

Alaska LNG

House Resource Committee

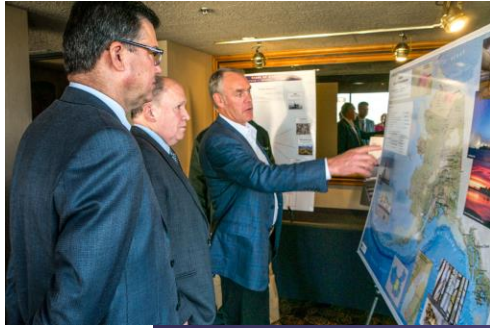
December 4, 2017

Keith Meyer, President

Frank Richards, Senior Vice President, P.E.

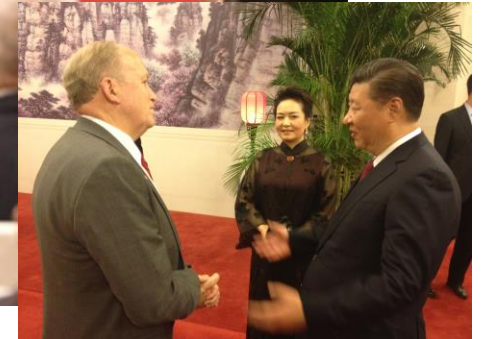
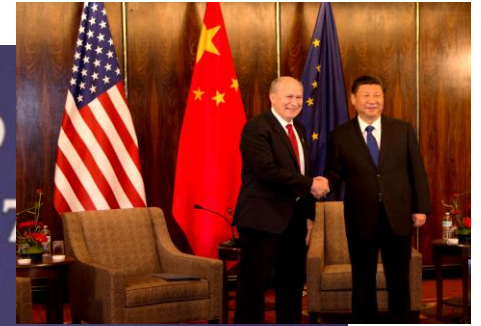


AGDC Joint Agreement



• 北京
• China

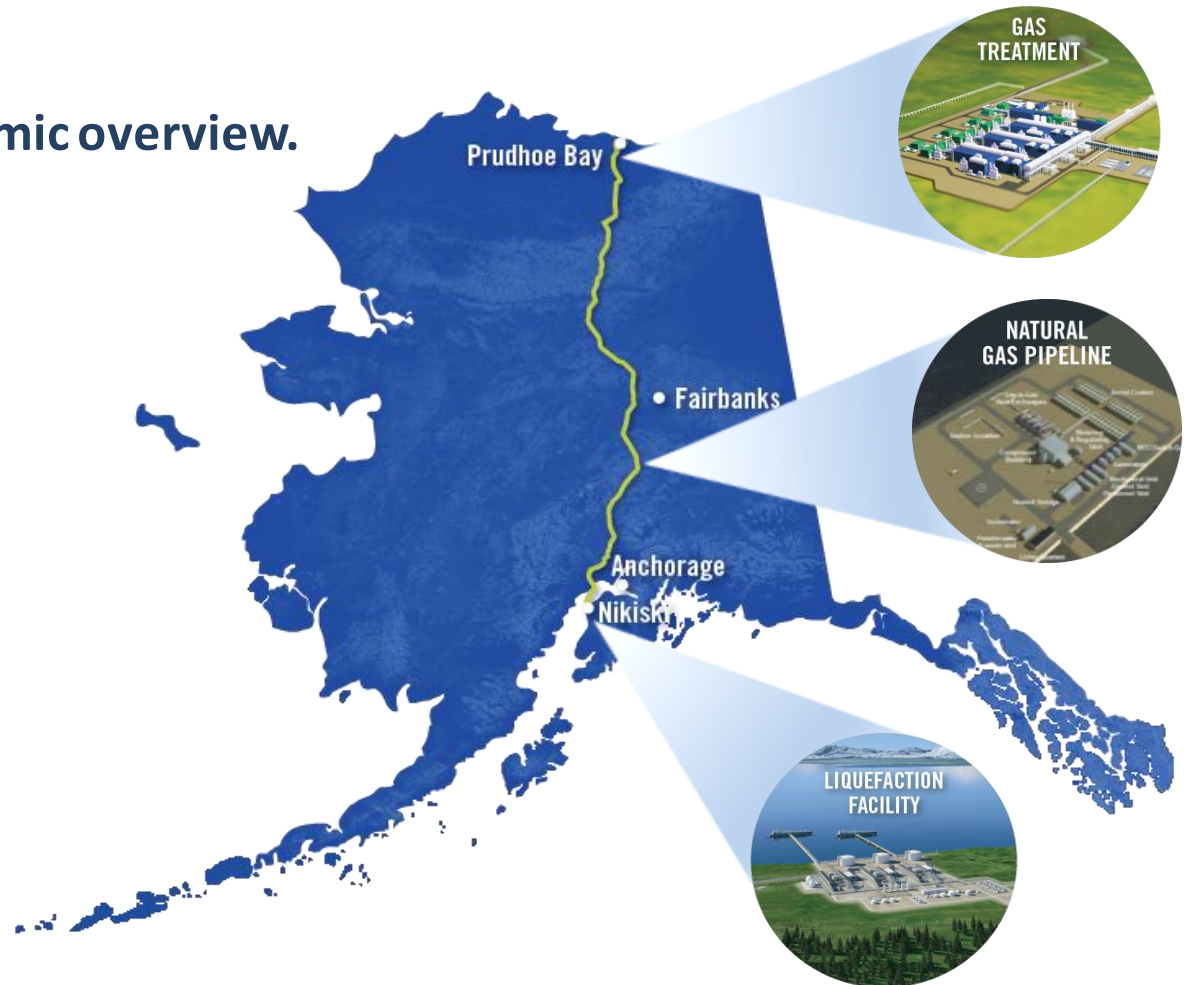
2017年11月9日
Nov 9, 2017



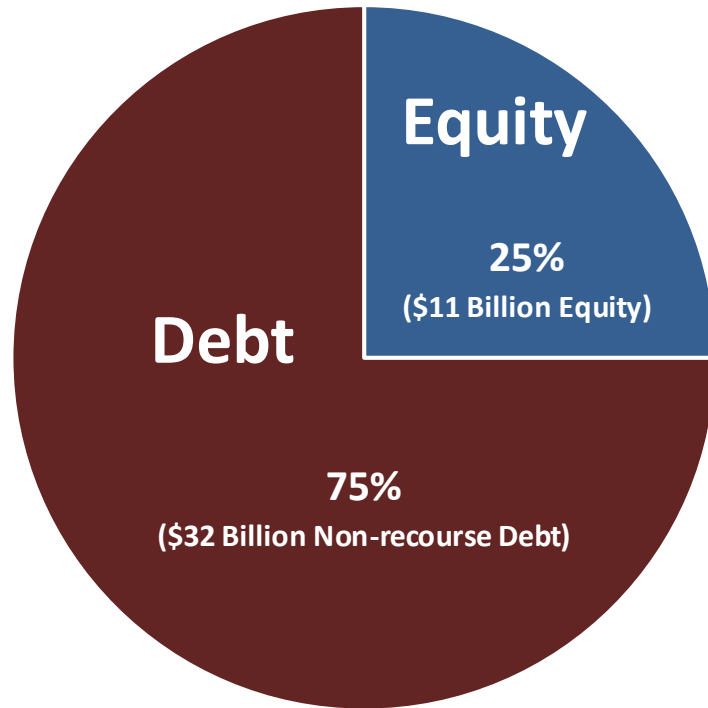
Presentation Overview

- China agreement; implications for Alaska resource development.
- Alaska LNG system – economic overview.
- Regulatory update.
- Budget update.
- Next Steps.

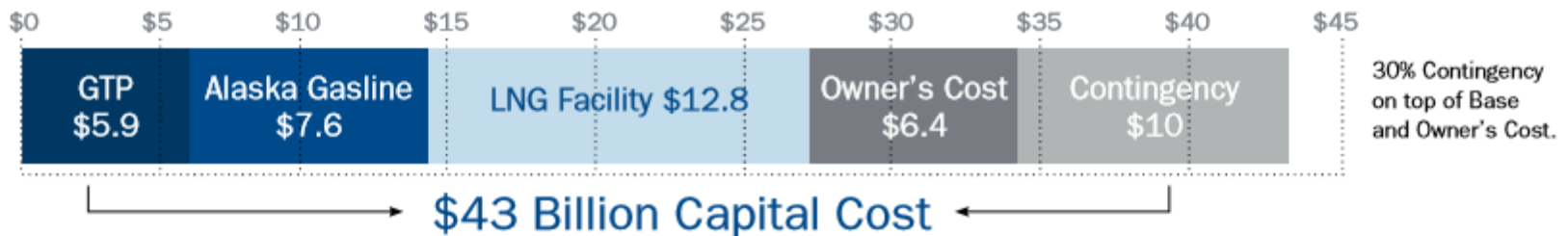
Mission: Maximize the benefit of Alaska's vast North Slope natural gas resources through the development of infrastructure necessary to move the gas into local and international markets.



