



# REPORT TO ALASKANS

2014

# AUTHORITY



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DECEMBER 2014  
REPORT TO  
ALASKANS

COMMUNITY FIRST. These two words carry meaning and power at the Alaska Energy Authority (AEA). In 2014, AEA launched the Community First Initiative, and through this report, we hope to demonstrate the positive results stemming from our efforts.

AEA's mission to reduce the cost of energy in Alaska is an ambitious yet clear directive, and one that we as an organization reflect on daily. I am proud of the work we have done with planning energy policy and of our investment in Alaska's energy infrastructure, diversification of Alaska's energy portfolio and the technical and community assistance we provide. However, as with any agency, corporation or business that has expanded its operations, it's important to reassess internal structure and how we can best serve the state of Alaska.

Previously, AEA's structure separated rural energy, alternative energy and energy efficiency into individual departments. This structure did not promote open internal dialogue and did not set an example for a community-based approach to which we strive for providing energy solutions. In June 2014, AEA launched a revised internal structure. AEA's new structure organizes the authority into program development (including programs such as Renewable Energy Grant Fund and Emerging Energy Technology Fund), project implementation and energy policy and outreach. This more community-based approach applies to every facet of AEA's project and program development.

As you will see in this report, AEA's project management staff is working with communities around the state to fully integrate their energy

systems, including diesel, renewable energy and transmission. Our community assistance team is branching out from its technical focus and assisting communities in finding resources to lower energy-related costs, including resources outside of AEA. Our regional planning group is working to fully integrate its efforts with the Alaska Affordable Energy Strategy, which is focused on providing a long-term energy planning structure for communities that will not have direct access to the natural gas pipeline. And finally, our Power Cost Equalization team continues to meet with stakeholders to evaluate ways to maximize program benefits to rural ratepayers.

AEA continues to play a leading role in informing and implementing Alaska's energy policies, and is taking steps to promote multi-agency collaboration to break down external silos and encourage increased communication within the authority.

Providing stable and affordable power across Alaska presents many challenges, but through the vision of AEA's board of directors, Alaska's elected officials and AEA's committed staff, we are making improvements. AEA will continue our Community First focus, and we look forward to furthering positive discussions and energy-related work in the state of Alaska.

Sincerely,

Sara Fisher-Goad  
EXECUTIVE DIRECTOR



# PROGRAM HIGHLIGHT

**THE ALASKA ENERGY EFFICIENCY PARTNERSHIP:**  
A **40-plus** efficiency stakeholder engagement group committed to encouraging multi-agency coordination and integrated planning in the deployment of energy efficiency resources around Alaska.



DECEMBER 2014

# LETTER FROM THE GOVERNOR

DEAR FELLOW ALASKAN,  
As we look to the opportunities in the year ahead, affordable energy remains a constant focus of my administration. Simply put, energy is one of my highest priorities as governor; one that we must address in order to meet the immediate needs of those who are burdened with the high cost of heat and electricity.

Even in an age of smartphones and high-speed Internet, too many Alaskans deal with the developing world's struggles of astronomically expensive energy. It is not uncommon for many Alaskans to pay more for their monthly heating bills than a mortgage or rent payment.

During my early years of growing up, we attempted to heat our home with an old, inefficient wood stove. In the morning, it would be as cold inside as it was outside – sometimes forcing us out of bed at 10 degrees below zero. Waking up in a cold house is something I will never forget, and it is still a part of who I am today. Knowing that some Alaskans still live in these dire circumstances makes me even more eager to find solutions to our energy woes.

The Alaska Energy Authority is working hard to bring energy security to our state, and to stabilize the cost of heat and electricity bills for all Alaskans. Whether it is through the promotion of alternative energy sources, energy efficiency programs or maintaining our state's transmission grids, AEA is on the front line of our energy sector, finding new opportunities to bring affordable energy solutions to Alaska. It is my firm belief that our next energy

opportunity lies in natural gas. Since the oil boom of the 1970s, Alaskans have recognized that production of North Slope gas was a no-brainer. I remember first getting involved in the push for liquefied natural gas during a 1976 meeting with California Governor Jerry Brown and the group called Organization for Management of Alaska's Resources (now known as the Resource Development Council). Since then, my commitment to bring Alaska's gas to Alaskans and the world market has been unwavering, and as governor I plan to see this project to fruition.

