ALASKA GASLINE DEVELOPMENT CORP.

ALASKA LNG:

Joint Resources Committee Update

October 16, 2017



www.agdc.us

REGULATORY/PROGRAM MANAGEMENT UPDATE

FRANK RICHARDS, P.E., SENIOR VICE PRESIDENT, PROGRAM MANAGEMENT

REGULATORY & PROGRAM MANAGEMENT

Regulatory:

- FERC Section 3 Application/Acceptance.
- FAST-41 Application/Acceptance.
- PHMSA Special Permits Application/Acceptance.
- Presidential Executive Order and Guidelines.
- Yukon River Basin ARNI Designation.

Program Management:

- AGDC Core Team.
- 3rd Party Expertise.
- Next Steps.

FEDERAL ENERGY REGULATORY COMMISSION (FERC)

FERC Natural Gas Act Section 3 application:

- Filed on April 17, 2017.
- 60,000+ pages.
- Anticipating publication of Environmental Impact Statement (EIS) schedule.

Continued engagement through application review:

- Responding to 801 environmental data requests.
- Engaging with regulatory agencies.



A THOROUGHLY STUDIED ROUTE



- **Pipeline route goes through an existing and well-defined transportation/utility corridor.**
- **Previous environmental reviews:**
  - Alaska Natural Gas Transportation System (ANGTS) FEIS 1976.
  - Trans-Alaska Gas System (TAGS) FEIS 1988.
  - Alaska Stand Alone Pipeline (ASAP) FEIS 2012.

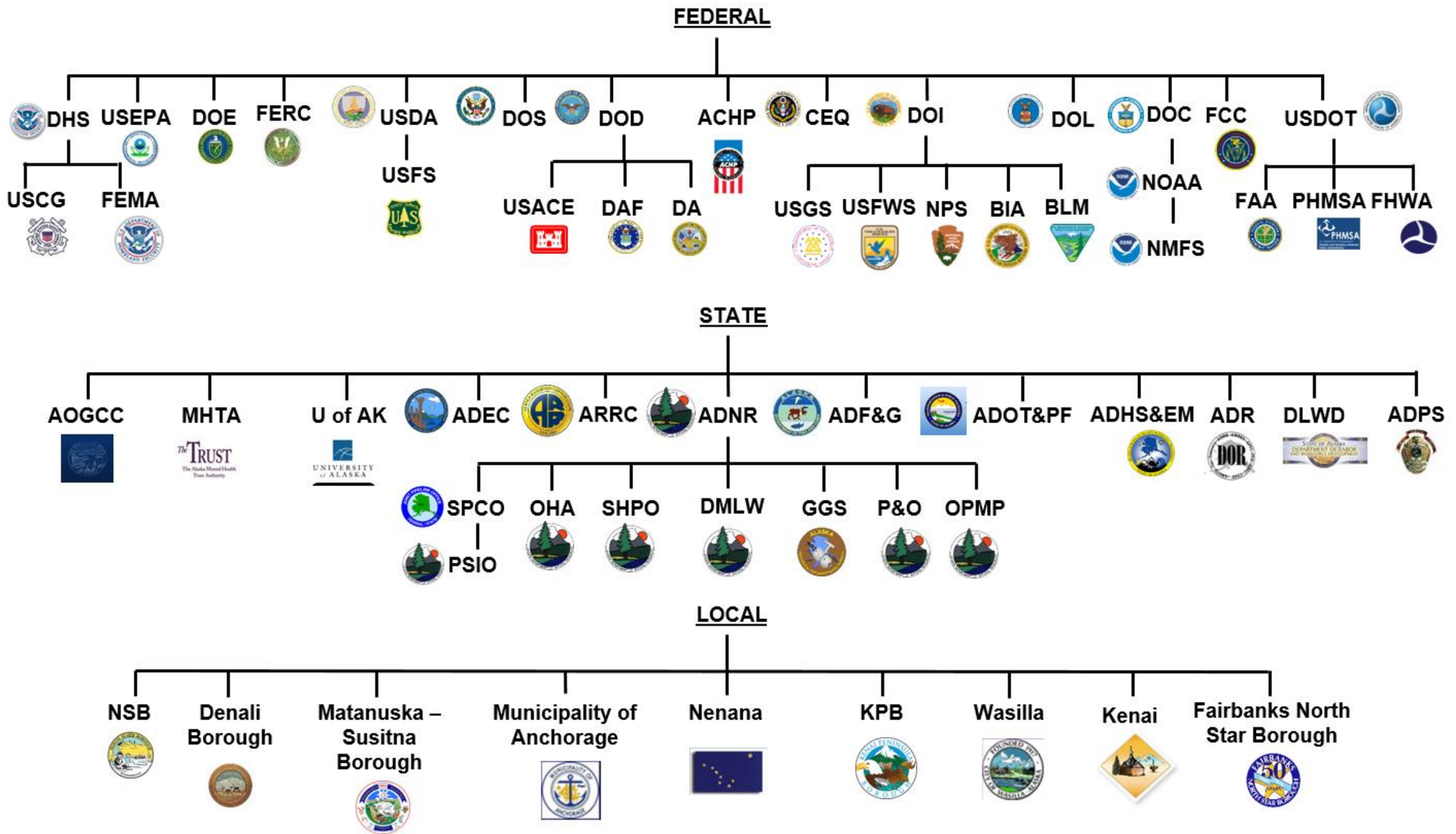
FEDERAL AUTHORIZATIONS

- **FERC is the lead federal agency that prepares the Environmental Impact Statement (EIS) for the integrated Alaska LNG infrastructure. Agencies use the EIS for their National Environmental Policy Act (NEPA) process.**
- **Major federal permits and authorizations:**
  - Pipeline Hazardous Materials Safety Administration (PHMSA) special permits.
  - Army Corps of Engineers Section 404 Wetlands Permits.
  - Bureau of Land Management Right-of-Way Lease.
  - National Marine Fisheries Incidental Harassment Authorization.

REGULATORY PROCESS – FERC

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FERC leads NEPA process – umbrella for creation of all other permit applications.
Requires collaboration with cooperating and reviewing federal, state, Alaska Native, and local entities.



FAST-41 APPLICATION/ACCEPTANCE

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Fixing America's Surface Transportation Act (FAST-41)

- Trump Administration recommended.
- Application: August 7th – Acceptance: August 17th.
- Enhanced coordination.
- Increased accountability.
- Permitting dashboard.
  - Permitting timetable within 60 days.
  - Comprehensive schedule for ALL federal permits.
- Steering Committee reports to White House.
- Transparency for public.
- Requires federal agencies to report to OMB, if delays.
- State permitting agencies may participate.

PHMSA SPECIAL PERMITS OVERVIEW

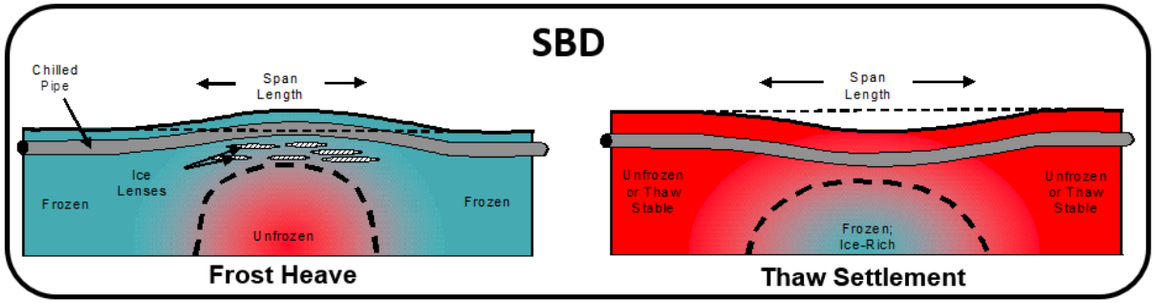
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Alaska LNG Pursuing 5 PHMSA Special Permits:

Technical Area	Relief from CFR 192 and 193	Affected Pipeline Length
Strain-Based Design	External loads that result in axial strains > 0.5% (49 CFR §§ 192.103 and 192.317)	34 miles (total)
Mainline Block Valve	20-mile spacing in Class 1 (49 CFR § 192.179)	Class 1: ~ 99% of total length
Crack Arrestor Spacing	8-pipe length spacing (49 CFR § 192.112)	Majority of length, except proximity to key infrastructure: TAPS, bridges, HCAs
External Coating	Pipe must be protected against external corrosion by a non-shielding coating (49 CFR § 192.112)	Three Layer Polyethylene (3LPE) coating proposed (vs. PHMSA preferred Fusion Bonded Epoxy [FBE])
Pipe-in-Pipe	Pipe must not be covered (49 CFR § 193.2167) and must have drained impoundment (49 CFR § 193.2173)	< 1 mile from LNG tank to loading berth



1. Fusion Bonded Epoxy **2.** Copolymer Adhesive **3.** Polyethylene





PRESIDENTIAL EXECUTIVE ORDER

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Establishing Discipline and Accountability in the Environmental Review and Permitting Process for Infrastructure – ***August 15, 2017***

- Major Goals:
  - Environmental reviews & authorizations ~ 2 years.
  - Performance accountability.
  - Develop and follow permitting timetable.
  - One federal decision.
- CEQ-led Interagency Working Group.
- Energy Corridors of Federal Lands.
  - Expedited environmental reviews.
- All federal authorizations within 90 days of Record of Decision.

