

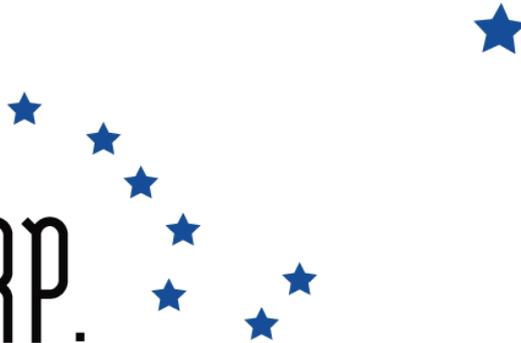
Alaska LNG Update

Presented to: Cook Inletkeepers
December 20, 2022



- Introductions
- Alaska LNG Project Update
 - Overview
 - LNG Market
 - Regulatory Status
 - Stakeholder Engagement
 - Environmental Benefits
- Next Steps

ALASKA GASLINE DEVELOPMENT CORP.



The Alaska Gasline Development Corporation (AGDC)

- Independent, public corporation owned by the State of Alaska (SOA)
- Created by the Alaska State Legislature

Mission

- Maximize the benefit of Alaska's vast North Slope natural gas resources through the development of infrastructure necessary to move the gas to local and international markets

Current Owner and Developer of the Alaska LNG Project

- Transitioning project to private ownership under qualified developers

North Slope Gas Supply

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

Arctic Carbon Capture (ACC) Plant

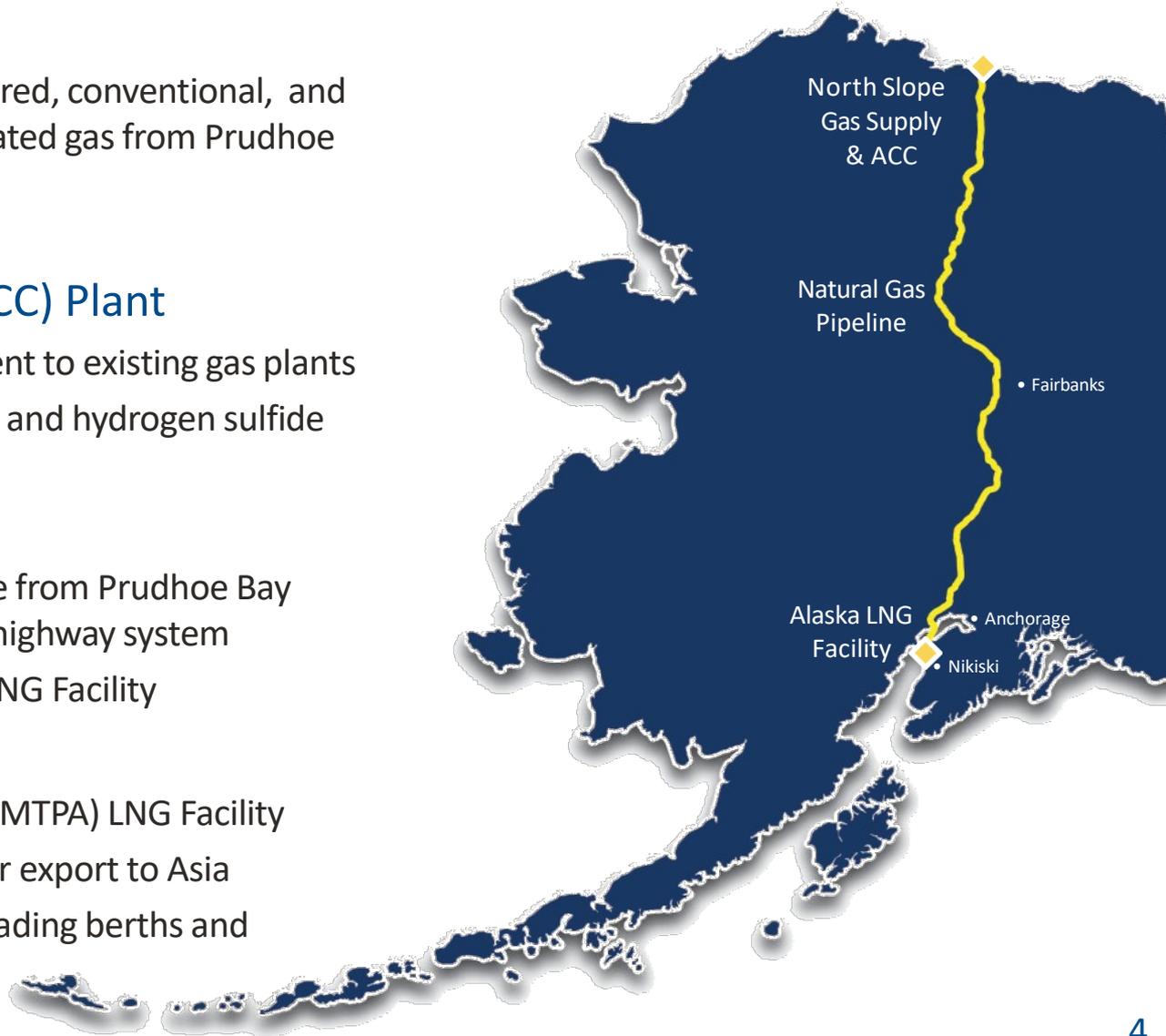
- Located in Prudhoe Bay adjacent to existing gas plants
- Removes carbon dioxide (CO₂) and hydrogen sulfide (H₂S) from raw gas stream

