Alaska LNG Overview

Senate Resources Committee

April 6, 2022

ALASKA GASLINE DEVELOPMENT CORP.

Alaska LNG System

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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
- This gas is stranded and can be produced at a low incremental cost

Gas Treatment Plant

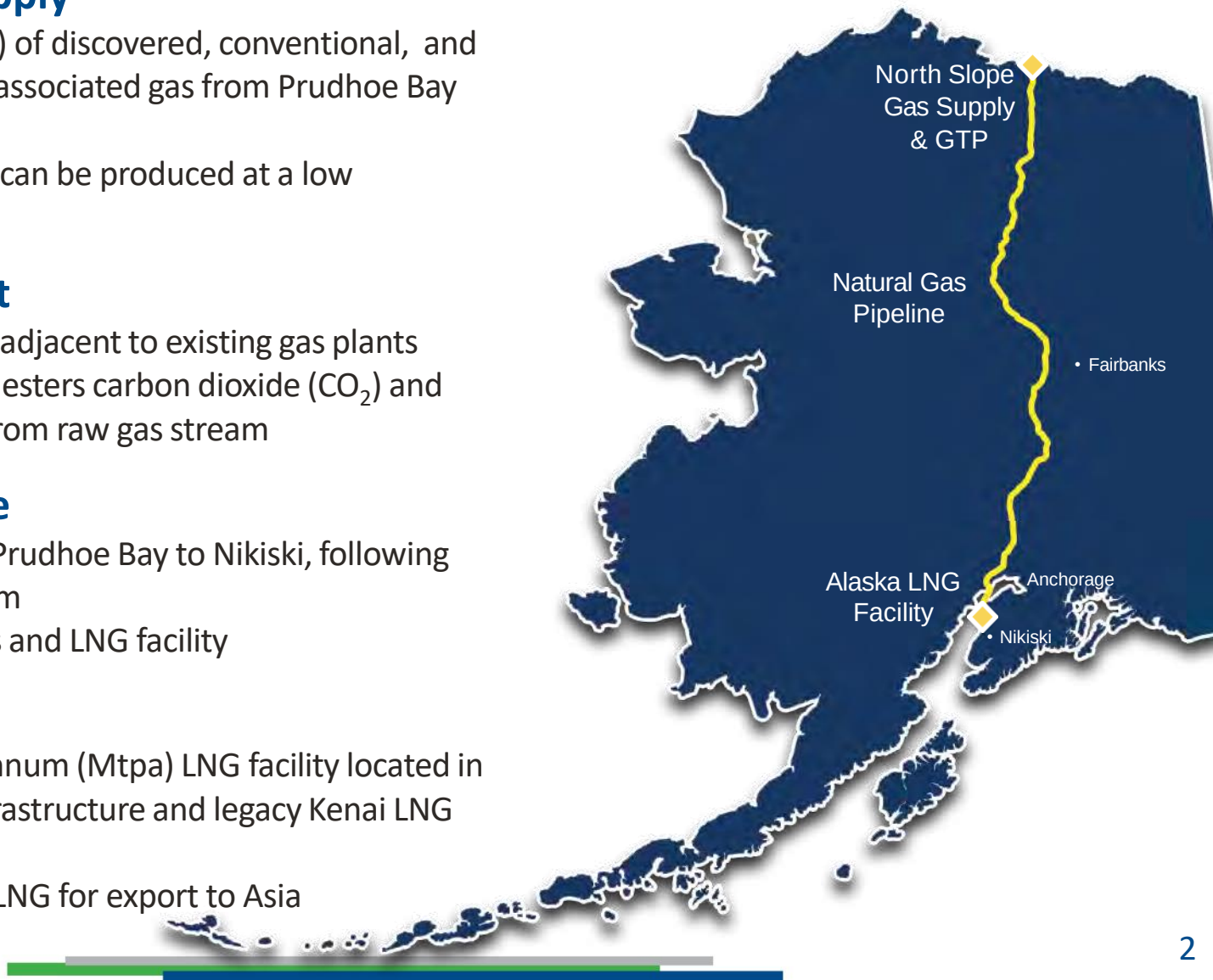
- Located in Prudhoe Bay adjacent to existing gas plants
- Removes and uses/sequesters carbon dioxide (CO_2) and hydrogen sulfide (H_2S) from raw gas stream

Natural Gas Pipeline

- 807-mile pipeline 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 located in Nikiski, near existing infrastructure and legacy Kenai LNG plant
- Converts natural gas to LNG for export to Asia



Alaska LNG Status

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Strong Economics

- Alaska LNG has lower costs than its key competitors
- Cost of supply independently verified

Fully Permitted

- Federal government has approved construction of Alaska LNG
- Acquiring permits took significant effort and they are valuable

Environmental Benefits

- Alaska LNG will reduce global greenhouse gas emissions
- LNG will continue to be an important energy source

Strong LNG Market

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LNG Market is Still Growing

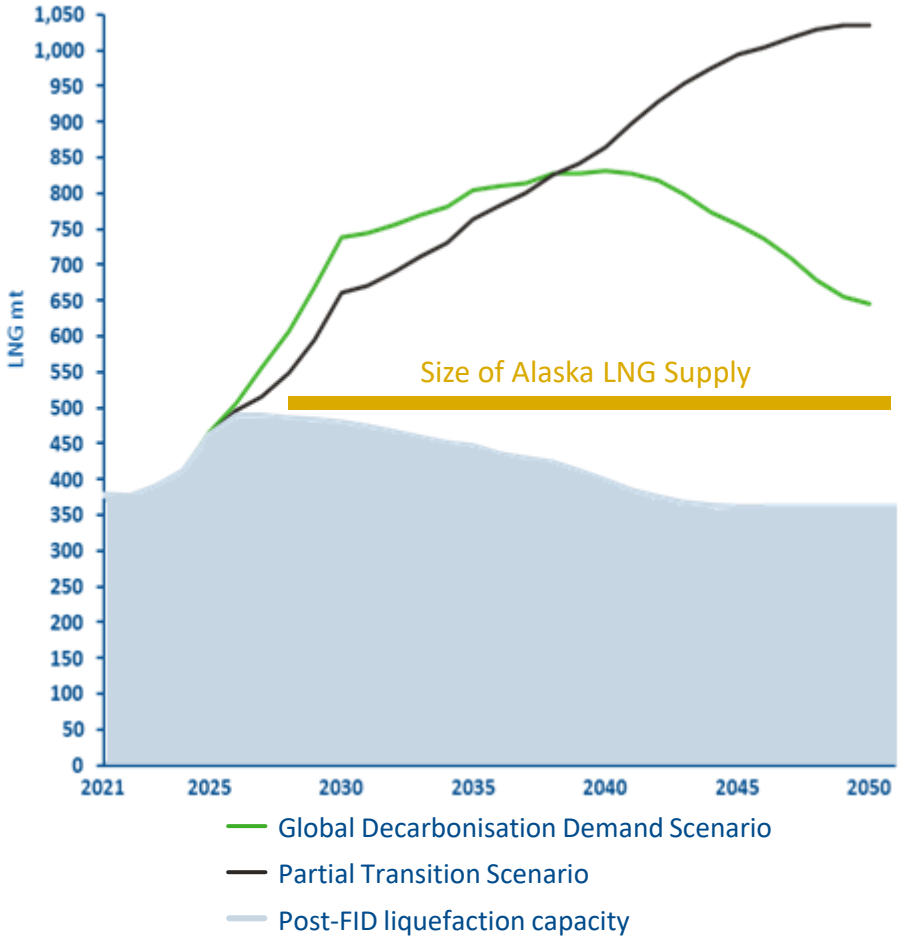
- Demand growth will outpace current and planned LNG capacity
- LNG growth expected as part of energy transition as natural gas emits half the greenhouse gasses as coal

