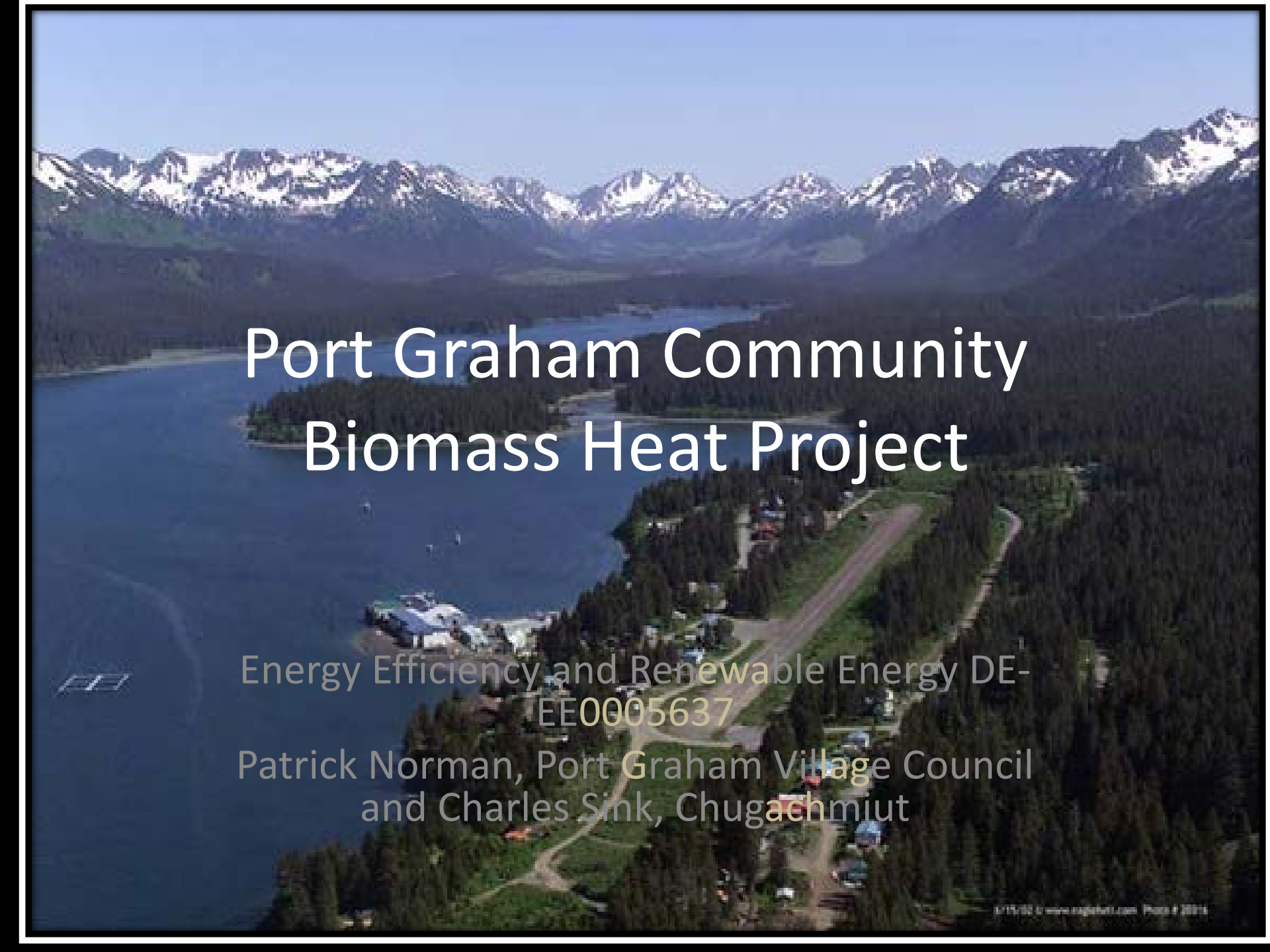


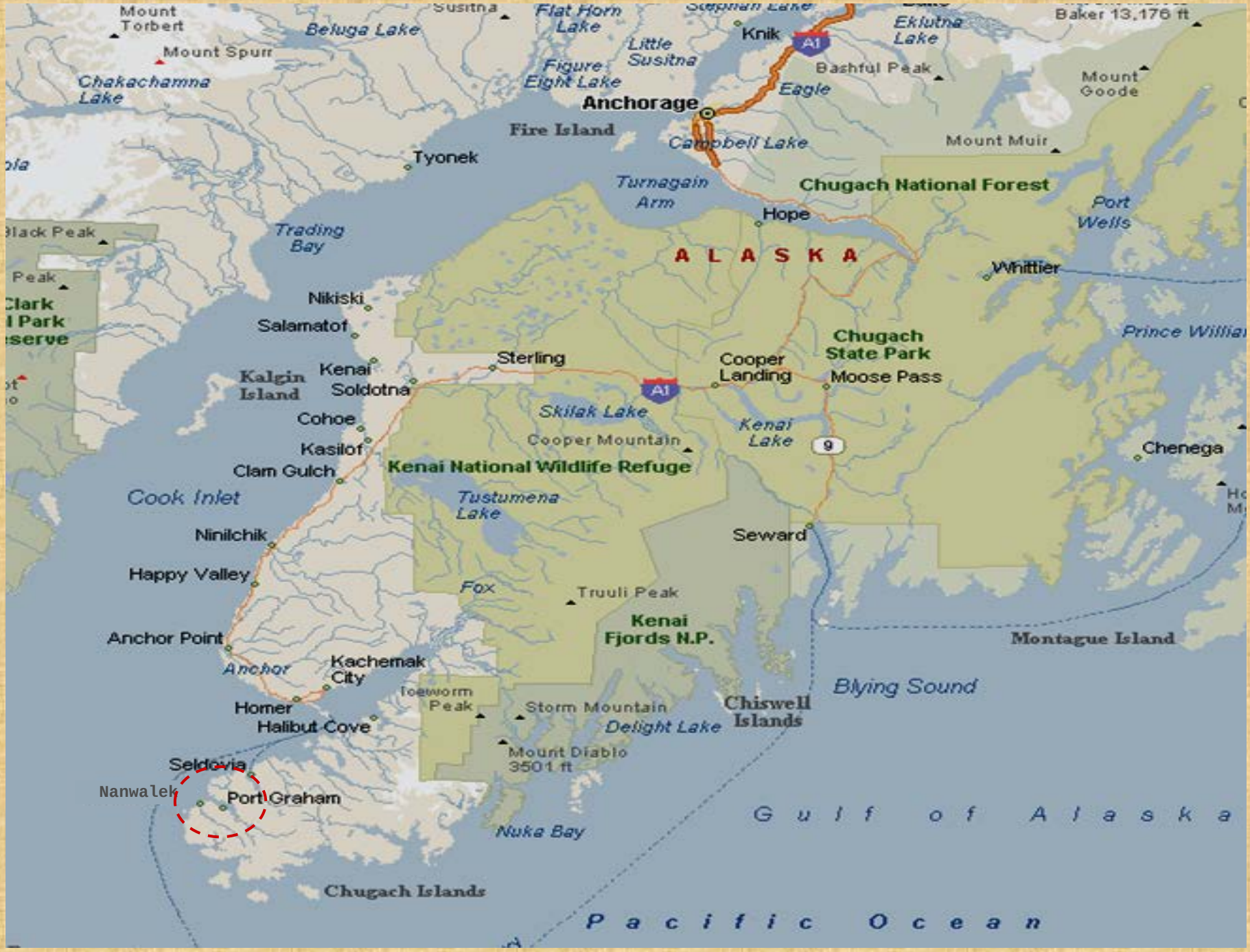
Port Graham Community Biomass Heat Project

