



# Alaska Energy Authority Overview

Alaska Native Village Energy Development Workshop

April 29, 2014



# Reducing the Cost of Energy

- Energy Planning and Policy
- Technical and Community Assistance
- Investing in Alaska's Energy Infrastructure
- Diversifying Alaska's Energy Portfolio



# Energy Planning and Policy

## Alaska's Energy Office

- Serve as lead on Alaska's energy policy development
- Coordination of energy plans on statewide level
- Monitor State energy goals
- Coordinate multi-agency efforts
- Individual project analysis and vetting
- Transmission planning

## Statutory Authorities

- 44.99.115 4(B)

“by using one office or agency, as may be specified by law, to serve as a clearinghouse in managing the state's energy related functions to avoid fragmentation and duplication and to increase effectiveness”

# Energy Program Coordination

## State Agencies

- \* Alaska Housing Finance Corp. (AHFC)
- \* Alaska Industrial Development & Export Authority (AIDEA)
- \* Department of Education
- \* Department of Environmental Conservation
- \* Division of Community and Regional Affairs
- \* Department of Natural Resources \* ISER
- \* Alaska Center for Energy and Power
- \* Department of Veterans and Military Affairs
- \* Department of Labor & Workforce Development
- \* Department of Transportation

Policy Direction:  
Legislature  
Governor's Office  
Board of Directors

## Federal Agencies:

- \* National Marine Fisheries Service
- \* Department of Energy
- \* Federal Emergency Management Agency
- \* Federal Energy Regulatory Authority
- \* U.S. Department of Agriculture
- \* Environmental Protection Agency
- \* Military
- \* Arctic Council
- \* Denali Commission
- \* Bureau of Land Mgt.
- \* Fish and Wildlife Serv.
- \* Federal Aviation Admin.

## NGOs

- \* Renewable Energy Alaska Project (REAP)
- \* Rural Alaska Community Action Program (RurAL CAP)
- \* Energy Efficiency Partnership
- \* Alaska Power Association
- \* Alaska Regional Development Organizations (ARDORs)
- \* Alaska Railbelt Cooperative Transmission & Electric Co (ARCTEC)
- \* National Association of State Energy Officials
- \* Technology Working Groups
- \* Alaska Village Initiatives

## Stakeholders

- \* Ratepayers
- \* Utilities
- \* Independent Power Producers
- \* Grantees
- \* Communities

AEA

# Technical and Community Assistance

- AEA community-based organization
- AEA technical staff have assisted 64 communities this year
- Energy Planning
  - Technical assistance to local communities to provide synergy between planning and funding sources
  - Assist communities to move to project-ready status
  - Village Energy Efficiency Program (VEEP), Renewable Energy Grant Fund , Emerging Energy Technology Fund
- Training
  - Partnership with AVTEC in Seward
  - Circuit Rider and emergency services; Bulk Fuel Operator; Power Plant Operator; Advanced Power Plant Operator Training
- Emergency community assistance provided to about 20 communities since Sept. 2012
- Circuit rider program assisted about 50 communities in 2013

# Investing in Energy Infrastructure

## Large Projects

### Bradley Lake Hydro

- Produces about 10% of Railbelt electricity
- AEA-owned asset
- Low-cost energy producer
- 120 megawatts, 4.5 cents/kWh

### Alaska Intertie

- 170-miles from Willow to Healy
- AEA-owned, operated by AEA and Railbelt utilities

### Susitna-Watana Hydro

- Will provide about 50% Railbelt electricity
- SB 42 authorized AEA to pursue licensing
- Long-term, stable rates



*Bradley Lake Hydroelectric Project*



*Alaska Intertie*

# Investing in Energy Infrastructure

## Bulk Fuel and Rural Power System Upgrades



- Help utilities improve efficiency, safety and reliability of power systems
  - Promote local hire and training
- Completed \$304 million in rural bulk fuel and rural power system upgrade projects since 2000, in partnership with Denali Commission
- Common to see 30 to 40% increase in fuel savings after a Rural Power Systems Upgrade is completed



# Investing in Energy Infrastructure

## Power Project Fund

- Low-interest loans to upgrade or develop small-scale electric power facilities
- Includes bulk fuel storage, transmission and distribution, waste energy, energy conservation, energy efficiency and alternative energy facilities and equipment
- State assistance for a project more than \$5 million requires Legislative approval