Investors and Buyers want LNG

- New LNG projects expected to be sanctioned in 2022
- Most new projects have some degree of energy transition planning

> "…raising capital for these very capital-intensive [LNG] projects has not really been that much of a challenge to the industry. I think that sends a strong signal of confidence that this [LNG] is going to be around for a while."
>
> -Dan Brouillette, President of Sempra Infrastructure on NPR's Marketplace (Jan 3, 2022)

Global LNG Supply/Demand Balance Forecast, 2021-2050



Source: Gas Strategies

Future Asia Energy Security

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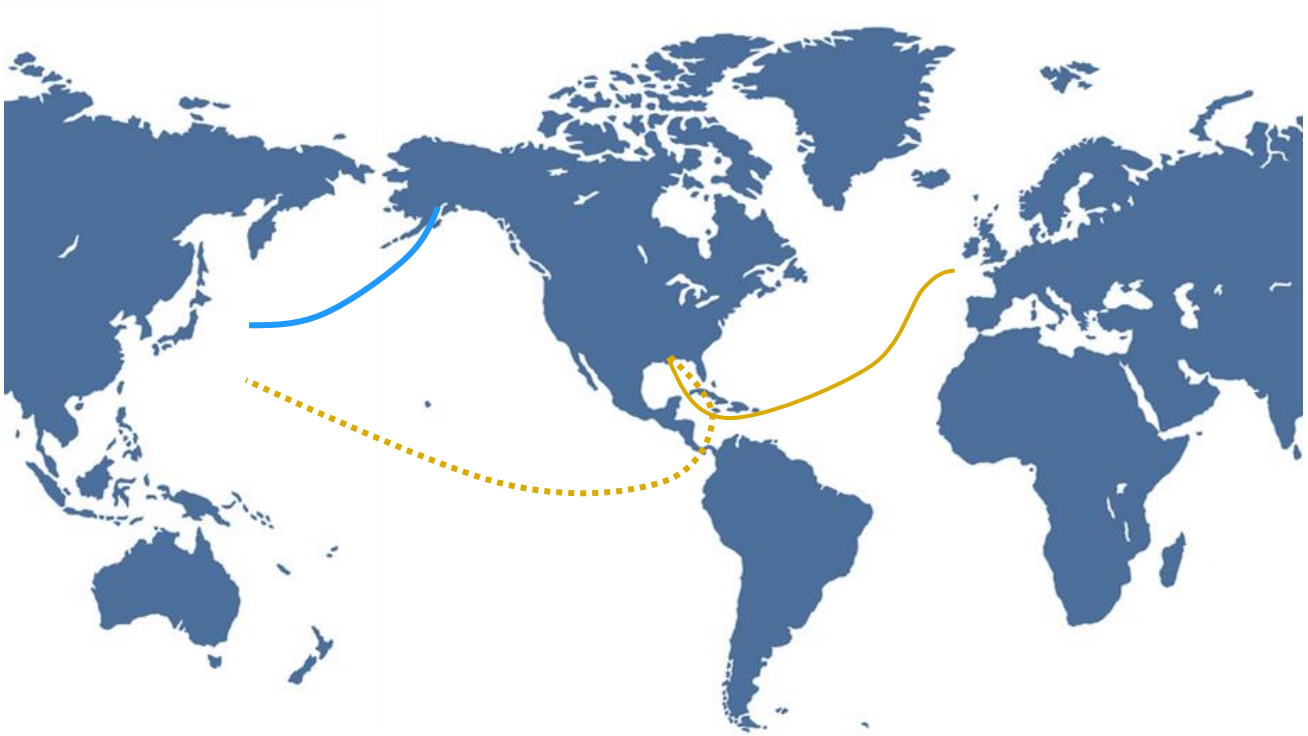

- As a result of the war in Ukraine, the US LNG destined for Asia has been diverted to Europe.
- Europe is rapidly building new LNG import capacity to reduce its dependence on Russian gas, new LNG from the Gulf Coast will meet this future demand
- This dynamic increases the need for US supply from Alaska to meet the long-term energy security needs of Asia

LNG Prices in Uncharted Territory

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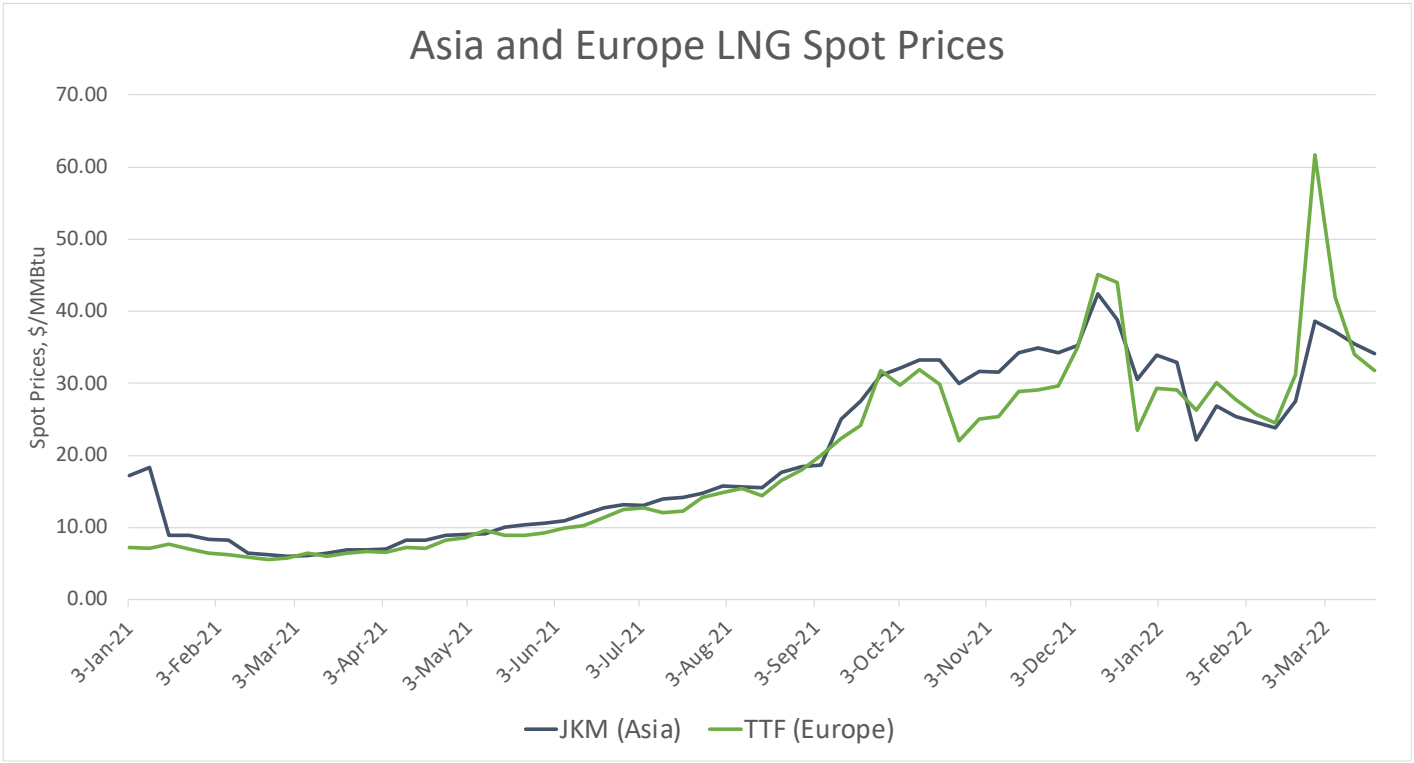
Fear of Cuts to Russian Gas Supply

