AEA's mission is to reduce the cost of energy in Alaska. To achieve this mission, AEA strives to diversify Alaska's energy portfolio — increasing resiliency, reliability, and redundancy.

ALASKA ENERGY AUTHORITY

2024 ANNUAL REPORT

HOUSE BILL 307 ENACTS THE MOST SIGNIFICANT RAILBELT ENERGY REFORM SINCE ALASKA STATEHOOD

Following its passage on July 31, 2024, the bill eliminates transmission wheeling charges, established an open-access rate, and restructured AEA with a new board — strengthening AEA's ability to address Alaska's energy challenges and shape its future.

AEA IS THE STATE'S TRUSTED LEADER IN REDUCING ENERGY COSTS AND ADVANCING STATEWIDE ENERGY POLICY.

Humpback Creek Hydroelectric Project, Cordova, Alaska

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LETTER FROM THE GOVERNOR

Dixon Glacier, Alaska

The Alaska Energy Authority (AEA) is a trusted leader in advancing statewide energy policy, which prioritizes energy affordability, resilience, and sustainability. For nearly five decades, AEA has delivered innovative energy solutions that power our communities and fuel economic growth.

Dear Fellow Alaskans,

AEA's efforts, including the landmark Bradley Lake Hydroelectric Project, have improved access to affordable, reliable power for all Alaskans. To ensure resilient, cost-effective, and sustainable power for future generations, AEA is also advancing new transmission grid infrastructure initiatives.

With the passage of House Bill 307 last year, we took a major step toward modernizing our Railbelt transmission system. The bill reduced market inefficiencies by eliminating wheeling charges and incentivized new energy development by extending tax-exempt status to independent power producers who provide their electricity to local utilities. It also established a distinct board of directors for AEA, enhancing the State's energy office's ability to address Alaska's unique energy challenges and opportunities.

In the past five years, AEA has secured nearly $1 billion in funds through federal grants, state appropriations, and revenue bonds to fund transformative projects. AEA owned assets, like the Alaska Intertie from Willow to Healy and the Sterling-to-Quartz Creek Transmission Line currently being upgraded, will continue to reduce costs and advance energy development throughout the Railbelt.

Along with these investments, AEA has launched another key project to further diversify Alaska's energy portfolio. The $342 million Dixon Diversion project is a major expansion of Bradley Lake, Alaska's largest hydroelectric facility. This project will offset 1.5 billion cubic feet of natural gas each year starting in 2030 and provide clean, affordable energy to Alaskans. As Railbelt energy costs decrease, residential rates for rural Alaskans will also benefit through the Power Cost Equalization Program that AEA administers.

Looking back on the past six years, I am excited about what we have achieved together, and even more optimistic about what comes next.

Sincerely,

Mike Dunleavy
Governor

LETTER FROM THE CHAIR

As I reflect on my first months as chair of the AEA Board of Directors, I am proud to highlight the progress we've made in advancing AEA's mission to reduce energy costs across Alaska.

Over the past year, AEA has achieved significant milestones, delivering innovative energy solutions that ensure all Alaskans — from rural communities to urban centers — have access to safe, reliable, and affordable energy.

It is an honor to work alongside our newly appointed skilled and dedicated board. Representing three electric cooperatives, two independent power producers, and an Alaska Native corporation, they bring diverse expertise and a shared commitment to strengthening Alaska's energy future. Their experience spans legacy and renewable power generation, transmission, battery storage, and advanced automation, ensuring we are equipped to tackle Alaska's unique energy challenges, from the Railbelt to rural communities statewide.

This past year has been transformative for AEA, marked by accomplishments that showcase the organization's dedication and innovation. One such achievement is the Dixon Diversion Project, a testament to the exceptional talent and capacity of the AEA team. Developed entirely in-house, this initiative is set to increase the annual energy production of AEA-owned Bradley Lake Hydroelectric Project by 50 percent. With the potential to offset 1.5 billion cubic feet of natural gas annually, it underscores AEA's ability to tackle complex challenges and deliver forward-thinking, impactful solutions.

The board continues to be impressed by the high levels of engagement from AEA's team at every tier. Whether working with the Legislature, collaborating with utilities and communities across Alaska, or engaging with stakeholders and national regulators, AEA consistently fosters strong relationships and drives meaningful progress.

I want to thank my fellow board members for their passion and dedication to strengthening Alaska's energy future. On behalf of the board of directors, I also want to thank the AEA leadership and team for their unwavering commitment to managing long-standing programs and leveraging historic federal funding opportunities. From Railbelt transmission and battery storage to generation upgrades, electric vehicle charging infrastructure, solar initiatives, and rural energy projects, AEA's work is driving transformative change across the state.

Looking to the future, we are committed to reimagining Alaska's energy future to ensure it remains safe, reliable, and affordable energy for all. Alaska is a state of limitless potential. By harnessing our local, abundant energy resources, we are laying the foundation for lasting progress that empowers Alaskans to thrive.

Clay Koplin
Chair

LETTER FROM THE EXECUTIVE DIRECTOR

In the last five years, AEA has secured nearly $1 billion in federal and state grants and revenue bonds — a 2,700 percent budget increase. These funds are modernizing the state's energy infrastructure, ensuring access to affordable, sustainable power for all Alaskans.

One of the most transformative developments in Alaska's energy landscape is the passage of House Bill 307, which established the Railbelt Transmission Organization (RTO) as a division of AEA. This landmark legislation represents the most significant energy policy change for the Railbelt since statehood. Since its passing, the RTO has adopted bylaws, established a charter, and submitted a certificate of public convenience and necessity application to the Regulatory Commission of Alaska (RCA) ahead of schedule. It is also developing an open-access transmission tariff to recover Railbelt backbone transmission and ancillary service costs, with a submission deadline of July 1, 2025.

House Bill 307 also redefined AEA's governance by establishing its own distinct board of directors. This critical change enhances AEA's ability to address Alaska's unique energy challenges and opportunities. The energy sector is inherently complex, intersecting with government policy, environmental stewardship, and economic development. With a dedicated board, AEA is better positioned to develop effective policies, implement strategic plans, and allocate resources aligned with its mission and goals.

In rural Alaska, AEA partners with communities to improve and replace energy infrastructure in some of the harshest environments on Earth. Using advanced reality capture and mapping technologies, AEA has assessed 234 powerhouses, 292 tank farms, and 32 rural distribution systems to identify critical needs. Under Governor Dunleavy's leadership, $126 million has been invested in repairs, maintenance, and new powerhouses through the Rural Power Systems Upgrade Program. Additionally, the Bulk Fuel Upgrade Program has allocated $80 million to extend the life of or replace aging tank farms — some over 60 years old — ensuring safe and efficient fuel storage at more than 400 bulk fuel facilities statewide. Helping rural energy infrastructure reach its full economic life are AEA's Circuit Riders — a dedicated team of technicians and trainers who serve as first responders to power system challenges. In the last five years, they have restored power to 20 communities during emergencies, provided remote technical assistance over 2,000 times, delivered on-site training on more than 400 occasions, and helped 181 rural Alaskans complete coursework at the Alaska Vocational Technical Center.