Alaska LNG Capital Structure

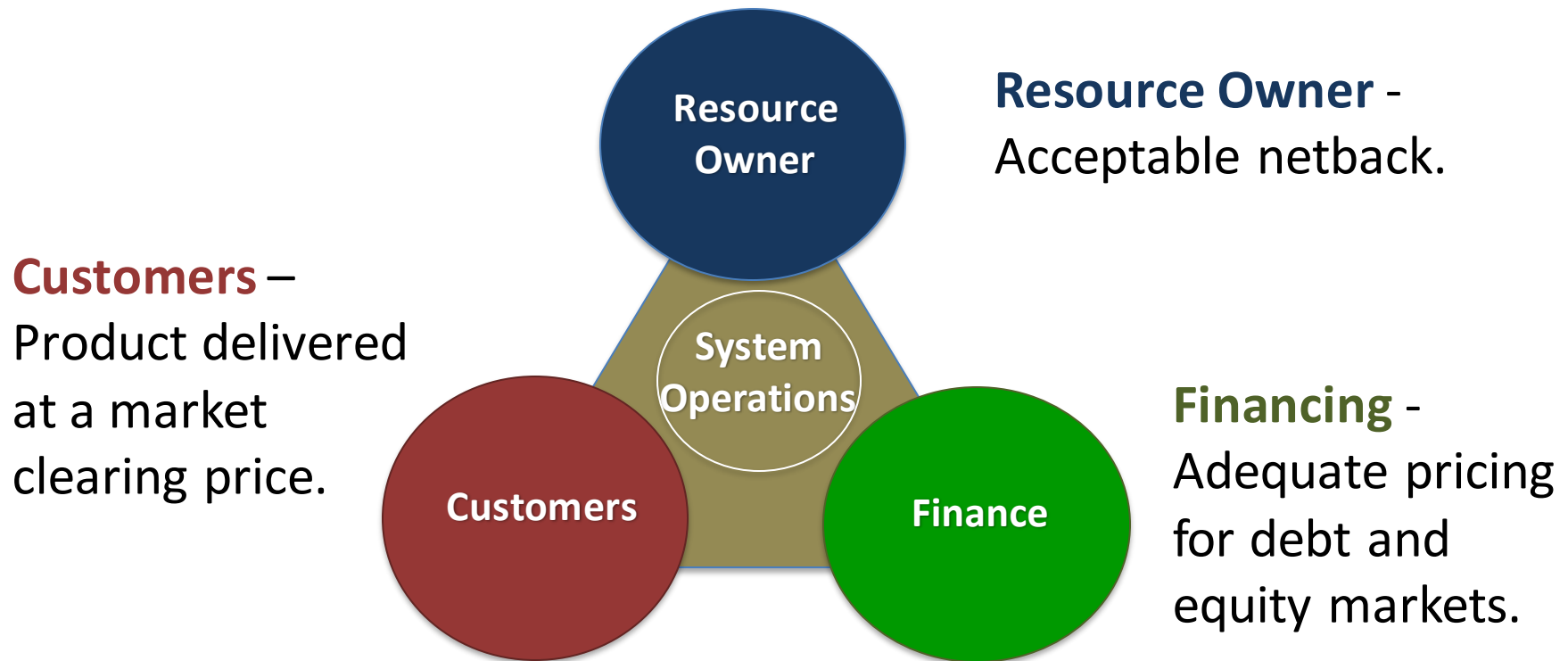


- Base case: 42-inch, three train, 20 Mtpa design.
- Total Capital Cost = \$43 Billion.
- Potential for phased development.



Balancing Three Drivers

- All infrastructure and resource development projects have similarities.
- Three key drivers have to be balanced to make the project economic.



Asia Pacific LNG Market

U.S. Competition

Henry Hub + \$5.00

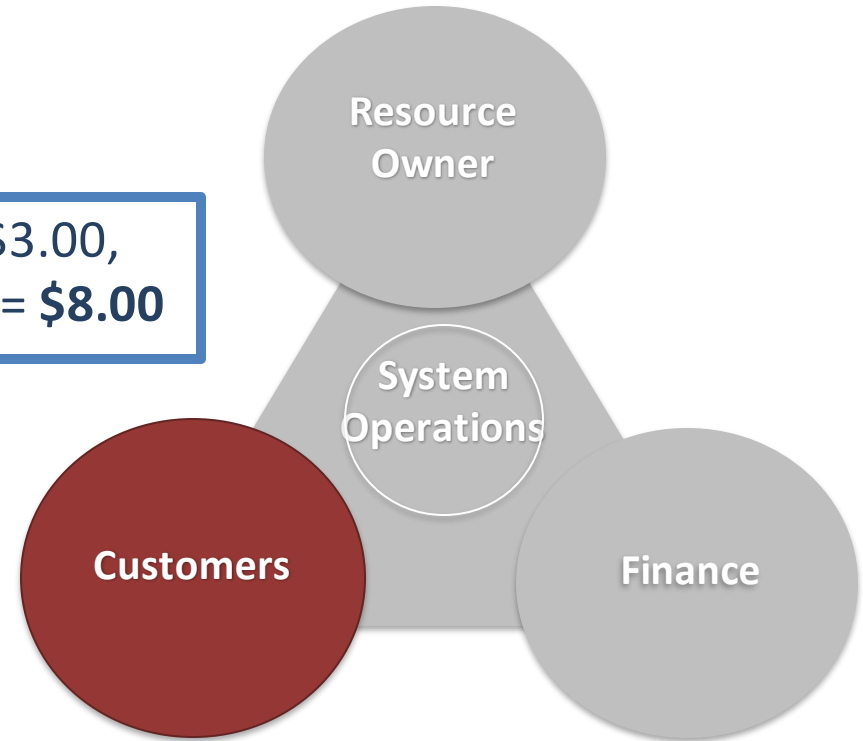
HH currently \$3.00,
 $\$3.00 + \$5.00 = \$8.00$

