An aerial photograph of the University of Alaska Fairbanks campus during sunset. The sun is low on the horizon, casting a warm, golden glow over the scene. The campus features several large, modern buildings with flat roofs, interspersed with green lawns and trees. A prominent circular plaza with a geometric pattern is visible in the center. The surrounding area is lush with greenery, and a road with a few cars is visible on the left side.

An Energy Solution

for the next 50 years

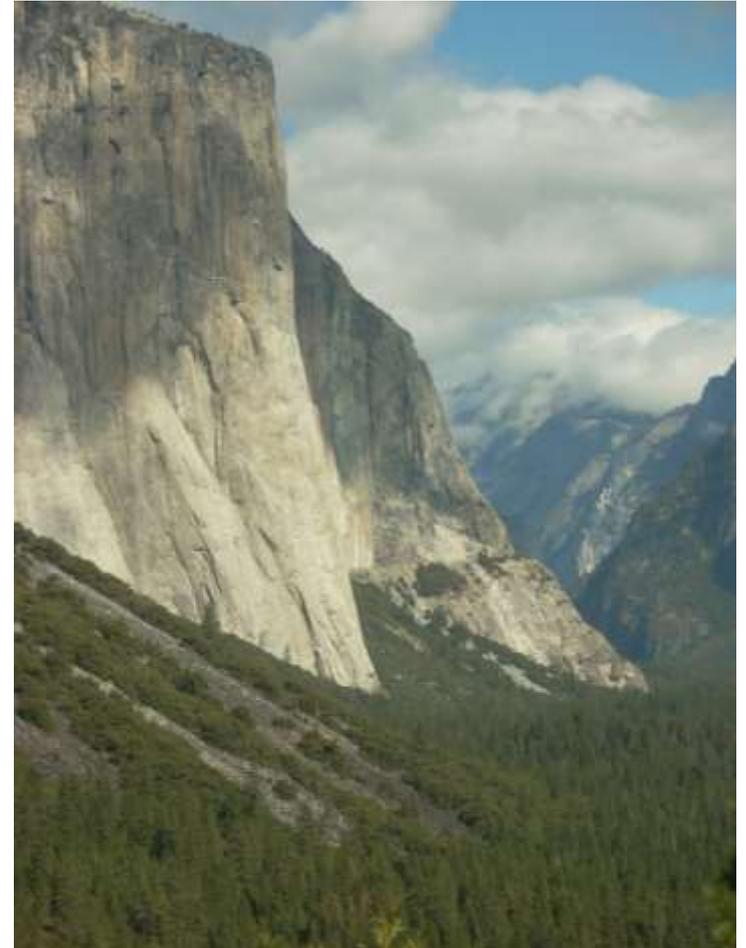
or How did UAF get a new CHP Facility?

About UAF

- Founded in 1917
- More than 10,000 students statewide
- Statewide service
 - *Dozens of sites around Alaska*
 - *Thousands served via informal workshops and events*
- More than 1,300 degrees awarded in 2013
- Economic engine for Alaska
 - *More than \$100 million in research dollars*
 - *More than 4,000 jobs*
 - *Nearly 17,000 alumni living and working in Alaska*