AQUATIC RESOURCE OF NATIONAL INTEREST (ARNI)

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EPA Region 10 Designated Yukon River Basin ARNI:

- EPA raised issue on ASAP Project, likely precursor to Alaska LNG.
- Allowed under MOU between EPA and Army Corps of Engineers.
  - Clean Water Act Section 404 (b)(1)
    - Issue: Fill in wetlands.
- Encompasses entire Yukon River watershed (~ 200,000 square miles).
- EPA reversed 2012 FEIS opinion.
- Contrary to Presidential Executive Order.
  - "Coordinated, consistent, predictable, and timely review."
- ARNI may have broad reaching impacts for any development in Yukon River Basin.
- AGDC/GOA addressed concerns with EPA Administrator Pruitt.

FEDERAL SUPPORT

- **Congressional Delegation:**
  - Denali Park provision in Senate Energy Bill.
  - Looking at ANGPA (2004) revisions.
  - Nominees briefed on Alaska LNG.
- **White House Meetings and Working Session:**
  - Council on Environmental Quality – NEPA and Wetlands Policies.
- **Trump Administration Cabinet Members:**
  - Strong support with action:
    - Rationalized permitting process.
    - New policies and EO's executed.
    - Agencies working to support.

PROGRAM MANAGEMENT

AGDC Project Management Team (PMT):

- Took ownership of all Alaska LNG content.
- AGDC core PMT providing oversight and direction to 3rd party contractors.
- Utilizing Pre-FEED 3rd party contractors.
- Reviewing cost estimates and construction execution plans.
- Developing phased development plans.
- Integrating ASAP environmental data into Alaska LNG regulatory process.

PROGRAM MANAGEMENT

Next Steps:

- FAST-41 Federal Permit Schedule.
- FERC NEPA Initiation.
- Strategic Sourcing Study.
- Rationalization of Federal Authorizations.
  - Alignment with Executive Order.
- Align Project Components with Commercial Requirements.
- Develop Contracting Strategy.
  - Lump-sum, turn-key (LSTK) contracts.



COMMERCIAL UPDATE

LIEZA WILCOX, VICE PRESIDENT, COMMERCIAL AND ECONOMICS

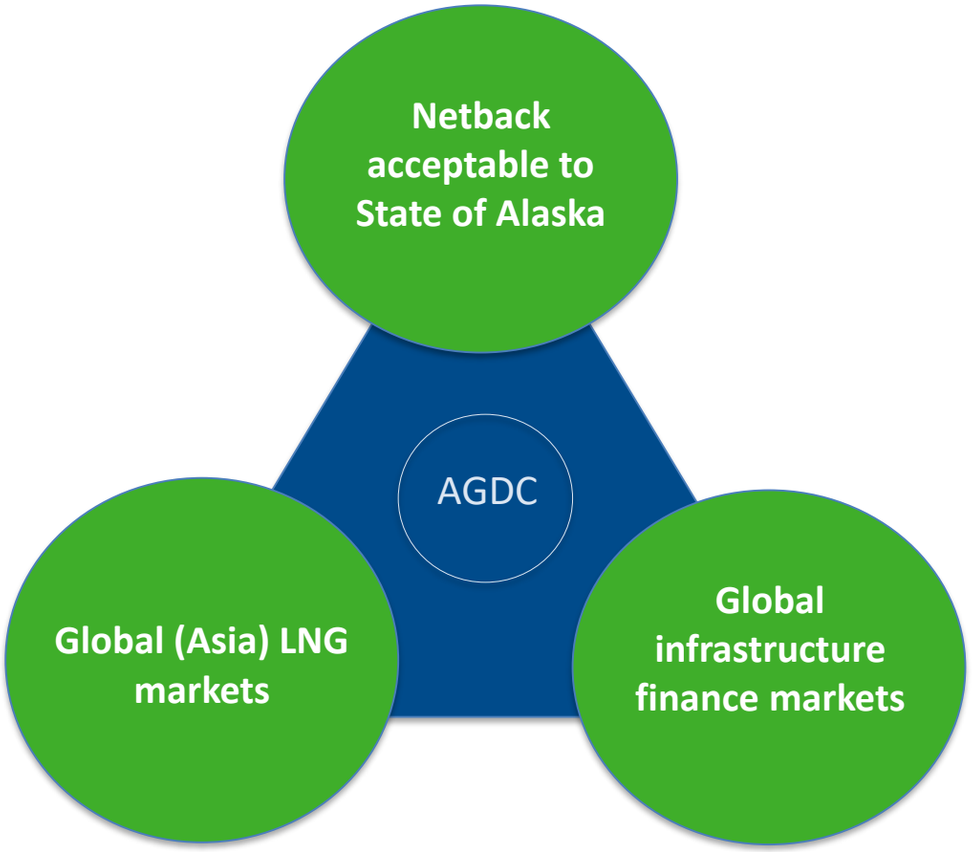
COMMERCIAL UPDATE

- Alaska LNG Commercial Update.
- Capacity Solicitation Overview.
- Gas Supply.
- Importance of MOUs and/or LOIs.
- IRS Private Letter Ruling.
- Cost Assessment and Analysis.
- Personnel.
- State Agency Cooperation.