While the year ahead brings a host of fiscal challenges, the opportunity for Alaska to utilize its energy resources still shines bright. It is speculated that the amount of North Slope natural gas is in the hundreds of trillions of cubic feet, enough to sell and use for hundreds of years. By working directly with global markets, and not allowing others to dictate our timeline, we can achieve our goal to develop North Slope gas in the very near future.

I look forward to working with the folks at AEA in the year to come in order to provide affordable energy to all Alaskans. Our state depends on it and our residents deserve nothing less.

Sincerely,

Bill Walker  
GOVERNOR



# AEA'S MISSION IS TO REDUCE THE COST OF ENERGY IN ALASKA

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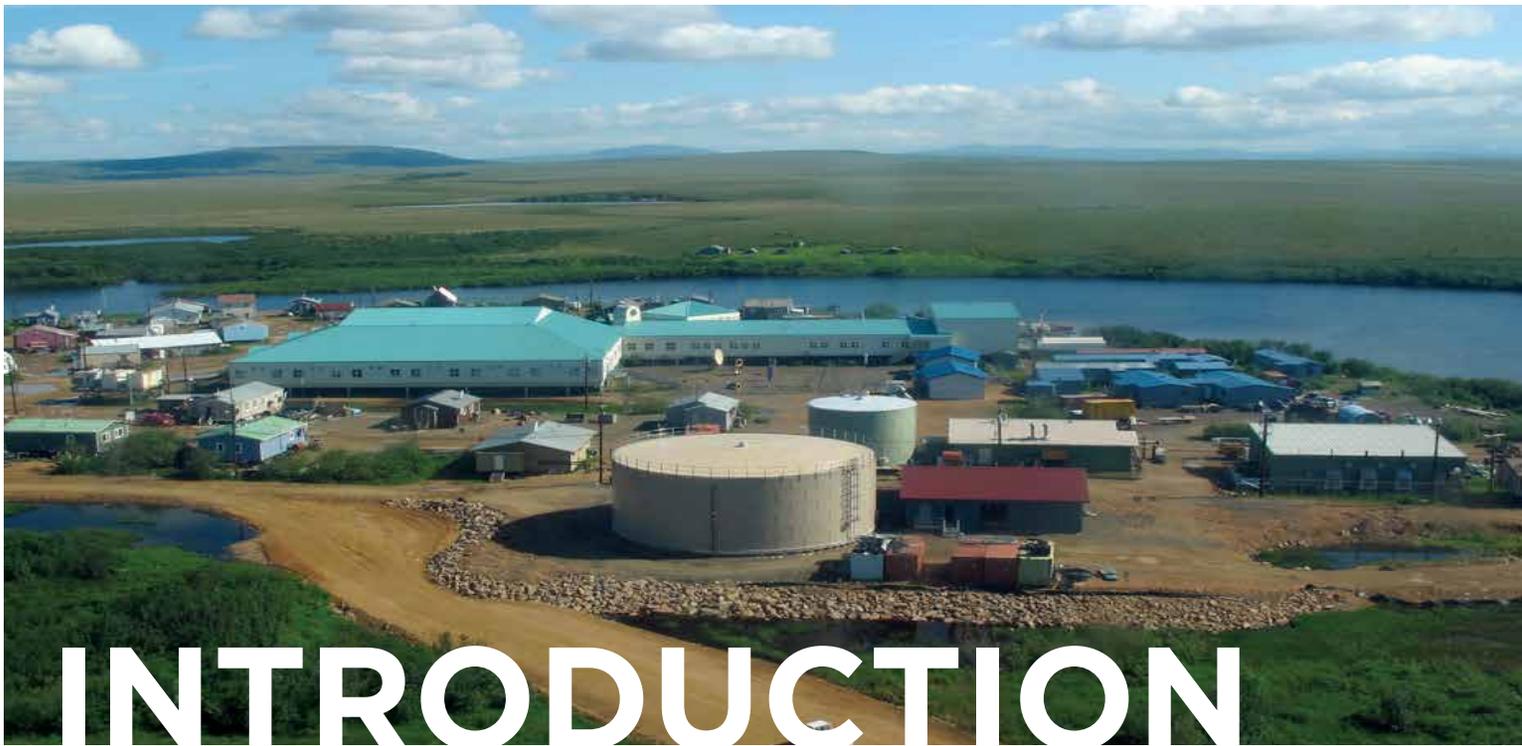
[AKENERGYAUTHORITY.ORG](http://AKENERGYAUTHORITY.ORG)



