ALASKA RAILBELT CLEAN ENERGY TRANSPORTATION INFRASTRUCTURE GROWTH CLUSTER

Concept Proposal Narrative

U.S. Economic Development Agency (EDA)
FY 2021 American Rescue Plan Act Build Back Better Regional Challenge

Submitted by:

Matanuska-Susitna Borough, Alaska

Mat-Su/Fairbanks Rail & Natural Gas Coalition Members:

Table of Contents

1. Regional Growth Cluster Vision 1
A. CEDS Alignment 2
2. Economic Opportunity 2
3. Coalition Members 3
A. Matanuska-Susitna Borough 3
B. Fairbanks North Star Borough 3
C. Interior Gas Utility 3
D. Alaska Railroad Corporation 3
4. Component Projects 3
A. Interior Gas Utility's Titan II Liquefaction Plant Expansion 3
B. Port MacKenzie Rail Extension 4
C. Rail Spur Connections to IGU Facilities 4
5. Metrics For Success 4
6. Available Matching Funds 5
7. Risk Identification and Mitigation Strategies 5
A. IGU Titan Plant Expansion 5
B. Rail Extension 5
C. Rail Spur Connections to IGU Facilities 5
8. Timeline 5

Appendices

Appendix A: Regional Assets

Appendix B: Industry Leadership

Appendix C: Sustainability

Appendix D: Equity

Supporting Documentation

Lead Institution and Regional Competitiveness Officer

Coalition Documentation of Commitment

Letters of Support from Project Partners

Project and Budget Narrative for Technical Assistance Grant Request

1. REGIONAL GROWTH CLUSTER VISION

A coalition of Alaskan public entities have identified rail and regional energy network improvements to reduce the cost of energy to regional homes and businesses, improve the competitiveness of regional businesses, and improve air quality throughout the region. The Matanuska-Susitna (Mat-Su) Borough, Fairbanks North Star Borough (FNSB), Interior Gas Utility (IGU), and the Alaska Railroad Corporation (ARRC) have partnered to form the **Mat-Su/Fairbanks Rail & Natural Gas Coalition** (the Coalition) to achieve these goals.

The Coalition's proposed projects will assist underserved Interior Alaska Railbelt communities in their efforts to recover from the COVID-19 pandemic, create opportunities for long-term economic resilience by reducing energy costs and increasing energy supply, and improve air quality.

The Coalition will support the regional growth cluster by expanding and improving the existing liquid natural gas industry's transportation capabilities. **The Alaska Railbelt Clean Energy Transportation Infrastructure Project (the Project**) consists of three component projects that have been designed to enable lasting economic development opportunities and benefits throughout the region. This Concept Proposal details the anticipated economic benefits to the Coalition partners and the State of Alaska resulting from Project funding and construction. The Coalition's vision includes:

1. Expanding LNG capacity at the publicly owned IGU Titan plant in Point MacKenzie from 50,000 gallons per day to 150,000 gallons per day.
2. Completing 18 miles (of 33 total) of the Port MacKenzie Rail Extension (PMRE), which will allow LNG to be shipped 346 miles by rail to Fairbanks and North Pole, Alaska versus 358 miles by truck, increasing fuel efficiency and reducing greenhouse gas emissions by up to 75-percent.
3. Completing rail spur connections to the Titan plant (Ayrshire Road), and to IGU storage and vaporization facilities in Fairbanks (Peger Road) and North Pole (Laurance Road).

The completed PMRE will bring $184MM in State investment into production, creating jobs, reducing energy and transportation costs while also improving air quality. It is also expected to increase the efficiency of shipping bulk commodities and materials to and from Interior Alaska, and to provide direct rail access for Liquefied Natural Gas (LNG) shipments from Cook Inlet to Fairbanks and North Pole.

Combined, the component projects will allow for natural gas to be transported more than 346 miles by rail versus (currently) 358 miles by truck to Fairbanks, North Pole and other communities across the rail belt. The Project will increase the available supply of natural gas and will reduce energy costs for industry and residential customers in Interior Alaska communities that have suffered economically because of the impacts of the COVID-19 pandemic. With increased natural gas supply, the region will realize additional opportunities for natural gas conversion, which will aid in achieving air quality attainment.

A. CEDS ALIGNMENT

The Coalition has aligned its vision with the Alaska Statewide Comprehensive Economic Development Strategy (CEDS), *Northern Opportunity*,[1] – which the MSB follows – as well as the FNSB CEDS[2]. The component projects align to support cluster-based economic development and transform economically distressed communities through substantial investment in the region's energy and rail transportation industry growth clusters. *Northern Opportunity*, Alaska's Economic Development Strategy (2017-2022), identifies Oil and Gas as one of its major industry sectors. The State of Alaska has long recognized the vital need for more affordable, cleaner energy sources for Fairbanks and elsewhere in the Interior. The Project will move LNG transport from truck to less costly rail.

