BUILDING A NORLD OF DFFERENCE

ALASKA NORTH SLOPE ROYALTY STUDY STUDY HIGHLIGHTS

PREPARED FOR THE STATE OF ALASKA



BLACK & VEATCH STATEMENT

This presentation was prepared for the State of Alaska ("Client") by Black & Veatch Corporation ("Black & Veatch") and is based in part on information not within the control of Black & Veatch.

In conducting our analysis, Black & Veatch has made certain assumptions with respect to conditions, events, and circumstances that may occur in the future. The methodologies we utilize in performing the analysis and making these projections follow generally accepted industry practices. While we believe that such assumptions and methodologies as summarized in this report are reasonable and appropriate for the purpose for which they are used; depending upon conditions, events, and circumstances that actually occur but are unknown at this time, actual results may materially differ from those projected.

Readers of this presentation are advised that any projected or forecast price levels and price impacts reflect the reasonable judgment of Black & Veatch at the time of the preparation of such information and are based on a number of factors and circumstances beyond our control. Accordingly, Black & Veatch makes no assurances that the projections or forecasts will be consistent with actual results or performance. To better reflect more current trends and reduce the chance of forecast error, we recommend that periodic updates of the forecasts contained in this presentation be conducted so recent historical trends can be recognized and taken into account.

Neither this presentation, nor any information contained herein or otherwise supplied by Black & Veatch in connection with the services, shall be released or used in connection with any proxy, proxy statement, and proxy soliciting material, prospectus, Securities Registration Statement, or similar document without the written consent of Black & Veatch.

Use of this presentation, or any information contained therein, shall constitute the user's waiver and release of Black & Veatch from and against all claims and liability, including, but not limited to, any liability for special, incidental, indirect or consequential damages, in connection with such use. In addition, use of this presentation or any information contained therein shall constitute an agreement by the user to defend and indemnify Black & Veatch from and against any claims and liability, including, but not limited to, liability for special, incidental, indirect or consequential damages, in connection with such use. To the fullest extent permitted by law, such waiver and release, and indemnification shall apply notwithstanding the negligence, strict liability, fault, or breach of warranty or contract of Black & Veatch. The benefit of such releases, waivers or limitations of liability shall extend to Black & Veatch's related companies, and subcontractors, and the directors, officers, partners, employees, and agents of all released or indemnified parties. USE OF THIS PRESENTATION SHALL CONSTITUTE AGREEMENT BY THE USER THAT ITS RIGHTS, IF ANY, IN RELATION TO THIS PRESENTATION SHALL NOT EXCEED, OR BE IN ADDITION TO, THE RIGHTS OF THE CLIENT.











- The Alaska Liquefied Natural Gas (AKLNG) project is a proposed project to liquefy Alaska North Slope (ANS) gas and export it as LNG, primarily to Asian markets
 - The project is comprised of three main components:
 - Gas treatment plant (GTP),
 - Pipeline
 - Liquefied natural gas (LNG) plant
- The total estimated capital cost of the project is \$45 billion falling within a range of \$39-\$54 billion
- Natural gas to supply the project is anticipated to come from the proven reserves at the Prudhoe Bay and Point Thomson units on the Alaska North Slope
- The key project sponsors are Exxon Mobil, ConocoPhillips and BP (referred to in this study as Producers) with potential participation by TransCanada and the State of Alaska
- Target final investment decision for the project is projected around 2017-18 with a commercial operation date around 2023-24











- The AKLNG Project has recently seen momentum with the 3 Producers along with TransCanada coming together to evaluate and advance the AKLNG Project
- The AKLNG Project has the potential to provide hundreds of billions of dollars in value to the State of Alaska as well as the project's investors; the benefits to Alaskans include new revenues, affordable energy supplies, new jobs and economic activity
 - The State of Alaska, Department of Natural Resources (DNR) commissioned a study to document and understand four major commercial elements that could influence the various stakeholders' returns from the AKLNG Project:
 - LNG markets

•

- -Supply chain elements
- Fiscal framework International and Alaska
 - -Risk allocation/commercial structure





 The purpose of this study is to provide information that can help the State to protect its royalty interest in the state's gas and ensure that the State maximizes the value of its natural gas





- The study examined how the State's fiscal terms with a particular focus on royalty terms can affect the success of the AKLNG project in its role as the principal land owner of the oil and gas resources of the North Slope
- The Study was undertaken by a team that included Black & Veatch and Daniel Johnston, Inc. under the leadership of DNR along with support and consultation by Department of Revenue (DOR). Additionally, inputs and assumptions of AKLNG Project sponsors were considered.









