ALASKA ENERGY AUTHORITY

# GRIP FEDERAL FUNDING AND MATCH REQUIREMENT

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House Finance Committee
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ALASKA ENERGY AUTHORITY

# Grid Resilience and Innovation Partnerships

- **On October 18, 2023, the U.S. Department of Energy (DOE) announced up to $3.5 billion in Grid Resilience and Innovation Partnerships (GRIP) Program investments for 58 projects across 44 states to strengthen electric grid resilience and reliability across America.**
- **In the fall of 2023, AEA was awarded $206.5 million by DOE to advance the Railbelt Innovation Resiliency (RIR) project, which aims to enhance the resiliency and transfer capability along Alaska's Railbelt.**
  - To utilize the funds, **there must be a commitment to match 100 percent** — or $206.5 million — bringing the project's total cost to $413 million.
  - These **federal funds were the result of a successful collaboration** between AEA and Railbelt utilities:
    - Chugach Electric Association
    - Golden Valley Electric Association
    - Homer Electric Association
    - Matanuska Electric Association, and
    - Seward Electric.
  - With this DOE funding, **Alaska can leverage dollar-for-dollar matching federal investment** to expand on transmission upgrades already underway and modernize the transmission system for the benefit of all of the Railbelt communities, while at the same time improve resilience and energy security, diversify its energy portfolio, and accelerate the effective future integration of renewable and clean power.

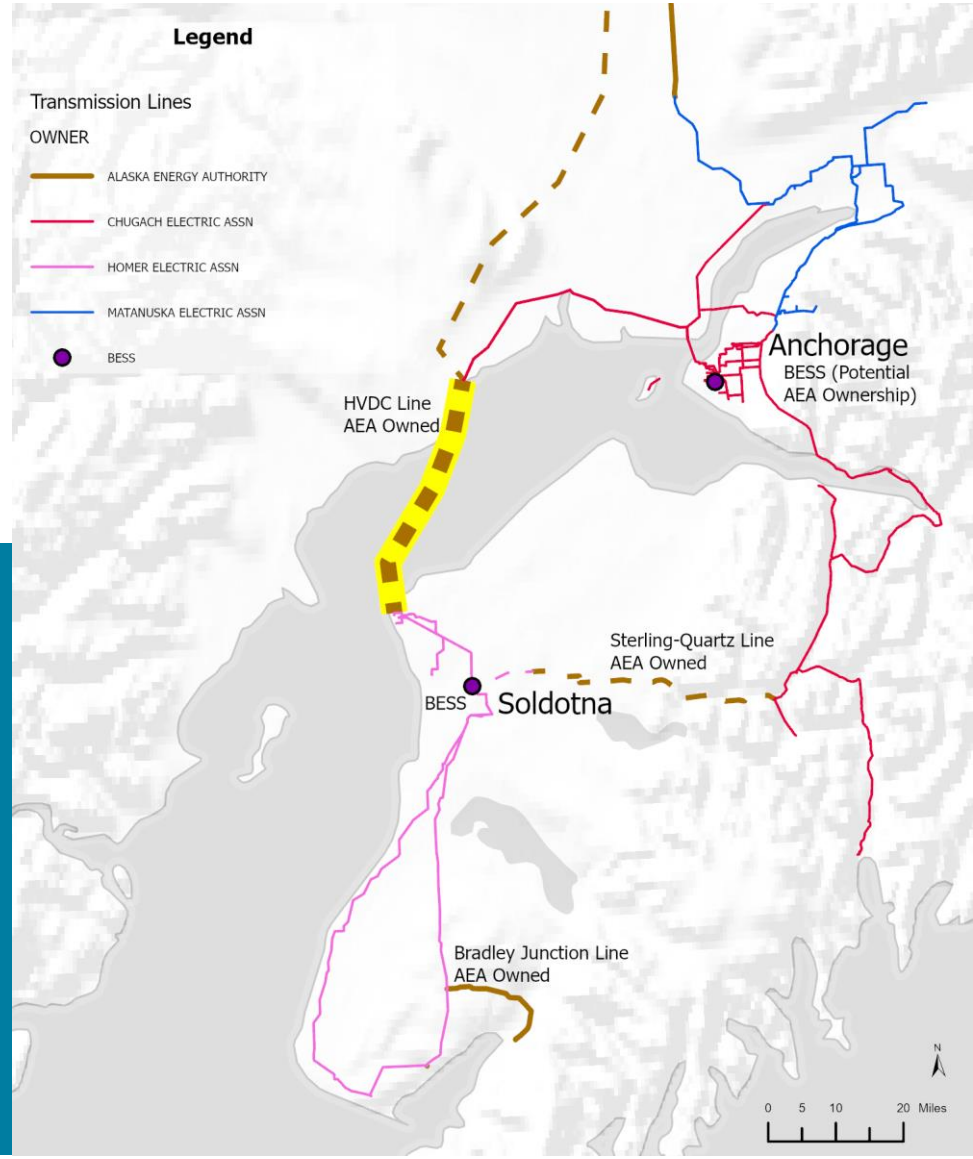
$413 Million (206.5 Million Federal and $206.5 Million Alaska Match)

