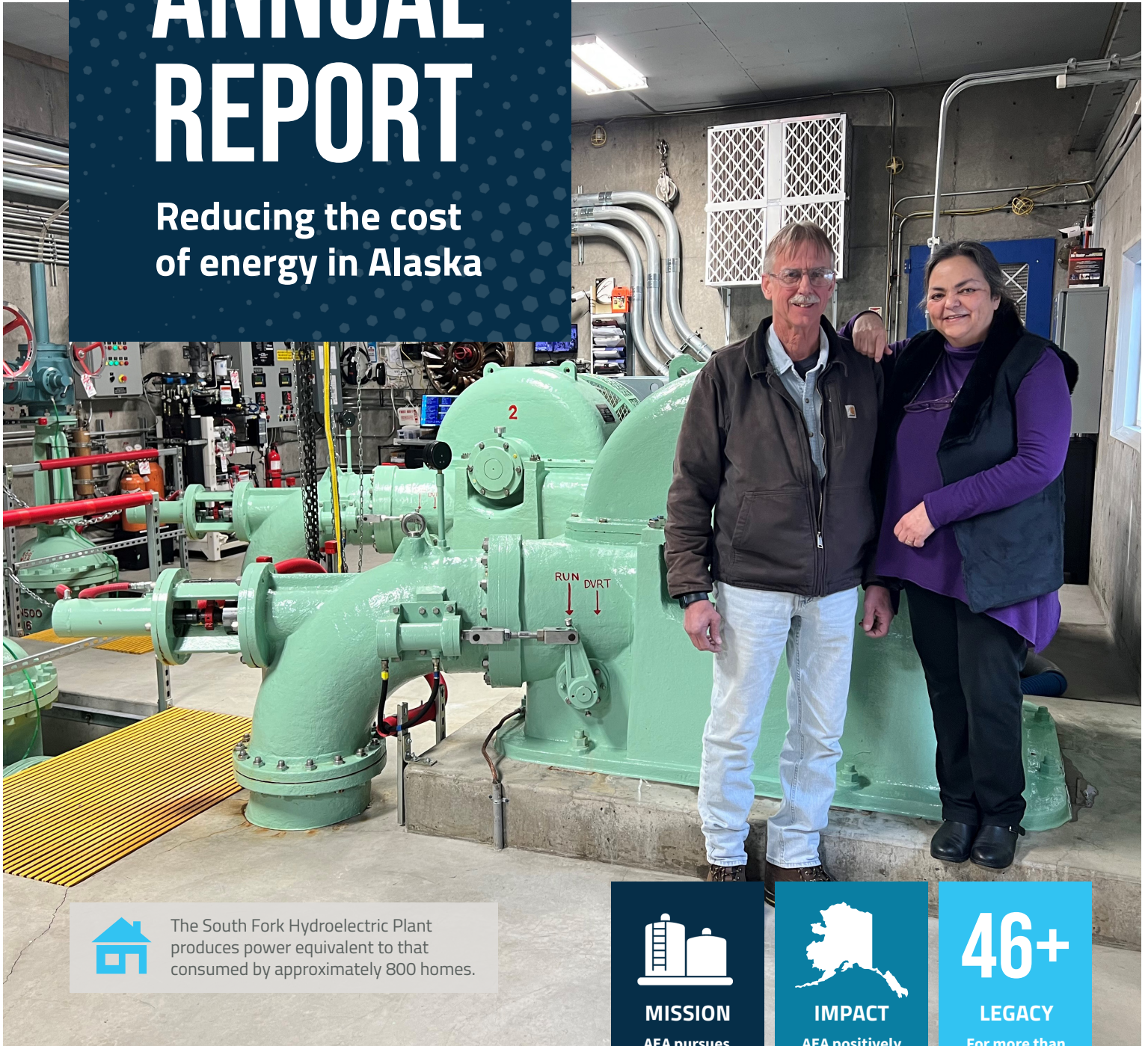


2022 ANNUAL REPORT

Reducing the cost
of energy in Alaska



The South Fork Hydroelectric Plant produces power equivalent to that consumed by approximately 800 homes.



MISSION

AEA pursues energy solutions to meet the unique needs of rural and urban communities.



