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TRIBAL HEALTH  
CONSORTIUM

# Energy Efficiency of Public Facilities in Rural Alaska

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*“Partnering with rural communities to make public health services more affordable by reducing energy costs”*





# Arctic Communities



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REMOTE



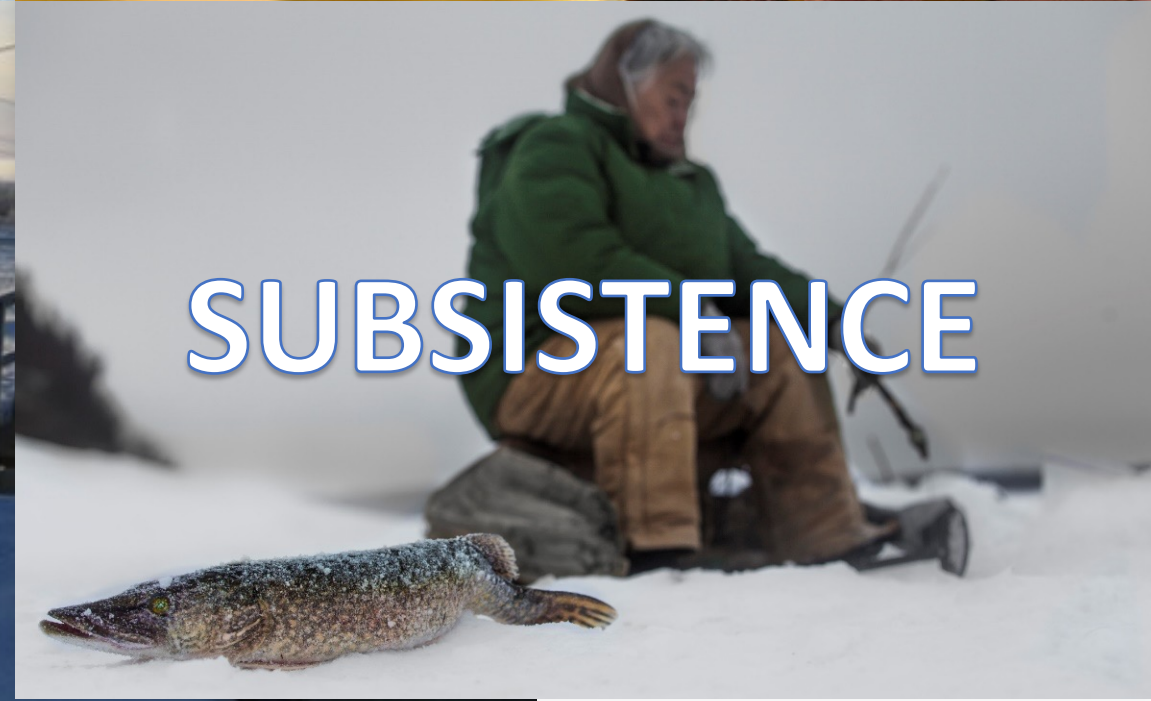