# Railbelt Innovation Resiliency Project: HVDC Submarine Cable

- The Railbelt Innovation Resiliency (RIR) project will construct a high-voltage direct current (HVDC) submarine cable to serve as a parallel transmission route from the Kenai Peninsula to Anchorage, creating a much-needed redundant system in case of disruptive events.

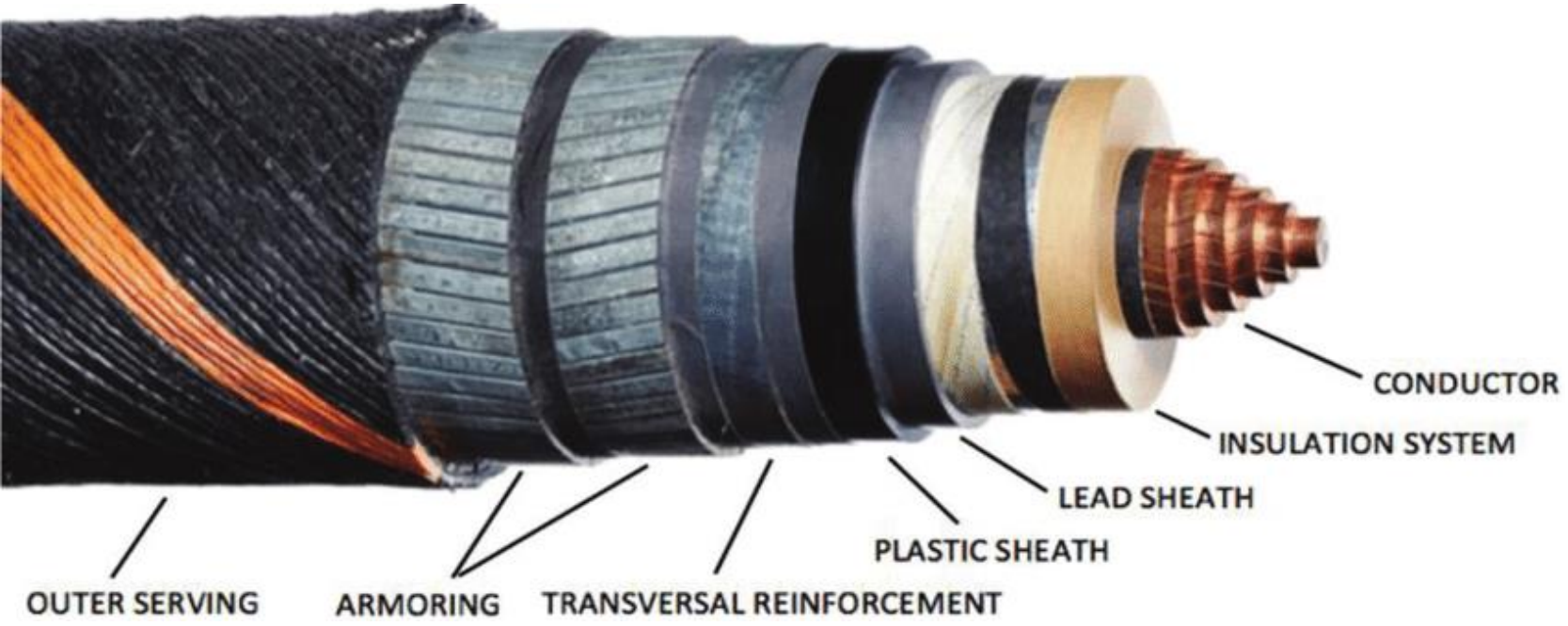
**Anticipated outcomes and benefits include:**

- Increases transfer capacity between regions that enables higher renewable energy integration into the electricity system.
- Improves resilience and reliability for tribal and disadvantaged communities in the Railbelt region, and a reduction in reliance on fossil fuel generation and associated emissions.
- Supports the retention of high-quality jobs in the region, including 650 highly paid jobs with competitive employer-sponsored benefits.
- Creates apprenticeship and internship programs to train a new generation of lineworkers and wireworkers to reinvigorate Alaska's energy workforce.



