Alaska LNG Project Update

ALASKA GASLINE DEVELOPMENT CORP.

Presented to: Matanuska-Susitna Borough Assembly
Presented by: Lisa Haas, Environment, Regulatory and Lands Manager

September 27, 2022

Topics

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- Alaska LNG Project Overview
- Regulatory Status
- LNG Market
- Project Economics
- Future Proofing: Hydrogen/Ammonia Production
- Moving Forward

Alaska LNG: Gas for Alaskans and Export

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North Slope Gas Supply

- 40 Trillion cubic feet (tcf) of discovered, conventional, and developed North Slope associated gas from Prudhoe Bay and Point Thomson
- Gas is currently stranded

Gas Treatment Plant

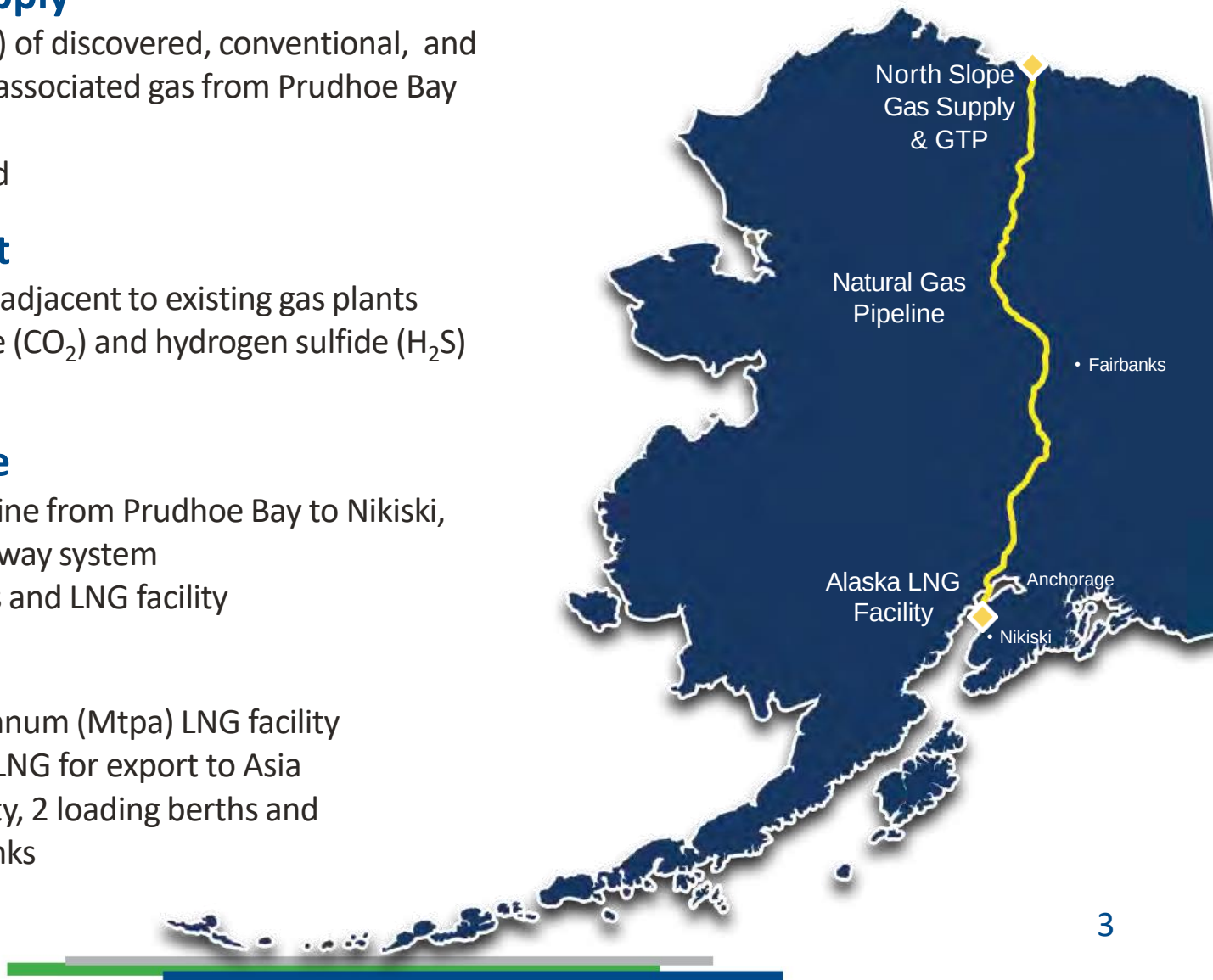
- Located in Prudhoe Bay adjacent to existing gas plants
- Removes carbon dioxide (CO_2) and hydrogen sulfide (H_2S) from raw gas stream