- Assessment of a project of the scope of AKLNG requires examination of numerous complex variables that cannot be determined with a high degree of certainty
- In most cases, a conservative approach was taken when applying forecasts and assumptions
- Many reasonable scenarios can be derived where the AKLNG project is economic, and vice versa
- It should be recognized that market and project related variables, that remain as yet unresolved, can modify the economics as presented here
- The findings in this study represent Black & Veatch's view based on the information available to date and do not necessarily represent the views of the State of Alaska



LNG Markets

- The LNG market is characterized by highly capital intensive projects underpinned by long-term contractual relationships across the supply chain
- The LNG market is in an illiquid, opaque market consisting of very few participants and is structured on the basis of long-term, 20+ year contracts as opposed to the global oil market which is highly liquid, extremely transparent, comprised of many participants and is structured on the basis of short term trade



Note: Includes AKLNG, other new projects, and projects under development. Source: Team Analysis, various demand studies

- Global LNG demand is projected to grow by 50% between 2013 and 2020 and to double by 2030.
 However potential sources of supply are expanding as well thereby creating significant competition for capturing this growing market
- AKLNG project could be economically feasible with changes to the project's cost structure and the state's fiscal framework
- AKLNG will have to compete successfully for buyers in order to meet its targeted 2024 in-service date







Supply Chain Elements

- In line with the rising costs of LNG projects world-wide, AKLNG project cost estimates have risen by 67% since an equivalent project was evaluated in 2008 to a current estimate of \$45 Billion for the GTP, Pipeline and LNG liquefaction and marine facilities. Equivalent estimates from AKLNG project sponsors are in the range of \$39 \$54 Billion.
- Large, complex LNG projects typically have an integrated commercial structure from production through liquefaction to give project sponsors maximum control across the supply chain.
- The AKLNG project is expected to have an integrated structure
- Ensuring transparency along the supply chain, open access for third parties and alignment of interests between the State and Producers become challenging with a Producer-owned integrated project.



Fiscal Framework

- AKLNG is competing for capital with Producers' projects worldwide and for market share with other sources of supply.
- Similar to other oil and gas projects, LNG projects have either concessionary or contractual fiscal systems with total government take ranging from 45% - 80% for comparable LNG projects reviewed that have achieved commercial operation.
- Government take in Alaska in the 70% 85% range is high for a complex LNG project, although overlapping with the range of government take for the other LNG projects reviewed. Expected IRR for the Producers of approximately 15% for the upstream and midstream components of the project may be insufficient for the Producers to move forward, given their investment alternatives and AKLNG project uncertainties.
- Changes to the project's cost structure and the State's fiscal framework can make the AKLNG Project more economic and competitive.





Fiscal Framework

- Incentives including modifications in royalty and/or production tax are among the alternatives available to the State to help improve the relative competitiveness of the project under various scenarios.
- There are various risks to the State from significantly reducing or eliminating its royalty share;
 - Royalties represent Alaska's ownership stake and reducing royalties has implications for the Alaska Permanent Fund
 - Royalty reduction would not protect the State from risks posed by misalignment between the State and Producers interests wherein Producers are able to shift revenues between upstream and midstream components of the project to the detriment of the State





Fiscal Framework

- In reviewing alternatives for royalty, an election by the State to take its royalty in-kind (RIK) could result in a substantial increase in the State's risk exposure and potential loss of royalty value.
 - An election by the State to take its royalty in-kind could necessitate the need for the State to enter into a large number of complex commercial agreements. The State would be disadvantaged in the creation of such agreements by its statutory and regulatory structure (e.g., the need for legislative modifications), its inexperience in LNG negotiation, its status as a new entrant to the market, and the lack of an LNG supply portfolio to optimize. Risks associated with RIK could result in lower pricing for our LNG
 - Producers have more experience managing the exposures to market risk
- An election by the State to take its royalty in value presents potential for dispute on valuation and deductions and misalignment of interests with the Producers.
 - However, the State has experience in addressing these challenges through settlement agreements that provide more certainty and clarity





Risk Allocation

- Oil and LNG prices and capital costs emerge as the key factors among the various risks impacting the AKLNG project's economics
- Direct equity participation in the project can align the State with the Producers and reduce the cost structure of project for project sponsors but potentially exposes the State to additional risks
- Commercial terms related to equity participation such as position on the management committee and voting rights will determine the extent to which the State can achieve its objectives for open access and transparency

ш

0



EXECUTIVE SUMMARY – CONCLUSIONS







- The AKLNG Project can be economically feasible and competitive with changes to the project's cost structure and the State's fiscal framework
- Fiscal and non-fiscal incentives can aid in improving the commercial attractiveness of the project
 - Fiscal cost sharing, reduction in government take
 - Non-fiscal stabilization provisions, modifications to existing lease terms such as the notice period of the State's rights to switch between RIK and RIV
- Integrated project ownership of AKLNG by the Producers presents the risk of misalignment wherein project revenues could be moved between the upstream and the midstream components to maximize value to the Producers. These decisions could potentially be to the detriment of the State.



EXECUTIVE SUMMARY – CONCLUSIONS







- Fiscal structure changes beyond stand-alone royalty share or tax rate modification can help in improving project economics and creating alignment:
 - Direct participation by the State in the project
 - Establishment of a gross share of gas in lieu of production tax
- Direct state equity participation in the project can provide key benefits to the State including :
 - Create alignment of interests;
 - Create transparency through the midstream portion of the supply chain;
 - Facilitate third-party access to the mid-stream;
 - Potentially increase State cash flows, and improve producer economics.



