

# Alaska LNG Update

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# Alaska LNG System

## North Slope Gas Supply

- North Slope natural gas from Prudhoe Bay and Point Thomson
- Gas is stranded and can be produced at a low incremental cost.

## Gas Treatment Plant

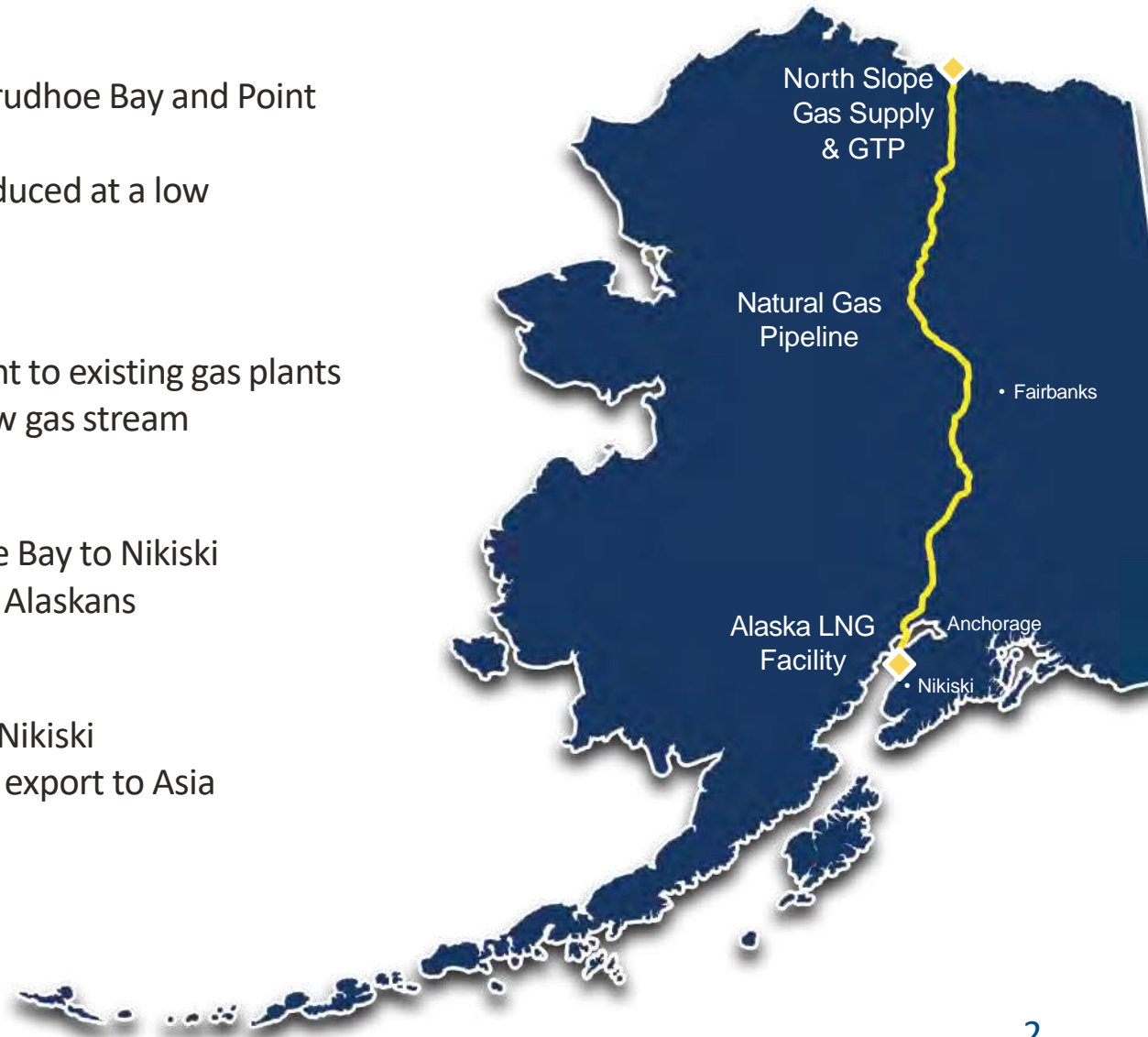
- Located in Prudhoe Bay adjacent to existing gas plants
- Removes CO<sub>2</sub> and H<sub>2</sub>S from raw gas stream