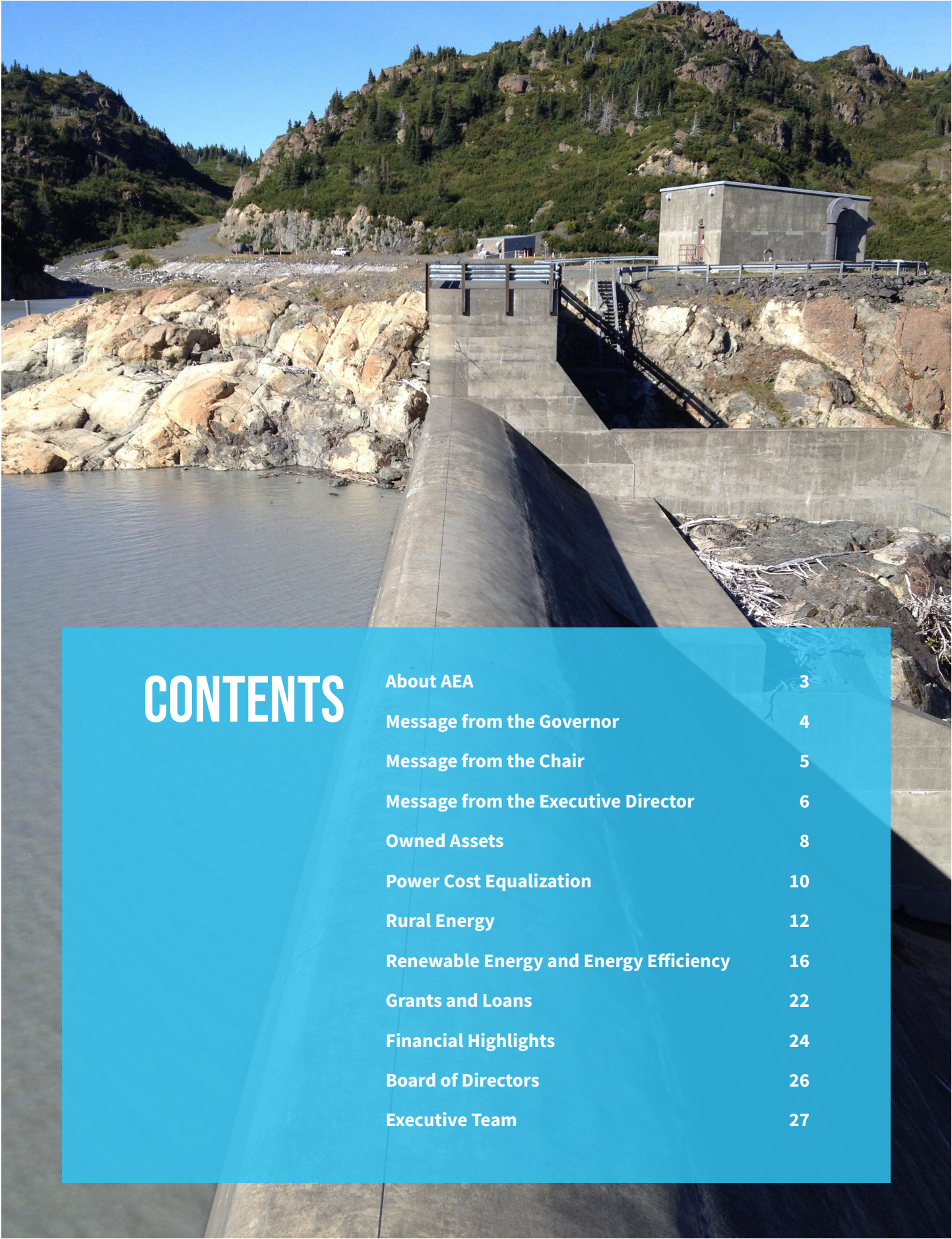
IMPACT

AEA positively affects nearly every community and ratepayer in Alaska.

46+

LEGACY

For more than 46 years, AEA has ensured Alaskans have access to safe, reliable, affordable energy.



CONTENTS

About AEA	3
Message from the Governor	4
Message from the Chair	5
Message from the Executive Director	6
Owned Assets	8
Power Cost Equalization	10
Rural Energy	12
Renewable Energy and Energy Efficiency	16
Grants and Loans	22
Financial Highlights	24
Board of Directors	26
Executive Team	27

ABOUT AEA

AEA provides energy solutions to meet the unique needs of Alaska’s rural and urban communities.



COVER PHOTO

Dan and Carmen Janke inside their South Fork Hydroelectric Plant, located along Hiland Road, in Eagle River. The project, which produces enough power equivalent to that consumed by approximately 800 homes, was supported by AEA’s Power Project Fund. An independent power producer, the facility provides Matanuska Electric Association with renewable energy at an economical, fixed-rate cost.



Created in 1976 by the Alaska Legislature, the Alaska Energy Authority (AEA) is a public corporation of the State of Alaska governed by a board of directors with the mission to “reduce the cost of energy in Alaska.” AEA is the state’s energy office and lead agency for statewide energy policy and program development. AEA positively affects nearly every community and ratepayer in Alaska.

Whether building modern and code-compliant bulk fuel tank farms, upgrading to high-efficiency generators in rural powerhouse systems or integrating renewable energy projects, AEA emphasizes community-based project management. AEA works to diversify Alaska’s energy portfolio, lead energy policy, invest in Alaska’s energy infrastructure, and provide technical and community assistance to rural Alaska.

AEA built and owns several key pieces of Railbelt electric infrastructure for the benefit of Alaskans. Through its Renewable Energy Fund and the Power Project Fund, AEA offers grants and loans to qualifying projects in the energy projects. AEA also manages the Power Cost Equalization Program, and several Renewable Energy and Energy Efficiency Programs to grow Alaska’s clean energy economy.



This publication on the activities and financial condition of AEA is submitted in accordance with Alaska Statute 44.83.940. Design and production by AEA. A total of 500 copies of the report were printed at Service Business Printing located in Anchorage, Alaska at a cost of \$6.50 per copy.

MESSAGE FROM THE GOVERNOR



Dear Fellow Alaskans,

The Alaska Energy Authority (AEA) was created in 1976 to promote, finance, and construct power projects to diversify Alaska's energy portfolio. This time coincided with Alaska's foray into the arena of large-scale energy infrastructure projects. More than four decades later, the pursuit of energy diversification remains a top priority for our energy independence, security, and sustainability.

As the lead agency for statewide

energy program development, AEA is central to diversifying our energy mix. To bolster and guide this collaborative effort between Alaska stakeholders, public and private alike, I established the Office of Energy Innovation. Together with our partners, we will develop innovative, sustainable, and renewable technologies to ensure Alaska's energy independence and its position as a national and world energy leader.

As part of our ongoing commitment to rural Alaska, we invested tens of millions into the design, construction, and maintenance of power systems and bulk fuel tank farms in 19 communities. These investments improve and sustain critical energy infrastructure that enables nearly 200 remote communities' access to affordable and dependable power.

To support the future integration of renewable energy projects on the Railbelt, AEA closed on \$166 million in bond financing to improve the efficiency and capacity

of power from the Bradley Lake Hydroelectric Project. Improvements to transmission and energy storage infrastructure will increase the reliability and resiliency of the grid, create operational efficiencies, and continue to provide affordable, reliable power to Alaskans. This bonding by AEA, in partnership with the Railbelt utilities, comes at no additional cost to ratepayers and does not add to the burden on the state treasury.

Alaska's energy needs are great and so is our potential to harness it. By continuing to pursue energy that is sustainable, dependable, and affordable we can lower the cost of energy for rural and urban Alaska, open up economic opportunities for all Alaskans, and attract future investments to our Great State.

Sincerely,


MIKE DUNLEAVY
 Governor

MESSAGE FROM THE CHAIR



“ AEA is focused on the development of renewable energy projects that move Alaska toward a clean energy future. ”

On behalf of the board of directors, it is my privilege to introduce the Alaska Energy Authority's (AEA) 2022 Annual Report for fiscal year 2021-2022. This report highlights AEA's key accomplishments, notable initiatives, and financial performance from the preceding year.

AEA owns the Bradley Lake Hydroelectric Project, which has provided some of the lowest-cost wholesale power in the state for more than 30 years. To augment its economic power dispatch capacity, AEA, in partnership with the Railbelt utilities, is exploring the overall feasibility of increasing capacity with the Dixon Diversion project. Water from Dixon Glacier basin would be used to increase reservoir levels to allow for greater power production at Bradley Lake. This project would be the largest hydropower project in Alaska since Bradley Lake. In addition to keeping energy costs low, it is expected to provide additional ancillary public benefits including job creation and integration with other renewable energy resources.

For the nearly 200 rural communities who benefit from the Power Cost Equalization program, the Governor and Legislature increased the maximum kilowatt-hours (kWh)

available to residential customers for reimbursement from 500 kWhs to 750 kWhs per month. PCE, which helps bridge the gap in the cost of energy between urban and rural Alaska, serves as a crucial lifeline for rural Alaskans. This effort underscores AEA's commitment to rural Alaska.