Natural Gas Pipeline

- 807-mile, 42-inch 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 m³ LNG tanks



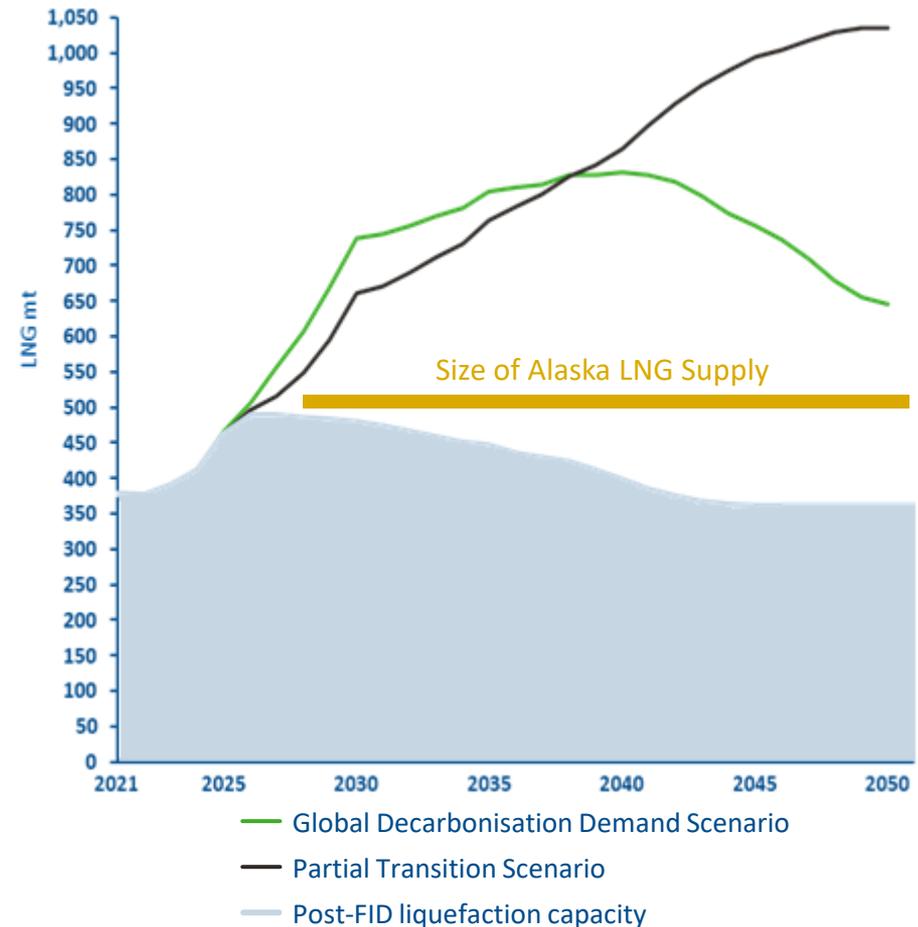
LNG is in High Demand

- 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

Energy Security – Global



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

Global Coal Consumption On Track To Hit An All-Time High

By [Tsvetana Paraskova](#) - Dec 16, 2022, 3:12 AM CST

- ▶ The International Energy Agency expects coal consumption to hit an all-time high this year, breaking 8 billion tons for the first time ever.
- ▶ Soaring natural gas prices have been the key factor pushing coal demand higher, with coal consumption set to rise by 1.2% this year.
- ▶ The IEA maintains that the current energy crisis and Russia's war in Ukraine will accelerate the transition away from fossil fuels.