## Natural Gas Pipeline

- 807-mile pipeline from Prudhoe Bay to Nikiski
- Provides gas to LNG facility and Alaskans

## Alaska LNG Facility

- 20 Mtpa LNG facility located in Nikiski
- Converts natural gas to LNG for export to Asia



# Alaska LNG Status

## 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 through energy transition



# Wood Mackenzie Cost of Supply

## Wood Mackenzie Updated their 2016 Alaska LNG Competitiveness Analysis

- Wood Mac independently calculated Alaska LNG cost of supply
- AGDC took on the 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

### 2016 Report



### 2022 Update



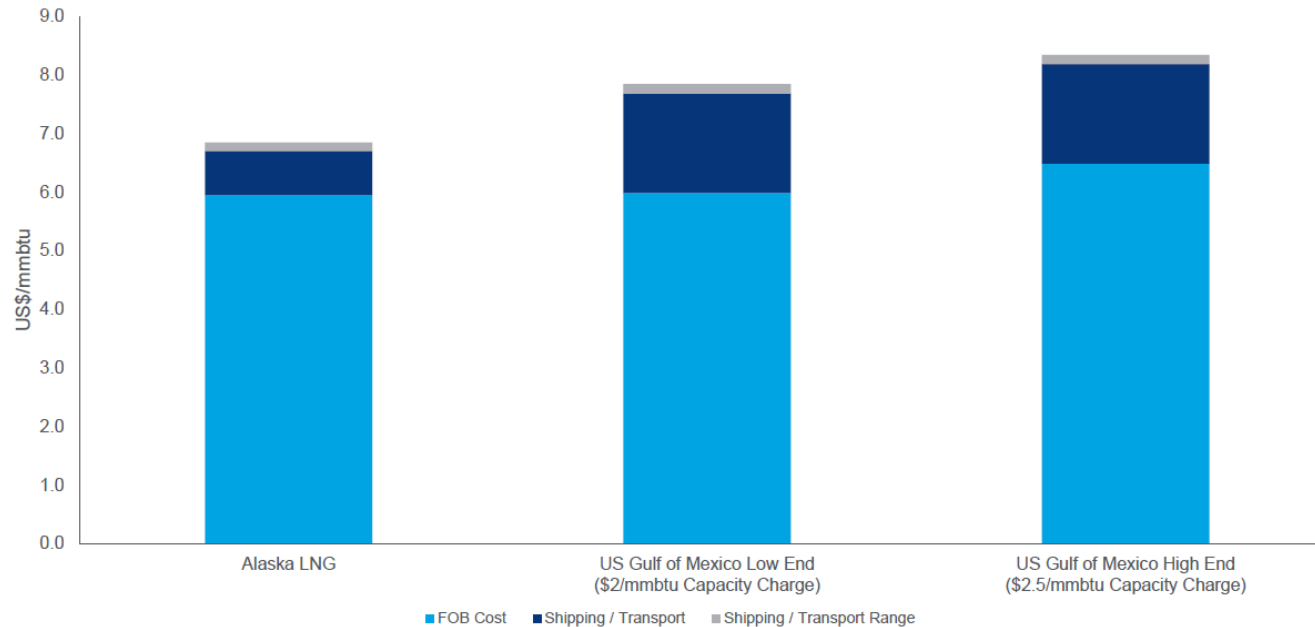
# Wood Mackenzie Cost of Supply

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

woodmac.com



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*



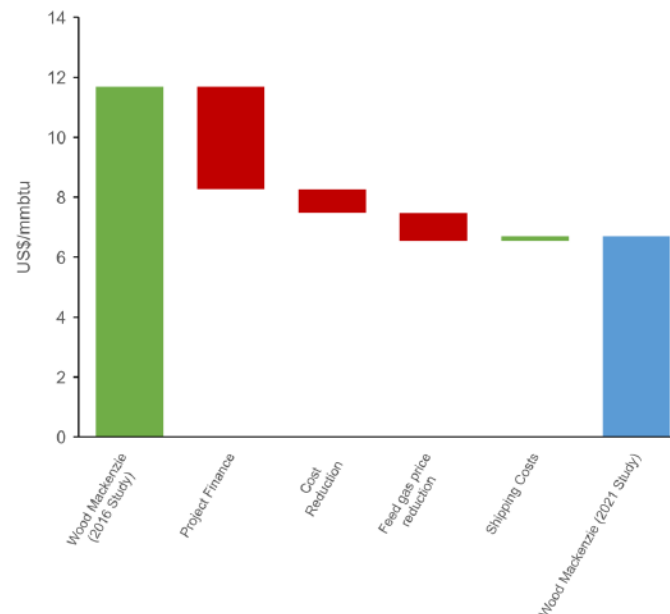
# Wood Mackenzie Cost of Supply

CoS is now 43% lower vs. 2016 due to lower CAPEX and feedgas price, and the use of a non-recourse debt funded 3<sup>rd</sup> 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