EXECUTIVE SUMMARY – CONCLUSIONS







Going further, establishment of a gross share of gas in lieu of production tax and corresponding equity investment in the project may provide the needed alignment for a competitive project such that the State can maximize the value of its resources.

The State has the ability to lessen project risk, but will need to weigh those opportunities circumspectly - risk mitigation and commercial agreements need to be addressed carefully to define the State's rights and obligations, manage risk exposure and to achieve objectives of transparency and open access for third parties

STUDY

AS

J

ROYALTY

ш ٩ 0

SL

Т F

2 0 Z

ALASKA



LNG MARKETS – SCOPE

- LNG Markets
- Supply Chain Elements
- Fiscal Framework
- Risk Allocation & Fiscal Structure

- Overview of how LNG is being traded and valued in various markets that are available to AKLNG Project
- Analysis of historical and future global LNG pricing trends
- Discussion of supply and demand projections in the LNG market and implications for AKLNG Project

STUDY









CURRENT LNG MARKET REALITIES

Demand/ key markets	 Highly concentrated – 7 countries account for 70% of demand Asia Pacific accounts for 70% of global trade Growing rapidly – 8% per annum over the past 5 years
Supply	 LNG Supply is also highly concentrated – 8 exporting countries provided 83% of global LNG exports in 2012 Liquefaction capacity is rarely developed on a speculative basis Liquefaction facilities typically cost US\$5-20bn LNG facilities are generally project financed, requiring firm revenue commitments LNG specifications vary by each project and between buyers
Contracts/ pricing	 Dominated by long term contracts (LTCs) ~75% of global trade was delivered under LTCs in 2011 and in 2012 Trade in Pacific basin is driven by LTCs more than in Atlantic basin No liquid market to provide price markers for LNG Price structure needs to give buyers and sellers reasonable certainty over 20 years Oil/oil product price linkage has been standard since the 1970s This link is usually defined in form of a formula with slope to oil price and constant

17

Ę

RECENT MARKET DYNAMICS: SUMMARY

Crude linked contracts	 Crude linked contracts are signed by most suppliers excluding North American export terminals Between 2002-2006, some low price contracts were signed by China/Japan From 2007, most recent contracts signed have a 14% - 15 % effective slope for the relationship of LNG price (\$/Mcf) to crude price (\$/Bbl)
U.S. export contracts	 Emergence of Henry Hub linked US LNG tolling agreements has created an alternative to traditional crude linked contracts Delivered LNG prices under these are currently lower than oil-linked contract prices Buyers in countries such as Japan are increasingly asking for these and holding back on traditional contracts
Non price features/ players' responses	 Apart from pricing, duration of contracts, the nature of commitment, delivery terms and LNG specifications are important features to be considered Participants respond to supply and demand changes in a number of ways to protect the price floor



STUDY

GAS

OUTLOOK FOR LNG DEMAND GROWTH VARIES ACROSS FORECASTING AGENCIES



1 Mtpa = 1.379 Bcma used

AKLNG: PRESENT VALUE SHARE OF BREAK EVEN PRICE (ZERO NPV FOR PRODUCERS)



(2013 real US\$/MMBtu), LNG price delivered ex ship (DES) in Asia



¹ Discount rate used to calculate present value is 8.5% for mid-stream and 10% for upstream

² Effective ~17.4 Mtpa LNG capacity due to geographic advantage in Alaska

³ Assumes contractor would take on a project where revenue matches its costs, including expected return on equity

NDΥ

S H

S

A D

ON THE GLOBAL SUPPLY CURVE, AKLNG APPEARS TO CURRENTLY BE OUT OF THE MONEY, MODIFICATIONS REQUIRED FOR COMPETIVENESS



≻0

5

⊢

ŝ

S

4

J

≻

ALT

>

0

ĸ

ш

Ч О

_

S

ORTH

Z

ALASKA



GROWING LOWER-48 & CANADA APPROVALS MEAN THAT THE OPPORTUNITY FOR NEW PROJECTS COULD NARROW GOING FORWARD

Global LNG opportunity



While some existing plants are seeing decline in supply, there are several projects already under construction, mostly in Australia



2 Approvals in lower 48 and Canada are adding to this supply fast



Estimated ~50 Mtpa remaining opportunity to 2020 and
 ~30 additional Mtpa opportunity to 2025 after existing and projected approvals



PROSPECTIVE FUTURE US LNG EXPORTS HAVE CREATED AN ALTERNATIVE TO TRADITIONAL CRUDE LINKED LNG CONTRACTING



¹ KOGAS-Cheniere 2012 example, actual contract is FOB, indicative shipping added

Note: US L-48 LNG exports have used a very different contract structure from the rest of the world and this results in lower delivered prices for expected oil and gas price levels