Energy Efficiency and Renewable Energy DE-EE0005637

Patrick Norman, Port Graham Village Council
and Charles Sink, Chugachmiut

What is the project

Port Graham Alaska
GARN Boiler Project Area
and Community Buildings


Mount Torbert
Susitna
Flat Horn Lake
Beluga Lake
Mount Spurr
Chakachamna Lake
Figure Eight Lake
Little Susitna
Knik
A1
Eklutna Lake
Baker 13,176 ft
Bashful Peak
Eagle
Mount Goode
Anchorage
Fire Island
Campbell Lake
Mount Muir
Tyonek
Turnagain Arm
Chugach National Forest
Port Wells
Hope
Trading Bay
A L A S K A
Whittier
Nikiski
Salamatof
Chugach State Park
Prince William
Sterling
Cooper Landing
Moose Pass
Kenai
Soldotna
Kalgin Island
A1
Skilak Lake
Cohoe
Kenai Lake
Cooper Mountain
9
Kasilof
Chenega
Clam Gulch
Kenai National Wildlife Refuge
Cook Inlet
Tustumena Lake
Ninilchik
Seward
Happy Valley
Fox
Truuli Peak
Kenai Fjords N.P.
Anchor Point
Montague Island
Anchor
Kachemak City
Blying Sound
Icyworm Peak