*Slide from 2022  
Wood Mackenzie  
Alaska LNG  
Competitiveness  
Analysis*

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.

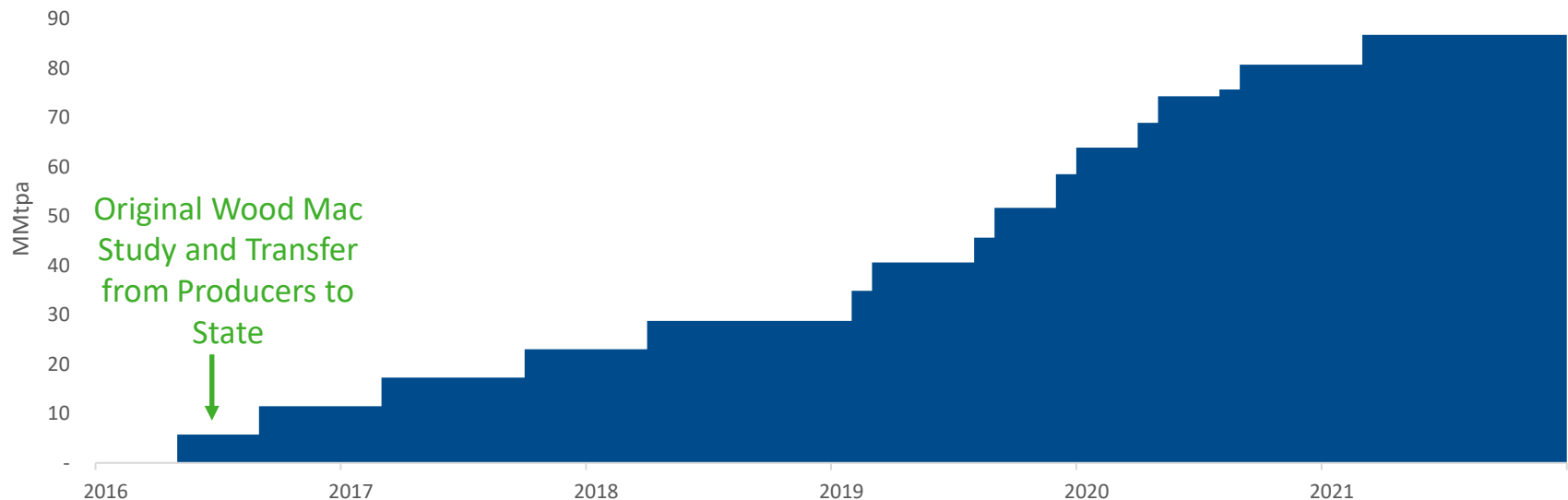
## Prior to 2016

- 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

# Federal Loan Guarantee

**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

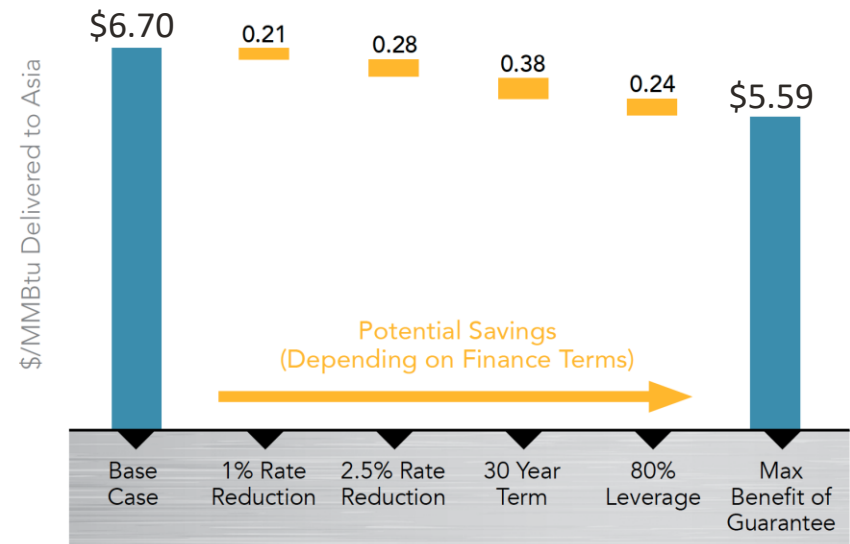
- Principle amount of debt guaranteed up to \$26.3 billion (adjusted for inflation)
- Up to 80% of the capital cost
- Term of up to 30 years
- Loan guarantee will be subject to credit terms and requirements of the loan program