*Prince of Wales: Run-of-River Hydro*



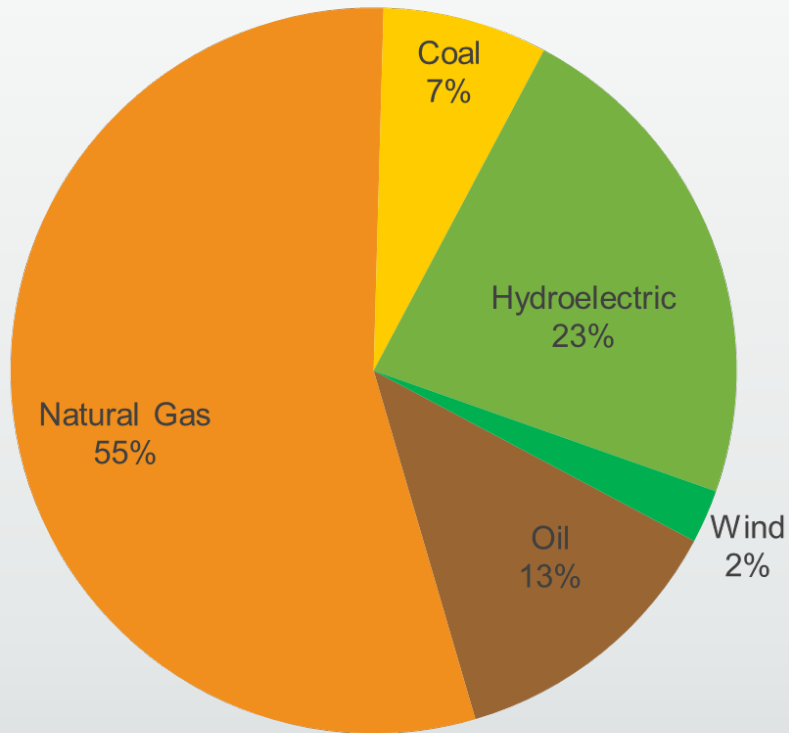
*Chena Hot Springs: Geothermal*



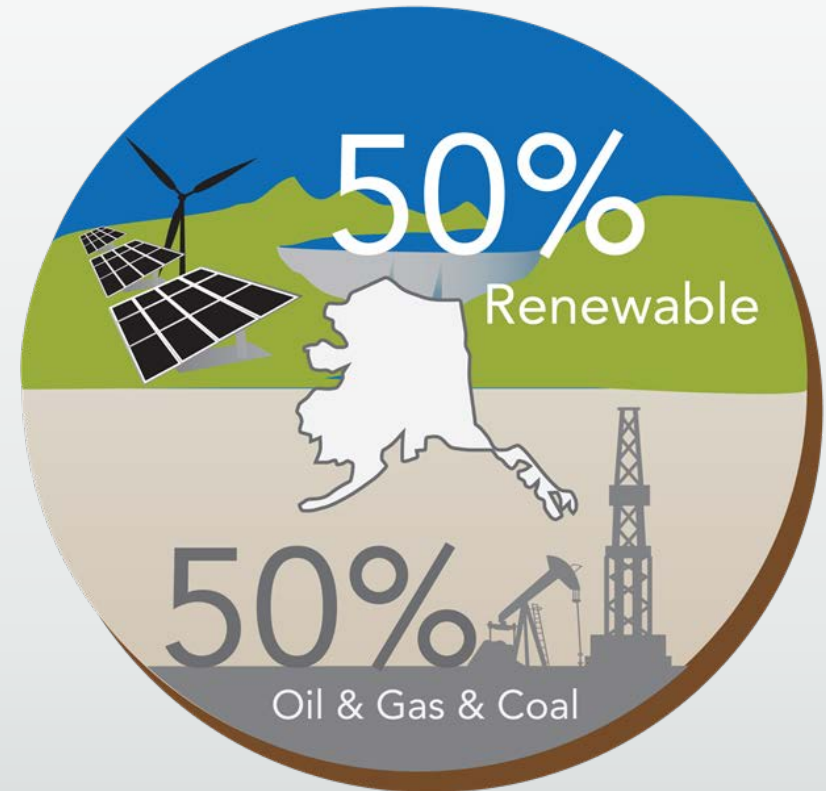
# Power Cost Equalization

- Provide economic assistance in rural Alaska where electrical rates can be 3 to 4 times higher than in urban Alaska
- Available to community facilities and residential customers
- Regulatory Commission of Alaska (RCA) sets rates, calculations based on use, costs and efficiencies
- Approximately 80,000 people live in the 188 participating communities (FY 12)
- PCE program costs approximately \$41 million
- \$867 million PCE Endowment (July 1, 2013)