- The push to shift LNG to Europe drove LNG spot prices higher
- On March 7, LNG into Europe was trading at over $70/MMBtu (over $400/bbl oil equivalent)
- Prices remain above $30/MMBtu ($170/bbl oil equivalent)
- This is driving buyers back to the long-term contracts needed to underpin Alaska LNG



Focus on US LNG for Energy Security

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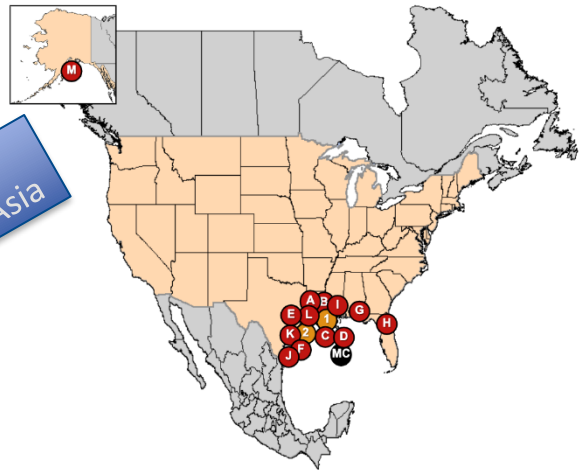
US LNG Can Replace All Russia Gas to Europe

- 15 Billion cubic feet/day (Bcfd) of gas delivered from Russia to Europe

But It Will Take Time

- 3.7 Bcfd of LNG is under construction in the Gulf Coast
- Another 24.9 Bcfd is permitted for construction in the Gulf Coast
- Alaska, at 2.63 Bcfd is the only Pacific Basin project permitted for construction

North American LNG Export Terminals
Approved, Not Yet Built



U.S. Jurisdiction & Status
- FERC - Approved, Under Construction
- FERC - Approved, Not Under Construction
- MARAD / U.S. Coast Guard

Export Terminals

UNITED STATES

FERC – APPROVED, UNDER CONSTRUCTION
1. **Cameron Parish, LA:** 1.41 Bcfd (Venture Global Calcasieu Pass) (CP15-550)
2. **Sabine Pass, TX:** 2.26 Bcfd (ExxonMobil – Golden Pass) (CP14-517, CP20-459)

FERC – APPROVED, NOT UNDER CONSTRUCTION
- **A. Lake Charles, LA:** 2.2 Bcfd (Lake Charles LNG) (CP14-120)
- **B. Lake Charles, LA:** 1.186 Bcfd (Magnolia LNG) (CP14-347)
- **C. Hackberry, LA:** 1.41 Bcfd (Sempra - Cameron LNG Trains 4 & 5) (CP15-560)
- **D. Calcasieu Parish, LA:** 4.0 Bcfd (Driftwood LNG) (CP17-117)
- **E. Port Arthur, TX:** 1.86 Bcfd (Port Arthur LNG Trains 1 & 2) (CP17-20)
- **F. Freeport, TX:** 0.72 Bcfd (Freeport LNG Dev Train 4) (CP17-470)
- **G. Pascagoula, MS:** 1.5 Bcfd (Gulf LNG Liquefaction) (CP15-521)
- **H. Jacksonville, FL:** 0.132 Bcf/d (Eagle LNG Partners) (CP17-41)
- **I. Plaquemines Parish, LA:** 3.40 Bcfd (Venture Global Plaquemines) (CP17-66)
- **J. Brownsville, TX:** 0.55 Bcfd (Texas LNG Brownsville) (CP16-116)
- **K. Brownsville, TX:** 3.6 Bcfd (Rio Grande LNG – NextDecade) (CP16-454)
- **L. Corpus Christi, TX:** 1.86 Bcfd (Cheniere Corpus Christi Stage III) (CP18-512)
- **M. Nikiski, AK:** 2.63 Bcfd (Alaska Gasline) (CP17-178)

MARAD/USCG – APPROVED, NOT UNDER CONSTRUCTION
- **MC. Gulf of Mexico:** 1.8 Bcfd (Delfin LNG)

CANADA - LNG IMPORT AND PROPOSED EXPORT FACILITIES
https://www.nrcan.gc.ca/energy/natural-gas/5683

As of February 16, 2022

2.6 Bcfd (20 MTPA) to Asia

Up to 28.6 Bcfd (220 MTPA) to Europe

Market Impact on Alaska LNG

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Record high LNG prices

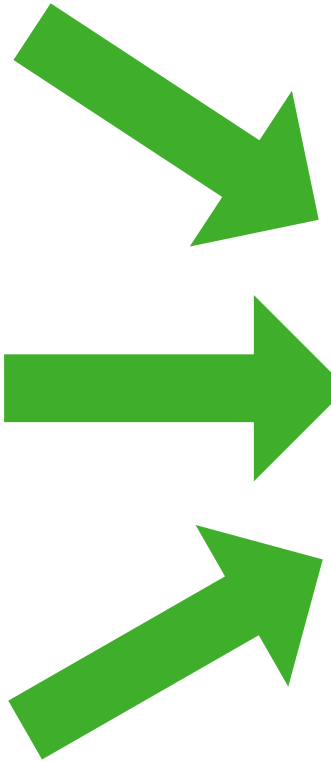
- Upward pressure on long-term contract price
- Highlights the need for new LNG capacity
- Buyers again seeking long-term contracts

Role of LNG in National Security

- Europe is still buying Russian gas as there is not enough US LNG
- Highlights LNG's stabilizing role in the Pacific

Natural Gas as Bridge Fuel

- Europe has recognized natural gas as transition fuel and 'green' energy
- Europe is switching back to coal due to lack of gas investment
- Buyers more willing to make long-term gas commitments



Impact on Alaska LNG

- LNG investors and developers have increased interest
- Increased strategic importance for the US and our Asian allies
- Overall increased interest and urgency to move project forward

Wood Mackenzie Cost of Supply

ALASKA GASLINE DEVELOPMENT CORP.

Wood Mackenzie Updated their 2016 Alaska LNG Competitiveness Analysis

- Wood Mac independently calculated Alaska LNG cost of supply
- AGDC implemented recommendations from the 2016 Report to reduce the Cost of Supply

Wood Mackenzie Report verifies that Alaska LNG Cost of Supply is now Competitive

- Transition from 100% equity funding to non-recourse project finance with a tolling model largest driver of cost reduction
- Since 2016 report, this sort of commercial model has been used to finance the growth of the US LNG industry

*Non-recourse funding is a type of commercial lending that entitle the lender to repayment only from the profits of the project and not from assets of the borrower.

2016 Report

2022 Update

Wood Mackenzie Cost of Supply

ALASKA GASLINE DEVELOPMENT CORP.

