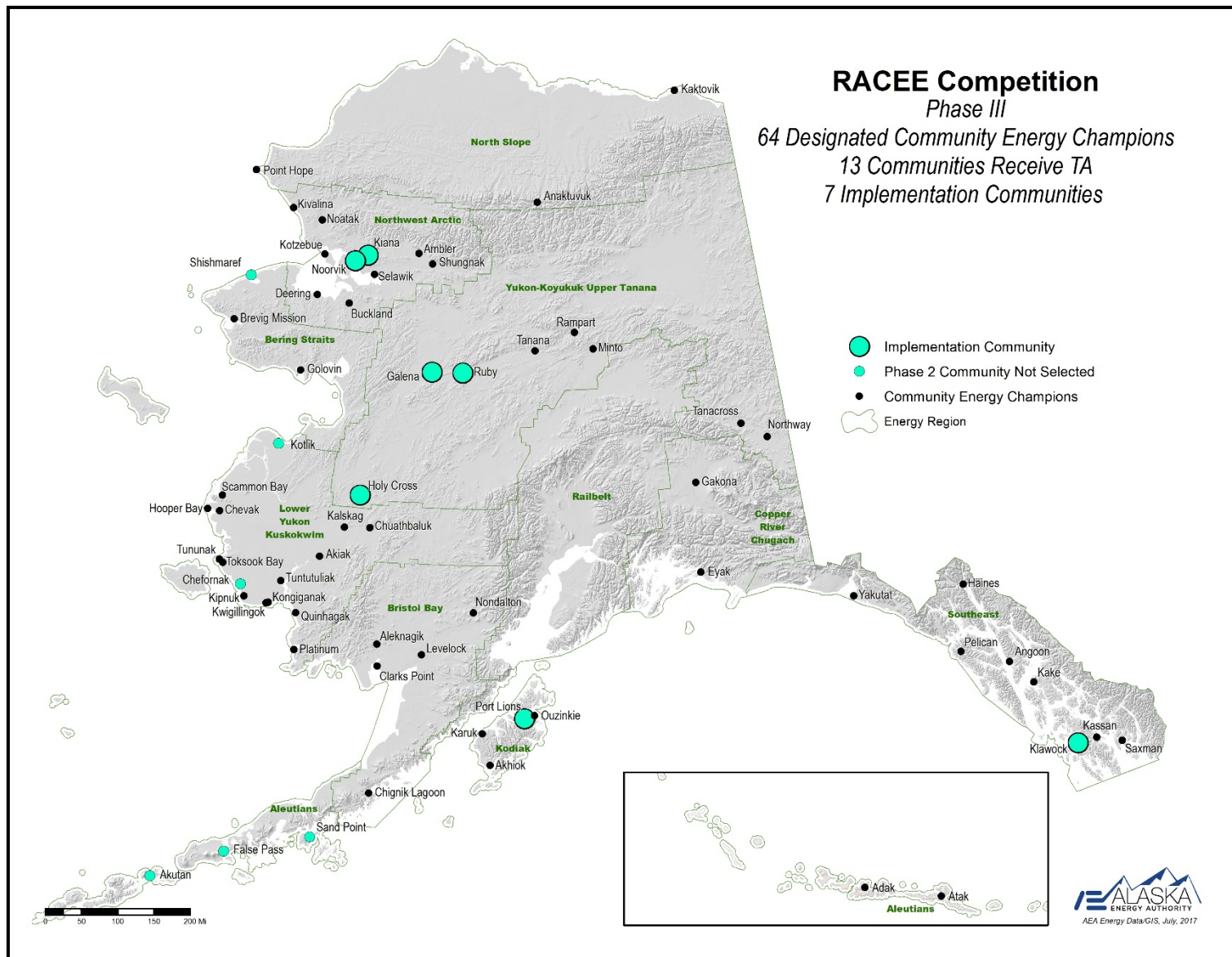


# Remote Alaska Communities Energy Efficiency Peer Network

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 9/15/17 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](mailto: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

- **Heat Recovery Systems and Benefits:** Tashina Duttie (ANTHC)
- **Diesel Part 1**
- **Diesel Part 2**
- **Line Loss Mitigation**
- **AKEnergySmart - More about Renewable Energy in Alaska**