Through its Renewable Energy Fund (REF) program, AEA successfully secured \$15 million, the largest appropriation for the REF since the Fiscal Year 2014, to fund all 27 projects as recommended to the Legislature. These projects will provide an array of benefits across the state including the proving of nascent technologies, improvements in rural systems design, and continued integration of renewable energy technologies, further diversifying Alaska's energy portfolio.

As I reflect on another year of change and progress, I want to thank all AEA's employees for their extraordinary commitment to our mission and the people of Alaska, and I look forward to 2023.


J. DANA PRUHS
 Chair

Bradley Lake Hydroelectric Project, Alaska



LEARN MORE ABOUT THE OFFICE OF ENERGY INNOVATION AT
<https://gov.alaska.gov/admin-orders/administrative-order-no-340/>

MESSAGE FROM THE EXECUTIVE DIRECTOR



Saint George Island, Alaska



In the past year, we pursued innovative energy projects that will enhance the state’s current energy assets and expand its renewable energy portfolio.

Throughout 2022, AEA pursued innovative energy projects that will help ensure Alaskans have access to safe, reliable, affordable energy. This progress would not have been possible without the continued support of the Governor and the Legislature. We also recognize the significant contributions of our federal, state and local partners, public and private alike, for the milestones achieved to date.

Alaska is benefiting from the passage of the new Infrastructure Investment and Jobs Act (IIJA). For decades, Alaska’s unique infrastructure needs have far exceeded the funds available. With these funding sources, AEA is positioned to advance existing plans, pay for much-needed upgrades to the state’s largest electrical grid, and fund new and existing electric vehicle-related programs.

As part of IIJA, the Grid Deployment Office is administering a \$10.5 billion Grid Resilience and Innovation Partnerships Program to enhance grid flexibility and improve the resilience of the power system against growing threats of extreme weather and climate change. These programs will accelerate the deployment of transformative projects that will help to ensure the reliability of the power sector’s infrastructure, so

all American communities have access to affordable, reliable, clean electricity anytime, anywhere. In response, AEA has submitted four concept papers in preparation for potential project funding.

The IIJA also established the Grid Resilience Formula Fund Program, which allocates \$60 million to Alaska over five years, outside of the direct federally recognized tribe allocations. Federal funding for years one and two for the State is set at \$12.1 million and \$10 million respectively. The program aims to reduce power outages in extreme weather and natural disasters by improving the resilience of the electric grid. The \$22.1 million for funding year’s one and two will be made available to program applicants in AEA’s first solicitation cycle upon approval of AEA’s program plan by the United States Department of Energy. The IIJA also makes \$11 million available to protect Alaska’s grid infrastructure against cyberattacks.

AEA is responsible for developing the State of Alaska’s Energy Security Plan. This plan provides the federal government, the Governor, state and local government agencies, and the energy industry with a blueprint designed to address a potential or actual energy emergency caused by supply

disruptions, a rapid and unsustainable increase in energy prices, or other energy emergency. It is a manual for state government leaders charged with the responsibility of ensuring the health, welfare, and safety of Alaskans during these emergency events.

In September 2022, AEA and the Alaska Department of Transportation & Public Facilities (DOT&PF) received approval from the United States Department of Transportation Federal Highway Administration (FHWA) to implement

Alaska’s EV Infrastructure Deployment Plan to build a network of EV charging stations along Alaska’s highway corridors unlocking \$19 million to expand EV charging infrastructure in Alaska. Under the IIJA, Alaska is allocated a total of \$52 million over five years to support the expansion of an EV charging network in the state, with opportunities to apply for an additional \$2.5 billion in competitive grant funding. In collaboration with DOT&PF, AEA is working to ensure efficient and equitable deployment across Alaska.

To support the mission of our military members, AEA in collaboration with the Golden Valley Electric Association (GVEA), applied for and was awarded \$12,752,540 from the Office of Local Defense Community Cooperation’s Defense Community Infrastructure Pilot Program in September 2022 to expand electricity to the Black Rapids Training Site. The grant will enable Black Rapids to transition from diesel generator power to electric distribution along the Richardson Highway, in turn improving resiliency, saving money, and benefitting the environment.

As we look toward the future of AEA and recognize the unprecedented level of federal funding that will become available in 2022 and beyond, we see that AEA is well positioned with existing programs and shovel-ready projects to facilitate Alaska’s transition toward cleaner energy and a more diverse economy.

Curtis W. Thayer
CURTIS W. THAYER
Executive Director



Last fall, AEA was part of a delegation of Alaskans that visited the United States Department of Energy’s Idaho National Laboratory to learn about microreactor opportunities in Alaska.

OWNED ASSETS

Throughout the 1980s, AEA developed the state’s energy resources to help diversify Alaska’s economy and provide affordable energy to Alaskans. AEA built and owns several key pieces of Railbelt electric infrastructure — the Alaska Intertie, the Bradley Lake Hydroelectric Project, and the Sterling to Quartz Creek transmission line. These assets benefit Railbelt consumers by reducing the cost of power.



Between 2008-2021, the Alaska Intertie saved GVEA customers an average of \$37 million per year.



Alaska Intertie, Photo by GVEA

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.

The Intertie connects Golden Valley Electric Association (GVEA), the utility that serves areas north of the Alaska Range, with Southcentral Alaska utilities. It was funded with State of Alaska appropriations totaling \$124 million and has no debt service. The Intertie provides significant cost savings through the transmission of economy energy to GVEA. It delivers to GVEA its power share of Bradley Lake and enables the sharing of reserve generation capacity between the Anchorage and Fairbanks load centers.

Operation of the Intertie is governed by the Alaska Intertie Agreement signed in 1985 and amended thereafter. The parties to the agreement are AEA, Chugach Electric Association, GVEA, and Matanuska

Electric Association. Each of these entities has a seat on the Intertie Management Committee (IMC), which has responsibility for managing the Intertie.

Through AEA’s leadership as an IMC member and with its step-in rights on financial decisions regarding the Intertie, AEA is uniquely positioned to ensure that ratepayers across the electrically interconnected Railbelt region benefit as intended under the current Alaska Intertie Agreement. In Fiscal Year 2021, the IMC created an Asset Management Plan for the Alaska Intertie. The plan includes a preventive maintenance program, multi-year projections of maintenance and repair funding, climate change considerations, and analysis of factors affecting future use. The plan incorporates and facilitates some of the major changes anticipated on the Railbelt, such as increasing renewable power generation, reduced greenhouse gas production, and participation by Independent Power Producers.