Coal Consumption by Country

#	Country	Yearly Coal Consumption (MMcf)	World Share	Cubic Feet Per Capita
1	China	4,319,921,826,000	50.5 %	3,055.00
2	India	966,288,692,600	11.3 %	729.54
3	United States	731,071,000,000	8.5 %	2,263.27
4	Germany	257,488,592,900	3.0 %	3,132.70
5	Russia	230,392,143,100	2.7 %	1,585.90
6	Japan	210,559,949,300	2.5 %	1,648.05
7	South Africa	202,298,474,200	2.4 %	3,599.13
8	South Korea	157,124,158,500	1.8 %	3,081.87
9	Poland	148,799,901,400	1.7 %	3,916.90
10	Australia	129,642,679,100	1.5 %	5,343.29

Japan Is Bringing Back Nuclear Power To Protect Its Energy Security

By [Tsvetana Paraskova](#) - Dec 16, 2022, 10:30 AM CST



Japan is bringing back nuclear power as a key energy source, looking to protect its energy security in the crisis that has led to surging fossil fuel prices.

The Japanese government [confirmed](#) on Friday a new policy for nuclear energy, which the country had mostly abandoned since the Fukushima disaster in 2011.

- Cook Inlet gas supply is uncertain
- Potential for import of LNG is being evaluated by ENSTAR and Chugach Electric
- Railbelt Utilities 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

ANCHORAGE DAILY NEWS

Energy

Hilcorp warns Alaska utilities about uncertain Cook Inlet natural gas supplies

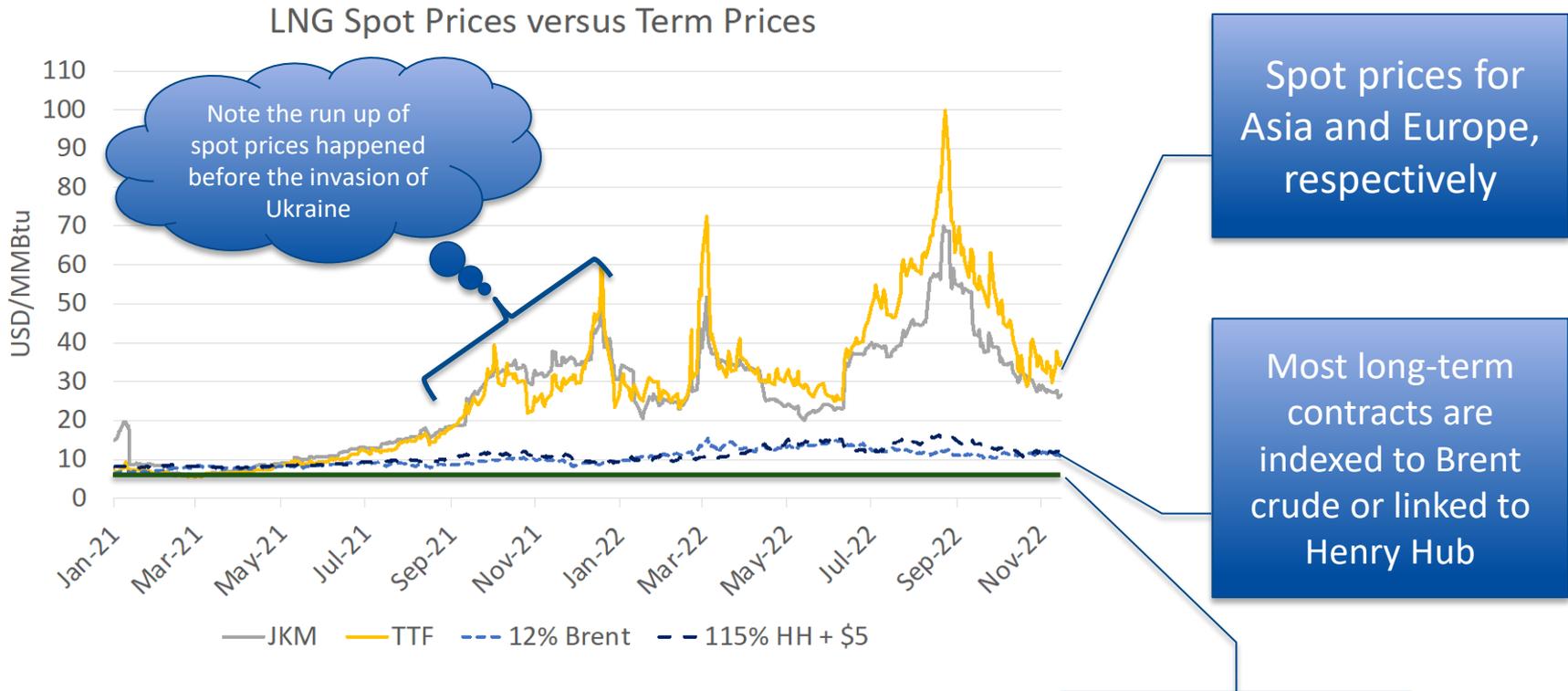
By Alex DeMarban
Updated: May 17, 2022
Published: May 17, 2022



