

Water and Sewer Services in Alaska Villages: Update on Progress, Initiatives & Challenges



Bill Griffith, Alaska Dept. of Environmental Conservation

Mike Black, Alaska Native Tribal Health Consortium

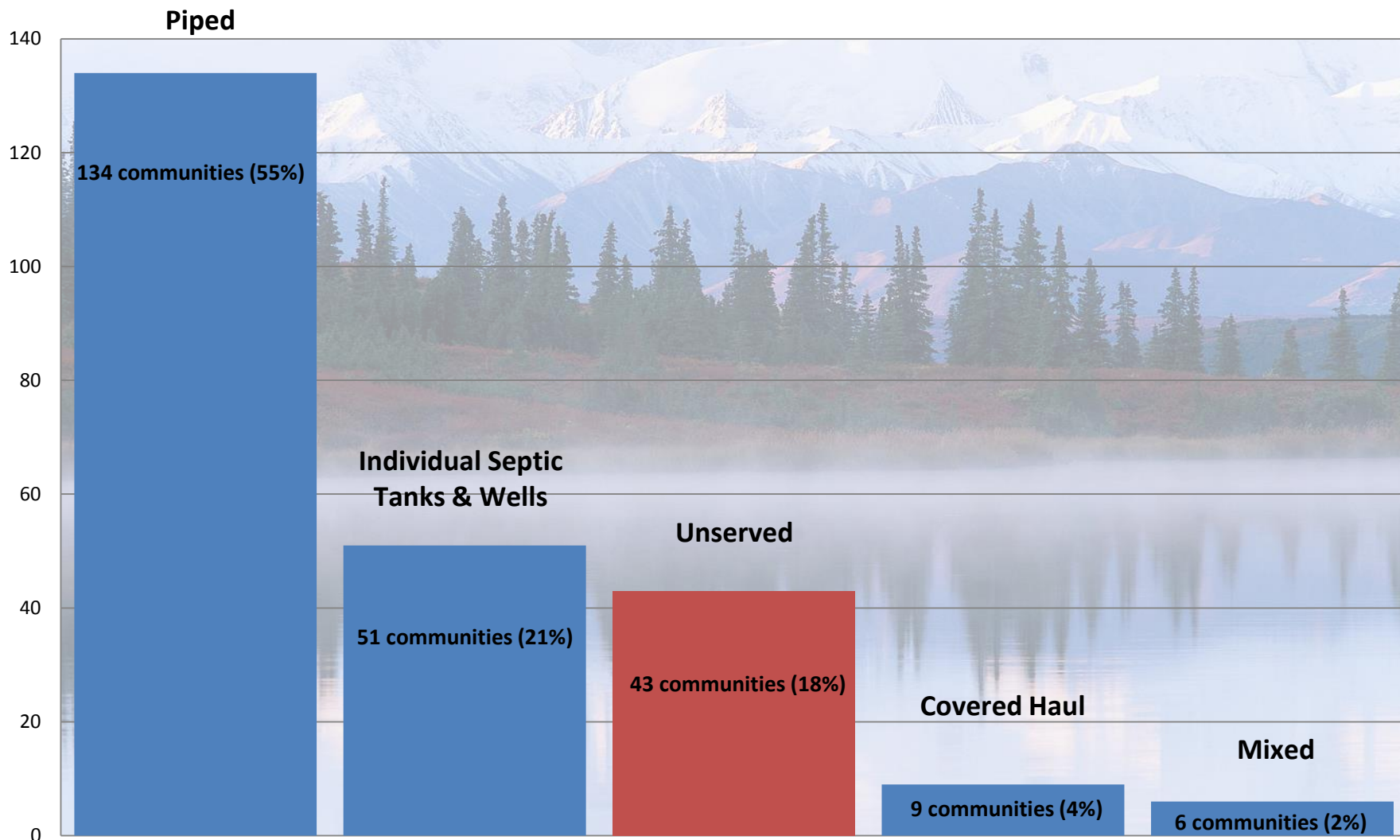
Progress in Alaska Village Sanitation

- For half a century, we've focused on “putting the honey bucket in the museum” (and keeping it there)
- Much progress has been made:
 - ▣ 30 years ago, fewer than 25% of rural Alaska households had running water and flush toilets.
 - ▣ In 1996, 55% of rural homes had piped or covered haul service.
 - ▣ Today, approximately 75% of rural homes have indoor plumbing (about 90% if regional hubs are included in the calculation).