SOURCE: Team Analysis

23

IN THE LONG RUN THROUGH 2030, LNG MARKET CAN EVOLVE WITHIN A BROAD RANGE



CASE	FACTORS AFFECTING	POSSIBLE PRICE RANGE
HIGH CASE	 North American LNG exports permitted at slow pace Non-NA Conventional supplies compete to serve the remaining demand Asian demand grows more rapidly than expected High cost LNG projects in Australia and Russia are the marginal supplies Sellers continue to demand high slope oil-linked contract terms 	25 20 15 10 5 2000 2005 2010 2015 2020 2025 2030
LOW CASE	 North American LNG supply is unconstrained and can meet all uncontracted demand Low cost non-NA conventional supplies compete directly with North American exports Henry Hub linked US exports become the price setter for Asian LNG 	25 20 15 10 5 2000 2005 2010 2015 2020 2025 2030

STUDY

GAS

ROYALTY

RTH SLOPE

02

ALASKA

THE MOVEMENT OF LNG PRICES WITHIN THESE RANGES IS EXPECTED TO DEPEND ON THREE KEY FACTORS

Supply-demand	 Volume of LNG required Availability of LNG from planned and speculative 				
balance	sources (especially U.S./Canada)Break-even gas price of the marginal supply source				
Seller market	Ability of major producers to maintain pricing discipline				
power	 Ability and incentives of competing producers to undercut traditional price structures 				
Buyer market economics	 Competitiveness of LNG vs. other energy sources within the Buyers' market 				



SUMMARY: LNG MARKETS

The LNG market is characterized by capital intensive projects and long-term contracts across the supply chain

The LNG market is illiquid and opaque, with few players, in 2 contrast with the liquid and transparent oil market



1

LNG demand is expected to grow quickly over the short and long-term, but supply sources are also rapidly expanding

AKLNG appears to be out of the money within the global LNG 4 supply curve under the status quo; cost and /or fiscal modifications could enhance competitiveness









SUPPLY CHAIN ELEMENTS – SCOPE

- LNG Markets
- Supply Chain Elements
- Fiscal Framework
- Risk Allocation & Fiscal Structure





- Overview of the current capital cost estimates for the AKLNG Project
- Review of the capital structures that are likely to be applicable to AKLNG Project
- Discussion and assessment of applicable commercial structures for AKLNG Project



PROJECT CAPITAL COSTS UPDATE INCREASES BASELINE AKLNG PROJECT COST TO \$45 BILLION (2013\$)



Supply		2013 Updates		
Chain Element	2008 Estimate ¹	State's Estimate	Producers Estimate	
GTP	\$5 Billion	\$10 Billion	\$10 - \$15 Billion	
Pipeline	\$8 Billion	\$12 Billion	\$10 - \$15 Billion	
LNG	\$14 Billion	\$23 Billion	\$17 - \$24 Billion	
Total	\$27 Billion	\$45 Billion	\$37 - \$54 Billion	

¹ Capital cost for a 2.7Bcf/d LNG project estimated by the State's Technical Team during AGIA proceedings.

CAPITAL STRUCTURES VARY FROM PROJECT TO PROJECT DEPENDING ON RISK PROFILE AND PARTNER PREFERENCES

	Partners		Capital Structure (Debt/Equity)	Comments
PNGLNG	ExxonMobil Oil Search Santos	National Petroleum Company of PNG Nippon Oil	70/30	Located at Caution Bay near Port Moresby, Papua New Guinea LNG is expected to have a capacity of 6.9 Mtpa and begin operations in 2014.
		MRDC		PNGLNG is an integrated project and was the beneficiary of \$8.3 billion in loans and guarantees from public export credit agencies.
APLNG	Origin ConocoPhillip	S	70/30	Two train design with a capacity of 9.0 Mtpa and requiring an investment of \$23 billion, Australia Pacific LNG . Train 1 financed \$8.5 billion.
	Sinopec			Origin operates the upstream segment of the project; ConocoPhillips operates the LNG facility.
Gorgon LNG	Chevron Shell ExxonMobil	Chubu Osaka Gas Tokyo Gas	0/100	Gorgon LNG ' is the world's largest capital investment in an integrated LNG project. The \$53 billion 15 mpta project is currently under construction and first LNG is expected in 2015.
				The project is financed through equity contributions from the partners.
Qatargas 2	Qatar Petrole ExxonMobil	um	70/30	Qatargas 2 Train 1 produces 7.8 Mtpa , Total is a partner in the second train, which also produces 7.8 Mtpa
	The D	ebt / equity ratio tha	at the market can support	for a given project is driven by the

financial strength of the partners

R

PRODUCER EXPECTATIONS OF ROE FOR INFRASTRUCTURE PROJECTS EXCEED FERC-APPROVED ROE FOR NEW BUILDS



STUDY S ٩ U ROYALTY ш ٩ 0 SL Т R H 02 ALASKA

COMMERCIAL STRUCTURE OF PROJECT INFLUENCES RISK AND CONTROL

Integrated	 Aligned interest Cost and risk sharing Concentrated control 	
	 Less capital requirement for individual 	
Merchant	 sponsors Separation of control between upstream and LNG project 	
Tolling	 Contractually assured fees and returns Accommodates supply from multiple upstream sources No market upside for LNG project 	

