Cordwood Boilers

- Part-time Jobs Creation
  - Harvesting
  - Splitting/ stacking/ storing
  - Regular Stoking
- Simple maintenance
- More difficult to integrate into existing heating system

Gulkana Community Wood-Fired Boiler

Gulkana Community Wood-Fired Boiler

RE Fund Grant	**$500,000**
Total Project Cost	**$ 500,000**
Est Fuel Displaced/yr	**14,600 gal**

Wood Chip Boilers

- Automated feed systems – does not require full-time attention.
- Complex controls
- Complex maintenance
- Lowest cost fuel
  - Fuel Handling requires a lot of planning
  - Consistent fuel quality is important

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Tok School Wood-Fired Boiler

Tok School Wood-Fired Boiler

RE Fund Grant	$ 3,245,349
Total Project Cost	$ 3,805,349
Est Fuel Displaced/yr	50,400 gal

Pellet Boilers

- Easy to operate
  - Mostly automated
  - Slightly more maintenance than oil boilers
- Specialized Fuel
  - Most expensive fuel options
  - Will depend on local suppliers
  - Easy to handle

Ketchikan Airport Pellet Boiler

- Prefeasibility study through AWEDTG
  - Oil boilers beyond useful life
- Design funded through Wood Innovations
  - Experienced biomass design firm
- Construction funded through RE Fund
- $1.1MM – boiler, backup oil boiler, Control system, building retrofit/EE.
  - $620,000 – Biomass
- Displacing 20,000 gallons of heating fuel
- Fueled by 100 TPY of LOCALLY MANUFACTURED pellets

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Important Questions in a Biomass Project

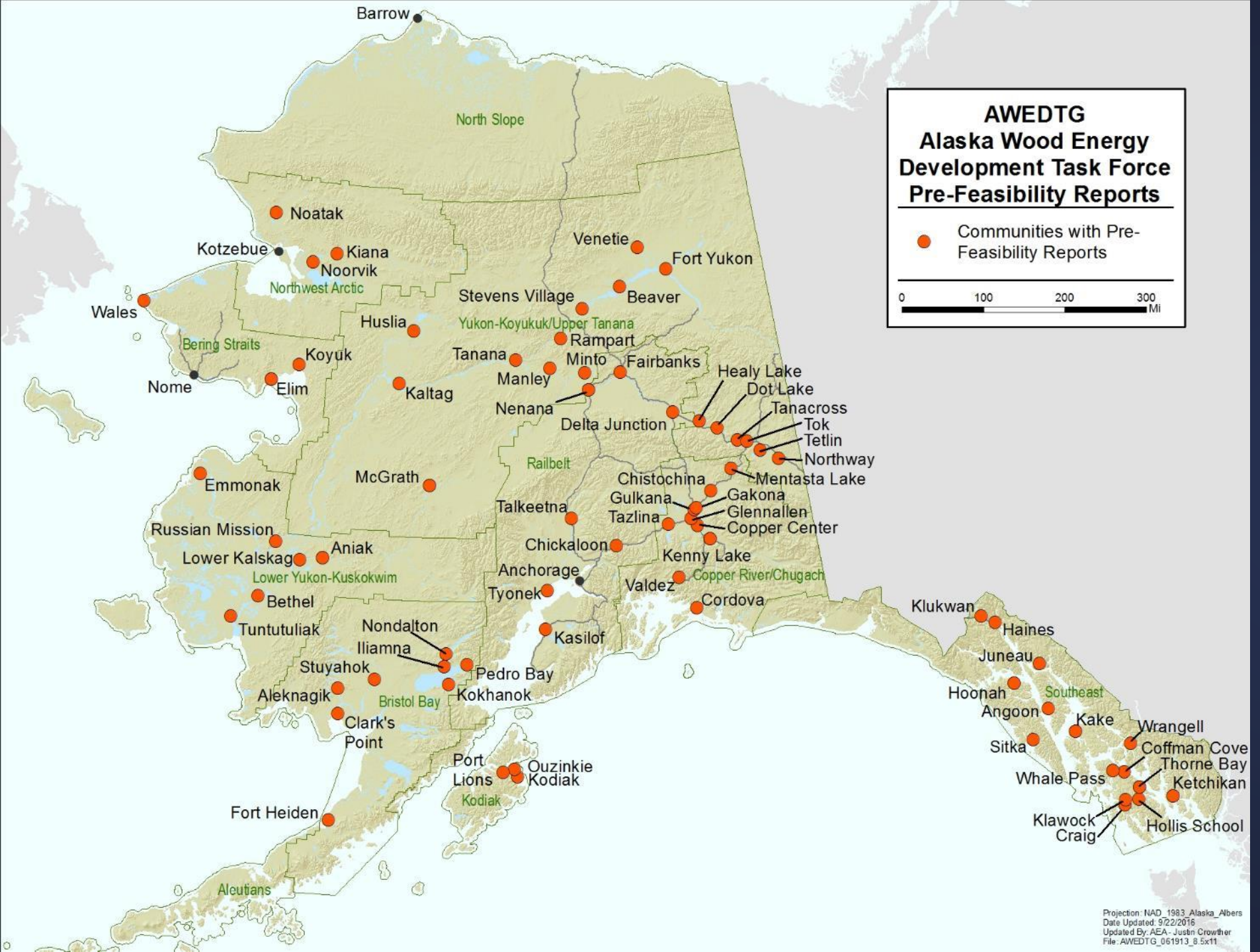
- Have all **energy efficiency** opportunities been completed?
- Is there a **sustainable** supply of biomass?
- Is there **community support** to operate and maintain a biomass heating or CHP system?
- Who is the community **champion**?