# Heat Recovery in Rural Alaska

Tashina Duttie, Project Manager



ALASKA NATIVE  
TRIBAL HEALTH  
CONSORTIUM

# Introduction – Rural AK Heat Recovery



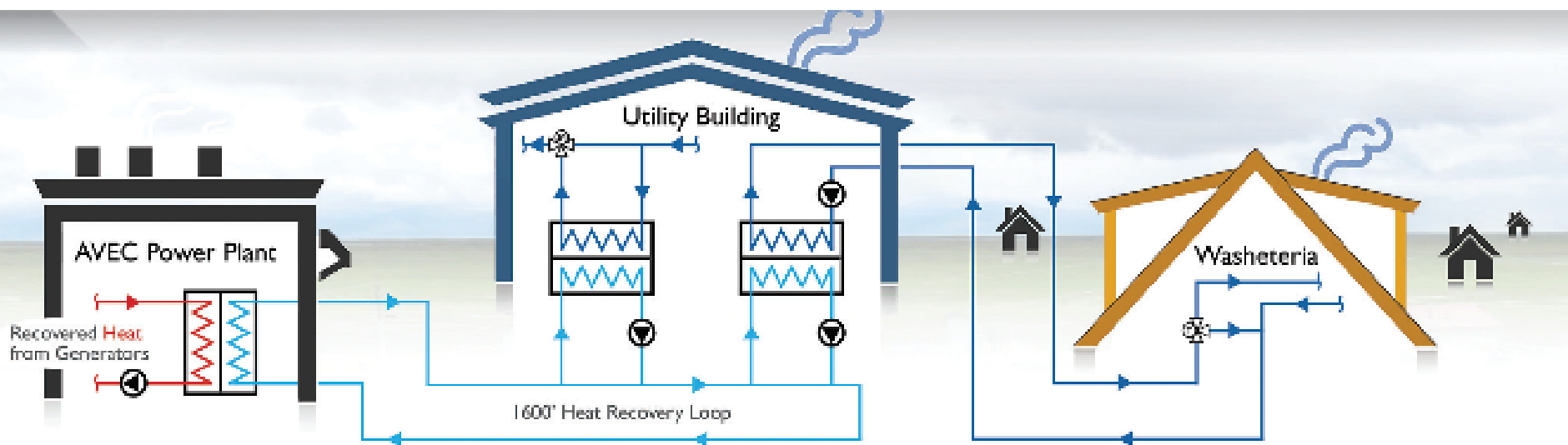
Kotlik PowerPlant Inside



Radiators

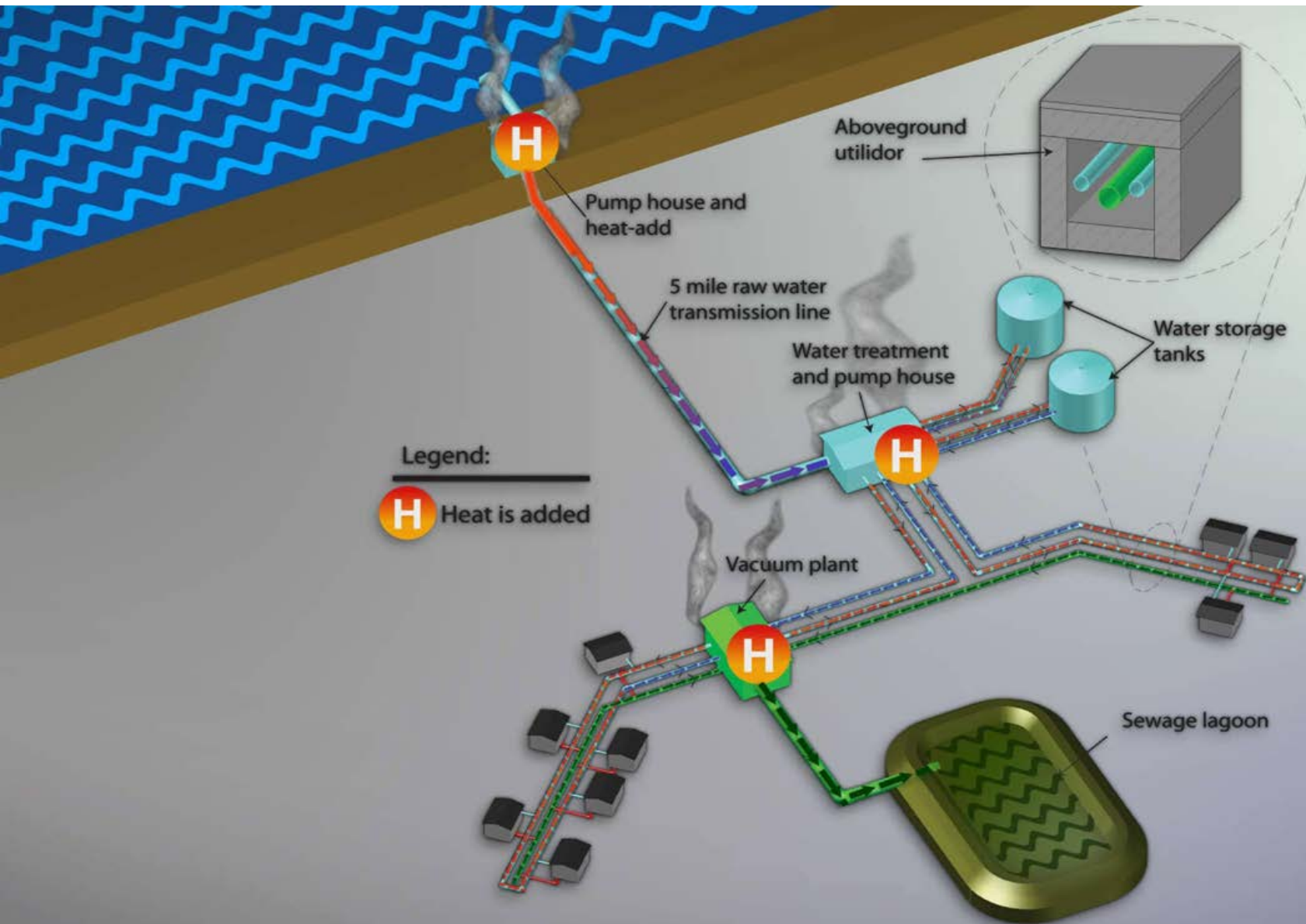
# Typical Uses in Rural Alaska

- Heat for occupied building space – see below