Each structure affects the operations and financing costs of the GTP, pipeline, LNG plant, and the shipper and impacts key criteria important to State - Commercial viability of AKLNG project, open access, expandability, transparency across the supply chain

31

LNG PROJECT COMMERCIAL STRUCTURES

Integrated LNG Project Structure

One LNG Project Company

- Same multiple sponsors in the upstream and liquefaction segments
- Common ownership interests across the LNG chain
- Sales and Purchase Agreement (SPA) directly between LNG Project Co and LNG Buyers – either FOB or DES
- Examples: PNG, QatarGas II, RasGas, Sakhalin II, Tangguh



Non Integrated LNG Project Structure (Merchant)

- Legal Separation Between Sponsors of Upstream and Liquefaction
 Segments
 - Different shareholding interests between upstream, midstream and liquefaction
 - Gas Sales Agreement (GSA) between LNG Project Co/Borrower and Upstream shareholders
 - Examples: Peru LNG, QatarGas, NLNG (Nigeria), Brunei LNG



Tolling LNG Project Structure

- LNG Liquefaction Plant Performs Services For a Fee From Upstream
 - May have same or different sponsors in the upstream and LNG liquefaction facility
 - Usually limited recourse financing of LNG liquefaction facility with creditworthy tolling agreement counterparty
 - Examples: Egypt LNG, Atlantic LNG Trains 2-4





KEY CHARACTERISTICS OF LNG PROJECT STRUCTURES

	Structure	Advantages	Disadvantages
	Integrated• Equity owners may or may not act together to sell the LNG product from an integrated structure • Control over production • Aligned interests between owners • Cost sharing and potential tax benefitsMerchant• Lower capital requirement if sponsors of upstream and LNG Project Co are different • Meets tax requirements for separate P&L center • Comply with local laws for government ownership of upstream project • Less control by upstream participants over liquefaction facilities		 Capital requirements are high and span the supply chain Concentrated control makes expansions and entry of new participants difficult
			 Less flexibility for equity participants in production of gas and selling LNG – sold uniformly by LNG Project Co Commodity price risk exposure for LNG Project Co Can be mitigated with variations of the merchant model, for example, by selling LNG back to project owners' marketing affiliate to insulate the project from risk Exposure to negotiating power of upstream owners
	Tolling	 Contractually assured fees and returns Low market risk to LNG Plant Co Mitigates upstream supply risk for LNG Plant Co Potential tax benefits if title transfers are taxed Accommodates supply from multiple sources, entities Ability to attract other investors/owners to project – lower capital requirements Facilitates project financing since liquefaction project revenues are not directly exposed to market risks 	• No participation in market upside for LNG Plant Co

State does not participate in upstream



COMMERCIAL STRUCTURE OF AKLNG PROJECT COULD DRIVE MISALIGNMENT BETWEEN THE STATE AND PRODUCERS

- A Producer-owned project creates risk for the State related to its fiscal revenues due to potential misalignment of interests between the Producers and the State
- The misalignment could be especially pronounced at the LNG Plant which does not fall under FERC's jurisdiction for establishing service rates
- Under various alternate project structures contemplated, there could be incentive for Producers to shift revenues between the upstream and the midstream segment of the project, as a way of increasing Producer take (and thereby reducing the State's take) from the project
- This analysis examines a scenario where the LNG plant's service rates are established using an equity-rich financing structure and with a relatively high return on equity



IT IS CRITICAL TO CREATE ALIGNMENT BETWEEN STATE AND PRODUCER INTERESTS TO ENABLE STATE RECEIVING ITS FULL SHARE OF VALUE FROM THE AKLNG PROJECT



- Although the State could use regulations as potential safeguards, there is potential for misalignment of interests between the Producers and the State in a producer owned project
 - Areas of potential misalignment include need for transparency, open access and low tariffs
- Transparency within a producer-owned project into costs and cost allocation is likely to be an ongoing challenge for the State
- The risk of misalignment is higher with an LNG project than with a pipeline project driven by the absence of regulation of the LNG plant's commercial structure or rate setting mechanism by FERC and other pertinent authorities
- Creating alignment between the State and Producers is critical for the State to receive the full value of the AKLNG project

SUMMARY: SUPPLY CHAIN ELEMENTS

Capital costs for AKLNG project are likely to remain uncertain through the development of the project

Total midstream project cost estimates from the AKLNG 2 project sponsors range from \$39-\$54 billion

3

Complex LNG projects typically have an integrated commercial structure to give sponsors maximum control

4

AKLNG is expected to have an integrated structure; ensuring alignment of interests between the State and Producers is challenging and critical with a Producerowned integrated project









FISCAL FRAMEWORK – SCOPE

- LNG Markets
- Supply Chain Elements
- Fiscal Framework
- Risk Allocation & Fiscal Structure

