2/17/11 OVERVIEW: ALASKA ENERGY AUTHORITY

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Alaska Energy Authority - Overview

Alaska State Legislature

Juneau
February, 2011

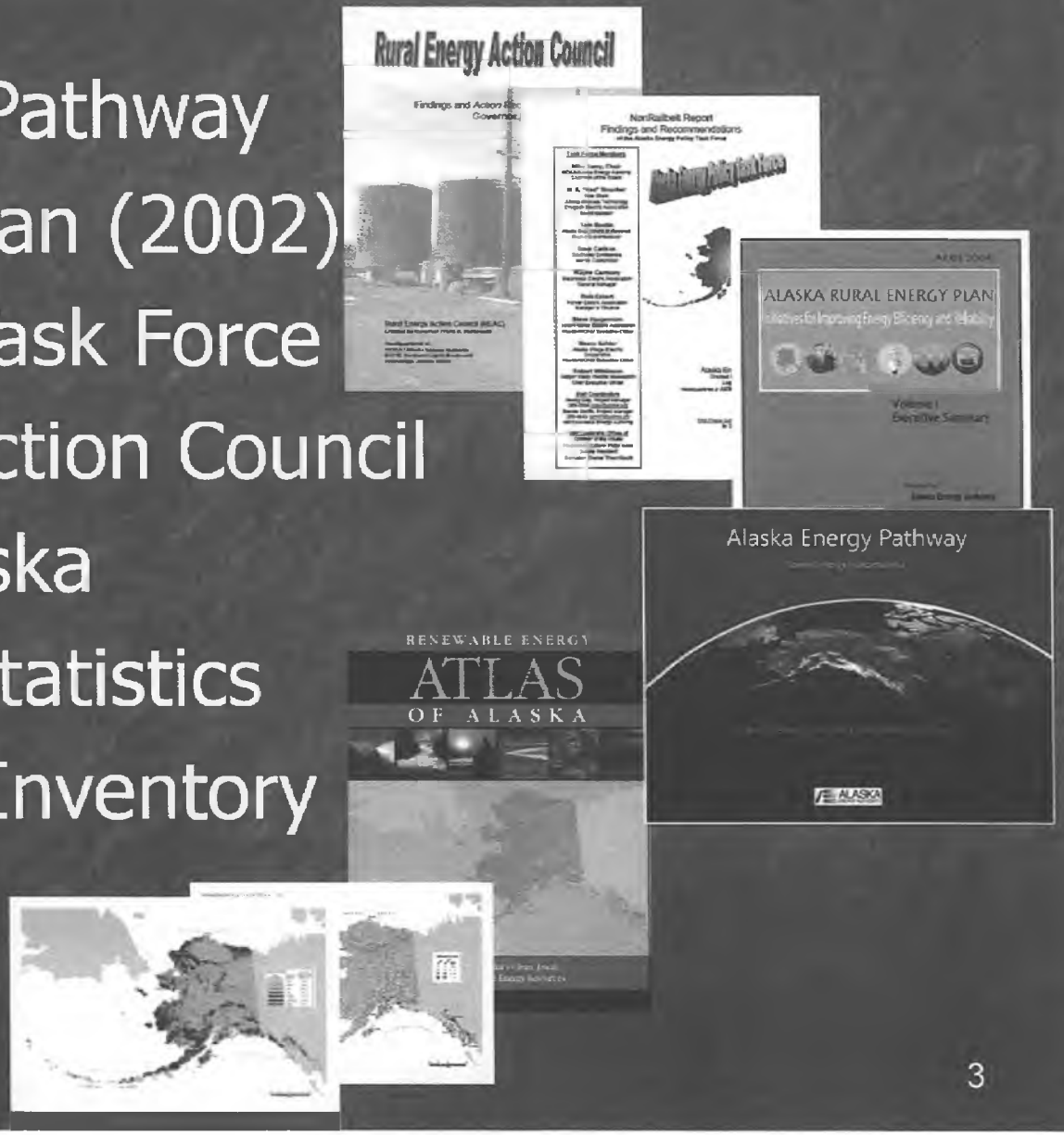
ALASKA
ENERGY AUTHORITY

AEA's Mission:
Reduce the Cost of Energy in Alaska

- Lead Statewide Energy Planning
- Develop Large Infrastructure —
  - Bradley Lake Hydro, Willow-Healy Intertie
- Assist Rural Communities —
  - PCE, Tank Farms, Power Systems, Training
- Reduce Energy Waste & Use Local Resources
  - Efficiency, Biomass, Geothermal, Hydro, Wind
- Finance Projects —
  - Renewable Energy Fund, Energy Tech Fund, Loans

