ALASKA ENERGY AUTHORITY

AEA OVERVIEW PRESENTATION

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Executive Director

House Energy Committee
March 21, 2023

ALASKA
ENERGY
AUTHORITY

Who We Are

Our Mission

Reduce the cost of energy in Alaska.

Created in 1976 by the Alaska State 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.

What We Do

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

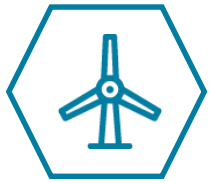
Railbelt Energy – AEA owns the Bradley Lake Hydroelectric Project, the Alaska Intertie, and the Sterling to Quartz Creek Transmission Line — all of which benefit Railbelt consumers by reducing the cost of power.

Power Cost Equalization (PCE) – PCE reduces the cost of electricity in rural Alaska for residential customers and community facilities, which helps ensure the sustainability of centralized power.

Rural Energy – AEA constructs bulk fuel tank farms, diesel powerhouses, and electrical distribution grids in rural villages. AEA supports the operation of these facilities through circuit rider and emergency response programs.

Renewable Energy and Energy Efficiency – AEA provides funding, technical assistance, and analysis on alternative energy technologies to benefit Alaskans. These include biomass, hydro, solar, wind, and others.

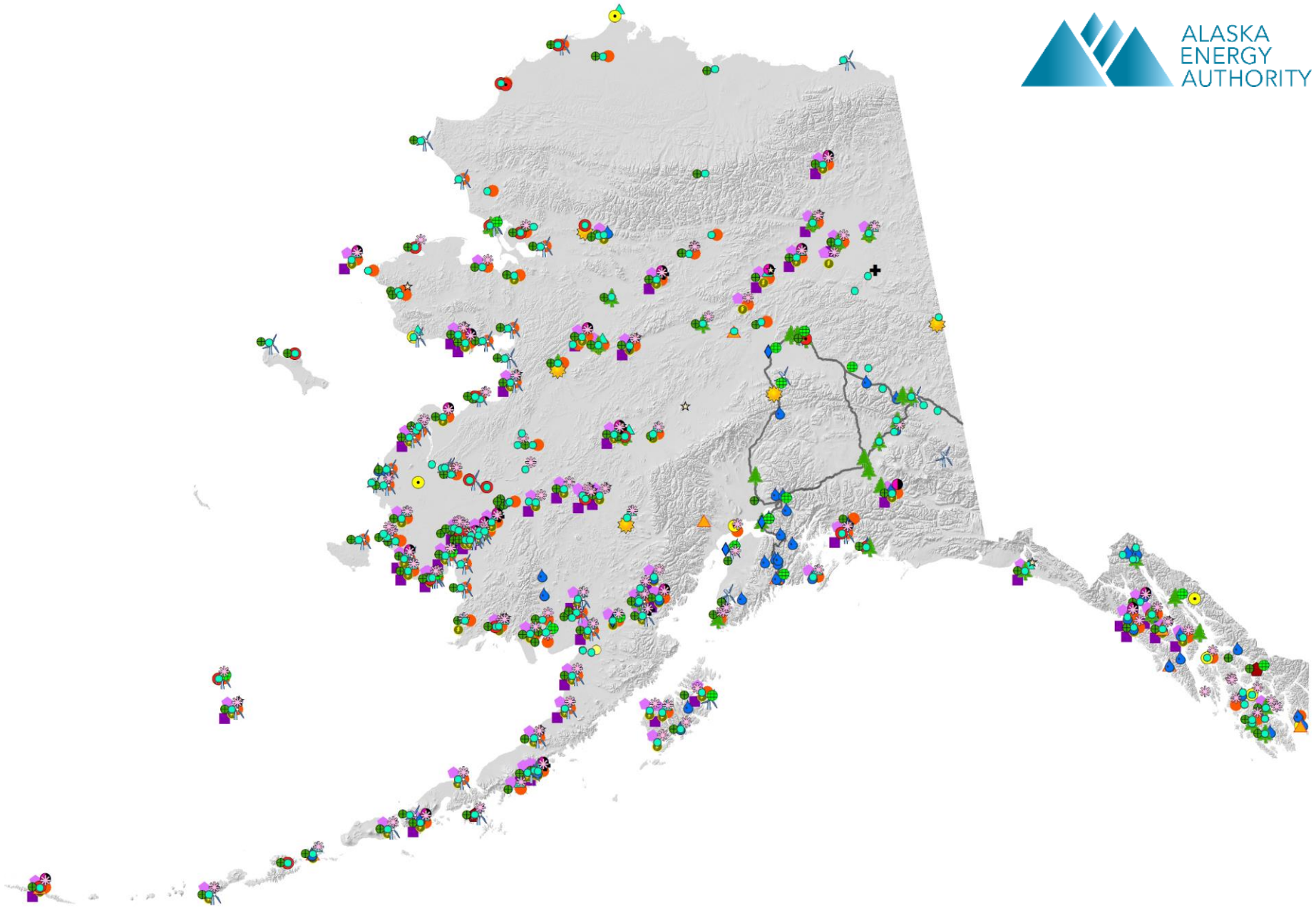
Grants and Loans – AEA provides loans to local utilities, local governments, and independent power producers for the construction or upgrade of power generation and other energy facilities.



Energy Planning – In collaboration with local and regional partners, AEA provides economic and engineering analysis to plan the development of cost- effective energy infrastructure.

Active Projects and Services

- Biomass/Biofuels
- Bulk Fuel Upgrades
- Circuit Rider Assistance
- Diesel Emission Reduction Act
- Electrical Emergency Response
- Emerging Energy Technology Fund
- Heat Pump
- Heat Recovery
- Hydroelectric
- Maintence and Improvement
- Ocean/River
- PCE Community
- PCE Utility Clerk Training
- Rural Power System Upgrade
- Solar
- Storage
- Transmission
- Utility Operator Training
- Utility Technical Assistance
- VEEP (Efficiency)
- Wind



URBAN ENERGY

CAPACITY

120MW

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

ENERGY

10%

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

GENERATION COST PER KWH

$0.04

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

Bradley Lake Hydroelectric Project

- Bradley Lake is **Alaska's largest source of renewable energy**. Energized in 1991, the project is situated 27-air miles northeast of Homer on the Kenai Peninsula.
- The 120 MW facility provides **low-cost energy to 550,000+** members on the Railbelt.
- Bradley Lake's **annual energy production** is ~10% of Railbelt electricity at 4.5 cents/kWh (or ~54,400 homes/year) and over $20 million in savings per year to Railbelt utilities from Bradley Lake versus natural gas.
- AEA, in partnership with the Railbelt utilities, **is studying the Dixon Diversion Project** which would increase the annual energy production of Bradley Lake by 50% — or the equivalent of 14,000-28,000 homes.

BPMC

The Bradley Lake Hydroelectric Project is owned by AEA and managed by the Bradley Lake Project Management Committee (BPMC), which is comprised of a member from each of the five participating Railbelt utilities:
Chugach Electric Association,
Golden Valley Electric Association,
Homer Electric Association,
Matanuska Electric Association, and
Seward Electric System.