120MW

CAPACITY

Bradley Lake generators are rated to produce up to 120 MW of power.

10%

ENERGY

Bradley Lake generates about 10 percent of the total annual electrical energy used by Railbelt electric utilities.

\$0.04

GENERATION COST PER KWH

From 1995 through 2020, the project averaged 392,000 MWh of energy production annually at \$0.04 per kWh.

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 at some of the lowest-cost power to more than 550,000 Alaskans.

The power generation potential of Bradley Lake was first studied in 1955 by the United States Army Corps of Engineers. AEA, then the Alaska Power Authority, assumed responsibility for the project in 1982. To date, the total project cost is approximately \$400 million. The project was funded through legislative appropriations and AEA revenue bonds that are being 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 was expanded to increase energy generation 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.

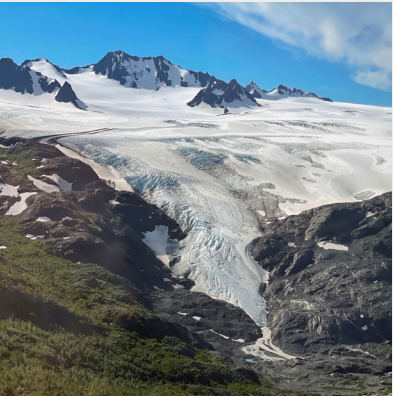
In December 2022, AEA and the Railbelt utilities closed on \$166 million in bond

financing to improve the efficiency and deliverable capacity of power from the Bradley Lake Hydroelectric Project. The bond proceeds will be used solely to pay for transmission line upgrades and battery energy storage systems that will reduce the constraints on the Railbelt grid by improving the Kenai Peninsula’s transmission capacity to export power from Bradley Lake, while also allowing for the integration of additional renewable energy generation.

Funding for the projects is coming from payments by the five Railbelt utilities above those required to retire the Bradley Lake project bonds, and will come at no additional cost to ratepayers or added burden on the State treasury. These projects include:

- Upgrade transmission line between Bradley Lake and Soldotna Substation;
- Upgrade transmission line between Soldotna Substation and Sterling Substation;
- Upgrade transmission line between Sterling Substation and Quartz Creek Substation; and
- Battery Energy Storage Systems for Grid Stabilization.

AEA, Railbelt utilities pursue Alaska’s largest hydropower project in 30 years



AEA, in partnership with the Railbelt utilities, is studying a new project to optimize the energy potential of Bradley Lake. Similar to Battle Creek, the Dixon Diversion Project would divert water from Dixon Glacier increasing the annual energy production of Bradley Lake by 50 percent, or the equivalent of 24,000-30,000 homes. It would be the largest renewable project in Alaska in the last 30 years. Additional studies are funded by the State and Railbelt utilities. Read more at <https://www.akenergyauthority.org/pressreleases>

■ The cost of electricity for Alaska’s rural residents is notably higher than for urban residents. PCE lowers the cost of electric service paid by rural residents. Ultimately ensuring the viability of rural utilities and the availability of reliable, centralized power.

POWER COST EQUALIZATION

The Power Cost Equalization Program (PCE) was established in 1984 to lower the cost of electrical power borne by rural residents and community facilities to a level comparable to that paid by residents of Alaska’s larger cities. AEA, along with the Regulatory Commission of Alaska (RCA), administers the program that serves 82,000 Alaskans in 193 communities that are primarily reliant on diesel fuel for power generation.

PCE helps to lower the cost of electrical power borne by rural residents and community facilities to a level comparable to that paid by residents of Alaska’s larger cities.

The PCE program makes payments to eligible rural electric utility companies and those companies credit their residential and community facility customers with payments made from the program up to a level of consumption. Those payments result in a reduction of the unit cost of power to residential and community customers.

The pre-PCE cost of electricity in rural communities is almost always significantly more than the electricity costs borne by customers in Alaska’s urban areas. Residential and community facility buildings and assets in 193 communities see the benefits of PCE credits.

AEA calculates the amount an eligible electric utility is due based on a filing made by the utility and issues monthly payments. The PCE program staff also provides technical assistance to utility clerks who need help

750 kWh

RESIDENTIAL

Residential customers are eligible for PCE credit up to 750 kWhs per month.

70 kWh

PUBLIC FACILITIES

Community facilities can receive PCE credit for up to 70 kWhs per month multiplied by the number of residents in a community.

\$27.4M

FUNDS DISTRIBUTED

In Fiscal Year 2023, AEA disbursed \$27.4 million for payment of PCE to rural electric utilities for the benefit of rural communities.



Golovin, Alaska

preparing and filing PCE reports. The PCE disbursements are funded from the PCE Endowment Fund. Alaska Statute (AS) 42.45.085 provides that five percent of the PCE Endowment Fund’s three-year monthly average market value may be appropriated to the PCE program. In recent years, the five-percent draw on the endowment has been sufficient to fully fund PCE disbursements. Fiscal year 2018 saw the enactment of statutory changes that addresses how excess PCE Endowment Fund earnings are to be

used. These changes allowed the endowment fund earnings to pay for PCE program administration costs fully and the earnings could also contribute \$30 million to the Community Assistance Program and up to another \$25 million for the Renewable Energy Fund Program, Rural Power System Upgrade projects, and the Bulk Fuel Revolving Loan fund.

During the 32nd Legislative Session, the Governor and the Legislature approved a 50 percent increase to PCE payments from 500 to 750 kilowatt-hours (kWh) helping rural Alaskans to lower their cost of energy.



PCE highlights

- The PCE program reduces the electric rates paid by rural consumers to levels comparable to those paid by consumers in Anchorage, Fairbanks, and Juneau.
- The program reimburses the utility for credits it has extended to its customers. This happens after the utility reports its sales and provides a customer ledger to AEA.
- AEA reviews the utility monthly report and pays the utility based on rates calculated by the state’s utility overseer, the RCA.
- The RCA determines if a utility is eligible to participate in the program and calculates the rate that the PCE program reimburses each eligible utility.
- AEA determines the eligibility of community facilities and residential customers and provides reimbursement to the electric utility for the PCE credits extended to customers.



PCE STATISTICAL REPORT

As per AS 44.83.940, AEA produces an annual PCE Statistical Report. Community and utility data are based on information submitted by utilities. To view the report online, visit www.akenergyauthority.org/pce



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

AEA's Rural Power Systems Upgrade (RPSU) program seeks to improve power generation in small Alaska villages that are located off the electrical-grid system. Upgrades range from complete powerhouse replacement to minor maintenance and improvements. A project may include efficiency improvements, powerhouse upgrades or replacements, line assessments, demand-side enhancements, heat recovery, and repairs to generation and distribution systems. The Denali Commission is AEA's major federal funding partner, which requires a state match of 50 percent for non-distressed communities or 20 percent for distressed communities.