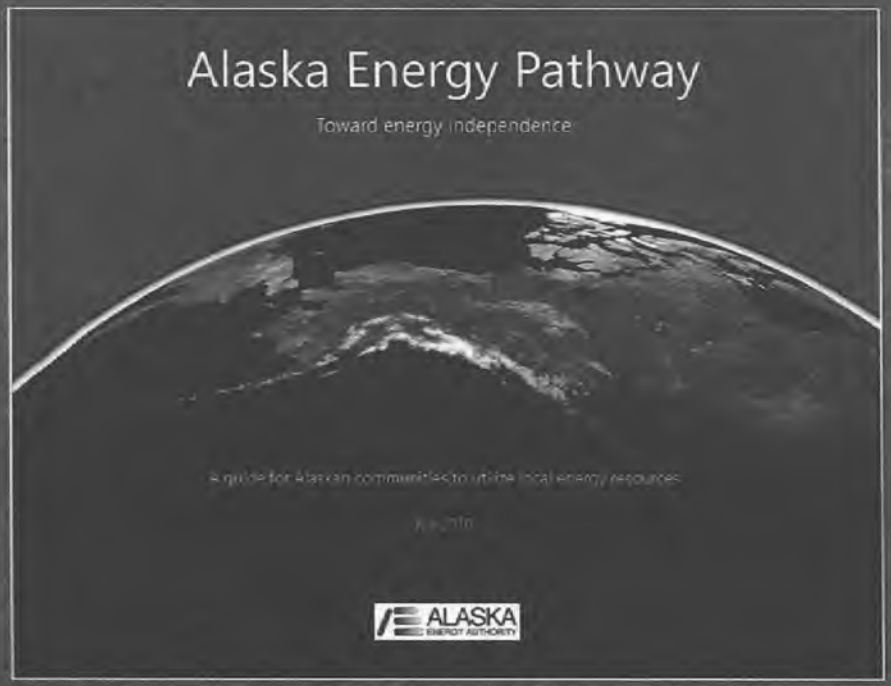
Statewide Energy Planning

- Alaska Energy Pathway
- Rural Energy Plan (2002)
- Energy Policy Task Force
- Rural Energy Action Council
- RE Atlas of Alaska
- Alaska Power Statistics
- Alaska Energy Inventory

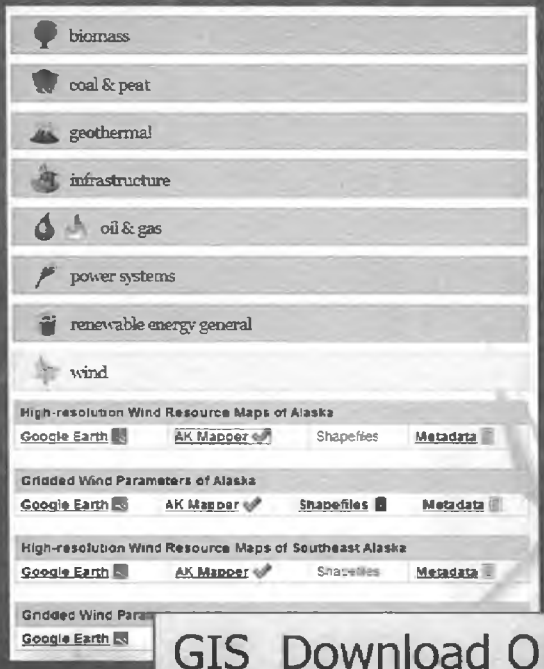


Alaska Energy Pathway

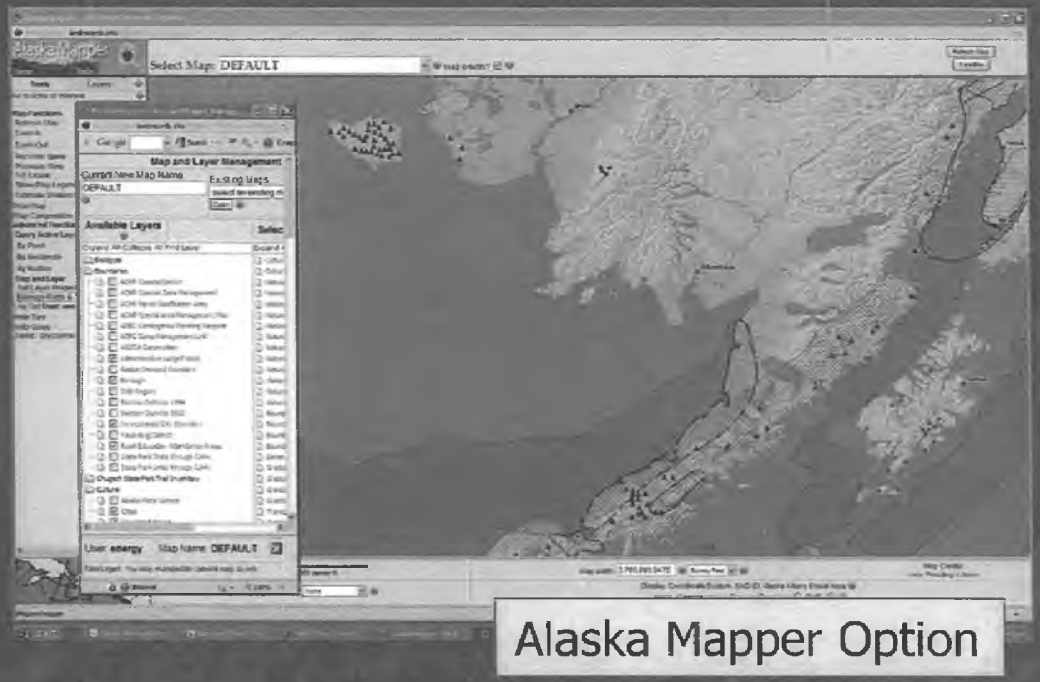
- July 2010: Includes
  - Statewide policies to guide energy development
  - Community- and regional-scale recommendations for energy projects
  - Financing options



Alaska Energy Inventory



GIS Download Option



Alaska Mapper Option

Google Earth Option

Future datasets:

- Alaska Energy Statistics
- Energy conservation measures
- Renewable Energy Fund project performance

Regional Energy Plans

- Railbelt Integrated Resource Plan (IRP)
  - State sponsored plan cooperatively produced by AEA and Railbelt Utilities
  - Provides preferred resource list for power generation and transmission lines
  - Establishes regional capital budgets for projects

