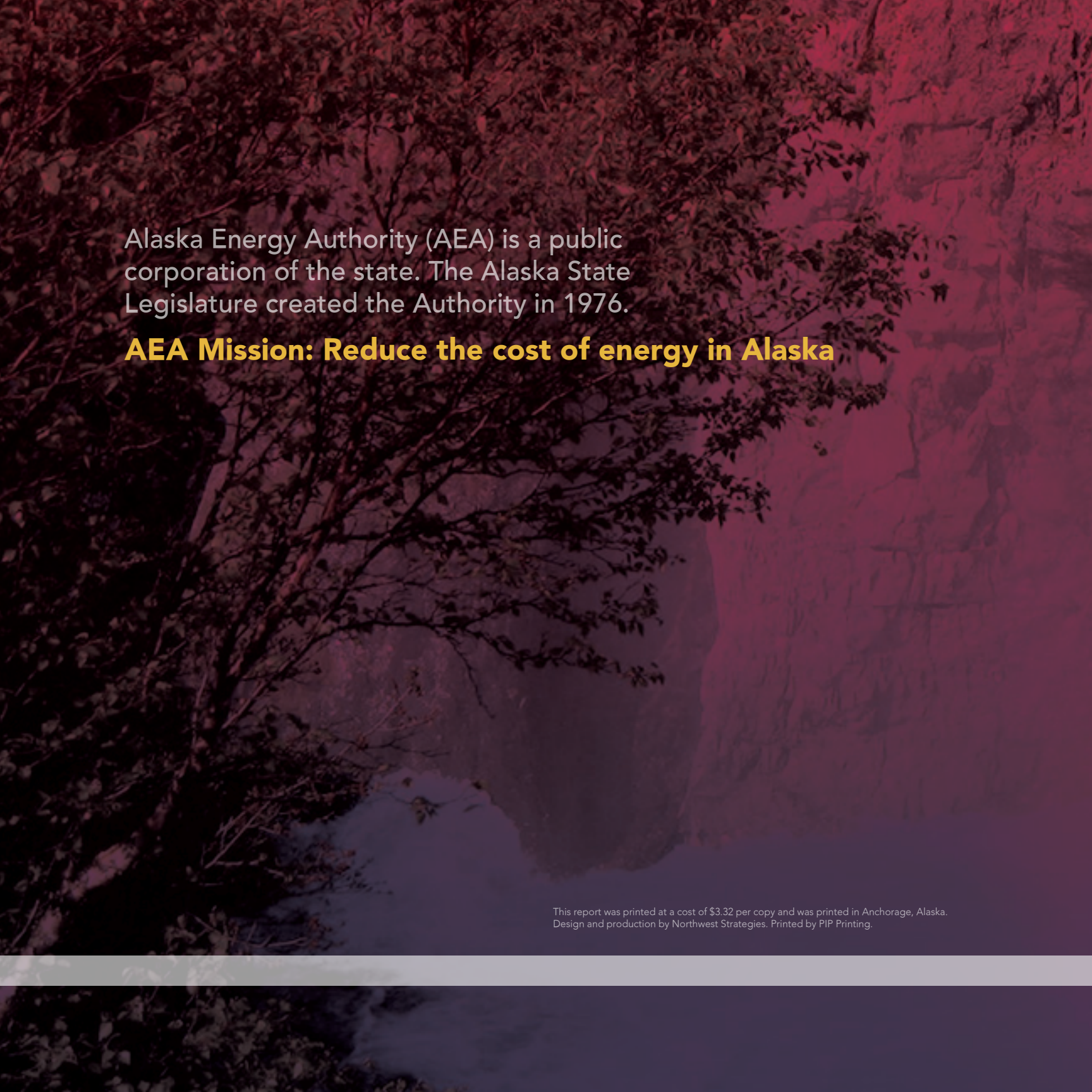


2011





Alaska Energy Authority (AEA) is a public corporation of the state. The Alaska State Legislature created the Authority in 1976.

AEA Mission: Reduce the cost of energy in Alaska

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contents

Report to Alaskans	2
Governor's Letter	5
AEA Project Highlights	6
AEA Programs	
Statewide	12
Regional	17
Rural	18
Management Team	21
Board of Directors	22
Financial Highlights	23

report to alaskans



December 2011

I am pleased to report that AEA has had a successful year in its role of leading statewide efforts to reduce the cost of energy in Alaska.

From Renewable Energy Fund (RE Fund) projects springing up across the state, to moving forward with the Susitna-Watana Hydroelectric Project on the Railbelt, to its partnering in the development of the Southeast Alaska Integrated Resource Plan, AEA's work spans Alaska and brings positive results to many communities.