On the Railbelt, AEA owns and operates the Bradley Lake Hydroelectric Project, Alaska's largest hydro facility, which generates 120 megawatts of low-cost energy for more than 75 percent of Alaska's population, from Homer to Fairbanks. This facility contributes 10 percent of the Railbelt's energy supply. The Dixon Diversion Project, a $342 million initiative, will further expand Bradley Lake's capacity by redirecting water from the Dixon Glacier to the reservoir, significantly increasing renewable energy generation and benefiting the Railbelt transmission system.

I want to thank Governor Dunleavy, the Alaska Congressional Delegation, and the Alaska State Legislature for their steadfast support of energy initiatives across the state. I also extend my gratitude to the dedicated team at AEA, whose commitment and hard work are the driving force behind our progress.

The collaboration and partnership with our Railbelt utilities and the Legislature have been instrumental in advancing these transformative projects. Together, we are paving the way for a brighter, more sustainable energy future for all Alaskans.

Curtis W. Thayer
Executive Director

$92M AEA is investing $92 million to upgrade the Sterling to Quartz Creek Transmission Line, increasing capacity, reducing losses, improving reliability, and supporting renewables.

Sterling to Quartz Creek Transmission Line, Sterling, Alaska

Explore available funding opportunities at https://www.akenergyauthority.org

OWNED ASSETS

Throughout the 1980s, AEA developed the state's energy resources to diversify Alaska's economy and provide access to affordable energy. AEA built and owns key Railbelt infrastructure — the Bradley Lake Hydroelectric Project, the Sterling to Quartz Creek transmission line, and the Alaska Intertie — which enhance grid redundancy and reduce power costs for Railbelt consumers.

Bradley Lake Hydroelectric Project

The Bradley Lake Hydroelectric Project was energized in September 1991. The project, located near Homer, Alaska, has been a low-cost source of electricity for the Railbelt for more than 30 years. The 120-megawatt (MW) facility generates about 10 percent of the total annual power used by Railbelt electric utilities and is some of the lowest-cost power for more than 550,000 Alaskans from Homer to Fairbanks. The project was funded through legislative appropriations and AEA revenue bonds were repaid by the participating utilities. The Bradley Lake Project Management Committee manages the project, subject to AEA's non-delegable rights, duties, and responsibilities. In 2020, Bradley Lake's energy output increased by 10 percent through the West Fork Upper Battle Creek Diversion Project. In late 2020, AEA purchased a component of the interconnected transmission system (Sterling Quartz) located on the Kenai Peninsula to upgrade, reduce losses, and increase reliability.

Dixon Diversion Project

AEA is studying the Dixon Diversion Project to optimize Bradley Lake's energy potential. Similar to the West Fork Upper Battle Creek Diversion Project, it would divert water from Dixon Glacier, while also raising the Bradley Lake Dam to expand energy storage. Alaska's largest energy storage resource, Bradley Lake holds over 200,000 megawatt-hours. These upgrades would boost annual energy production by 50 percent — enough to power up to 30,000 homes — and offset approximately 1.5 billion cubic feet of natural gas per year. An offset of this magnitude is equal to about 7.5 percent of Alaska's unmet natural gas demand projected for 2030. AEA is preparing to file with the Federal Energy Regulatory Commission this year and anticipates construction will begin soon, with completion targeted for 2030.

50%

The Dixon Diversion Project would increase the energy production capacity of Bradley Lake by 50 percent and offset the equivalent of roughly 1.5 bcf/year of natural gas use.

460

JOBS CREATED

The SQ Line project will create 460 jobs — 290 direct and 170 indirect — expanding Alaska's employment.

$39M

LABOR INCOME

The project will generate $39 million in wages and benefits, supporting workers and local economies.

$96M

TOTAL ECONOMIC OUTPUT

With $96 million in total economic output, local businesses and investment will see significant growth.

Sterling to Quartz Creek Transmission Line

In December 2020, AEA acquired a critical section of the interconnected transmission system on the Kenai Peninsula, the Sterling Substation to Quartz Creek (SQ) Substation Transmission Line. This 39.3-mile transmission corridor, originally built as part of the Bradley Lake Project, plays a vital role in delivering hydroelectric power from Bradley Lake to Railbelt utilities. The line, previously operating at 115 kilovolts (kV) and 69 kV, suffered extensive damage during the 2019 Swan Lake Fire, requiring four months and $12 million in repairs before returning to service. In 2023, the decommissioned 69 kV portion was removed.

Now benefiting from $92 million in upgrades, the SQ line is undergoing a major overhaul to increase its efficiency, reliability, and capacity. Construction on the first phase near Kenai Lake began in late 2024 and will continue through various periods until 2028. The upgrades include replacing aging transmission towers and upgrading the line's capacity from 115 kV to 230 kV, allowing it to handle more energy while reducing transmission losses. Additionally, a new fiber optic communication system will be installed, improving equipment response times, enhancing grid safety, and increasing overall system reliability.

These improvements will provide long-term benefits for ratepayers by strengthening grid resilience, improving energy efficiency, and enabling future transmission expansion north of Bradley Lake. By reducing energy losses and integrating more renewable power into the Railbelt system, the upgrades will also decrease reliance on fossil fuels and contribute to a more sustainable energy future. Additionally, replacing the aging transmission structures — originally built over 60 years ago — is a necessary step in ensuring the long-term stability and reliability of this critical piece of Alaska's energy infrastructure.

Sterling to Quartz Creek Transmission Line Upgrades, Sterling, Alaska

1,470

JOBS CREATED

The HVDC project will create 1,470 jobs — 950 direct and 520 indirect/induced — boosting Alaska's workforce.

$129M

LABOR INCOME

The project will generate $129 million in wages and benefits, supporting workers and local economies.

$332M

TOTAL ECONOMIC OUTPUT

With $332 million in total economic output, local businesses and investment will see significant growth.

High-Voltage Direct Current Submarine Transmission Line

AEA was awarded the Grid Resilience and Innovation Partnership (GRIP) project on September 1, 2024, with eight years to complete it. The GRIP project specifically funds the Nikiski-to-Beluga High-Voltage Direct Current (HVDC) Submarine Transmission Line, a transformative initiative to enhance grid reliability in Alaska. The initial contract value reflects available state funding. The U.S. Department of Energy (DOE) will issue change orders as additional cost share funds are secured. AEA has already secured $206.5 million through DOE's Grid Deployment Office, requiring a 100 percent match for a total project value of $413 million.

The Railbelt's existing electrical system is fragile, limiting resilience, clean energy adoption, and fuel diversification — hindering Alaska's transition to a carbon-free future. The Nikiski-to-Beluga HVDC Submarine Transmission Line is a transformative project designed to enhance reliability by creating a redundant power pathway between Nikiski on the Kenai Peninsula and Anchorage's Beluga substation.

To advance the project, AEA has contracted an HVDC-experienced consulting firm to develop an initial project plan and schedule, conceptual and preliminary cable designs, assess critical environmental issues, and provide a preliminary cost estimate. AEA is also preparing to advertise several positions to support the GRIP project. While $62.7 million in state matching funds have been secured, an additional $143.8 million is needed.

This project would also benefit Alaska's rural communities. Lower Railbelt energy costs translate to reduced residential rates for remote communities receiving Power Cost Equalization funding, making energy more affordable statewide.