- Overview of the fiscal structures relevant to LNG projects worldwide and comparison with AKLNG Project
- Discussion and analysis of incentives that State could provide to help facilitate the AKLNG Project
- Assessment of how Alaska can leverage its royalty ownership position – royalty in kind relative to royalty in value



STUDY

GAS

ROYALTY

Б

SLO

RTH

0 Z

ALASKA









THREE MAIN FISCAL SYSTEMS ARE IN USE FOR OIL AND GAS AROUND THE WORLD



GOVERNMENT TAKE ON LNG PROJECTS, BY COUNTRY



⊢-S S 4 **()** ≻ ALT > 0 2 ш Δ. 0 _ S Т ⊢-2 0 Ζ ALASKA

>

39

GOVERNMENT TAKE IN ALASKA IS BETWEEN 70%-80% UNDER SB21/MAPA FISCAL STRUCTURE WITH SIGNIFICANT FEDERAL GOVERNMENT SHARE



* Negative NPV for YTF Fields of \$-0.1B not shown

With current levies alone, government take is significant in the context of LNG projects worldwide



≻

FISCAL & NON-FISCAL LEVERS ARE AVAILABLE TO INFLUENCE AKLNG PROJECT

Sample levers	Benefits	Testing impact
 Governments have multiple fiscal levers, e.g., Replace royalty with profits-based tax Accelerated depreciation Capital allowance (Deduct more than 100% of capex) Tax credits Enhance lifting entitlement Direct capital contributions 	 Results are: Lower Government Take Defer Government Take Reduce cost exposure –	 Effect: Internal Rate of Return Break-even prices NPV Government take Will help determine level of impact in attracting new investment
 Governments have various non-fiscal options: Stabilizing provisions Intl. arbitration dispute resolution Increase IOC lifting entitlement (for booking barrels) 	 Results are: Reduce IOC Risk Enhance IOC comfort/confidence IOCs should be more willing to invest 	Effect is difficult to see with financial metrics

Ę

ELIMINATING ROYALTY, PRODUCTION TAX, OR PROPERTY TAX BRINGS GOVERNMENT TAKE FOR AKLNG PROJECT DOWN TO 65-70%







R

IMPACT OF FISCAL LEVERS UNDER DIFFERENT PRICE AND CAPEX MARKET CONDITIONS - NPV_{10} (\$2013 BILLIONS)



Midstream Capex Sensitivity

Price Sensitivity

- The analysis demonstrates that market prices dominate the AKLNG project's economics dwarfing all other variables considered
- Royalty, property tax and production tax reductions are beneficial in improving Producer NPVs and IRRs from the project and reducing State take.
- Overall government take impacts are dampened because ~35% of value transferred from the State to Producers goes to the Federal Government through federal income taxes
- To the extent that the State provides incentive to the AKLNG project through a value transfer, alternate
 mechanisms that reduce the leakage of this value to the federal government could be more effective in
 benefitting the AKLNG project



 \succ

ROYALTY ALTERNATIVES – IN KIND OR IN VALUE

- The State has an option of taking its royalty share from the AKLNG Project either in kind or in value
- Taking royalty in kind can be an incentive to Producers that potentially relieves their obligation to treat, transport, liquefy, ship and market the State's share of gas, depending on the mechanism and location of transfer of gas to the State
- There are various considerations with regard to the State taking its royalty (or tax share) in kind that must be taken into account



ROYALTY IN KIND VS. ROYALTY IN VALUE

Disadvantages Advantages Attractive to producers Exposes State to various additional risks **Reduces valuation disputes Requires modifications to current** Reduces commercial uncertainty for legislation and authority **Royalty** Requires marketing expertise project In-Kind Provides the State with better market Credit requirements for shipper insight agreements Status quo, familiarity Lack of transparency No direct firm capacity commitments • No third party access (TPA) RIV auditing and management capabilities Valuation disputes: higher of; actual **Royalty** currently exist market price realized In-Value Gaming over cost deductions Not preferred choice of producers Note: Equity participation with or without In-Kind Gas is another alternative for the State to consider and has been addressed separately



45

RIK RISK PROFILE IS INFLUENCED BY THE LOCATION OF TITLE TRANSFER FROM THE STATE TO BUYER



Abbreviations: GTP: Gas Treatment Plant

P: Pipeline S: Shipping JCC: Japanese Crude Cocktail RP: Risk Premium



Source: Team assessment

IMPLEMENTING RIK PRESENTS CHALLENGES AND HENCE, COSTS FOR THE STATE RELATIVE TO RIV

NPV losses to the State from going RIV could be as much as 75% of value relative to RIV