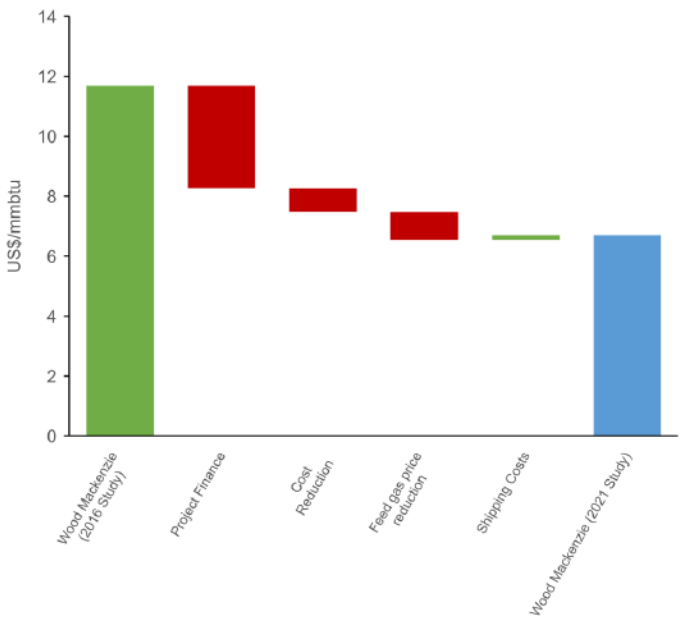
woodmac.com

CoS is now 43% lower vs. 2016 due to lower CAPEX and feedgas price, and the use of a non-recourse debt funded 3rd party tolling structure

Understanding the difference

- **Project Finance** - introduction of a non-recourse 70% debt-funded third-party tolling structure for the GTP, LNG Facility and Pipeline
- Total **Capital costs** have been reduced from US$45 billion to US$38.7 billion
  - GTP/Pipeline costs have been reduced from US$25 billion to US$21.8 billion
  - LNG Facility costs have been reduced from US$20 billion to US$16.8 billion
- **Feed gas prices** have been reduced from US$2.09/mmbtu to US$1.15/mmbtu
- **Shipping Costs** have increased from US$0.60/mmbtu to US$0.76/mmbtu

Breakeven cost of supply comparison



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Slide from 2022 Wood Mackenzie Alaska LNG Competitiveness Analysis

**COS = Cost of Supply*

**CAPEX = Capital Expenditures*

Wood Mackenzie Cost of Supply

ALASKA GASLINE DEVELOPMENT CORP.

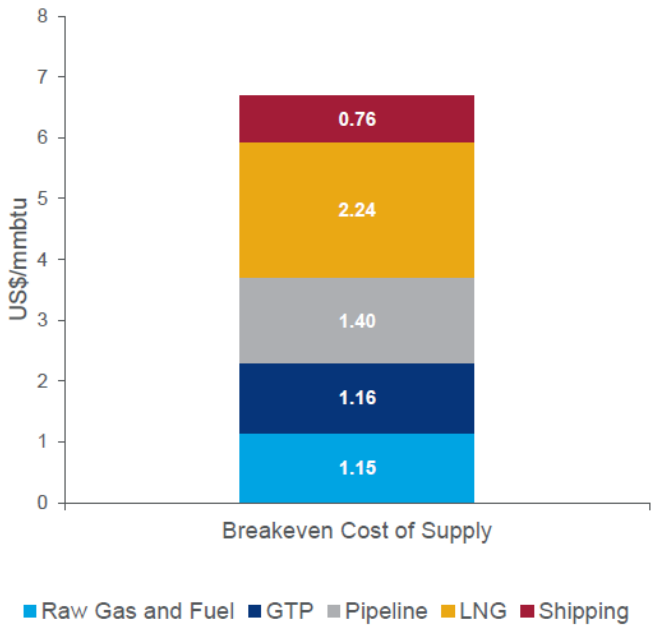
woodmac.com

The new optimized CoS is estimated to be ~US$6.7/mmbtu

Assumptions

- The following capital costs in our base case use data provided by AGDC
  - LNG Facility – US$16.8 billion
  - Pipeline – US$12.7 billion
  - GTP – US$9.2 billion
- The capex for the LNG facility, Pipeline and GTP have been financed with a 70:30 debt to equity ratio. Debt has an 18-year term at a 5% interest
- Raw gas purchased from Prudhoe Bay and Point Thomson for US$1.0/mmbtu* with no commodity price link. Assumed to escalate at 2% per year. Including fuel usage this is US$1.15/mmbtu
- Shipping Costs from Alaska to East Asia assumed at US$0.76/mmbtu, which is the average shipping costs of potential destinations in Japan, China, and Thailand
- Volumes of 3 bcf/d with ~13% used as fuel
- Domestic Market allocation: 300 mmcf/day

Breakeven cost of supply



Note: Capital costs are in 2019 real terms; Refer to Appendix for shipping costs; *Raw gas prices provided by AGDC and are subject to negotiation

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Slide from 2022 Wood Mackenzie Alaska LNG Competitiveness Analysis

** Mmbtu = one million British thermal units*

Wood Mackenzie Cost of Supply

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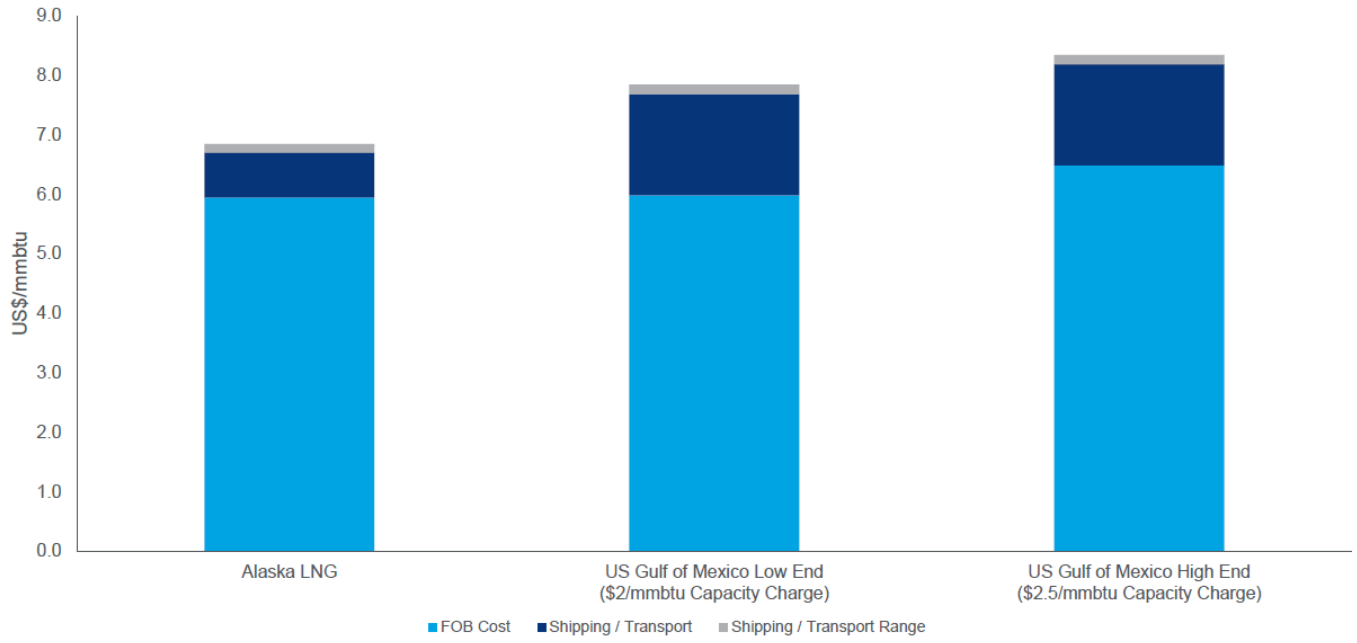
With the cost optimization and new debt structure, Alaska LNG is competitive against US Gulf Coast LNG Projects