RPSU also manages the State's allocation through the Environmental Protection Agency's (EPA's) Diesel Emissions Reduction Act (DERA). Pending yearly funding from Congress, states can apply for DERA funds based on population. In addition to the state program, EPA also has a tribal DERA program that awards funds competitively nationwide. AEA uses DERA funds exclusively to replace prime power diesel engines in rural Alaska. AEA selects communities for engine replacement through the DERA program based on current engine condition, redundancy, efficiency, and engine eligibility. In Calendar Year 2022, AEA was in construction of three RPSU powerhouse replacement projects in Napaskiak, Nikolai, and Venetie.

Additional RPSU design work was completed for Rampart and Nelson Lagoon. Engine replacement with DERA funds, was completed in Chenega (two engines) and design started in Grayling (two engines) and Akiachak (four engines).

AEA has switched emphasis from full facility replacement to improving operations and maintenance to maximize the benefit to rural power systems. There are currently 20 active Maintenance and Improvement (M&I) projects, which target high, return investment in eligible community power systems. Typical projects include replacing old switchgear and control systems, maximizing heat recovery, and updating engine controls to improve efficiency and sometimes replacing diesel gensets.



The RPSU program builds and retrofits facilities in communities with less than 2,000 people.



Powerhouse upgrade projects replace outdated, inefficient mechanical systems with new electronically controlled generator sets, providing stable and reliable power.



The typical efficiency improvement in diesel generation is between 10 and 20 percent.



BULK FUEL UPGRADE

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. Delivery is often limited by the season or the weather. Barge fuel is delivered once or twice a year to most communities.

Many of rural Alaska's bulk fuel facilities were built in the mid-1900s and are not compliant with modern regulations. Yet 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 Calendar Year 2022, there were six full BFU projects underway. In recent years, AEA has switched its emphasis from bulk fuel facility replacement to Maintenance and Improvement (M&I) projects. Currently, 20 M&I projects are planned or underway, which target high-return investment in eligible community power systems.



The BFU program repairs or upgrades fuel storage facilities in communities with less than 2,000 residents.



These facilities help decrease the per-unit cost of fuel by allowing the community to purchase fuel in bulk quantities.



Upgrading bulk fuel facilities reduces the unit cost of energy by replacing leaking tanks and reducing the risk of future tank and equipment failure.

AEA provides soup to nuts technical assistance to rural utilities to ensure that infrastructure lasts its full economic life, preventing catastrophic electrical emergencies, and building community self-sufficiency. This helps assure safe, reliable, operation of rural Alaska electric generation equipment in which millions of dollars are invested.



RURAL TRAINING

AEA's Rural Training program develops operators with the skills necessary to operate their energy infrastructure and keep operators compliant with current industry standards. In Calendar Year 2022, 36 operators from 33 communities trained in Bulk Fuel, Person in Charge, and Power Plant Operations at the Alaska Vocational Technical Center. AEA is pioneering the use of 3D imaging coupled with data from every rural powerhouse to create new ways for operators to learn about their site's specific needs. AEA has converted some operation and maintenance manuals into an electronic form that has been digitized into the 3D imagery of the powerhouse. Training videos are also linked to the imagery. This allows an operator to easily find, diagnose, and fix equipment in the powerhouse.



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. In Calendar Year 2022, Circuit Riders assisted eligible utilities over 390 times in providing remote monitoring, training, technical consultation. Onsite assistance and minor repairs to power systems were performed in 50 communities.



ELECTRICAL EMERGENCY ASSISTANCE

AEA provides power-related electrical emergency assistance to rural communities. Electrical emergency assistance encompasses risk to life or property due to power failure. In Calendar Year 2022, five emergencies were declared.



TRAINING VIDEOS ARE ON OUR YOUTUBE CHANNEL

<https://www.youtube.com/@alaskaenergyauthority7923/videos>



AEA pioneers 3D imaging to understand rural powerhouse needs

Circuit Riders continues to update the Matterport 3D imaging of the rural powerhouse plants after completing the inventory and assessment project. This assists them when speaking with local operators. The above image shows several icons. These are Matter tags which when clicked on provide additional information on the specific component, e.g. engine manual, procedure on how to change the fuel filter, etc. The addition of Matter tags is a separate project aimed at converting the operations and maintenance manuals into a digital interface.



Hydroelectric power is Alaska's largest source of renewable energy, supplying about 27 percent of the state's electrical energy in an average water year.

RENEWABLE ENERGY AND ENERGY EFFICIENCY

AEA's renewable energy programs are central to Alaska's clean energy economy. The programs work with local governments, non-profits, and tribal organizations to implement new energy solutions. They also provide technical assistance, funding, and training to increase knowledge about cost-saving energy technologies.



Run-Of-River Intake at South Fork Hydroelectric Plant, Eagle River, Alaska



BIOMASS

Biomass heat reduces diesel fuel use, keeps the money spent on fuel (wood) within the community, and creates local jobs. AEA's biomass program has funded over 20 biomass woody heating systems for schools and public buildings and provided technical support for more than 50 systems. Along with the United States Forest Service, the program has funded over 170 preliminary studies to evaluate a community's biomass potential. In 2022, AEA hired a consultant to conduct additional feasibility studies to get projects in the pipeline for development. This year the team focused on developing a much needed pellet mill project in Ketchikan to supply pellets for the region.



HYDROELECTRIC

Alaska's biggest source of renewable energy, hydroelectricity, supplies more than 27 percent of the state's electrical energy in an average water year. About 51 utility-scale hydroelectric projects are supported by AEA. The majority of Alaska's existing hydro projects are located in the Southeast and Southcentral regions. Projects range from concepts to operational facilities. AEA's hydroelectric program improves efficiency and quality in development, lowering the cost of construction, and coordinating 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 gain popularity in Alaska. These systems range from on and off-grid residential to utility-scale PV. Northern latitudes often have impressive solar generation in spring and fall due to clear skies, cool temperatures, dry air, and bright, reflective snow. Solar PV systems can actually exceed their rated output at these times. In 2022, AEA's Power Project Fund financed an 8.5-megawatt Houston Solar Farm PV project on the Railbelt, and seven solar projects were funded in Round 14 of the REF. AEA has also joined the National Community Solar Partnership, which shares best practices between states.