International

12-14% x Oil per Barrel

Other emerging pricing

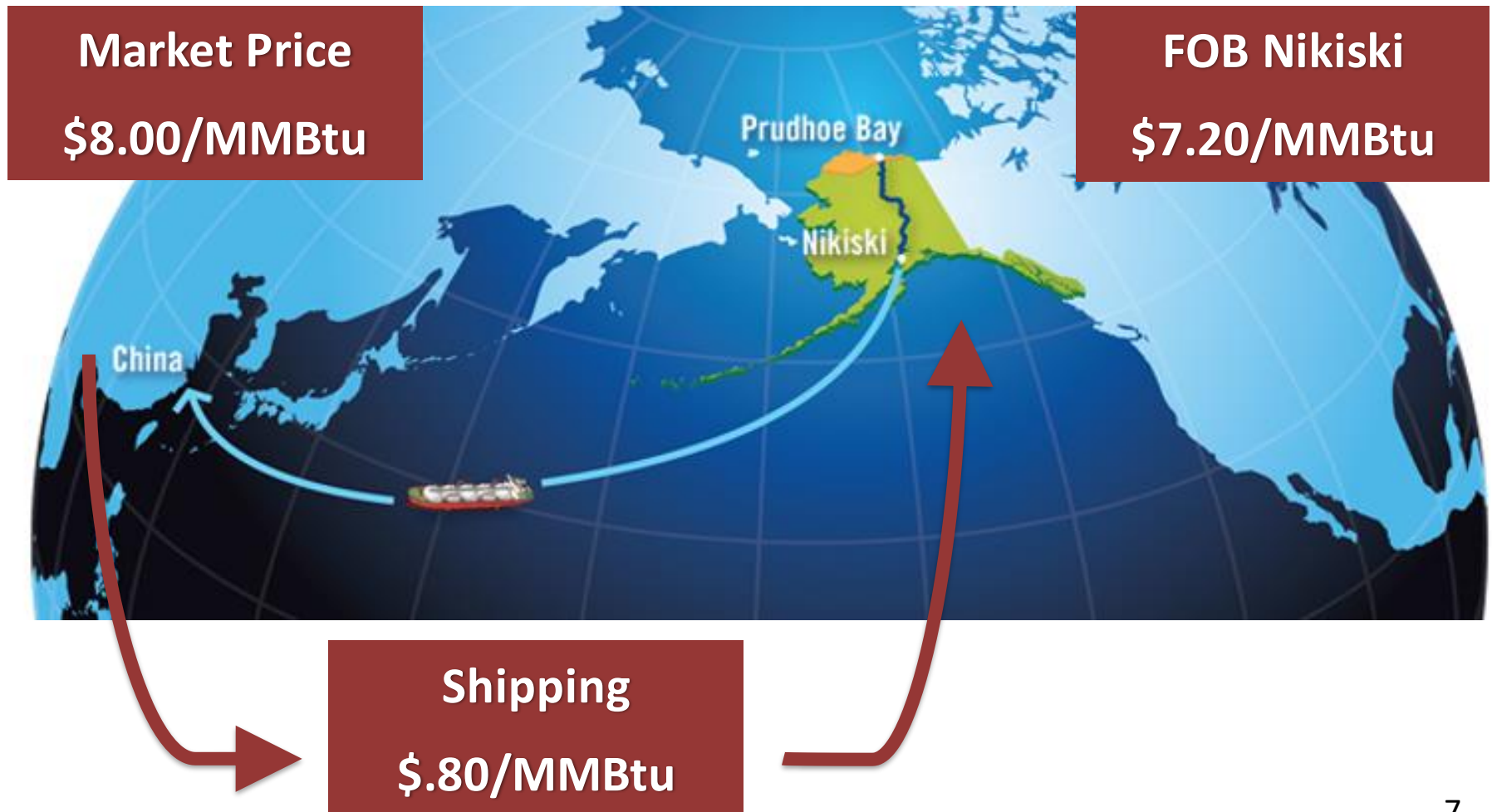
Brent currently \$63,
 $\$63 \times 12\% = \7.56

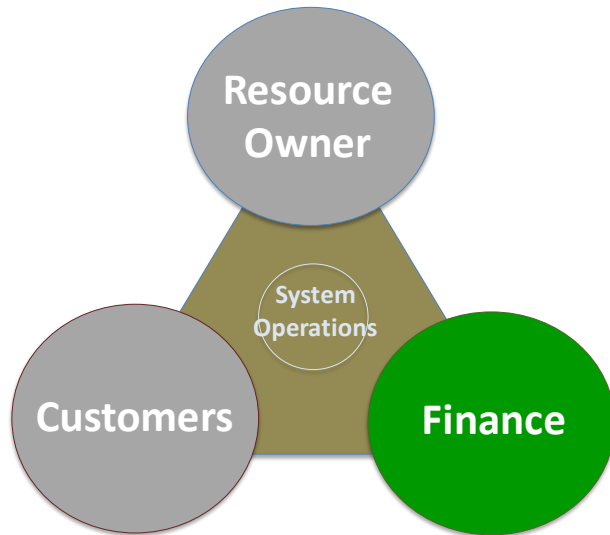


US Gulf Coast LNG Delivered to Asia			
	\$/MMBtu		
Gas supply	\$ 3.00	<== Henry Hub market price	
Liquefaction	\$ 3.20	<== US Gulf Coast Liquefaction	
Shipping	\$ 1.80	<== Gulf to Asia + Panama	
Total Delivered	\$ 8.00		

Market Price
\$8.00/MMBtu

LNG Price: FOB Nikiski





Alaska LNG Infrastructure

System Operations & PILT

- \$1.4 Billion Annually

\$/MMBtu

O&M
\$1.45

Financing

- Debt service - \$3.5 Billion/yr (20 yr; 5%)
- Equity - \$1.1 Billion/yr

Debt
\$3.60

Equity
\$1.15

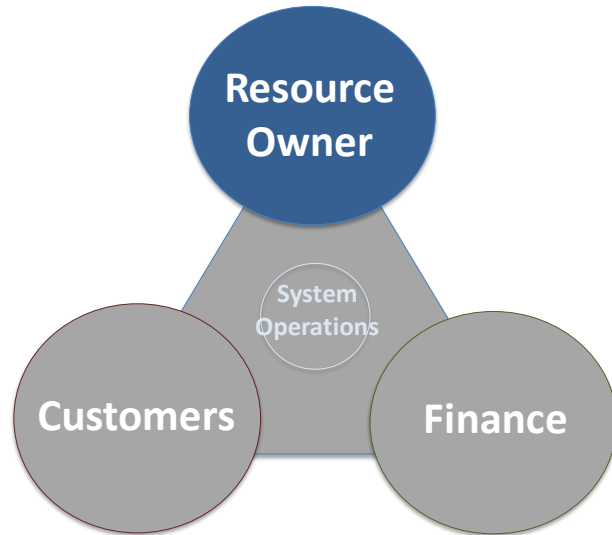
Alaska LNG System

Total
\$6.20

Annual Financing Costs				
	Ratio	Capital	Price	\$Billions
Equity	25%	\$ 10.8	10%	\$ 1.1
Debt	75%	\$ 32.3	5%	\$ 3.5
Total Annual				\$ 4.6
Equity	50%	\$ 21.5	20%	\$ 4.3
Debt	50%	\$ 21.5	5%	\$ 2.3
Total Annual				\$ 6.6

\$2.00 /MMBtu Savings

Netback to North Slope



\$1 Billion annually for gas supply; plus

\$1.4 Billion for Alaskan workers and communities.

Selling into an \$8.00/MMBtu Asian market means LNG at Nikiski needs to be \$7.20; less O&M, Debt Service, and Equity Return, leaves \$1.00 Netback to the North Slope.

\$/MMBtu

**Asia Market
\$8.00**

**Less:
Shipping
\$.80**

**Nikiski
\$7.20**

Alaska LNG System: \$6.20/MMBtu

**O&M
\$1.45**

**Debt
\$3.60**

**Equity
\$1.15**

**Netback
\$1.00**

US Gulf Coast LNG Delivered to Asia

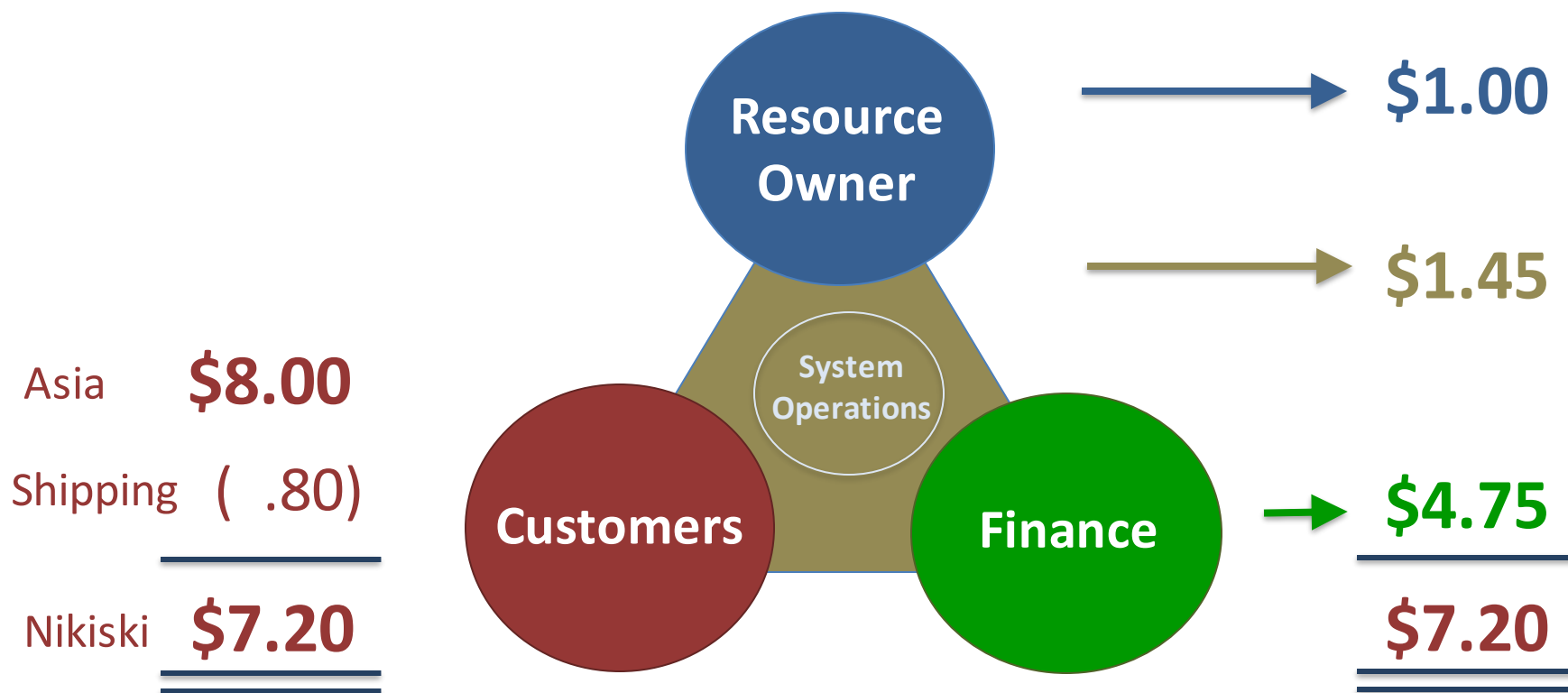
	<u>\$/MMBtu</u>	
Gas supply	\$ 3.00	<== Henry Hub market price
Liquefaction	\$ 3.20	<== US Gulf Coast Liquefaction
Shipping	\$ 1.80	<== Gulf to Asia + Panama
Total Delivered	\$ 8.00	