Regional Energy Plans

- Southeast IRP
  - A regional energy plan for Southeast Alaska
  - Tailored for the needs of Southeast Alaska
  - Cooperative effort between SE stakeholders and AEA
  - Address needs of remote communities without renewable resources
  - Public process to identify critical SE energy issues, resistive heating load growth, impact of electric cars
  - Regional transmission plan – a new rational approach
  - New Hydro power projects identified and budgeted

Regional Energy Plans

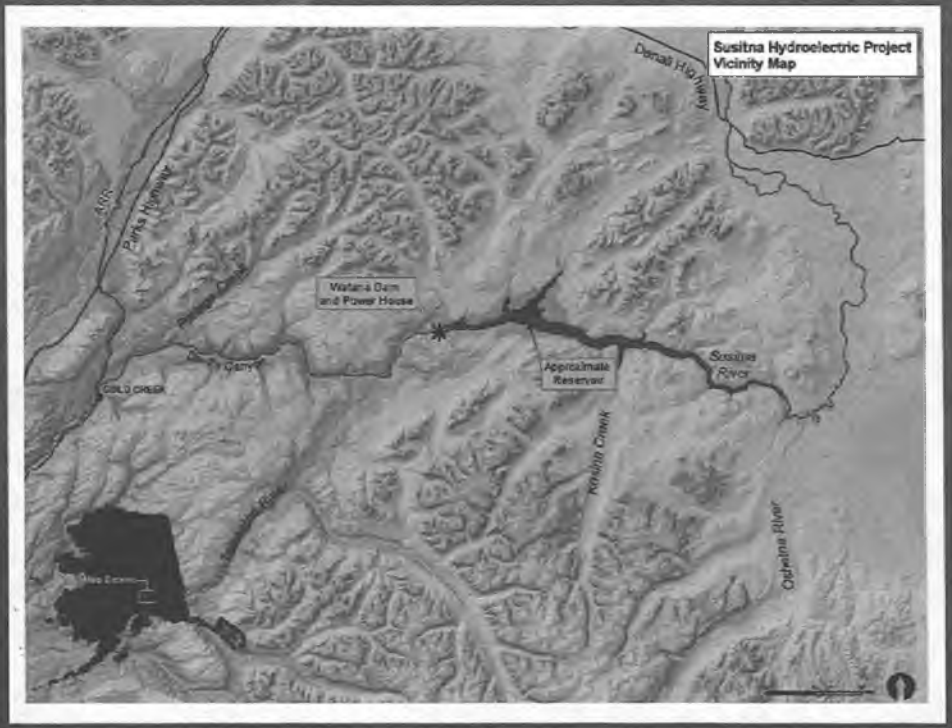
- Other Regional Planning Assistance
  - Working with UA and Denali Commission to coordinate support
  - Current focus on Y-K and Interior

Infrastructure and Large Projects

- Bradley Lake Hydro
  - Capital contributions by State of 50%
  - Produce nearly 10% of Railbelt energy
  - Low cost energy producer
- Alaska Intertie
  - Owned by AEA without outstanding debt
  - Operated by Railbelt Utilities
  - Agreement presently under renegotiation

Infrastructure and Large Projects

- Susitna – Watana Site
  - Produce about 50% of Railbelt Energy



Infrastructure and Large Projects

- Susitna – Watana Site
  - Way to make State 50% Renewable goal
  - Minimal fisheries impacts
  - Provide long term stable price energy

Rural Energy Construction

- Bulk Fuel and Rural Power System Upgrades Program
  - 67 Bulk Fuel Tank Farm Projects Completed to Date
    - 9 Projects Currently in Progress
    - 29 Projects Remaining
  - 48 Rural Power Projects Completed to Date
    - Includes Powerhouse, Electrical Distribution, Hydro Electric, Heat Recovery
    - 16 Projects Currently in Progress
    - 45 Projects Remaining

Bulk Fuel Upgrades

- Reduce fuel loss from leaks and spills
- Compliance with EPA, Coast Guard and Fire Marshall Regulations

Community of Ruby

After

Before

- Creation of Business Operation Plan

Rural Power System Upgrades

- Efficiency, Reliability Safety and Sustainability are Primary Drivers
- Common to See a 30% - 40% Increase in Fuel Savings