RAILBELT TRANSMISSION ORGANIZATION

House Bill 307, signed into law on July 31, 2024, established the Railbelt Transmission Organization (RTO) to develop a non-discriminatory open access transmission tariff and fairly allocate backbone transmission costs. RTO also replaces wheeling charges with a new mechanism that justly recovers and equitably allocates the costs of operating the backbone system. As a division of AEA, it operates through a governance committee with representatives from AEA, each Railbelt utility, and the Railbelt Reliability Council (ex officio, non-voting). RTO applied for a certificate of public convenience and necessity with the Regulatory Commission of Alaska on December 20, 2024, ahead of the January 1, 2025, deadline, and must file the tariff by July 1, 2025.

BATTERY ENERGY STORAGE SYSTEMS

CEA and MEA BESS, Anchorage, Alaska

In 2022, AEA issued a $166 million bond to perform Required Project Work for the Bradley Lake Hydroelectric Project. The majority of these funds will be used to perform transmission line work, while the remainder will be dedicated to Battery Energy Storage Systems (BESS).

Altogether, these enhancements will reduce line losses, increase capacity, and improve the delivery of power from Bradley Lake to Railbelt consumers. These projects will be the initial phase of some of the most significant improvements to the Railbelt electrical grid in 30 years. AEA has reached agreements with Chugach Electric Association (CEA), Matanuska Electric Association (MEA), and Homer Electric Association to assist with BESS purchases, with negotiations underway to finalize these agreements. Future plans include supporting Golden Valley Electric Association in acquiring a new BESS for the northern region of the Railbelt.

In total, AEA will invest over $28 million on BESS projects across the Railbelt. These systems are critical to facilitating renewable power integration as well as providing grid stability, peak load management, emergency backup power, and ultimately cost savings for the ratepayer.

$30M

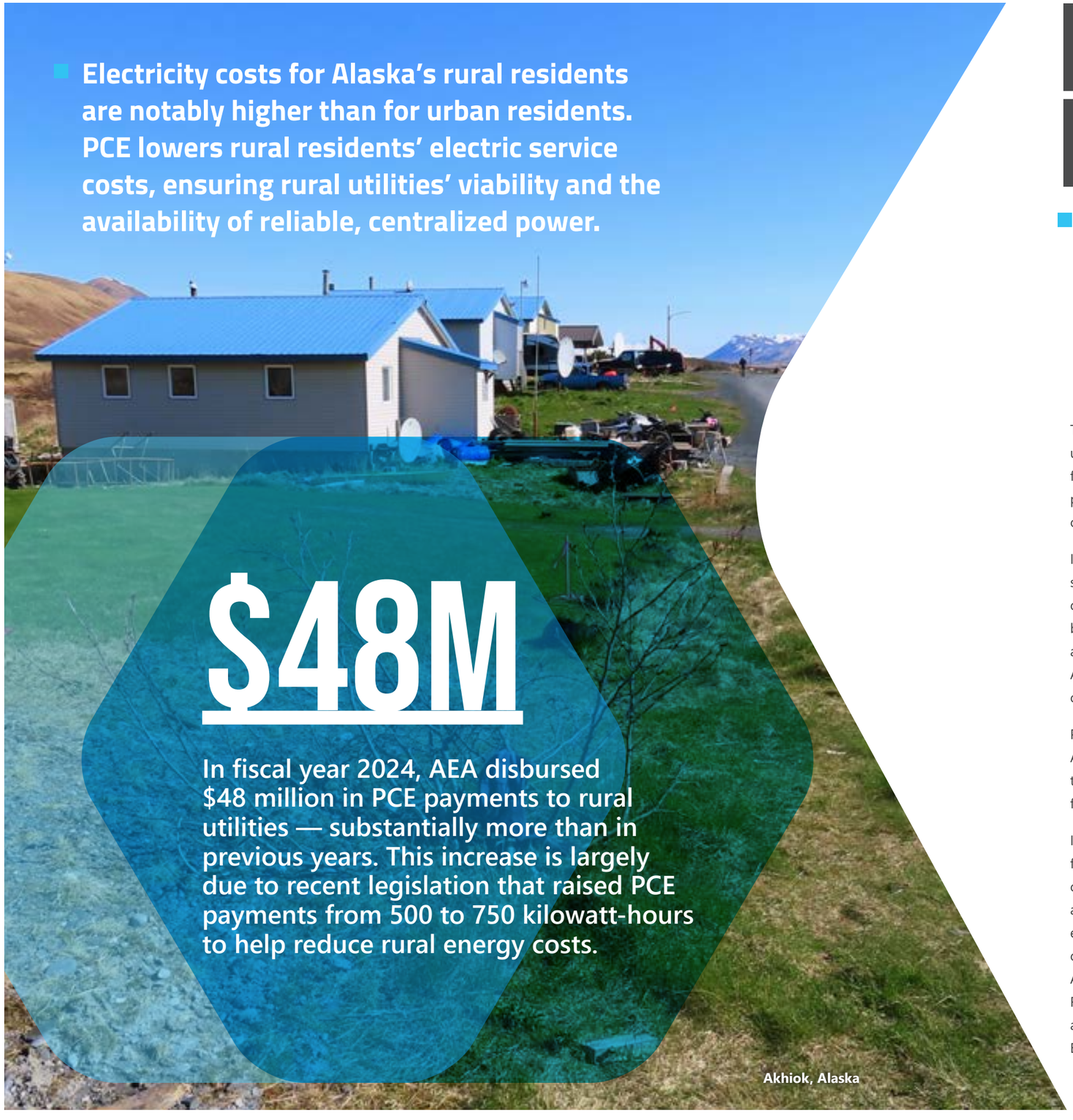
From 2008 to 2021, the Alaska Intertie saved GVEA customers an average of $30 million annually.

Alaska Intertie

Completed in 1986, the Alaska Intertie is a 170-mile long, 345-kilovolt (kV) transmission line that stretches between Willow and Healy and operates at 138 kV. It connects Golden Valley Electric Association (GVEA), which serves areas north of the Alaska Range, with Southcentral Alaska utilities, enabling cost-effective energy transmission and reserve capacity sharing between Anchorage and Fairbanks. Funded by $124 million in state appropriations with no debt service, the Alaska Intertie helps deliver GVEA's share of Bradley Lake power while lowering overall energy costs.

The Alaska Intertie is managed under the Alaska Intertie Agreement, which includes AEA, CEA, GVEA, and MEA. AEA plays a key role in ensuring fair benefits to ratepayers across the interconnected Railbelt region. Currently, AEA is working with the Intertie Management Committee (IMC) to upgrade communications from Anchorage to Healy. Previously reliant on shared microwave equipment with the Alaska Department of Public Safety, the Alaska Intertie will transition to a dedicated microwave system by 2025. The IMC secured over $11 million in Infrastructure Investment and Jobs Act funding to reinforce structures in high snow-load areas and enhance Railbelt data collection through an interconnected Synchrophasor system. Additionally, AEA and Railbelt utilities are developing a Strategic Railbelt Transmission Plan for 2050 and conducting engineering studies for future transmission upgrades.

Electricity costs for Alaska's rural residents are notably higher than for urban residents. PCE lowers rural residents' electric service costs, ensuring rural utilities' viability and the availability of reliable, centralized power.