- Adding heat to water/sewer – next slide





# Adding heat to water/sewer



# Project Examples

- Quinhagak, AK
- Emmonak, AK
- Stebbins, AK
- Saint Mary's, AK
- Brevig Mission, AK



# Quinhagak

## Quinhagak Heat Recovery

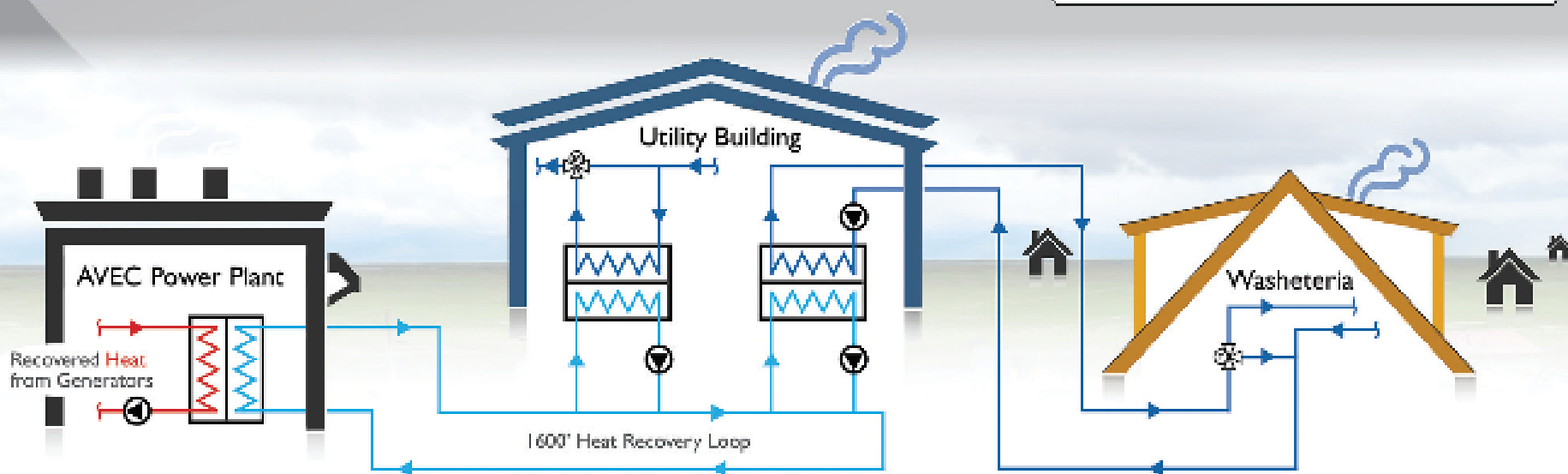
Client: Alaska Native Tribal Health Consortium • Anchorage, Alaska