SCALE



COLD CLIMATE



SUBSISTENCE





# Public Facilities



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## SCHOOLS



## CLINICS



## WATER TREATMENT



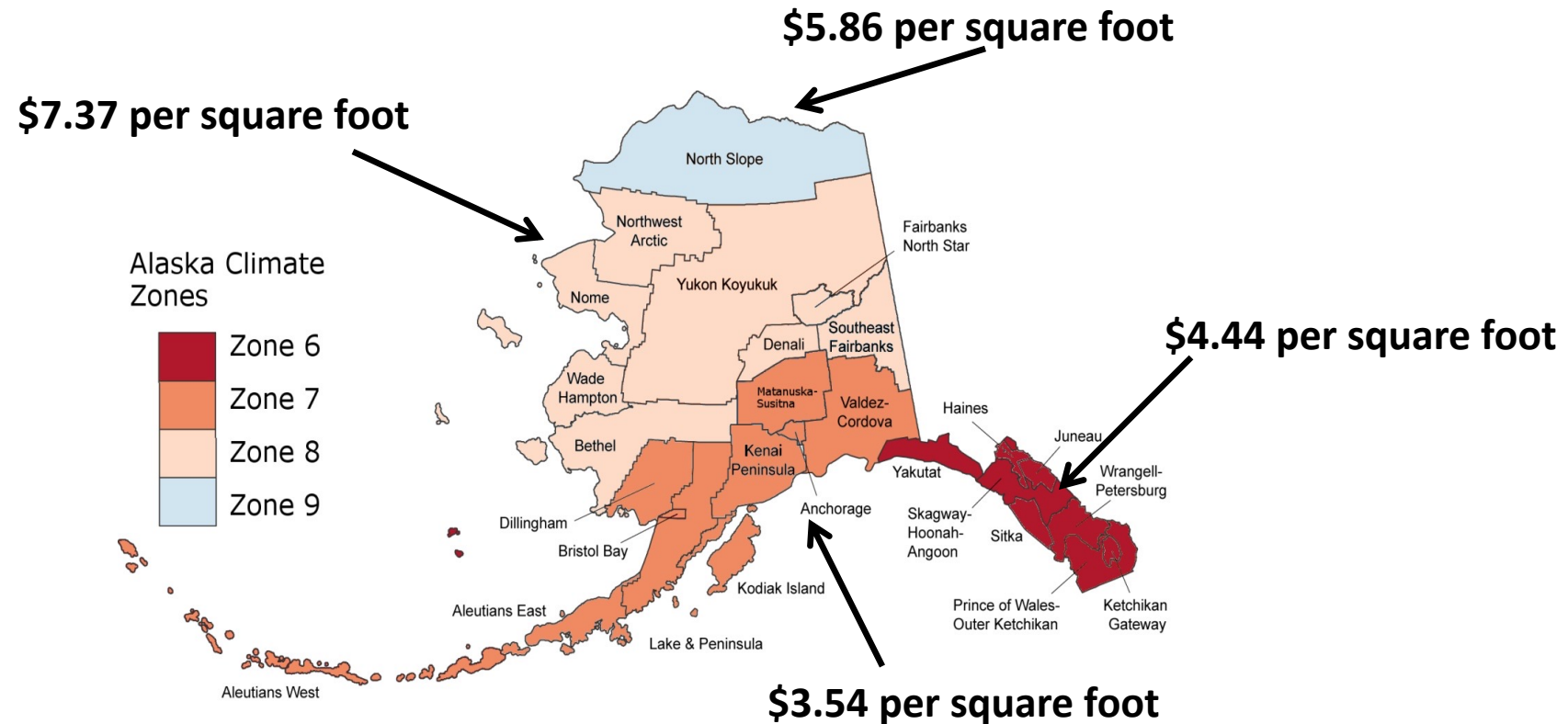
## CITY/TRIBAL OFFICES



# Public facility energy costs



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Average energy cost per square foot based on energy audits of 348 public buildings