# HVDC Submarine Cable from Kenai to Beluga

- The RIR project encompasses several projects — one of them being the installation of **a new submarine high-voltage direct current (HVDC)** transmission line from the Kenai Peninsula across Cook Inlet to the existing Beluga Power Plant — and, if feasible, **one or two battery energy storage systems (BESS)** in the Central (Anchorage) and Northern (Fairbanks) regions.




**Project highlights:**

- **Location:** The project involves connecting the Railbelt's Southern region (Kenai Peninsula) to the Central region (Anchorage, Matanuska-Susitna Valley) via Beluga with an HVDC submarine circuit.
- **Cable length:** Approximately 65 miles total length, 37.5 mile subsea cable/2.5 miles from the landing to Beluga, and 25 miles from the Southern landing to Soldotna.
- **Cable size:** The cable is approximately 8" in diameter with roughly 250 megawatt transfer capability.
- **Cable depth to be buried in the seabed:** About 4-6 feet deep. Landings may be installed using horizontal directional drilling.

# BESS in Central (Anchorage) and Northern (Fairbanks) Regions

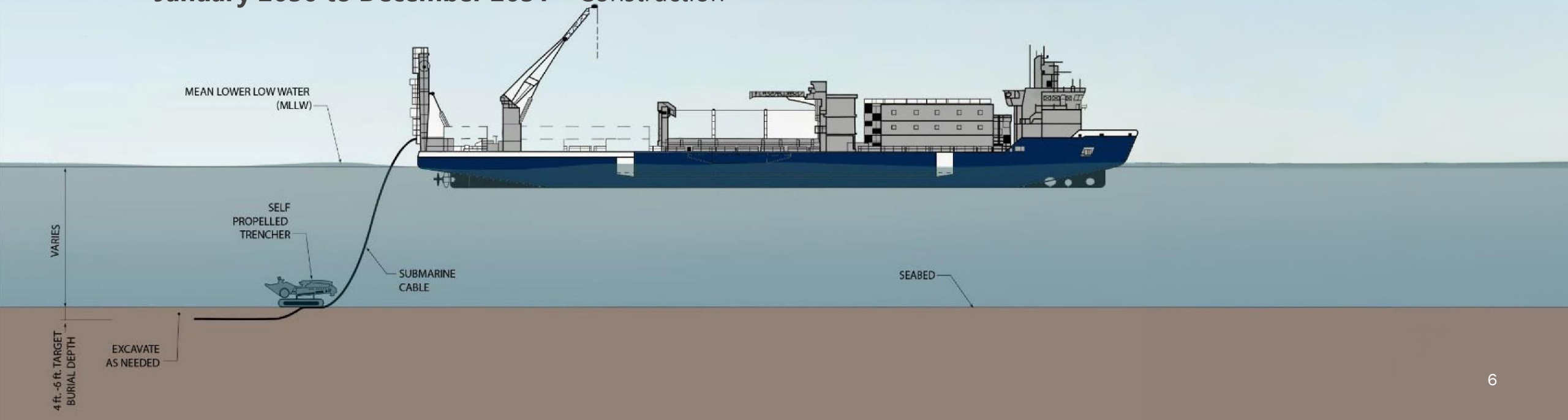
**At its most basic level** a BESS consists of one or more batteries that store electrical energy for use at a later time. This stored energy can then be drawn upon when needed to meet various demands for power across different applications.

**BESS provides advantages over other energy storage systems:** greater efficiency and flexibility, faster response times when powering equipment or devices, and lower costs overall.

**Coordinated interregional control and operations** of the BESSs and HVDC line will tie all the individual systems together to maximize stability and limit congestion.

# Schedule

- **The statutory period for the project is eight (8) years and the construction schedule below is based on a design-bid-build process — a traditional project delivery method that consists of three distinct phases in sequence:**
  - **Second Quarter 2024 –** Award
  - **Summer 2024 –** Preliminary Engineering
  - **December 2024 –** Complete Preliminary Design
  - **July 2027 –** Complete National Environmental Policy Act (NEPA) Process
  - **December 2027 –** Contractor Selection
  - **January 2028 to December 2029** – Long Lead Items
  - **January 2030 to December 2031** – Construction



# Why are Transmission Upgrades Needed?

Many of the transmission lines and associated equipment serving Alaska were constructed more than 40 years ago. Transmission upgrades are needed to improve Alaska's resilience and energy security, diversify its energy portfolio, and accelerate the effective future integration of renewable and clean power.