## Benefits of the loan guarantee

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

### Reduced Cost of Supply

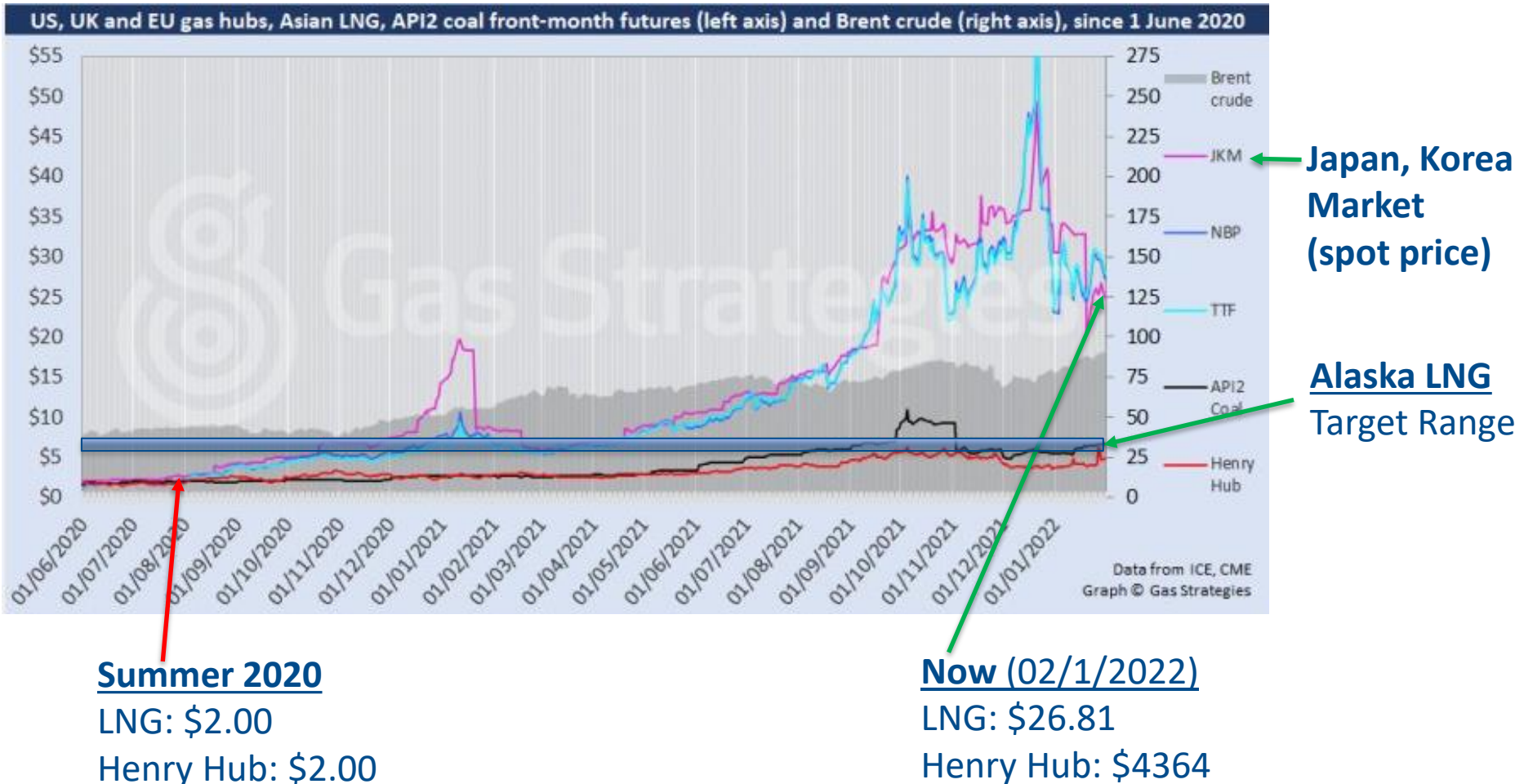
- Interest rate reduction of between 1 and 2.5%
- Potential for longer term debt
- Potential for higher debt/equity ratio