To highlight the scope of AEA's work statewide, we have included two excellent maps in this report. I invite you to take a look.

A major highlight of 2011 was the legislature's vote that authorized AEA to proceed with the next phases of the Susitna-Watana Hydroelectric Project. In 2010, AEA announced its recommendation that the Low Watana site on the Upper Susitna River should be the primary hydroelectric project for the Railbelt. In January 2011, Governor Parnell introduced legislation to move the Susitna-Watana project forward, and in April the legislature voted overwhelmingly in favor of advancing the project.

The Susitna-Watana Project would help Alaska reach the goal of producing 50 percent of our power from renewable resources by 2025, and would provide clean and reliable power for generations. AEA is active with public meetings and is identifying new environmental studies needed as we move forward in this process with the Federal Energy Regulatory Commission. AEA filed the Preliminary Application Document with the commission in December 2011.



Additional 2011 accomplishments include:

- AEA and the Alaska Center for Energy and Power co-hosted the Rural Energy Conference. This year it was held in Juneau, with more than 400 people attending from throughout Alaska.
- AEA administers the RE Fund. Five application periods are complete, and to date, \$176.6 million for 207 renewable energy projects has been approved. AEA estimates that by the end of 2013, 44 RE Fund projects will be complete, saving more than 10 million gallons of diesel fuel or equivalent annually.
- In addition to the Tok and Unalakleet projects highlighted in this report, another RE Fund project that deserves mention is the North Pole Heat Recovery project. Fifteen electric heaters in a 20,000-square-foot building were replaced with recovered heat from the water system in the North Pole plant. The project takes heat, formerly rejected to the atmosphere, and uses it to displace approximately 92,000 gallons of naphtha.
- Throughout rural Alaska, AEA has completed 71 of 107 Bulk Fuel Upgrade projects and 51 of 110 Rural Power System Upgrade projects. Since 2000, in partnership with the Denali Commission, AEA has completed \$304 million in Rural Bulk Fuel and Rural Power System Upgrade projects.
- AEA made significant progress toward its largest ever set of energy efficiency construction projects in community buildings, serving 121 communities statewide through the Alaska Small Cities Energy Efficiency and Conservation Block Grants Program and the Village Energy Efficiency Program. These two programs are expected to produce up to \$18 million in energy savings for the communities over a ten-year period.
- We also launched the Alaska Commercial Energy Audit Program, which provides free or reduced cost energy audits for privately-owned commercial buildings. AEA expects the program will result in private investments of approximately \$2.6 million in efficiency measures and nearly \$4.3 million in energy savings over a ten-year period.

Continued on page 4

Continued from page 3

- AEA also administers the recently created Emerging Energy Technology Fund and expects to issue a Request for Applications in January 2012.
- AEA's *Alaska Energy Pathway* continues to receive wide support for the tools made available in the document. The *Pathway* provides 228 Alaska communities with the information needed to chart the course to long-term energy sustainability and affordability. AEA is working with communities and regions as we move toward the goal of developing comprehensive regional energy plans.

On behalf of AEA's Board, management and staff, we thank Governor Parnell, Alaska's lawmakers and all Alaskans for their continued support of AEA and its commitment to helping move our state through challenging times toward a bright energy future.

Sincerely,
Sara Fisher-Goad
Executive Director





governor's letter



Photo Credit: Jeff Schultz
AlaskaStock.com

January 2012

Dear Fellow Alaskans,

The Alaska Energy Authority (AEA) serves a critical role in reducing the cost of energy throughout Alaska. Through innovation, hard work, and collaboration with communities in rural Alaska, AEA provides the tools necessary to move toward a better energy future.

In Alaska's Railbelt, we are moving forward on the Susitna-Watana Hydroelectric Project. AEA is helping lead the effort on this critically important project to provide more abundant energy for Alaskan homes and businesses. This, in turn, will create new opportunities for economic development and jobs for Alaskans.

I appreciate AEA's work to energize and grow Alaska's homes and economy. Together, we are building the foundation for a more secure, stable energy future for all Alaskans.

Best regards,

Sean Parnell
Governor

project highlights



Tok School

Biomass Energy System

This new wood boiler project was funded through the RE Fund, and was planned, designed and constructed within budget. The 5.5 million BTU/hr woodchip-fed boiler heats the 75,000-square-foot school, and is expected to displace approximately 60,000 gallons of heating oil annually. The Tok School Project is a great example of how a RE Fund project came to life with community support. In addition to displacing thousands of gallons of heating oil, this project's use of a locally available, renewable fuel supply helps deter severe forest fire hazards in the area.