Natural Gas Pipeline

- 807-mile, 42” dia. mainline from Prudhoe Bay to Nikiski, following TAPS and highway system
- Provides gas to Alaskans and LNG facility

Alaska LNG Facility

- 20 Million tonnes per annum (Mtpa) LNG facility
- Converts natural gas to LNG for export to Asia
- 3 liquefaction trains, jetty, 2 loading berths and 2 x 240,000 m^3 LNG tanks



Matanuska-Susitna Borough

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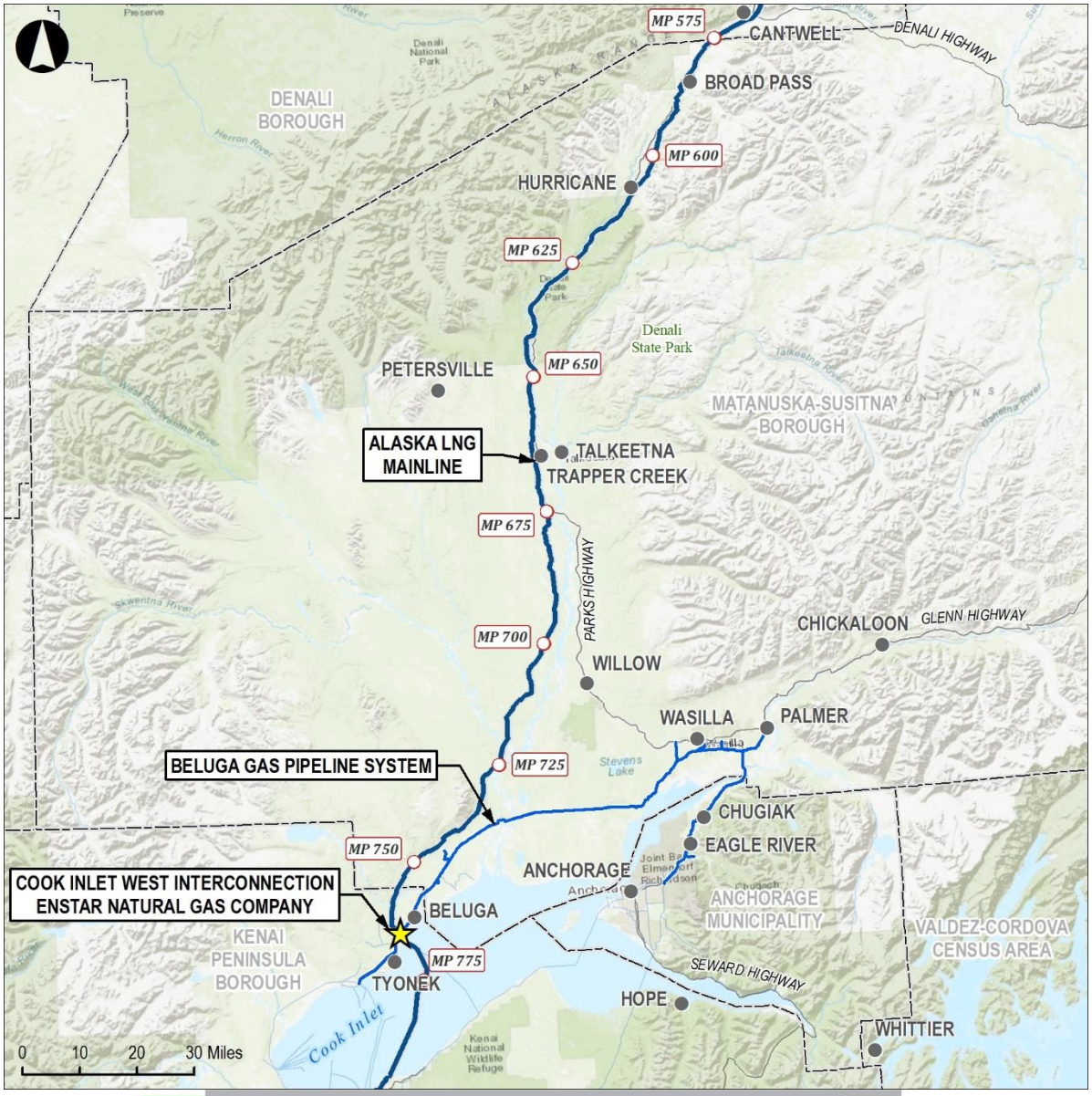