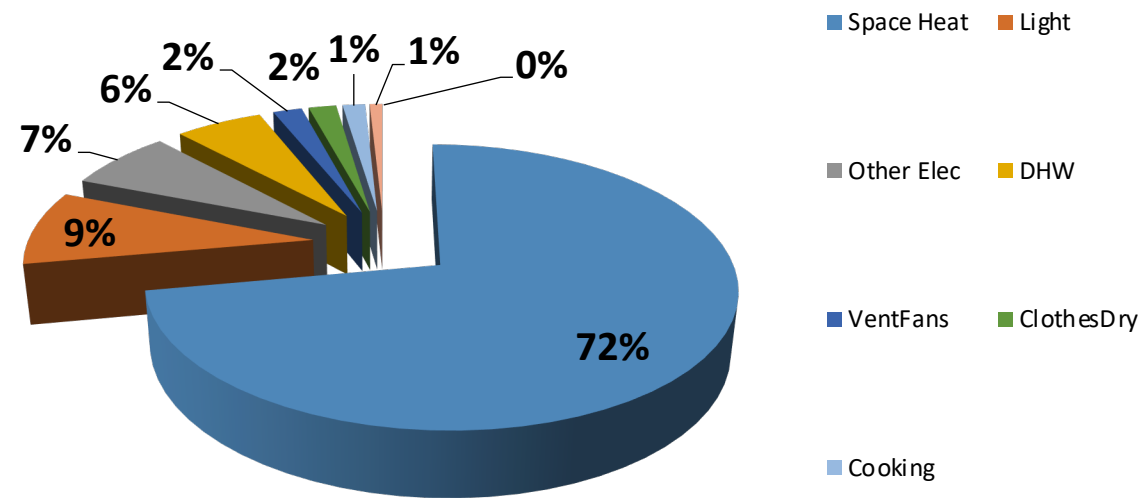


# Public facility energy consumption

