



Togiak Heat Recovery

Dan Smith, Project Manager

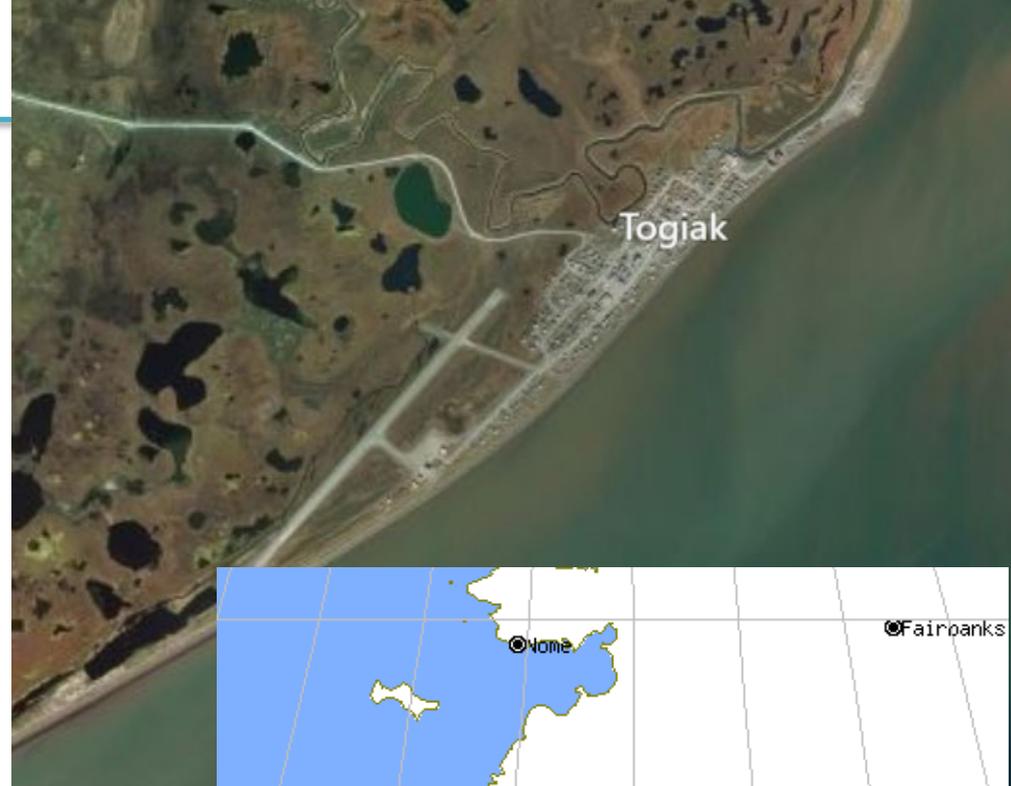
ANTHC Rural Energy



**ALASKA NATIVE
TRIBAL HEALTH
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Togiak Natives Limited

- Founded in 1973, Togiak Natives Limited is a village corporation formed under the Alaska Natives Claims Settlement Act.
- Serves approximately 959 shareholders.
 - Roughly 692 live in Togiak
 - Total Population is about 800



Alaska Native Tribal Health Consortium

Vision:

Alaska Natives are the Healthiest People in the world

Formed in 1998

Consortium of the Alaska Tribal Health System (ATHS)



Environmental Health & Engineering



Sanitation



Health Facilities & Clinics



Operations & Maintenance and Training



Alaska Rural Utility Collaborative (ARUC)

Rural Energy Initiative



ANTHC Rural Energy

Our Purpose

The Alaska Native Tribal Health Consortium's (ANTHC) Rural Energy Initiative works with communities to implement **innovative energy efficiency** and **renewable energy solutions** to make public sanitation affordable and resilient for the people we serve across Alaska.