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.

Competitive Cost of Supply



- Alaska LNG will be sold at market prices, not cost of supply
- Market prices for long-term contracts have increased with Brent and Henry Hub prices
- This increase provides additional upside to the project economics

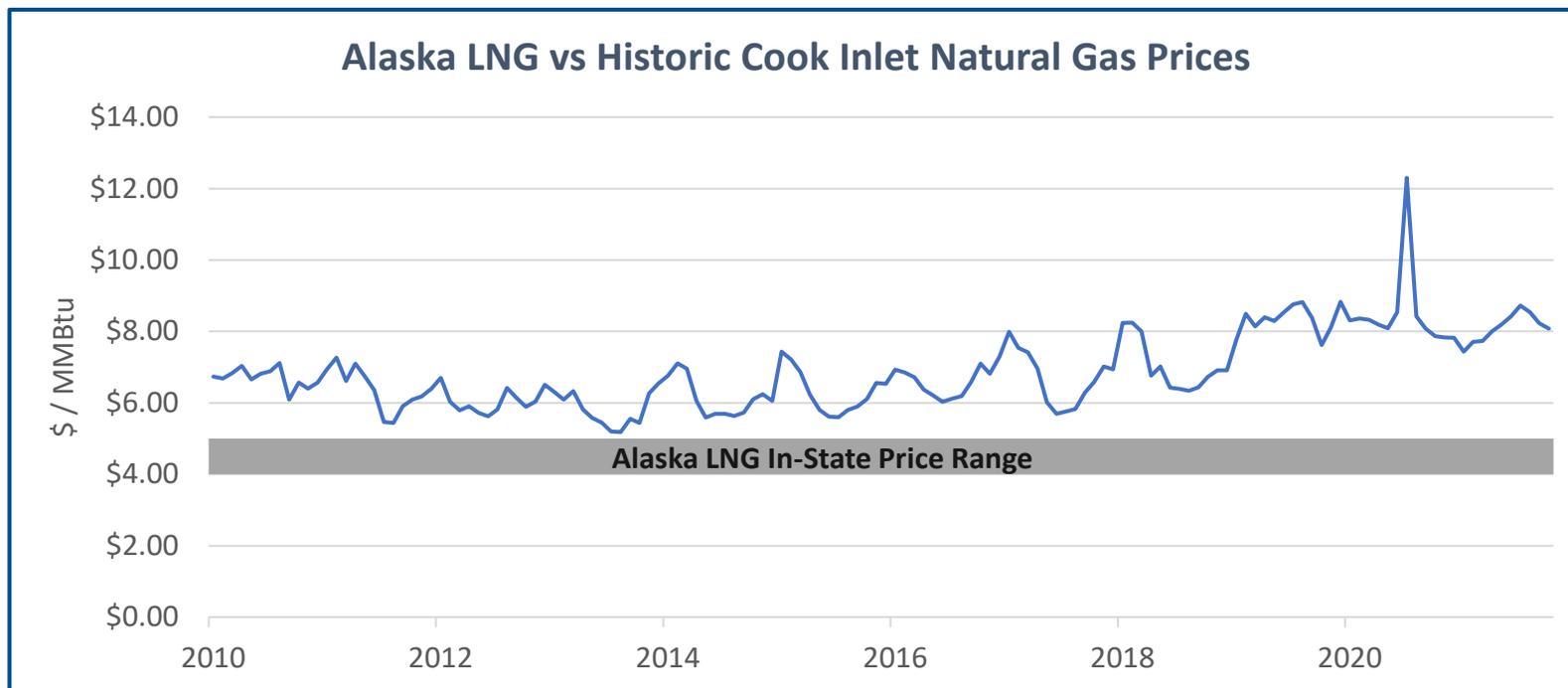
Lower Cost Energy for Alaskans

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

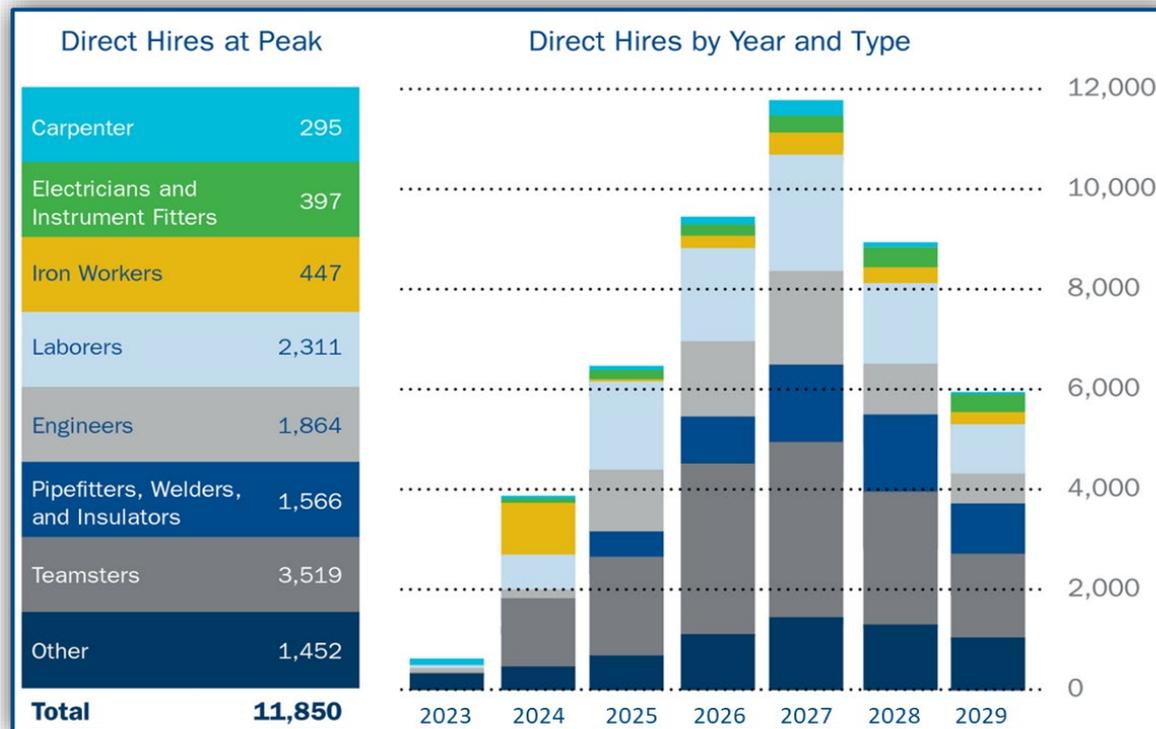
- The pipeline is designed to supply more natural gas than the LNG plant needs
- Enough capacity for in-state demand to more than double



Source: EIA

The Alaska LNG Project Creates Jobs

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



- Required by Alaska Statute 37.05.610.
- The purpose is to provide a source of funds for appropriation to develop infrastructure to deliver **energy** to areas of the state that do not have direct access to the Alaska LNG pipeline.
- The Alaska Affordable Energy Fund is to receive an annual deposit of 20% of state revenue after paying into the Permanent Fund.