WIND

Alaska's wind energy capacity has increased 400 percent since 2012. Today, wind energy contributes to 2.4 percent of the state's electrical production, and it is growing. This growth is supported by AEA's REF program and information shared among wind energy producers and stakeholders. As of right now, REF funding is being used to develop 18 wind projects in rural and urban Alaska. AEA's Alaska Wind Working Group meets quarterly to discuss policy issues and funding needs to advance wind energy. Additionally, AEA facilitates educational events, including the wind-diesel and energy storage workshop, and assists communities with evaluation and decision-making.



ENERGY EFFICIENCY AND CONSERVATION

Efficient production and consumption of energy saves costs, reduces demand, and are often the lowest hanging fruit for energy solutions. It is available in every community in Alaska. AEA focuses its energy efficiency program activities on commercial buildings, public buildings, industrial facilities, and electrical efficiency. In 2022, AEA updated the Commercial Property Assessed Clean Energy handbook to reflect the changes made to the program from House Bill 227. Additionally, AEA organizes the collaborative multi-stakeholder group called the Alaska Energy Efficiency Partnership.



 **SIGN UP FOR VEEP PROGRAM NOTICES AND ANNOUNCEMENTS AT**
<https://list.state.ak.us/mailman/listinfo/aea-veep-notices>

Metlakatla Indian Community, Alaska



Alaska Energy Efficiency Partnership

An integral part of AEA's energy efficiency and conservation outreach is the Alaska Energy Efficiency Partnership (AEEP), a group of over 50 public, private, and nonprofit organizations that meet quarterly to discuss energy efficiency and conservation efforts in Alaska. Using information sharing and integrated planning, the group seeks to improve the coordination of efforts to promote more energy efficiency and energy conservation behaviors in Alaska. In 2022, Partnership meetings focused on post-pandemic activities and revamping efficiency. At quarterly meetings, members discussed school efficiency, community weatherization, and outreach and education.



Power Pledge Challenge

AEA partnered in the annual Power Pledge Challenge, an initiative from AK EnergySmart aimed at helping youth better understand energy use. The program educates elementary and middle school students in rural and urban Alaska on the basics of energy and the benefits of energy efficiency and conservation at home and school. Schools participate in monthly challenges such as developing community energy profiles, creating energy saving public service announcements, or calculating energy savings by switching to LEDs. This year the program championed energy literacy and educated 1,124 students from 51 classrooms in 20 schools.



Village Energy Efficiency Program

The Alaska Legislature established the Village Energy Efficiency Program (VEEP) in 2010 to reduce per capita energy consumption. For the last several years, AEA leveraged federal State Energy Program funds to meet this mission. In 2022, AEA released a VEEP Request for Applications to fund efficiency programs. Grants totaling \$600,000 were awarded to Gakona, Galena, Nenana, and Saint George with \$236,363 in community match. Since 2019, 41 VEEP projects have been completed, 1,212 lights have been replaced, and 556,938 kilowatts (kWh) per year will be saved, for a 65 percent reduction in energy consumption. Cost per kWh in these communities ranges between \$0.19–\$1.00.

VEEP Success Story: Keeping the Lights On

Through VEEP, AEA supported the Metlakatla Indian Community in replacing outdoor lights with efficient light-emitting diode (LED) models, which prevented a planned shutdown of the lights due to reduced hydroelectric generation capacity and resulted in annual energy savings of about 25 percent. Additionally, the project supported the training and development of the local workforce. In 2018, due to prolonged drought conditions that reduced hydroelectric energy generation capacity, the local utility shut off about half of its streetlights to conserve energy and reduce costs. In the wake of this decision, Metlakatla was selected through VEEP's competitive application process in 2019 to receive \$50,000 in combined grant funds from Wells Fargo and AEA to replace 61 high-pressure sodium outdoor lights with LED models. Metlakatla matched the grant with \$12,165 of its funds to complete the lighting retrofits. The retrofit has benefited the community substantially. The new LED lights saved \$16,613, or about 25 percent, annual energy savings that will offset retrofit costs within a few years. Further, the retrofit saved essential outdoor lighting from being shut down and improved the quality of light for Metlakatla residents during perpetual winter darkness. The retrofit also boosted local energy jobs.

ELECTRIC VEHICLES

AEA is the lead agency for electric vehicle (EV) infrastructure deployment in Alaska. Following the passage of the Bipartisan Infrastructure Law (BIL), also known as the Infrastructure Investment and Jobs Act, AEA has been conducting public outreach with a variety of stakeholders including local agencies, utilities, and other interested parties to inform Alaska’s plan for deploying EV infrastructure.

Alaska Electric Vehicle Working Group

Through its Alaska Electric Vehicle Working Group (AKEVWG), AEA made significant progress over the year in leading Alaska’s effort to minimize barriers to EV adoption. AEA leads the AKEVWG, which is comprised of members from across the state including the Alaska Department of Transportation & Public Facilities, the Alaska Electric Vehicle Association, electric utilities, EV owners, EV vendors, municipalities, prospective charging sites, site hosts, universities, and other stakeholders. The AKEVWG met quarterly and discussed topics such as siting charging stations, climate considerations, power requirements, etc. for publicly accessible charging locations.

Volkswagen Settlement Fund EV Project Updates

With Volkswagen Settlement funds and State Energy Program funds, AEA continued its progress to develop an EV fast-charging corridor connecting Healy to Homer and Seward in 2022. Direct current fast chargers (DCFC) were commissioned in Anchorage, Cantwell, and Seward. DCFC sites in Chugiak, Cooper Landing, Healy, Soldotna, and Trapper Creek will be commissioned in the summer of 2023 and will lessen range anxiety. AEA also continues to pursue competitive funding opportunities to expand Alaska’s EV fast-charging infrastructure and community-based chargers throughout the state.

VIEW ALASKA’S ELECTRIC VEHICLE INFRASTRUCTURE IMPLEMENTATION PLAN ONLINE AT <https://www.akenergyauthority.org/alaskaneviplan>



Phase 1
Build out Alaska’s Alternative Fuel Corridor

Phase 2
Build out Alaska’s Highway and Marine Highway Systems

Phase 3
Install Charging Stations in Rural Hub Communities

Phase 4
Urban and “Destination” Locations



\$52M

Through the BIL NEVI Formula Program, Alaska will receive more than \$52 million over five years.