# The LNG Market Update

LNG and natural gas spot prices remain high and are expected to remain high for the foreseeable future. This creates an opportune environment to develop Alaska LNG.



# Strong LNG Market

## 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

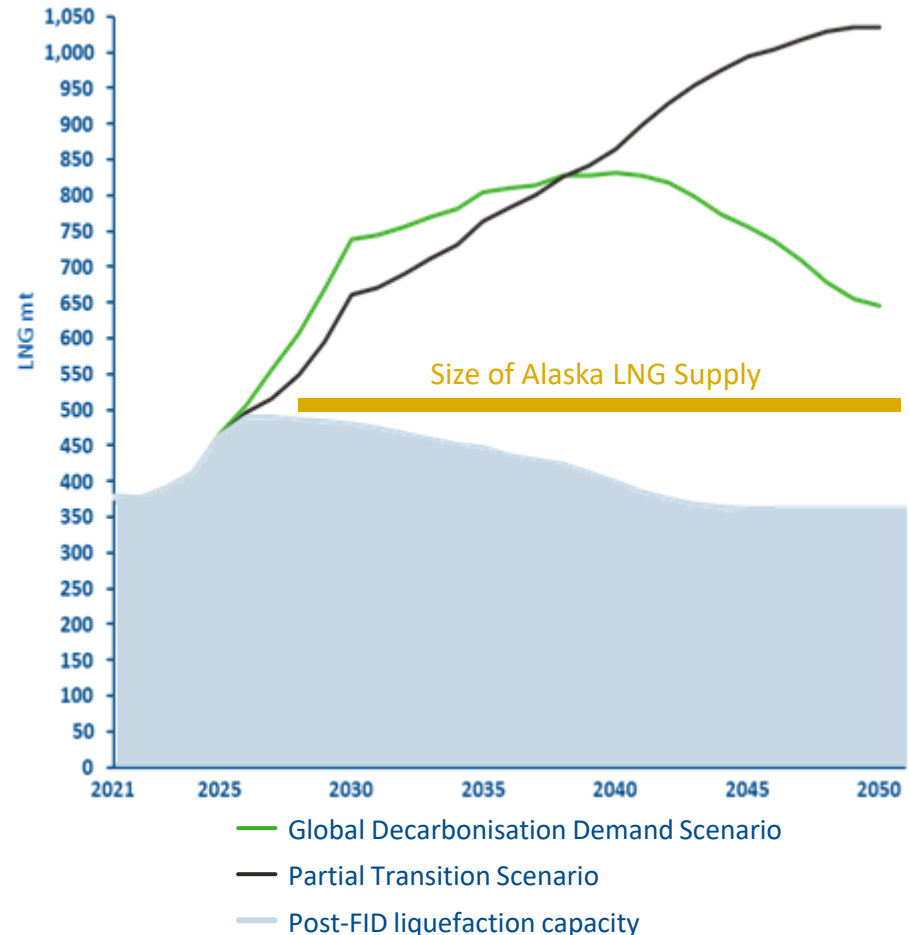
## Investors and Buyers want LNG

- 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

# Greenhouse Gas Emissions

A life cycle analysis of Alaska LNG shows it reduces greenhouse gas emissions for electric power generation by more than 77 million MT of CO<sub>2</sub>e per year in comparison to Asian coal derived power.