Major Permits and Approvals

Completed

- Federal Energy Regulatory Commission (FERC) Environmental Impact Statement (EIS) and Order
- Major federal permits and authorizations
- Land rights-of-way (ROW): about 93% of Project area
- Approved Cultural Resources Management Plan
- Gas Treatment Plant Air Permit
- Liquefaction Facility Air Permit

ALASKA LNG		Permits and Authorizations	
Permit/Authorization	Date Obtained	Complete	
Presidential Finding Concerning Alaska Natural Gas – President Reagan	1/12/1988	✓	
Alaska Department of Environmental Conservation – Gas Treatment Plant Air Permit	8/13/2020	✓	
Alaska Department of Environmental Conservation – Liquefaction Facility Air Permit	7/7/2022	✓	
Alaska Department of Environmental Conservation – Section 401 Water Quality Certification	6/19/2020	✓	
Alaska Department of Natural Resources Leases	4/13/2021	✓	
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	✓	

- Department of Energy (DOE) DRAFT Supplemental EIS (SEIS) was issued on June 24, 2022
- Response to Sierra Club Petition
- Key findings
 - The Prudhoe Bay Unit and Point Thomson Unit have sufficient gas to supply the project for the 30-year term
 - All of the potential resource impacts were *Negligible, Less-than-Significant, or Beneficial (no Adverse or Significant)*, which is strikingly positive for an EIS
 - Exporting Alaska LNG would not increase greenhouse gas (GHG) emissions in comparison to ‘business as usual’ production on the North Slope
 - Alaska LNG has lower GHG emissions than Gulf Coast LNG
- Comment period was from July 1 – August 15, 2022
- January 13, 2023 – Final SEIS due
- March 30, 2023 – Record of Decision and Final Order due

- 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
 - 1 University
 - 3 Non-governmental organizations

Public Outreach

- Started in 2014 with scoping and pre-filing meetings
 - Gathered information on topics of concern and interest to Alaska communities
- Over 130 public or open house meetings/events
- Presentations to organizations and groups at their invitation

Board Meetings

- AGDC is a corporation established by the State of Alaska
- Board meetings are public
 - To date – more than 80 board meetings
 - Provide an opportunity for public input

EIS and Permits

- Federal Energy Regulatory Commission
 - Published comprehensive draft EIS in June of 2019
 - Comment period open until October of 2019
 - Utqiagvik, Trapper Creek, Anaktuvuk Pass, Kaktovik, Nuiqsut, Houston, Healy, Nikiski, Fairbanks, and Anchorage
- DOE SEIS
 - Published June 24, 2022
 - Comment period open until August 15
- Other permits and ROW approvals also had public comment opportunities