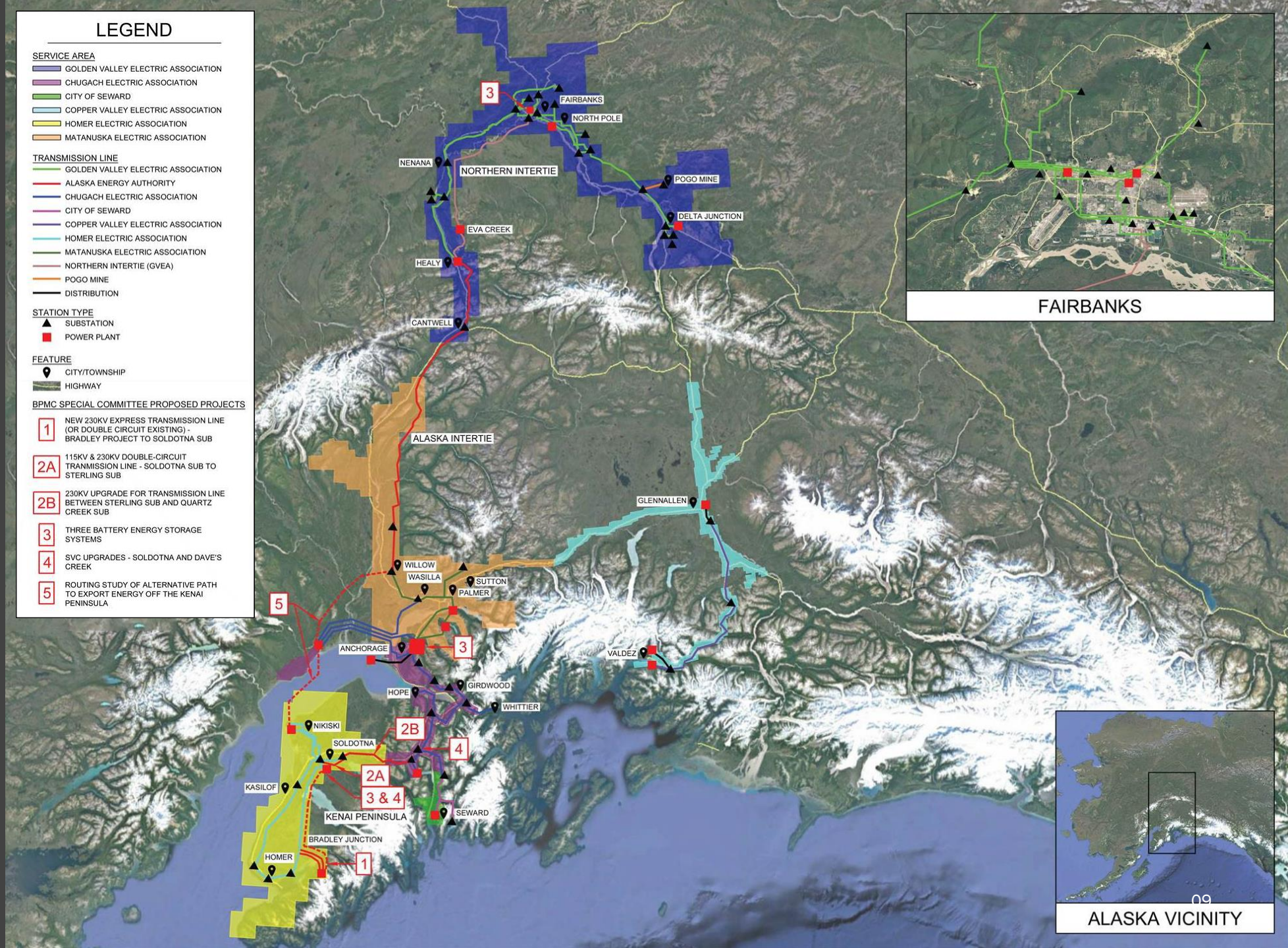
Transmission Upgrades and Battery Storage

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 bonding comes at no additional cost to ratepayers or burden on the State treasury.

- 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
- **Battery Energy Storage Systems** for Grid Stabilization

These projects will reduce constraints on the Railbelt by improving the Kenai Peninsula's transmission capacity to export power from Bradley Lake — and allow for the integration of additional renewable energy generation.

Railbelt Upgrades



Alaska Intertie

- Completed in 1986, the Alaska Intertie is a 170 mile-long, 345 kilovolt (kV) transmission line from **Willow to Healy and operates at 138 kV**.
- Owned by AEA and operated by the Railbelt utilities, the **Intertie transmission line improves reliability**.
- The Intertie allows Golden Valley Electric Association (GVEA) to connect to and **benefit from lower cost power**.
- Between 2008 and 2021, the Intertie provided an average annual **cost savings of $37 million to GVEA** customers.

RURAL ENERGY

Power Cost Equalization (PCE)

AEA, along with the Regulatory Commission of Alaska, administers the PCE program, which serves remote communities that are largely reliant on diesel fuel for power generation.

193
RURAL COMMUNITIES

91
ELECTRIC UTILITIES

82,000
ALASKANS

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.

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 2022, AEA disbursed $27.4 million for payment of PCE to rural electric utilities for the benefit of our rural communities.

Who is Eligible to Participate in PCE?

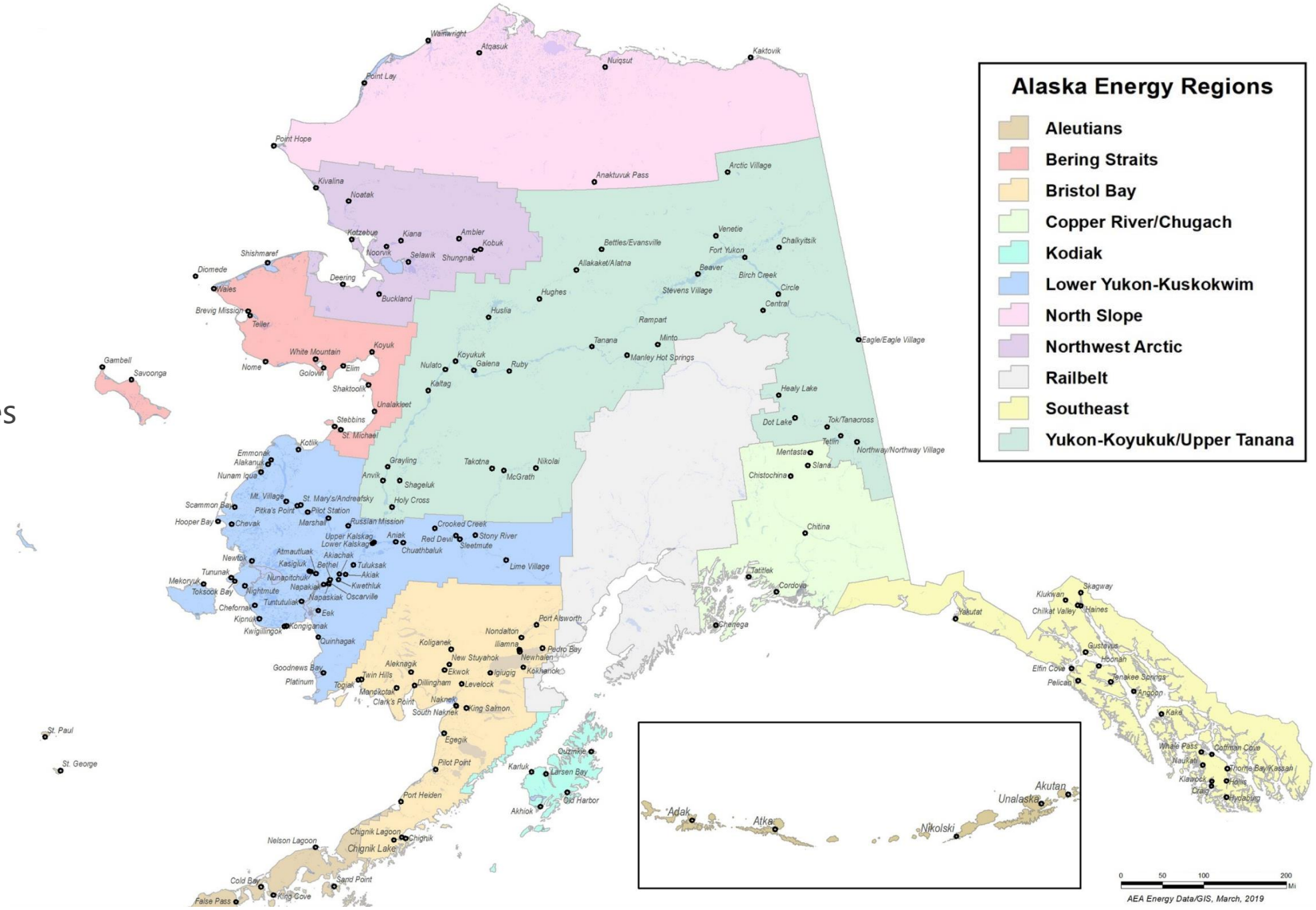
PCE eligibility is determined by the Regulatory Commission of Alaska in accordance with Alaska Statutes 42.45.100-170.