Alaska LNG Unit Cost at 19.7 Mtpa

	<u>\$Billions</u>	<u>\$/MMBtu</u>
Raw Gas Supply	\$ 1.0	\$ 1.00
Shipping	0.8	0.80
Equity Return	1.1	1.15
Debt Service	3.5	3.60
O&M + PILT	1.4	1.45
Total Delivered	\$ 7.8	\$ 8.00

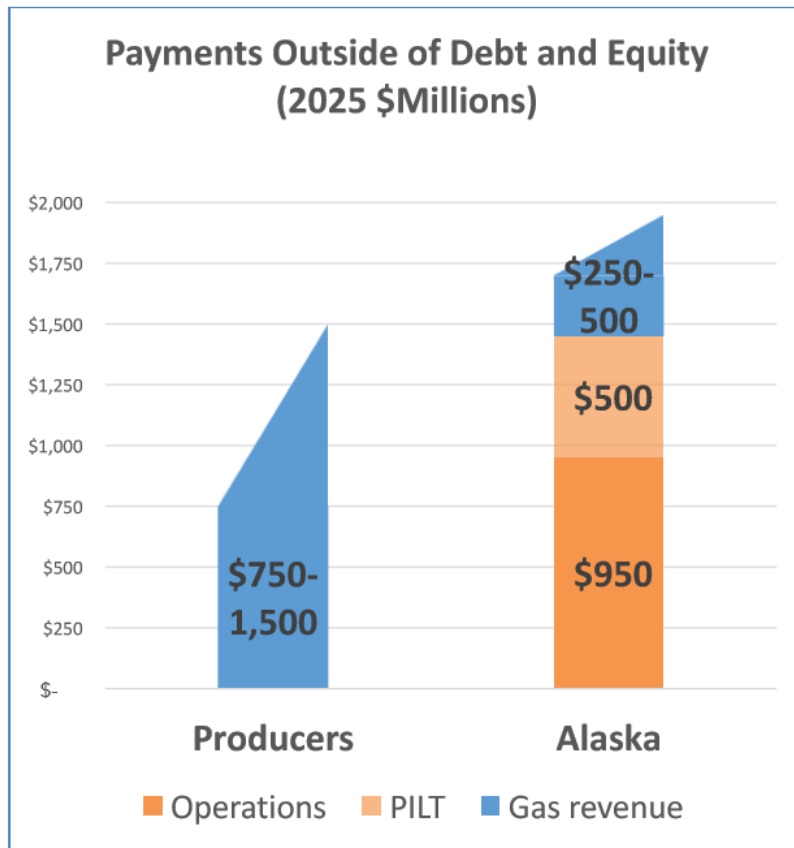
Balancing Three Drivers

- The project is economic to all stakeholders under the current structure.



Non-Equity Benefits to Alaska

The gasline and LNG infrastructure provides enormous value to Alaska; there is a significant opportunity cost of not developing the project.



Item	Annual Value	State's Share/yr	
Gas Resource	1 TCF/yr @ \$1-2/Mcf =\$1-2 Billion	25%	\$250-500+ MM
PILT	\$450-500 MM	100%	\$450-500 MM
Operations	\$950 MM	100%	\$950 MM
Equity Return	\$1.1 Billion	0 to 100%	
Net Revenue After Debt Retirement	\$6 Billion	0 to 100%	

- Opportunity for the State to generate \$1.6-\$2.0B per year upon project completion.
- Alaska can elect to be an equity investor.
- Significant upside opportunity given long-term LNG price forecasts.

Top Priority: Low Cost Energy For Alaskans

- Energy for all of Alaska.
 - Many off-takes to communities and projects along the Alaska Gasline.
 - Small scale LNG distribution.
 - \$25-50 million per year for communities without gas.
- The Alaska Gasline is bigger than the LNG Facility.
 - No risk of Alaskans' gas going to Asia.
 - Enough Alaska gas for demand to more than double.
- Price in the mid single digits.
- \$1,000 energy savings per household
- Ongoing commercial discussions to sell gas to Alaska utilities.



Alaska LNG System Design Guarantees Gas for Alaskans

Alaska Gasline:
Total Capacity: 1,110

Alaska LNG: Max Capacity 975 TBtu

In-State: 180 TBtu
Current: 60 TBtu
Growth: 120 TBtu

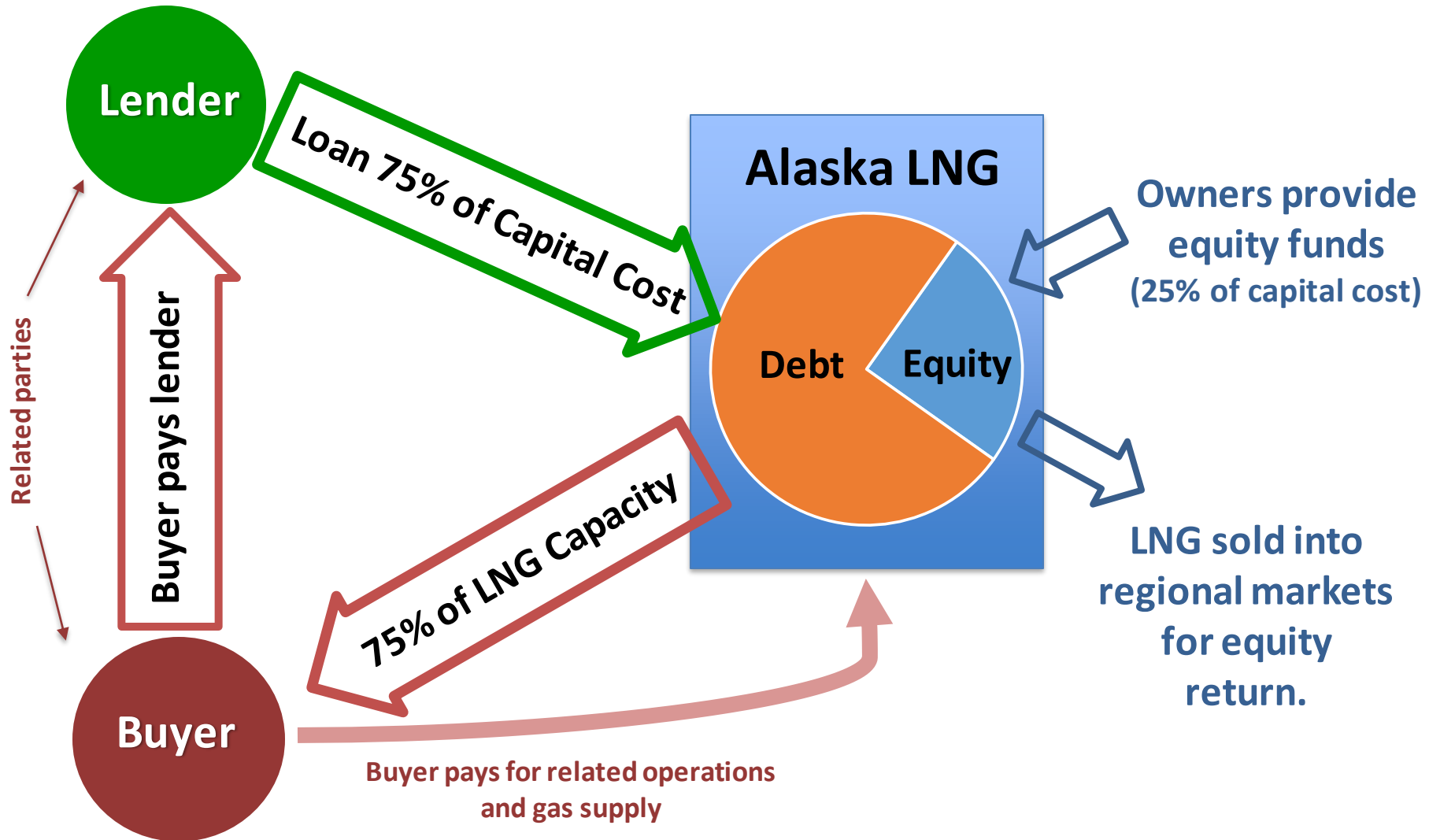
Commercializing a large energy infrastructure project in Alaska