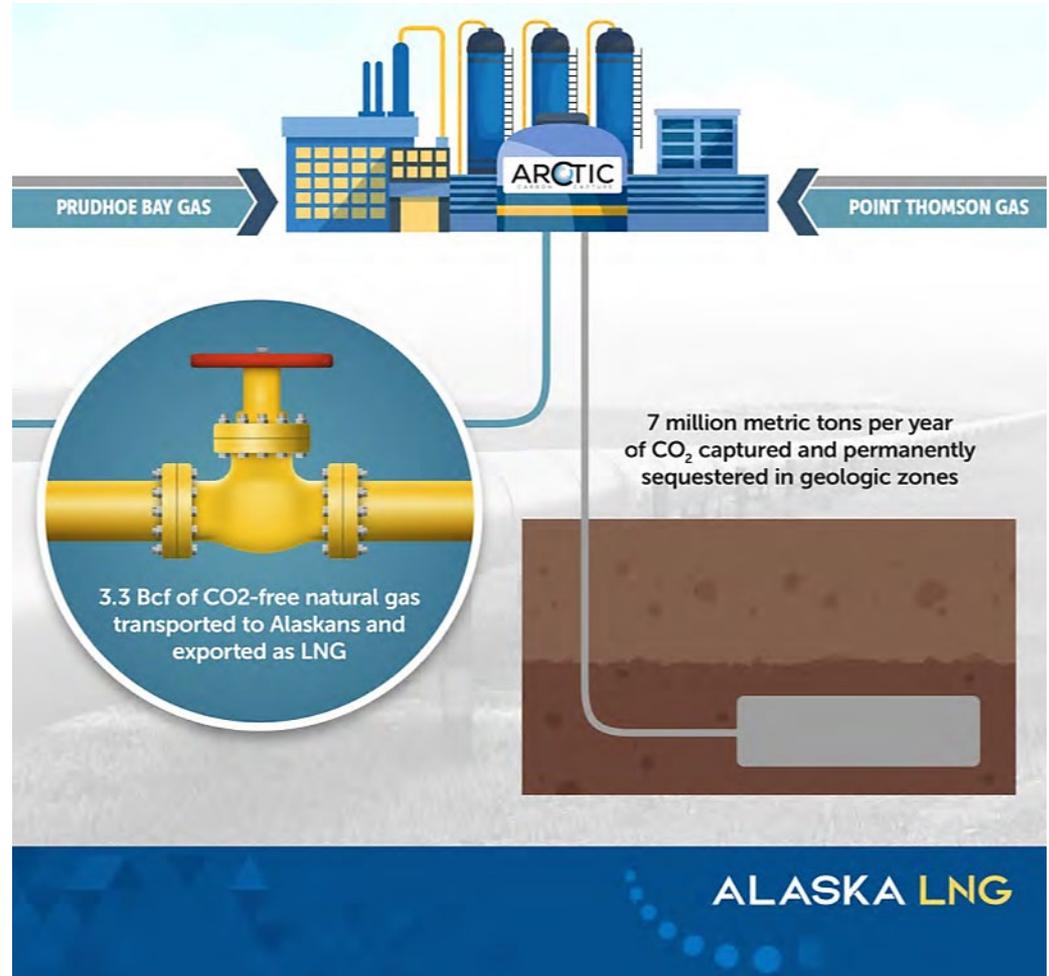
Engagement Opportunities are Ongoing

The Alaska LNG Project will:

- Maximize use of existing infrastructure
- Capture carbon on the North Slope
- Improve air quality in Fairbanks
- Contribute to global carbon reduction by replacing Asian coal
- Produce clean energy for future generations

Arctic Carbon Capture Plant

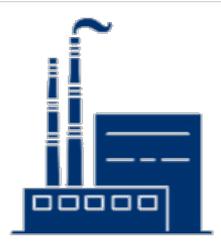
- Gas treatment located in the Prudhoe Bay Unit
- Fully permitted
- 7+ million tons of process CO₂ per year
- North Slope CO₂ utilization and/or storage
- DOE CO₂ capacity study
- Eligible for 45Q tax credits



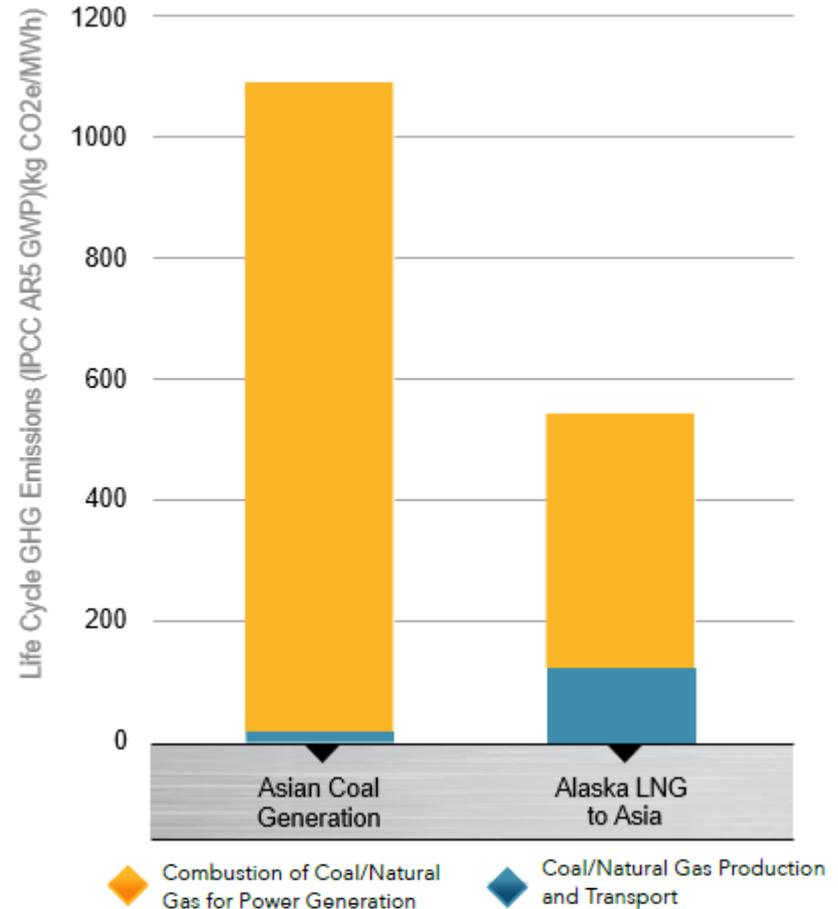
Greenhouse Gas Emissions

A lifecycle analysis of Alaska LNG shows it reduces GHG emissions for electric power generation by more than 77 million MT of CO₂e per year in comparison to Asian coal-derived power