Eligible customers include:

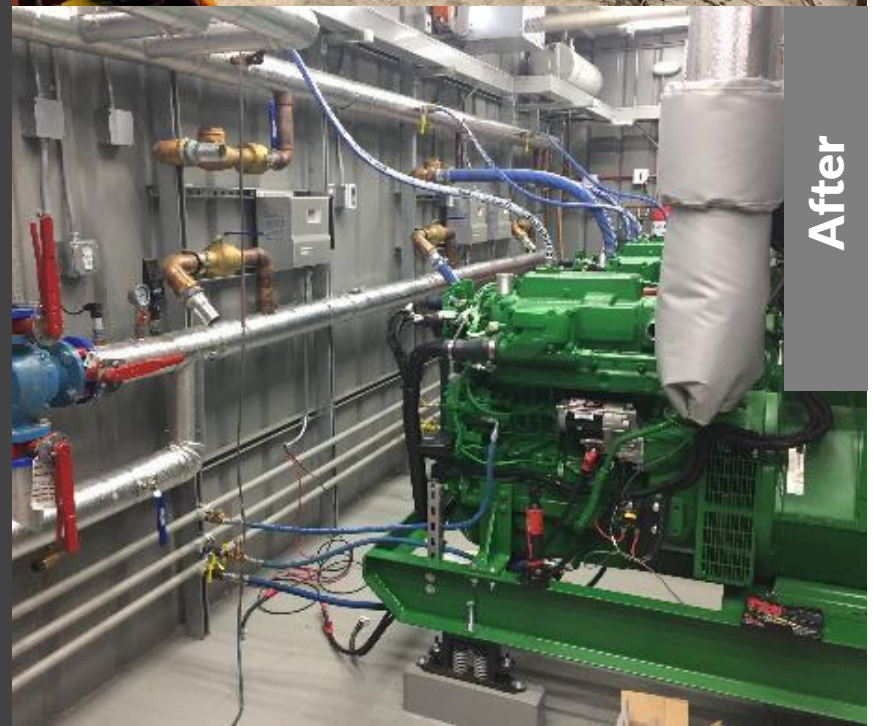
- Residential and community facilities (water, sewer, public lighting, and clinics, etc.)

Non-eligible customers include:

- State and federal facilities and commercial customers
- Any community with rates lower than the urban average (the PCE floor)



Rural Power System Upgrades



Capital Request: State Match – $7.5 Million
Federal Receipt Authority – $25 Million

- ~197 communities eligible for Rural Power System Upgrade
- Goal — improve power system efficiency, safety, and reliability
- Aging infrastructure and Operation and Maintenance
- Active projects — 7 full and 16 Maintenance and Improvement/Diesel Emissions Reduction Act
- Deferred maintenance is $300 million

Bulk Fuel Upgrades

Capital Request: State Match – $5.5 Million
Federal Receipt Authority – $7.5 Million

- ~400 rural bulk fuel facilities
- Goal — code compliant fuel storage facilities and prevention of spills and contamination
- Aging infrastructure, erosion, and catastrophic failure
- Active projects — 8 full and 18 Maintenance and Improvement; no funding for two years
- Leveraging Coast Guard regulatory efforts to capture BFU assessments to prioritize projects
- Deferred maintenance is $800 million

FINANCING TOOLS

Power Project Fund (PPF) Loan Program

The PPF loan program qualifies applicants seeking low-interest loans for eligible power projects. PPF provides local utilities, local governments, or independent power producers an avenue to seek funding for the development, expansion, or upgrade of electric power facilities.

COMMUNITY BORROWING
$27.2 Million in
Outstanding Loans

AVAILABLE CAPITAL
$6.7 Million
Available for Lending

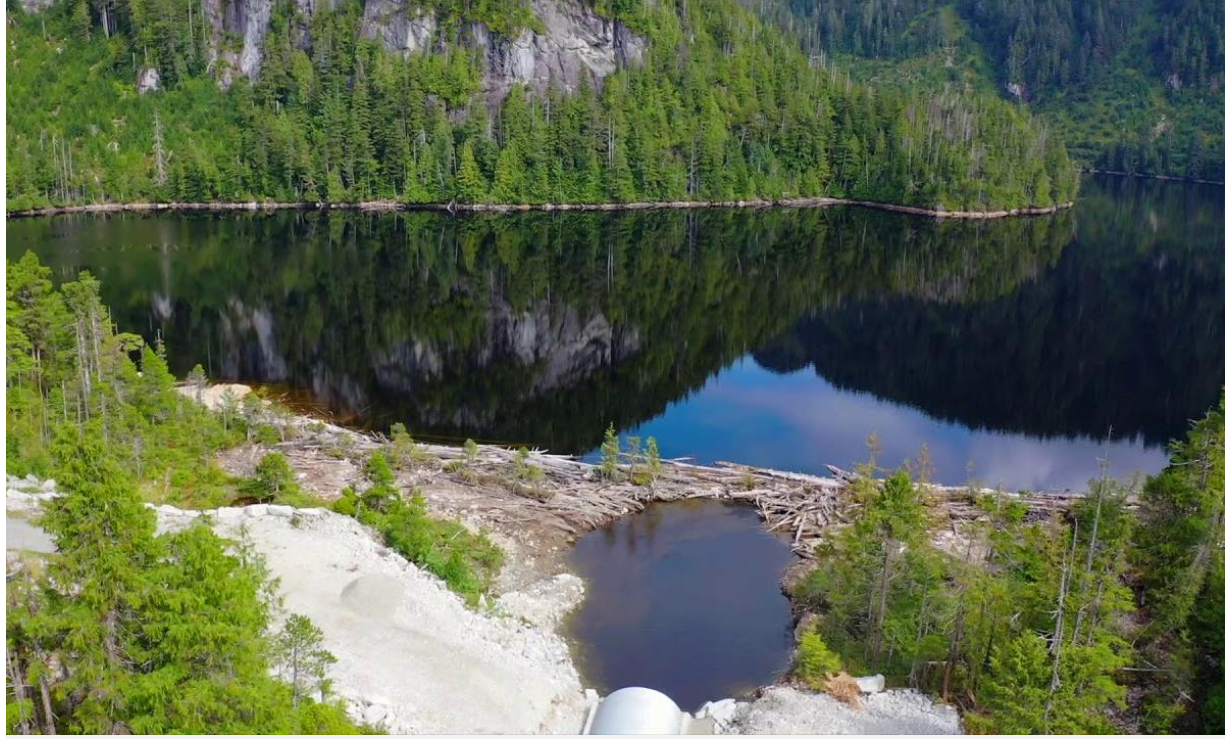
COMPETITIVE RATES
Current PPF Interest Rate
4.86% as of March 6, 2023