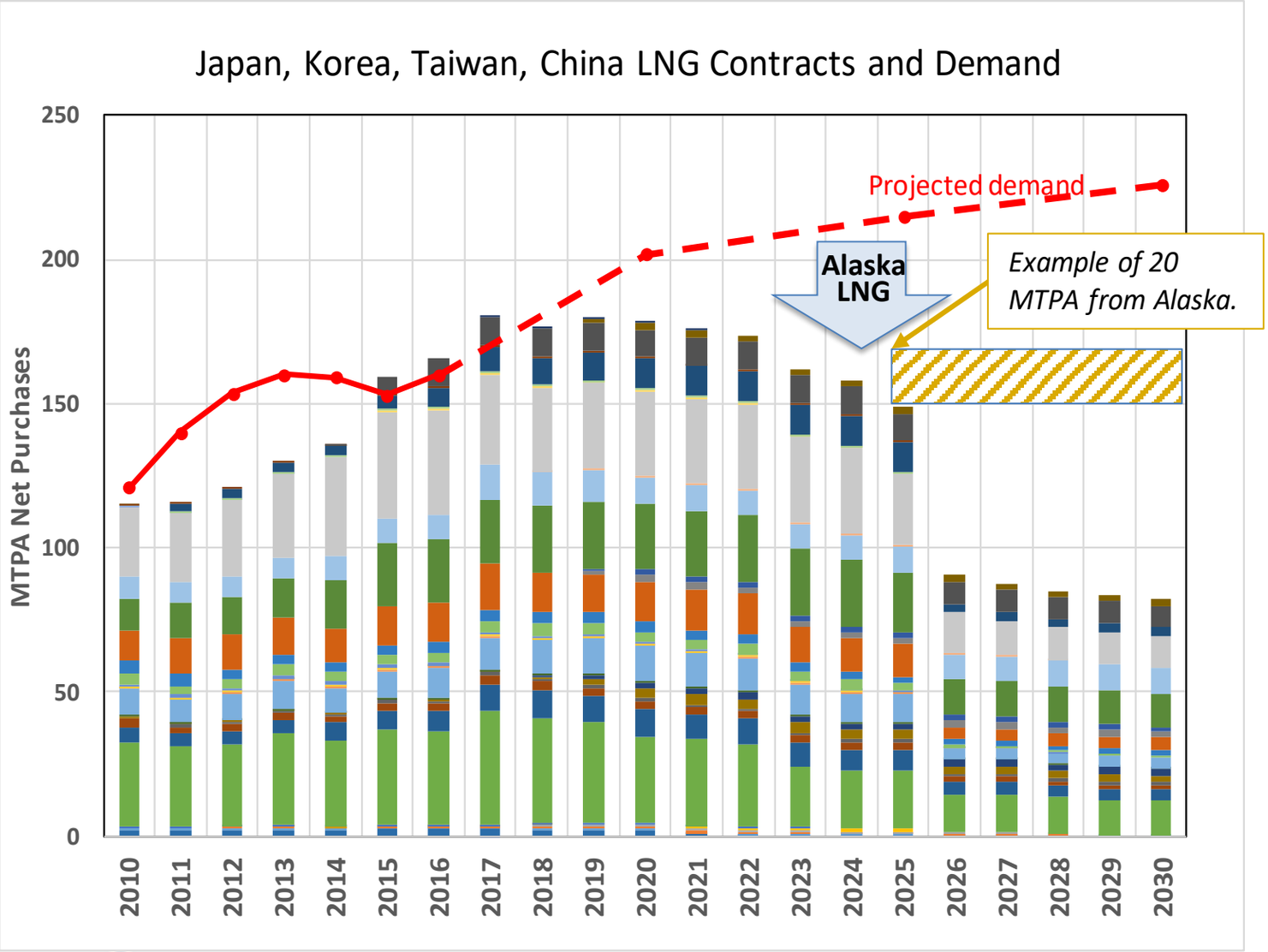
BALANCING THREE OBJECTIVES

A successful execution of the project will balance three primary objectives:

- Clear the LNG market in the Asia-Pacific.
- Acceptable pricing for debt and equity markets.
- Acceptable netback to the State of Alaska.

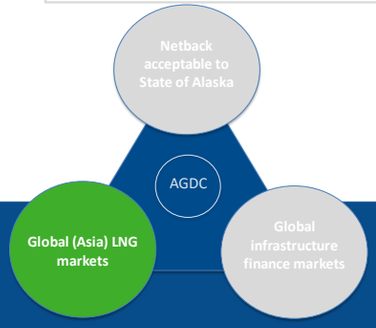


ASIAN LNG DEMAND MID-2020'S



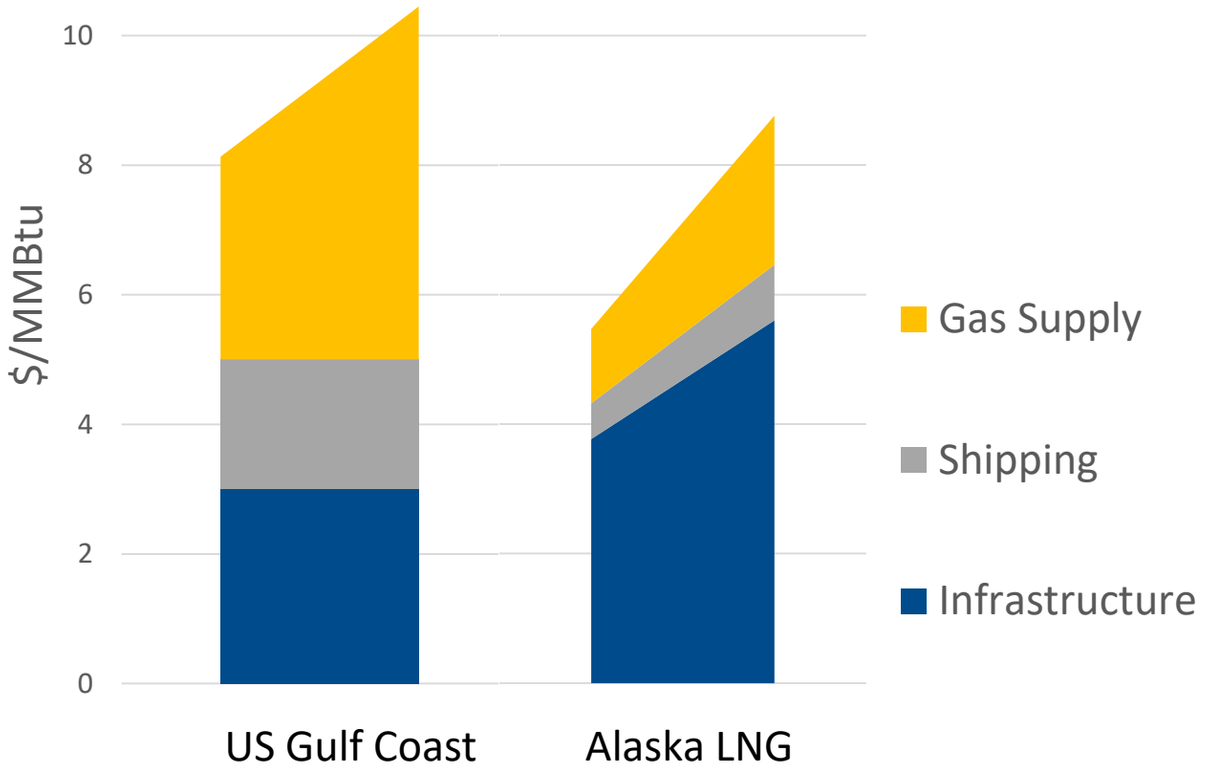
- **Market opportunity for LNG exists across Asia.**
- **Demand growth will require new LNG facilities.**
- **Contract rollover provides opportunity.**
- **Numerous supply projects are chasing the market.**

Note: Colored bar segments represent individual Asian LNG buyers
Source: Global NatGas Advisors LLC Analysis



ALASKA LNG IS COST COMPETITIVE

US Gulf Coast Versus Alaska LNG Delivered to Asia
2025 LNG Price Forecast

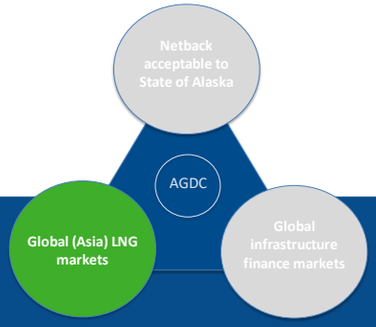


- Shipping and gas supply advantage offsets higher pipeline costs.
- North Slope gas supply is proven, conventional, and stranded.
- Structure provides for acceptable netback against competing supply alternatives.