# PROGRAM HIGHLIGHT

**POWER COST EQUALIZATION PROGRAM (PCE):** Established in 1985, the program provides cost relief for electric power to residents and community facilities. The program reduced power costs at an average of **55 percent** for residential customers using up to **500** kilowatt hours per month and for eligible community commercial facilities. In 2014, the AEA community assistance team helped four communities reinstate in the PCE program, bringing the total to **192 participating** communities.





# INTRODUCTION

The Alaska Energy Authority is an independent corporation governed by a board of directors with the mission to reduce the cost of energy in Alaska. In its capacity as the state's official energy office, AEA serves as the lead authority responsible for statewide energy policy and program development.

From building modern and code-compliant bulk fuel tank farms to upgrading to high-efficiency generators in rural powerhouse systems or integrating renewable energy projects, AEA emphasizes community-based project management. AEA's core programs work to diversify Alaska's energy portfolio, lead energy planning and policy, invest in Alaska's energy

infrastructure and provide rural Alaska with technical and community assistance.

AEA also manages the Renewable Energy Fund, Emerging Energy Technology Fund, Power Cost Equalization Program and various energy efficiency and conservation programs. AEA provides grants and loans for qualified energy infrastructure projects and also owns energy infrastructure that benefits Alaskans.

This 2014 annual report includes highlights from programs and projects AEA spearheaded throughout the year. Additional information can be found online at [AKEnergyAuthority.org](http://AKEnergyAuthority.org).

# PROGRAM HIGHLIGHT

**VILLAGE ENERGY EFFICIENCY PROGRAM (VEEP):** Provides grant-funded efficiency improvements to public buildings in high-cost communities with a population of **8,000** or fewer people. Completed VEEP projects have returned more than **\$600,000** in annual savings, with an average **\$3 return** for every dollar invested.





## ST. GEORGE



Alaska is at the forefront of renewable energy resource development with programs serving some of the nation's most remote regions. It is also an industry leader when it comes to integrating renewable energy into small, diesel-run electrical systems.

St. George is the southernmost of the Pribilof Islands – four volcanic islands located 750 air miles from Anchorage in the heart of the Bering Sea. Freight, including diesel fuel, is brought over by barge from Anchorage, or occasionally by cargo delivery from Seattle, Washington. In 2011, one diesel-powered generator was providing power to the entire community with a population of 160 people.

The community of St. George recognized the benefits of providing more stable and affordable power in order to support and grow commercial fishing operations. In

addition, it recognized the potential of harnessing the island's most plentiful local resource: wind.

Through the Renewable Energy Grant Fund and Rural Powerhouse System Upgrade programs and Denali Commission funds, St. George was slated to receive multiple project grants. AEA worked with the community to navigate multiple capital sources to fund a whole-system design and construction plan rather than treating the powerhouse module, wind system and integration as individual projects.

The St. George project included the design and construction of a new energy-efficient modular powerhouse, waste heat recovery system, integrated controls with remote monitoring and wind turbine power distribution. AEA and the community worked with contractor Marsh Creek, LLC for the purchase and installation of all required equipment.



Due to the island's remoteness, AEA planned a unique approach to testing the combined power system and training its operators. Trainees traveled to Anchorage to participate in the actual construction of the powerhouse module and switchgear installation. The module and wind turbine were tested at the AEA warehouse with a simulation of the variable wind conditions common to St. George Island. AEA went out to bid on materials and engaged private-sector contractors as much as possible.