Storm Mountain
Chiswell Islands
Homer
Halibut Cove
Delight Lake
Mount Diablo 3501 ft
Seldovia
Nanwalek
Port Graham
Nuka Bay
G u l f o f A l a s k a
Chugach Islands
P a c i f i c O c e a n

Tale of two grants

DOE EFRE DE-EE0005637

- Start Date 6/1/2012
- End Date 12/31/2014
- Revision Date 9/10/2012
- Richmond Engineering, Inc./ Charles Nash Forestry Consulting hired 6/13/2014

AEA Grant # 7040061

- Start Date 7/1/2011
- End Date 12/31/2013
- Revision Date 2/1/2013
- ChenaPower, LCC hired 6/13/2014
- Extension to 6/30/2014

June 2013 Meeting

Lisa Safford with modifications from Nadine Winters

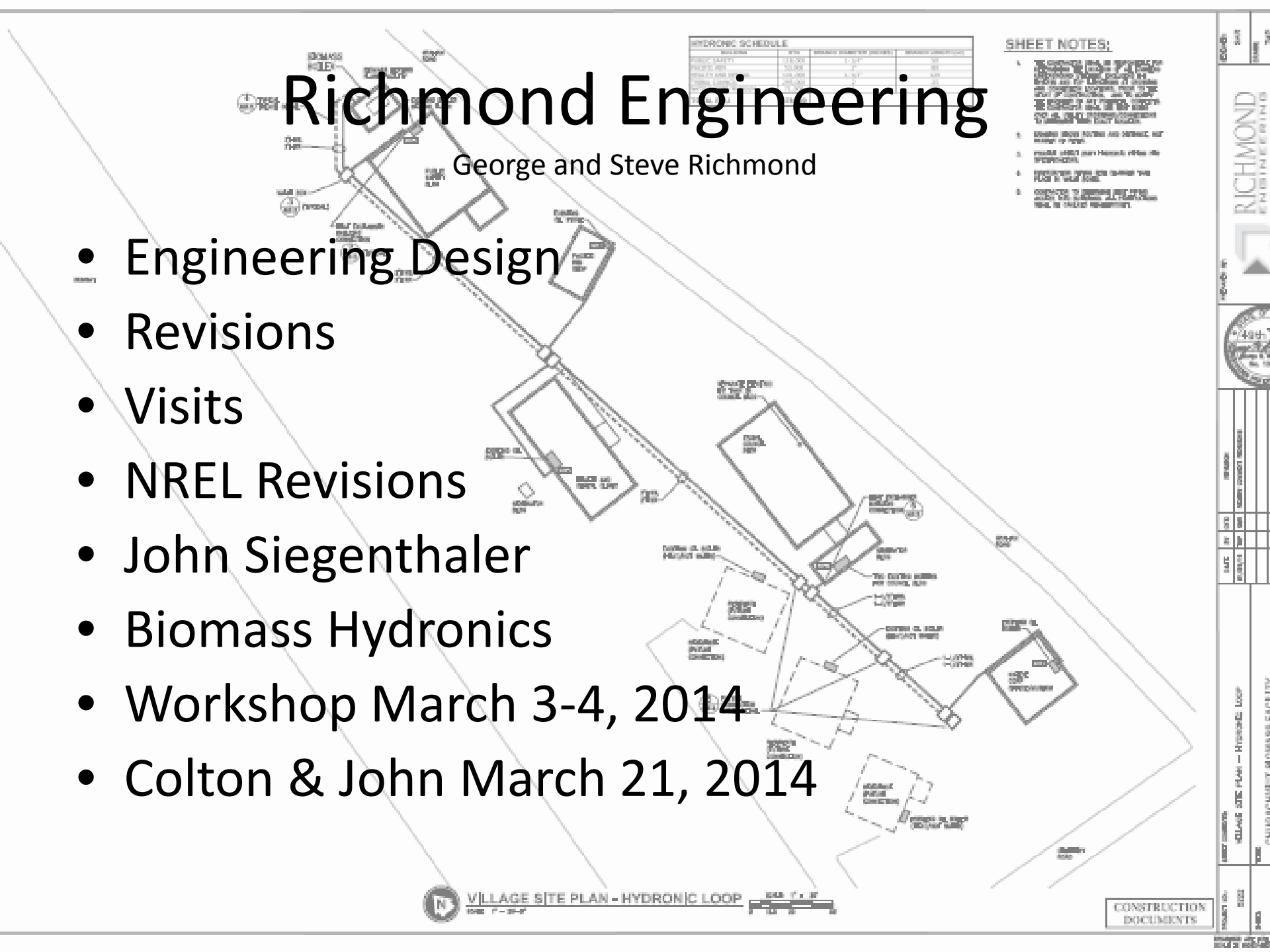
AEA	DOE
Environmental Review	Design
Identify environmental permits required	Construction Estimates
Action Plan for implementation	Construction site agreements, use of existing facilities
Operating budget estimates and model	Fuel source - estimates, budget model, agreements
	Rights of Way