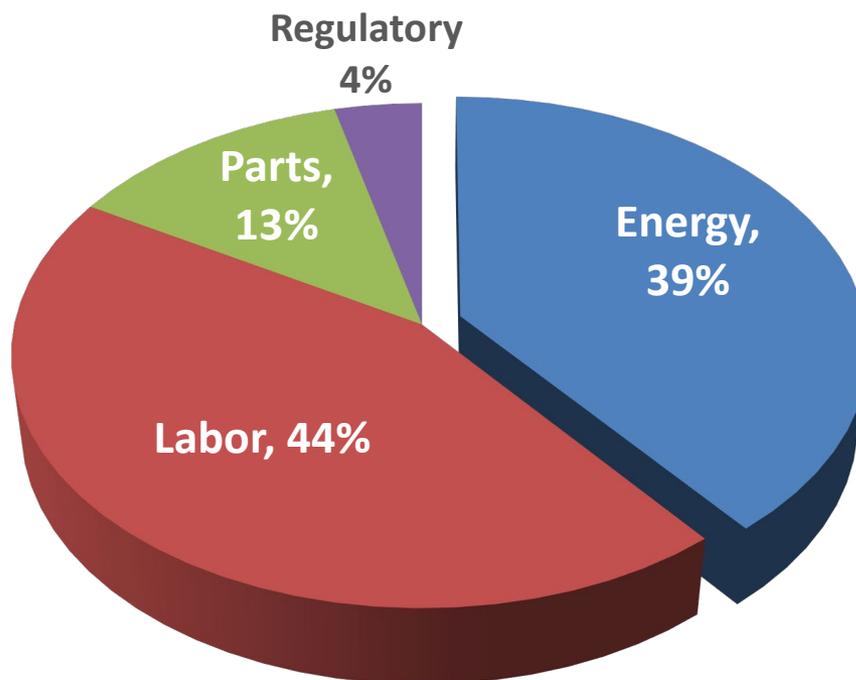


We believe basic sanitation should be efficient, sustainable and affordable



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How We Can Decrease Cost and Generate Sustainability