Major Permits and Approvals

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- **Completed**
  - Federal Energy Regulatory Commission (FERC) Environmental Impact Statement (EIS) and Order
  - Major federal permits & authorizations
  - Land ROWs: about 93% of Project area
  - Approved Cultural Resources Management Plan
  - Gas Treatment Plant Air Permit
  - Liquefaction Facility Air Permit
- **Underway**
  - DOE Supplemental EIS – to support the Non-Free Trade Agreement Nation Export License

ALASKA LNG	Federal Permits and Authorizations	
Permit/Authorization	**Date Obtained**	**Complete**
Presidential Finding Concerning Alaska Natural Gas – President Reagan	1/12/1988	✓
BLM Right-of-Way – Grant Offer	1/1/2021	✓
BLM Right-of-Way Record of Decision	7/23/2020	✓
Cultural Resources Management Plan	6/24/2021	✓
DOD Letter of Non-Objection	3/10/2020	✓
DOE Natural Gas Export Order (Free Trade)	11/21/2014	✓
DOE Natural Gas Export Order (Non-Free Trade)[1]	8/20/2020	✓
EPA Section 401 Water Quality Certification	6/22/2020	✓
FAA Determinations GTP	5/6/2021	✓
FAA Determinations LNG	1/5/2021	✓
FERC Final Environmental Impact Statement	3/6/2020	✓
FERC Order Granting Authorization under Section 3 of the Natural Gas Act [2]	5/21/2020	✓
FERC Programmatic Agreement - Cultural Resources	6/24/2020	✓
NMFS Biological Opinion AKRO-2018-01319	6/3/2020	✓
NMFS Cook Inlet Marine Mammals (whales/seals) Incidental Take Rule	8/17/2020	✓
NMFS Cook Inlet Marine Mammals (whales/seals) Letter of Authorization	9/15/2020	✓
NMFS Prudhoe Bay Incidental Harassment Authorization Marine Mammals (whales/seals)	2/16/2021	✓
NPS Right-of-Way Permit	1/5/2021	✓
NPS Right-of-Way Record of Decision, DNPP	7/23/2020	✓
PHMSA Siting Letter of Determination and Analysis - Liquefaction Facility	2/4/2020	✓
PHMSA Special Permit – Crack Arrestor Spacing	9/9/2019	✓
PHMSA Special Permit – Mainline Block Valve Spacing	9/9/2019	✓
PHMSA Special Permit – Pipe-in-Pipe	4/27/2020	✓
PHMSA Special Permit – Strain-Based Design	9/9/2019	✓
PHMSA Special Permit – Three-Layer Polyethylene Coating	9/9/2019	✓
USACE Record of Decision Section 404 Wetlands Permit	6/24/2020	✓
USCG Bridge Permit - Deshka River	9/11/2020	✓
USCG Bridge Permit - East Fork Chulitna	9/11/2020	✓
USCG Bridge Permit - Middle Fork Chulitna	9/11/2020	✓
USCG Bridge Permit - Sag	9/11/2020	✓
USCG Bridge Permit - Tolovana	9/11/2020	✓
USCG Letter of Recommendation Regarding the Waterway Suitability Assessment	8/17/2016	✓
USCG Waterway Suitability Assessment	3/18/2016	✓
USFWS Biological Opinion	6/17/2020	✓
USFWS Cook Inlet Incidental Take Rule Marine Mammals (sea otters)	8/1/2019	✓
USFWS Eagle Take Permit	6/23/2020	✓
USFWS Incidental Take Rule Marine Mammals (polar bear)	8/5/2021	✓