$48M

In fiscal year 2024, AEA disbursed $48 million in PCE payments to rural utilities — substantially more than in previous years. This increase is largely due to recent legislation that raised PCE payments from 500 to 750 kilowatt-hours to help reduce rural energy costs.

Akhiok, Alaska

POWER COST EQUALIZATION

The Power Cost Equalization Program (PCE) was established in 1984 to lower the cost of electrical power incurred by rural residents and community facilities to a level comparable to that paid by residents of Alaska's larger cities. AEA administers this program, serving over 82,000 Alaskans in 188 communities that rely primarily on diesel fuel.

The PCE program provides payments to eligible rural electric utility companies, which then credit residential and community facility customers up to a specified level of consumption. These payments lower the unit cost of power for residential and community customers.

In rural communities, pre-PCE electricity costs are often significantly higher than urban rates. Residential and community facility buildings in 188 communities see the benefits of PCE credits. Based on utility filings, AEA calculates and disburses monthly payments to eligible electric utilities. AEA's PCE team also provides technical assistance to utility clerks who need help preparing and filing PCE reports.

PCE disbursements are funded by the PCE Endowment Fund. Alaska Statute 42.45.085 allows up to five percent of the fund's three-year monthly average market value to be appropriated for PCE payments.

In recent years, the five percent draw on the endowment fully funded PCE disbursements. In fiscal year 2018, statutory changes determined how excess PCE Endowment Fund earnings are allocated. These changes enabled endowment fund earnings to fully cover PCE program administration costs and contribute $30 million to the Community Assistance Program. Additionally, up to $25 million could be allocated to AEA's Renewable Energy Fund, Rural Power System Upgrade projects, and the Alaska Division of Community and Regional Affairs' Bulk Fuel Revolving Loan Fund.

Haines, Alaska

750 KWH

RESIDENTIAL

Residential customers are eligible for PCE credit up to 750 kilowatt hours (kWhs) per month.

70 KWH

PUBLIC FACILITIES

Community facilities can receive PCE credit of 70 kWhs per month multiplied by the number of residents.

82

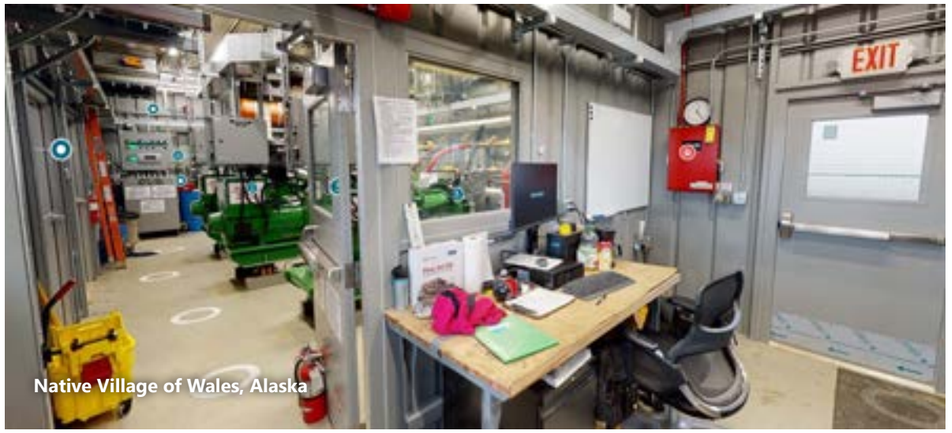
ELECTRIC UTILITIES

A total of 82 rural electric utilities participate in the PCE program.

RURAL ENERGY

In rural Alaska, AEA constructs bulk fuel tank farms, diesel powerhouses, and electrical distribution grids. Through circuit rider, emergency response, and training for operators and utility managers, AEA provides the resources necessary to support the operation of these facilities.

Rural Power Systems Upgrade



Native Village of Wales, Alaska

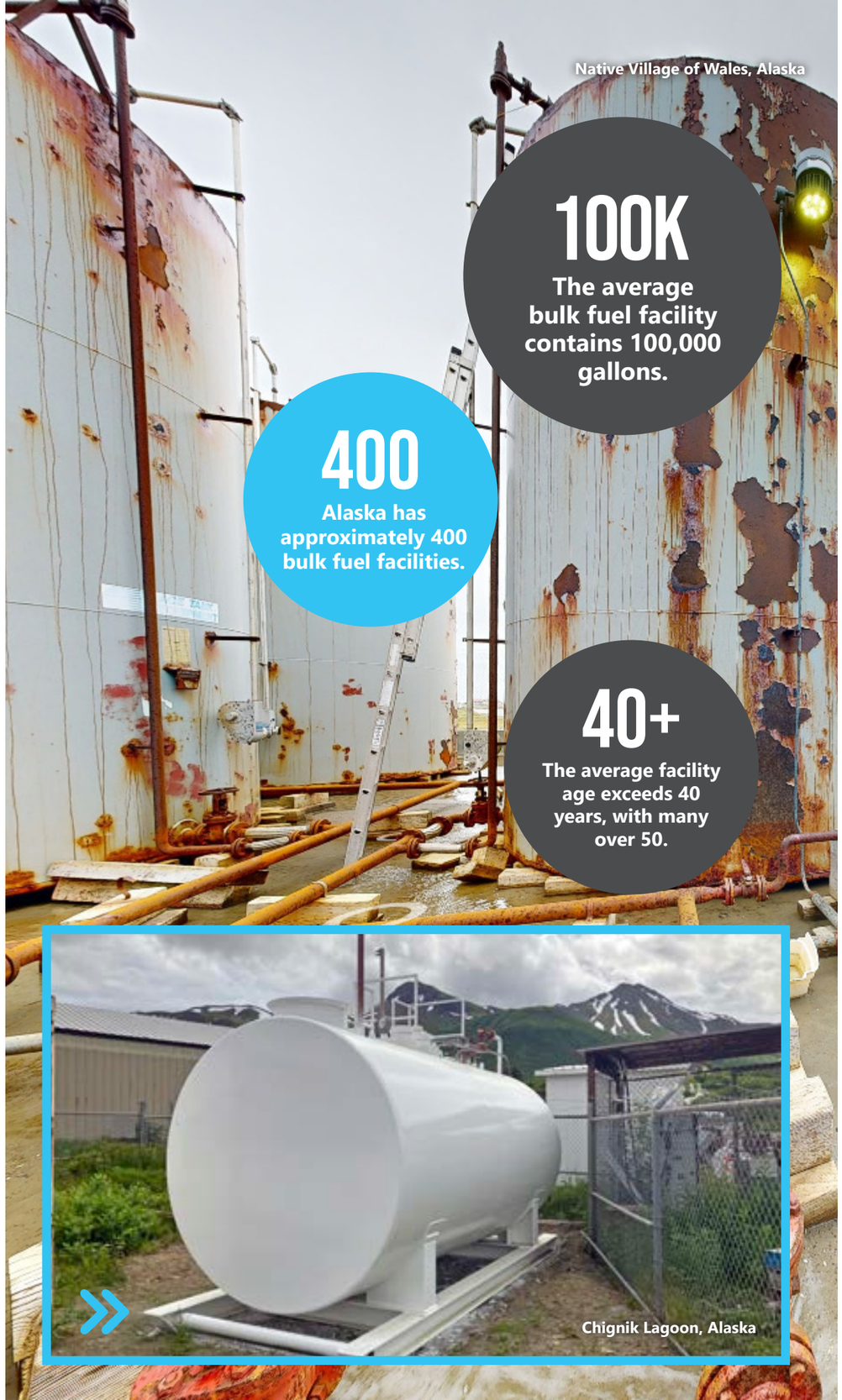
AEA's Rural Power Systems Upgrade (RPSU) program enhances power generation in small, off-grid Alaska villages. The Denali Commission is AEA's major federal funding partner, requiring a state match of 50 percent for non-distressed communities or 20 percent for distressed communities. In 2024, AEA replaced the powerhouse in Napaskiak and has begun overhauling powerhouses in Manokotak, Nelson Lagoon, and Tuluksak. AEA is also designing a new powerhouse in Chalkyitsik and upgrading to the Kwethluk powerhouse. AEA manages Alaska's federal funding allocation from the Environmental Protection Agency's Diesel Emissions Reduction Act (DERA). AEA identifies communities in need of new prime-power diesel engines based on current engine conditions and eligibility and utilizes DERA funds to furnish and install new, efficient engines. This year, DERA-funded engines were commissioned in Tenakee Springs and Bettles, with up to five more communities set to participate next year.