Breakdown of average operating costs for a water/sewer system in rural Alaska

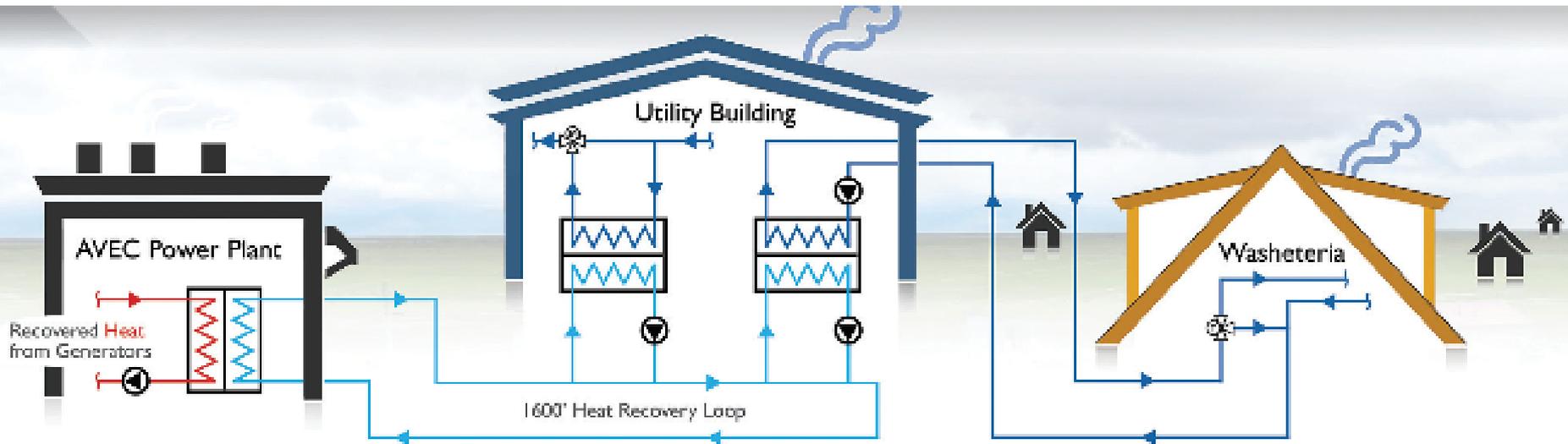
The 1st Step: Energy Efficiency

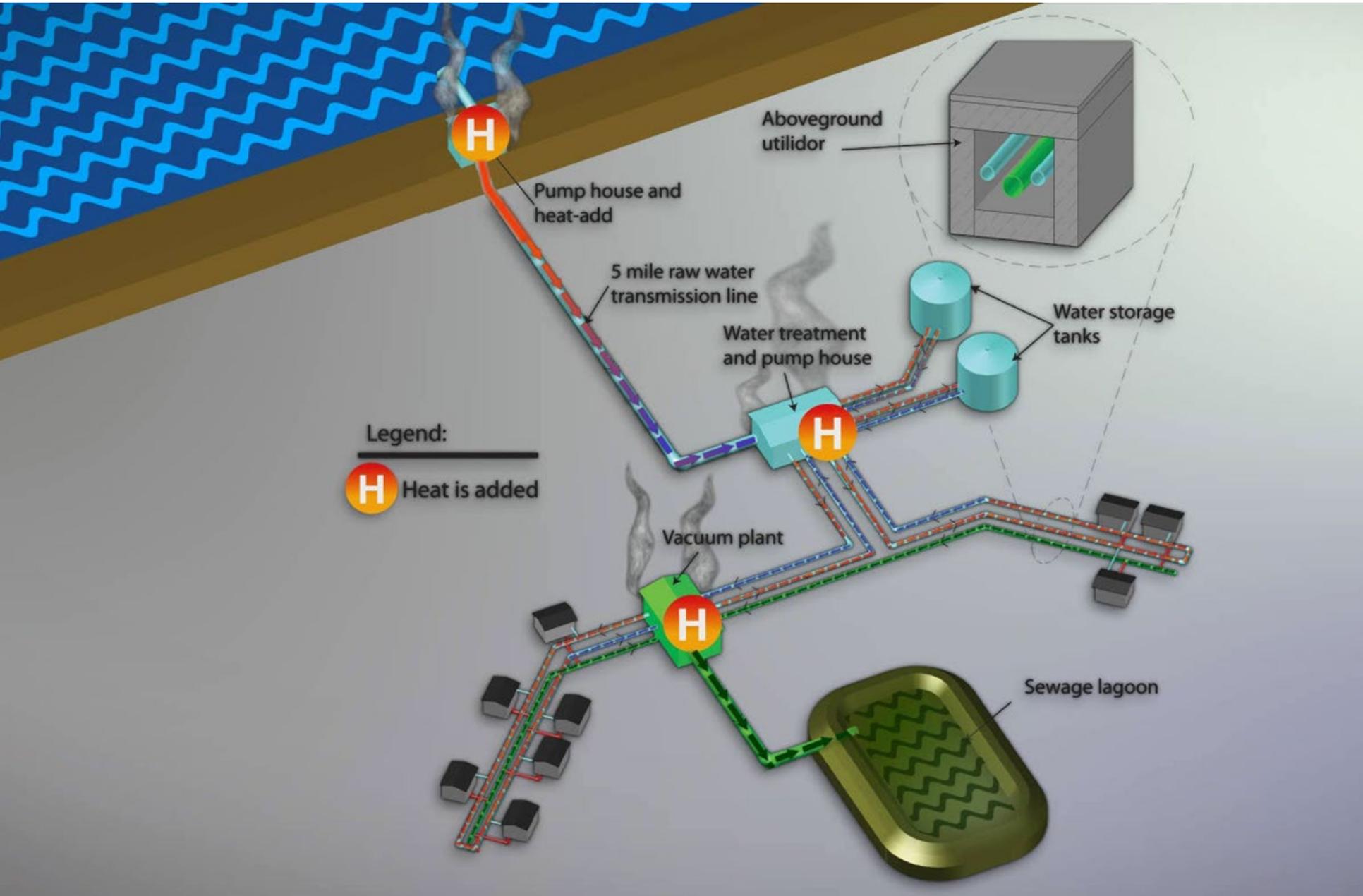
- Make our homes, workplaces and communities energy efficient
 - Appliances
 - Lighting & Insulation
 - Building envelope
- Energy Efficiency is far cheaper than renewable energy
- Once efficient, pursue renewable or more intensive energy sources/retrofits