“Mega Deal” for a “Mega Project”

- **Thinking outside the box – leveraging market position.**
- **Proposal to top LNG consuming Asian governments.**
 - In-country bank provides the debt for 75% of capital cost.
 - Alaska LNG provides proportionate amount of capacity (75%) to in-country buyer as repayment of the debt.
 - In-country buyer makes debt service payments directly to in-country bank, eliminating credit risk and foreign exchange risk.
- **Equity portion (25%) is funded by owners.**
- **Project company retains 25% capacity for sale into regional markets.**
 - 500 MMcf/per day available to Alaskans – twice the state’s current daily consumption.
- **Partial ownership investment by foreign entity is a potential, but AGDC will remain in control.**

Transaction Simplified

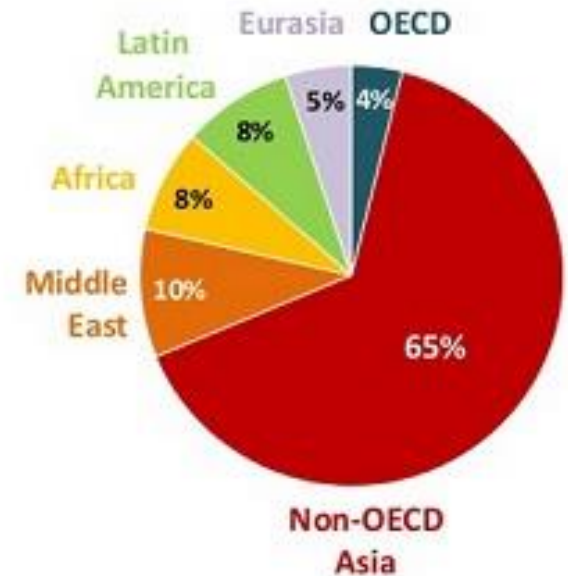


Primary Energy Demand Growth

Primary energy demand, 2035 (Mtoe)



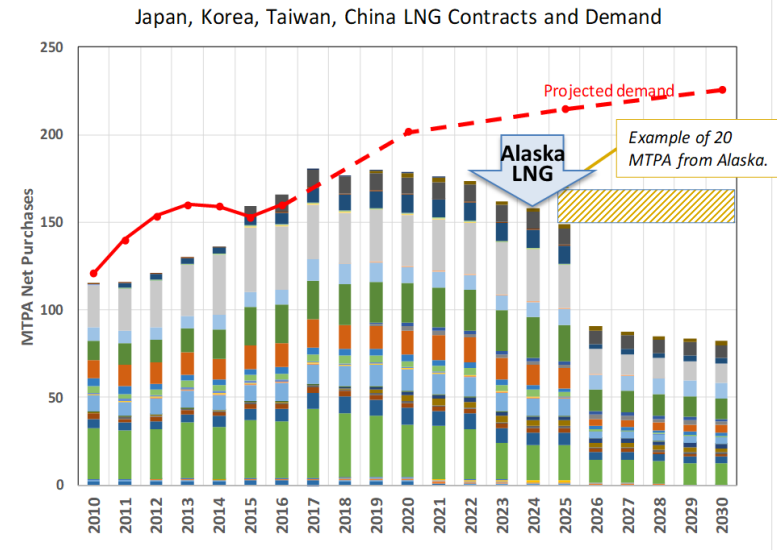
Share of global growth
2012-2035



Asia LNG Demand to Grow Rapidly

- Demand for natural gas has grown dramatically, outpacing the ability to produce domestically.
- LNG import capacity is increasing rapidly to help satisfy future demand.

Global liquefied natural gas imports
billion cubic feet per day



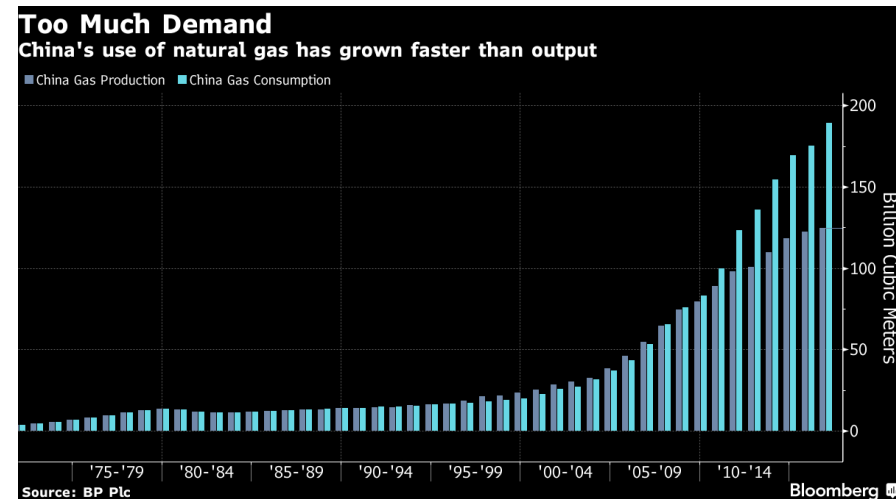
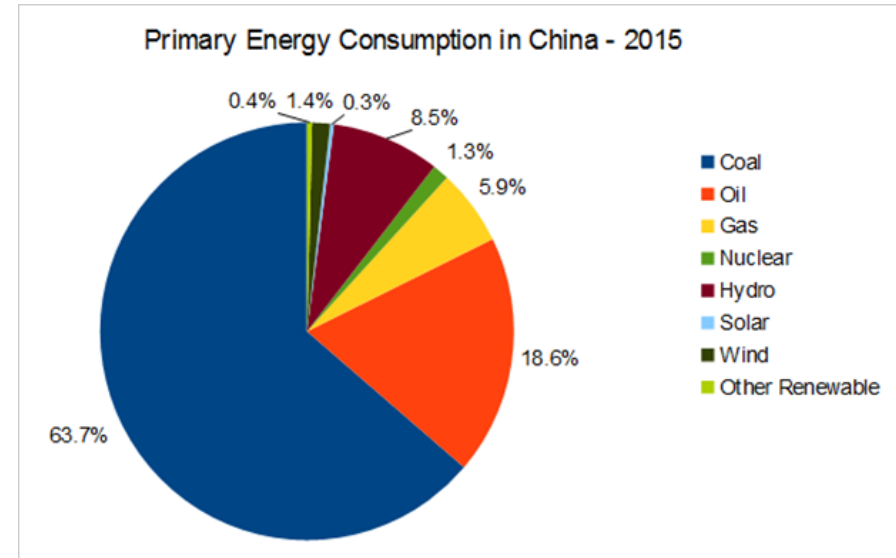
Source: Global NatGas Advisors LLC Analysis

China Moving to Cleaner Fuels

- China energy mix is predominantly coal and oil.
- Environmental concerns have caused a mandated shift to gas and other clean energy sources.

President Xi's address to the 19th Party Congress mentioned "environment" 89 times.

From 1 to 19 LNG Import Terminals in 10 years



Joint Development Agreement



- 75% of project debt financing from China in exchange for 75% of capacity for life of loan; O&M plus gas is additional.
- Remaining 25% of capacity held for sale by Alaska LNG to markets.
- Potential for Chinese companies to invest in minority interest.
- Potential for engineering and fabrication.
- A transparent and feasible investment model.
- Specific roles and terms defined by end of May, definitive documents by December 31, 2018.
- Parties not obligated to sign definitive agreements or expend funds.