LNG Demand Forecast

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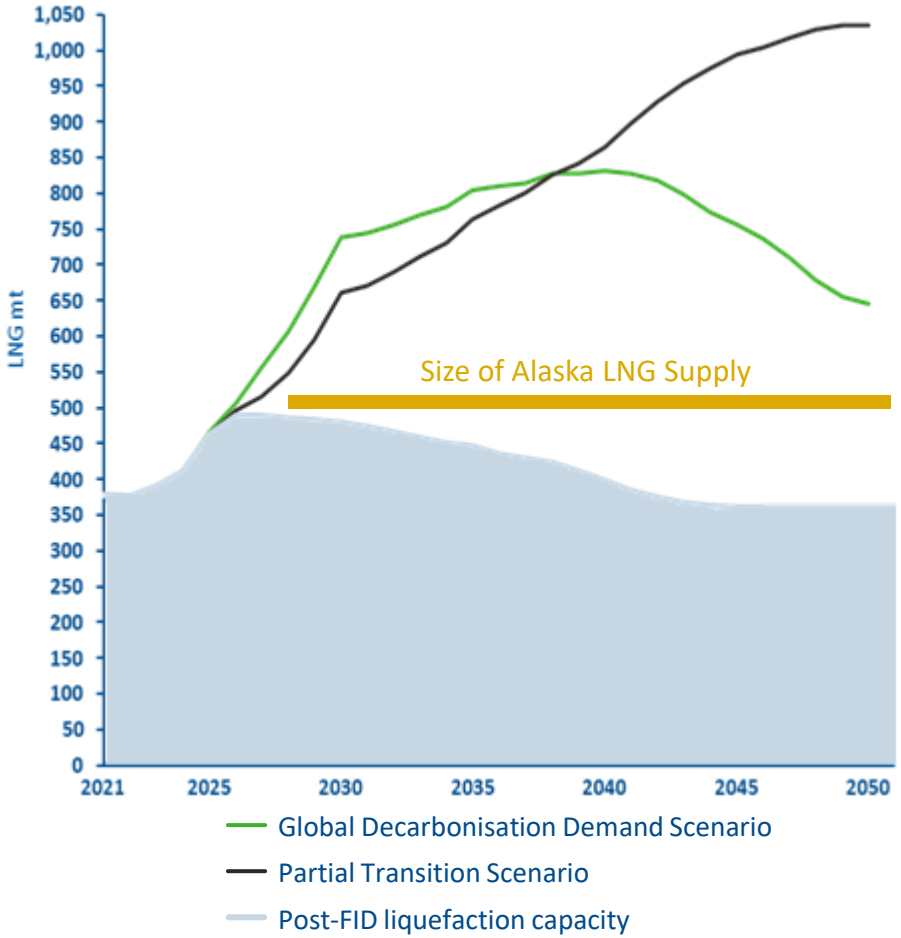
LNG is in High Demand

- Two LNG demand scenarios based on different speeds of the energy transition
- Under both energy transition scenarios, LNG demand exceeds supply for the expected life of the Alaska LNG Project
- Demand growth will outpace current and planned LNG capacity
- Significant levels of LNG capacity will be needed as LNG demand doubles by 2040

Key Component of Energy Transition

- Natural gas emits half the greenhouse gases as coal
- Most new projects have some degree of energy transition planning

Global LNG Supply/Demand Balance Forecast, 2021-2050



Source: Gas Strategies

Competitive Cost of Supply

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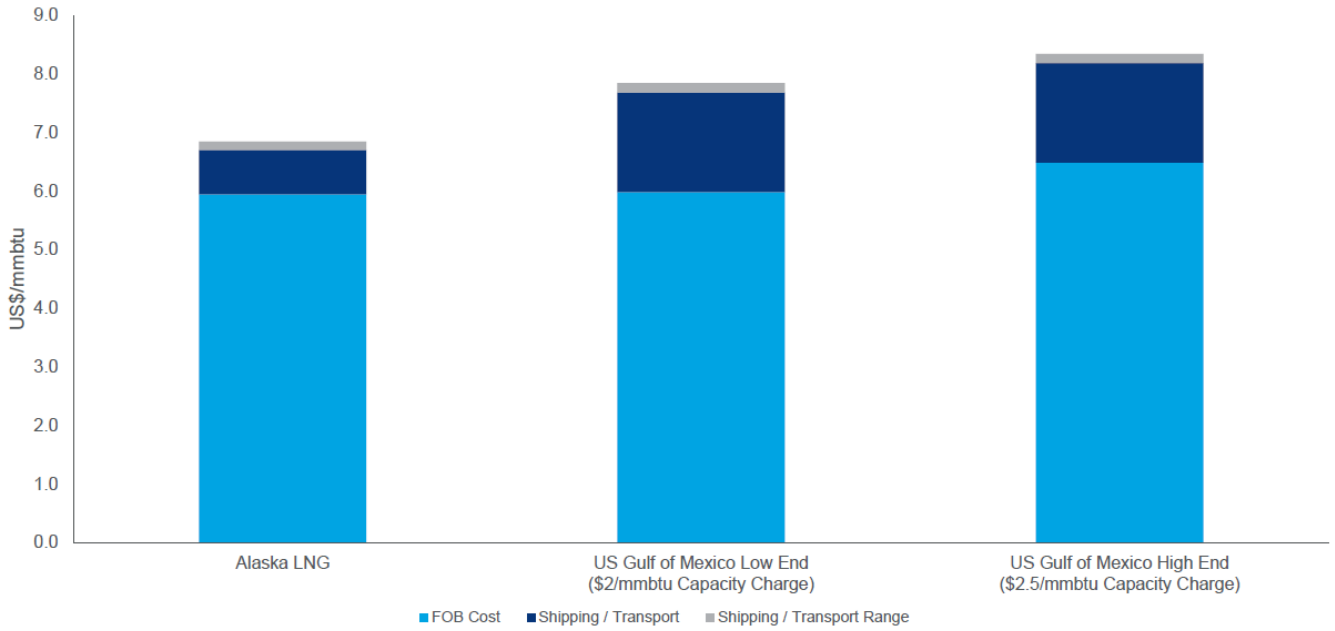
woodmac.com