Typical Heat Recovery in Rural Alaska

- Heat for occupied building space – see below
- Adding heat to water/sewer – next slide
- Over 75 heat recovery systems operating in Alaska





Project Partners

- Togiak Natives Limited (TNL)
- City of Togiak
- Alaska Village Electric Cooperative (AVEC)
- Alaska Native Tribal Health Consortium (ANTHC)
- US Department of Energy – Office of Indian Energy (DOE-OIE)
- Alaska Energy Authority (AEA)
- State of Alaska – Department of Environmental Control



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Project History

- Originally explored Heat Recovery feasibility in 2010
- Applied to AEA Renewable Energy Fund (REF) in 2011
- REF grant awarded in 2012 (\$443,030)
- Shifting priorities delayed the project
 - Cost estimate revealed to be much higher than feasibility calculations
- Design completed in March 2019
- Additional funding sources secured during fall 2019
 - State of Alaska revolving fund loan
 - DOE Tribal Energy Infrastructure Grant



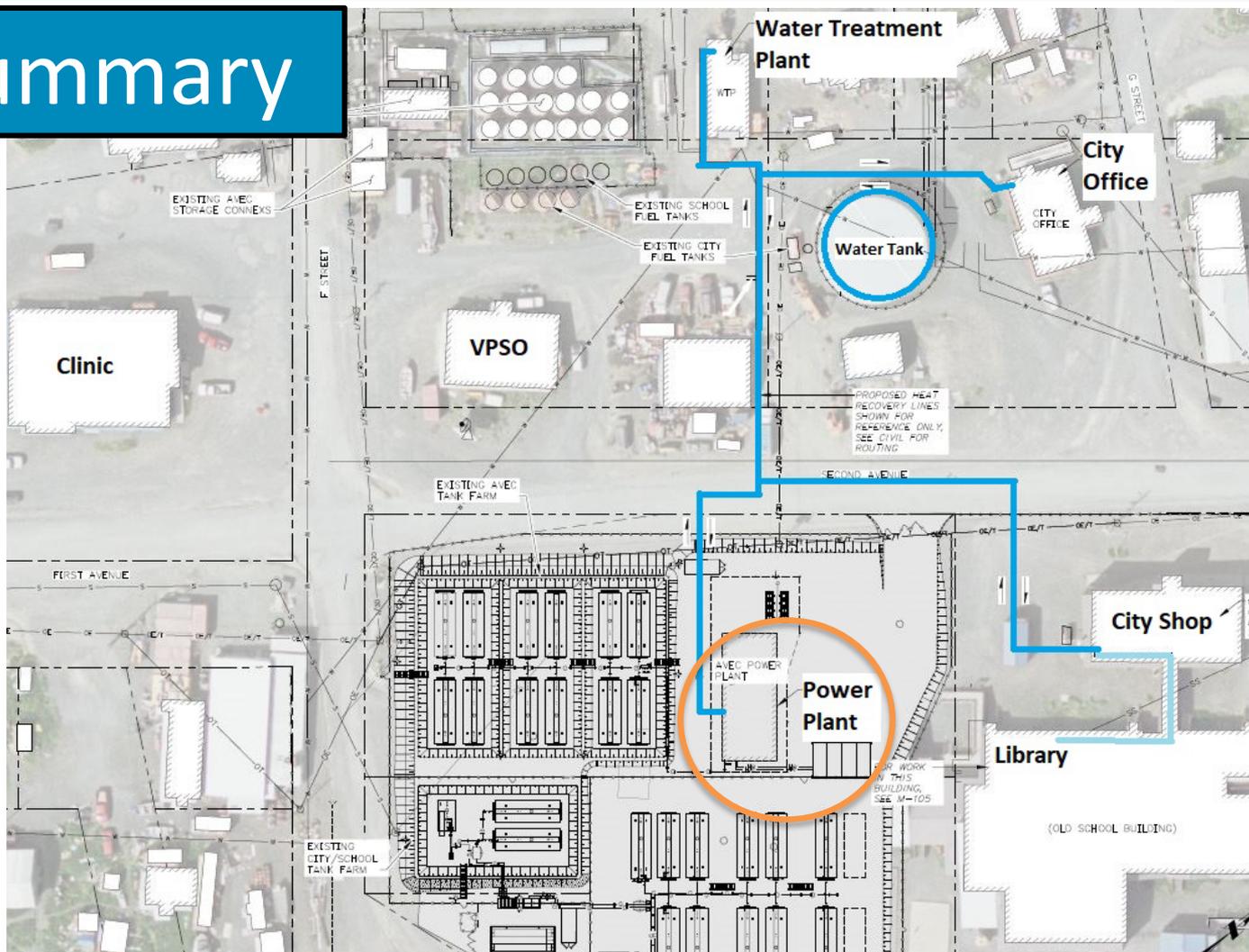
Project History, Part 2

- Covid Pandemic cast uncertainty on project timeline
 - able to deploy with minimal delays
 - first on site September 8th, 2020
- Majority of work is completed
 - Last minute change order to adhere to heat supplier (AVEC) requirements
 - Final Training slated for early 2021
- Community has already begun exploring the possibility of expanding the heating district to the nearby VPSO and Clinic buildings



Project Summary

- End Users:
- Water Treatment Plant
- City Office
- Library
- City Shop
 - Search & Rescue Garage
- Future Expansion
 - Clinic
 - VPSO



Project Numbers – The Cost

- Original Cost \$1,276,106