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

Gas For Alaskans

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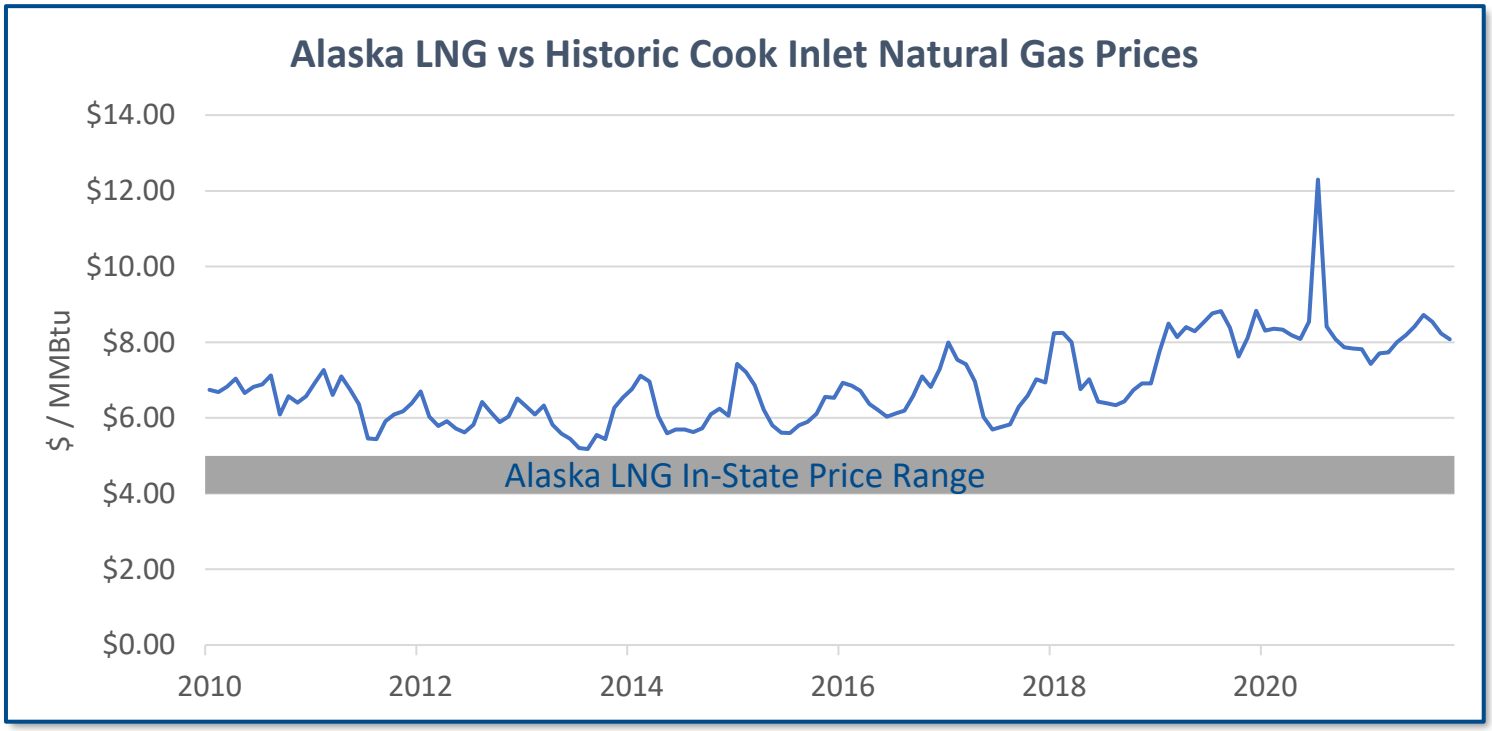
Low-Cost Gas for Alaskans

- 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

Enough 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

Alaska LNG vs Competitors

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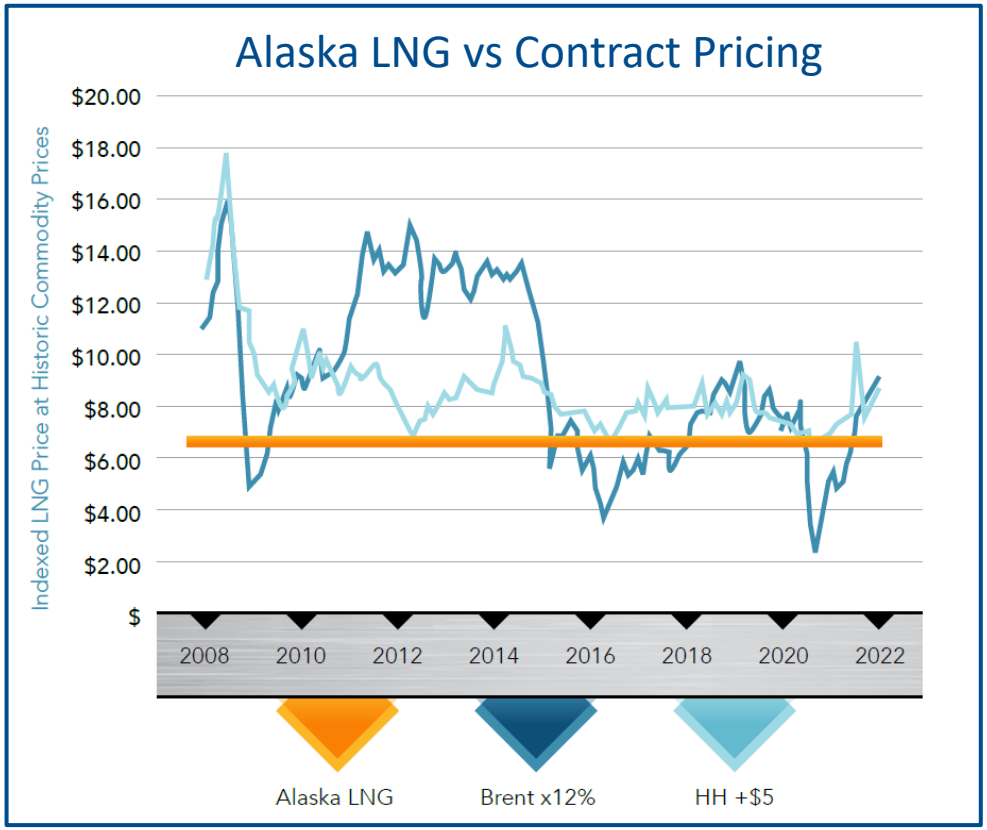
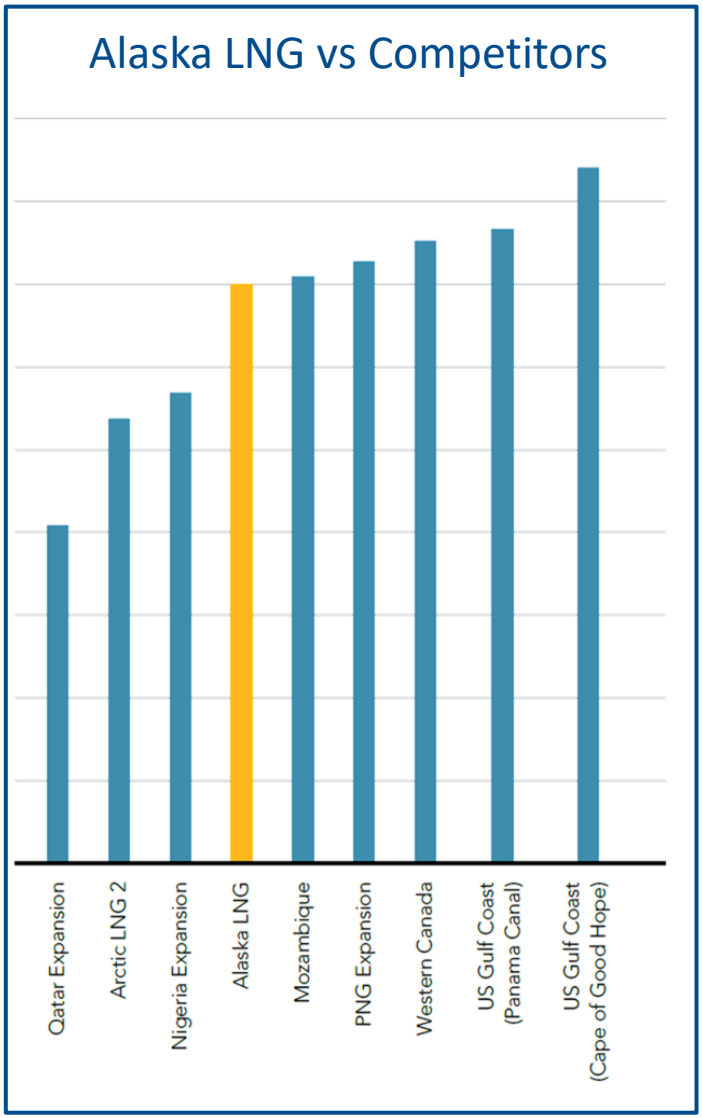
Cost of Supply: $6.70