Our Challenge

- 50+ year old boilers are failing
- Capital Project Funding is hard to obtain



Solution: Major plant upgrade

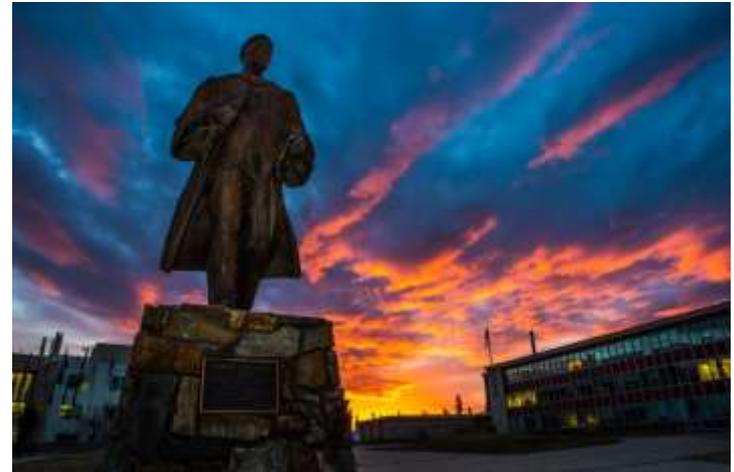
A diversified energy portfolio

- New circulating fluidized bed (CFB) boilers
 - *Flexible solid fuel, proven technology*
 - *Coal with up to 15 percent biomass*
 - *Capable of generating 22 MW of power*
- Oil/natural gas backup boilers
- Purchase renewable energy, when available
- Energy conservation on campus
- Small renewable projects on campus

Flexible, sustainable, fiscally responsible

Strategy

- This is a STATEWIDE project (not just Fairbanks)
- Establish a steering committee
 - Marketing and PR
 - Engineering
 - Academics and Administration
- Find a legislative champion
- Get our Message out



Our Plan

- Engage a wide range of groups: industry, environmental, suppliers, students, legislators, legislative aids, Beyond Coal group, Chamber of Commerce, Borough
- Hired a marketing specialist to engage other areas of the state
- Emphasize that project is **NEED** not a **WANT**

Can We Get There?

- Conventional Wisdom is that \$250M can not be obtained from the state legislature