COST DRIVER	RIV	RIK
GTP Costs	Only PBU is currently allowed to deduct GTP costs for royalty calculation	GTP costs will likely be borne by State for all fields
Upstream Field Cost Allowance ("FCA")	PBU is currently allowed an Upstream FCA	Upstream FCA for all fields, potentially
Higher of Provision	Higher of provision creates price protection, offers ~3% uplift in royalty value	No higher of provision for price protection
Sales Price Discount	Theoretically, State achieves a portion of Producer's full value	State expected to suffer discounted prices due to market inexperience and lack of diversity of supply; Discount to LNG sales price of the LNG multiplier in the 1% to 3% range examined as range
Marketing Costs	No marketing costs, but audit costs	Marketing costs of \$7-\$15 million a year
Credit Costs	Credit cost borne by Producers	Borne by State



RIK CREATES ADDITIONAL RISK AND COST FOR THE STATE RELATIVE TO RIV

- Taking its royalty in kind could potentially expose the State to significant risks including:
 - The State would need to build its own marketing organization to take care of origination, logistics, contract administration, accounting, etc. if it chooses to market the gas
 - State would face challenges in competing with the Producers who have well established LNG marketing expertise and global portfolios
 - State would be subject to counterparty risk in all of the contracts it enters into across the LNG supply chain
 - State would need to make firm capacity commitments along the LNG supply chain, which could total up to \$1 billion per year
 - State could realize negative royalties if the LNG price is too low
 - State would face production volume risk (if production exceeds or falls short of its sales commitments)
- Producers have the experience of dealing with market uncertainties and would need to help the State address these risks if an RIK path is pursued



SUMMARY: ALASKA FISCAL FRAMEWORK

Government take, at 70-85%, is high for a project of this complexity, and estimated IRR of approximately 15% may be insufficient for Producer investment relative to their alternatives

Well designed incentives to lower project costs and modify fiscal structure can help make the AKLNG project competitive in market



3

1

2

The State taking its royalty as RIK could result in a substantial increase in risk & potential loss of value for the State – Producers have more experience managing associated risks





RISK ALLOCATION & COMMERCIAL STRUCTURE – SCOPE





- LNG Markets
- Supply Chain Elements
- Fiscal Framework
- Risk Allocation & Fiscal Structure

- Overview of key risks that could impact the AKLNG Project stakeholders and risk management
- Assessment of alternatives for financial, equity participation by State in AKLNG Project



THERE ARE VARIOUS UNCERTAINTIES RELATED TO THE AKLNG PROJECT THAT COULD IMPACT THE ECONOMIC BENEFITS TO THE DIFFERENT STAKEHOLDERS



51

PRICE AND CAPITAL COST RELATED UNCERTAINTIES EMERGE AS THE KEY FACTORS DRIVING THE PROJECT ECONOMICS

 \succ



¹ Base Price = \$90/bbl oil price in \$2013; LNG Price per MMBtu = 0.135*Oil Price + \$1
 High Price = \$120/bbl oil price in \$2013; LNG Price per MMBtu = 0.15*Oil Price + \$1
 Low Price = \$60/bbl oil price in \$2013; Henry Hub Price = \$4/MMBtu in \$2013; LNG Price per MMBtu = HH+\$6
 ² The escalation sensitivity captures a variation in the assumption related to annual change in capital costs, operating costs and oil and gas prices



RISK ALLOCATION AND MANAGEMENT

Cases of risk allocation	 Cost and time risks in project execution depend on the nature and extent of project organization apart from market factors Of the recent LNG projects, most have a single operator for upstream, transport and liquefaction Integrated project case has been successful in high cost project execution (Snøhvit case example)
Cases of risk mitigation	 Market risk management is executed by LNG projects in two ways: Pre-FID commitments: Majority of project volumes are contracted before FID to ensure market. Example: Gorgon, APLNG End user participation: Several projects have equity stake of end buyers providing ensured-market for corresponding equity volumes. Example: Tangguh, Sakhalin II
State participation and implications	 Where the Government participates in LNG projects is usually via NOCs with LNG majors who bring in LNG project experience State's equity participation in the project can allow state to capture an upside in prices but exposes it further to a down-side Examples: Snøhvit, Yemen LNG, Angola LNG

EQUITY PARTICIPATION BY THE STATE OF ALASKA COULD HAVE TANGIBLE BENEFITS FOR THE PROJECT AS WELL AS THE STATE

- To the extent that the State transfers value to the Producers through a modification of fiscal terms as an incentive for the AKLNG project, obtaining an equity interest in the project in exchange for that transfer of value is more beneficial to the State than a simple reduction in fiscal take
- Greater alignment of economic interests between the State and Producers
- State ownership lowers the upfront capital cost to Producers creating potential economic uplift
- Allows for TCPL equity participation and operation of the pipeline and GTP
- Equity in all phases could facilitate greater transparency in the AKLNG Project
- Allows State to influence access for third parties in the most critical potential bottlenecks of the project – pipeline and marine terminal
- Equity investment in the supply chain, while allowing SOA a seat at the table, does not necessarily provide for a vote in the decision making process
- Joint Venture Agreement structuring is critical