T a z i m i n a

Hydroelectric Project Upgrade

With funding from the Denali Commission, AEA is working with the Iliamna-Nondalton-Newhalen Electric Cooperative to upgrade the Tazimina Hydroelectric Project in the Lake Iliamna Region. This hydro installation provides the majority of power to Iliamna, Nondalton and Newhalen, and offsets more than \$1 million in diesel fuel costs.

The project scope includes generator turbine overhauls, tailrace repair, upgrading the controls to include a Supervisory Control and Data Acquisition (SCADA) system, installation of dispatchable electric boilers and upgrades to the intake channel. Other improvements include: reliability of the power generation systems is increased; the powerhouse can now be managed remotely; maximum power output is increased; power quality is improved; and hydropower operation during periods of cold weather is extended.

The work that AEA is doing on the Tazimina project includes innovations that have the potential to benefit hydroelectric projects in Alaska and other subarctic regions.





H o o n a h

Bulk Fuel Upgrade

AEA completed a new bulk fuel tank farm project in Hoonah in partnership with the City of Hoonah and Hoonah Trading Company. This new bulk fuel facility has a gross storage capacity of 270,000 gallons. It includes 50,000 gallons of No.1 diesel, 170,000 gallons of No. 2 diesel and 50,000 gallons of gasoline. Fuel distribution is through a retail dual product service station dispenser, a marine bulk transfer facility and a truck loading rack. AEA is proud to work with its local partners to build this modern fuel facility in Southeast Alaska.



Chignik

Rural Power System Upgrades

The City of Chignik previously operated two independent power generation and distribution systems: one for the east side of the community and one for the west side. Now, thanks to the AEA Rural Power System Upgrades program, residents of this Alaska Peninsula community get their power from one common generation plant. The scope of this project includes a new powerhouse module along with an extensive new distribution system. The installation of modern diesel technology for Chignik has produced an average power generation efficiency gain of more than 40 percent.





U n a l a k l e e t

Wind Turbines

Unalakleet, located on Norton Sound, completed a second year of having six 100-kW wind turbines operate on a hillside near the community. This RE Fund Project generated 875,000 kWh for the year, reducing diesel consumption by more than 60,000 gallons.

This represents a 30 percent improvement over 2010 performance, due primarily to the installation of an electric boiler tied into the city heat loop. This boiler takes excess wind power and diverts it as heat to nearby community facilities.

A new capacitor bank and SCADA system improved power quality. These enhancements also provide for more efficient selection of generators in response to minute-by-minute changes in local power demand.

As Unalakleet saw increasingly positive results from its wind turbines, new wind systems came online in Mekoryuk, Sand Point, Kongiganak, Emmonak and Shaktoolik.



