



Reducing the High Energy Costs of Alaska's Rural Water Systems

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**ALASKA NATIVE
TRIBAL HEALTH
CONSORTIUM**

ANTHC Rural Energy Initiative

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 for the people we serve across Alaska.

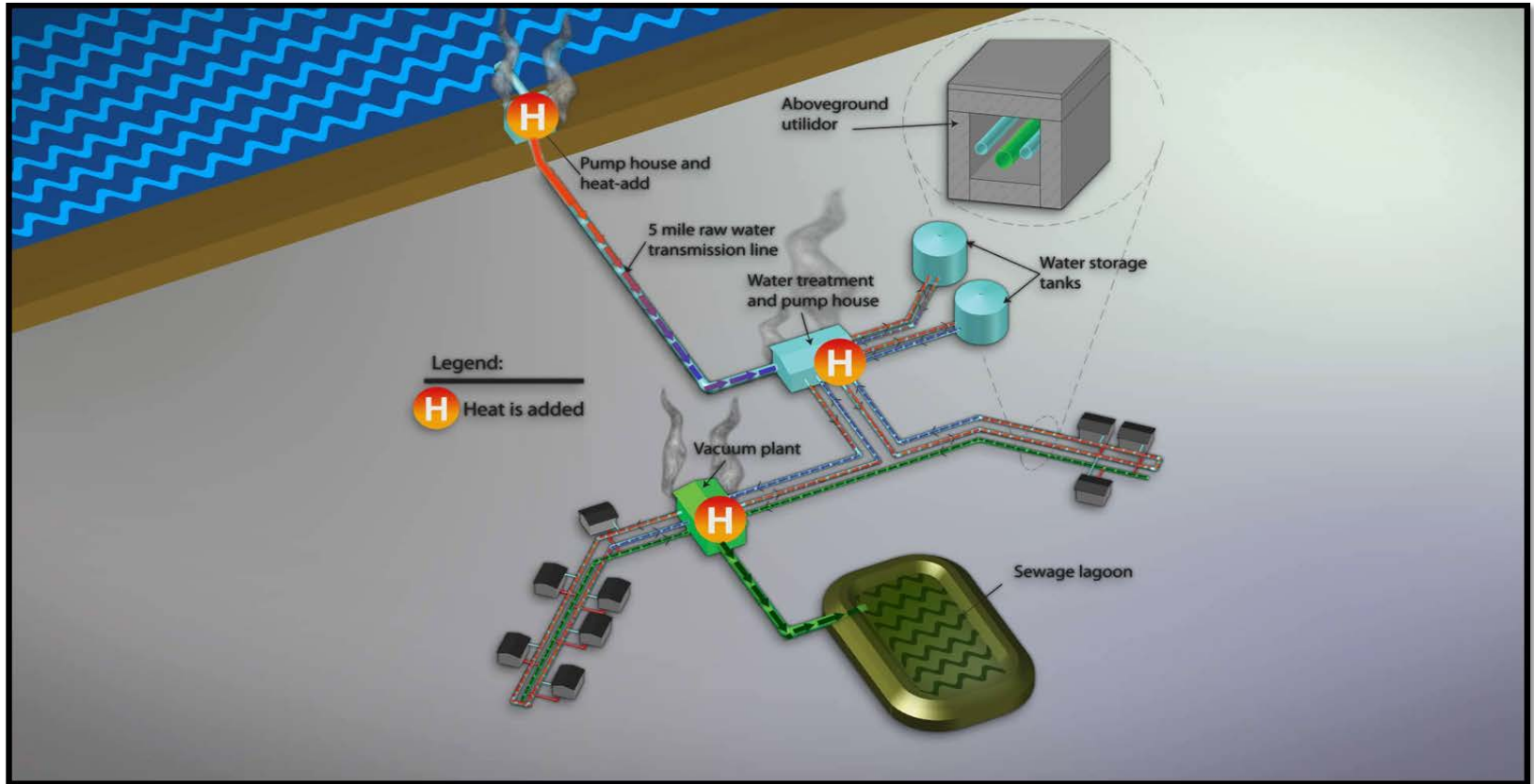


We believe basic sanitation should be efficient, sustainable and affordable

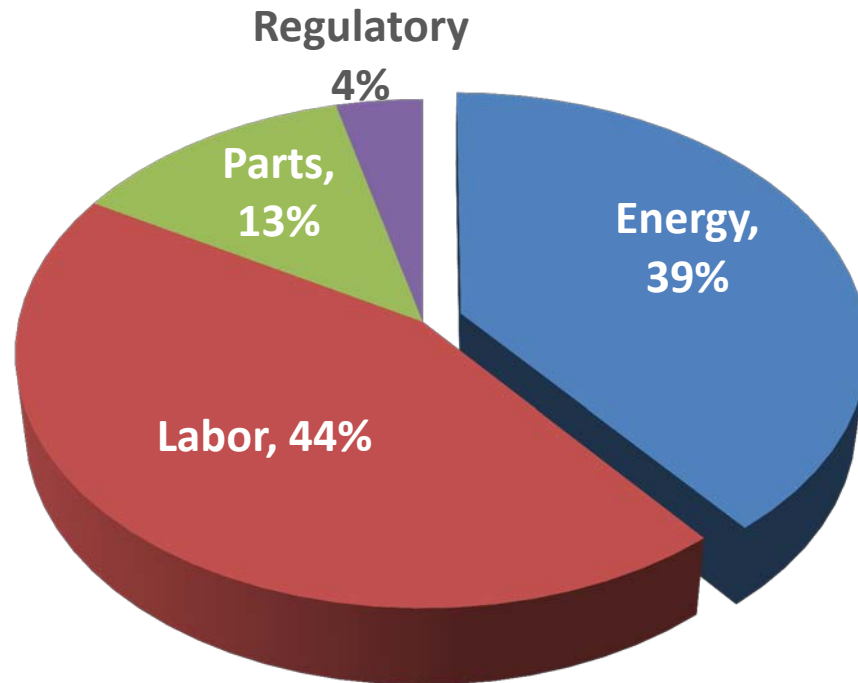


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The Energy Intensive Arctic Sanitation System



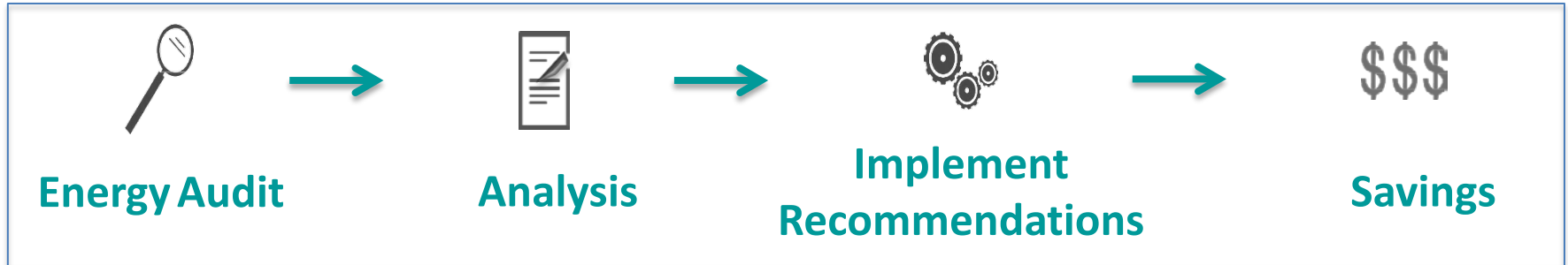
Understanding the Arctic Water-Energy Nexus



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



Our Path: A Comprehensive and Holistic Approach



Onsite Assessment

Collect Data

Evaluate Operating Practices

Assess Facility Energy Use

Develop Energy Model

Identify Potential Improvements

Identify Cost to Implement

Develop Training Plan

Purchase Materials

Implement Efficiency Retrofits

Provide Operator Training

Construct Renewable Energy Systems

Monitor Energy Usage

Evaluate Retrofit Effectiveness



The Process: A Holistic Approach

- Evaluate the Entire Sanitation System for energy efficiency along with sanitation service performance
- Address energy issues along with non energy issues at the same time to save money and improve service
- Identify larger needs



The Process: Solve more than One problem at once

- Reduce Energy Cost
- Increase life span of equipment and infrastructure; no more “repair by replacement”
- Improve sanitation service



The Process: Training

- Provide local appropriate training
- Encourage stronger ties between maintenance and operations and administration
- Improve job satisfaction and reduce turnover
- Improve Earning Potential through energy savings and improved job skills



Our Path: A Comprehensive and Collaborative Approach

Opportunities to Reduce Rural Sanitation Energy Costs

Behavior Changes

Hardware Changes

Proper
O&M

Training
&
Education

Ongoing
Monitoring

ANTHC Rural
Utility Support

Efficiency
Retrofits

New and
Ongoing
Projects

Renewable
Energy
Systems





Case Study: Energy Efficiency Retrofits – Pilot Station, Alaska

Training and small scale improvements.