AEA has shifted from full facility replacements to operations and maintenance improvements that maximize rural power systems' benefits. Currently, it is engaged in nine Maintenance and Improvement (M&I) projects, including switchgear replacements, heat recovery optimization, engine control upgrades, and diesel genset replacements. In 2024, work spanned engine replacements, power stabilization, powerhouse leveling, and switchgear upgrades.

The RPSU program upgrades and builds facilities in communities under 2,000 people.

Powerhouse upgrades enhance reliability with modern, electronically controlled generators.

Diesel generation efficiency typically improves by 10–20%.



Bulk Fuel Upgrades

In rural Alaska, diesel fuel is largely used for power generation and heating, while gasoline is used for transportation. Most rural villages are located along rivers or on the coast and get their goods via barge, including heating fuel and fuel for diesel-fired electrical generators. Many bulk fuel facilities were built more than 40 years ago and are not compliant with modern regulations; however, they remain in service until updated or replaced, posing risks to personal safety and the environment.

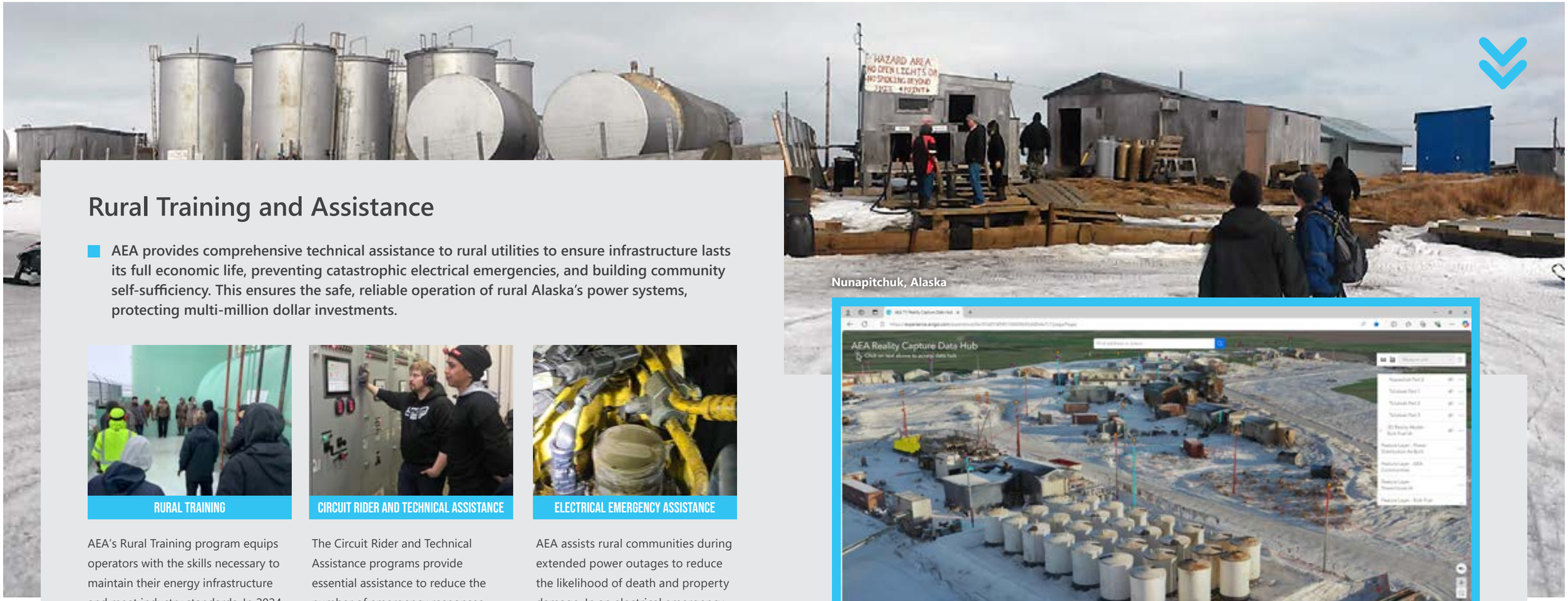
AEA's Bulk Fuel Upgrade (BFU) program repairs or upgrades fuel storage facilities that help lower the cost of fuel per unit by allowing the community to buy fuel in bulk quantities. In 2024, AEA began preparing a new bulk fuel facility site in Scammon Bay with eight new tanks currently under construction, and in Shageluk, river erosion necessitated an emergency tank farm relocation. There are four full BFU projects in various stages of design for construction.

In recent years, AEA has switched its emphasis from bulk fuel facility replacement to Maintenance and Improvement (M&I) projects. Currently, 12 M&I projects are planned or underway, included in this work is dispenser replacement, safety upgrades, electrical work, coating and other high-return investments in eligible community power systems.

The BFU program upgrades or repairs fuel storage in communities under 2,000 people.

These facilities reduce per-unit fuel costs by enabling bulk purchases.

Upgrading bulk fuel facilities lowers energy costs by preventing leaks and reducing equipment failure risks.



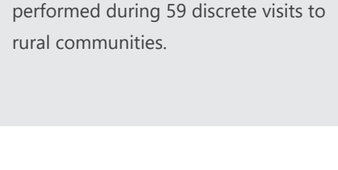
Nunapitchuk, Alaska

Rural Training and Assistance

AEA provides comprehensive technical assistance to rural utilities to ensure infrastructure lasts its full economic life, preventing catastrophic electrical emergencies, and building community self-sufficiency. This ensures the safe, reliable operation of rural Alaska's power systems, protecting multi-million dollar investments.

RURAL TRAINING

AEA's Rural Training program equips operators with the skills necessary to maintain their energy infrastructure and meet industry standards. In 2024, 44 operators from around the state trained in Bulk Fuel, Person in Charge, and Power Plant Operations at the Alaska Vocational Technical Center. Increasing the capacity of operators to properly maintain infrastructure and conduct regular preventative maintenance is crucial in the efforts to ensure greater efficiency and the lifecycles of rural energy systems.