Community of Tuluksak

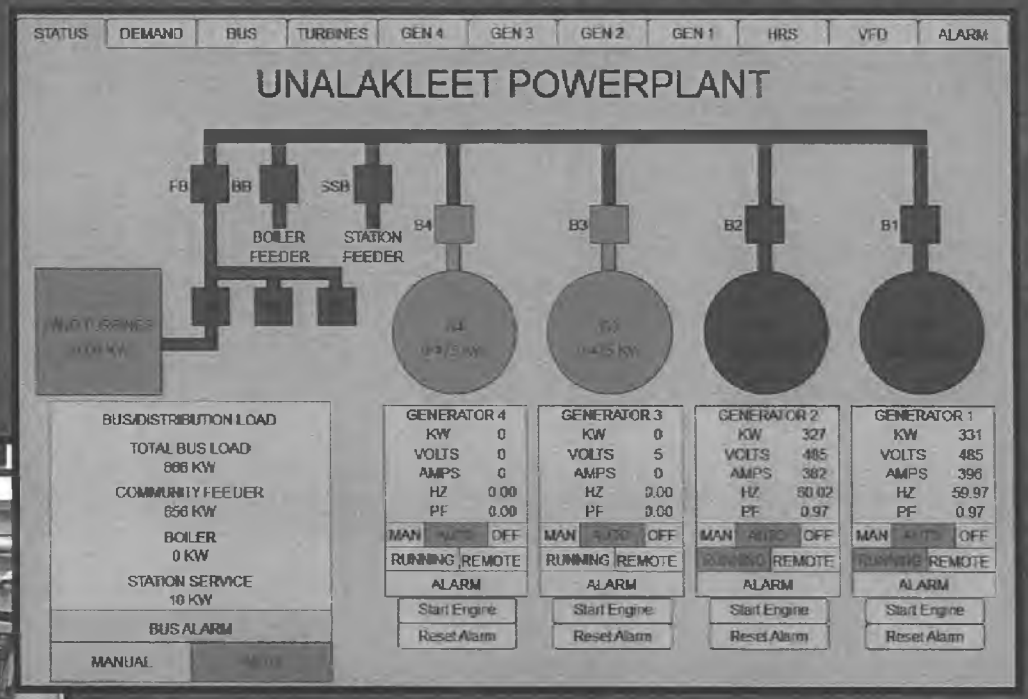
After

Before

- Basic Requirement for Integrating Renewable Energy is an Efficient Power System with Modern Controls
- Creation of Business Operation Plan

Technical Assistance

- Real Time Technical Support Dramatically Reduces Travel Costs
- Readily Accessible Information for Managers and Operators



SCADA

Remote Controlled Camera

- Remote Monitoring or SCADA (Supervisory Control And Data Acquisition)

Rural Energy—PCE

- Program Goal is to Equalize High Cost of Electricity in Rural Alaska with the More Urban Areas
- Core Element to Ensure Financial Viability of Centralized Power Generation in Rural Alaska
- Lower Cost Energy Enhances Quality of Life, Standard of Living and Economic Strength in Communities
- Average Cost of Electricity for rural Residents is three to four times greater than urban

Rural Energy—Training

- Courses
  - Power Plant Operator
  - Advance Power Plant Operator
  - Bulk Fuel Operator
  - Bulk Fuel Bookkeeper
  - Bulk Fuel Manager
  - Electrical Utility Manager
  - Hydro Operator
  - On-Site Bulk Fuel
  - Electrical Utility Bookkeeper
- Wind-Diesel: March 7-10 Girdwood
- Wood Energy: April 26-27 Fairbanks
- Rural Energy Conference: September 27-29 Juneau

Efficiency and Conservation Goal: Up 15% by 2020

- EE Conservation Block Grants ($9M)
- Commercial Audit Program
  - Loan program under consideration
- Industrial Audit Program
  - Current focus on fish processors
- EE & Conservation Working Group
  www.akenergyefficiency.org
  - Partnership of 20+ organizations

EE and Conservation Upgrades

- 121 Communities
- Statewide Savings ~$3 million per year
- Average payback 3 years

Similar to the Small Cities EECBG program, the **Village End-Use Efficiency Program (VEEP)** is also funded by ARRA money and managed by AEA. Through the VEEP program, an additional 12 small Alaskan communities will receive [illegible] assistance to take cost-saving energy efficiency and conservation improvements, and 9 other communities will receive funds to complement the work of their EECBG projects.

0 100 200 400 Miles

Renewable Energy Goal: 50% by 2025

- Statewide programs
  - Biomass
  - Combined Heat & Power
  - Geothermal
  - Hydro
  - Ocean/River
  - Wind
- Cover
  - Resource availability, permitting
  - Project financing
  - Project management

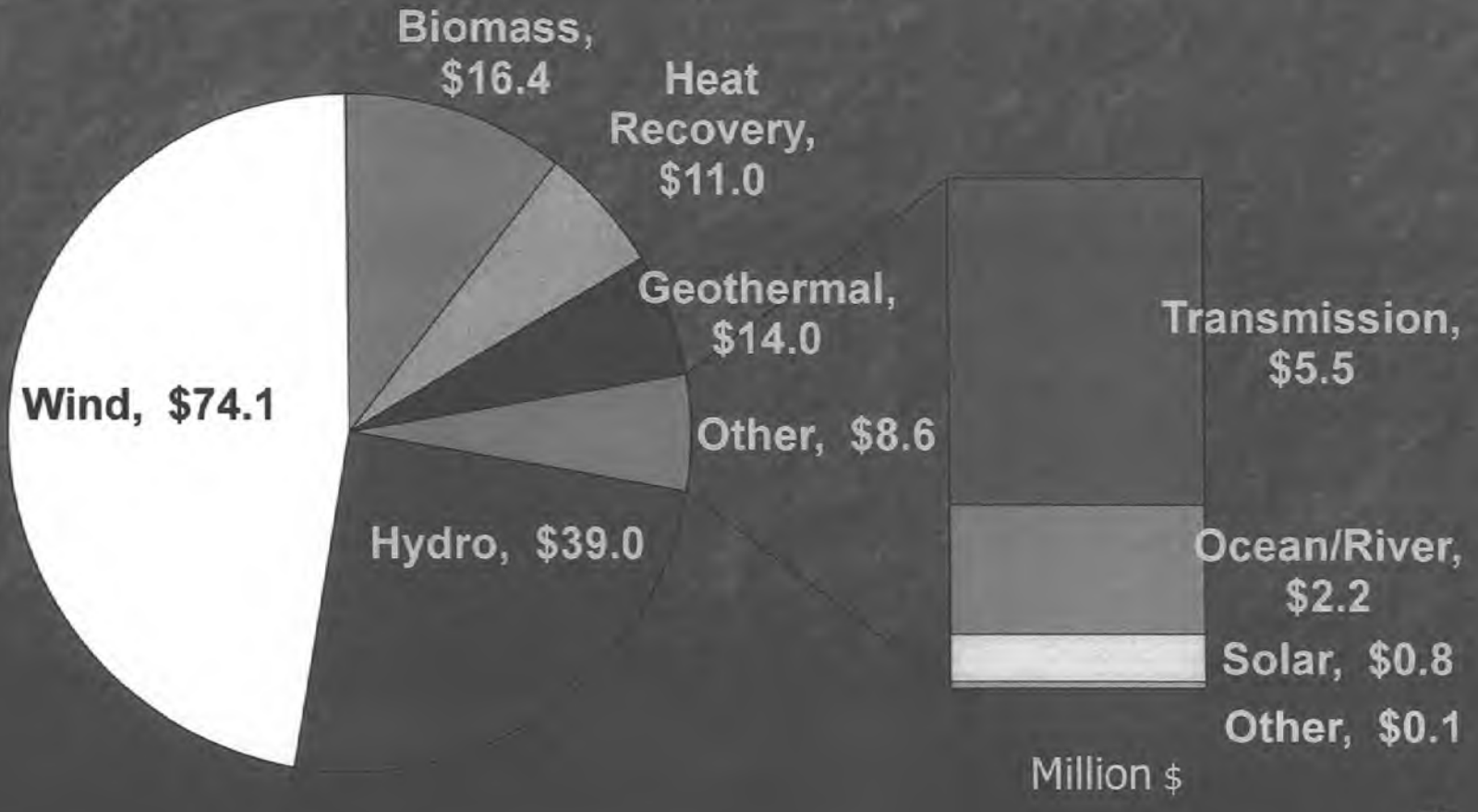
Renewable Energy Fund
Grant Recommendation Program