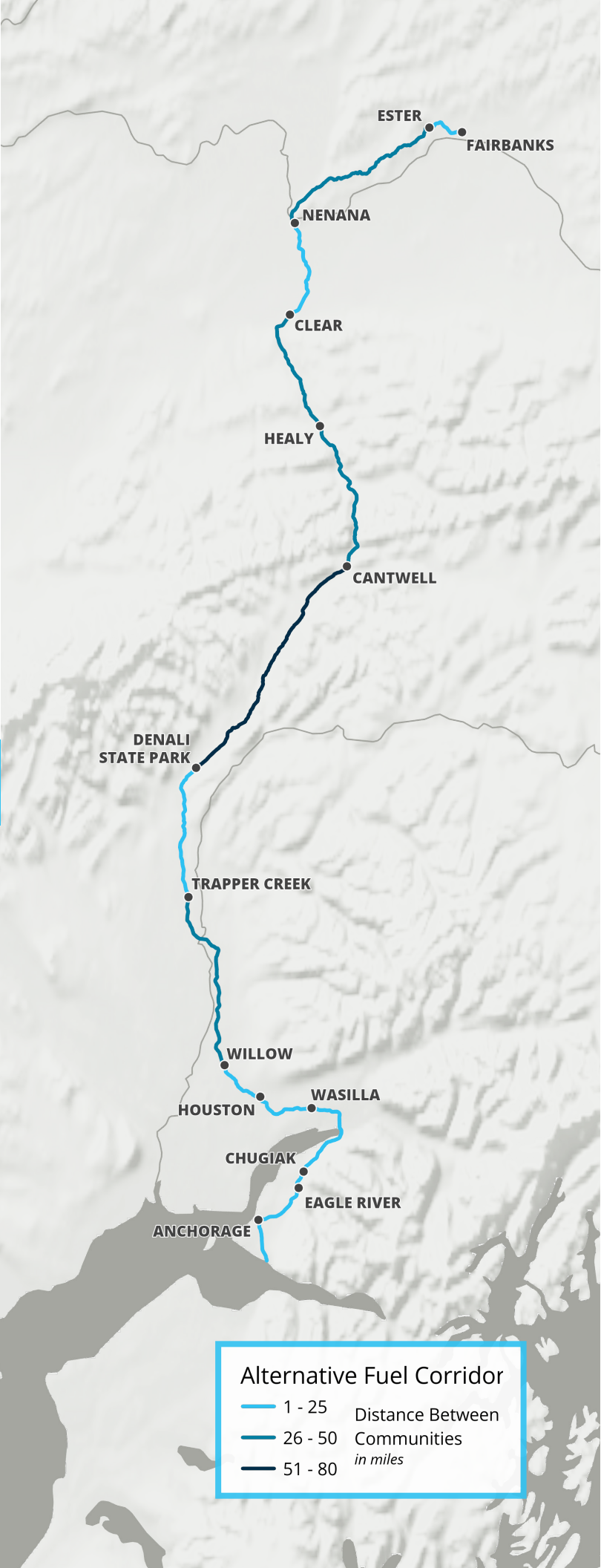
50MI

DCFC stations will be located approximately 50 miles apart along the Alternative Fuel Corridor and along the road system and marine highways.

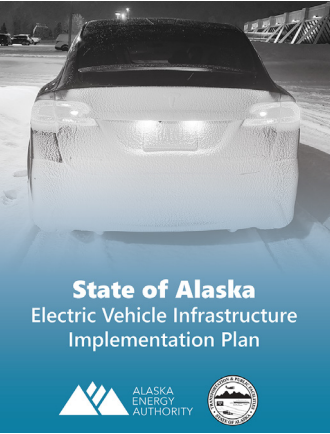


40%

Justice40 directs at least 40 percent of the benefits of the program investments will be distributed to disadvantaged communities.



National Electric Vehicle Infrastructure Program



As part of the BIL, the National Electric Vehicle Infrastructure (NEVI) Formula Program distributes \$5 billion over the next five years (Fiscal Years 2022-2026) to state departments of transportation to build EV chargers along highway corridors to create a convenient, reliable, and

affordable EV charging network nationwide. This infrastructure will serve long distance EV travel along alternative fuel corridors (AFCs). Through NEVI, Alaska will receive more than \$52 million over five years to advance a statewide EV fast-charging network. This program will adapt Alaska’s infrastructure system to support reliable, equitable, and sustainable electric transportation.

To receive the NEVI funds, Alaska was required to submit a plan by August 1, 2022, demonstrating how the network will be completed to meet requirements set by the United States Department of Energy and U.S. Department of Transportation’s Joint Office for EV Infrastructure Deployment. Alaska’s EV Infrastructure Deployment Plan (The Plan) was developed by AEA and the Alaska Department of Transportation and Public Facilities (DOT&PF) with support from various stakeholders. DOT&PF is the responsible recipient of Federal Highway Administration (FHWA) Title 23 funds. The NEVI program funds will be received by DOT&PF and administered by AEA. Together, AEA and DOT&PF are working to make sure NEVI program funds are used strategically, effectively, and efficiently.

The Plan, which was approved by the FHWA in September of 2022, addresses charging infrastructure deployment, existing and future conditions, contracting, implementation, and program evaluation, as well as documentation of state agency coordination, stakeholder outreach, and public engagement. EV charging placement across the state will be implemented in phases to establish statewide connectivity. In early 2023, AEA will release a Request for Applications to competitively select site hosts for the first phase of NEVI program implementation. This round of funding will be utilized to build NEVI compliant charging stations along AFCs from Anchorage to Fairbanks.



Houston Solar Farm, Alaska, Photo by Matanuska Electric Association

GRANTS AND LOANS

AEA contributes to the energy sector by administering several funding programs. In addition, AEA monitors funding opportunities through Tribal and Indian Energy loan programs and the United States Department of Energy (USDOE). AEA's strong relationship with the USDOE, awareness of funding, and technical assistance available from National Laboratories is of benefit to all Alaskans.

AEA Board Approves \$4.9 Million Loan for Alaska's Largest Solar Project

AEA Board of Directors approved a \$4.9 million PPF loan to Energy 49 LLC to convert 45 acres in Houston, Alaska into an 8.5-megawatt (MW)-rated photovoltaic (PV) solar array making it the largest utility-scale PV solar installation in the state.

The project, developed by Energy 49 LLC, a former subsidiary of Renewable IPP, LLC, the owner and operator of the Willow solar farm, will be an 8.5 MW ballasted bi-facial PV solar array providing an amount of energy equivalent to that needed to power approximately 1,400 homes. The purpose of the project is to expand renewable energy production and augment further diversification of energy resources in Southcentral Alaska.

The clean energy produced by the project will reduce air quality emissions related to power generation while simultaneously conserving those natural gas reserves in the Cook Inlet.