Owner: Community of Quinhagak • Quinhagak, Alaska

Agency: CRW Engineering Group, LLC • Anchorage, Alaska

**The Goal:** Reduce energy costs, improve energy security, decrease the community's carbon footprint, and help to make the piped water and sewer system more affordable.

**Our Solution:** Capture heat from the AVEC power plant generators, and pipe it to the community's water and sewer Utility Building and to the Washeteria Building via a 1,600 foot heat recovery loop. The system design was simple yet controllable, efficient and affordable to construct and operate. Utilizing the recovered heat has resulted in cost savings for the entire community.



### Combined Utility Building

- 10,000 gallons
- **\$38,000 annually**

### Washeteria

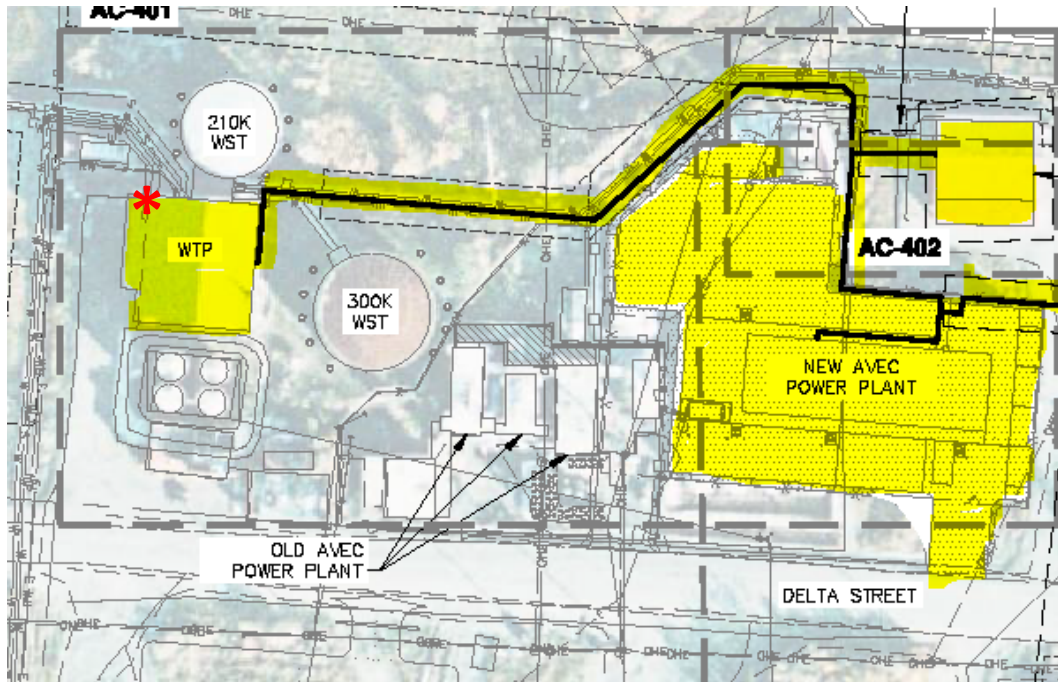
- 4,200 gallons
- **\$16,000 annually**

# Quinhagak Heat Recovery





# Emmonak



**\* Water Treatment Plant**

**Boys and Girls Club**

This project is expected to reduce the fuel oil usage by 18,879 gallons annually.