LNG Shippers Have a $45,000-a-Day Problem at the Panama Canal

By Naureen S Malik, Bloomberg News
October 2, 2017 11:14 AM





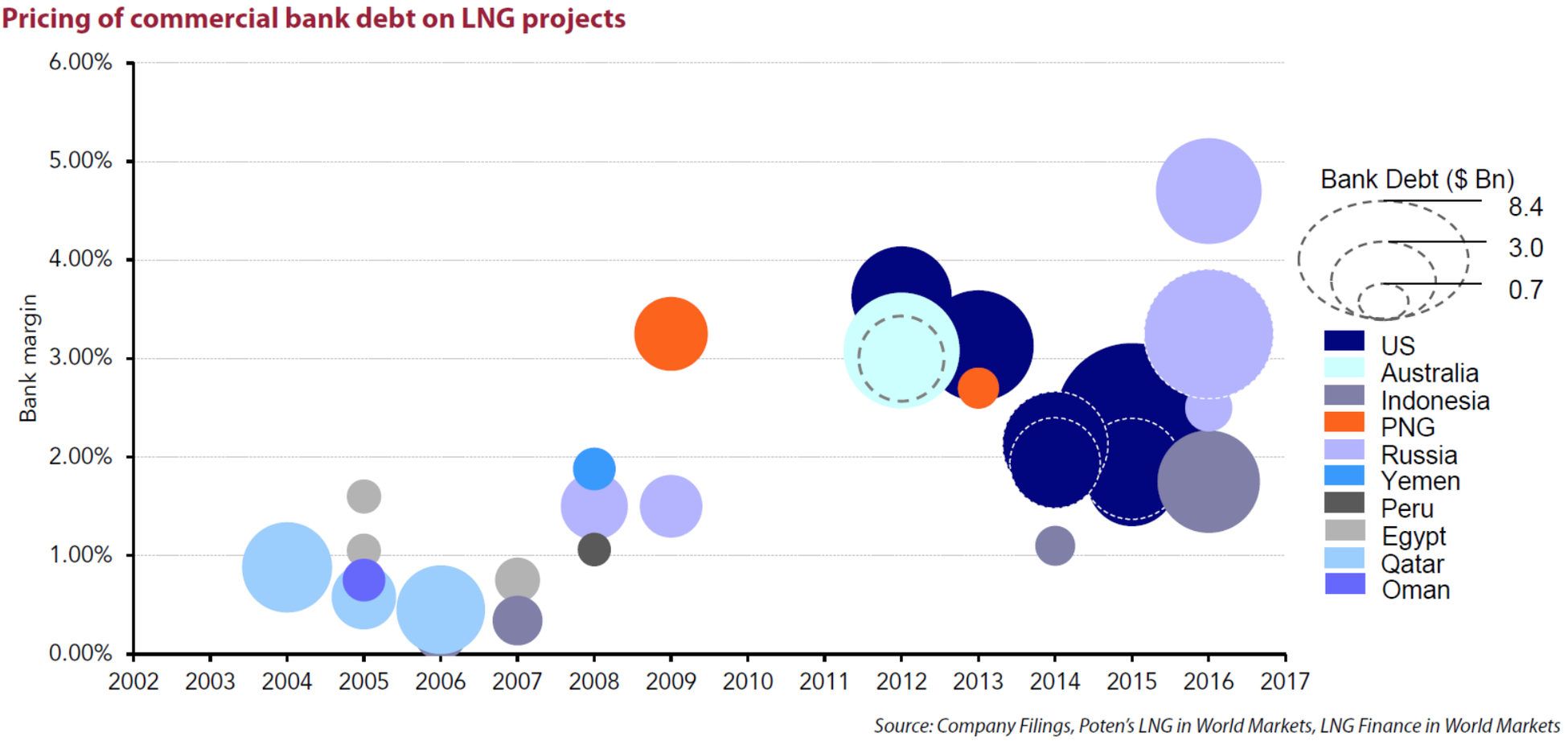
FINANCIAL MODEL BASIC ASSUMPTIONS

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Basic Assumptions:

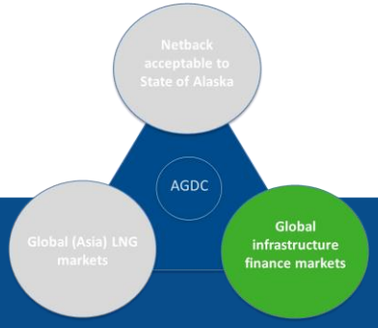
- **75% Debt for capacity ($32.4 billion).**
  - General structure:
    - Construction period 2019-2024.
    - First gas in late 2024.
    - In-state consumption of 29 billion cubic feet (bcf) in 2025, 57 bcf by 2043.
  - Financial inputs:
    - 5% interest rate.
    - 5% financing fees.
    - 8% IRR based on 20 year term.
  - Escalation and operational expense:
    - $450 million PILT during operational life.
    - O&M is $833 million (2018$) and escalated at 2%.
    - Tolls escalated at 1.15%. This assumes 85% of toll escalates at 1%, remaining 15% of toll subject to inflation.
- **25% Equity ($10.8 billion).**
  - Structured to give Alaska opportunity to invest.
  - Possible issuance of Municipal Bonds.

DEBT DATA POINTS



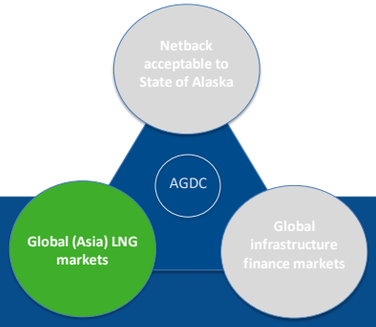
Source: Poten & Partners, *LNG in World Markets*, March 2017

AGDC's assumptions on financing fees is in line with what the market has been offering on LNG projects.



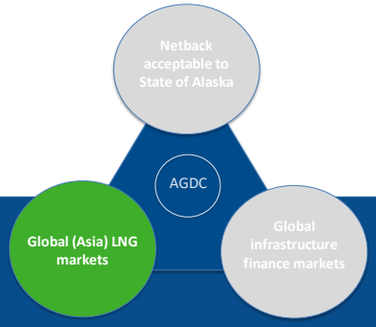
CAPACITY SOLICITATION

- **Tolling model:** Design a competitive "cost of service" for system use; provide access on a non-discriminatory basis.
- **Incentive:** Provide initial subscribers with Foundation Capacity rights that provide long-term benefits.
- **Purpose of Capacity Solicitation is two-fold:**
  - Determine if producers want to hold capacity and market their own LNG or if they would prefer AGDC buy gas and market LNG.
  - Secure Foundation Customer rights for AGDC to enable long-term marketing of LNG.
- **Results:** Major producers would prefer to have AGDC buy and market LNG; AGDC has secured Foundation Customer capacity.
- **Next Steps:**
  - Tolling agreements with interested parties.
  - Purchase gas on the terms necessary to secure sales and financing.



CAPACITY FOUNDATION RIGHTS

- **Foundation Customer capacity for tolling services on Alaska LNG:**
  - Twenty year agreement with multiple options to extend.
  - Minimum capacity of 250,000 MMBtu per day.
  - Capacity elected by project segment, including Prudhoe Bay and Point Thomson transmission lines.
  - Most favored nations pricing.
  - Capacity rights are divisible and assignable.
- **AGDC acquired a necessary and beneficial right.**
  - SB 138 provides that AGDC can subscribe for capacity on the system and AGDC needs to hold capacity in order to buy gas and sell LNG.
  - AGDC did not take on any new financial commitment and will market all the capacity the producers do not want to reserve themselves.



GAS SUPPLY

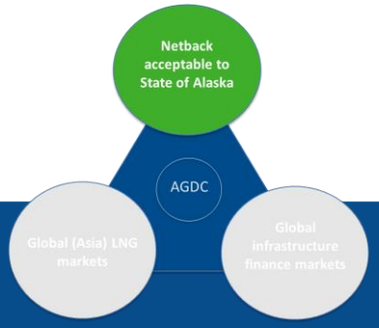
- **AGDC envisions gas purchase terms that would satisfy the market and secure Alaska LNG's competitiveness by offering:**
  - Long-term fixed price with escalation, OR…
  - Netback price where a portion of the LNG price is indexed to commodity and passed on to upstream.

LNG SPAs FOB Price **–** Toll **=** Netback

Share

NATURAL GAS September 14, 2017 03:04 UTC (1) (8)

To deal with global supply glut, US LNG export developers thinking outside the box

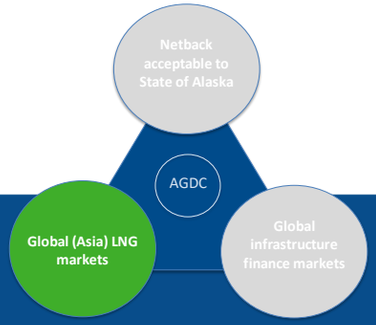


Recent article on Platts outlines how some US LNG developers are needing to be creative in their offerings by offering non Henry-Hub indices in order to compete, including fixed pricing (maximum 5 year term offered for Henry-Hub based LNG).

SIGNIFICANCE OF NON-BINDING AGREEMENTS

- **What does an LOI mean to a LNG utility buyer?**
  - Buyer recognizes need for supply in the timeframe of the project.
  - Specific project rises to the level of devoting company resources for review and negotiation.
  - Management is willing to indicate a minimum quantity and term.
  - Relationship has been established and tested on a “trial” agreement.

- **Industry evidence suggests it takes 12-24 months to get to LOI.**



LNG PURCHASE DECISION

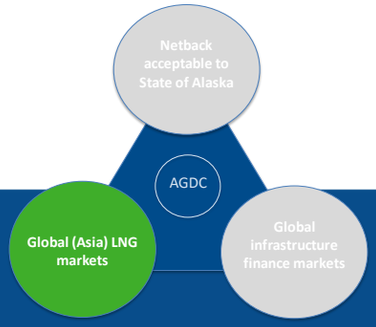
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LNG Buyer Decision Process

1. Discussion/awareness
2. Engagement
3. Evaluation
4. Confidentiality Agreements
5. Memorandum of Understanding
6. Letters of Intent
7. Heads of Agreement
8. Binding Precedent Agreement
9. Binding Contract

- **A significant LNG purchase agreement is a multi-billion dollar commitment from a large, conservative utility.**
- **Supply does not start for several years, and the commitment can last for decades.**
- **The purchase decision is carefully analyzed and the negotiation process can last for many months.**
- **Prior to 2017, there was no significant marketing of LNG from the Alaska LNG project.**

Alaska LNG Marketing Efforts															
2014				2015				2016				2017			
1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
nil	nil	nil	Japan Korea	nil	nil	nil	Japan	nil	nil	nil	Japan Korea	Japan Korea Other	Japan Korea Other China	Japan Korea Other China	Japan Korea Other China



MARKETING EFFORT: ASIA-PACIFIC

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G2G Interaction:

- High level government engagement.