Assistance provided to Port Graham Village Council by Contractors from both funding sources:
Development of fuel supply agreement
Identify options for facility and resource operations
Support in contract negotiations
Funding/financing options

Richmond Engineering

George and Steve Richmond

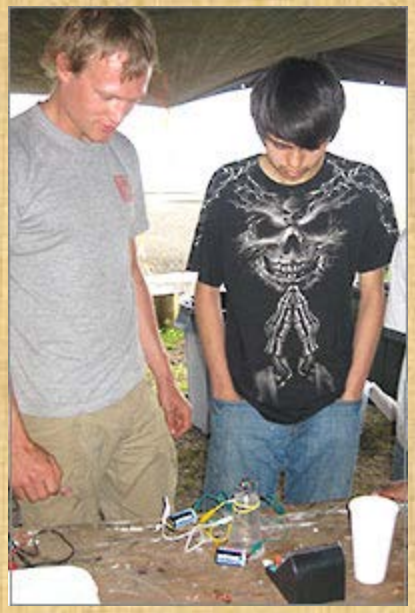
- Engineering Design
- Revisions
- Visits
- NREL Revisions
- John Siegenthaler
- Biomass Hydronics
- Workshop March 3-4, 2014
- Colton & John March 21, 2014



NREL START Program--Colton Heaps, Chris Gaul, Levi Kilcher, Brian Hirsch

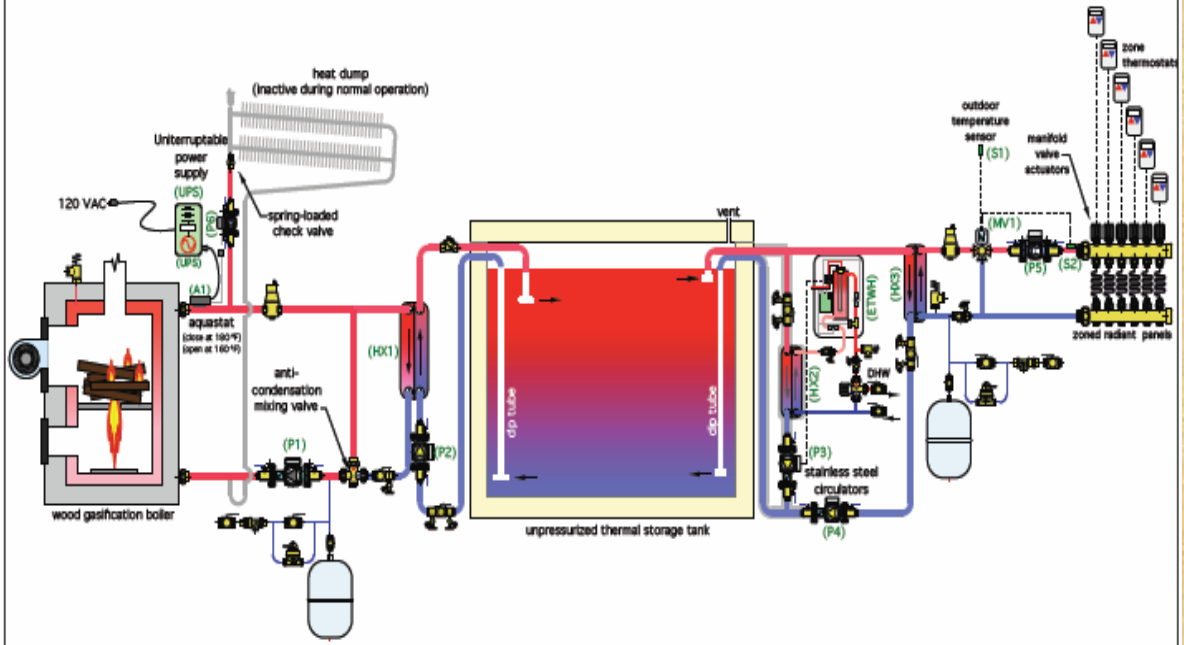
The Strategic Technical Assistance Response Team (START) Program is part of the DOE Office of Indian Energy effort to assist in the development of tribal renewable energy projects. Through START, Tribes in the 48 contiguous states and Alaska can apply for and are selected to receive technical assistance from DOE and national laboratory experts to move projects closer to implementation.