# Diversifying Alaska's Energy Portfolio



Alaska's Electrical Generation  
*Preliminary Alaska Energy Statistics Report Data*



# Diversifying Alaska's Energy Portfolio

## Emerging Energy Technology Fund

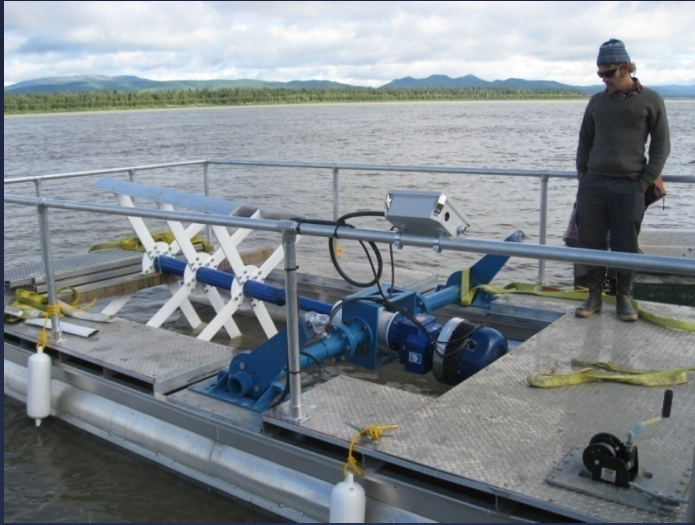
- Provides funds for projects that can demonstrate commercial viability within 5 years
- Includes renewable and alternative energy
- First successful year 2012-2013
  - Sixteen projects selected for funding
- Round 2 process underway
  - Six projects selected for funding
- Projects in Juneau, Fairbanks, Kodiak, Delta Junction, Nenana, Nikiski, Igiugig, Tuntutuliak, Kwiglingok and Kotzebue
- Program extended to 2020



*Installation of Slinky Loop*



*Altaeros Energies Helium Balloon Wind Turbine*



*Ruby: Hydrokinetic*



*Prince Wales Island Biomass*

# Diversifying Alaska's Energy Portfolio

## Renewable Energy Grant Fund

- Displaces volatile-priced fossil fuels through heat recovery, hydro, wind, geothermal, biomass, solar, wind and transmission projects
- 251 projects approved totaling \$277.5 million
  - FY15 Capital Budget includes \$22,843,900
- More than 60 projects currently under construction
- In 2013 13 million gallons of diesel and natural gas equivalent were displaced
- Capitalizes on local energy resources
- Benefits businesses not eligible for PCE
- Expands Alaska's renewable energy knowledge base



# Energy Efficiency and Conservation

- AEA's focus: commercial buildings, rural public buildings, industrial facilities and electrical efficiency
- Statewide outreach and education [AKEnergyEfficiency.org](http://AKEnergyEfficiency.org)
- Coordination between State agencies

## Results:

- \$1,534,062 and 282,938 diesel equivalent gallons in projected savings
- Average immediate savings of implemented efficiency measures: \$0.29 cents/ \$1 invested, 300% ROI after 10 years
- Alaska Commercial Energy Audit Program measures produce 30% savings with 6.2 year simple payback

# Alaska Energy Authority

## Projects Under Construction

### Summer 2013

**Renewable Energy Fund**

- Heat Pump
- Solar
- Transmission
- Hydro
- Heat Recovery
- Wind
- Biomass or Biofuels