With the cost optimization and new debt structure, Alaska LNG is competitive against US Gulf Coast LNG Projects

Comparison of Breakeven cost of supply for delivery into North Asia



Source: Wood Mackenzie

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Slide from 2022 Wood Mackenzie Alaska LNG Competitiveness Analysis

Energy Security - Alaska

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- Cook Inlet gas supply is uncertain
- Railbelt Utilities Announced Working Group
  - Includes all major railbelt utilities
  - Assessing future gas supply needs and energy security in Cook Inlet
- The Alaska LNG Project is the best option to replace Cook Inlet gas
  - Secure, low-cost supply for Alaskans
  - If not constructed, Alaska may need to import LNG to replace Cook Inlet gas

ANCHORAGE DAILY NEWS

Energy

Hilcorp warns Alaska utilities about uncertain Cook Inlet natural gas supplies

By Alex DeMarban
Updated: May 17, 2022
Published: May 17, 2022

Exhaust from the Southcentral Power Project in Anchorage is lit by the setting sun on Friday, Jan. 11, 2019. (Loren Holmes / ADN)

Officials with several Alaska utilities say they've been informed by Hilcorp that the company does not currently have enough natural gas reserves in Cook Inlet to provide for new gas contracts. Those contracts face renewal in the next two to 11 years.

Energy Security - Global

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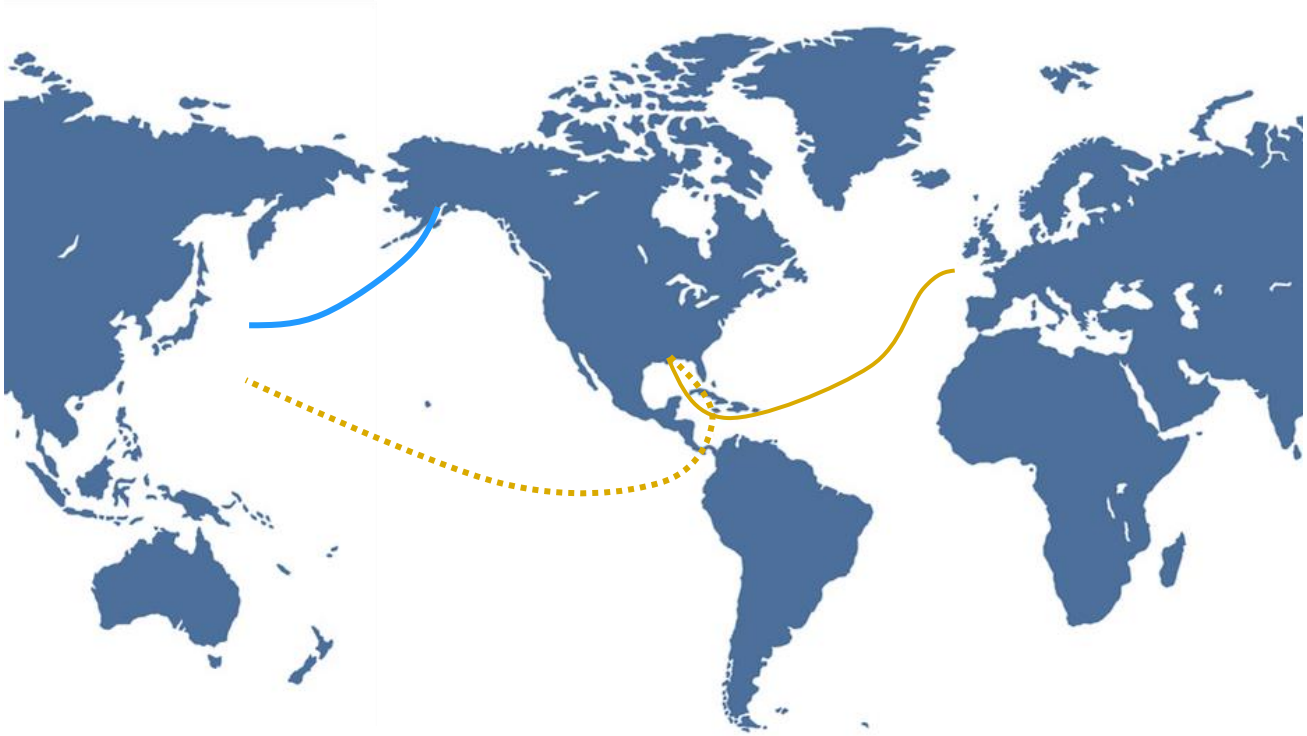