Levi Kilcher, NREL



System using (unpressurized) buffer tank

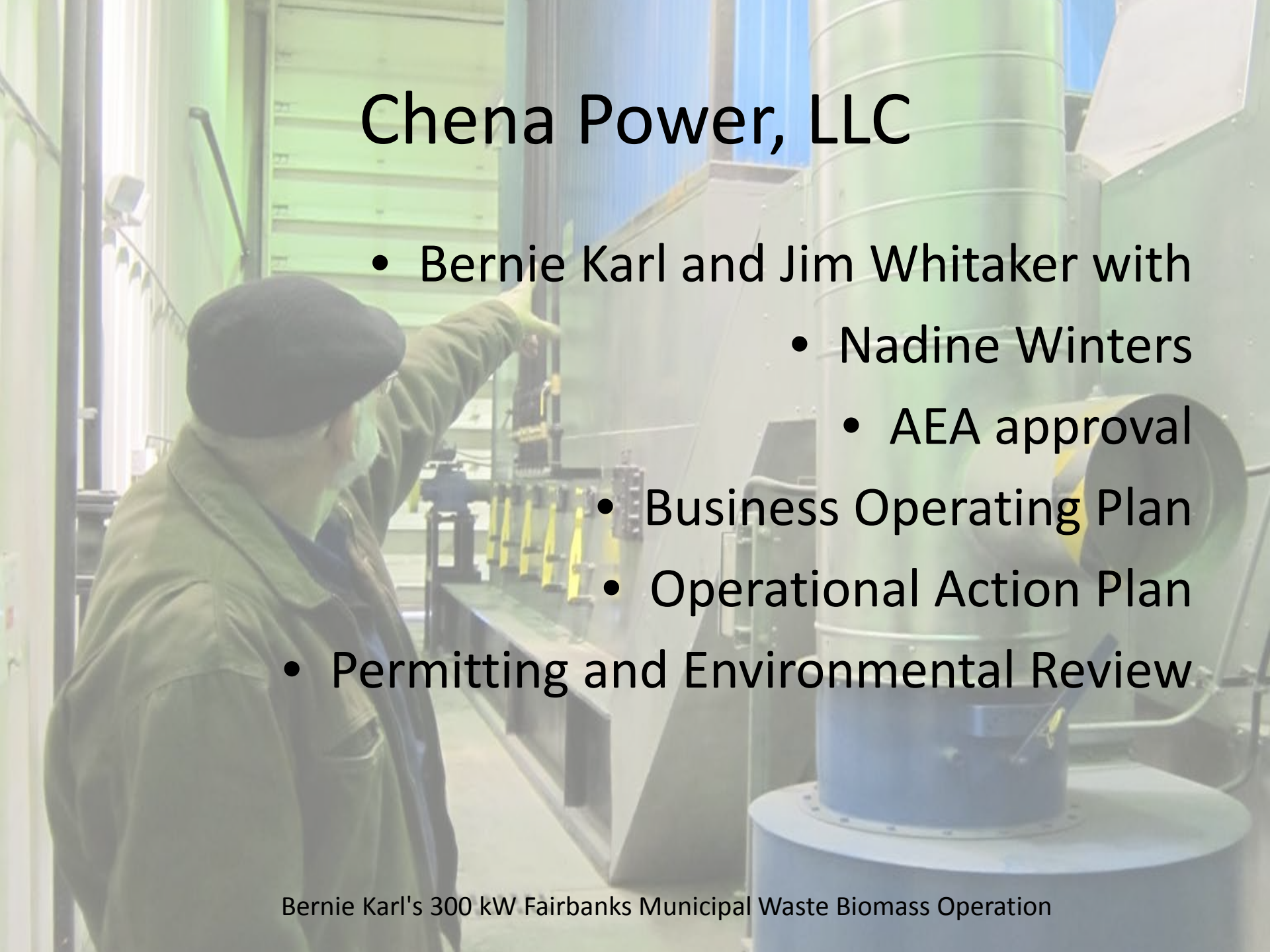
- Closed loop boiler circuit
- Closed distribution system
- All external brazed plate heat exchangers
- DHW boost using electric tankless water heater