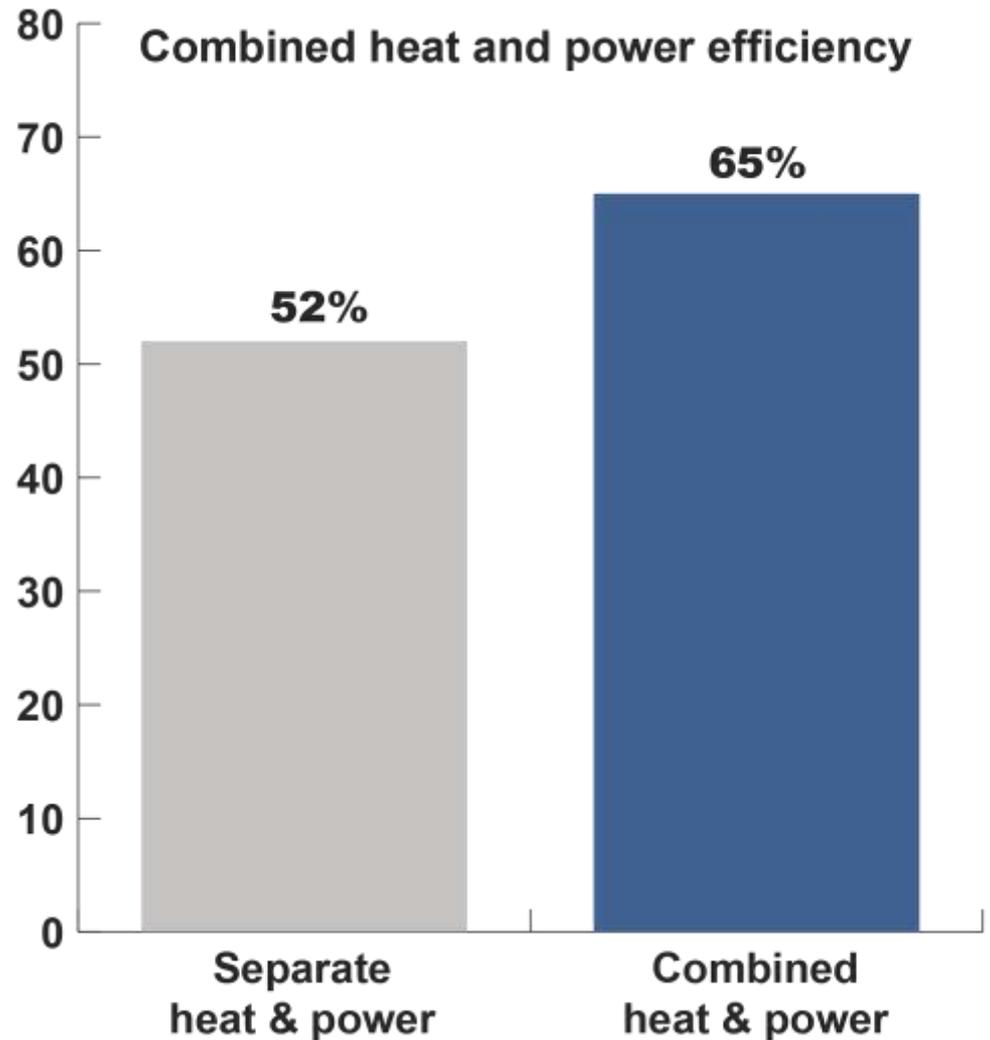


How Did We Sell the Project?



Energy is the foundation

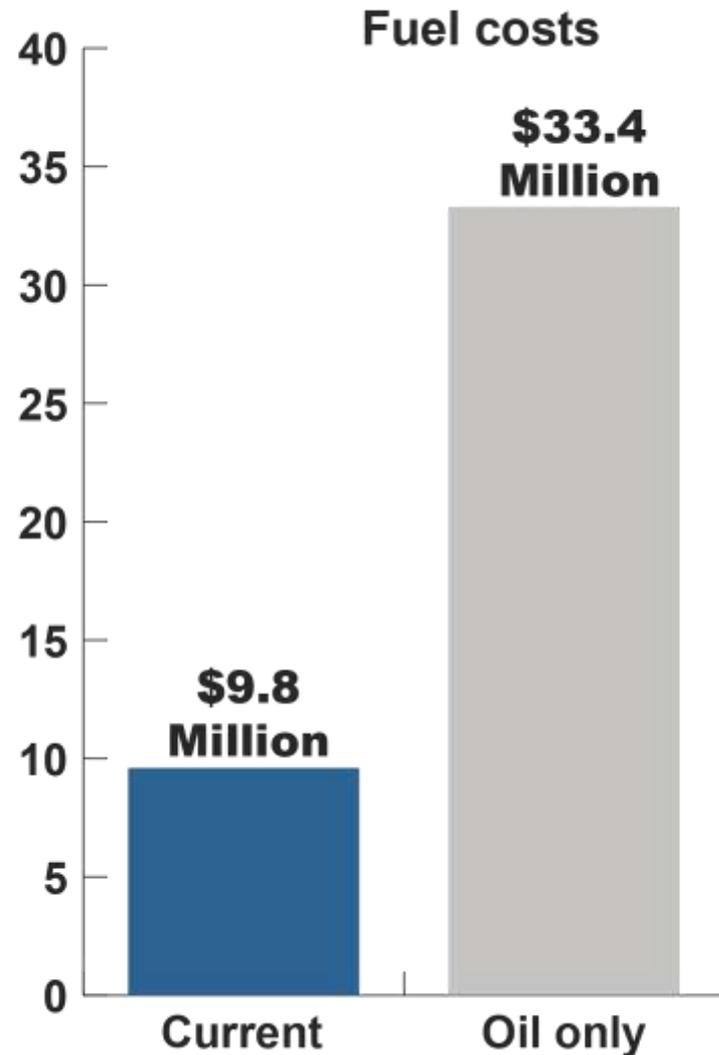
- 3.1 million square feet of public facilities
- Average age of building: 34 years
- All these things need heat and power
- More than 500 schools and universities have their own heat and power plants



What if the coal boilers fail?

That could mean firing up the backup oil/gas boilers.

- *Billions of dollars in public infrastructure at risk of freezing. More than \$1 billion to repair.*
- *Using only diesel would more than triple fuel costs.*
- *The university's existing operating budget cannot absorb that.*



Replacement now is fiscally responsible

- Aging plant and a growing campus
- More than \$35 million in maintenance needed in the coming years
- That doesn't guarantee continued reliable operation
- About half of those projects are bandages not needed in a new plant