Alaska Energy Authority

Projects Under Construction

Summer 2011

Renewable Energy Fund

- Biomass or BioFuels
- Geothermal
- Heat Recovery
- Hydro
- Wind

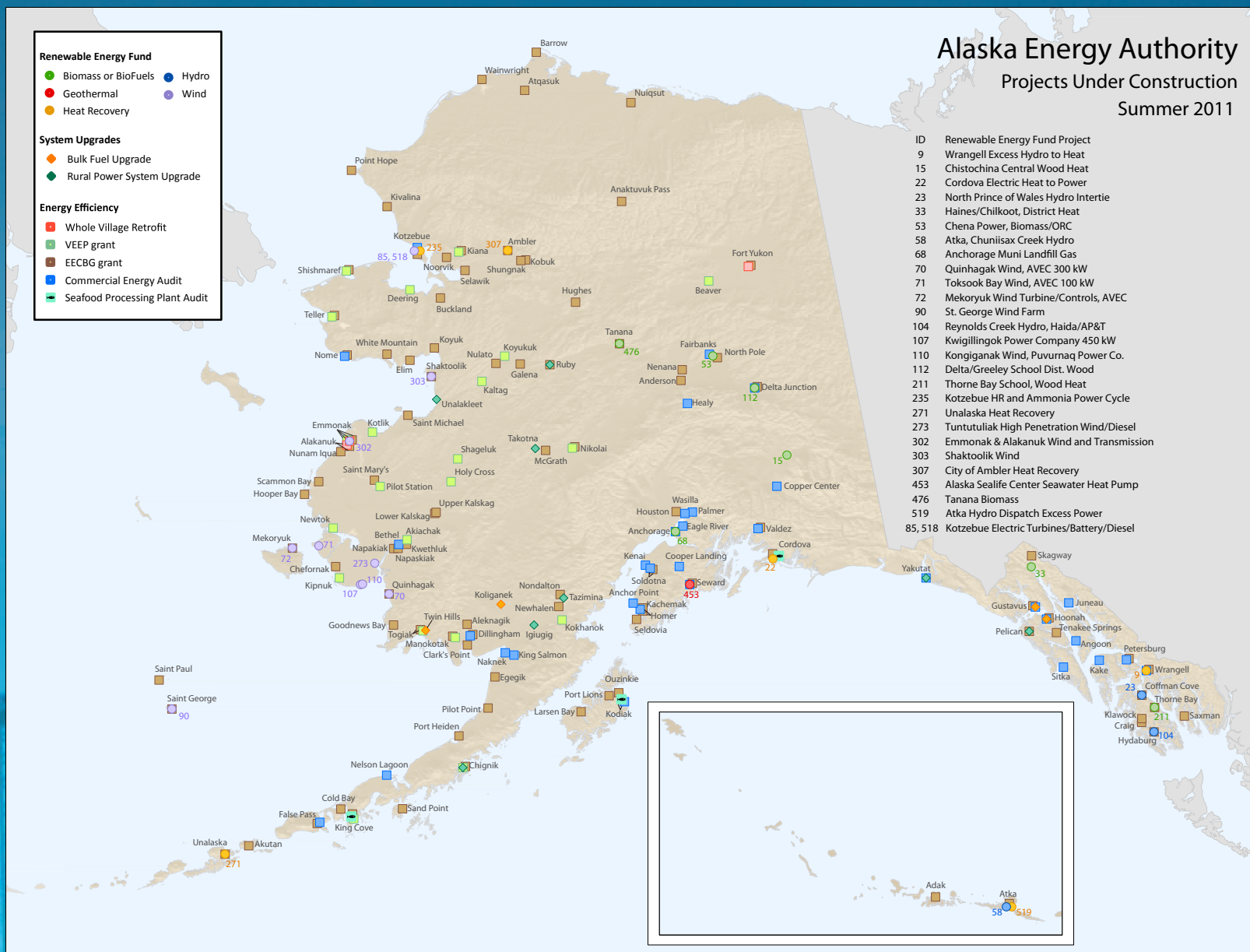
System Upgrades

- Bulk Fuel Upgrade
- Rural Power System Upgrade

Energy Efficiency

- Whole Village Retrofit
- VEEP grant
- EECBG grant
- Commercial Energy Audit
- Seafood Processing Plant Audit

- ID Renewable Energy Fund Project
- 9 Wrangell Excess Hydro to Heat
 - 15 Chistochina Central Wood Heat
 - 22 Cordova Electric Heat to Power
 - 23 North Prince of Wales Hydro Intertie
 - 33 Haines/Chilkoot, District Heat
 - 33 Chena Power, Biomass/ORC
 - 58 Atka, Chuniisax Creek Hydro
 - 68 Anchorage Muni Landfill Gas
 - 70 Quinhagak Wind, AVEC 300 kW
 - 71 Toksook Bay Wind, AVEC 100 kW
 - 72 Mekoryuk Wind Turbine/Controls, AVEC
 - 90 St. George Wind Farm
 - 104 Reynolds Creek Hydro, Haida/AP&T
 - 107 Kwigillingok Power Company 450 kW
 - 110 Kongiganak Wind, Puvuruaq Power Co.
 - 112 Delta/Greeley School Dist. Wood
 - 211 Thorne Bay School, Wood Heat
 - 235 Kotzebue HR and Ammonia Power Cycle
 - 271 Unalaska Heat Recovery
 - 273 Tuntutuliak High Penetration Wind/Diesel
 - 302 Emmonak & Alakanuk Wind and Transmission
 - 303 Shaktoolik Wind
 - 307 City of Ambler Heat Recovery
 - 453 Alaska Sealife Center Seawater Heat Pump
 - 476 Tanana Biomass
 - 519 Atka Hydro Dispatch Excess Power
 - 85, 518 Kotzebue Electric Turbines/Battery/Diesel



aea programs | statewide

Alaska Energy Pathway

The AEA January 2009 publication, *Alaska Energy – A First Step Toward Energy Independence*, paved the way for its July 2010 publication, *Alaska Energy Pathway*. The *Pathway* provides direction and focus on the goal of all Alaskans having access to affordable power. As a result, 228 communities are now provided with the data they need to chart a course to long-term energy sustainability and affordability. AEA continues its work with community and regional stakeholders throughout the state, establishing a uniform approach for prioritizing and developing energy projects, and receiving wide support for the tools made available in the *Pathway*.