AEA's experience in rural power systems and wind projects, paired with consistent coordination between AEA, the community and the private sector, streamlined the process of maintenance and repairs of the powerhouse module. This whole-system approach saved St. George more than a million dollars in costs, and the project was completed eight months earlier than originally scheduled. It also contributed to the identification and resolution of several technical issues prior to construction, avoiding costly fixes in the field.

St. George's energy projects successfully launched in 2014. At one point, the wind turbine supplied 80 percent of the community's electrical needs. The community's goal is to receive 50 percent of its annual electrical supply from the variable energy resource. However, even under these ideal conditions, technical challenges arise. In November, the wind turbine experienced a technical failure and was deemed unsalvageable. AEA is working with the community and the turbine manufacturers to replace the turbine and proactively troubleshoot any future potential challenges.

This project remains a model for effective project development as well as community and local workforce engagement in rural Alaska.



“The design and plan implementation by AEA can serve as a model for all rural villages looking to combat ever-rising energy costs. We applaud AEA's vision and commitment to making significant improvements to our island's electrical infrastructure. The improvements brought on by our partnership with AEA strengthen St. George's place in the regional fishery economy and help to stabilize our community.”

Patrick Pletnikoff,  
ST. GEORGE MAYOR



## PROGRAM HIGHLIGHT

**COMMERCIAL BUILDING ENERGY AUDIT (CBEA):** Provides grant reimbursement for up to the full cost of an energy audit for a privately owned, non-residential property including businesses and nonprofits. CBEA energy audits have identified an average potential savings of **30 percent** for an average cost of **\$7 per square foot**.





# PROGRAM HIGHLIGHT

**RURAL POWER SYSTEM UPGRADES:** Improves powerhouse operations, resulting in more stabilized energy generation and reduced diesel consumption through increased supply-side efficiency. AEA offers powerhouse operator training. For communities participating in the RPSU program and avoiding debt financing, the average weighted rate savings is **19 cents** per kilowatt hour.