VIEW THE PRESS RELEASE AT
<https://www.akenergyauthority.org/pressreleases>

POWER PROJECT FUND

AEA oversees Power Project Fund (PPF) loan requests from qualified applicants seeking low-interest loans. PPF enables local utilities, local governments, or independent power producers to seek low-cost financing for the development, expansion, or upgrade of electric power facilities, including distribution, transmission, efficiency and conservation, bulk fuel storage, and waste energy. PPF provides a unique offering as a financing program that provides affordable loan funds for small-scale energy projects, across all project phases, including reconnaissance and feasibility studies. Loan terms are generally set in correlation to a project's useful life. Interest rates on PPF loans are formula-driven and related to the 30-year taxable municipal bond yield index, with a prevailing rate of 4.63 percent as of January 23, 2023.

RENEWABLE ENERGY FUND



Pillar Wind Farm, Kodiak, Alaska

The Renewable Energy Fund (REF) was established in 2008 to help Alaskans reduce and stabilize their cost of energy through the development of viable renewable energy projects. The program is designed to produce cost-effective renewable energy for heat and power, accelerating the diversification of community generation sources, which in turn can increase resiliency, and mitigate those negative externalities incurred by those communities whose heat and power is almost exclusively powered via diesel fuel.

To date, REF has made 271 grants to develop or construct renewable energy projects statewide. There are now over 100 operating projects built with contributions from REF, collectively saving more than 30 million gallons of diesel each year. Annual renewable energy generation increases each year as more REF-funded projects become

operational. State funding has been matched with hundreds of millions of dollars from other sources to develop these renewable energy projects.

In Fiscal Year 2022, AEA solicited applications for REF Round 14. In consultation with the Renewable Energy Fund Advisory Committee (REFAC), AEA recommended 27 projects for funding. In June 2022, the Legislature approved AEA's recommendation and appropriated \$15 million for awards to the recommended projects. AEA is currently evaluating 31 funding applications submitted for consideration during REF Round 15. AEA's consultation with the REFAC is planned for early March with a subsequent submission to the Legislature of projects recommended for funding in Fiscal Year 2023 planned for late March. The REF grant program sunsets on June 30, 2023. An extension of its sunset date is being sought.



SIGN UP FOR REF EMAIL UPDATES AT
<https://list.state.ak.us/mailman/listinfo/aea.renewable.energy.fund>

REF Highlights

- The REF program promotes the statewide integration of renewable energy within Alaska's energy portfolio.
- All projects submitted for REF funding are assessed according to a robust, four-stage evaluation process that assesses applicant and project eligibility, applicant qualifications and experience, economic feasibility, technical feasibility, financial feasibility, and matching funds and local support.

- The REF is available to the following eligible applicants:

- ✓ Electric Utilities with valid CPCN
- ✓ Independent Power Producers
- ✓ Local Governments
- ✓ Other Governmental Utilities
- ✓ Tribal Councils
- ✓ Housing Authorities

\$300M

STATEWIDE INVESTMENT

A total of \$300 million has been invested in renewable energy projects statewide since the REF program was established in 2008.

FY2022 FINANCIAL HIGHLIGHTS

BALANCE SHEETS	June 30, 2022	June 30, 2021
Assets and deferred outflows of resources:		
Restricted Investments securities and cash	1,048,505	1,243,953
Loans, net	27,058	26,011
Capital assets, net	385,307	396,079
Receivables and other assets	5,634	6,457
Total Assets	1,466,504	1,672,500
Liabilities and net position:		
Liabilities		
Bonds payable	45,925	69,199
Other bond liabilities	56	569
Payables and other liabilities	46,646	33,053
Total liabilities	92,627	102,821
Net Position	1,373,877	1,569,679
Total liabilities and net position	1,466,504	1,672,500

REVENUES, EXPENSES, & CHANGES IN NET POSITION	June 30, 2022	June 30, 2021
Operating revenues:		
Federal grants	10,211	8,575
Revenue from operating plants	13,507	22,657
State operating and capital revenues	4,461	3,922
Interest on loans	346	339
Other operating revenues	2,645	5,008
Total operating revenues	31,170	40,501

REVENUES, EXPENSES, & CHANGES IN NET POSITION (CONT)	June 30, 2022	June 30, 2021
Operating Expenses:		
Grants and projects	18,238	20,370
Power cost equalization grants	24,222	25,557
Plant operating	7,834	7,797
General and administrative	6,319	20,605
Provision for loan recovery	(17)	(33)
Loss on disposal of asset	–	–
Depreciation	12,305	12,356
State of Alaska appropriations and transfers	–	–
Other project expenses	–	–
Total operating expense	68,901	86,652
Operating loss	(37,731)	(46,151)
Investment Income, net	(144,109)	151,983
Interest expense	(1,568)	(1,159)
State of Alaska reappropriations and transfers	(12,395)	1,017,213
Capital contributions	–	–
Increase (decrease) in net position	(195,803)*	1,121,886**

NOTES REGARDING INCREASE (DECREASE) IN NET POSITION

*Net position decreased primarily due to unrealized investment losses in the Power Cost Equalization (PCE) Endowment fund of (\$143,842) and other funds (\$267). Other contributing factors to the overall decrease was net operating losses (\$39,299) and (\$12,395) of net contributions made to the State of Alaska.

**In the Fiscal Year 2021 beginning net position/fund balance was restated to record revised amounts related to PCE sweep activity due to the State of Alaska (\$7,388) and revised amounts related to the general activity due to funds managed by Treasury (\$2,239).

BOARD OF DIRECTORS



J. DANA PRUHS
Chair, Public Member



BILL KENDIG
Vice Chair, Public Member



ADAM CRUM
Commissioner, Alaska
Department of Revenue



RANDY ELEDGE
Public Member



ALBERT FOGLE
Public Member



JULIE SANDE
Commissioner, Alaska Department
of Commerce, Community, and
Economic Development



BILL VIVLAMORE
Public Member

EXECUTIVE TEAM



CURTIS W. THAYER
Executive Director



AMY ADLER
Acting Chief Financial Officer



AUDREY ALSTROM, PE
Director of Renewable Energy and
Energy Efficiency Programs



BYRAN CAREY, PE
Director of Owned Assets



BRANDY M. DIXON
Communications Director



ROBERT HAWKINS
Information Technology Director



TIM SANDSTROM
Chief Operating Officer



MEGAN SCHMIDT
Human Resources Director



AEA PROVIDES ENERGY SOLUTIONS THAT MEET THE UNIQUE NEEDS OF ALASKANS, NOW AND IN THE FUTURE.



Alaska Energy Authority
813 W Northern Lights Blvd.
Phone: (907) 771-3000
Fax: (907) 771-3300
E-mail: info@akenergyauthority.org



www.akenergyauthority.org



[@alaskaenergyauthority](https://www.facebook.com/alaskaenergyauthority)



[@alaskaenergyauthority](https://www.linkedin.com/company/alaskaenergyauthority)