Local officials and stakeholders have explored strategies for improving natural gas infrastructure and delivery to Fairbanks and North Pole due to excessively high heating costs. This includes long-supported plans for rail line expansion to LNG storage and distribution facilities. The FNSB CEDS identifies Community Priority No. 1 as: to "lo*wer and stabilize FNSB energy costs by expanding the energy portfolio with a focus on local resources,"* and includes the objective to *"bring affordable, sustainable natural gas to the FNSB."* FNSB supports the IGU Expansion Project to this end. The FNSB CEDS serves as a road map to economic resilience and prosperity, identifying projects and making recommendations to support businesses, create more and better paying jobs, and improve quality of life. The FNSB's economic development goals include supporting Energy, Natural Gas, Physical Infrastructure, and Rail Transportation Industry Clusters through the design, construction and maintenance of trail, road, rail, and air transportation systems that improve access to the region.

2. ECONOMIC OPPORTUNITY

The expansion of the IGU Titan plant will further increase IGU's supply reliability by providing additional production capacity. Additionally, the newer technology incorporated into the Titan II design would result in an increased efficiency and, provided IGU maintains efficient production, anticipates a reduced variable LNG production cost of approximately $0.06/gallon ($0.75/MCF). When completed, the Titan II facility will be the primary producer of LNG, with projected annual cost reductions (versus producing the same volumes with Titan I) of approximately $975,000.

The Project will also help mitigate some of the adverse impacts of the COVID-19 pandemic. In 2020, the average household income in Alaska dropped 5.0-percent to $74,476 from $78,394 in 2019[3]. After adjusting for 2020's 1.2%[4] inflation, this indicates a net 6.2% reduction in household buying power. A 2019 research study commissioned by Alaska Department of Environmental Conservation[5] indicated that *"approximately 80% of respondent households reported having a central oil heating appliance"* in the FNSB, where the average annual heating energy expenditure

[1] *Northern Opportunity* Statewide CEDS http://northernopportunity.com/
[2] FNSB CEDS Update, https://fnsbceds.com/
[3] https://www2.census.gov/programs-surveys/cps/tables/time-series/historical-income-households/h08.xls
[4] https://www.bls.gov/charts/consumer-price-index/consumer-price-index-by-category-line-chart.htm
[5] https://dec.alaska.gov/media/16394/uls-hs-fairbanks-cost-analysis-finaldraft-05082019.pdf

is $2,274. Adjusted for price changes, based on data provided by IGU, the current annual heating expenditure in the FNSB is $2,374 for households using fuel oil. IGU data also indicated that natural gas prices per MMBtu are currently 14% lower than fuel oil prices. Natural gas prices are expected to reach 22% below current delivered residential oil prices due to $0.75/MCF cost saving in production process and $1.00/MCF cost saving in transportation. This would lead to annual savings of about $525 per household (i.e., 13.4% of lost household income). The Project will allow more households to switch from fuel oil to natural gas. Similarly, natural gas conversion will reduce operating costs of local businesses, leading to more efficient production and increased competitiveness.

3. COALITION MEMBERS

Through cross-jurisdictional, -geographic, and -agency coordination, the Coalition demonstrates their commitment to regional economic growth through the combined support of this Project:

A. MATANUSKA-SUSITNA BOROUGH

MSB, with a population of approximately 108,300 residents, is the Lead Applicant for the Build Back Better Regional Challenge. MSB is the operator of Port MacKenzie and co-manager of the Port MacKenzie Rail Extension Project, connecting the port to the rail mainline. Grant funding would allow the MSB to make significant progress on the overall rail project and help meet commitments to local Alaska Native organizations.

B. FAIRBANKS NORTH STAR BOROUGH

FNSB in Interior Alaska is home to approximately 99,000 residents. FNSB owns IGU and together they provide an important and necessary benefit to the public by providing lower utility costs and improving air quality for its residents.

C. INTERIOR GAS UTILITY

IGU is a municipally owned utility (public corporation) formed in 2012 to bring natural gas to an expanding customer base in Fairbanks and North Pole. IGU's mission is to provide low cost, clean burning, natural gas to as many customers as possible.

D. ALASKA RAILROAD CORPORATION

ARRC is an independent, public corporation of the State of Alaska that owns and operates over 470 miles of mainline rail. ARRC provides both passenger and freight service to Fairbanks, and connects Whittier and Seward to Anchorage, then onto Fairbanks and the military bases of Fort Wainwright and Eielson. In 2015, it became the first railroad authorized by the Federal Railroad Administration to transport LNG.