“Centralized” Approach Since 1970:

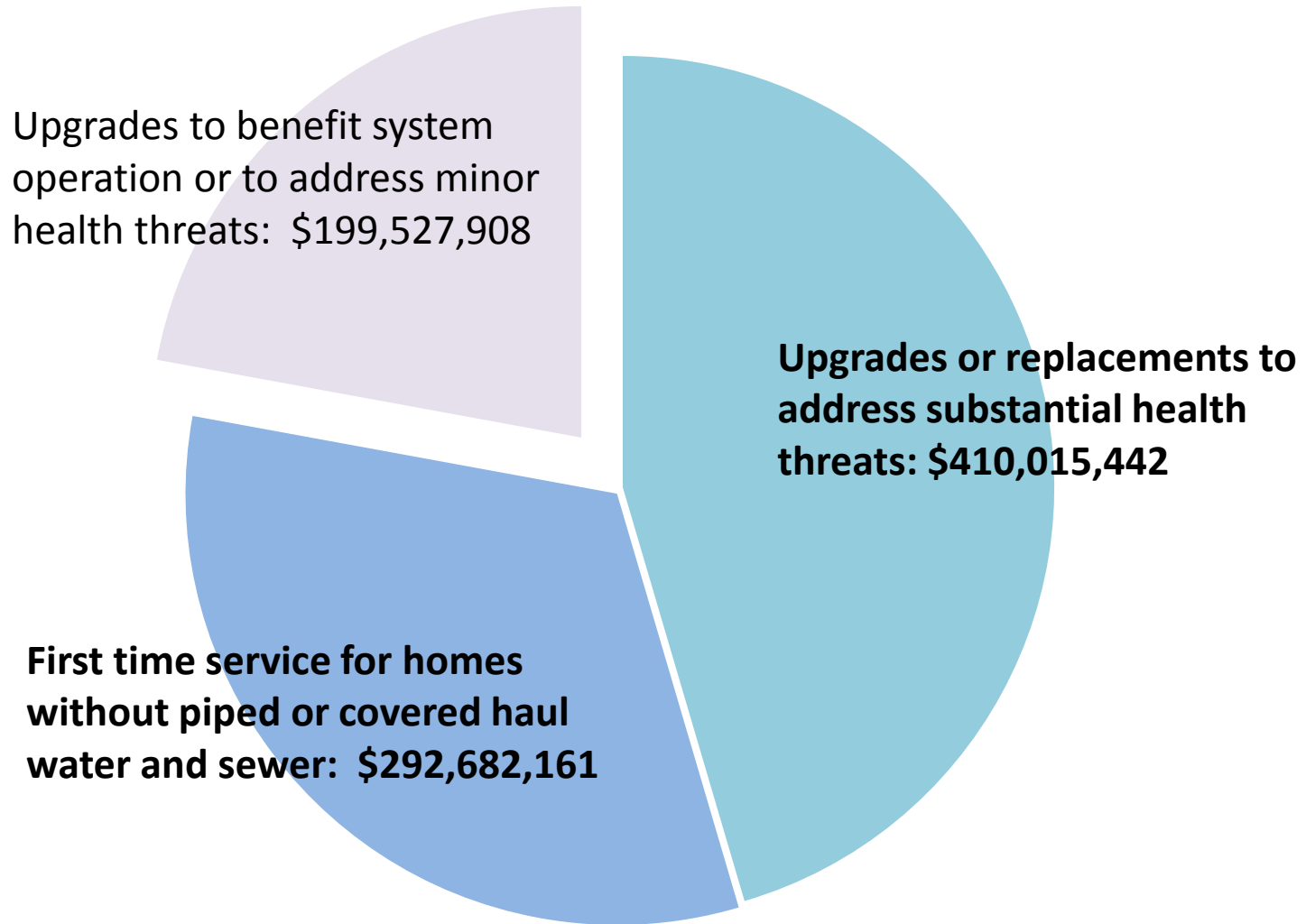
- 100% water treatment to full regulatory compliance (regardless of ultimate use)
- Storage of large quantities of water, usually requiring heat addition
- Distribution of treated water to individual homes via pipes or haul vehicle, usually requiring heat addition
- Collection of all household sewage for lagoon disposal, usually requiring heat addition