- As a result of the war in Ukraine, the US LNG destined for Asia has been diverted to Europe
- This dynamic increases the need for US supply from Alaska to meet the long-term energy security needs of Asia

Lower Cost Energy for Alaskans

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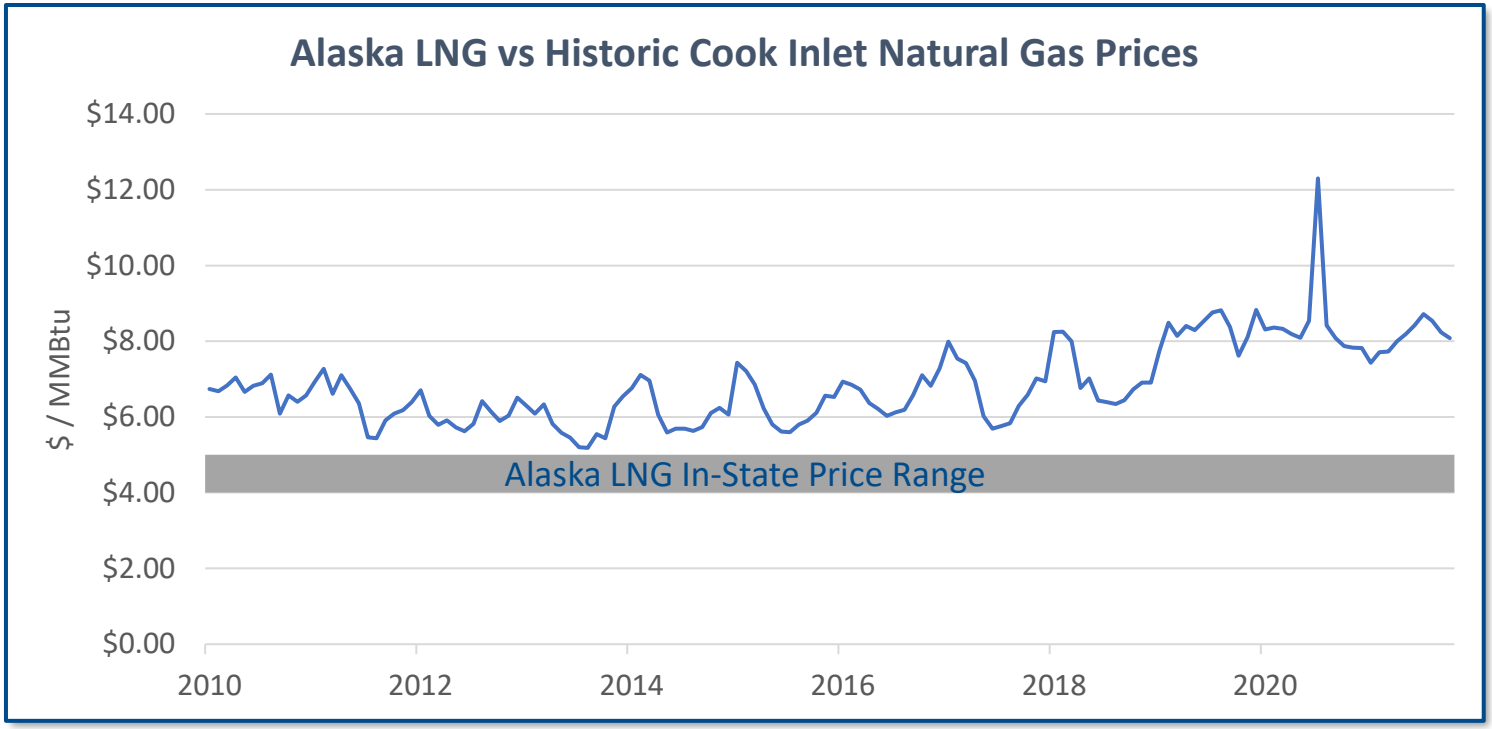
Low-Cost Gas for Alaskans