***Energy solutions for the future,
not temporary patches.***

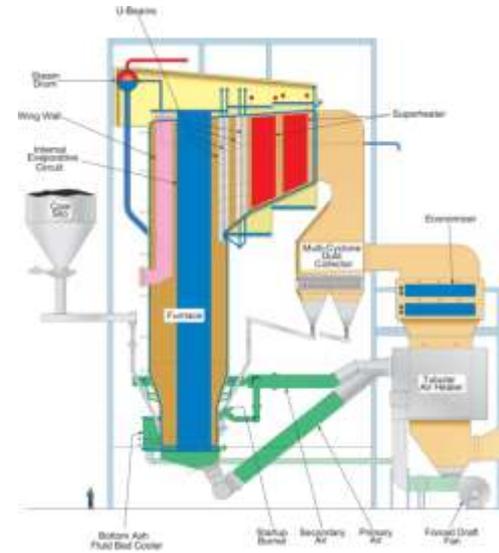
The Boilers

Old Boilers from 1964



1 ton of coal makes 10,012
lbs of 600 psi steam

New CFB boilers



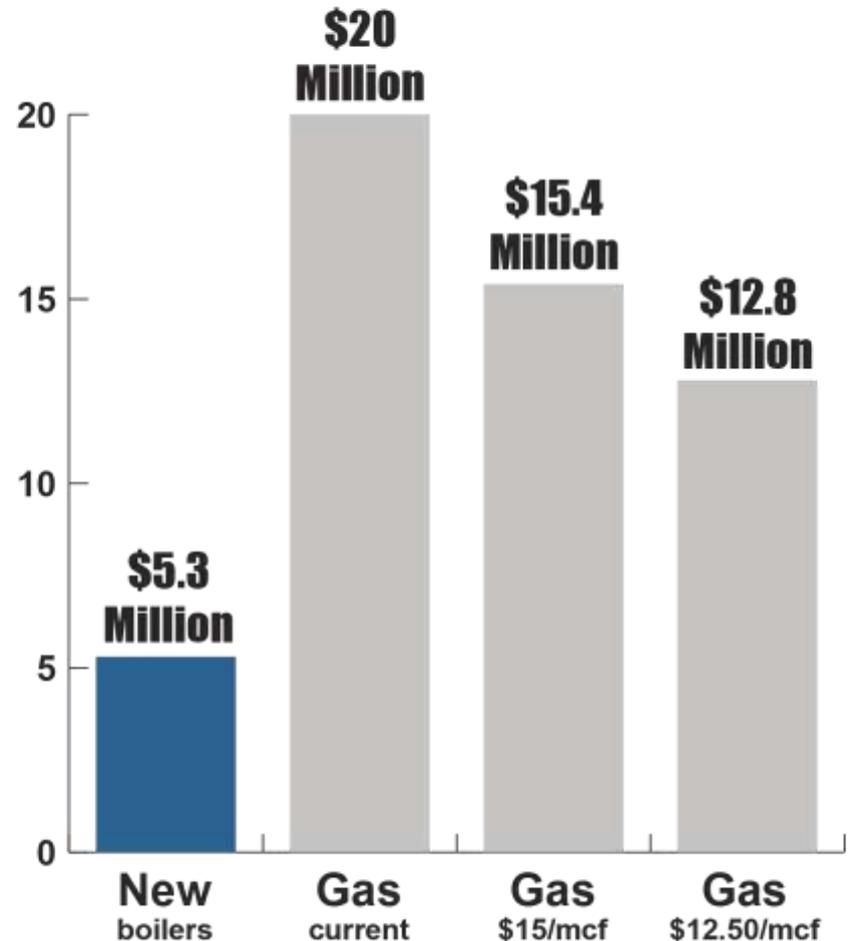
1 ton of coal makes 12,174
lbs of 600 psi steam

- That more than 20% more efficient

Why don't you _____?