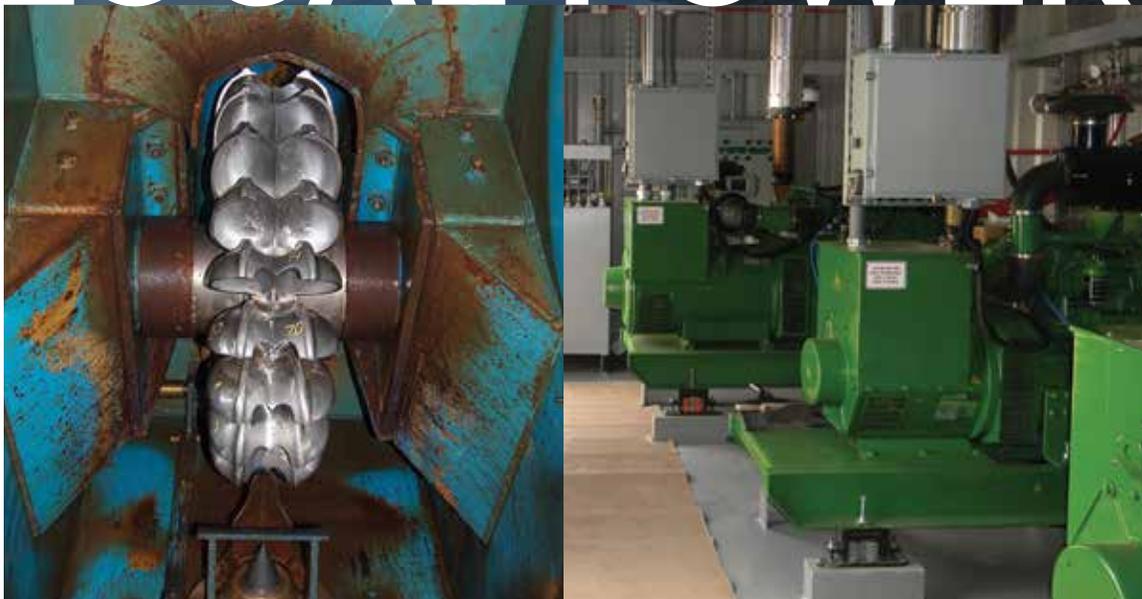


## LARSEN BAY



There is nothing typical about projects planned for rural Alaska. Rural energy infrastructure plans often take many years to complete and can include multiple projects. Communities face a complicated combination of funding sources, including state and federal programs. In the case of Larsen Bay, AEA worked with the community on multiple projects and provided flexible solutions in order to achieve the best possible outcome.

# MAXIMIZING LOCAL POWER



Larsen Bay is a small community located on Kodiak Island and is fortunate to have access to hydropower. AEA began working with the city during the late 1980s on a hydroelectric project. Although AEA aimed to find creative solutions to financing and project management, the process was planned around a very traditional model. As a result, the state provided infrastructure and the community struggled with local capacity to maximize hydropower production and to functionally manage the utility. Both AEA and Larsen Bay were ready for a paradigm shift.

Hydropower is a valuable and stable power source, however diesel remains the backbone of many rural communities. The powerhouse in Larsen Bay was in need of repair and an AEA report recommended relocating a powerhouse near the hydroelectric turbines to maximize the use of hydropower. This required working with the community not only on infrastructure development, but also to adopt a holistic, big-picture approach so that all the energy pieces fit together.

The solutions involved a Rural Power System Upgrade (RPSU) as well as repairs and improvements to the hydropower facility and distribution system.

Additionally, in August 2014, Larsen Bay School installed a new electric boiler. Installation of the boiler allows the city to collect revenues from sales of electricity to the school while the school enjoys stable and affordable hydropower. In addition to providing power to the school's electric boiler, the city is also selling hydropower to Icicle Seafoods, a local seafood processing company.

The human element of the project was perhaps the most important piece to its success. Creating sustainable management and maintenance processes were crucial to providing maximum benefit to the community. For example, proper rate setting has the potential to determine a utility's financial success. AEA is working with the region on energy and business planning and has worked with the city to provide training to local operators as well as utility management training in order to maximize the effectiveness of the hydro facility.

The new diesel powerhouse and rebuilt hydropower turbine launched in August 2014. Construction of the distribution system is set to be completed by the fall of 2015. The diesel, renewable and distribution systems were planned in concert with one another to the benefit of the community while maximizing the effectiveness of state resources.

About 97 percent of the energy used by Larsen Bay is derived from renewable resources, with additional opportunities for expanding efficiencies. AEA was also able to turn over ownership of the hydroelectric project to the city of Larsen Bay. The community-based approach has allowed Larsen Bay to maximize its affordable hydropower, decrease its reliance on costly diesel and sell excess power to provide additional revenues to the city.



“I’ve been around a lot of projects and this one is head and shoulders above any other that I have observed. The skills and work ethic displayed by all parties involved was top shelf. The planning and logistics were flawless, as a result we had minimum down time on our hydro. It was a pleasure to watch how seamlessly this project progressed. Integrating the power plant and hydro has virtually eliminated outages.”

Hugh Kennen,  
LARSEN BAY CITY COUNCIL

# PROGRAM HIGHLIGHT

**BULK FUEL UPGRADES:** Many rural bulk fuel tank farms were constructed more than **20 years ago**. The program provides funding for the design, business planning and construction management to build code-compliant bulk fuel tank farms in rural communities. AEA also offers bulk fuel operator training.