FLEXIBLE FINANCING
Low-Cost Financing Tailored
to Project and Borrower

SUCCESS STORY

Hiilangaay Hydroelectric Project

- Financed by REF and PPF, the Hiilangaay Hydroelectric Project is a small dam constructed on Melon Lake near Hydaburg on Prince of Wales Island.
- Commissioned in January 2020, Hiilangaay is providing 100% clean renewable energy and has already displaced more than 110,000 gallons of costly imported diesel the isolated communities use for electrical generation.
- Haida Energy sells the output from its 5-megawatt (MW) turbines to Alaska Power & Telephone for distribution across Prince of Wales Island.



- **Location**: Hydaburg, Prince of Wales Island
- **Total Project Cost:** $31,300,000
- **REF:** $4,000,000
- **PPF Loan:** $19,130,000
- **Capacity:** 5 MW
- **Borrower:** Haida Energy

SUCCESS STORY

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South Fork Hydroelectric Project

- **Location**: Eagle River
- **Total Project Cost:** $4,320,000
- **PPF Loan:** $2,070,000
- **Capacity:** 1.2 MW
- **Borrower:** South Fork Hydro, LLC

- Financed by PPF, the South Fork Hydroelectric Plant is a run-of-the-river hydro facility that produces power equivalent to that consumed by approximately 800 homes.
- The plant has been transmitting power to the Matanuska Electric Association (MEA) grid since August 2013 at a price of $0.07 kilowatt hour, cost competitive with MEA generation.
- In 2022, AEA approved South Fork's request to refinance the PPF loan and utilize the savings to purchase a third turbine, increasing the nameplate capacity of the facility to 1.76 megawatt (MW), an increase of 47%.

SUCCESS STORY

Willow Solar Farm Expansion Project

- Through a PPF loan, AEA provided additional capital needed to expand a 140-kilowatt pilot project to a 1.2 megawatt (MW) facility — making it Alaska's largest solar project at that point in time.
- The Willow Solar Farm Expansion project, which began operations in December 2019, went from 408 solar panels to 3,240 solar panels capable of producing enough power for 200 homes and offsetting 2 million pounds of carbon dioxide annually.
- Power is sold to Matanuska Electric Association at its avoided energy cost, which are $0.07681 per kilowatt-hour as of January 1, 2023.

- **Location**: Willow
- **Total Project Cost:** $1,577,000
- **PPF Loan:** $814,000
- **Capacity:** 1.2 MW
- **Borrower:** AK Renewable Energy Partners / Renewable IPP

Renewable Energy Fund (REF) Grant Program

Established in 2008, REF provides grant funding (subject to Legislative approval) incentivizing the development of qualifying and competitively selected renewable energy projects. The program is designed to produce cost-effective renewable energy for heat and power to benefit Alaskans statewide.

STATEWIDE INVESTMENT
271 Grants Awarded
Totaling $300 Million

ACTIVE PROJECTS
100 Projects in Operation
44 in Development

ROUND 13 AWARDS
11 Projects Awarded
$4.75 Million Appropriated

ROUND 14 AWARDS
27 Applications
$15 Million Appropriated

ROUND 15: 31 applications totaling request of $33 Million

SUCCESS STORY

Banner Peak Wind Farm Expansion

- REF funded the Banner Peak Wind Farm expansion and related transmission infrastructure for the City of Nome. The project expanded Nome Joint Utilities' (NJUS) wind generation capacity by 1.8 megawatt (MW), with the addition of two, 900 kilowatt EWT Turbines.
- Since its launch in August 2013, the project has reduced diesel fuel costs for NJUS, resulting in lower electric rates for Nome ratepayers.
- The Banner Peak Wind Farm currently generates about 2,160 megawatt hours of energy per year, or about 7% of NJUS total annual power generation.

- **Location**: Nome, Alaska
- **REF Funding:** $8,870,000
- **Total Project Cost:** $10,100,000
- **Total Capacity:** 1.8 MW
- **Borrower:** Nome Joint Utilities

SUCCESS STORY

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Whitman Lake Hydroelectric Project

- **Location**: Ketchikan, Alaska
- **REF Funding**: $10,025,000
- **Total Project Cost**: $28,200,000
- **Total Capacity:** 4.6 MW
- **Borrower:** Ketchikan Public Utilities