Biomass Challenges

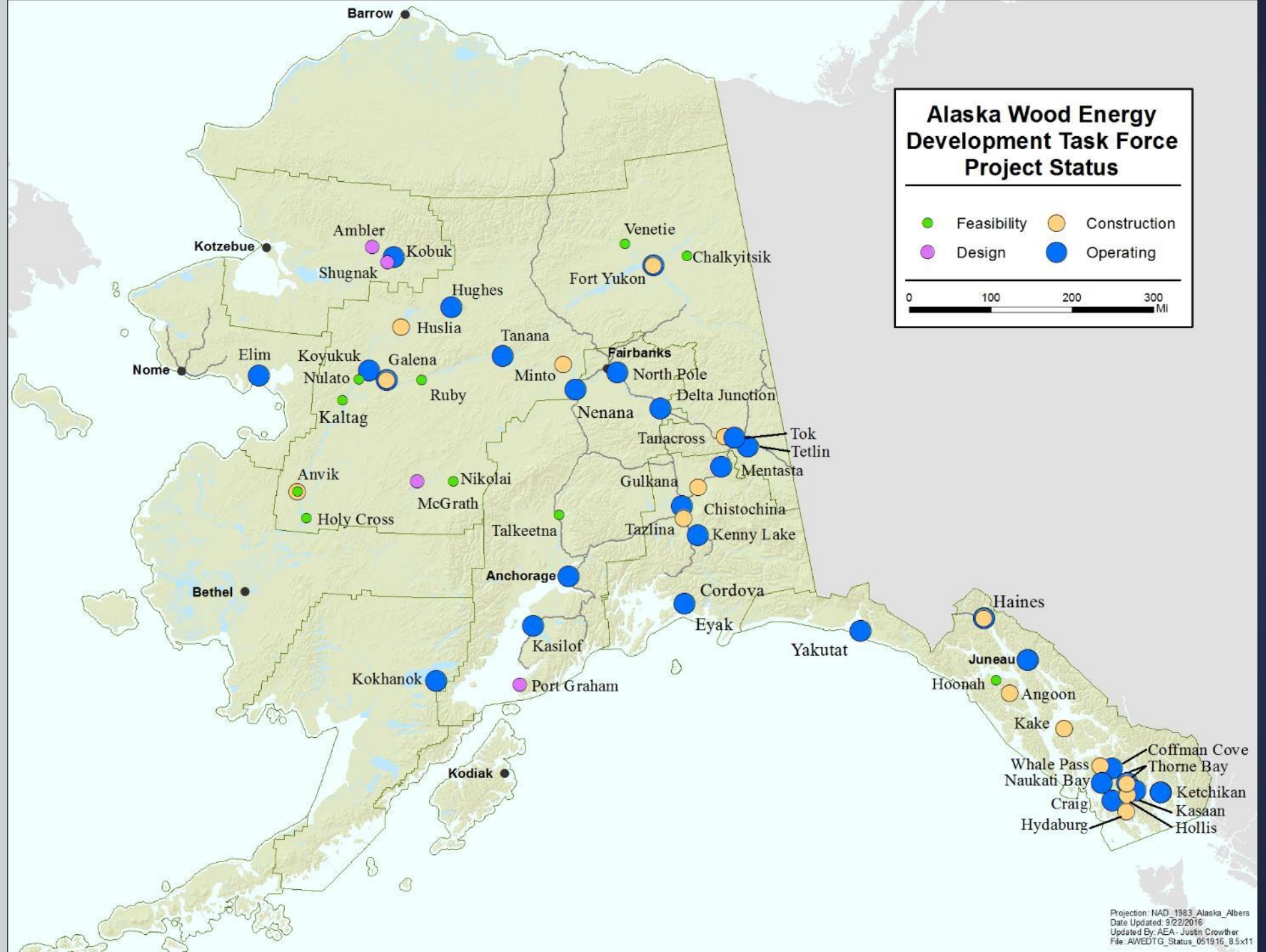
- Inexpensive systems
- Limited Water Storage
- Operating System – “stops combustion”
- Less than 40% efficient
- High emissions levels
- EPA certification flawed

Biomass and Greenhouses - Alaska's Latest Trend

- **Supporting resilient, self-sufficient communities**
  - Energy and food security
  - Lower transportation costs
- **Improved health**
  - Salad bars in the schools
  - Fresher produce in local stores
- **Education**
  - STEM
  - Business management
  - Horticulture
- **Local economic opportunity**
  - Jobs
  - Fund raising in schools



Wood Heating Pre-feasibility Studies



Alaska Biomass Projects

In Development and Operating

Alaska – Where Woody Biomass Can Work!

Questions?

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