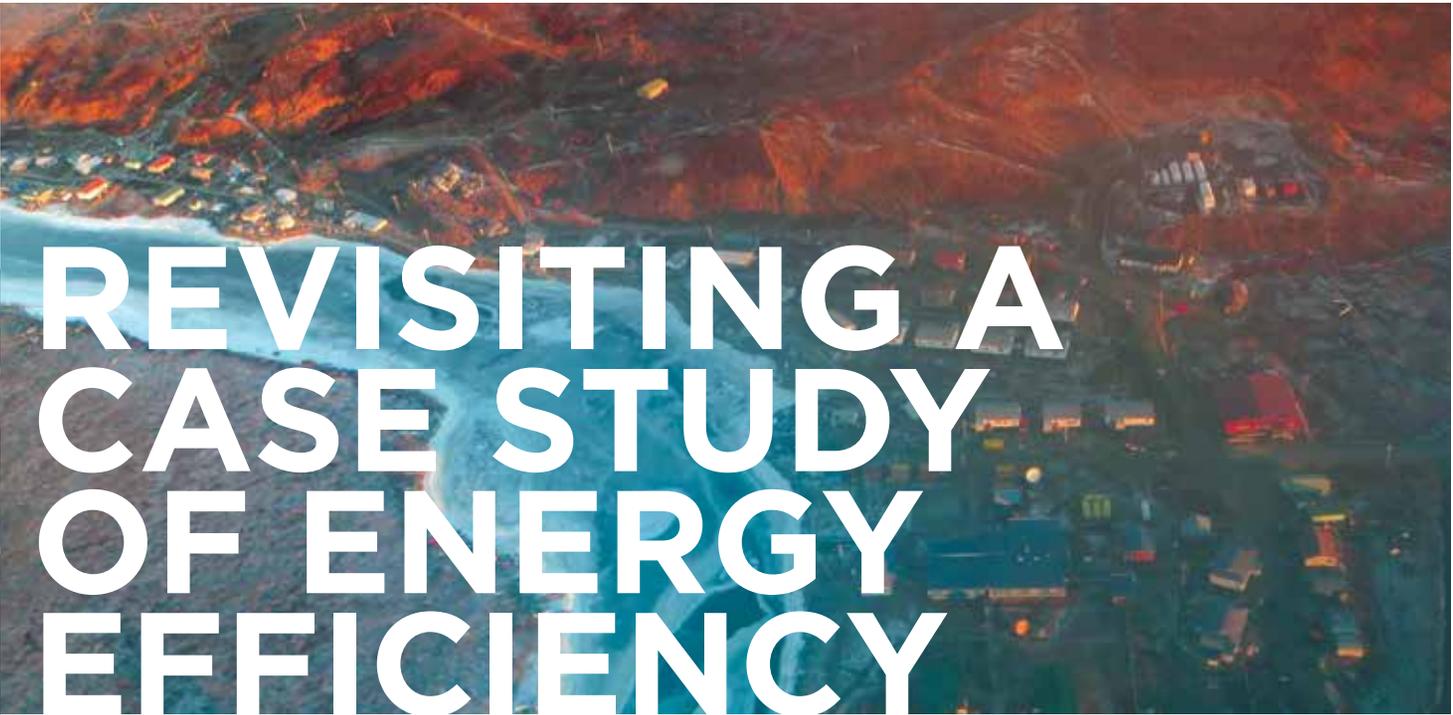




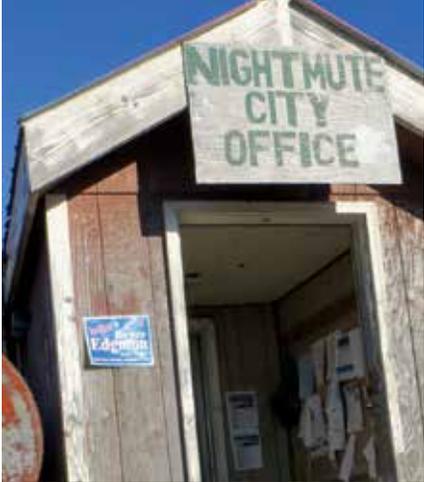
# PROGRAM HIGHLIGHT

## **RENEWABLE ENERGY FUND (REF):**

Provides grant funding to study and develop renewable generation resources, including but not limited to wind, hydro, biomass and heat recovery. The REF also provides a vetting mechanism for energy projects and provides benefits for rural businesses not eligible for Power Cost Equalization.