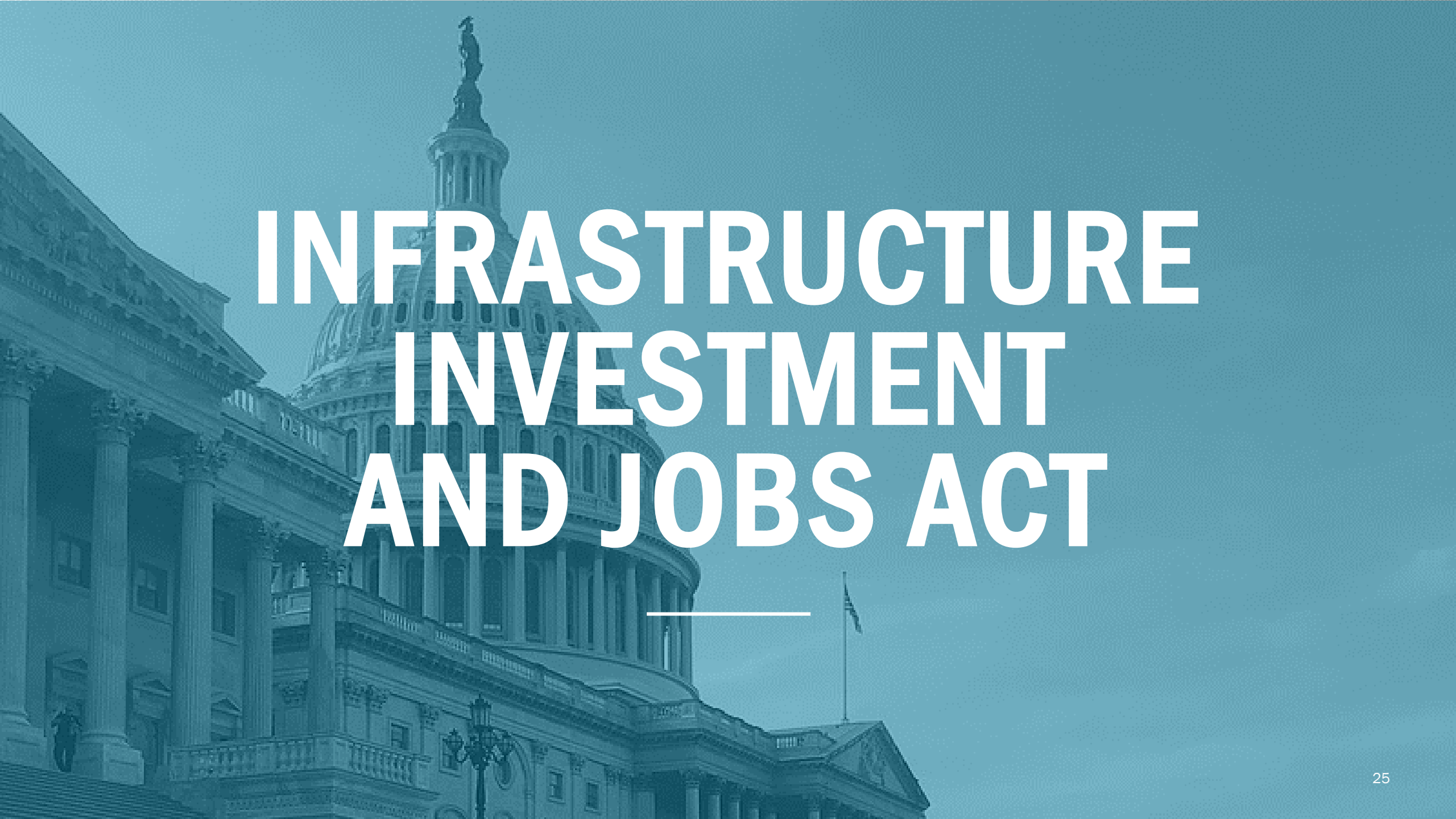
- In 2015, the Whitman Lake Hydroelectric Project became operational generating an estimated 16,000 megawatt hours annually, displacing approximately 1.1 million gallons of diesel.
- Together with Ketchikan Public Utilities' (KPU) other hydroelectric generation facilities, the project provides about 50% of Ketchikan's power needs, with the remaining 50% coming from Southeast Alaska Power Agency (SEAPA).
- The project allows KPU to continue using its diesel generators only for backup power in the event of low hydro levels and non-availability of SEAPA purchases.

SUCCESS STORY

Terror Lake Hydroelectric Expansion Project

- AEA financed the addition of a third turbine to the existing Terror Lake Hydroelectric Project on Kodiak Island, which provides an additional 11.25 megawatts (MW) of power, for a total power plant capacity of 31 MW.
- The project helped Kodiak reach its goal to have 95% of their electrical needs supplied by renewable energy by 2020.
- The project benefits the City of Kodiak, the United States Coast Guard Support Center, and the communities of Chiniak, Pasagshak, and Port Lions.

- **Location**: Kodiak Island
- **REF Funding:** $4,000,000
- **Total Project Cost:** $22,600,000
- **Total Capacity:** 11.25 MW
- **Borrower:** Kodiak Electric Association



INFRASTRUCTURE INVESTMENT AND JOBS ACT

Statewide Grid Resilience and Reliability IIJA Formula Grant Program, 40101(d)

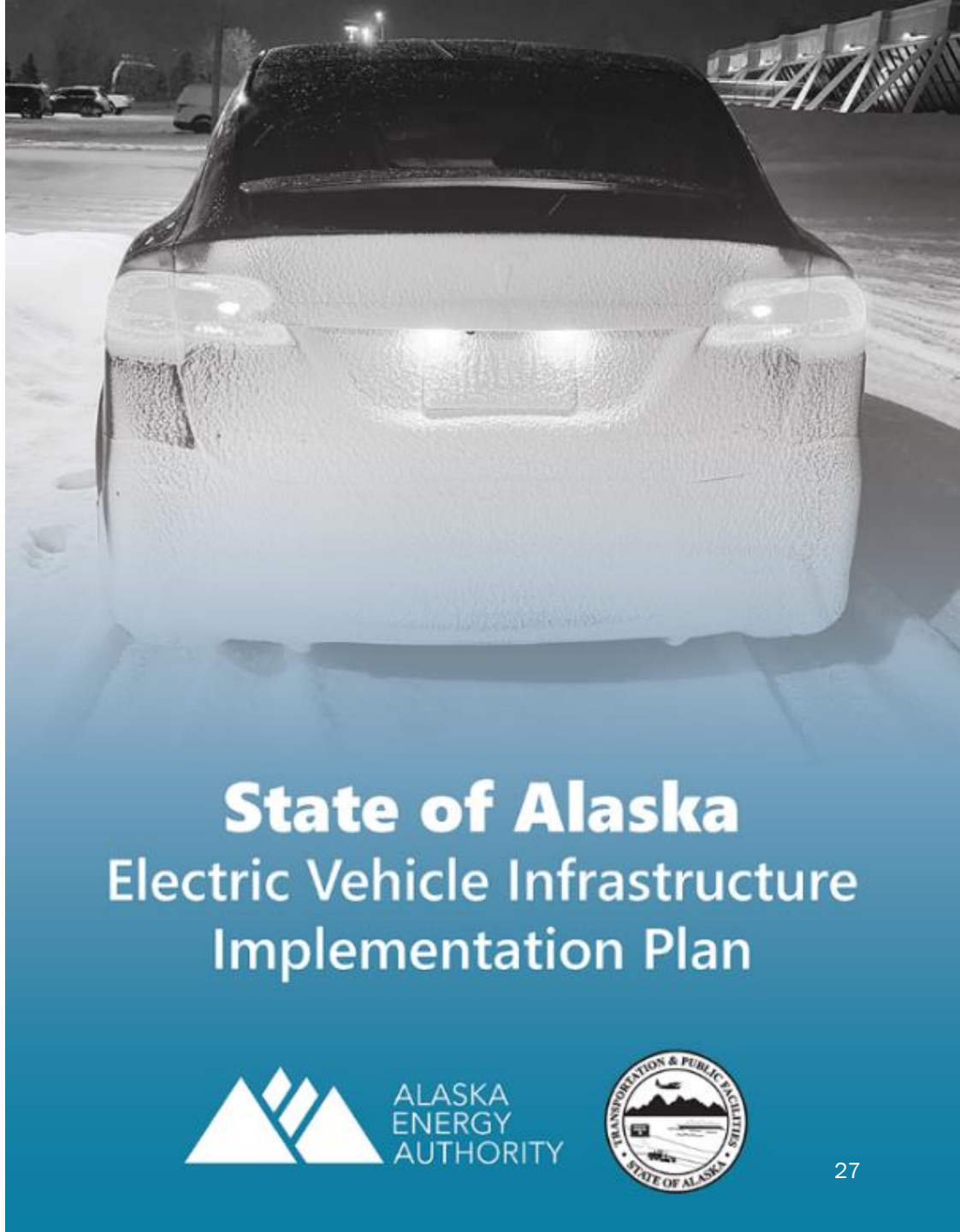
Per IIJA section 40101(a)(1),8 a disruptive event is defined as "an event in which operations of the electric grid are disrupted, preventively shut off, or cannot operate safely due to extreme weather, wildfire, or a natural disaster."