- HB 152 passed in 2008
- Selection criteria:
  - Economic and technical feasibility
  - Energy cost per capita
  - Statewide balance
  - Matching funds
- Advisory committee helps develop methods
- $150 M appropriated in FY09-11
- AEA recommended up to $37.3 M for FY12

RE Fund Funding

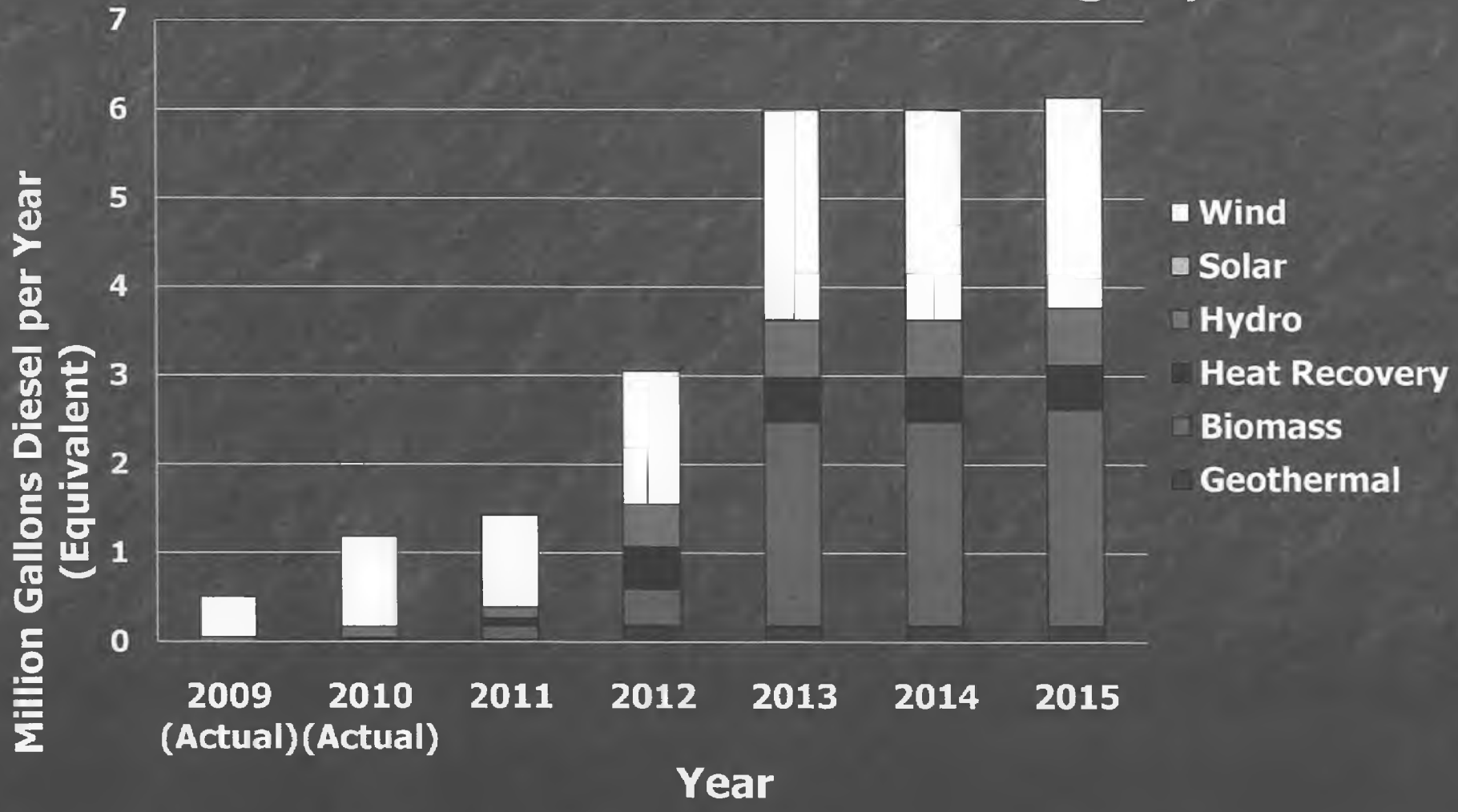
Rounds 1-3, plus earlier RFP

Total funding: $157M out of $971M requested



RE Fund Rounds 1 - 3