Renewable Energy Fund

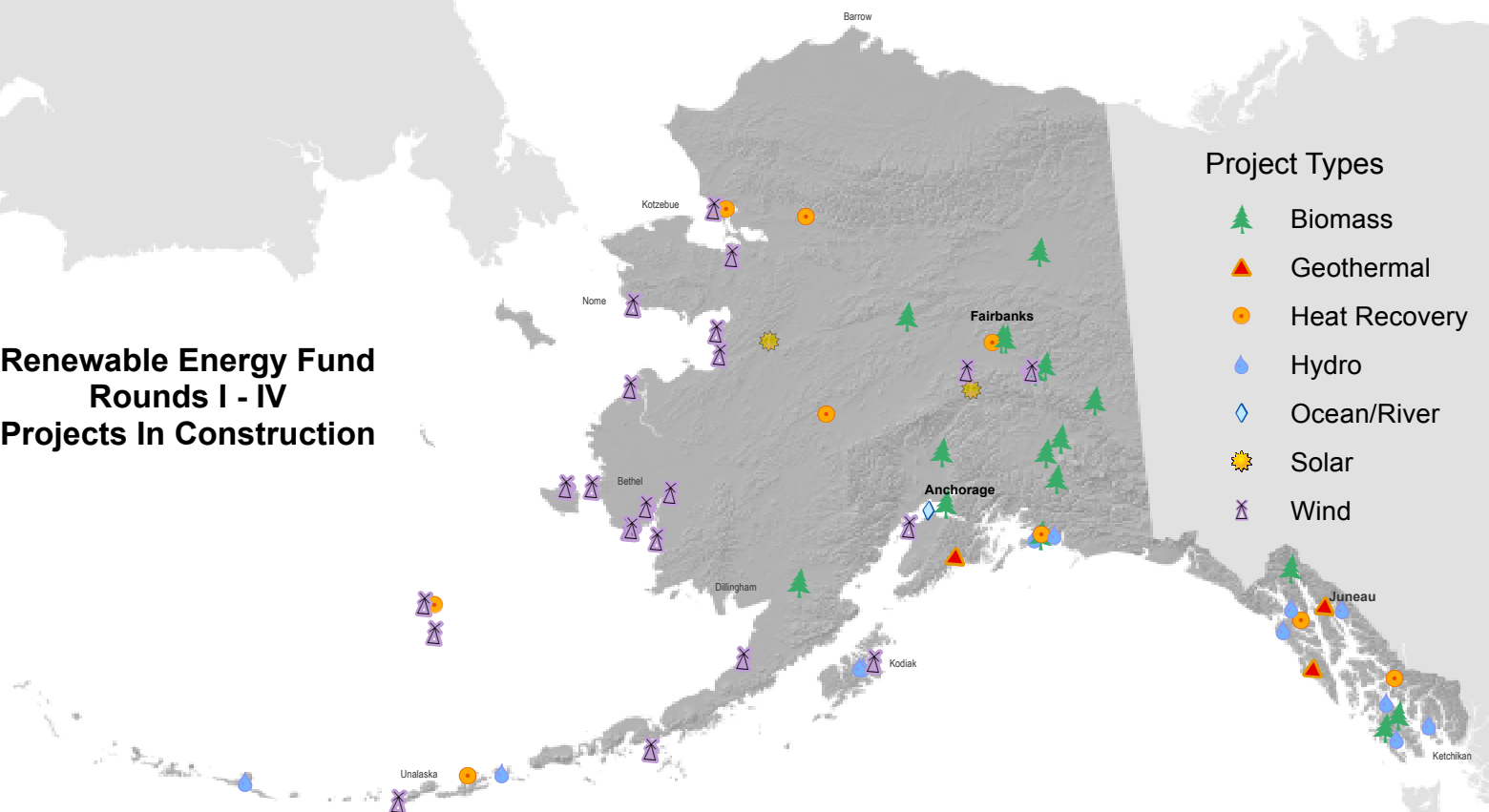
The Alaska State Legislature created the \$250 million RE Fund in 2008. This legislation placed Alaska at or near the forefront of the 50 states in funding for renewable energy. The legislature authorized AEA to manage the RE Fund project application process, project evaluations, recommendations, completion of grant agreements and disbursement of funds to grantees. AEA began soliciting applications for RE Fund grants in the fall of 2008. Five application periods are complete and the Round V application period closed in August 2011. AEA evaluates all applications received. To date, \$176.6 million for 207 renewable energy projects has been approved. Through November 2011, \$75.6 million in grant payments were made. Eighty-four percent of Rounds I-IV RE Fund projects are underway. AEA estimates that by the end of 2013, 44 RE Fund projects will be complete, saving more than 10 million gallons of diesel fuel annually.