**\* Indicates that the building is a sanitation related facility**



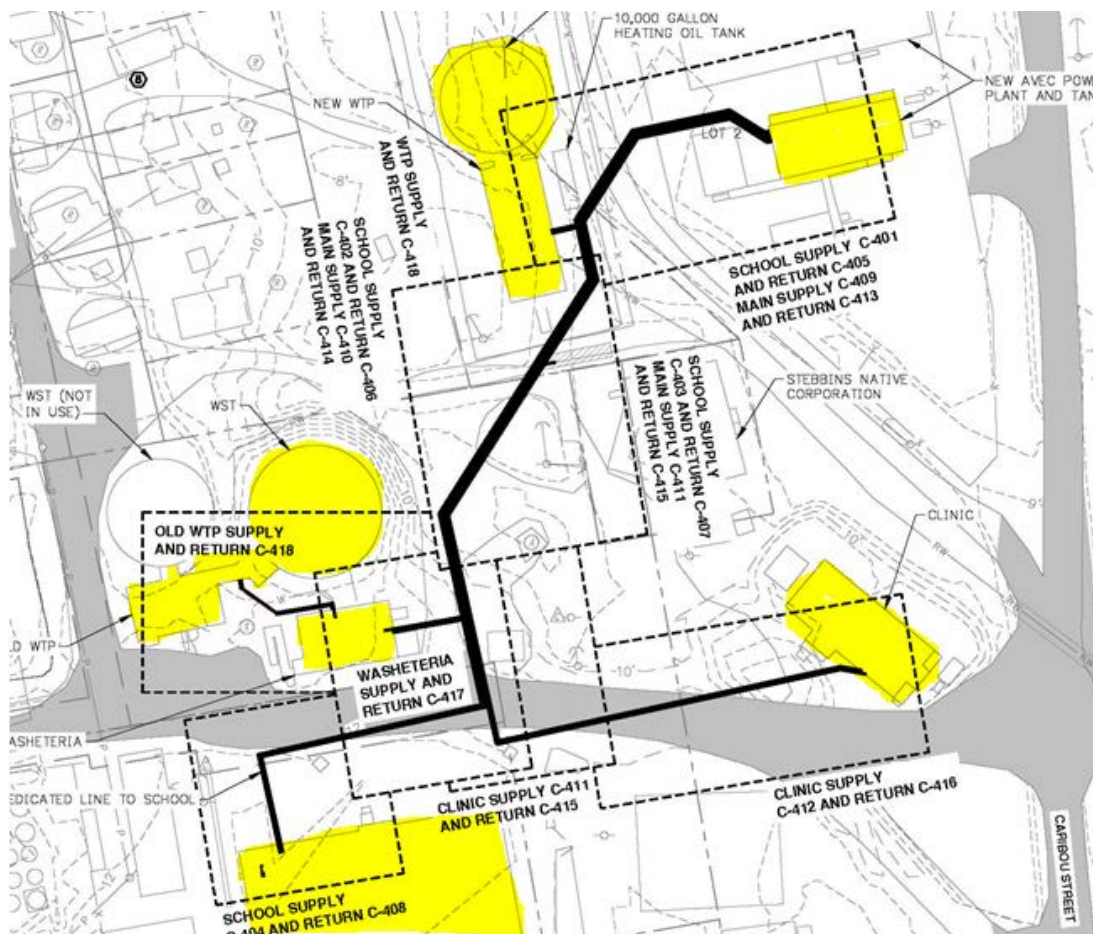
ALASKA NATIVE  
TRIBAL HEALTH  
CONSORTIUM