## Energy Security

Reliable transmission infrastructure ensures that those projects will be able to connect to the grid and provide energy anywhere it is needed along the Railbelt.

## Energy Diversity

As Cook Inlet natural gas supplies decline, new energy projects, including renewable energy, will become increasingly important to our energy security.

## Redundant Energy

A second transmission line from the Southern region (Kenai Peninsula) of the Railbelt to the Central region (Anchorage) will ensure power in the event of an emergency shutdown along existing lines.

# Benefits and Opportunities

- Alaska has a once-in-a-generation opportunity to expand on upgrades underway by leveraging federal funding to modernize the transmission system for all Railbelt communities. Transmission line upgrades and BESS acquisition will provide consumers with multiple benefits, including:

**Decreased line loss:** Upgraded line will substantially reduce energy losses from resistance, contributing to lower energy prices.

**Grid redundancy and stability:** Adds redundancy and stability on the Railbelt by creating an alternate path for generation to flow north and south.

**Better cost alignment:** Align the allocation of resources with traditional utility methodology, i.e. cost causer/cost payer.

**Rural benefits:** Upgrades will benefit rural communities; when energy costs decrease on the Railbelt, residential rates are reduced for communities that receive Power Cost Equalization.

**Increased resilience and reliability:** BESS increases grid resilience and reduces outage risk by supporting load for several hours.

**New renewable energy:** Allows for development of new renewable energy projects on the Kenai Peninsula for consumers.

**Increased stability:** Regardless of fuel supply diversity and decarbonization solutions, these improvements are needed for increased stability.

# Fiscal Year 2025 GRIP Match

| | |
|---|---|
| FY2024 AIDEA Dividend | $ 6,952.0 |
| Reappropriation from 2012 AEA Project | $ 2,294.1 |
| FY2025 AIDEA Dividend | $ 3,453.9 |
| **FY2025 GRIP Match** | **$12,700.0** |

Grid Resilience and Innovation Partnership Federal Funding and Match Requirement (Thousands)

*Project Funding Plan as of March 7, 2024*

| | Appropriations | | Other Funding | |
|---|---|---|---|---|
| FY | Fed | Match | Fund Source To Be Determined | No Approp Needed |
| 2025 | 206.50 | 12.70 | - | 20.00 |
| 2026 | - | - | 6.50 | 25.00 |
| 2027 | - | - | 8.80 | - |
| 2028 | - | - | 21.80 | 5.00 |
| 2029 | - | - | 60.00 | - |
| 2030 | - | - | 30.95 | - |
| 2031 | - | - | 15.75 | - |
| 2032 | - | - | - | - |
| 2033 | - | - | - | - |
| 2034 | - | - | - | - |
| **Total** | **206.50** | **12.70** | **143.80** | **50.00** |
| | **413.00** | | | |

| | Expenditure Funding | | |
|---|---|---|---|
| Activity | Fed | State Funds or Source To Be Determined | Existing AEA Revenue Bonds ** |
| Grant negotiations, bondholder outreach, legal review, and other preparatory costs. Initiate design, engineering, and National Environmental Policy Act (NEPA)/ permitting process for High Voltage Direct Current (HVDC) and Battery Energy Storage Systems (BESS). | 32.70 | 12.70 | 20.00 |
| NEPA process, begin procurement of BESS, site design and engineering. | 31.50 | 6.50 | 25.00 |
| NEPA process. | 8.80 | 8.80 | - |
| Complete NEPA process, construct BESS building, begin right-of-way clearing and site preparation. | 26.80 | 21.80 | 5.00 |
| HVDC component construction begins (Soldotna switchyard, Soldotna-Bernice HVDC line, Beluga landing, HVDC submarine cable); BESS testing and commissioning. | 60.00 | 60.00 | - |
| HVDC component construction continues (Soldotna switchyard, Soldotna-Bernice HVDC line, Beluga landing, HVDC submarine cable). | 30.95 | 30.95 | - |
| HVDC component construction complete (Soldotna switchyard, Soldotna-Bernice HVDC line, Beluga landing, HVDC submarine cable). | 15.75 | 15.75 | - |
| | - | - | - |
| | - | - | - |
| | - | - | - |
| | **206.50** | **156.50** | **50.00** |
| | **413.00** | | |

# Thank You

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