Renewable Energy Fund Rounds I - IV Projects In Construction

Project Types

-  Biomass
-  Geothermal
-  Heat Recovery
-  Hydro
-  Ocean/River
-  Solar
-  Wind



Emerging Energy Technology Fund

The legislature recently created this new program, which AEA administers. Its purpose is to fund demonstration projects that test emerging energy technologies or methods of conserving energy; improve an existing energy technology; or deploy an existing technology that has not previously been demonstrated in Alaska. Successful applicants will need to accomplish these objectives and have a reasonable expectation to be commercially viable within five years.

The legislature appropriated \$4.8 million to the Emerging Energy Technology Fund. The Denali Commission also contributed \$4.8 million.

Power Project Fund

This program provides loans to local utilities and local governments or independent power producers for the development or upgrade of electric power facilities, including conservation, bulk fuel storage and waste energy conservation. Recent legislation authorized AIDEA to pay approximately \$21 million to purchase loans from the Power Project Fund. This transaction allowed AEA to recapitalize the fund and continue providing money for energy projects.



Small Nuclear Assessment

AEA and the University of Alaska hosted the Small Scale Nuclear Energy Exploratory Workshop. The workshop provided a comprehensive overview of small scale nuclear technology and its potential application in Alaska. AEA will provide a report to the legislature in 2012.

Alternative Energy and Energy Efficiency

AEA's Alternative Energy and Energy Efficiency Program promotes the use of renewable resources as alternatives to fossil fuel-based power and heat, and advances measures to improve energy production and end use efficiency. In rural areas, the program may support developing local sources of coal and natural gas as diesel alternatives. Program activities, including funding solicitations, are described in the *Alternative Energy and Energy Efficiency Work Plan*, available at akenergyauthority.org. This program currently manages projects and initiatives totaling \$246 million in state and federal funding, and is divided into eight separate program areas:

- The *Alaska Energy Data Inventory*, a collaborative project between AEA, the Alaska Department of Natural Resources, and the University of Alaska's Geographic Information Network of Alaska, is compiling renewable and fossil resource data, energy supply and usage, and other information useful for energy planning and development.
- AEA's Biomass Energy Program develops projects using wood, sawmill residue and municipal wastes for energy; tests air emissions and performance of fish oil and diesel blends as fuel; and assesses the viability of recovering fish oil from fish processing wastes.

Alternative Energy and Energy Efficiency

continued

- Our Combined Heat and Power Program provides assistance in developing projects that improve the overall efficiency of power systems by recovering waste heat from diesel-fueled and other generators.
- The Energy Efficiency & Conservation Program focuses on achieving Alaska's 15 percent energy efficiency goal through whole-building energy audits, energy efficiency measures in public buildings and facilities, commercial buildings and small industrial buildings and through public education. Current initiatives include Energy Efficiency and Conservation Block Grants, the Village Energy Efficiency Program, whole village retrofits, industrial energy audits, a statewide public education and outreach program and assistance with regional energy efficiency planning and implementation.
- The AEA Geothermal Program supports projects such as the Chena Hot Springs power plant; organizes workshops and training sessions; and coordinates state assistance in developing other potential projects such as Mount Spurr on the Railbelt and Makushin in Unalaska.
- AEA's Hydroelectric Program provides technical assistance through staff and contractors for conducting a hydro feasibility assessment. This program also manages public funding for project construction.
- The AEA Ocean and River Energy Program evaluates technology and feasibility of converting wave motion, tidal and river flow into power in partnership with Alaska utilities and the Electric Power Research Institute.
- Our Wind Energy Program assists utilities and communities in resource evaluation, training, environmental assessment, regional development, conceptual design and economic feasibility of rural wind-diesel systems. The program also assists with Railbelt wind integration studies.



aea programs | regional

A l a s k a R a i l b e l t

AEA has a lead role in regional energy planning for Alaska. The Authority has led and continues to advance significant work for Alaska's Railbelt electric grid. AEA also oversees the Southeast Alaska Integrated Resource Plan, and is undertaking efforts in the Lower Yukon-Kuskokwim region to address energy supply, heating and efficiency. AEA is working with other organizations to pave the way for energy planning in all other regions of the state.

The Railbelt Electrical Grid Authority (REGA) Study and the Alaska Railbelt Regional Integrated Resource Plan (RIRP) focus on the future cost-effective, reliable operation of the Railbelt grid. With these two documents, AEA has set the stage to restructure Railbelt generation and transmission ownership, and to identify cost-effective additions for transmission lines and new power generators. As the owner of two key Railbelt energy assets – the Bradley Lake Hydro Project and the Alaska Intertie – AEA is playing an important supporting role in the Railbelt utility efforts to form a new, integrated generation and transmission organization.