John Siegenthaler Graphic

Chena Power, LLC

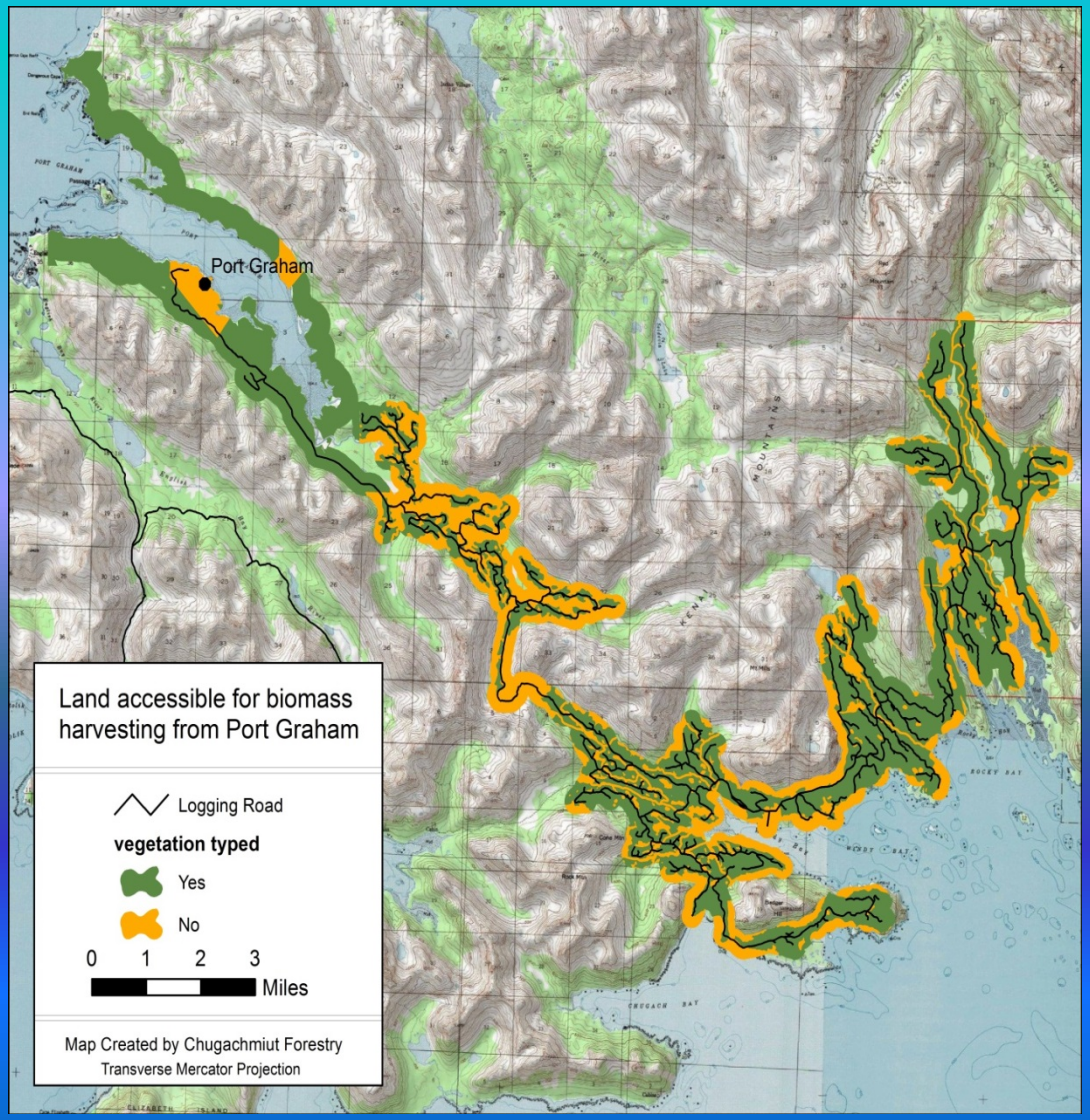
- Bernie Karl and Jim Whitaker with
  - Nadine Winters
  - AEA approval
- Business Operating Plan
- Operational Action Plan
- Permitting and Environmental Review