Alaska LNG will have the same GHG impact as:

Eliminating



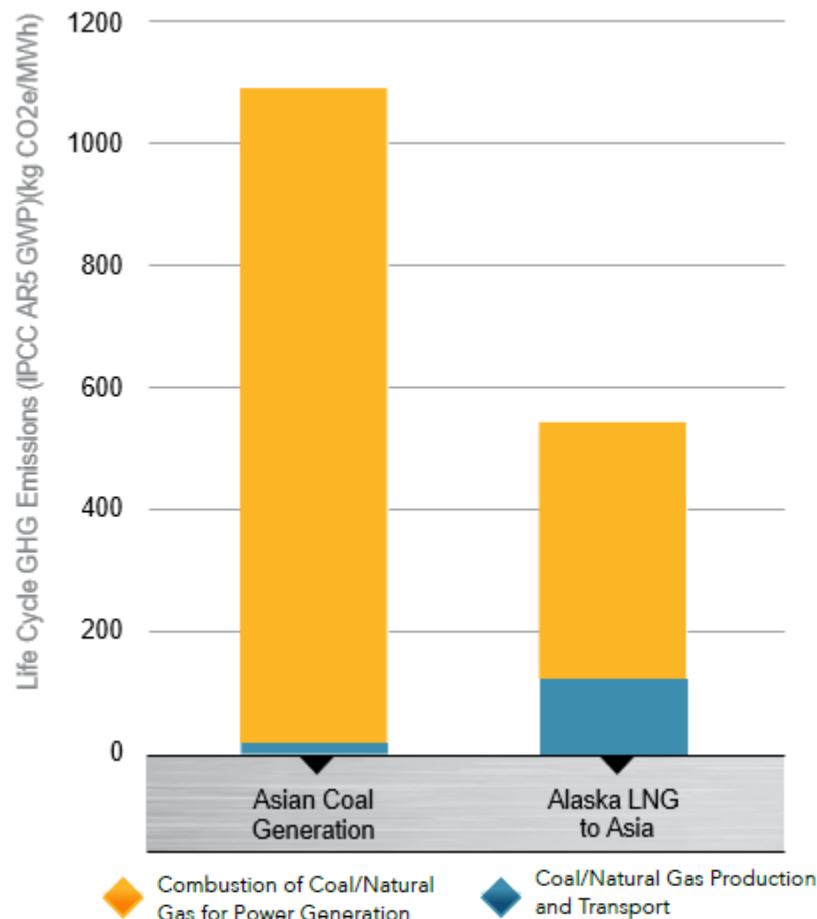
19 coal  
power  
plants

Constructing



16,000  
Wind  
Turbines

## Life Cycle GHG Emissions for Natural Gas vs. Coal Power



Source: Greenhouse Gas Lifecycle Assessment: Alaska LNG Project

# Transition to Private Developers

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

*2013-2016*

## **Producer Led**

Challenged because the producers do not like investing in large pipelines – they needed higher profits and accept more risk

*2017-2019*

## **State Led**

Challenged because AGDC does not have the expertise to construct and operate Alaska LNG

*2020 - onward*

## **Developer Led**

Promising because infrastructure developers require lower profits and lower risk – this reduces the cost of the project and improves economics

# Commercial Structure

The Alaska LNG commercial structure places qualified developers and operators in the specific roles they are best suited for.



North Slope producers  
sell natural gas at outlet  
of GTP



Proven private developers  
build and operate the  
pipeline and LNG plant



Asian LNG buyers  
purchase LNG under  
long-term contracts

## Key Benefits

Does not require North Slope  
producers to make large  
infrastructure investments

Infrastructure developers  
operate large-scale assets with  
financing secured by credit  
worthy LNG buyers

Low-cost LNG with stable  
pricing available from a source  
in the North Pacific is  
appealing to Asian Buyers

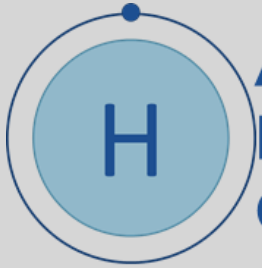
# Timeline

Alaska LNG is large and complicated. It will take time to develop as participants work to find alignment. Doing it right is more important than doing it fast.