Alaska LNG will have the same GHG impact as:

Eliminating		19 Coal Power Plants
Constructing		16,000 Wind Turbines

Lifecycle GHG Emissions for Natural Gas vs. Coal Power



Source: Greenhouse Gas Lifecycle Assessment: Alaska LNG Project

Alaska Hydrogen Opportunity

Natural Gas is transported to Cook Inlet via Alaska Gasline

Hydrogen
Ammonia

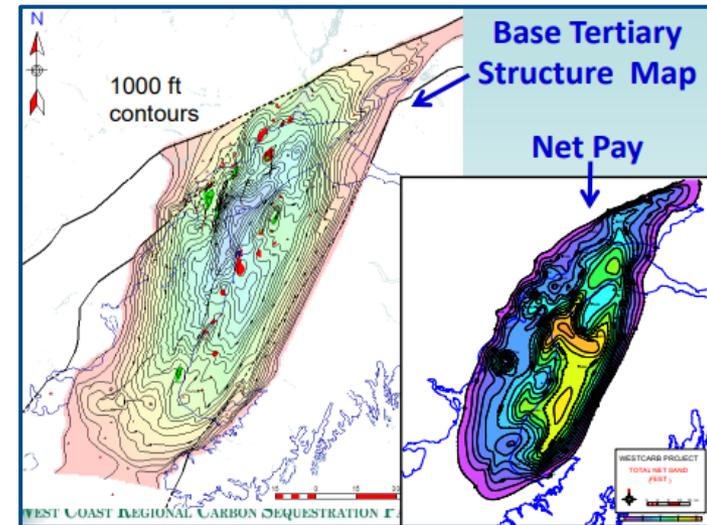
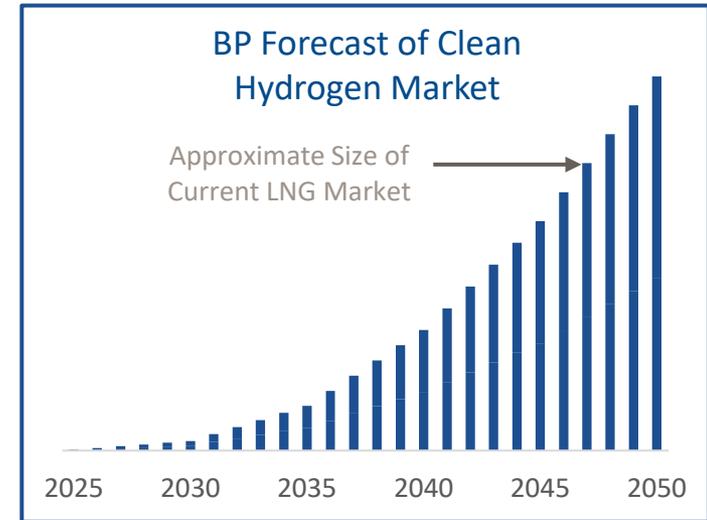
Natural Gas

Natural Gas is Converted to Hydrogen/Ammonia & CO₂

CO₂

- 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

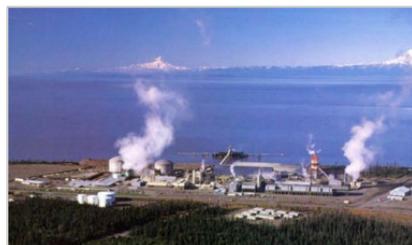


Source: West Coast Regional Carbon Sequestration Partnership

Japanese-Led Work Team



AGDC-led Alaska H2Hub



Transition to Private Developers

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

Discussion

AGDC.us

ALASKA
GASLINE
DEVELOPMENT CORP.

The logo for Alaska Gasline Development Corp. features the text "ALASKA GASLINE DEVELOPMENT CORP." in a blue, sans-serif font. To the right of the text is a stylized outline of the state of Alaska, composed of several blue stars of varying sizes arranged to form the state's shape. A single blue star is positioned above the main outline.