Sinopec:

- Very large petroleum and petrochemical enterprise group.
- World's largest fully-integrated oil and gas company by revenue, with upstream, midstream, and downstream operations.
- China's largest producer and supplier of refined oil products.
- Largest oil refinery company
- 2nd largest chemical company in the world.



Track record of Successful LNG developments:

- Sinopec has 3 LNG receiving terminals on China's coast (9 MTPA).
- Partner with ConocoPhillips in Australia Pacific LNG (APLNG) with an offtake commitment for 7.6 MTPA for 20 years.
- 20 year, 2 MTPA contract with ExxonMobil from Papua New Guinea (PNG LNG).

Fortune Global 500 Rankings, 2017

	Company	Revenues (US\$M)
1	Walmart	\$485,873
2	State Grid	\$315,199
3	Sinopec Group	\$267,518
4	China National Petroleum	\$262,573
5	Toyota Motor	\$254,694
6	Volkswagen	\$240,264
7	Royal Dutch Shell	\$240,033
8	Berkshire Hathaway	\$223,604
9	Apple	\$215,639
10	ExxonMobil	\$205,004

Bank of China:

- World's 4th largest bank
- China's most internationalized and diversified bank.
- Engages in commercial and investment banking and insurance and investment services.



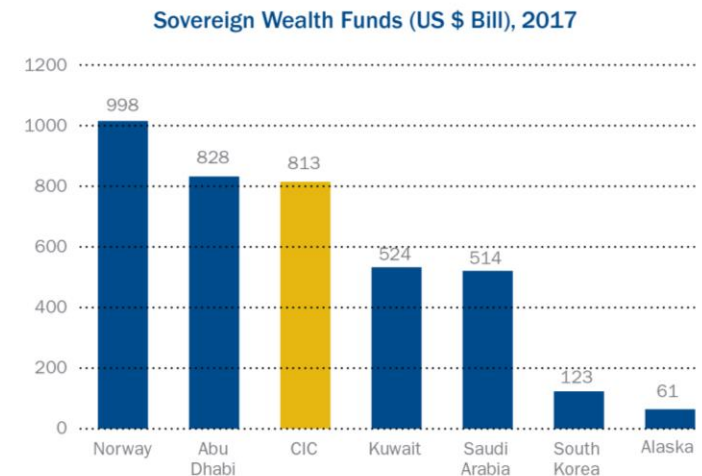
Current Rank▲	Company (ticker-exchange)	Total assets (US\$B)
1	Industrial & Commercial Bank of China Ltd. (1398-HKG)	3,473.24
2	China Construction Bank Corp. (0939-HKG)	3,016.58
3	Agricultural Bank of China Ltd. (1288-HKG)	2,816.04
4	Bank of China Ltd. (3988-HKG)¹	2,604.30
5	Mitsubishi UFJ Financial Group Inc. (8306-TKS)	2,589.56
6	JPMorgan Chase & Co. (JPM-NYSE)	2,490.97
7	HSBC Holdings Plc (HSBA-LON) ²	2,374.03
8	BNP Paribas SA (BNP-PAR)	2,190.42
9	Bank of America Corp. (BAC-NYSE)	2,187.70
10	Wells Fargo & Co. (WFC-NYSE)	1,930.12

Track Record of Successful LNG Financing:

- Coral South floating LNG project in Mozambique.
- Tangguh LNG in Indonesia.
- Cheniere's Corpus Christi trains 1 and 2.
- Australia Pacific LNG.

China Investment Corporation (CIC):

- World's 3rd largest sovereign wealth fund.
- CIC Capital is a subsidiary specializing in making direct investments in infrastructure, mining, and energy (oil and gas).
- Acquired a 10% stake in Teck Resources Limited, which operates Red Dog Mine.
- Acquired a stake in 1 New York Plaza office tower for \$700 million (1st direct U.S. investment).



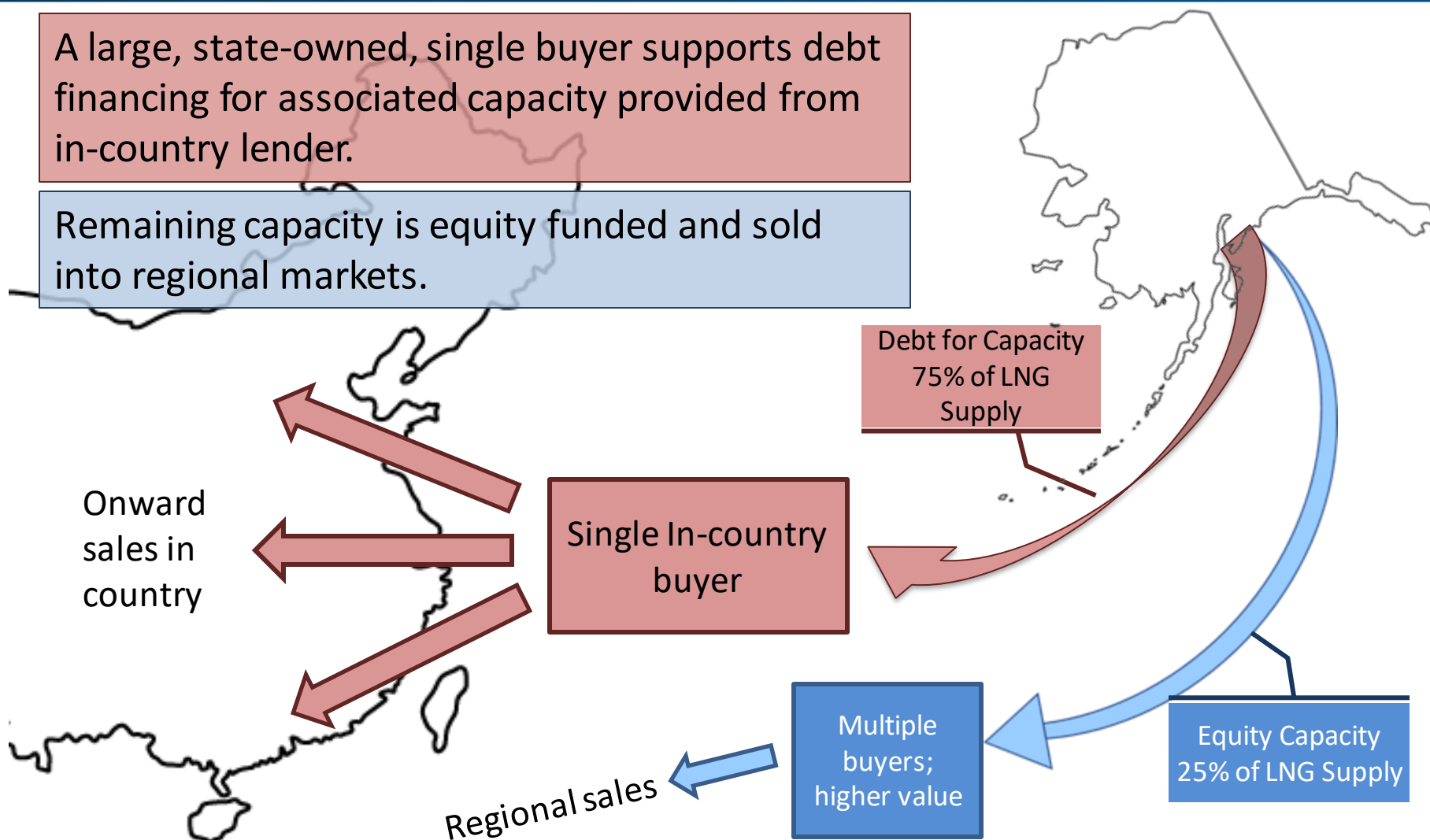
Track Record of Successful LNG Investment:

- CIC Invested \$3.15 billion in GDF Suez Exploration & Production International SA.
- \$850 million in Atlantic LNG Company of Trinidad and Tobago in 2011.