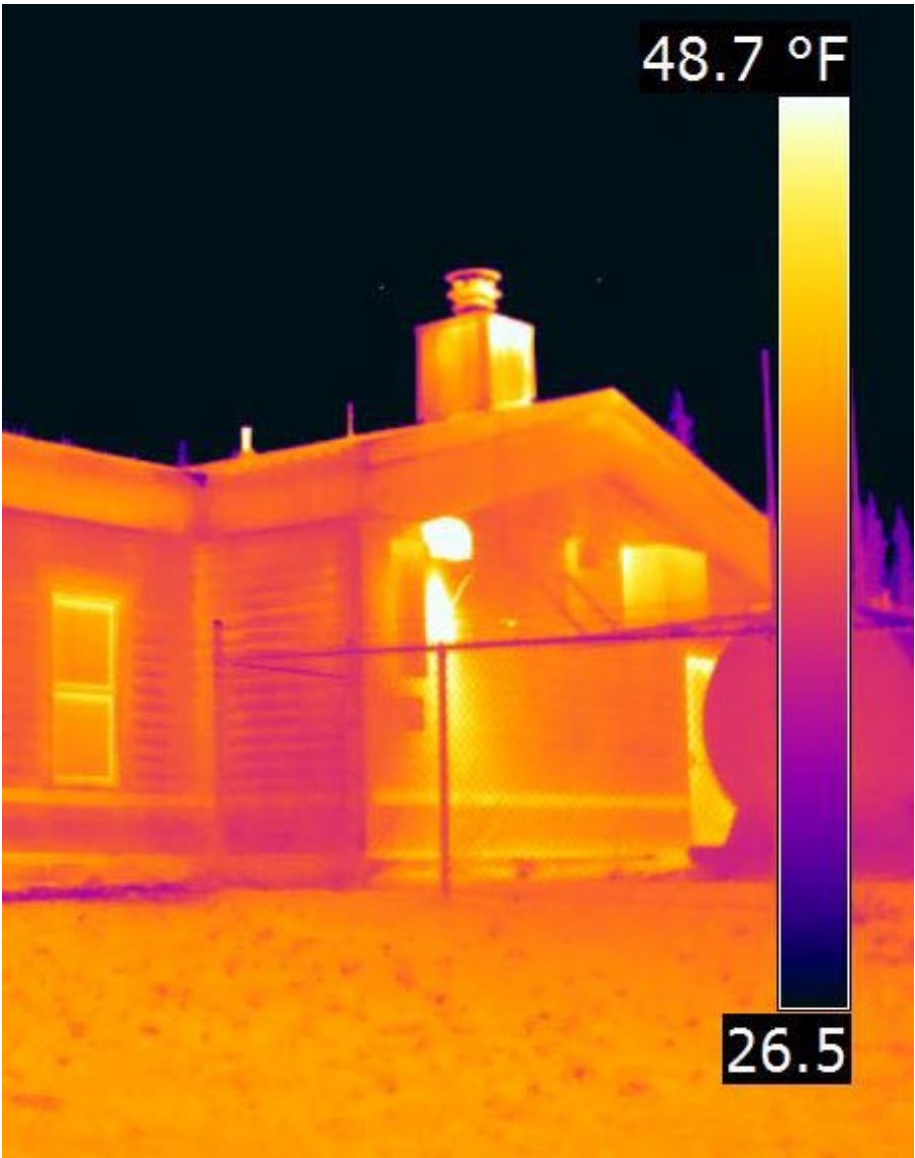
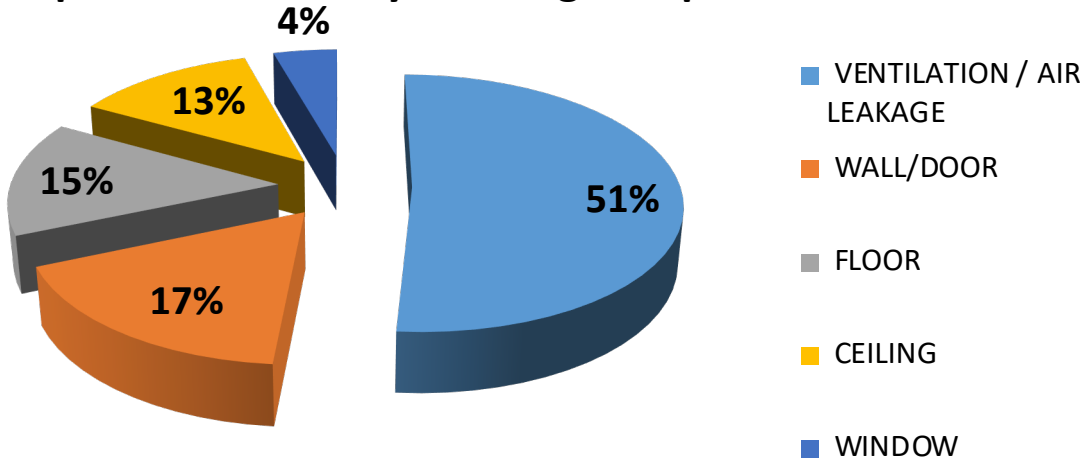