Potential customers coming to Alaska:

- Alaska LNG summit.
- Individual customer visits.

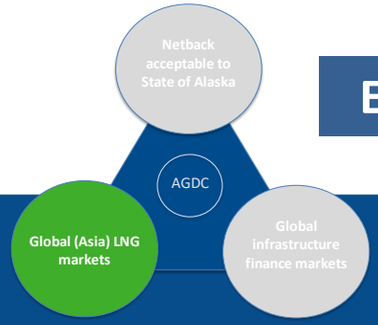
Engaging potential customers:

- Focus on China, Japan, Korea, SE Asia.
- Meetings in Asia and Alaska.

Beginning the contracting process:

- Initial non-binding indication of interest.
- Precedent agreement.
- Binding bankable agreement.

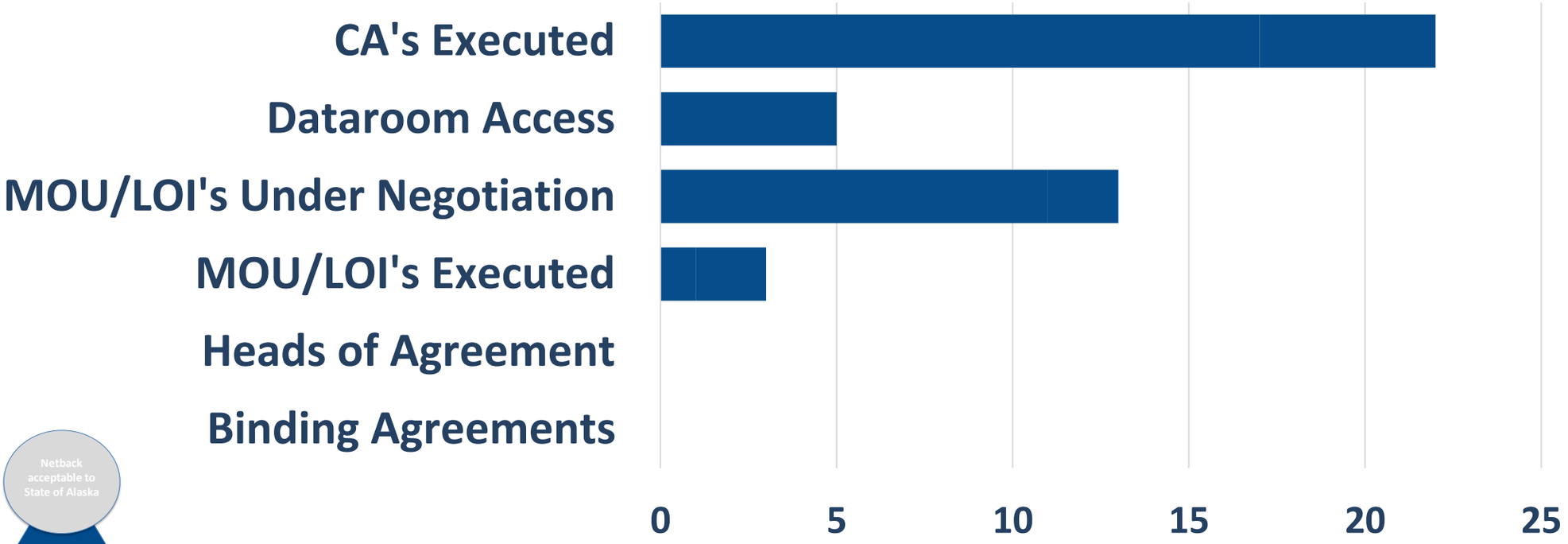


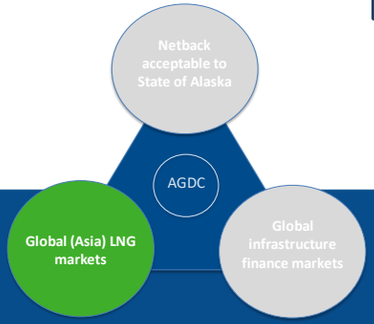


Each 1 Mtpa = about $8 Billion customer commitment

AGDC COMMERCIAL DEVELOPMENT

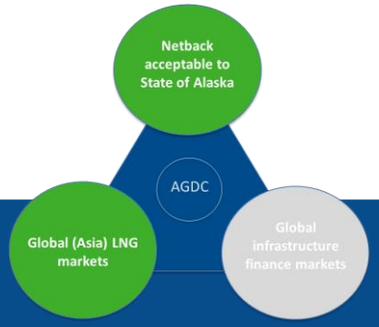
- **AGDC is making commercial progress by raising awareness, engaging, and signing preliminary agreements with major LNG buyers.**
  - Mailings, headlines, conference appearances, and personal visits.
- **Most Asian LNG buyers are now aware that Alaska is developing an LNG project and recognize supply from Alaska could be strategic.**





IRS PRIVATE LETTER RULING

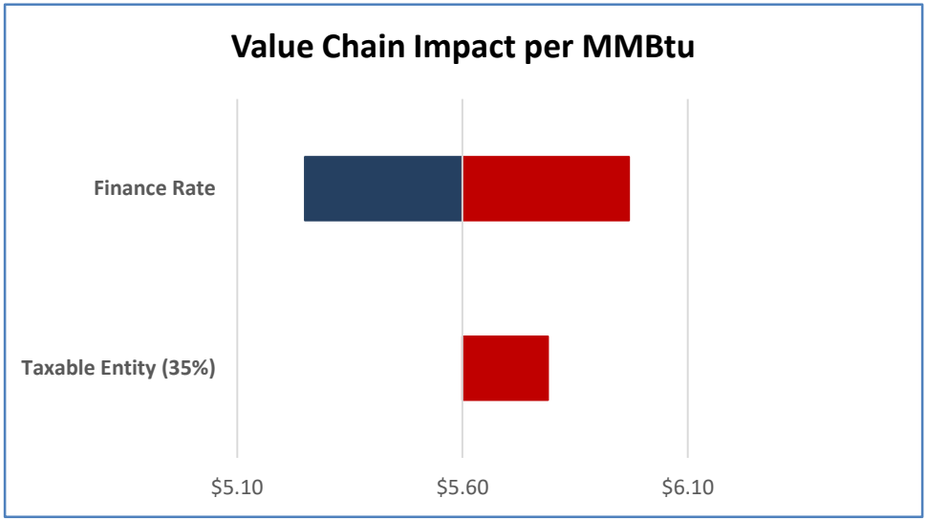
- **The IRS confirmed that AGDC is tax-exempt.**
- **What this means for the project:**
  - AGDC revenue is not taxable.
    Taxable status would increase price of LNG by $0.20 per MMBtu.
  - Tax-exempt financing is possible depending on project structure.
- **Some taxes will still be paid:**
  - PILT to local communities.
  - Third party investors will pay a tax on their revenue.
  - North Slope gas production will pay royalty and tax/TAG.
- **Tax-exempt status is not required for project success but presents an opportunity.**



FINANCING PROJECT SENSITIVITIES

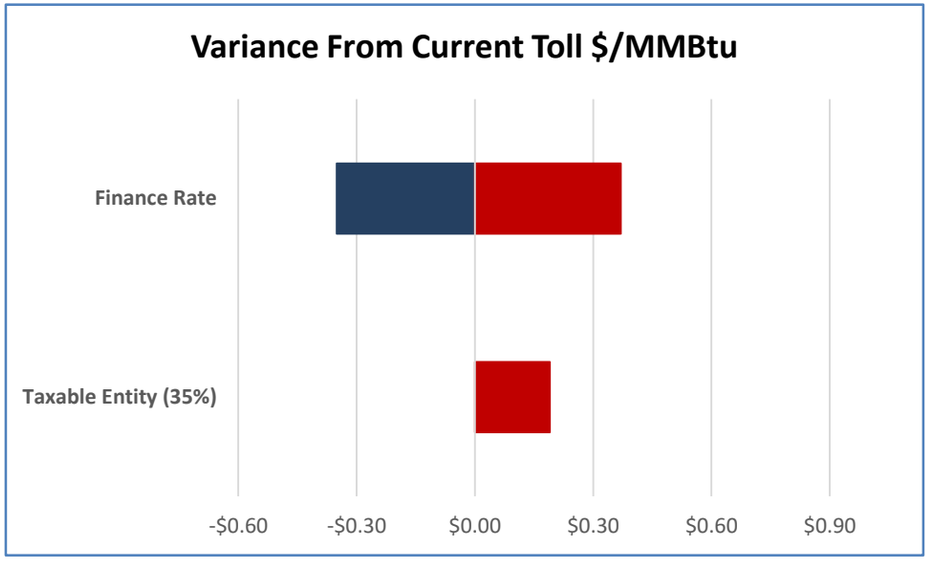
Finance Rate:

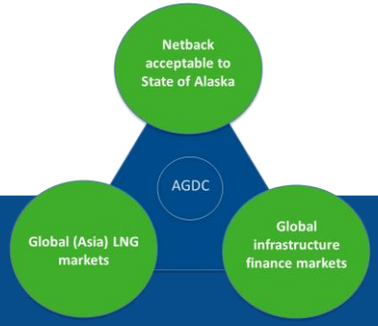
- Current assumed interest rate is 5%.
- Modelled variance is +/-1.0%.
- Effect on toll is -$0.35, +$0.37 or $5.25-$5.97/MMBtu (2018$).