**Systems Upgrades**

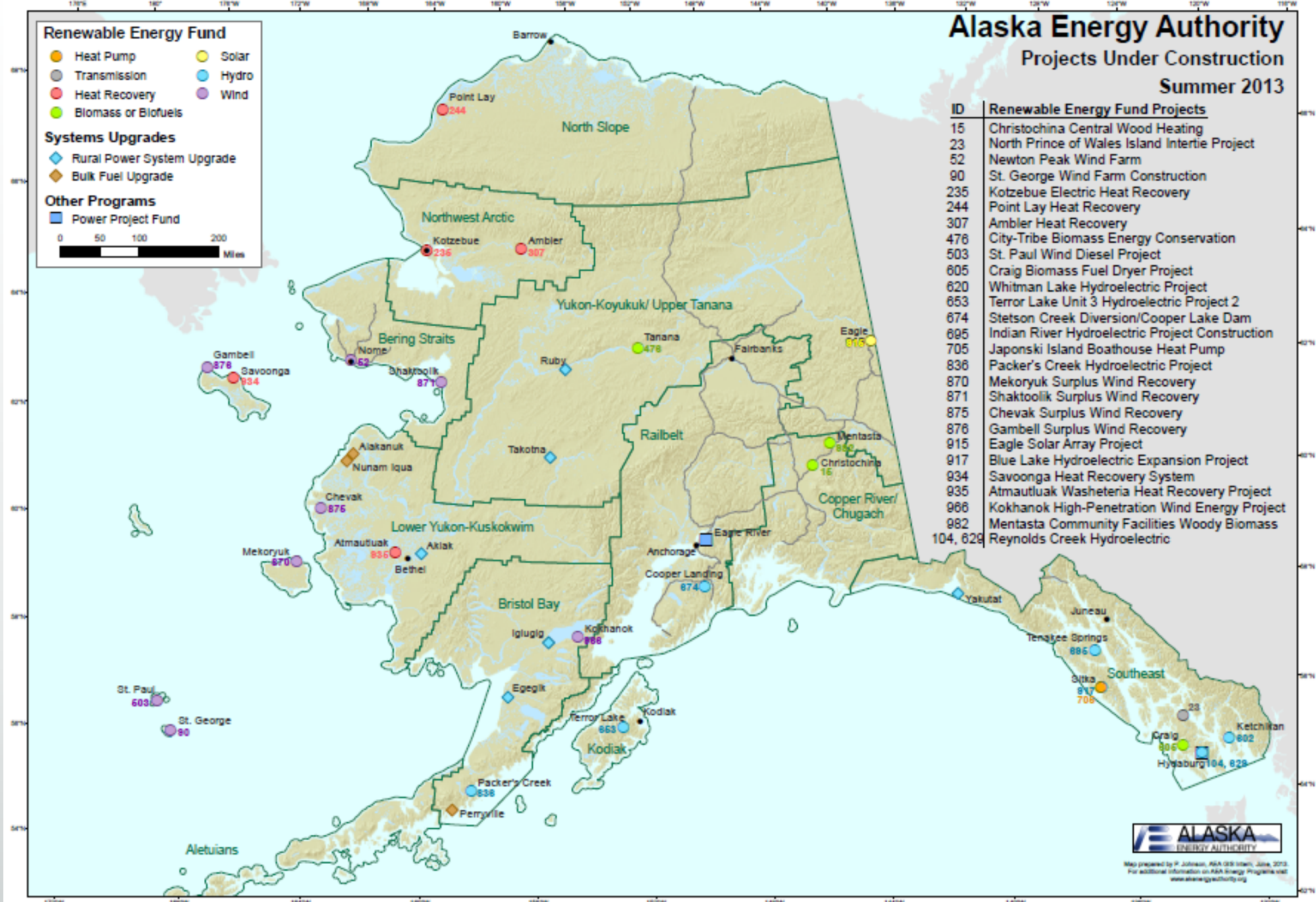
- ◆ Rural Power System Upgrade
- ◆ Bulk Fuel Upgrade

**Other Programs**

- Power Project Fund

0 50 100 200 Miles

ID	Renewable Energy Fund Projects
15	Christochina Central Wood Heating
23	North Prince of Wales Island Interie Project
52	Newton Peak Wind Farm
90	St. George Wind Farm Construction
235	Kotzebue Electric Heat Recovery
244	Point Lay Heat Recovery
307	Ambler Heat Recovery
478	City-Tribe Biomass Energy Conservation
503	St. Paul Wind Diesel Project
605	Craig Biomass Fuel Dryer Project
620	Whitman Lake Hydroelectric Project
653	Terror Lake Unit 3 Hydroelectric Project 2
674	Stetson Creek Diversion/Cooper Lake Dam
695	Indian River Hydroelectric Project Construction
705	Japonski Island Boathouse Heat Pump
838	Packer's Creek Hydroelectric Project
870	Mekoryuk Surplus Wind Recovery
871	Shaktolik Surplus Wind Recovery
875	Chevak Surplus Wind Recovery
876	Gambell Surplus Wind Recovery
915	Eagle Solar Array Project
917	Blue Lake Hydroelectric Expansion Project
934	Savoonga Heat Recovery System
935	Atmautluak Washeteria Heat Recovery Project
966	Kokhanok High-Penetration Wind Energy Project
982	Mentasta Community Facilities Woody Biomass
104, 629	Reynolds Creek Hydroelectric



[AKEnergyAuthority.org](http://AKEnergyAuthority.org)