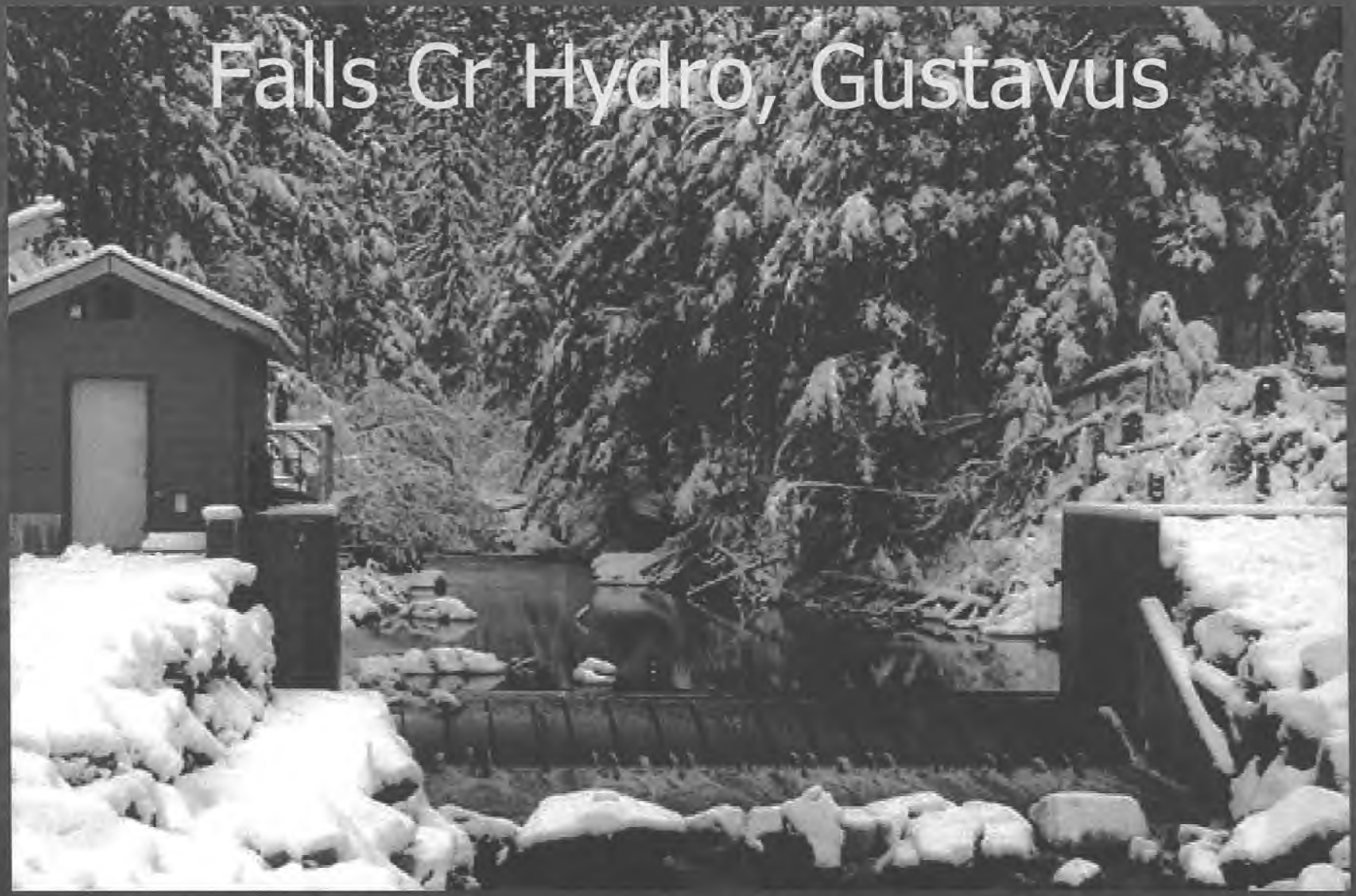
Est Cumulative Fuel Savings/yr



Emerging Energy Technology Fund

- Objective: "To promote the expansion of energy sources available to Alaskans"
- $4.8 million (AEA and Denali Commission)
- Proposals due March 2

Falls Cr Hydro, Gustavus

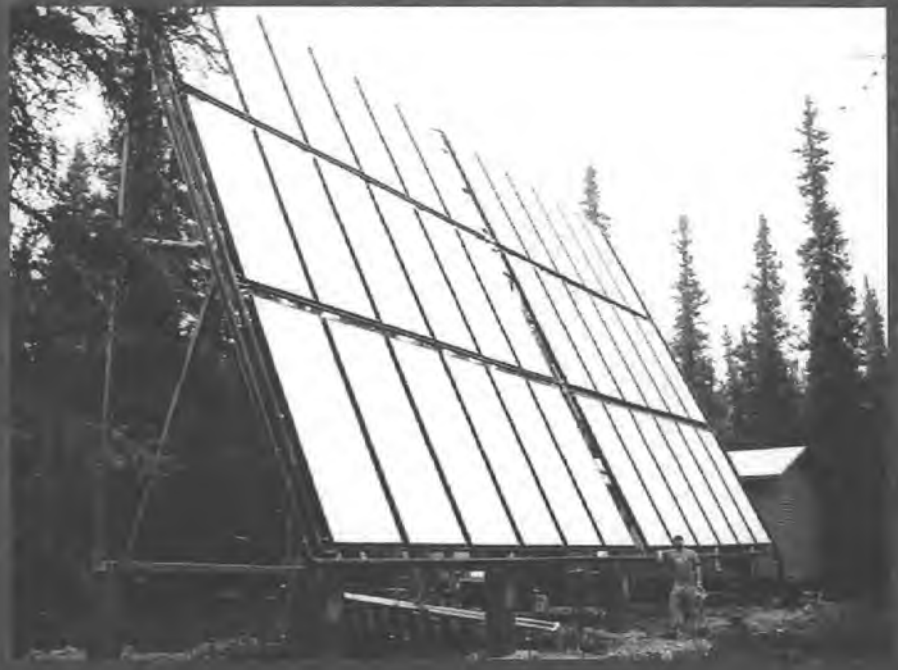


RE Fund Grant	$ 750,000	
Total Project Cost	$ 10,153,000	Capacity: 800 kW
Fuel Displaced (2010)	126,646 gal	