Rural Alaska Sanitation Types of Water and Sewer Systems

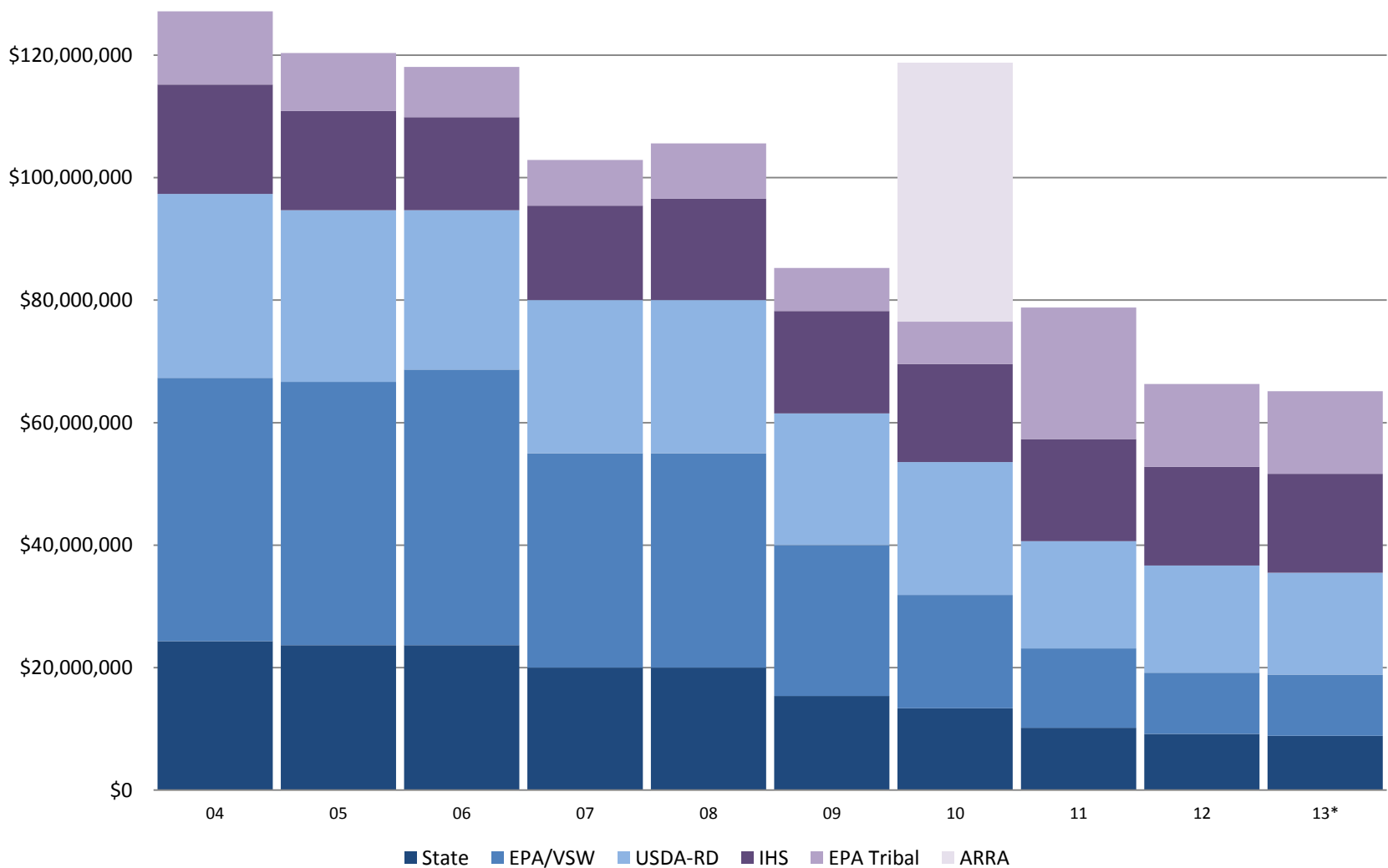


Categories of Project Needs

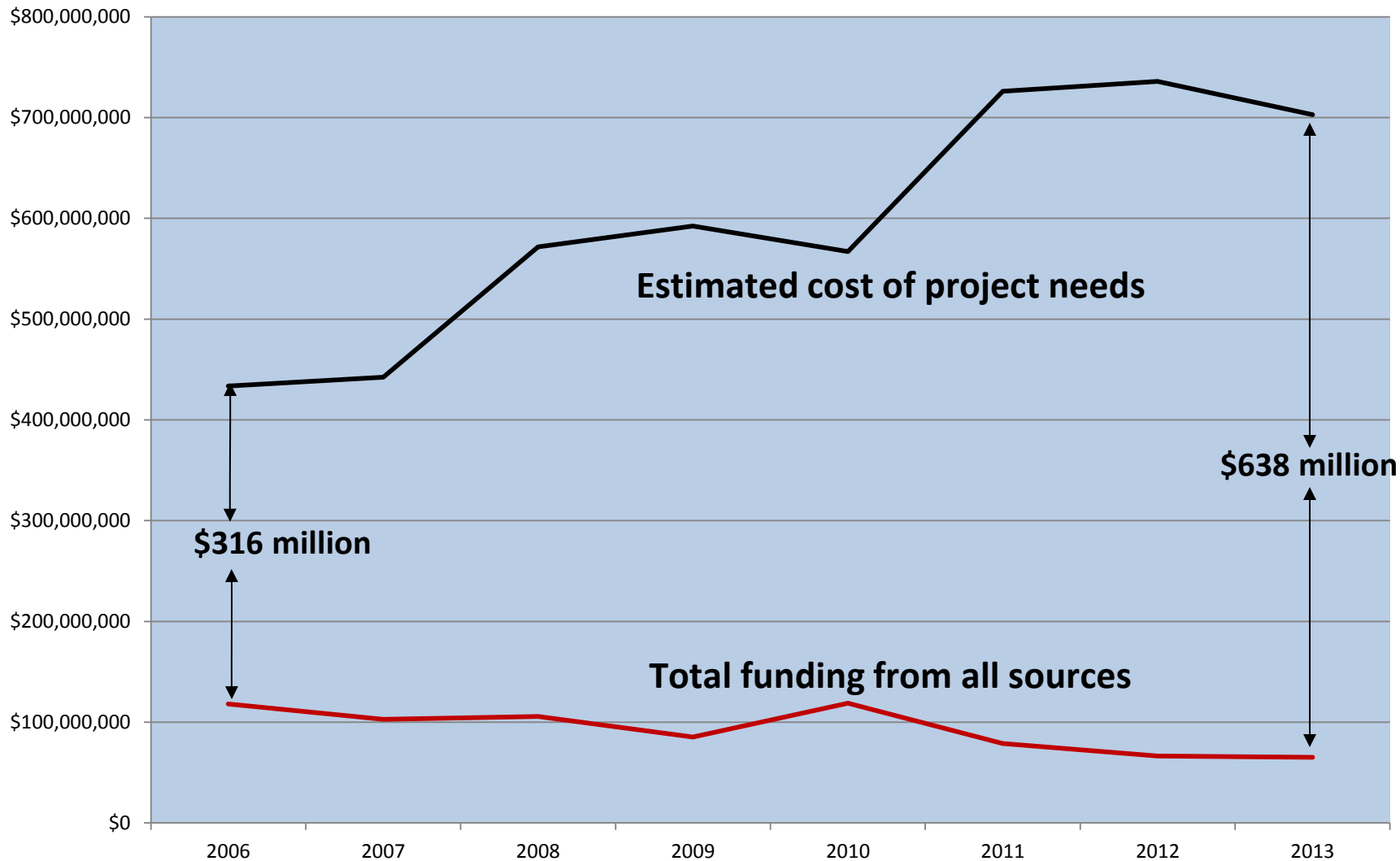