 - DOE \$638,053
 - Cost Share \$638,053
 - Alaska Energy Authority
 - State of Alaska – Dept. Environmental Conservation
- With change orders due to Covid+AVEC changes
 - Estimated \$1,426,000
- Heating Fuel Cost in Togiak
 - \$5.63 per gallon



Project Numbers – The Benefits

- Water rate stabilization
 - 2006 - \$100
 - 2019 - \$120
 - State Best Practices scores
- Offsets carbon emissions
 - Offset 13,691 gallons annually
 - Over 410,000 gallons over project life
 - 306,404.58 lbs. of carbon dioxide annually



Project Numbers – The Benefits

- Water rate stabilization
 - 2006
 - Water & Sewer - \$100
 - Emergency - \$45
 - 2019
 - Water & Sewer - \$120
 - Emergency - \$60
 - State Best Practices scores
- Annual Offset
 - \$77,080 offset heating oil
 - \$2.3 Million over Project Life
- Heat Sales Agreement
 - \$53,956 after heat sales agreement
 - \$1.6 Million Project Life Savings
- Offsets carbon emissions
 - Offset 13,691 gallons annually
 - Over 410,000 gallons over project life
 - 306,404.58 lbs. of carbon dioxide annually



Project Numbers – The Benefits

Fuel Offsets

Facility	Estimated Annual Fuel Usage (Gallons)	Estimated Heat Delivered (Equivalent Gallons)
Water Treatment Plant	7,795	7,795
City Office	2,710	2,710
"Old School" (Library/Garage)	3,186	3,186
Total	13,691	13,691

- Additional Heat available for future expansion
 - Equivalent to 16,700 gallons or more
 - Equivalent to approx. 2,200 MMBTU





In Closing...

We're always looking to identify ways to increase the affordability and efficiency of Public Health Infrastructure in Rural Alaska

...Questions?

Thank You

Dan Smith

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