- These federal formula grant funds will provide **$60 million** to Alaska over five years, including **$22.2 Million** for the first two years allocation, to catalyze projects that **increase grid resilience against disruptive events**.
- Resilience measures include but are not limited to:
  - Relocating or reconductoring powerlines
  - Improvements to make the grid resistant to extreme weather
  - Increasing fire resistant components
  - Integrating distributed energy resources like microgrids and energy storage
- Formula-based funding requires a **15% state match** and a **33% small utility match**.

State of Alaska Electric Vehicle (EV) Infrastructure Implementation Plan

AEA and the Alaska Department of Transportation & Public Facilities (DOT&PF), submitted their **State of Alaska EV Infrastructure Implementation Plan (The Plan)** to the United States Joint Office of Energy and Transportation, as required by the Infrastructure Investment and Jobs Act's (IIJA) NEVI Formula Program.

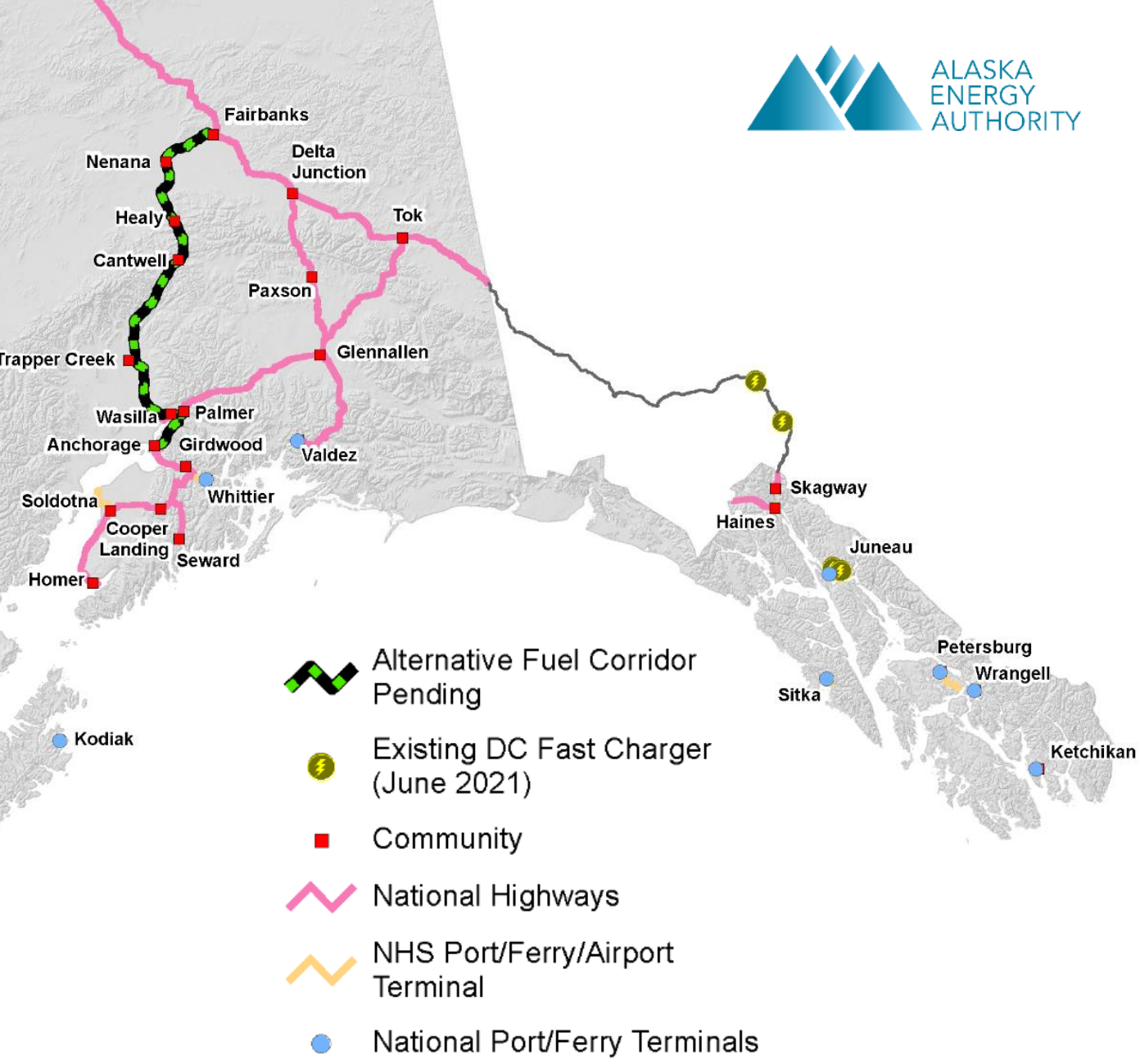
- On September 27, 2022, **The Plan was approved**. The announcement unlocks **$19 million** to expand EV charging infrastructure in Alaska.
- Over the **next five years, AEA anticipates receiving $52 million**. Funds will be received by DOT&PF and administered by AEA.
- On March 1, 2023, AEA issued a **Request for Applications** for to site hosts compete for a share of Alaska's NEVI program funding. Applications are due by 4 p.m. on May 1, 2023.