Unified Buyer/Lender Proposal

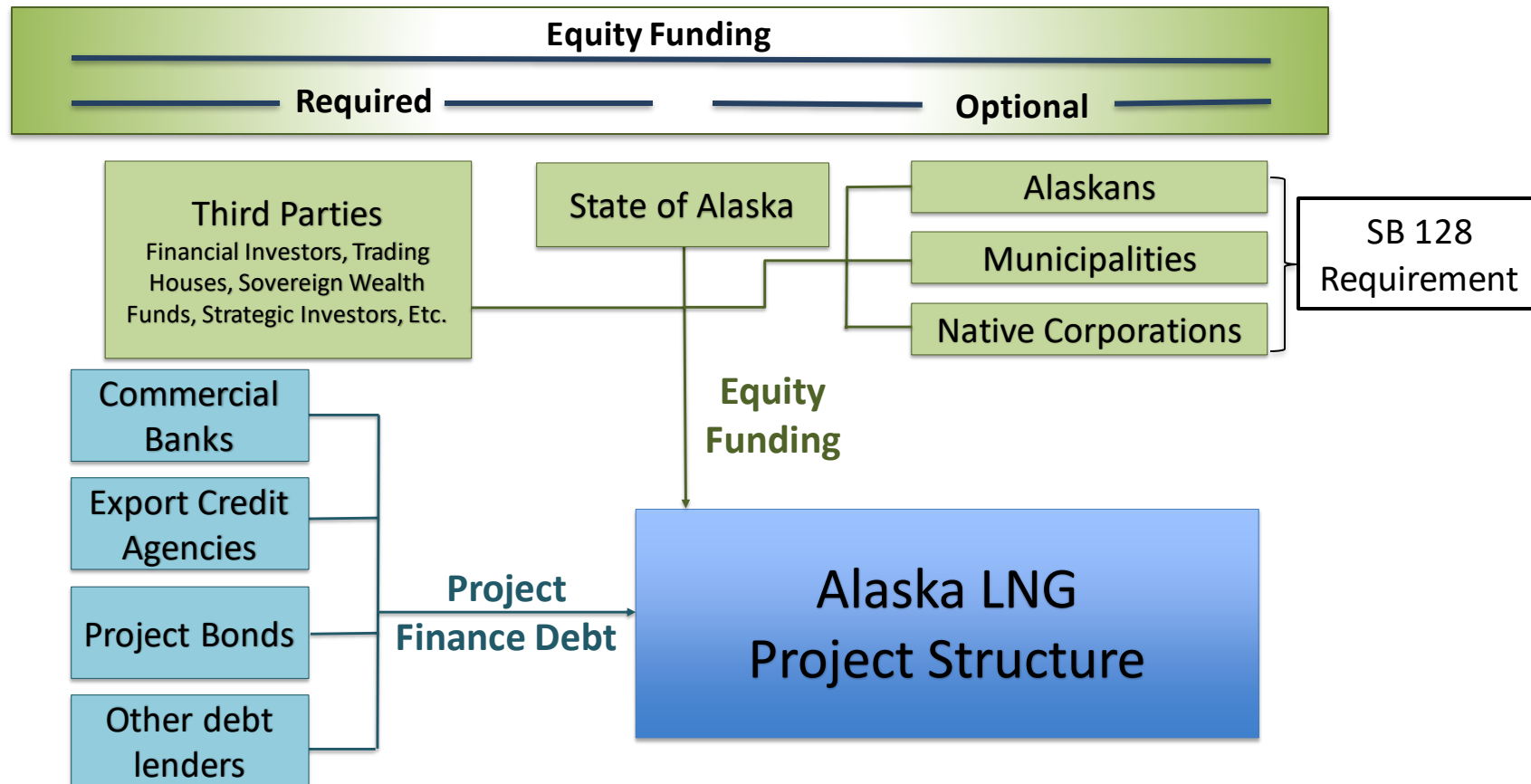
A large, state-owned, single buyer supports debt financing for associated capacity provided from in-country lender.

Remaining capacity is equity funded and sold into regional markets.



Equity Financing Options

Equity investment in the project will be required; pursue a development path to provide the State with an ability to invest, but not the requirement to invest; Alaskans also to have investment option.



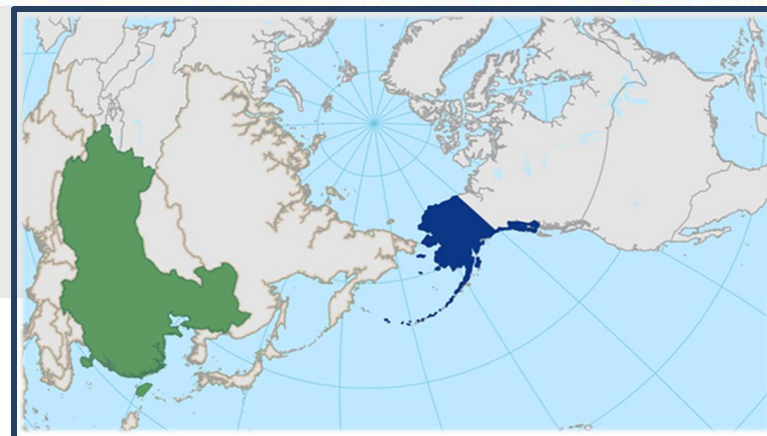
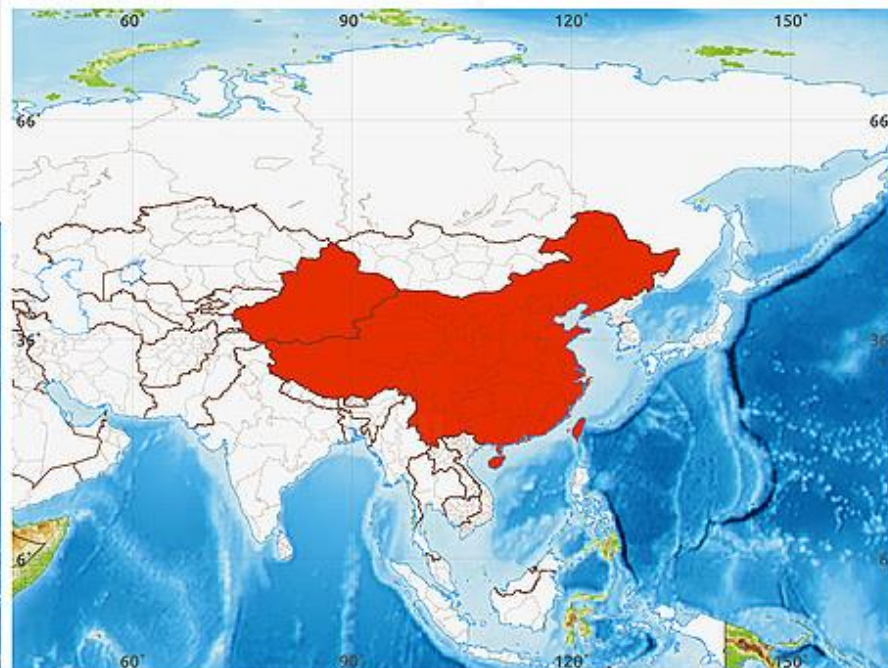
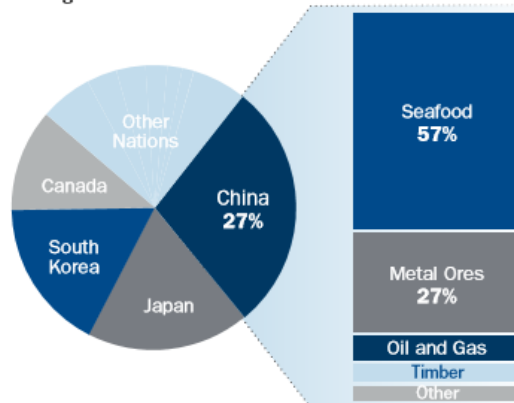
Focus: China



China: Alaska's Export Partner

China is Alaska's Biggest Trade Partner

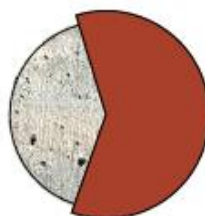
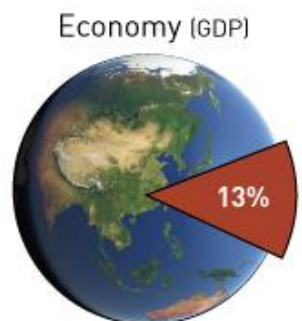
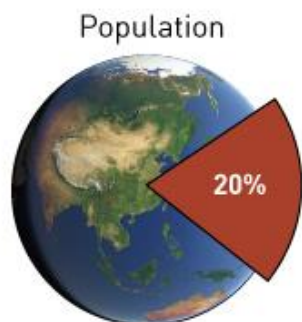
Trade with China directly benefits thousands of Alaskans,
including fishermen and miners.