Susitna-Watana Hydroelectric Project

Long-term energy stability on Alaska's Railbelt is a key to statewide energy strategy. In 2008, the legislature directed AEA to examine hydroelectric potential on the Railbelt. In 2010, AEA recommended that the state should move forward with the Susitna-Watana Hydroelectric Project. In January 2011, Governor Parnell introduced legislation that would accomplish this goal. In April 2011, after many hearings and substantial public involvement, the legislature voted in favor of legislation necessary to move the project forward.

AEA is active with public meetings, design and field work, and is identifying new environmental studies that are needed as it moves forward in the Federal Energy Regulatory Commission process.

aea programs | rural

Bulk Fuel Upgrades

Upgrading bulk fuel facilities reduces the cost of energy by replacing leaking tanks and reducing the risk of future tank and equipment failure. Bringing these facilities into compliance with federal and state regulations also makes them safer and more reliable. AEA completed three bulk fuel upgrade projects in 2011. To date, 71 of 107 of these have been completed. Since 2000, and with substantial contributions from the Denali Commission, AEA has completed more than \$204 million in rural bulk fuel projects.

Rural Power System Upgrades

Powerhouse upgrade projects replace outdated, inefficient systems with new electronically controlled generator sets. New powerhouses include generators of several different sizes, allowing the operator to employ the most efficient generator at various power demand levels throughout the day. At peak demand times the largest generator provides the power, while at low demand times the smallest generator provides the power. AEA has also increased fuel efficiency by adding electronic fuel injectors. The Authority's capacity to provide technical assistance is enhanced with the installation of remote monitoring systems. AEA completed four Rural Power System Upgrade projects in 2011. To date, 51 of 110 Rural Power System Upgrade projects have been completed. Since 2000, with substantial contributions from the Denali Commission, AEA has completed more than \$100 million in rural power system projects.



Bulk Fuel Revolving Loan Fund

This AEA program assists communities, utilities and fuel retailers in rural communities with purchasing emergency, semi-annual or annual bulk fuel supplies. AEA made 52 Bulk Fuel Revolving Loan Fund loans in FY 2011. The average loan size was \$291,043.

Power Cost Equalization (PCE)

PCE payments reduce the cost of power to residential and community customers of eligible utilities. The program provides economic assistance to customers in rural areas, where the kWh charge for electricity can be three to five times higher than in urban areas of the state. With PCE, Alaska's rural areas are more able to maintain communications and the operation of basic infrastructure and systems. In FY 2011, AEA disbursed \$31,812,006 in PCE payments.

Emergency Response, Technical Assistance

AEA helps communities as power emergencies arise and provides ongoing technical assistance to rural power plant and bulk fuel facility operators. This helps assure safe, reliable operation of rural Alaska electric generation equipment in which millions of dollars are invested, and provides power to a rural infrastructure of even greater value.



Training

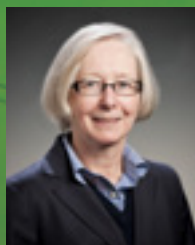
AEA trains local residents to manage and operate rural energy infrastructure. The intent of this training is to ensure that community personnel have the best skills with which to sustain their energy infrastructure in a businesslike manner. Proper training and good management are keys to success. The AEA commitment to provide the best training available, combined with local residents' dedication to learn, results in an infrastructure that will last and be useful its entire life span. Forty-seven rural residents were trained in FY 2011, including bulk fuel operators, power plant operators, advanced power plant operators and hydroelectric power plant operators.



management team



Sara Fisher-Goad
Executive Director



Linda MacMillan
Deputy Director, Operations



Sandra Moller
Deputy Director, Rural Energy



Valorie Walker
Deputy Director, Finance



Peter Crimp
*Deputy Director, Alternative
Energy and Energy Efficiency*



Karsten Rodvik
Project Manager, External Affairs

board of directors

Robert Sheldon

Gary Wilken

Susan Bell
Vice Chair

Bryan Butcher

Hugh Short
Chairman

Wilson Hughes

Ron Arvin



Pictured from left to right



unaudited financial highlights (in thousands)