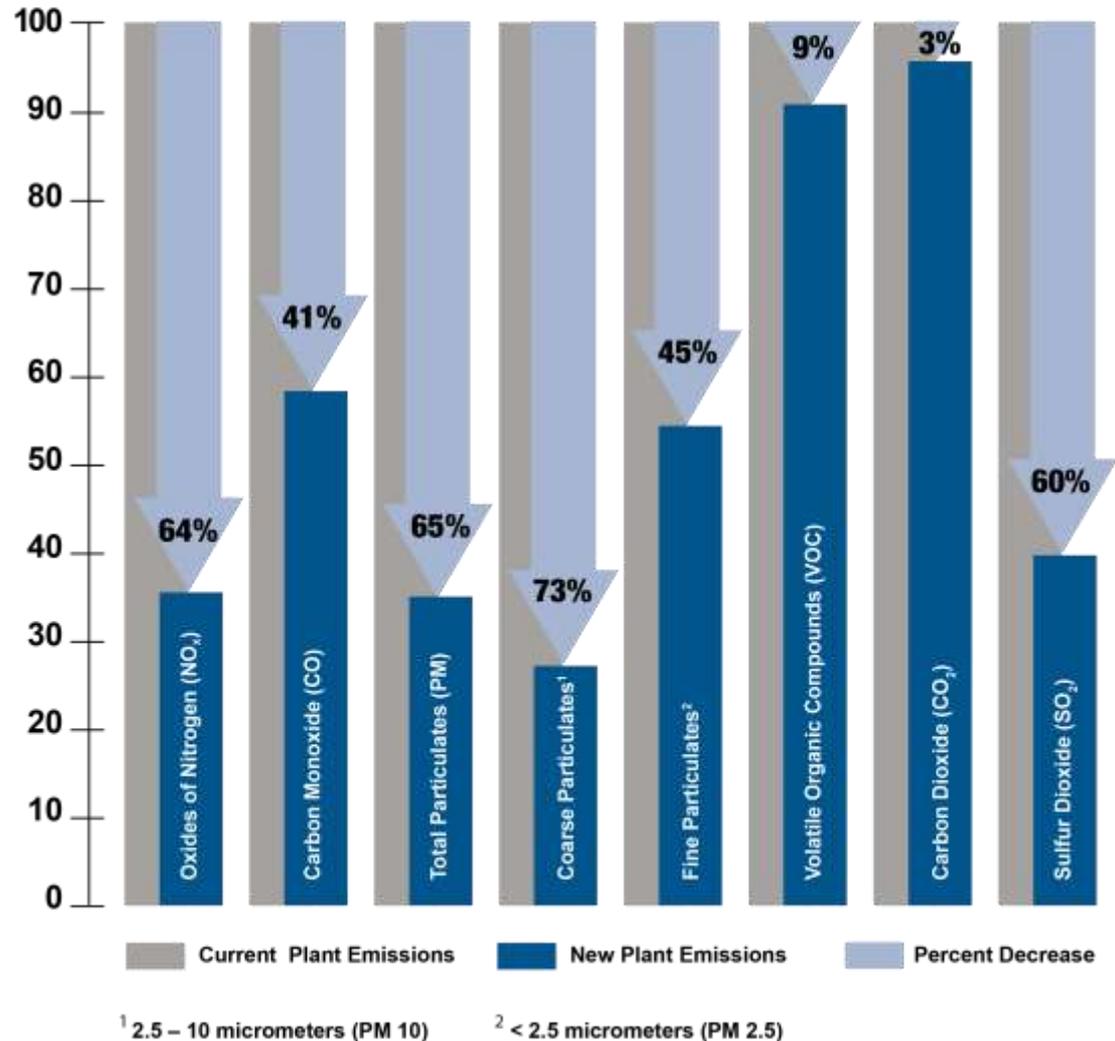
- Buy power from GVEA
 - *We need heat and electricity.*
 - *Not cost effective to heat with electricity*
- Build a natural gas plant
 - *A reliable supply of gas is not available*
 - *Lower capital cost*
 - *Double to more than triple the fuel cost*

Fuel costs — Natural gas



Environmental benefits

- Current main boilers are 1890's technology
- Plant burns coal, diesel and gas
- Newer technology is more efficient
- Current load and upgraded plant reduces emissions



It was an uphill battle!



We are almost there

- We have funding
- We have an air permit
- Now we just have to build it!



Our Advice

- Get full buy in by the upper administration
- Seek professional marketing help
- Need to present a possible solution(s)
- Don't give up
- Make sure to have a happy ending

Questions?