# REVISITING A CASE STUDY OF ENERGY EFFICIENCY



## NIGHTMUTE



In 2009, multiple partners gathered in the Western Alaska village of Nightmute to implement a complete energy efficiency retrofit of the community's commercial buildings, including home weatherization of some residences. Approximately 300 people live in the community, located on Nelson Island near Toksook Bay outside of Bethel. AEA led the effort and partnered with Alaska Housing Finance Corp., RuralCAP, Denali Commission, Association of Village Council Presidents Regional Housing Authority, the city of Nightmute, Alaska Village Electric Cooperative and other local and private-sector partners.

It is a unique accomplishment to have this many partner organizations working to simultaneously implement energy efficiency projects in one location. The trip resulted in 10 commercial buildings, including the post office, village store and community hall, as well as 34 homes retrofitted with new lighting and weatherization improvements. Additionally, lighting upgrades were made to the school gym and four teacher housing units. Homes received foam, loose-fill insulation and window replacements, while several community buildings underwent insulation, roofing and foundation repairs.



Five years later, the original stakeholders returned to the table to review the results of their work and examine their effectiveness. Planning began for a smaller team to return to the community.

In November 2014, some members of the original group (along with additional regional stakeholders Nuvista Light and Electric Cooperative and Cold Climate Housing Research Center) traveled to Nightmute to meet with the community and listen to their experiences.

There, the group was assured that the state's energy efficiency programs achieved their goals. The average house and community building cut energy use in half; estimated annual fuel savings to the village store alone were estimated at \$10,639; community lighting upgrades resulted in more than \$14,000 in annual estimated savings. The total annual energy savings for the community was calculated around \$75,000.

The conclusion was that community buy-in is critical to the success of such a project. The city of Nightmute not only provided additional capital to pay for energy efficiency improvements, but the entire program was developed with feedback from elders, community leaders and residents, and local labor was employed wherever possible.

In the end, partners realized the true benefits were derived from AEA's coordination and communication between the various energy partners and the community, and less so from the partner entities all performing their work simultaneously. AEA will continue to lead the Alaska Energy Efficiency Partnership and work with other agencies to implement energy programs for the benefit of Alaskans.

“Before, it was colder and a lot of draft air would come in from the doors and windows, and the floor would be cold in the winter time. Since the weatherization was completed, I notice the house is less drafty. It's warmer, the floor is a little warmer and I'm grateful that the air ducts and vents have been installed in our home. It is better for my health and my children's health. My daughter no longer breaks out in hives as she used to.”

Mary Matthias,  
NIGHTMUTE CITY  
COUNCIL MEMBER

## PROGRAM HIGHLIGHT

**REGIONAL ENERGY PLANNING:** In addition to the Alaska Affordable Energy Strategy effort, AEA is contracting with regional organizations to produce energy plans in six regions, including **96 communities** and a total population of approximately **50,000 people**. Discussions are underway to add two additional regions to the effort. The plans are locally driven and will provide community-vetted blueprints for sustainability.



# SUSTAINABLE ENERGY FUTURES



## ENERGY PLANNING

AEA has been involved in several efforts to provide energy planning for the state. There is no one-plan-fits-all approach; from Ketchikan to Barrow, Alaska's communities are diverse, and effective energy plans must address unique challenges while capitalizing on available local resources.

AEA has completed energy plans for Southeast Alaska and Railbelt communities. Currently, AEA is working with communities in Kodiak, Northwest Arctic and Bering Strait regions, the Aleutian Islands, Bristol Bay, Copper Valley and with Tanana Chiefs Conference for the Yukon-Koyukuk and Upper Tanana regions on energy plans. AEA also serves an advisory role with Nuvista Light and Electric Cooperative in the Lower Yukon-Kuskokwim region and with Arctic Slope Regional Corp. on the North Slope as they do energy planning.

These efforts are driven by each community and involve many regional stakeholders. This type of regional energy planning serves an important role for communities to develop a sustainable energy future.