- Alaska LNG's delivered cost of supply is lower than most global competitors and contract pricing
- The cost of supply is stable and increases at about 1% per year, providing buyers a predictable cost energy source.





Comparative Cost of Supply to Asia
Source: Gas Strategies

Federal Loan Guarantee

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The full faith and credit of the United States will be pledged to pay the principal and interest on $26.3 billion of Alaska LNG debt in the event of a default.

The Infrastructure Bill includes a loan guarantee for Alaska LNG

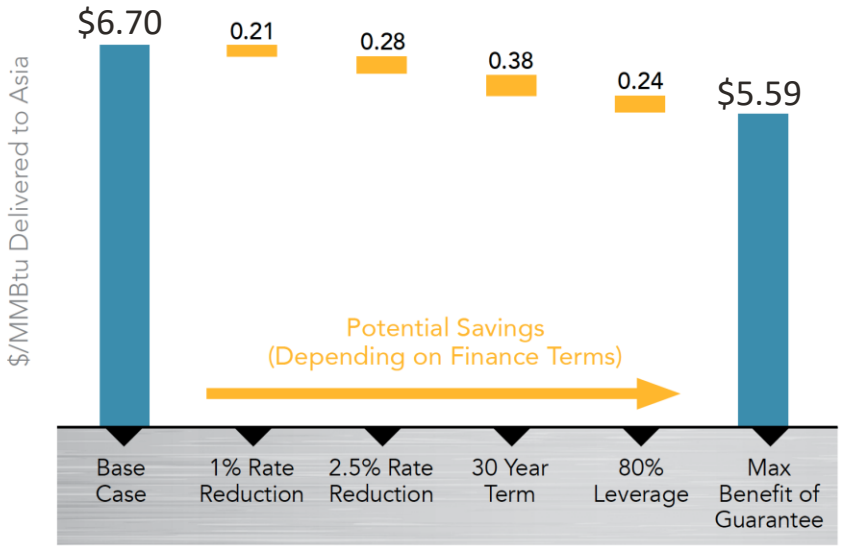
- Principle amount of debt guaranteed up to $26.3 billion (adjusted for inflation)
- Up to 80% of the capital cost
- Term of up to 30 years
- Loan guarantee will be subject to credit terms and requirements of the loan program

Benefits of the loan guarantee

- Reduced cost of supply
- Completion risk mitigation
- Federal government support and "skin in the game"

Reduced Cost of Supply

- Interest rate reduction of between 1 and 2.5%
- Potential for longer term debt
- Potential for higher debt/equity ratio



AGDC Analysis

Property Tax Benchmarking

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The property taxes that Alaska LNG would pay under current statute are 10 times higher than Alaska LNG's competitors.

Most of Alaska LNG is subject to 20 mill property tax

- Equates to almost $800 million per year – over 10x higher than other projects
- Equates to 10% of cost of supply
- The LNG plant may be subject to lower property tax rate but higher municipal taxes

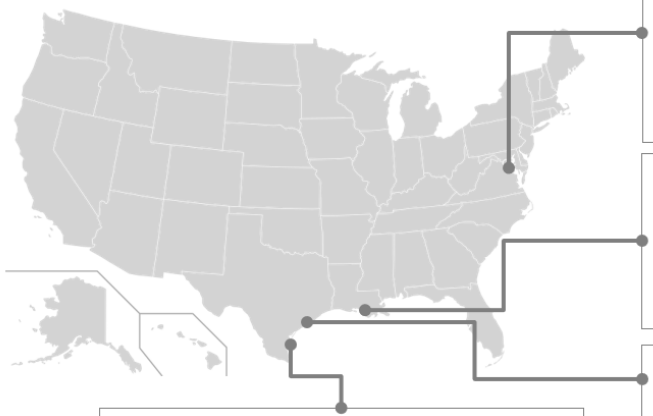
Property Tax Changes

- As contemplated in SB 138 (2013), changes to property taxes are expected prior to project sanction

US LNG Project Property Tax Regimes

USA

LNG projects have received property tax exemptions. Any Payments in Lieu of Tax (PILT) are typically low.



Cove Point
- 5 year PILT* (payment in lieu of tax)
  - $25 mln upfront payment
  - $15.1 mln p.a. on 'existing equipment'
  - $55 mln p.a. to Calvert County once operational
- 42% property tax relief for 9 years after 5 year PILT

Louisiana (Cameron, Sabine Pass)
- Louisiana has "Industrial Tax Exemption Program"
- Manufacturing facilities are exempt from property taxes for 10 years
- After 10 years, property value is highly depreciated so tax payments are then relatively small

Freeport
- Benefitting from "Chapter 313 agreement" , part of Texas Economic Development Act which gives tax breaks for major building investments
- Largest beneficiary in the Houston area ($514 mln)
- Reported to be a 10 year, 100% property tax break

Cheniere Corpus Christi
- 10 year property tax abatements
- PILT of $1 mln p.a. per train

*Note: PILT is often referred to as PILOT in states other than Alaska
Source: Subsidy Tracker, LNG World News, Houston Business Journal, Local County News

Transition to Private Developers

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Replacing the Producers with Infrastructure Developers is critical to improving project economics and continuing to move Alaska LNG forward.