- Saves sanitation system over **1,000** gallons of fuel oil and **25,000** kWh annually
- Equates to **66%** reduction in Fuel and **33%** drop in electricity
- Combined annual savings of **\$11,090**



BEFORE:
Brushing & cleaning
soot from boiler



AFTER:
Clean flue passage

Example Efficiency Measures

Sealed Stacks and Stack Caps



Before

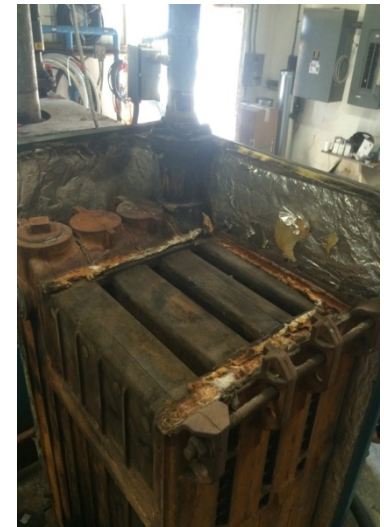


After

Boiler Cleaning Annually



Before



After



LED Lighting



Before



After



Important Things YOU Can Do

- Annual Boiler Maintenance
- Keep Detailed Fuel Usage Records by week or month
- Seal air leaks in facilities
- Notify your RMW of significant changes in system operations



ANTHC Rural Energy Initiative

Current and Identified Projects Through 2018

Current Energy Efficiency Projects

● 44 communities

Identified Energy Efficiency Projects

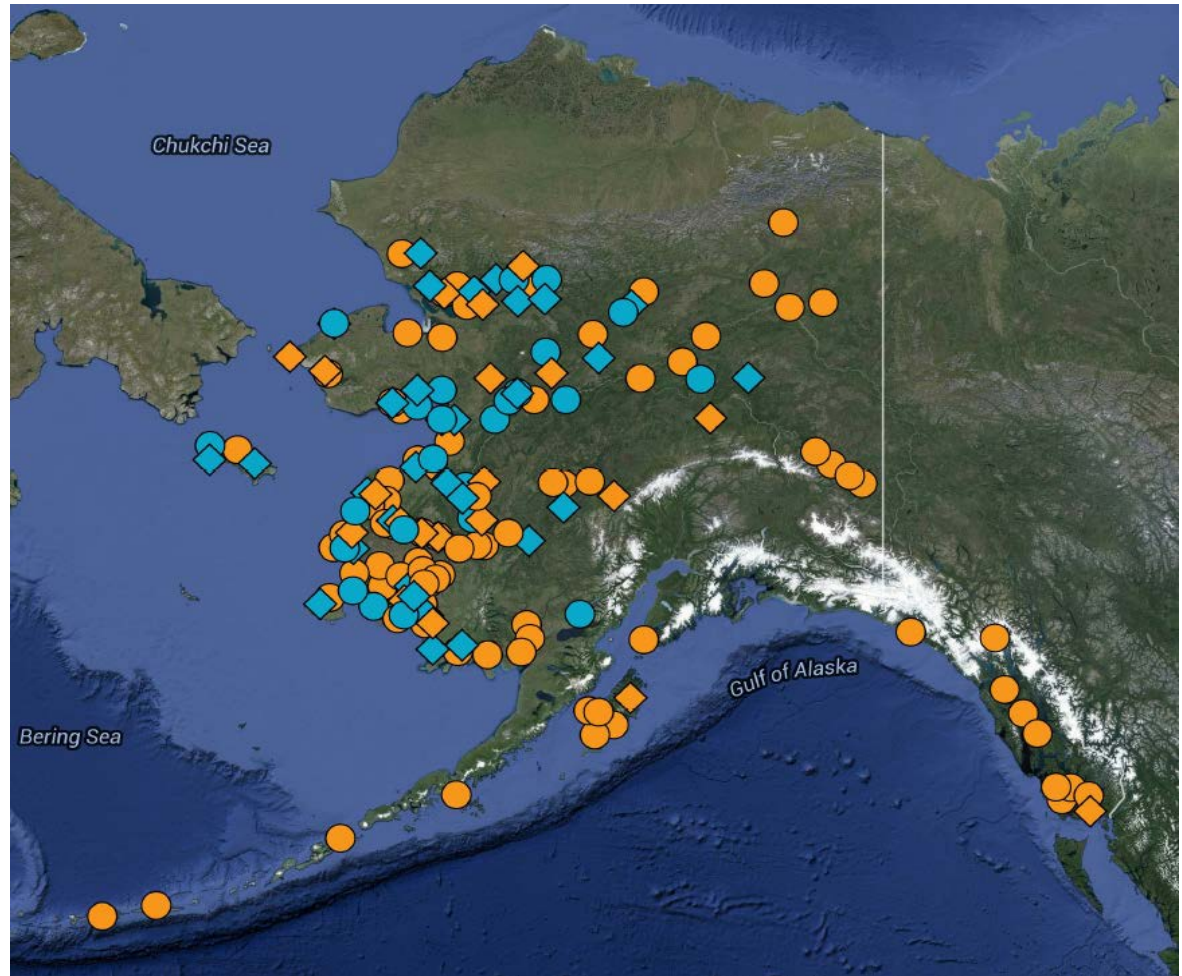
● 82 communities

Current Renewable Energy Projects

◆
25 Heat Recovery Projects | 5 Biomass Projects | 4 Wind-to-Heat Projects

Identified Renewable Energy Projects

◆
16 heat recovery projects | 5 Biomass Projects | 1 Ground Source Heat Pump Project | 1 Hydroelectric Project



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Thank You

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