# Stebbins Heat Recovery



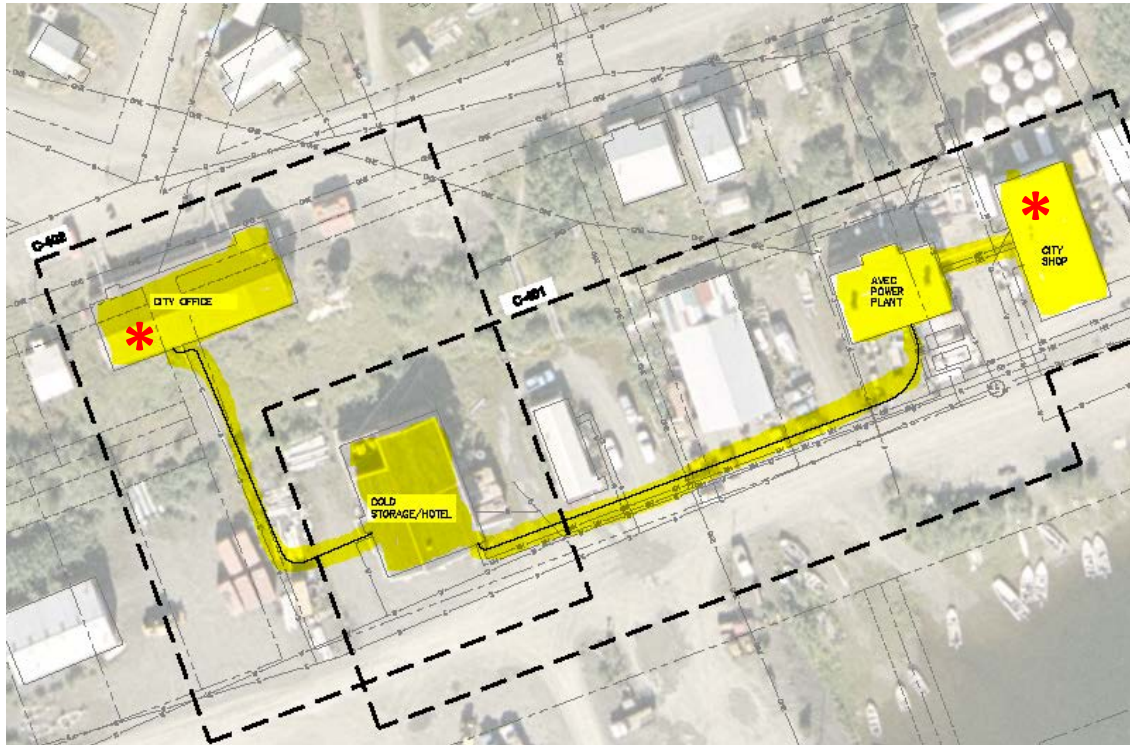
**Washeteria**  
**Old WTP**  
**New WTP**  
**Clinic**  
**School**

It is projected to save the community 57,000 gallons of heating fuel annually, which equates to over \$240,000 in cost savings each year.



ALASKA NATIVE  
TRIBAL HEALTH  
CONSORTIUM

# Saint Mary's



\* Indicates that the building is a sanitation related facility

\* **City Shop:** houses the Water Storage Tank and water water circulation loop components