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Energy Consumption by End Use



Space Heat Loss by Building Component

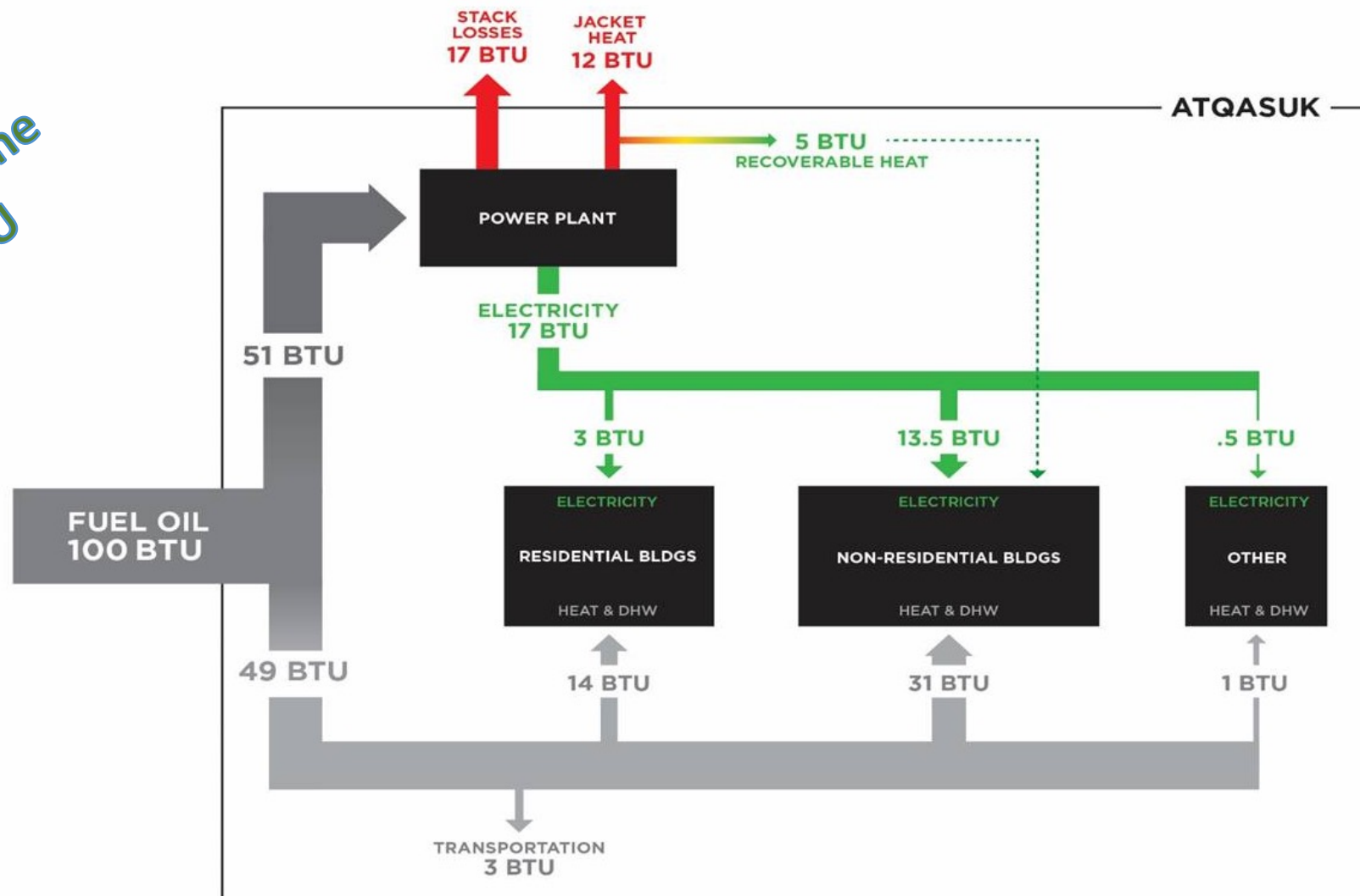


# Public facility energy consumption



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Follow the  
BTU



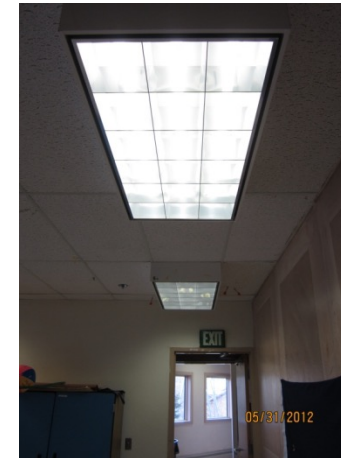
Distribution of Energy Use

# Efficiency is cost-effective



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Estimated savings for 348 AK public buildings	Average
Cost effective annual energy savings (\$)	\$21,844
Installed cost of energy efficiency measures	\$82,210
Simple payback (years)	~4 years
% Energy savings	22%

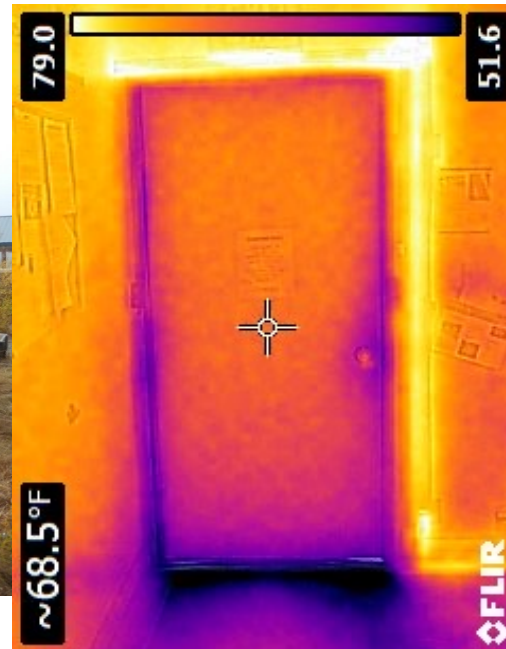


# Efficiency is cost-effective: clinics



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Estimated savings for 31 village clinics	Average
Cost effective annual energy savings (\$)	\$6,000
Installed cost of energy efficiency measures	\$28,000
Simple payback (years)	4.7 years
% Energy savings	28%