Pillar Mt Wind, Kodiak

RE Fund Grant	$ 4,000,000	
Total Project Cost	$ 23,320,000	Capacity: 4.5 MW
Fuel Displaced (2010)	865,364 gal	

Denali Solar Thermal



RE Fund Grant	$ 190,000
Total Project Cost	$ 190,000
Est Fuel Displaced/yr	5,700 gal
Actual (2010)	183 gal

Unalakleet Wind

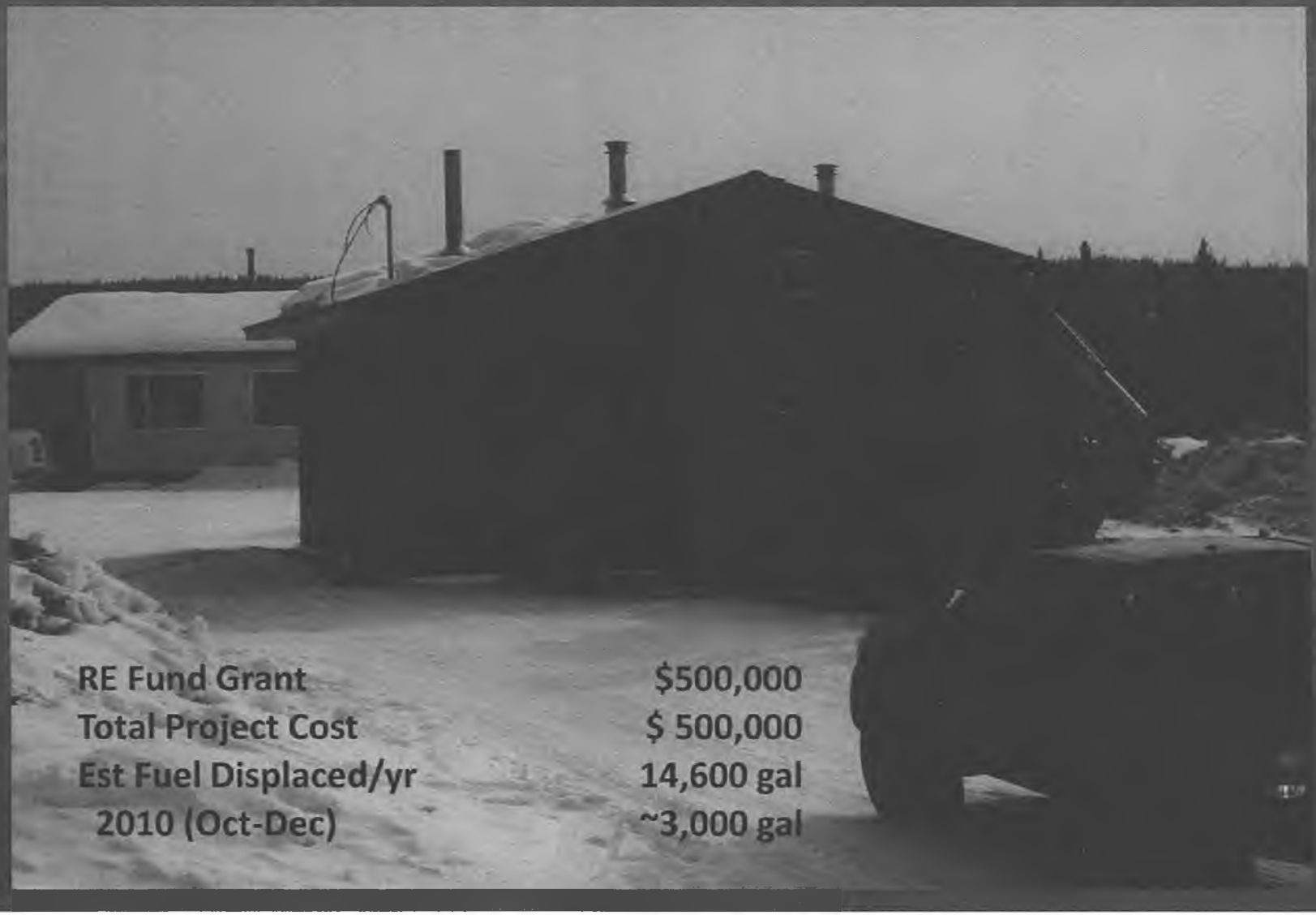
RE Fund Grant	$ 4,000,000
Total Project Cost	$ 4,194,340
Est Fuel Displaced/yr	90,000 gal
Actual (2010)	47,088 gal

Capacity: 600 kW

North Pole Heat Recovery

RE Fund Grant	$ 840,000
Total Project Cost	$ 1,050,000
Est Fuel Displaced/yr	99,000 gal
Actual (partial 2010)	11,690 gal