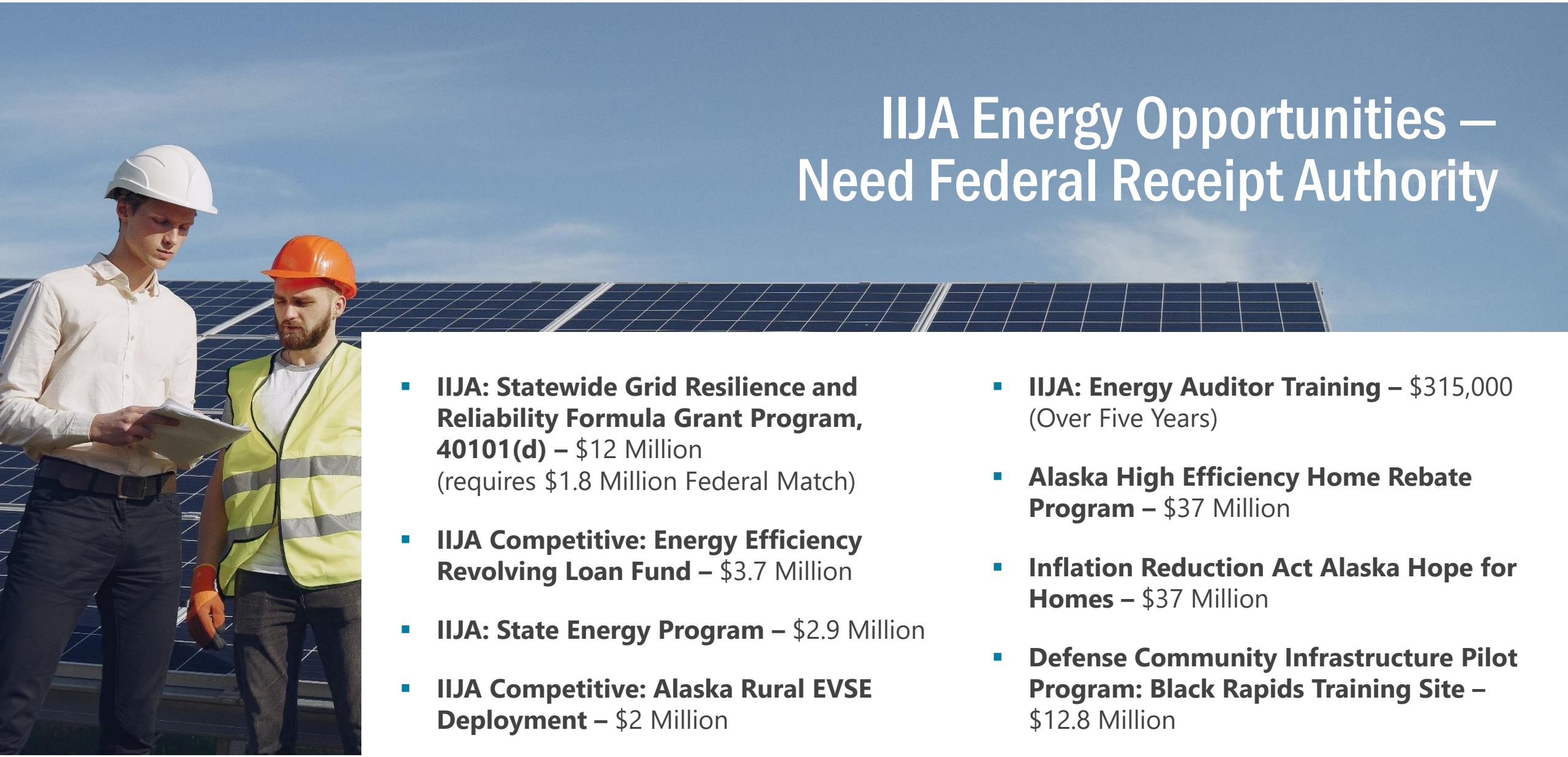
NEVI Requirements

Funding must be used to build out Alternative Fuel Corridors (AFCs) first

- Alaska currently has one AFC (pending)
- After AFC buildout, funding can be used elsewhere
- Charging infrastructure must be **DC fast-charging**
  - 4 Combined Charging System Connectors
  - >150 kW each
- Chargers must be located no more than **1 driving mile from AFC**
- Charging stations must be located no more than **50 miles** apart along designated AFC
- Match Requirements
  - Federal share: 80%
  - Private entity or other: 20%
- Justice40 Requirements



IIJA Energy Opportunities — Need Federal Receipt Authority



- **IIJA: Statewide Grid Resilience and Reliability Formula Grant Program, 40101(d) –** $12 Million (requires $1.8 Million Federal Match)
- **IIJA Competitive: Energy Efficiency Revolving Loan Fund –** $3.7 Million
- **IIJA: State Energy Program –** $2.9 Million
- **IIJA Competitive: Alaska Rural EVSE Deployment –** $2 Million
- **IIJA: Energy Auditor Training –** $315,000 (Over Five Years)
- **Alaska High Efficiency Home Rebate Program –** $37 Million
- **Inflation Reduction Act Alaska Hope for Homes –** $37 Million
- **Defense Community Infrastructure Pilot Program: Black Rapids Training Site –** $12.8 Million

IIJA Competitive: Grid Resilience and Innovation Partnerships (GRIP)

To enhance the power system's resilience to extreme weather and climate change, the Grid Deployment Office is administering a $10.5 billion GRIP program under the Bipartisan Infrastructure Law.

1) Railbelt Backbone Reconstruction Project
$100 Million
(Application Phase)

2) Battery Energy Storage/HVDC Coordinated Control
$15 Million
(Application Phase)

3) Railbelt Innovation Resiliency Project)
$299 Million
(Application Phase)

3) Rural Alaska Microgrid Transformation
$250 Million
(Application Phase)

Staffing Needs

ALASKA ENERGY AUTHORITY

Infrastructure Investment and Jobs Act (IIJA) Staffing Needs

- Managing and deploying millions of federal IIJA funds in compliance with federal requirements requires adequate technical and administrative support. **Five (5) key positions, funded by federal IIJA receipts,** are needed to carry out IIJA projects:

- Project Manager R24	$160.1
- Project Manager R24	$160.1
- Contracting Officer R20	$127.6
- Senior Accountant R18	$114.4
- Grant Coordinator R18	$114.4
Total	$676.6

Power Cost Equalization (PCE) Staffing Needs

- $233.9 increment for technical and administrative support. This includes **one (1) PCE Technician** needed for training, inventory, and technical assistance. Fund source is PCE Endowment Earnings.
  - PCE Technician R14 – $106.8
  - PCE Salary Adjustment, Rural Assistance, Shared Services - $127.1

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

ALASKA ENERGY AUTHORITY

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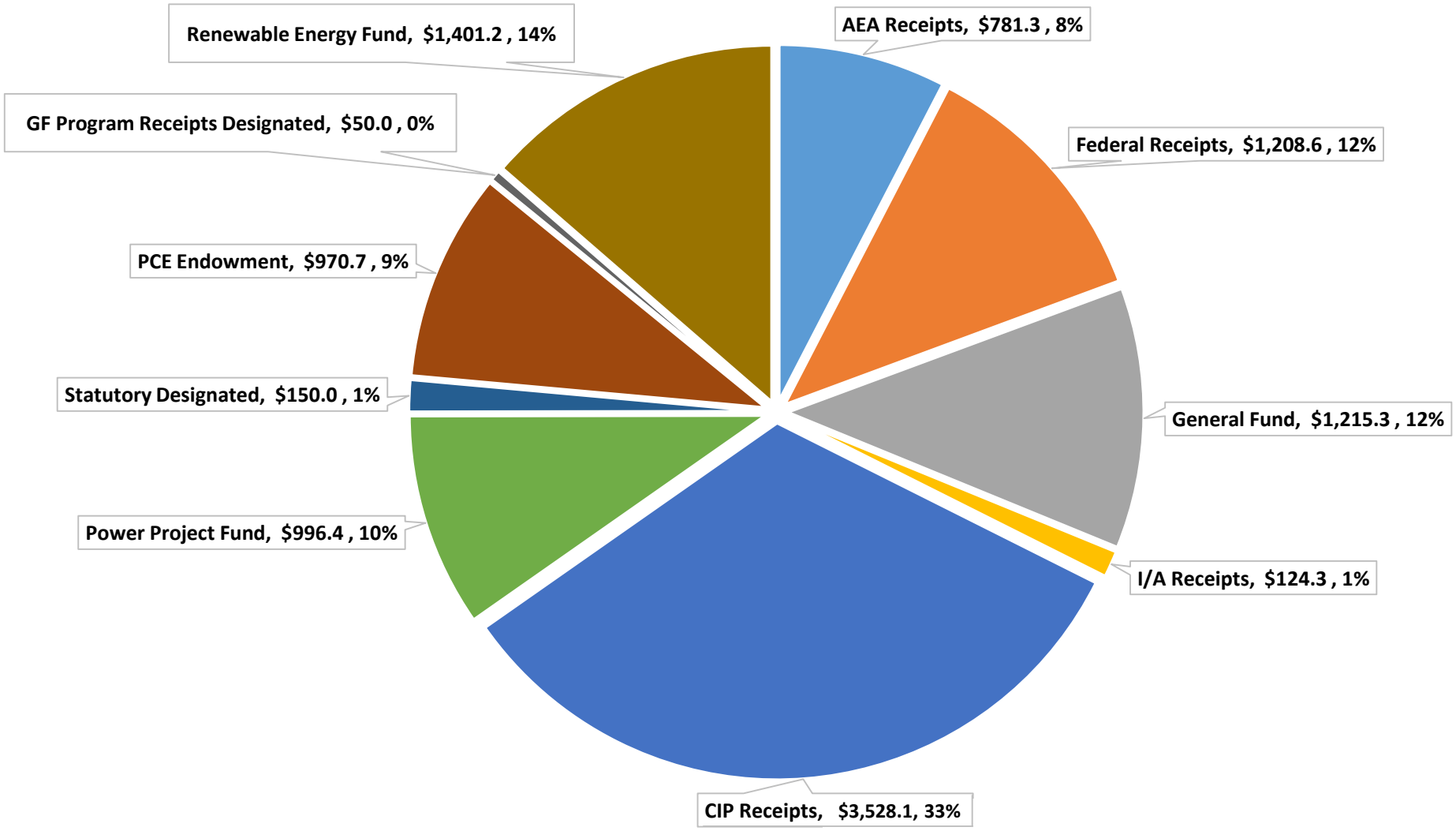
APPENDIX