4. COMPONENT PROJECTS

A. INTERIOR GAS UTILITY'S TITAN II LIQUEFACTION PLANT EXPANSION

IGU's Titan I gas facility in Point MacKenzie will be expanded to provide additional LNG production capacity. IGU will construct a natural gas liquefaction train (Titan II) with a capacity of

100,000 gallons per day (gpd) and integrate it with the existing Titan I 50,000 gpd facility to create a combined 150,000 gpd facility. The expanded facility will be located on a 17.1-acre tract of land located in Point MacKenzie and owned by IGU. The facility will be expandable in the future by adding additional production trains. The LNG will be offloaded into storage tanks, heated, returned to a gaseous state, and distributed by underground transmission and distribution pipelines to residences and businesses in Fairbanks and North Pole. (Currently, gas is transported north by truck via the Parks Highway). The Project would allow for delivery of LNG to other areas along the rail belt using bulk delivery or containerized LNG which could then be used locally or shipped to other communities such as Denali, Healy, Fort Wainwright, Nenana, and Talkeetna.

B. Port MacKenzie Rail Extension

The Coalition proposes to complete construction of the first 18 miles of the Port MacKenzie Rail Extension (PMRE), a 33-mile rail line in the Susitna River Valley connects Port MacKenzie to the existing rail system near Houston. The new rail line is an extension of the mainline connecting ports in Seward, Whittier, and Anchorage with Interior Alaska, including Denali National Park, Fairbanks, and North Pole. The railroad grade and bridges for the first 18 miles of the PMRE have already been constructed, and all federal permits have been secured. Located between Miller's Reach Road at the junction of the Alaska Railroad, the alignment extends southwesterly, terminating south of Ayrshire Road, east of IGU's Titan facility. Construction will include the final grade preparation and subballast for track construction, track construction including a short siding near IGU's Titan plant to facilitate switching, road crossing, signal, communications to support railroad operations, and minor regulatory construction mitigation.

C. Rail Spur Connections to IGU Facilities

The construction of three rail spur connections from the main rail system to LNG facilities will allow LNG to be transported by rail instead of trucked to Interior Alaska, resulting in additional reduced energy costs to rail belt residents and businesses while providing ARRC with an anchor customer to support rail line maintenance. This component project will construct rail spurs to connect to the Port MacKenzie Rail Extension at three IGU facility locations: (1) to the Titan II facility at Point MacKenzie (Ayrshire Road), (2) to the IGU storage and vaporization facility in Fairbanks (Peger Road), and (3) to the IGU storage and vaporization facility in North Pole (Laurance Road).

5. METRICS FOR SUCCESS

The development of the Project will provide two major benefits to residents of the FNSB: (1) residential and business heating cost savings by converting to lower cost natural gas versus heating oil, and (2) improved air quality. Additional metrics that will quantify the success of the Project include: (1) the increased number gas customers, (2) the increased number rail cars (reduced truck), (3) the reduction in household utility bills, and (4) job creation.

6. AVAILABLE MATCHING FUNDS

The total estimated project cost is $203.9 million, as tabulated below. The Coalition will match a minimum of 20% of any funds awarded through the Build Back Better Regional Challenge and is prepared to fund the balance project over the $100MM grant limit. This match can be funded through IGU's bonding authority, continued support from state grants for the rail component project, and revenue set aside for capital improvement projects.

Component Project	OPCC	Date	% Design
A. IGU Titan Expansion	$75.9MM	4/2020	65%
B. 18 miles of PMRE	$96.1MM	10/2021	50%
C. Ayrshire, Peger and Laurance Rail Spurs	$31.9MM	10/2021	15-25%
ESTIMATED TOTAL PROJECT COST	**$203.9MM**		

7. RISK IDENTIFICATION AND MITIGATION STRATEGIES

A. IGU TITAN PLANT EXPANSION

Much of the IGU project is already permitted. Some infrastructure development is needed, but the hurdles are few and far between and easily overcome. IGU has completed a Front-End Engineering and Design to finalize the project, identifying the project as the timeliest, most cost-effective, lowest-risk alternative to bring additional natural gas supply to the FNSB. IGU has a growing market for LNG and is experienced in all aspects of its production, transportation, and storage, as well as natural gas transmission and distribution. One of the biggest hurdles is the cost-competitiveness of natural gas as compared to oil. As fuel oil costs go down, natural gas conversions decrease. Keeping the cost of natural gas competitive is key to the project's success.

B. RAIL EXTENSION

Significant infrastructure investment has already occurred on the rail extension component project. With construction initiated in 2012, nearly two-thirds of the PMRE is complete. The EIS was completed in 2011 and associated studies identified and analyzed feasible alignment alternatives, completed preliminary engineering designs, estimated construction costs, and determined the project's economic, financial, and engineering feasibility. All state and federal permits have been acquired, engineering design for the remaining rail work is nearly finished, and right-of-way acquisition is substantially complete.

C. RAIL SPUR CONNECTIONS TO IGU FACILITIES

ARRC is experienced in rail planning and design and this component project carries little risk.

8. TIMELINE

The three component projects are in varying stages of design, and remaining field work, environmental studies and permitting, and final design will advance under contract with ARRC and IGU upon receipt of Technical Assistance funding. This work is scheduled for completion by November 2023, with phased construction will take place between July 2023 and April 2025, and the overall Project is scheduled for completion by October 2025.