CIRCUIT RIDER AND TECHNICAL ASSISTANCE

The Circuit Rider and Technical Assistance programs provide essential assistance to reduce the number of emergency responses needed when there are power outages in rural communities with a population between 20 and 2,000. AEA's team routinely instructs rural utility operators and managers on proper operations and maintenance of their generation and distribution infrastructure. During 2024, Circuit Riders assisted eligible utilities over 300 times in providing remote monitoring, training, and technical consultation. On-site assistance and minor repairs to power systems were performed during 59 discrete visits to rural communities.

ELECTRICAL EMERGENCY ASSISTANCE

AEA assists rural communities during extended power outages to reduce the likelihood of death and property damage. In an electrical emergency, AEA assists the utility in responding and restoring electricity transmission and generation. Financial or technical assistance, including emergency repairs, may be provided. AEA responds to a real or potential emergency before it becomes a disaster or major loss. Engines, generators, and transformers may need to be purchased and/or installed as part of an emergency response. Two emergencies were declared in 2024.

AEA'S REALITY CAPTURE DATA HUB

AEA is advancing inventory and assessment (I&A) of rural Alaska's energy infrastructure using cutting-edge technology. The I&A process ranks bulk fuel, powerhouse, and distribution systems by priority, with experts evaluating the structures, equipment, and components. Technical data is recorded, asset conditions are scored, and findings are integrated into an AEA's ArcGIS Energy Data Hub with three-dimensional (3D) imaging from drones and Light Detection and Ranging. This tool helps address long-standing logistical challenges in rural Alaska, supporting construction management, operator training, and remote assistance. The 3D platform allows project managers to track milestones and access real-time project data, enhancing efficiency, decision-making, and cost savings. AEA has created digital twins for 142 bulk fuel facilities and 165 rural powerhouses statewide. In 2024, it launched a multi-year distribution I&A effort, completing imaging of 32 distribution systems so far. The platform's applications continue to grow, including Operation and Maintenance Conversion projects where training videos, manuals, and specifications are tagged directly to infrastructure images for streamlined access.

RENEWABLE ENERGY AND ENERGY EFFICIENCY

AEA's renewable energy programs drive Alaska's clean energy economy, partnering with local governments, non-profits, and tribal organizations to implement new solutions. They also offer technical assistance, funding, and training to expand knowledge of cost-saving energy technologies.

Biomass

AEA's biomass program reduces diesel use, keeps fuel dollars local, and creates jobs. It has funded over 20 woody biomass heating systems for schools and public buildings and provided technical support for more than 50 systems. As co-lead of the Alaska Wood Energy Development Task Group with the United States Department of Agriculture-Forest Service (USDA-FS), AEA has helped fund over 170 feasibility studies for biomass projects. In 2024, AEA trained more than 20 cordwood boiler operators and will expand to chip boiler systems next year. It is also pursuing USDA-FS grants to fund engineering design for communities and to redesign the Tok School's woodchip combined heat and power system, integrating solar photovoltaic and battery storage for energy security. Additionally, AEA and the Alaska Department of Transportation and Public Facilities leads the Alaska Biofuels Advisory Group to advance Sustainable Aviation Fuel and Renewable Diesel.

Electric Vehicles

AEA leads statewide electric vehicle (EV) infrastructure deployment, collaborating with local agencies, utilities, and communities to reduce adoption barriers while ensuring responsible use of federal and state resources. The Alaska Electric Vehicle Working Group unites utilities, EV owners, vendors, and municipalities, meeting quarterly, hosting technical sessions, and sharing updates via listserv. To develop a fast-charging network, AEA works with Alaska Department of Transportation and Public Facilities to plan for National Electric Vehicle Infrastructure Program funding along Alaska's Alternative Fuel Corridor from Anchorage to Fairbanks, with expansion to additional highways, smaller urban areas, and ferry-connected locations. Beyond the major road, the Alaska Rural EV Supply Equipment Deployment project, backed by the U.S. Department of Energy, will install EV chargers in rural communities and create workforce opportunities.

Hydroelectric

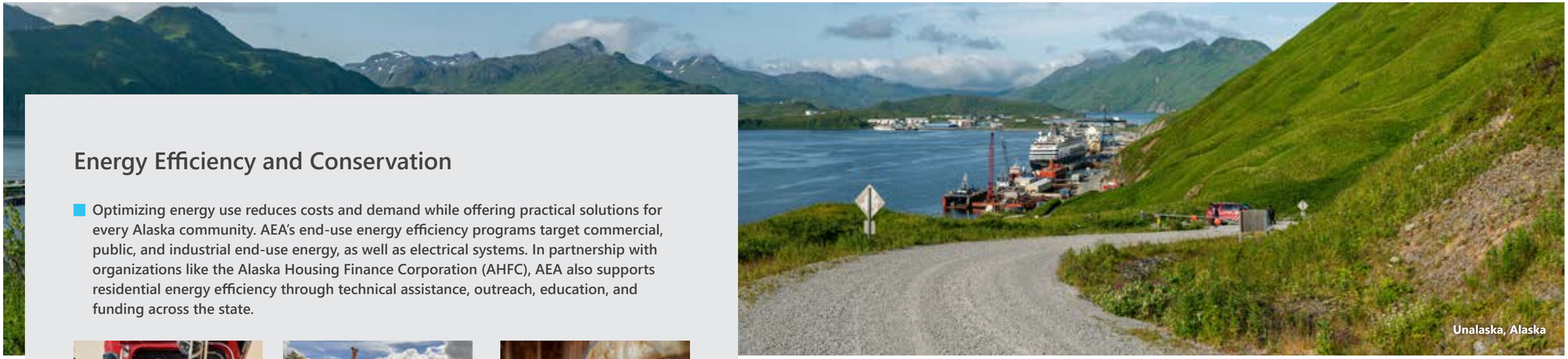
In an average water year, Alaska's principal renewable energy source, hydroelectricity, fuels more than 29 percent of the state's electrical energy. AEA supports 51 utility-scale hydroelectric projects. The majority of Alaska's existing hydro projects are located in the Southeast and Southcentral regions. Projects range from conceptual stages to operational facilities. Through its hydropower program, AEA improves the quality and efficiency of development, reducing construction costs. AEA coordinates with state, federal, municipalities, tribal entities, and private investors in analyzing, planning, and generally assisting hydroelectric project development.

Solar

Solar photovoltaic (PV) systems continue to grow in number in Alaska. These systems range from small residential systems to utility-scale plants. Round 16 of the Renewable Energy Fund (REF) has funded the construction of two solar PV projects in rural Alaska, in Igiugig and Ruby. REF Round 16 has also funded a solar PV project on the Railbelt, a 45-megawatt solar farm being designed by Solstice Energy on the shores of Puppy Dog Lake near Nikiski. In 2024, AEA was awarded a $62.5 million grant from the U.S. Environmental Protection Agency's (EPA) Greenhouse Gas Reduction Fund Solar for All Program. The Alaska Solar for All (AKSFA) Program is in partnership with the Alaska Housing Financing Corpoation, and will provide funding and technical assistance for solar PV systems for residents of low-income and underserved communities in Alaska. A work plan for AKSFA has been submitted to the EPA and the program is expected to launch in 2025.