January 2013



Project Funding from All Sources 2004 - 2013



The Growing Gap Between Critical Needs and Available Funding

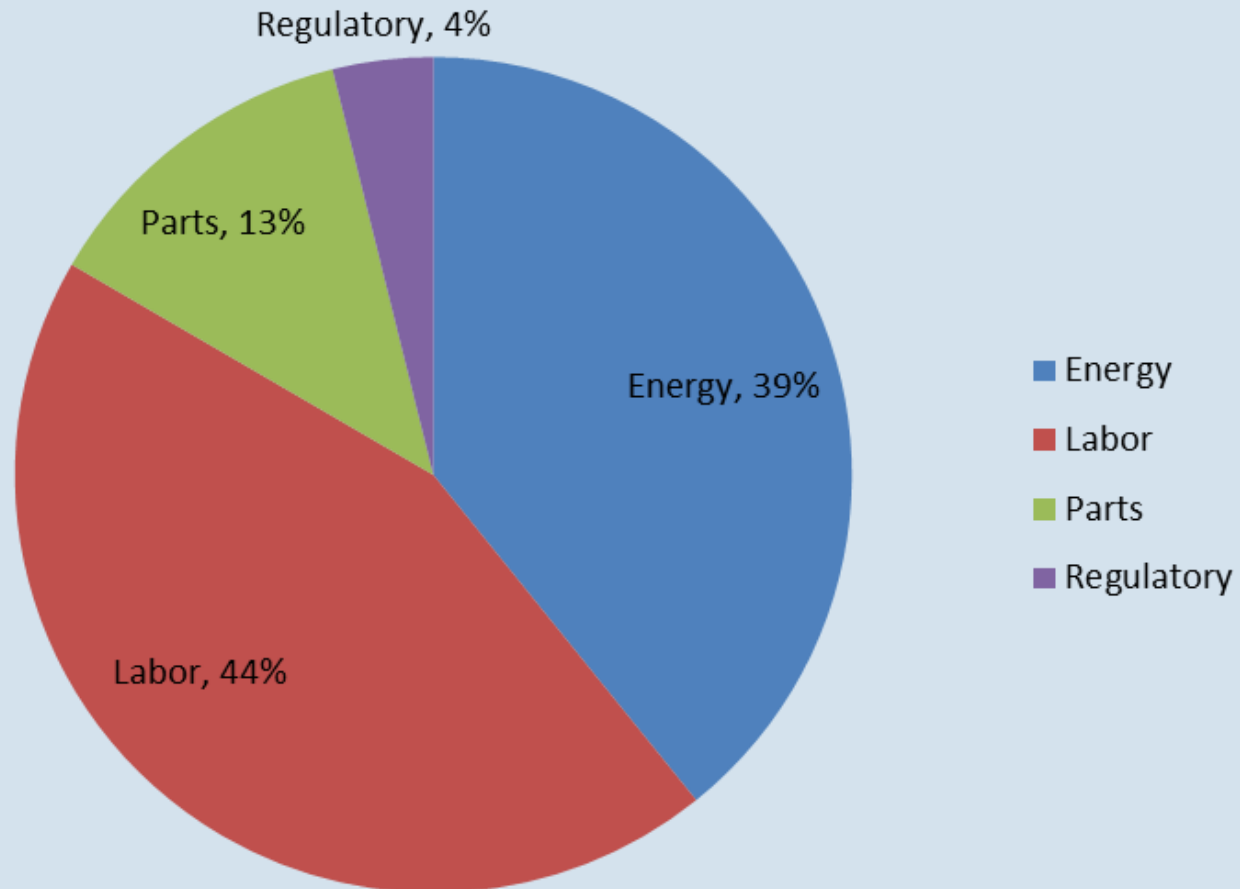


Water and Sewer User Fees as a Percentage of Median Household Income



Costs Associated with Providing Water and Sewer Services in Alaska Villages

2012 ARUC village expenses



Bottom Line:

- ❑ Conventional, community-wide piped systems and truck haul systems are expensive to construct, maintain and replace.
- ❑ Many communities cannot afford the high operation and maintenance costs associated with piped or haul systems.
- ❑ Available funding is not adequate to serve remaining homes and make needed improvements.
- ❑ Innovative approaches are needed in order to address health problems associated with water and sewer system deficiencies.

Existing Programs Supporting Sanitation Utilities in Small Communities

- **Funding Assistance, Design, and Construction Management:** Village Safe Water (VSW); ANTHC-Division of Environmental Health and Engineering (DEHE)
- **Operations and Maintenance Training and Emergency Assistance:** Remote Maintenance Worker (RMW); ANTHC-DEHE Tribal Utility Support (TUS)
- **Operator Training:** RMW; TUS; Regional Tribal Health Organizations; Alaska Rural Water Association
- **Utility Management Assistance:** Rural Utility Business Advisor (RUBA)
- **Direct System Administration:** Alaska Rural Utility Collaborative (ARUC) - 28 communities with ANTHC operating and managing the water and wastewater facilities and services

Current Initiatives:

ANTHC Rural Energy Efficiency Improvement Program

- Energy Audits: Identify Potential Energy Savings and Projects
 - 40 Communities have received audits
- Renewable Energy Projects
 - Biomass: 6 Active projects, \$136,440 projected annual savings
 - Wind to Heat: 4 Active Projects, \$178,000 projected annual savings
 - Heat Recovery
 - 11 active projects, \$491,058 projected annual savings
 - 10 additional funded projects, \$421,037 projected annual savings
- Energy Efficiency and Training
 - 20 communities receiving upgrades and training
 - Planned upgrades and training in 22 additional communities
 - Over \$432,000 projected annual savings
- Total Annual Savings: Over \$1,500,000 total annual savings once all projects are completed

Current Initiatives:

The Alaska Water and Sewer Challenge

- A state and federal funded research and development project
- Projected to last 5 – 7 years
- Funding to date is \$4 million. Additional funding will be required to complete the project.
- Focus is on “decentralized” approaches – household based systems that utilize water re-use technologies
- Goal is to significantly reduce the capital and operating costs of in-home running water and sewer in rural Alaska homes.

Current Initiatives:

U.S. Chairmanship of Arctic Council: 2015- 2017

- Proposed: International Conference on safe and affordable water and sewer service to rural homes
- Two day international symposium to be held in Anchorage, Alaska during the summer of 2016.
- Bring together researchers, engineers, manufacturers and vendors, and health experts to discuss challenges and solutions associated with making running water and sewer in small Arctic communities safe, affordable and sustainable.

Current Initiatives:

Statewide Feasibility Study

- Statewide study to evaluate remaining 30 villages with no water and sewer service to homes - funded in SFY2015
- Output will be a list of which unserved villages are feasible to serve with traditional, centralized systems
- Will require alternative approaches to provide service to remaining homes.

Outstanding Issues:

Regulatory Impacts on Alaska Villages

- Consider revisions to federal regulations that result in higher capital and operating costs for Alaska villages without a proportionate reduction in health risks.
- Compare with regulations from other Arctic nations, with widely varying approaches for both water and sewer .
- Analyze divergent health risks associated with regulation changes, particularly in Alaska, where impacts are unique.

Outstanding Issues:

Supplemental Funding for O&M

- Most rural utilities and services in Alaska are subsidized in some way – but not water and sewer
- Currently, all costs associated with operating and maintaining water and sewer systems come from local revenues and other local sources.
- We need a public policy discussion on use of performance based financial support for small community sanitation systems.
- Most agencies agree that such support would save significant capital funding by extending the life of rural water and sewer systems