Gulkana Community Wood-Fired Boiler



RE Fund Grant	$500,000
Total Project Cost	$ 500,000
Est Fuel Displaced/yr	14,600 gal
2010 (Oct-Dec)	~3,000 gal

Tok School Wood-Fired Boiler

RE Fund Grant	$ 3,245,349
Total Project Cost	$ 3,805,349
Est Fuel Displaced/yr	50,400 gal
Actual (Oct-Dec)	~15,000 gal

Cordova Firewood Processor

RE Fund Grant	$ 147,720
Total Project Cost	$ 628,825
Est Fuel Displaced/yr	88,700 gal
Actual (Oct-Dec 2010)	~7,600 gal

Juneau Airport Ground Source Heat Pump

RE Fund Grant	$ 513,000
Total Project Cost	$ 1,076,000
Est Fuel Displaced/yr	29,500 gal

No. Prince of Wales Intertie

Coffman Cove & Naukati

RE Fund Grant	$ 3,752,181
Total Project Cost	$ 6,155,019
Est Fuel Displaced/yr	111,000 gal

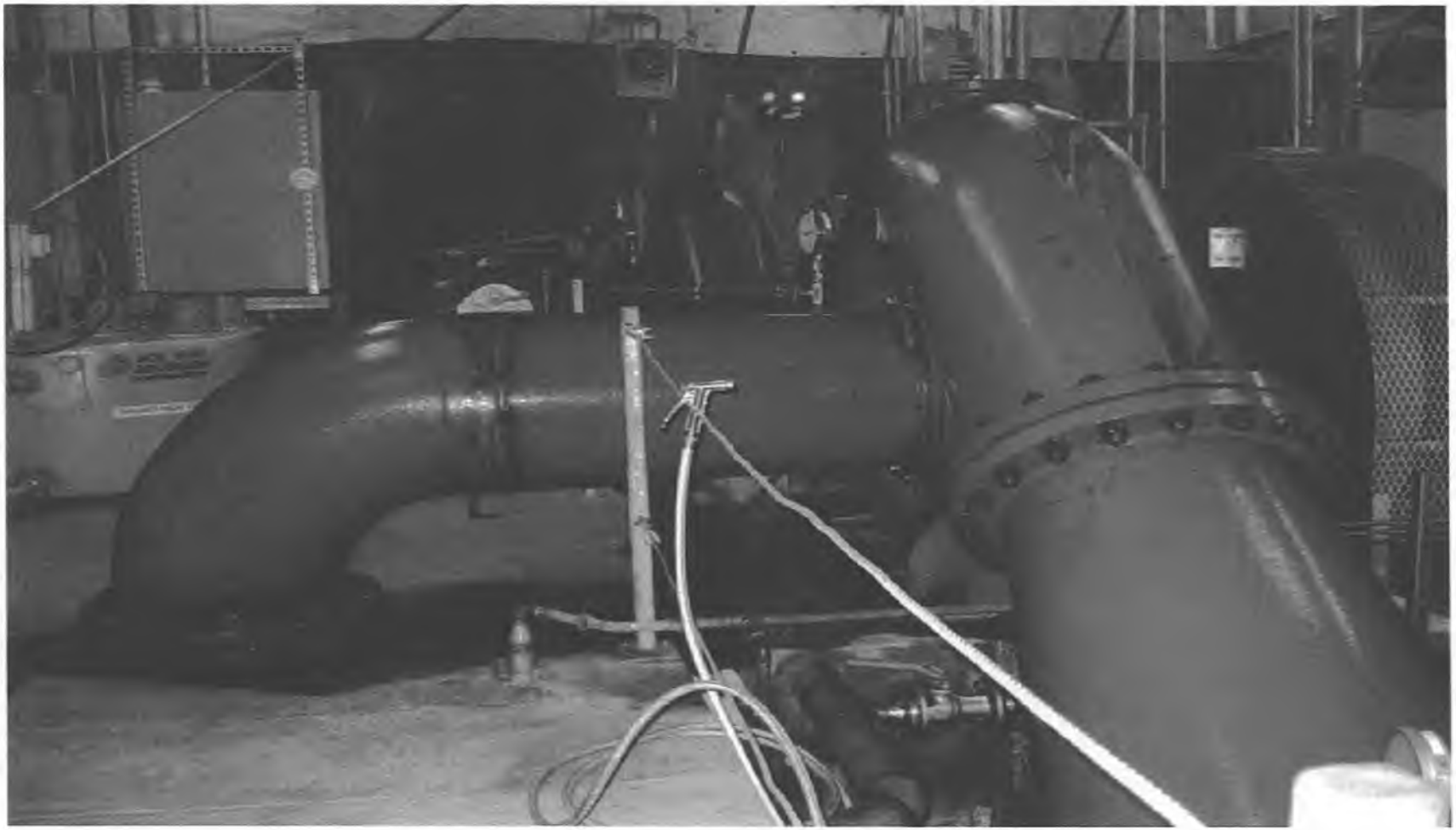
Capacity: 34.5 kV
Miles: 48

Bradley Lake (126 MW Capacity)

Snettisham (78 MW Capacity)

King Cove (800 kW Capacity)

Tazimina Hydro (800 kW)



Alaska Intertie
Right-of-Way and Power Lines

Emmonak Washeteria

Boiler tune and new controls

Savings: 6,070 gal. diesel/yr

$21,000/yr

Napaskiak LED Street Lights

- Replaced nearly all street lights
- Total Savings: 23,000 kWh/yr.
- Saves 1,770 gal. diesel/yr.

Thank you.

Alaska Energy Authority
813 West Northern Lights Boulevard
Anchorage, Alaska 99503

www.akenergyauthority.org