# Alaska Hydrogen Opportunity



## 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.

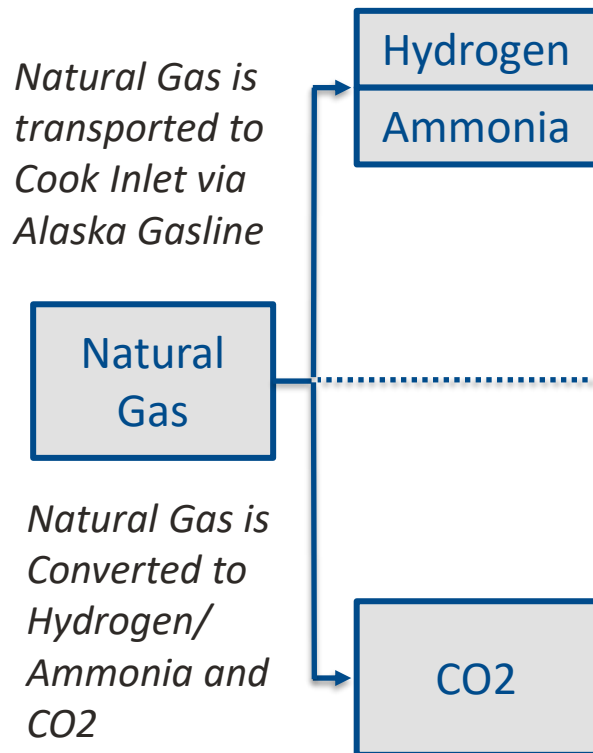
**Carbon Storage and  
Sequestration at the Project Site  
on Tidelwater**

**Short Distance to Growing Clean  
Hydrogen Markets in Asia**

**Low GHG Natural Gas from  
Conventional Supply**

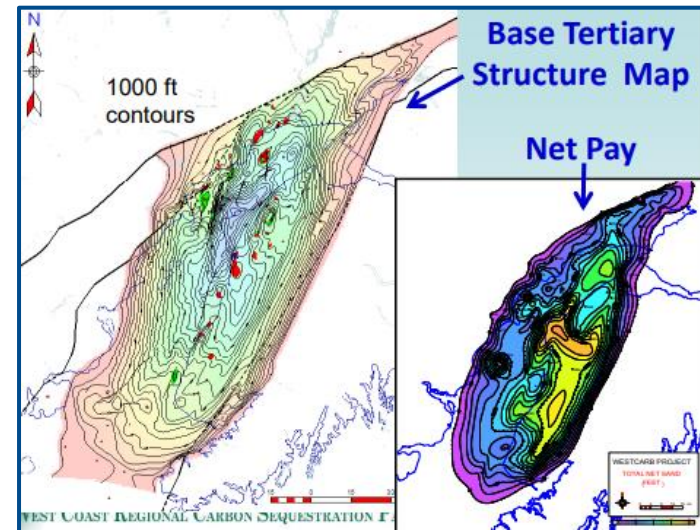
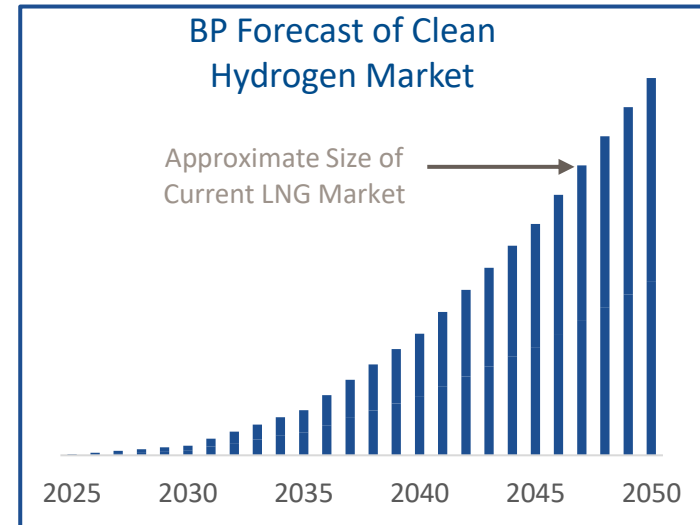
**Existing Ammonia Plant well  
Positioned to be First Mover in  
Market**

# Alaska Hydrogen Opportunity



- 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

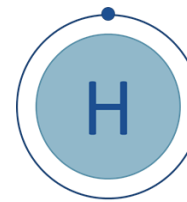


Source: West Coast Regional Carbon Sequestration Partnership

# Alaska LNG and Blue Ammonia

Alaska LNG and Cook Inlet Blue Ammonia are being developed together and each project support the other.

**ALASKA LNG**



Cook Inlet  
Blue Ammonia

The size of the current LNG market can support construction of a 20 Mtpa Alaska LNG facility. This 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 proves Alaska LNG investment and provides a path to net-zero energy from Alaska.



ALASKA  
GASLINE  
DEVELOPMENT CORP.