Taxable Entity Impacts:

- Input tax rate is 35%.
- After deductions for carried-over losses and depreciation, effective tax rate is 16.5%.
- Effect on toll is +$0.19/MMBtu.

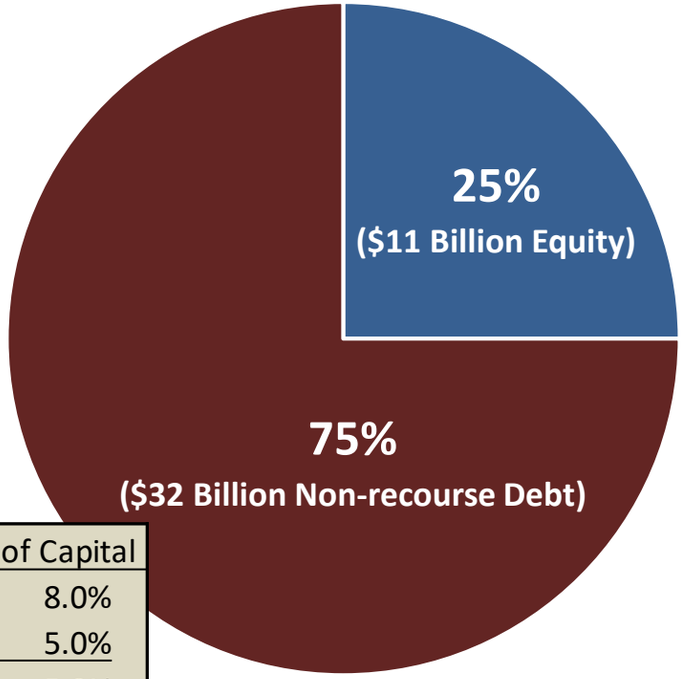




ALASKA LNG CAPITAL STRUCTURE

ALASKA GASLINE DEVELOPMENT CORP.

The integrated Alaska gasline and LNG project will cost about $43 Billion under the current design.



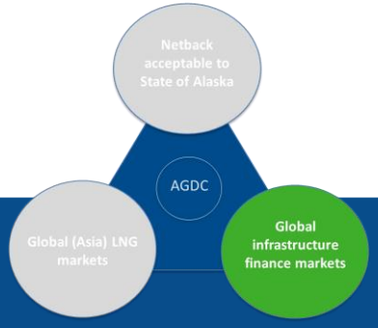
Weighted Cost of Capital	
Equity	8.0%
Debt	5.0%
WACC	5.8%

$11 Billion Equity Investment

- Equity investors can earn in excess of 10% returns.
- State of Alaska has the opportunity to invest.
- Other Equity investors could include:
  - AGDC,
  - Alaska Native Corporations, municipalities, private citizens,
  - Third parties.

$32 Billion Non-Recourse Debt

- Backed by long-term contracts.
- Does not create a liability for the equity owners.



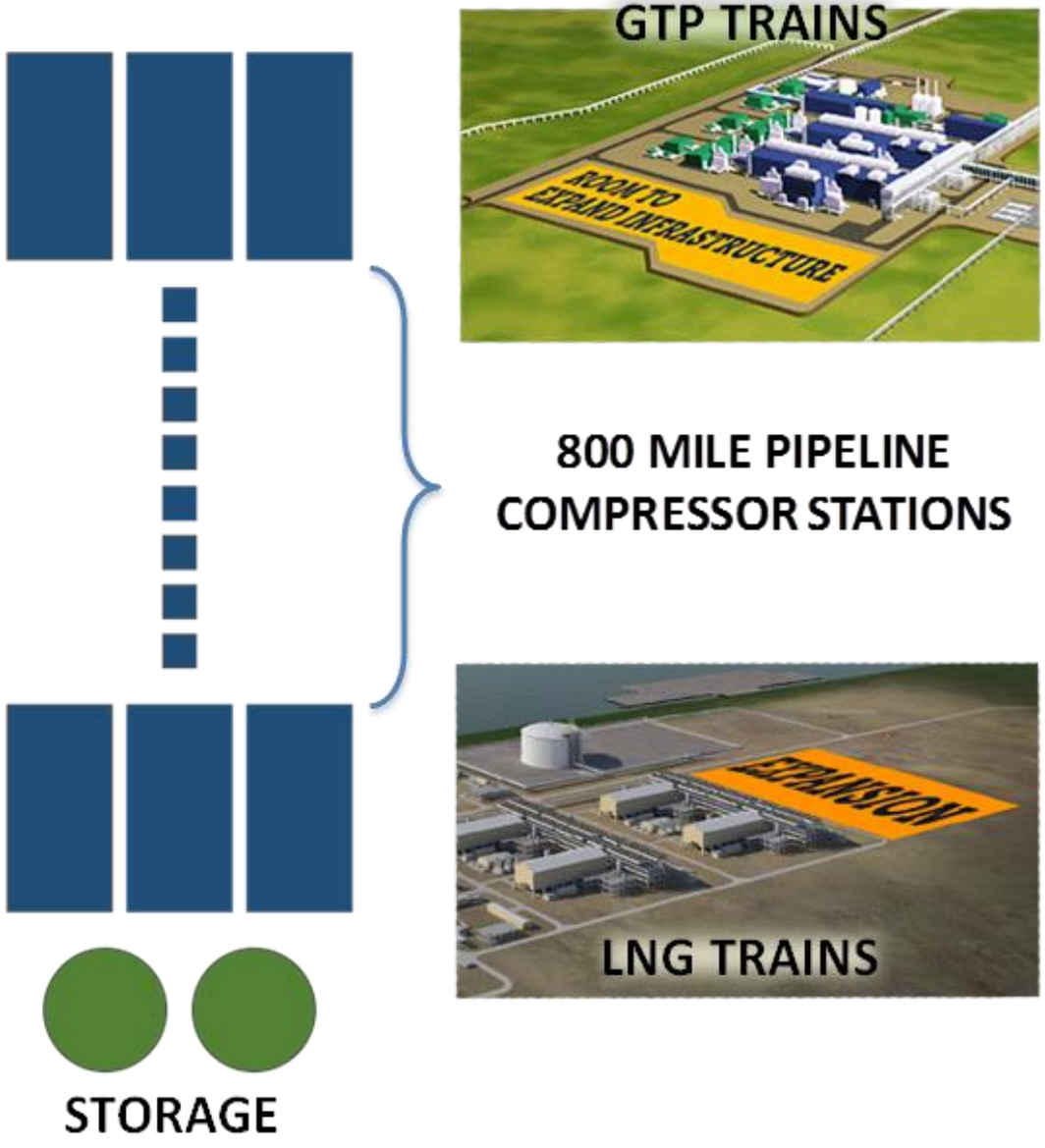
Note: Project may be phased to further reduce the initial capital requirement by roughly $9 billion.

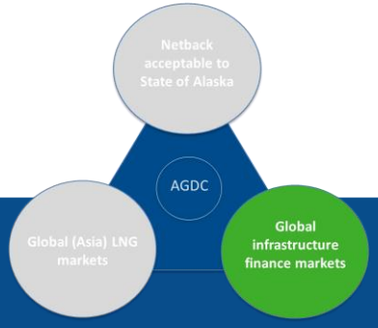
POTENTIAL PHASING

The three-train, modular design of the GTP and LNG components allow for a phased development of the system.

Initial capital reduction of about $9 Billion.

Tolls can remain comparable to three-train with reasonable adjustments.





STRUCTURE AND FINANCING OPTIONS

ALASKA GASLINE DEVELOPMENT CORP.

Third Parties
Financial Investors, Trading Houses, Sovereign Wealth Funds, Strategic Investors, Etc.