- The Alaska LNG in-state price is estimated to be between $4 - $5 per MMBtu
- Significant reduction from current prices, saving Alaskans hundreds of dollars per year

Significant Quantities of Gas for Alaskans

- The pipeline is designed to supply more natural gas than the LNG plant needs
- Enough capacity for in-state demand to more than double



Source: EIA

Jobs for Alaskans

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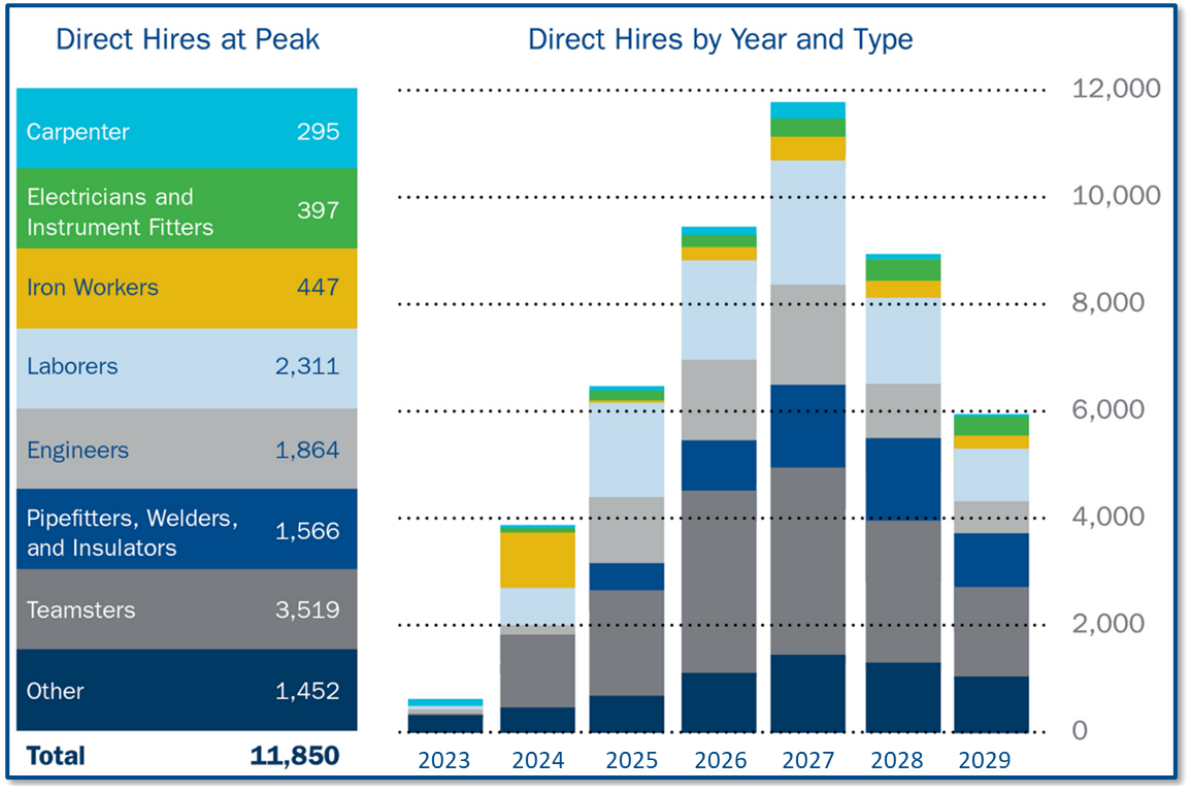
Alaska LNG Job Creation

- Almost 12,000 direct jobs at peak of construction
- 1,000 long-term operations jobs
- Significant indirect jobs during construction and operations