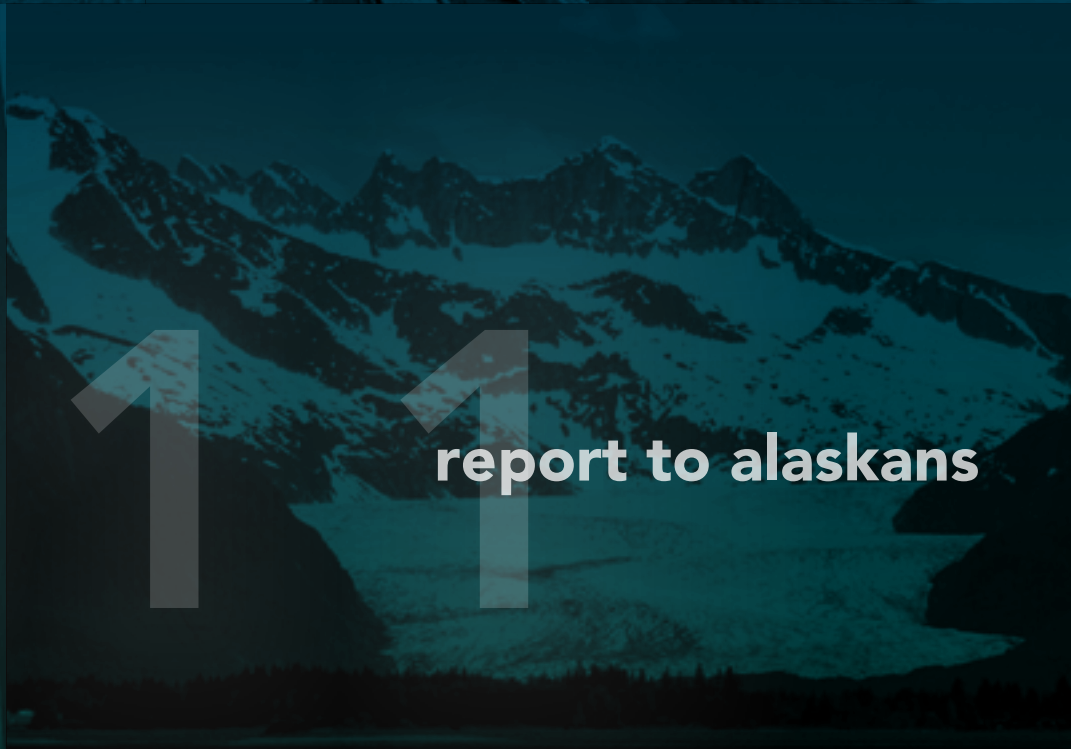
Balance Sheets	As of	
	June 30, 2011	June 30, 2010
<i>Assets:</i>		
Investment securities and cash	\$ 577,376	479,394
Loans, net	3,325	26,976
Capital assets, net	227,438	236,472
Receivables and other assets	408,680	29,827
<i>Total Assets</i>	<i>1,216,819</i>	<i>772,669</i>
<i>Liabilities and net assets:</i>		
<i>Liabilities</i>		
Bonds payable	101,171	107,679
Payables and other liabilities	39,739	21,942
<i>Total liabilities</i>	<i>140,910</i>	<i>129,621</i>
<i>Net assets</i>	<i>1,075,909</i>	<i>643,048</i>
<i>Total liabilities and net assets</i>	<i>\$ 1,216,819</i>	<i>772,669</i>

Revenues, Expenses and Changes in Net Assets	For the years ended	
	June 30, 2011	June 30, 2010
<i>Operating revenues:</i>		
Federal grants	\$ 11,758	14,184
Revenue from operating plants	17,613	18,709
State operating revenues	17,315	21,873
Interest on loans	484	1,147
Other operating revenues	98	121
<i>Total operating revenues</i>	<i>47,268</i>	<i>56,034</i>
<i>Operating Expenses:</i>		
Grants and projects	62,072	52,791
Power cost equalization grants	31,180	31,210
Interest expense	5,540	6,393
Plant operating	5,674	5,201
General and administrative	3,933	1,787
Provision for loan losses	(14)	(3)
Depreciation	10,291	10,277
<i>Total operating expenses</i>	<i>118,676</i>	<i>107,656</i>
<i>Operating loss</i>	<i>(71,408)</i>	<i>(51,622)</i>
<i>Investment Income, net</i>	<i>70,897</i>	<i>42,749</i>
<i>State of Alaska Fund Capitalization</i>	<i>437,200</i>	<i>25,199</i>
<i>Other non-operating losses</i>	<i>(3,828)</i>	<i>—</i>
<i>Increase in net assets</i>	<i>\$ 432,861</i>	<i>16,326</i>



For AEA's complete Audited Financial Statements for FY 2011, go to akenergyauthority.org, or call 907.771.3000.





2011

report to alaskans