Wind

Wind energy now makes up two percent of Alaska's annual electric generation, a significant growth over the past decade. AEA continues to advance wind development through Renewable Energy Fund grants, supporting projects from microgrids up to utility-scale wind farms along the Railbelt. AEA also fosters industry collaboration by hosting the Alaska Wind Working Group and the semi-annual Alaska Wind Workshop. Ongoing Railbelt feasibility studies include Murphy Dome (Fairbanks), Little Mount Susitna (Beluga), Homer, and multiple Matanuska Electric Association sites. State support is especially vital for wind-diesel hybrid systems in remote communities, where reducing reliance cuts costs and boosts energy resilience. As Alaska's energy office, AEA also explores cold-climate performance improvements and battery energy storage with grid-forming inverters to stabilize microgrids.



Unalaska, Alaska

Energy Efficiency and Conservation

- Optimizing energy use reduces costs and demand while offering practical solutions for every Alaska community. AEA's end-use energy efficiency programs target commercial, public, and industrial end-use energy, as well as electrical systems. In partnership with organizations like the Alaska Housing Finance Corporation (AHFC), AEA also supports residential energy efficiency through technical assistance, outreach, education, and funding across the state.

ALASKA ENERGY EFFICIENCY PARTNERSHIP

AEA continues to lead the Alaska Energy Efficiency Partnership (AEEP), a coalition of over 50 public, private, and nonprofit organizations working to make Alaska the most energy-efficient state in the nation. In 2024, quarterly meetings provided a platform for members to exchange insights on energy efficiency, conservation efforts, funding opportunities, and project updates. Through collaboration and integrated planning, AEEP promotes informed decision-making and advances energy efficiency across Alaska.

POWER PLEDGE CHALLENGE

Since 2013, AEA has partnered with AK EnergySmart to promote energy literacy through the Power Pledge Challenge (PPC). Now in its twelfth year, PPC engages K-12 students across Alaska in energy efficiency and conservation. From August through November, classrooms participate in challenges like the AK EnergySmart lessons, school energy audits, community energy profiles, and creating energy-saving public service announcements. In 2024, PPC reached 2,000 students in 22 schools across seven regions of the state.

HOME ENERGY REBATES

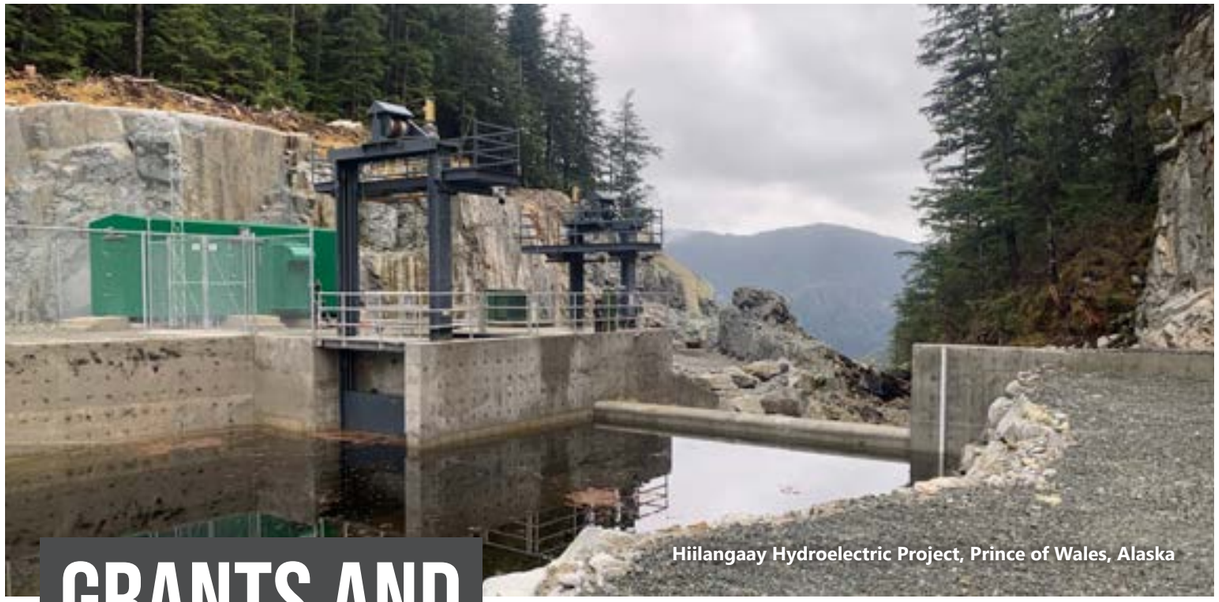
Sections 50121 and 50122 of the Inflation Reduction Act established the Home Efficiency Rebates and the Home Electrification and Appliance Rebates. For these rebates to be carried out, the U.S. Department of Energy was authorized to make a combined total of $74,444,011 in formula funds available to the state. As the state energy office, AEA will partner with the AHFC to design and administer a Home Energy Rebates program. Once implemented, it will support energy-efficient retrofits and high-efficiency electric projects and appliances for single and multifamily homes across Alaska.

Renewable Energy – Village Energy Efficiency Program

AEA's Renewable Energy-Village Energy Efficiency Program (RE-VEEP) is an expansion on the Village Energy Efficiency Program (VEEP), established in 2010 to reduce per capita consumption through energy efficiency. After two rounds of solicitation, a total of $1.5 million will be sub-awarded to nine RE-VEEP projects that support building-scale renewable energy, energy efficiency, and conservation in public buildings and facilities across Alaska. Through these types of projects, communities will reduce their energy consumption and costs.

RE-VEEP AWARDED PROJECTS

- **City of Chignik – Round 1:** Funds will support an energy audit, implement recommended efficiency upgrades, and install a solar system on the Chignik Community Hall roof.
- **City of Kachemak – Round 2:** With an audit already completed, funds will go toward energy efficiency retrofits and an 8.8 kilovolt solar photovoltaic (PV) system for the City of Kachemak Center roof.
- **Lake and Peninsula Borough – Round 2:** Funding will cover an energy audit, efficiency retrofits, and a 10-kW solar PV system for the borough office in King Salmon.
- **City of Nenana – Round 2:** Funds will be split between two sub-awards — one for efficiency upgrades at the Civic Center and community education on energy conservation, and another for integrating the Biomass Heat Plant with the Recreation Hall's in-floor heating, alongside efficiency improvements and additional educational materials.
- **City of Seldovia – Round 2:** Funding will support efficiency retrofits at the Seldovia City Office/Public Works Maintenance Shop.
- **City of Unalaska – Round 1 and 2:** Funds will cover an energy audit of the Pyramid Water Treatment Plant, upgrades to the Icy Lake solar/battery system, and replacing fluorescent T8 lighting with LED fixtures across city facilities.
- **City of Whittier – Round 1:** Funding will support an energy audit and lighting efficiency retrofits throughout Whittier's public spaces.