2013-2016

Producer Led

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

2017-2022

State Led

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

2022 - onward

Developer Led

Handoff to infrastructure developers who require lower profits and lower risk – reduces the cost of the project and improves economics

Project Finance

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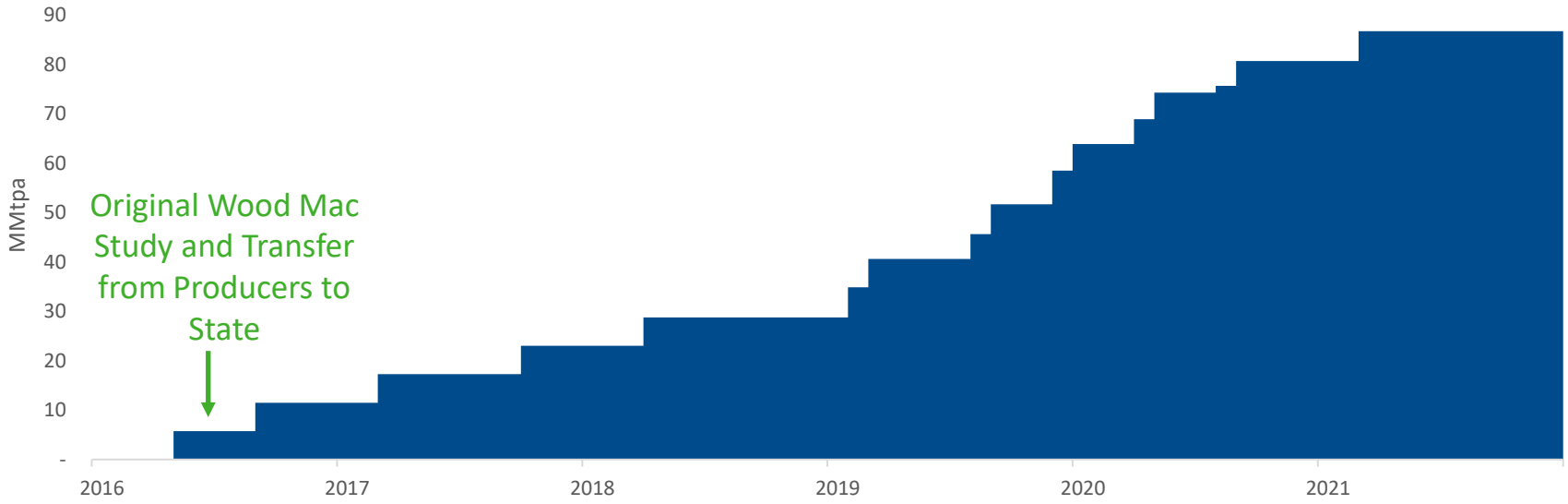
Non-recourse project financing under a tolling model was not widely used for LNG prior to 2016. Since, it has been used for almost all US LNG capacity.

Prior to 2016	• Virtually all LNG projects developed by oil and gas companies without true project financing • No tolling/capacity charge included in LNG price, LNG sold indexed to oil • No US LNG exports
After 2016	• The US LNG industry grows to nearly the largest LNG export in the world • All LNG plants built by developers with project finance model, not oil and gas companies* • LNG prices include tolling/capacity charge

US LNG Export Capacity Since 2016



*Golden Pass LNG is owned by Qatar Energy and ExxonMobil, currently under construction in Texas

Timeline

The next steps for Alaska LNG are focused on securing an LNG Lead Party and moving into a privately funded FEED. The next steps are organized in the following order with construction following.

Fully Permitted Project

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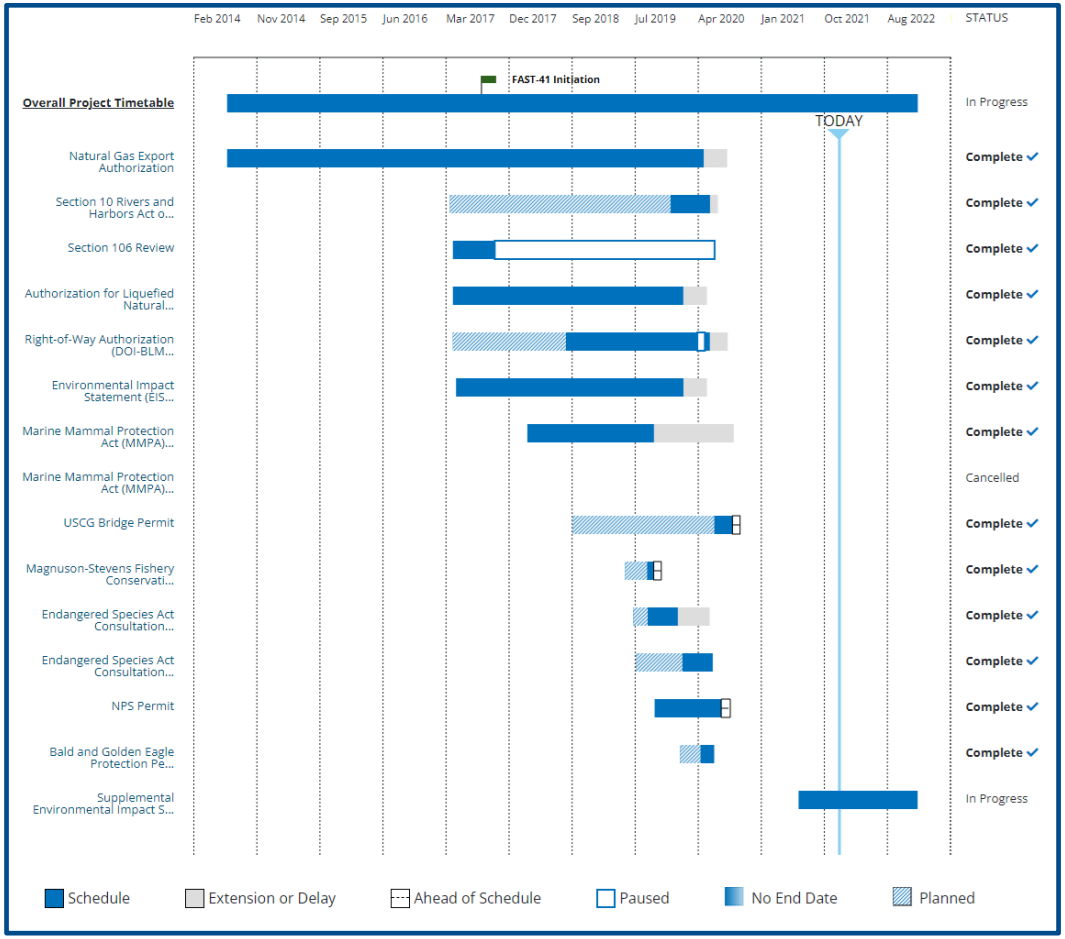
Completed

- Federal Energy Regulatory Commission (FERC) Authorization to Construct
- All 36 Major Federal permits & authorizations
- Federal ROWs: Bureau of Land Management, National Park Service
- Alaska State Land Leases and Gas Treatment Plant Air Permit

Supplemental EIS

- Upstream analysis of potential environmental impacts associated with natural gas production on the North Slope
- Lifecycle analysis calculating greenhouse gas emissions from the Alaska LNG Project

Permitting Timeline



Greenhouse Gas Emissions

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A life cycle analysis of Alaska LNG shows it reduces greenhouse gas emissions for electric power generation by more than 77 million metric tons of CO_2e per year in comparison to Asian coal derived power

Alaska LNG will have the same GHG impact as:

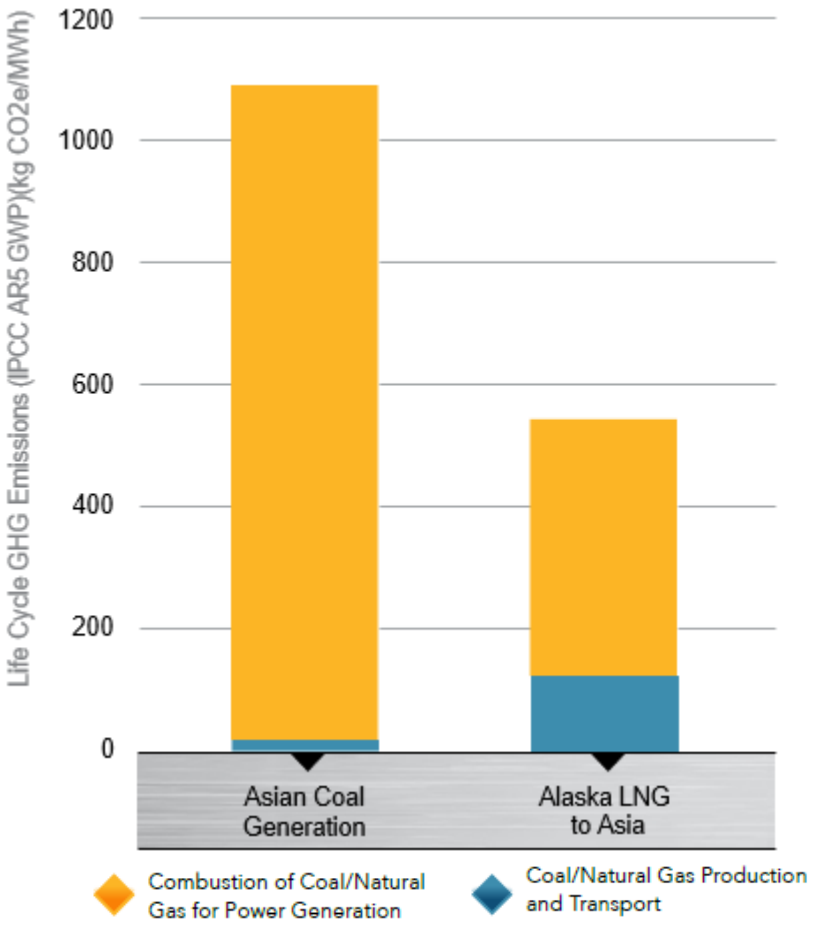
Eliminating

19 coal power plants

Constructing

16,000 Wind Turbines

Life Cycle GHG Emissions for Natural Gas vs. Coal Power



Source: Greenhouse Gas Lifecycle Assessment: Alaska LNG Project

Alaska Hydrogen Opportunity

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ALASKA Hydrogen Opportunity

50 years ago, the modern LNG industry was created in Alaska. For many of the same reasons, the clean hydrogen industry can also be created here in Alaska.

Carbon Storage and Sequestration at the Project Site at Tidewater

Short Distance to Expanding Clean Hydrogen Markets in Asia

Low GHG Natural Gas from Conventional Supply

Existing Ammonia Plant well Positioned to be First Mover in Market

Clean Hydrogen Overview

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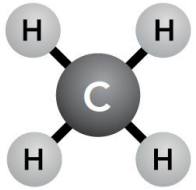
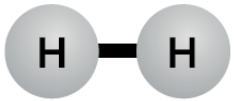
Natural Gas



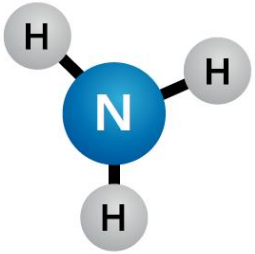
Methane hydrocarbon releases CO_2 when burned, somewhat difficult to store and transport

Hydrogen



Fuel releases no CO_2 when burned, very difficult to store and transport

Ammonia



Fuel releases no CO_2 when burned, somewhat easy to store and transport

Conversion of Natural Gas

- Natural gas can be converted into hydrogen and then into ammonia
- The existing Nutrien ammonia plant in Nikiski uses this process

CO_2 Sequestration

- The process to convert natural gas into hydrogen and ammonia produces CO_2
- If this CO_2 is captured and sequestered, the resulting "Blue Ammonia" is a clean fuel

Hydrogen vs Ammonia

- Both hydrogen and ammonia are "clean fuels" and do not emit CO_2 when burned
- Hydrogen is converted into ammonia to make storage and transportation easier
- Ammonia can be exported to Asia to meet their future clean energy demands

Hydrogen Feasibility Funding

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AGDC is working with partners on external funding to develop Alaska hydrogen opportunities

Potential funding sources include:

- Private North American energy companies
- Infrastructure bill funding:
  - $8 billion to be spent on 4+ Hydrogen Hubs
- Private Japanese energy companies
- Japanese state entities

Alaska LNG and Blue Ammonia

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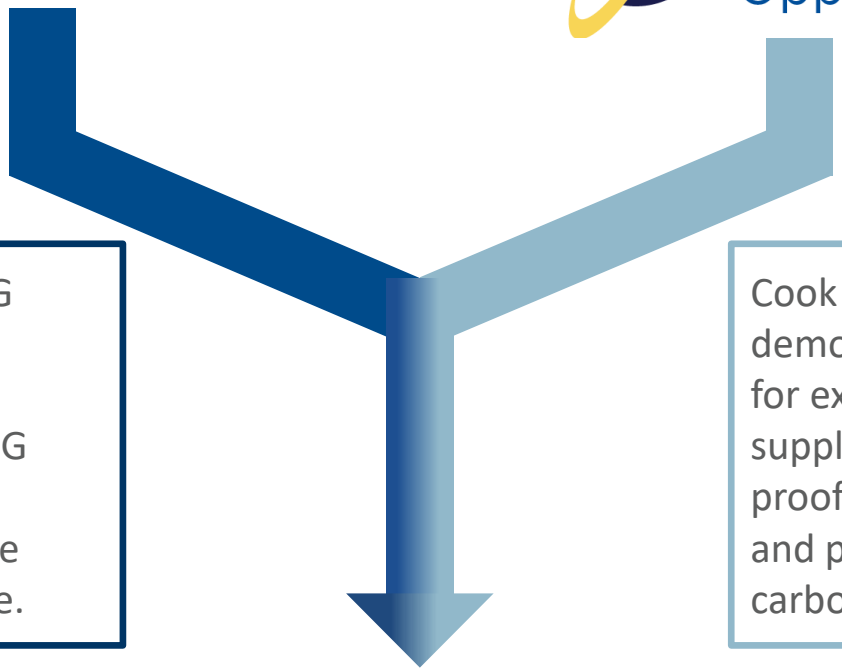
Alaska LNG and Cook Inlet Blue Ammonia are Complementary

ALASKA LNG

ALASKA Hydrogen Opportunity



The size of the current LNG market can support construction of a 20 Mtpa Alaska LNG facility. This LNG facility is large enough to support construction of the Alaska Natural Gas Pipeline.

Cook Inlet Blue Ammonia demonstrates the opportunity for expanded clean energy supply from Alaska. This future proofs Alaska LNG investment and provides a path to net-zero carbon energy from Alaska.

ALASKA LNG

Current Status

- ✓ Strong Economics
- ✓ Fully Permitted
- ✓ Environmental Benefits

Alaska Benefits

- ✓ Energy for Alaskans
- ✓ Jobs
- ✓ New Revenue

ALASKA
GASLINE
DEVELOPMENT CORP.