State of Alaska

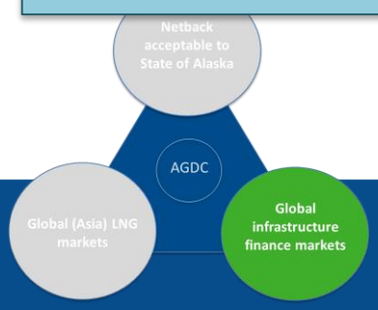
- Alaskans
- Municipalities
- Native Corporations

Equity Funding

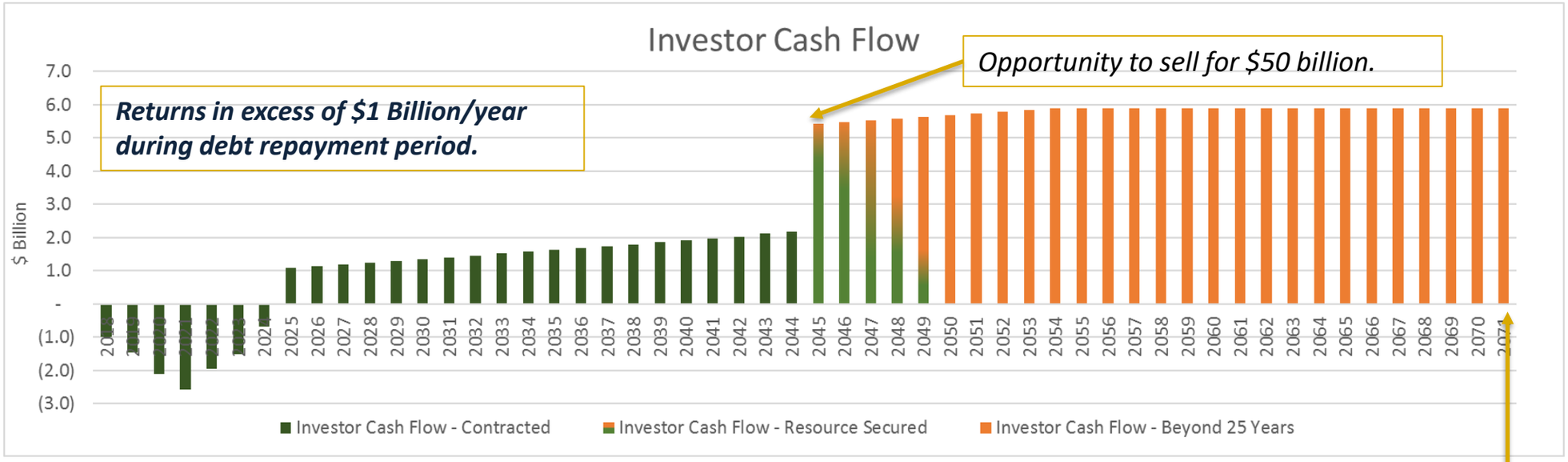
- Commercial Banks
- Export Credit Agencies
- Project Bonds
- Other debt lenders

Project Finance Debt

Alaska LNG Project Structure



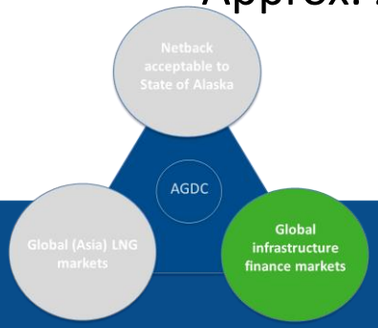
ACCEPTABLE RETURNS



Generates over $150 billion of cumulative cash over 50 years.

Contract Period:

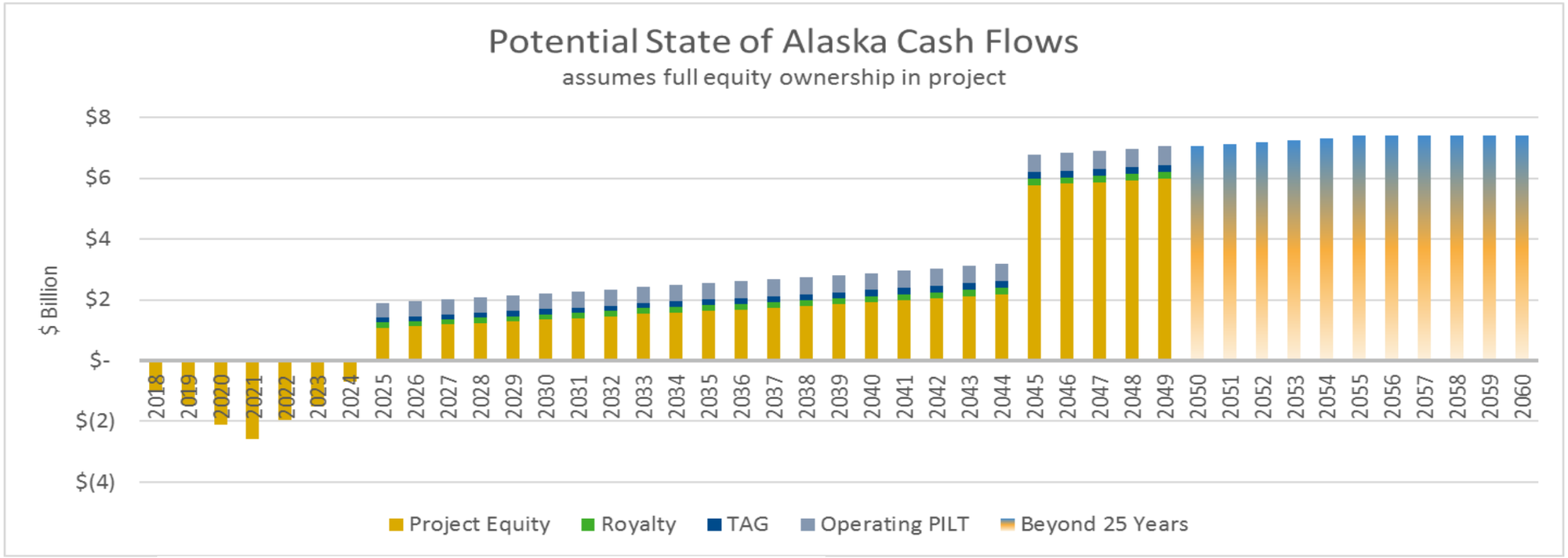
- A 20 year firm contract period.
- Acceptable return on investment.
- Toll protected through “take or pay” terms.
- Approx. 25 TCF of gas.

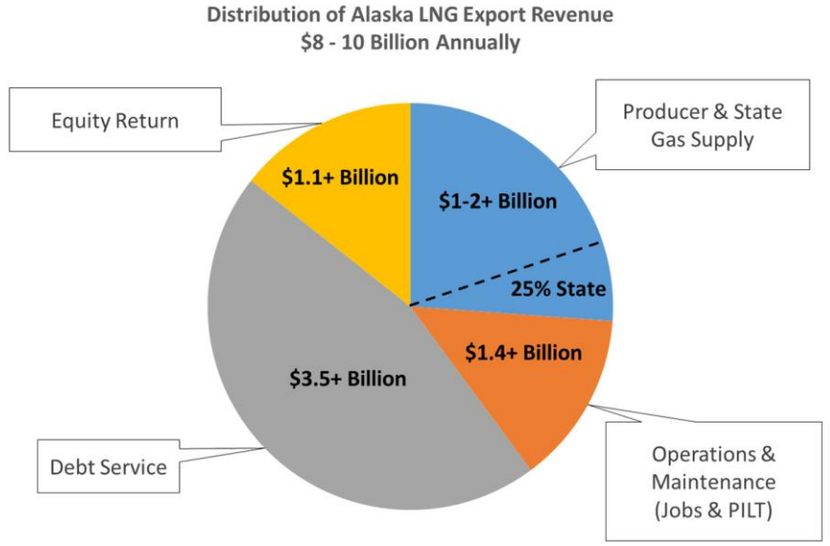


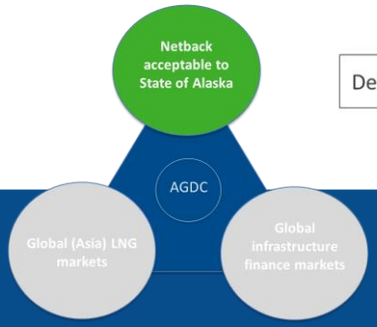
Beyond Contract Period:

- Debt paid off during contract period releasing more revenue to equity owners.
- 30 TCF (10 TCF of known, 20 TCF of YTF) needed to operate an additional 25 years – 10% of potential YTF.
- Asset Value at 2045 could be $50 billion.
  (Assumes 10% return over following 20 years, same tolls and volumes.)