Hiilangaay Hydroelectric Project, Prince of Wales, Alaska

GRANTS AND LOANS

AEA plays a vital role in advancing Alaska's energy sector by administering multiple funding programs and actively monitoring new opportunities. AEA works closely with the U.S. Department of Energy (DOE) and tracks funding through Tribal and Indian Energy loan programs to maximize resources for Alaskans. Through strong partnerships with U.S. DOE and National Laboratories, AEA ensures communities benefit from the latest funding and innovative energy solutions.

85M

REF has displaced approximately 85 million gallons of diesel and 2.2 million cubic feet of natural gas since its inception.

Renewable Energy Fund

The Renewable Energy Fund (REF) was established in 2008 to help Alaskans reduce and stabilize their energy costs through the development of viable renewable energy projects. The program helps drive energy cost savings, facilitates technology transfers across Alaska, and leverages federal and local funding.

An independent analysis of REF examined its economic, community, and environmental impacts. The study found that the REF has significantly contributed to Alaska's renewable energy sector by offsetting approximately 85 million gallons of diesel fuel, reducing over one million metric tons of carbon dioxide, and returning $2.07 in benefits to residents and the economy for every dollar invested since its inception.

To date, REF has funded 294 grants for renewable energy projects statewide, resulting in over 110 operating projects. In fiscal year 2024, AEA solicited applications for Round 16 of REF funding. The Renewable Energy Fund Advisory Committee (REFAC), a nine-member committee, five of whom are appointed by the Governor, that provides policy guidance and funding recommendations to AEA, offered valuable input in its consideration and review of 24 recommended projects submitted to the Legislature for funding consideration. As a result, in June 2024, the Legislature appropriated and the Governor approved $10.5 million for REF Round 16 — more than double the initial $5 million proposal. Since its inception in 2008, the State has appropriated $327 million to REF.

Power Project Fund

AEA administers the Power Project Fund (PPF), offering low-interest loans to qualified applicants, including local utilities, governments, and independent power producers. PPF provides affordable financing for developing, expanding, and upgrading electric power facilities, including distribution, transmission, efficiency improvements, bulk fuel storage, and waste energy projects. Loans cover all project phases, from feasibility studies to construction, with terms based on a project's useful life. Interest rates are tied to the 30-year taxable municipal bond yield index, currently 5.40 percent as of February 2025.

In 2024, House Bill 307 aligned PPF statutes with recommendations from the Governor's Alaska Energy Security Task Force, allowing improved loan terms for certain projects. PPF remains a key tool in Alaska's energy development, supporting a range of technologies, including upgrades to diesel-fired powerhouses critical for rural energy reliability.

As of December 31, 2024, AEA's loan portfolio stands at $30.8 million, supporting 15 loans across multiple energy regions statewide. Through the PPF program, AEA has financed Alaska-based independent power producers and contributed to the development of the state's two largest and most recent solar farms in the Matanuska-Susitna Valley. Together, these solar projects generate enough clean energy to power approximately 1,600 homes, improving air quality while preserving Cook Inlet's natural gas reserves. Additionally, the PPF program provided $20 million in financing for the Hiilangaay Hydroelectric Project, the largest rural hydroelectric facility in Southeast Alaska, located on Prince of Wales Island. This project has played a key role in enabling the island's interconnected communities to achieve nearly 100 percent renewable power. Beyond reducing emissions and improving air quality, it also supports the long-term conservation of Cook Inlet's natural gas resources, reinforcing the state's commitment to diversifying Alaska's energy supply.

PPF loans debt capital at favorable rates for energy projects.

PPF financing is tailored to meet the specific needs of the borrower.

AEA engages with projects at all stages of development.

AEA Seeks Lower Interest Rates for Power Projects

House Bill 307, signed into law in July 2024, amended Alaska Statute 42.45.010, allowing AEA's PPF to offer lower interest rates and extended terms on loans for renewable energy projects with at least $5 million in state funding. In November 2024, AEA's Board of Directors approved regulatory changes to implement these updates, improving access to low-cost financing through significantly reduced interest rates and extended loan terms for major power projects generating power via renewable energy resources. These changes allow for an applicant to apply at a pre-determined reduced interest rate — or three percent below the statutory rate, but no lower than one percent — without needing to provide justification. These enhancements align with recommendations from the Governor's Alaska Energy Security Task Force. By reducing financing costs, the changes improve project economics and allow savings to be passed on to ratepayers through lower energy costs.


Phase 2 Whistle Hill Solar Project, Soldotna, Alaska
Photo by Peninsula Solar

FY2024 FINANCIAL HIGHLIGHTS

STATEMENTS OF NET POSITION	June 30, 2024	June 30, 2023
Assets:		
Restricted Investment securities and cash	1,281,491	1,226,790
Loans, net	30,832	26,459
Capital assets, net	369,244	375,794
Receivables and other assets	53,916	8,068
Total assets	1,735,438	1,637,111
Liabilities and net position:		
Liabilities		
Bonds payable	201,253	204,032
Other bond liabilities	–	–
Payables and other liabilities	122,768	51,145
Total liabilities	324,021	255,177
Net Position	1,411,462	1,381,934
Total liabilities and net position	1,735,438	1,637,111

REVENUES, EXPENSES, AND CHANGES IN NET POSITION	June 30, 2024	June 30, 2023
Operating revenues:		
Federal grants	12,298	10,179
Revenue from operating plants	25,802	27,461
State operating and capital revenues	23,881	23,704
Interest on loans	391	280
Other operating revenues	5,881	852
Total operating revenues	68,253	62,476

REVENUES, EXPENSES, AND CHANGES IN NET POSITION (CONT)	June 30, 2024	June 30, 2023
Operating expenses:		
Grants and projects	36,772	26,163
Power cost equalization grants	44,931	42,332
Plant operating	8,677	9,746
General and administrative	6,887	6,707
Provision for loan recovery	–	–
Depreciation	12,076	11,698
State of Alaska appropriations and transfers	–	–
Other project expense	–	–
Total operating expense	109,343	96,646
Operating loss	(41,090)	(34,170)
Investment income (loss), net	81,018	94,280
Interest expense	(10,400)	(6,653)
State of Alaska reappropriations and transfers	–	(45,000)
Capital contributions	–	–
Loss on disposal of asset	–	(400)
Increase (decrease) in net position	29,528*	8,057**

NOTES REGARDING INCREASE (DECREASE) IN NET POSITION

*Net position increased primarily due to decreased distributions from PCE Endowment Fund during the year amounting to $22.2 million. Other contributing factor is the increase in additional funding from appropriations in Renewable Energy Fund by $3.0 million, and the $5.0 million increase in investment income from the Bradley Lake Hydroelectric Project.

**Net position increased primarily due to unrealized investment gains in the PCE Endowment Fund of ($5,900) and from the Bradley Lake bond issuance of ($2,500). Other contributing factors was an overall decrease of ($326) from reduced revenues of the Trans-Alaska Pipeline Liability Fund.

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Vice Chair, Board Member

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Commissioner, Alaska Department of Revenue

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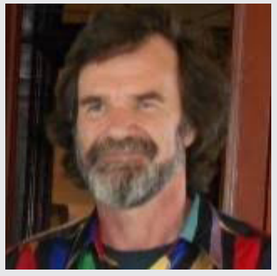
Board Member



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