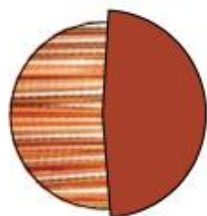
China as a Resource Buyer

**China is a major consumer of raw materials
that can be produced in Alaska.**

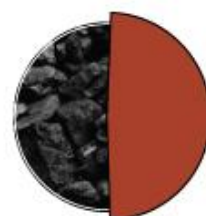
China share of world raw material consumption



Concrete
60%



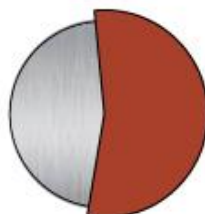
Copper
48%



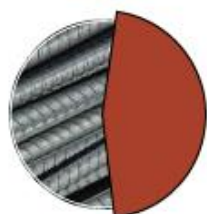
Coal
49%



Rice
30%



Aluminum
54%



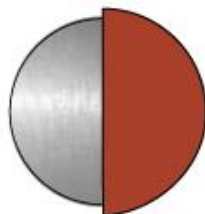
Steel
46%



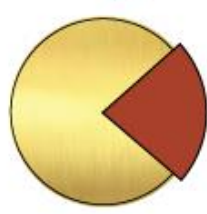
Uranium
13%



Corn
22%



Nickel
50%



Gold
23%



Oil
12%



Whea
17%

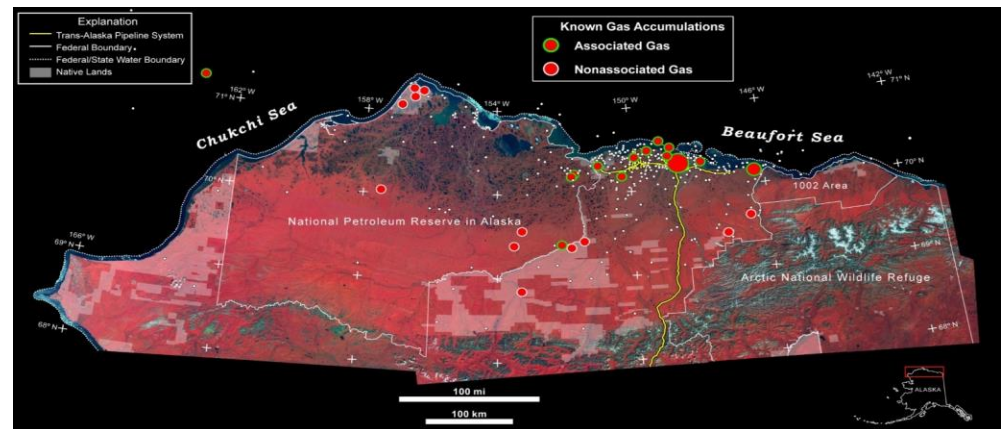
Major Trade Enhancement

- Alaska currently exports seafood and other products to Asia.
- Alaska LNG will significantly increase exports to Asia.
- Future mining projects, enabled by Alaska LNG, will further enhance trade.



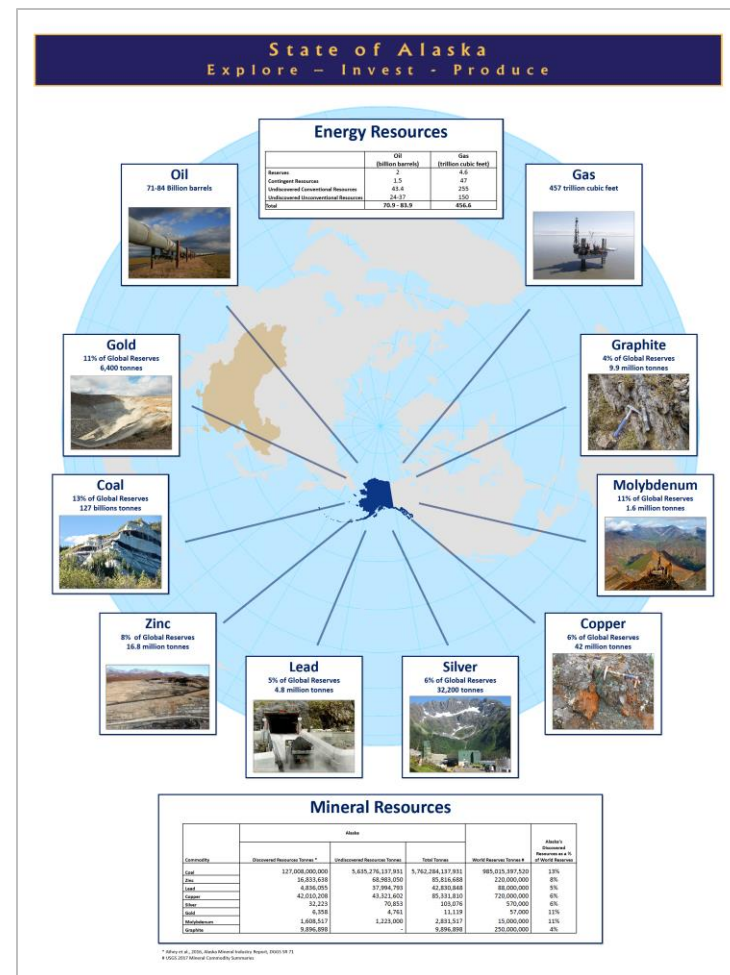
Highlighting Local Oil and Gas

- Alaska's North Slope is a hydrocarbon-rich, largely unexplored area.
- Area measures 245,000 km², and has fewer than 500 exploration wells.
- 35 TCF of developed gas resource.
- 200+ TCF of prospective conventional gas resource.



Alaska as a Resource Neighbor

- Alaska is a resource development state.
- 4 trillion tons of high quality coal: one of world's known coal resource.
- World-scale lead/zinc deposits: including the world's largest zinc mine.
- World-scale gold and copper mines: numerous existing and potential.
- Graphite: America's highest grade largest, large flake graphite deposit.
- Significant rare-earth deposits.



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.



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.

- **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.

Regulatory Timeline

ALASKA LNG TIMELINE		
2014 – 2016 Producer Led Effort	\$600 million of engineering, environmental, and science completed to advance permitting of Alaska LNG under Producer led effort.	
	State of Alaska takes lead – December 2016	
2017 and Beyond AGDC Led Effort (*Requested)	April 2017	AGDC Files FERC Application
	August 2017	Fast Act Approval
	August 2017	Presidential Executive Order
	November 2017	Joint Development Agreement
	December 2017	EIS Schedule Published*
	December 2018	Final EIS Published*
	February 2019	Record of Decision*

Budget

AGDC 2017 Expenditures and Projected Fund Balance

Forecasted Spend Estimate

\$-Millions

Major Activities	Spent									Total
	(Jan-Oct 2017)	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	
Communications	0.95	0.10	0.10	0.13	0.06	0.06	0.06	0.08	0.11	1.63
Commercial (Agreements and Marketing)	4.76	0.51	0.49	0.48	0.53	0.53	0.53	0.53	0.53	8.87
Project Finance	-	-	-	0.07	0.06	0.21	0.21	0.24	0.43	1.19
Regulatory (FERC Effort)	14.89	1.49	1.49	1.49	1.49	1.49	1.49	1.49	1.49	26.81
Class 3 Work (Prepare for FID)	-	-	-	1.83	1.86	1.89	2.06	2.12	2.51	12.28
AGDC Corporate (Operating)	7.44	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	14.37
Total Expenditures	28.05	2.96	2.94	4.86	4.86	5.04	5.21	5.32	5.92	65.15

Forecasted Balance Estimate

Projected Fund Balance	(Dec 2016)	Fund								
	Balance	Draw Down (Jan-Oct 2017)	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
AKLNG 1235 Total	79.72	(21.27)	56.24	54.06	50.16	46.28	42.23	38.03	33.73	28.90
ASAP 1229 Total	26.41	(6.78)	18.88	18.13	17.16	16.19	15.20	14.19	13.17	12.09
Remaining Balance	106.13	(28.05)	75.12	72.18	67.32	62.46	57.43	52.22	46.90	40.98

Note: Numbers are rounded to the nearest million.



www.agdc.us

Facebook.com/AKGasline DevelopmentCorp.