In addition, the Alaska Senate passed Senate Bill 138 in 2014, enabling the state to work on a natural gas pipeline. The Alaska Affordable Energy Strategy (AkaES) was formed as a result of this legislation and AEA was tasked with developing a plan to identify necessary infrastructure in order to deliver affordable energy to areas of Alaska that will not have direct access to a North Slope natural gas pipeline. This report is due to the Legislature in January of 2017.



# PROGRAM HIGHLIGHT

**INFRASTRUCTURE:** AEA owns critical energy infrastructure along the Railbelt, including the Bradley Lake Hydroelectric Project on the Kenai Peninsula and the Alaska Intertie - the electrical backbone that connects Southcentral to Interior Alaska. Currently, Bradley supplies upward of **10 percent** of the Railbelt's power.

# PROGRAM HIGHLIGHT

**COMMUNITY ASSISTANCE:** AEA helps communities develop energy projects, identify funding sources and address issues that may prevent projects from moving forward. So far in fiscal year 2015, the program has assisted **91 communities** throughout the state.



# AEA BOARD OF DIRECTORS



RUSSELL DICK  
Chairman



DANA PRUHS  
Vice-Chair



RANDALL HOFFBECK  
Commissioner,  
Alaska Department  
of Revenue



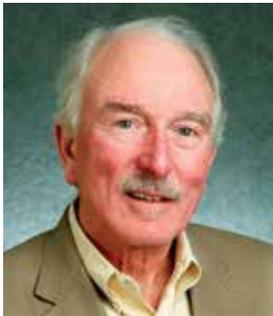
FRED PARADY  
Acting Commissioner,  
Alaska Department of  
Commerce, Community  
and Economic Development



CRYSTAL NYGARD



GARY WILKEN



WILSON HUGHES



# UNAUDITED FINANCIAL HIGHLIGHTS

(IN THE THOUSANDS)

BALANCE SHEETS	June 30   2014	June 30   2013
<b>ASSETS:</b>		
Investment securities and cash	1,188,614	1,060,707
Loans, net	6,144	5,245
Capital assets, net	341,002	270,563
Receivables and other assets	25,685	15,823
<b>TOTAL ASSETS</b>	<b>\$1,561,445</b>	<b>1,352,338</b>
<b>LIABILITIES AND NET POSITION:</b>		
Liabilities		
Bonds payable	78,890	86,190
Payables and other liabilities	76,362	85,235
<b>TOTAL LIABILITIES</b>	<b>155,252</b>	<b>171,425</b>
Net position	1,406,193	1,180,913
<b>TOTAL LIABILITIES AND NET POSITION</b>	<b>\$1,561,445</b>	<b>1,352,338</b>

REVENUES, EXPENSES AND CHANGES IN NET POSITION	June 30   2014	June 30   2013
<b>OPERATING REVENUES:</b>		
Federal grants	7,454	6,077
Revenue from operating plants	17,542	16,937
State operating revenues	67,510	79,152
Interest on loans	277	277
Other operating revenues	-	-
<b>TOTAL OPERATING REVENUES</b>	<b>\$92,783</b>	<b>102,443</b>
<b>OPERATING EXPENSES:</b>		
Grants and projects	91,431	99,634
Power cost equalization grants	40,305	40,100
Interest expense	4,127	4,561
Plant operating	4,720	4,363
General and administrative	5,424	5,291
Provision for loan losses	28	186
Depreciation	10,464	11,786
Other project expenses	-	-
<b>TOTAL OPERATING EXPENSES</b>	<b>\$156,499</b>	<b>165,921</b>
Operating loss	(63,716)	(63,478)
Investment Income, net	173,093	113,415
State of Alaska Fund Capitalization	115,875	76,476
Transfer of Bulk Fuel Loan Fund	-	(15,873)
Other non-operating losses	28	36
<b>INCREASE IN NET POSITION</b>	<b>\$225,280</b>	<b>110,576</b>

# ALASKA ENERGY AUTHORITY

**AEA** IS A PUBLIC CORPORATION OF THE STATE,  
CREATED BY THE ALASKA STATE LEGISLATURE.