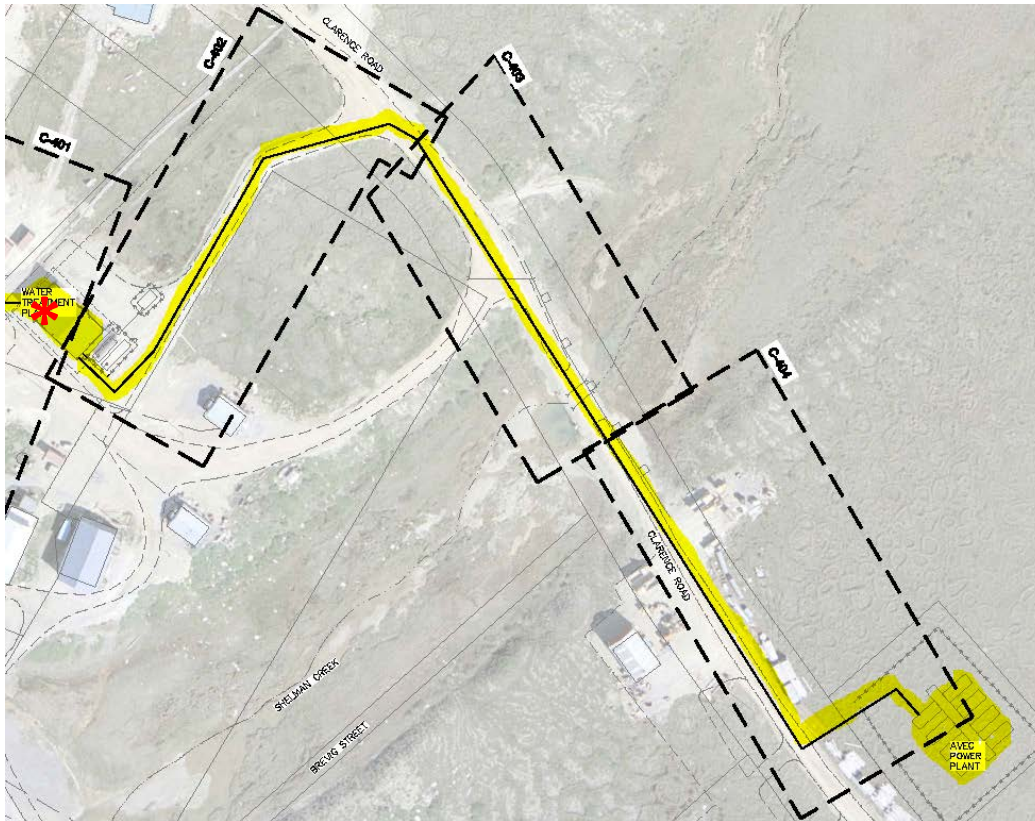
**City Office:** houses city officials office space.

**Cold Storage/Hotel:** The bottom portion of the bldg is used for storage, there are accommodations above.

This project is expected to reduce the fuel used in the community by approximately 15,726 gallons annually.



# Brevig Mission



## \* Water Treatment Plant

This project is expected to reduce the fuel oil usage by 14,726 gallons annually.

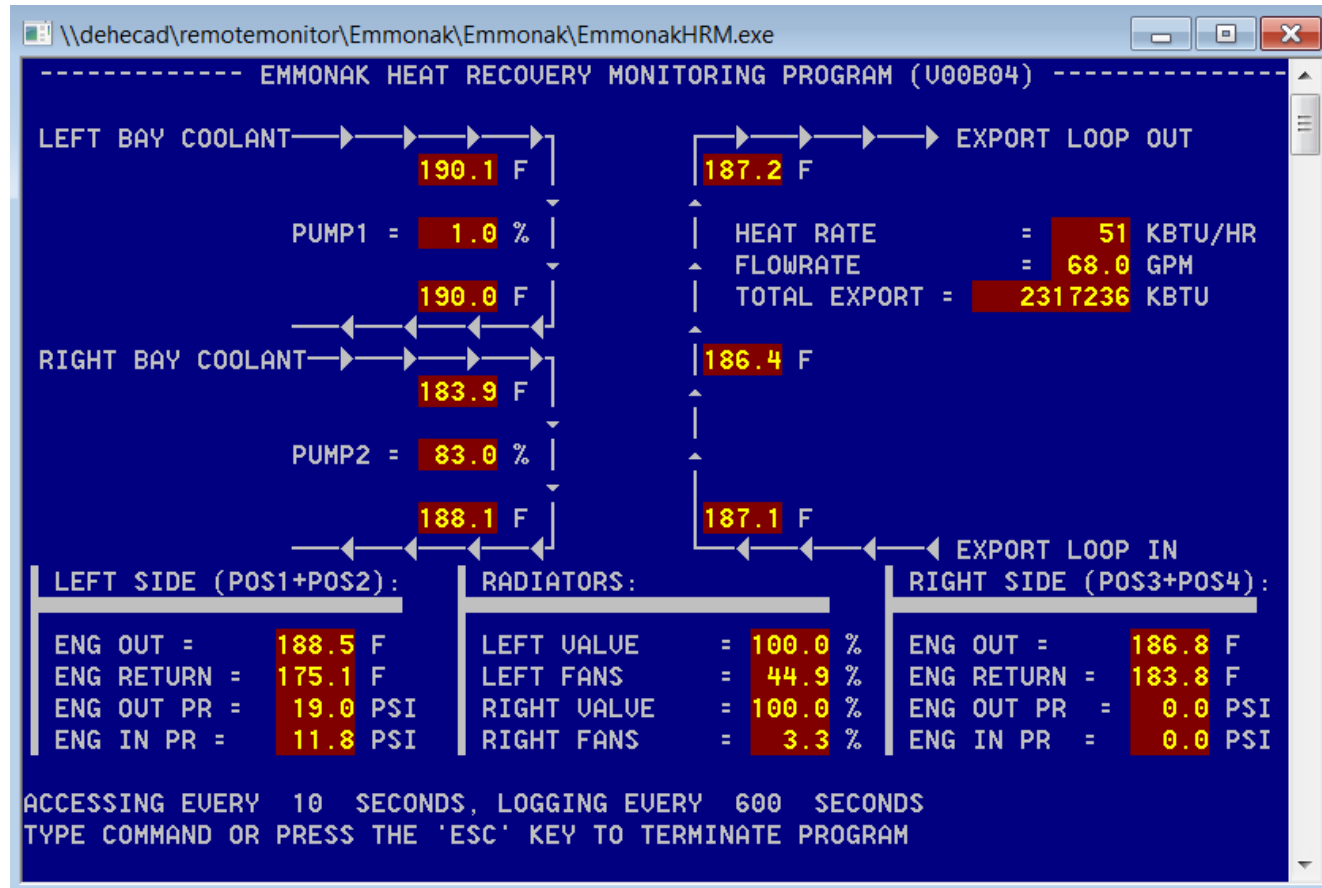
\* Indicates that the building is a sanitation related facility