Operating Budget Overview (In Thousands)

Operating Budget - All Components	FY2017 Authorized	FY2018 Authorized	FY2019 Authorized	FY2020 Authorized	FY2021 Authorized	FY2022 Authorized	FY2023 Management Plan	FY2024 Authorized
Expenditure Categories:								
Travel	162.0	162.0	162.0	134.8	134.8	134.8	196.1	196.1
Services (includes personal services paid to AIDEA)	9,662.0	8,948.2	9698.2	9698.2	8,548.2	8,548.2	8,503.8	10,008.8
Commodities	56.0	56.0	56.0	56.0	56.0	56.0	56.0	106.0
Capital Outlay/Equipment	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Grants	40,100.0	37,600.0	32,100.0	32,100.0	29,600.0	32,100.0	47,794.8	47,794.8
Totals	**49,995.0**	**46781.2**	**42,031.2**	**42,004.0**	**38,354.0**	**40,854.0**	**56,565.7**	**58,120.7**
Funding Sources:								
Unrestricted GF (undesignated)	2,276.1	874.5	874.5	874.3	874.3	874.3	852.2	1,215.3
Power Project Fund (designated)	995.5	995.5	995.5	995.5	995.5	995.5	996.4	996.4
Renewable Energy Fund (designated)	2,000.0	2,000.0	2,000.0	2,000.0	1,400.0	1,400.0	1,401.2	1,401.2
Power Cost Equalization Endowment (designated)	40,335.0	38,236.8	32,736.8	32,736.8	30,236.8	32,736.8	48,431.6	48,665.5
GF Program Receipts (designated)	100.0	100.0	100.0	100.0	50.0	50.0	50.0	50.0
Subtotal (Undesignated and Designated)	**45,726.6**	**42,206.8**	**38,706.8**	**36,769.6**	**33,529.6**	**39,029.6**	**51,731.4**	**52,328.4**
CIP Receipts	2,567.8	2,567.8	2,567.8	2,567.8	2,567.8	2,567.8	2,570.1	3,528.1
Federal Receipts	445.0	752.0	1,502.0	1,502.0	1,202.0	1,202.0	1,208.6	1,208.6
AEA Receipts	981.7	980.7	980.7	980.7	780.7	780.7	781.3	781.3
I/A Receipts	123.9	123.9	123.9	123.9	123.9	123.9	124.3	124.3
Statutory Designated Program Receipts	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0
Subtotal (Receipts)	**4,268.4**	**4,574.4**	**5,324.4**	**5324.4**	**4,824.4**	**4,824.4**	**4,834.3**	**5,792.3**
Totals	**49,995.0**	**46,781.2**	**42,031.2**	**42,004.0**	**38,354.0**	**40,854.0**	**56,565.7**	**58,120.7**

FY2024 Proposed Operating Budget



FY2024 Capital Budget Overview

Project/Program	Budget Year	Federal	State UGF	Total
IIJA - Statewide Grid Resilience and Reliability Formula	FY24	12,110,523	1,816,579	13,927,102
IIJA - New Energy Efficiency Revolving Loan Fund Capitalization	FY24	3,773,780	-	3,773,780
IIJA - State Energy Program	FY23 Suppl.*	2,865,930	-	2,865,930
IIJA - EV Charging Equipment Competitive	FY24*	1,670,000	-	1,670,000
IIJA - Energy Auditor Training	FY24	63,600	-	63,600
IRA - Home Energy and High Efficiency Rebate Allocations	FY24	74,519,420	-	74,519,420
Black Rapids Training Site - Defense Community Infrastructure Pilot Program	FY23 Suppl.*	12,752,540	-	12,752,540
Rural Power Systems Upgrades	FY24	25,000,000	7,500,000	32,500,000
Renewable Energy Fund Round 15	FY24	-	7,500,000	7,500,000
Bulk Fuel Upgrades	FY24	7,500,000	5,500,000	13,000,000
Hydroelectric Development - Dixon & Godwin Creek Studies	FY24	-	5,000,000	5,000,000
Renewable Energy & Efficiency Programs	FY24	-	5,000,000	5,000,000
Delta Phase 3 Power	FY24		3,000,000	3,000,000
Electrical Emergencies	FY24	-	200,000	200,000
TOTAL		**140,255,793**	**35,516,579**	**175,772,372**

- Statewide Grid Resilience and Reliability Formula - $60 million over five years
- National Electric Vehicle Infrastructure Formula Program (funds from Department of Transportation RSA) - $52 million over five years

Capital Request: General Fund - $5 Million

Renewable Energy & Efficiency Programs

AEA's renewable energy and efficiency programs provide critical technical support for communities interested in developing renewable energy programs in with the aim of growing Alaska's clean economy.

Funds would be **used for**:

- reconnaissance level studies and feasibility analysis to identify project locations, and
- technical assistance and support for utilities and communities interested in developing cost-effective renewable energy and energy efficiency projects.

Funds would **help AEA leverage**:

- federal funding from federal partners such as, but no limited to the Denali Commission, USDOE, and USDA — and is **imperative for continued renewable development** in Alaska.

BIOMASS

ENERGY EFFICIENCY

ELECTRIC VEHICLES

ENERGY STORAGE

GEOTHERMAL

HEAT RECOVERY

HYDROELECTRIC

NUCLEAR

SOLAR

WIND