Strong Alaskan Support

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- Recent Department of Energy Draft SEIS Public Comments
- 200 Total Comments
- 182 Supportive (91%)
  - Individuals, native corporations and organizations, utilities, industry organizations, government organizations/representatives, Governor, Alaska Delegation, and others
- 3 Technical/Neutral (1.5%)
  - Agency comments: ADEC, EPA, DOI Alaska
- 15 Not Supportive (7.5%)
  - 11 individuals
  - 4 non-governmental organizations

Hydrogen/Ammonia Opportunity

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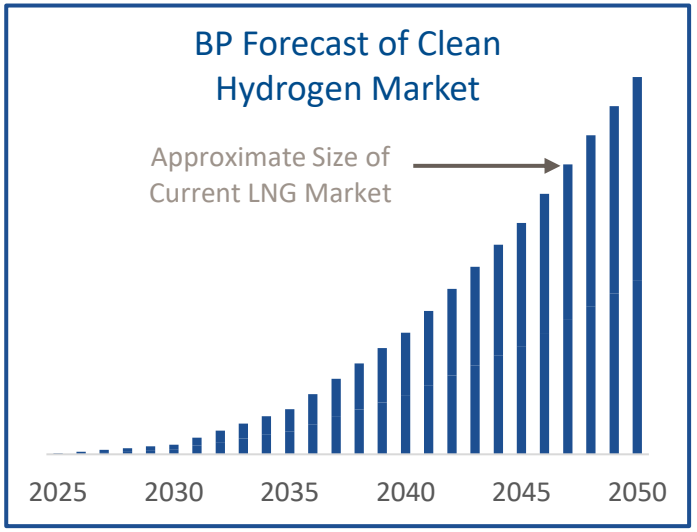
Natural Gas is transported to Cook Inlet via Alaska Gasline

Natural Gas

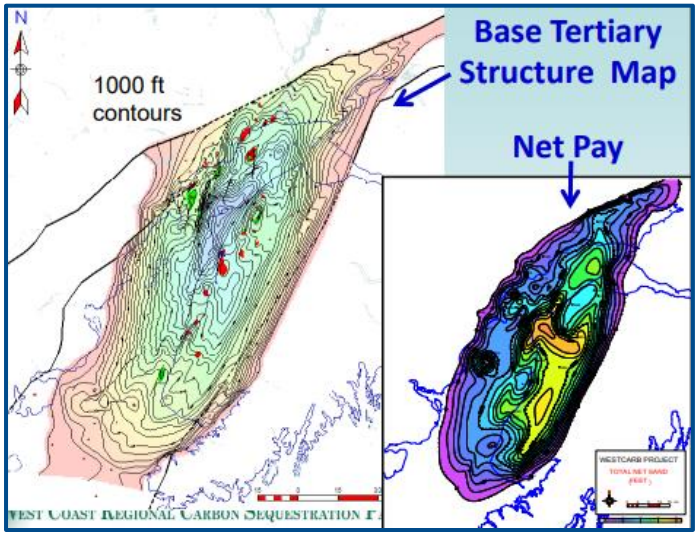
Natural Gas is Converted to Hydrogen/ Ammonia & CO_2

- Hydrogen
- Ammonia
- CO_2

- Hydrogen/ammonia are clean energy sources
- Key Asian markets forecast rapid demand growth
- Infrastructure funding available for investment in Alaska



- Cook Inlet has the best carbon sequestration potential on the Pacific Coast of North America
- Allows for "future-proofing" Alaska LNG with transition to net-zero hydrogen/ammonia production



Source: West Coast Regional Carbon Sequestration Partnership

Transition to Private Developers

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2013 - 2016

Producer Led

Producers provided initial scoping and engagement – important demonstration of producer support

2017 - 2023

State Led

State-led initial design, permitting and authorization – important demonstration of state support

2023 - onward

Developer Led

Transition to world class private parties for construction and operations

Moving Forward

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- We have a window of opportunity
- Alaska LNG will
  - Decrease Alaskan energy costs and improve air quality
  - Provide energy security for Alaska and our country's allies
  - Provide jobs and increase state revenues
  - Help fill projected global LNG demand
  - Contribute to significant reductions in world-wide greenhouse gas emissions
  - Meet stringent environmental requirements
- Working with world-class private-sector Strategic Parties to provide investment and lead the Alaska LNG Project forward
- Encouraging Alaskans to rally behind the project

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