# Things to Consider During Planning

- Ownership
- Close proximity to the Power Plant
- Operations & Maintenance
- Heat Sales Agreement
- Power Plant module heating – insulate!
- Training – Power Plant Operator & City/Tribal Maintenance person
- Who to call if something breaks?



# Remote Monitoring (AVEC Web-Based Monitoring Program)



# ANTHC Remote Monitoring

[Map](#) [Data Charts and Reports](#) [Custom Reports](#) [Training Videos and Project Reports](#) [System Administrator](#)

## Charts and Reports

Group:  Facility:  Report:

[Refresh Data](#)

### Current Values: Office DEMO

Sensor	Value	Unit	When
<b>Weather</b>			
Anchorage Airport Temperature	60.98	°F	23.5 minutes ago
<b>Heat Recovery, Emmonak</b>			
Heat Output to City	39	kBtu/hour	8.4 minutes ago
Total Heat to City	2,317,236	kBtu	8.4 minutes ago
Flow Rate to City	68	gpm	8.4 minutes ago
Temperature Out to City	185.4	°F	8.4 minutes ago
Temperature Return from City	184.8	°F	8.4 minutes ago
Temperature Middle Return	183.7	°F	8.4 minutes ago
<b>Miscellaneous</b>			
Office Temperature	70.7	°F	7.9 minutes ago
Office milli-amp DEMO	0	Amps	9.1 minutes ago

-- Get Link --



Thanks to the Alaska Housing Finance Corporation for providing most of the source code for this website.

BMON Version: Thu Aug 10 15:11:37 2017 -0800



ALASKA NATIVE  
TRIBAL HEALTH  
CONSORTIUM



# Funding Projects

- Alaska Energy Authority: Power Project Loan Fund
- USDA RD: For water/sewer connected projects
- Regional EDCs: NSEDC, BBEDC, etc.
- USDA High Energy Cost Grant
- Power Utility
- Loans: for projects with high potential for quick payback





# Thank You

**Tashina Duttie**  
Project Manager  
[tmduttie@anthc.org](mailto:tmduttie@anthc.org)

**ANTHC Rural Energy  
Initiative**  
**907-729-3509**

Questions?