STATE OF ALASKA INVESTMENT OPPORTUNITY







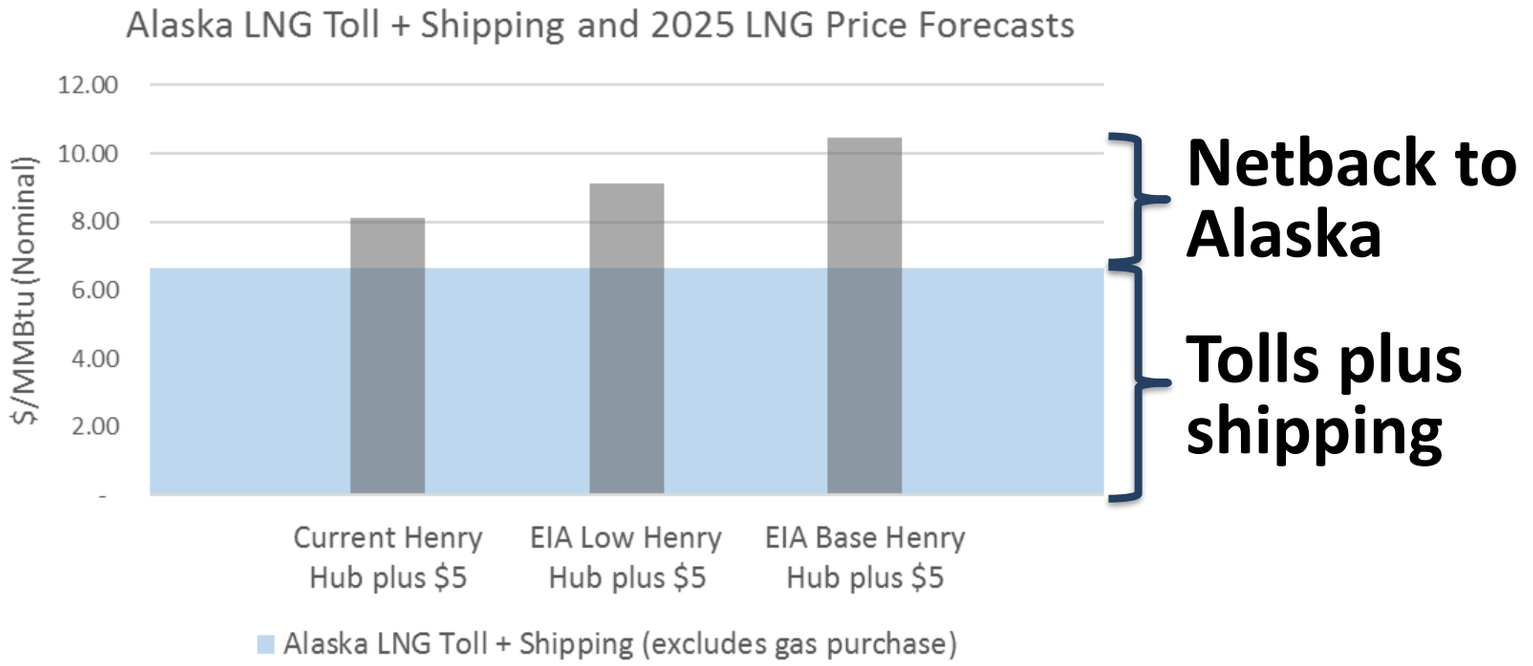
Equity-only ROE:

- 8% through initial period.
- 10% life of project.

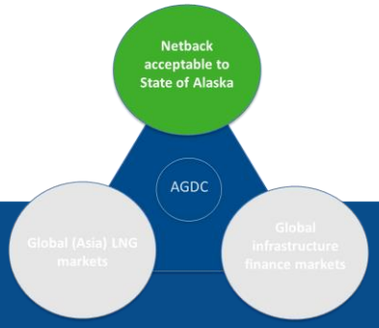
Equity ROE plus RIK/TAG and PILT:

- 13% during initial period.
- 15% life of project.

NETBACK



- **Alaska LNG toll and shipping costs deliver a reasonable netback even at current US prices.**
  - As an example, a $1.00 netback would bring ~$35 billion to the upstream resource owners and lessees for the discovered North Slope natural gas in developed reservoirs.
  - For Prudhoe Bay and other oil fields, it would represent a significant improvement in the lifecycle economics.



INVESTMENT BANKER

Primary role is to identify and help secure debt and equity financing.

Scope of Work:

- Assist AGDC in defining key financing objectives.
- Work with AGDC legal advisors to evaluate and execute corporate structure.
- Evaluate and minimize key risks.
- Interface with various financial agencies and lenders to market the project.
- Coordination with potential lenders regarding engagement, due-diligence, and evaluation of bids/terms.
- Assist with papering the transactions.



LEGAL COUNSEL

- **AGDC recently hired Perkins Coie LLP as General Counsel.**
  - Elena Romerdahl, formerly an assistant attorney general in the Alaska Department of Law's Natural Resources section, is AGDC's point of contact at Perkins Coie.
  - Ms. Romerdahl also serves as counsel in the Environment, Energy & Resources practice in Perkins Coie's Anchorage office.
  - AGDC will use Perkins Coie on an as-needed basis for general counsel support.
- **AGDC continues to contract through the Department of Law for legal support and to engage the following contractors for outside legal support.**
  - Lindsey Holmes – lead DOL attorney for AGDC.
  - Greenberg Traurig – commercial agreements and regulatory support.
  - Milbank – finance counsel.
  - Nixon Peabody – tax counsel.
  - Stoel Rives – in-state commercial work and permitting/regulatory.

AGENCY COORDINATION

ALASKA GASLINE DEVELOPMENT CORP.

Roles of AGDC Relative to Midstream Infrastructure

Critical Activity	State Roles			
	AGDC	DNR	DOL	DOR
Technical	A R	C	I	I
Structure	A	C	R C	C
Midstream Agreements	A R	C	R	C
Regulatory	A R	C I	C	I
Project Marketing	A R	C	C I	C I
Financing				
State Participation	R	I	C I	A
Third-Party Finance	A R	I	C I	C
Construction	A R	I	C	C
Operations	A R	C	I	C
Royalty Gas Sales if Contracted	R	A	C	C
Global Presence	A R	C	C	C

R Responsible
A Accountable
C Consulted
I Informed

BACKUP SLIDES

COMPETING IN THE MARKET

	Alaska LNG	Gulf Coast Projects	Qatar	Australia
Gas Price Volatility	None	Highly Volatile Henry Hub	None	Competition with Local Demand
Shipping	• Short • No canals/ straits	Panama Canal	Straits of Malacca	Lombok Straits
Geopolitical	US Rule of Law	US Rule of Law	• Issues w/GCC • Field issues with Iran	Little Risk
Local Support	• Land Rights • Local Support	Significant Opposition due to Fracking	Nationally Controlled	Competition with Local Demand

- LNG buyers find Alaska LNG's unique advantages over competing projects compelling.
- Alaska LNG's relatively large infrastructure costs are offset by competitive advantages in gas price and shipping.

PROJECT OVERVIEW



Producing Fields

- ~35 TCF discovered North Slope resource.
- Anchored by Prudhoe Bay and Point Thomson for 20 years.
- Confirmed use of existing North Slope facilities.
- Peak Workforce: 500-1,500 people.

Gas Treatment Plant

- Located at North Slope.
- Remove C02 / H2S; Compress for re-injection.
- Footprint: 150 - 250 acres.
- Peak Workforce: 500 - 2,000 people.
- Required Steel: 250k - 300k tons.

Pipeline

- Large diameter: 42" operating at >2,000 psi.
- Capacity: 3.3 billion cubic feet per day.
- Length: ~800 miles (similar to TAPS).
- Peak Workforce: 3,500 - 5,000 people.
- Required Steel: 600k - 1,200k tons.
- State off-take: ~5 with initial off-take of 250-500 MCF/d.

Liquefaction Plant

- Capacity: up to 20 MTA.
- 3 trains (6.67 MTA/train).
- Footprint: 640 - 1,000 acres.
- Peak Workforce: 3,500 - 5,000 people.
- Required Steel: 100k - 150k tons.

Storage / Loading

- Terminal: 2 x 240,000 m^3 LNG Storage Tanks.
- 1 loading jetty with 2 berths; 15 - 20 tankers per month.
- Peak Workforce: 1,000 - 1,500 people.