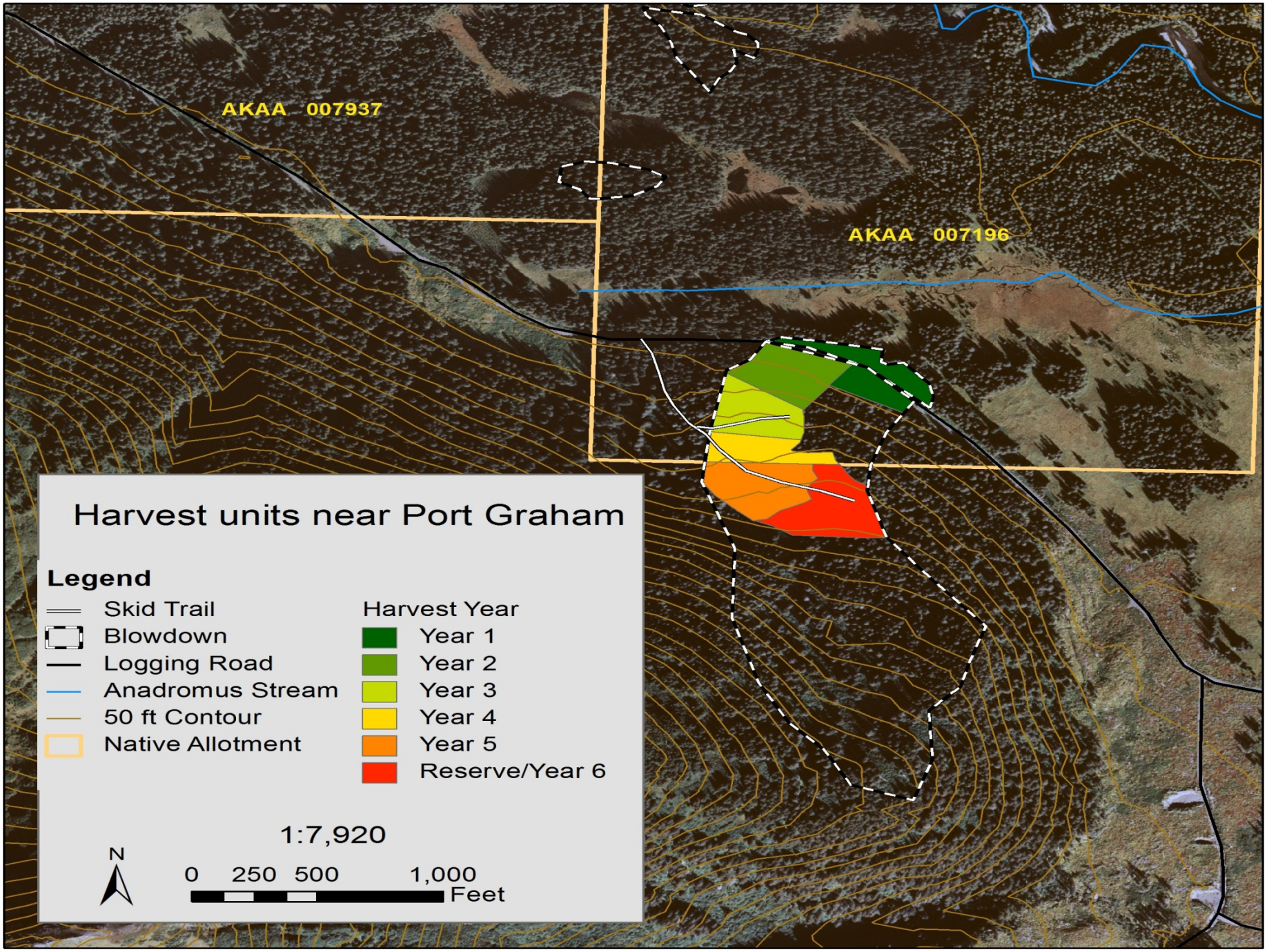


Bernie Karl's 300 kW Fairbanks Municipal Waste Biomass Operation

Biomass Assessment
Chugachmiut Forester
Nathan Lojewski

- Standing Volume in Bone Dry Tons (BDT) is 602,253 tons, all lands
- Maximum Allowed Annual Cut in BDT 13,135 tons/ year*
- Annual Need for the intended GARN Boiler is 100 BDT/ year
- *PG Corp 16,410 acres--40% volume is reserved for timber products; leave out regrowth on 9,623 acres; AAC 3,259 BDT for 50 years then 6,578 BDT/ year; Native allotments 3,938 acres 3,024 BDT




AKAA 007937
AKAA 007196
Harvest units near Port Graham
Legend
Skid Trail
Blowdown
Logging Road
Anadromus Stream
50 ft Contour
Native Allotment
Harvest Year
Year 1
Year 2
Year 3
Year 4
Year 5
Reserve/Year 6
1:7,920
N
0 250 500 1,000
Feet

Quarterly Reporting & In-Kind

- Report Format
- In-kind—payroll proof
- Work contributed
  - Forestry and LIDAR
  - Technical Assistance

Where we are

- Engineering design complete
  - NREL Questions
- Chena Power work near completion
- Forestry consulting the missing piece
- Chugachmiut technical assistance
  - Biomass Assessment
  - Fuel Source Agreement/Support in Contract Negotiations
  - Tribal Facility and Resource Operation

Where we need to go

- Collect completed reports from contractors
- Finalize Tribal Mgmt Plan
- Develop Final Report
- Seek Phase IV Funding and Finance Agreements

Katherine Brewster Native allotment