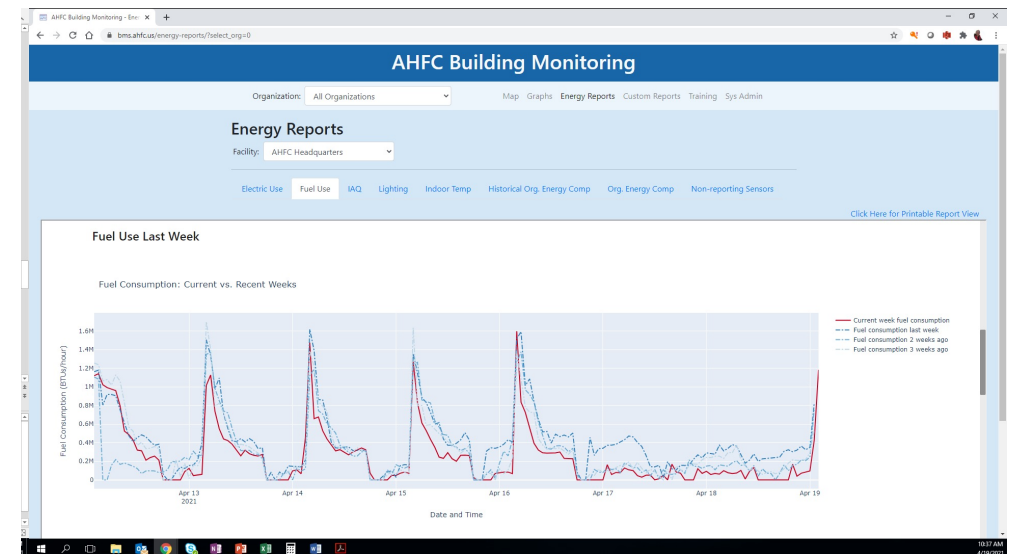
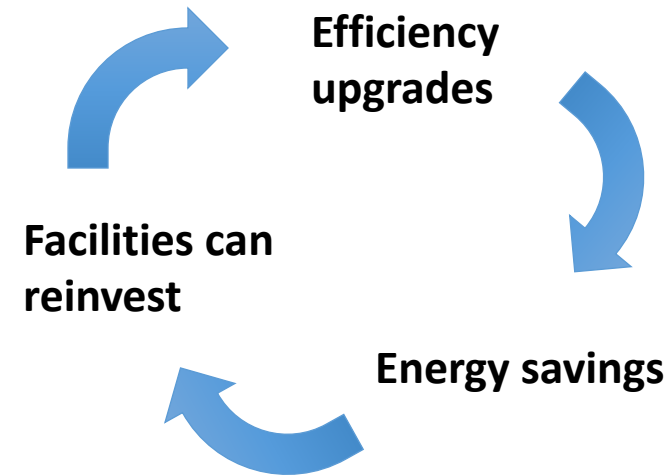


# Barriers to efficiency projects



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- Incentives not aligned
  - Schools
  - Utility budgets vs. Facility budgets
- Energy cost tracking
  - Remote monitoring
- Scale
  - Bundling projects:
    - AEA's Village Energy Efficiency Program
    - AK Public Facilities - ESCOs



# Maintaining savings



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- Design: simplify controls, include directions
- Provide on-going training
- Regional cooperatives / support systems:
  - Successful examples:
    - Remote maintenance workers
    - AVEC
    - ARUC
  - Empowering communities







- How long do energy efficiency and renewable energy projects last in remote, cold-climate communities?
- What is the dollar value of operations and maintenance training?
  - Reduced energy costs
  - Longer equipment lives
- What are the costs/benefits of regional support systems & cooperatives?

# Questions? Comments?

## Thank You

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<http://anthc.org/what-we-do/rural-energy/>





# Why energy efficiency?



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## The Big Picture: Total Cost of Ownership A buildings' costs over 40 years