ALTERNATIVES FOR THE STATE TO PARTICIPATE WITH AN EQUITY INVESTMENT IN THE AKLNG PROJECT – DESCRIPTION

Three different alternative structures for equity participation for the State were considered as indicative examples:



duity Alternative

Ш

- •The State makes an equity investment across the midstream and receives an equivalent share of gas produced as royalty and tax gas
- •Royalties and production tax for oil would continue to be received under SB21/MAPA structure with all upstream costs being allocated to oil
- •The analysis assumes a 70/30 debt equity structure for the State's investment with a 5% cost of debt and a 12% return on equity
- •Two different equity investment levels were considered as representing lower and upper bounds on the State's equity participation – 15% and 35%



Pipeline

of

Ownership

State

%00

The State invests sufficient equity to entirely own the pipeline component of the midstream
Producers would pay a tariff to the State for transportation services on the pipeline

- •The Producers benefit from the State's lower cost of debt at 5% and a low return on equity requirement of 6% (intended to be equivalent to returns on the Constitutional Budget Reserve Fund) provided as an incentive to the Producers
- •The State would benefit through lower netbacks for royalty and production taxes
- •To provide an upper and lower bound on the State's contribution, the analysis examines two scenarios, one financed with 100% debt and the other with 100% equity



of Midstream

Ownership

State

5%

12

The State invests to have a 12.5% equity stake across the midstream corresponding to an approximation of its royalty share
The State's share of the capacity would be utilized to treat,

- transport and liquefy royalty gasThe State benefits from having a
- lower cost of debt at 5% and a low return on equity requirement of 6% (intended to be equivalent to returns on the Constitutional Budget Reserve Fund) rather than allowing a netback based on the Producers higher cost of debt and ROE requirements
- •To provide an upper and lower bound on the State's contribution, the analysis examines two scenarios, one financed with 100% debt and the other with 100% equity



≻

Δ

STATE EQUITY PARTICIPATION AT APPROPRIATE LEVELS COULD ALLOW SOA AND PRODUCERS TO RETAIN HIGHER SHARE OF PROJECT REVENUES

Stakeholder NPV₁₀ Comparison

SOA Federal Government Producers PBU + PTU (Upstream) Producers (Midstream)



Producer (Upstream + Midstream) IRR

APPROPRIATE LEVEL OF STATE EQUITY PARTICIPATION NEEDS TO BE BALANCED TO ACHIEVE BENEFITS TO SOA AND PRODUCERS

- Scenarios examining a range of capital costs and market prices were assessed to understand whether the equity alternative provides positive economic value to the State relative to status quo under each of the scenarios
- 15% and 35% state equity participation levels in combination with equivalent royalty gas & tax gas were considered as indicators of lower and upper bounds to the State's equity participation
- SB21/MAPA fiscal structure as currently applicable does not include production credits for gas. This analysis assumes a modified status quo wherein the production credits are extended to reflect a \$5/BOE credit for gas, similar to the credit extended to new oil production
- The analysis estimated and compared AKLNG project economics under modified status quo and under the equity alternative for both the State and the Producers across a combination of three price and three capital cost scenarios

EQUITY PARTICIPATION AT 35% MORE BENEFICIAL TO STATE THAN AT 15%



35% SOA equity participation – NPV₁₀





≻

58

STATE EQUITY PARTICIPATION BETWEEN 20% AND 30% OFFERS NPV $_{\rm 10}$ AT OR ABOVE THE MODIFIED STATUS QUO LEVELS FOR THE STATE





The level of State equity investment required to equal total state $\rm NPV_{10}$ under status quo varies with market conditions

SOA EQUITY INVESTMENT IN AKLNG CREATES RISK EXPOSURES THAT NEED TO BE CONSIDERED AND MANAGED

- Cost overruns and cash calls above appropriation level To the extent that the actual Capex exceeds the budgeted amount the State of Alaska is expected to be responsible for its pro-rata share of the increased costs. This is a significant risk for the State of Alaska given the high cost structure of the AKLNG Project and likely inflationary pressures
- As an equity owner, the State assumes all Force Majeure risk throughout the GTP, pipeline and LNG terminal
- State has no control over upstream operations and volumes produced by the Producers
 - Could have excess or insufficient capacity relative to volumes produced
 - Balancing production volumes and volumes through the supply chain on a short-term and long-term basis
- If the State assigns its equity position to a third party such as TransCanada and contracts for capacity with this third-party, the State will likely have to provide credit support to the entity that would assume the state's equity share in the midstream through long-term commitments for capacity
- State would be responsible for all demand charge obligations throughout the life of the contract regardless of gas supply availability and market conditions
 - Possible that revenues earned on LNG sales would not offset costs of treating, transport and liquefaction resulting in negative cash flows to the State



ENSURING TRANSPARENCY & OPEN ACCESS WILL DEPEND ON THE ACTUAL TERMS NEGOTIATED FOR STATE PARTICIPATION

	Implementation to Achieve			
Commercial Design Option	Transparency	Access	Commercial Structures	
Equity participation	 ✓ Each Segment 	✓ Each Segment	 All Structures Might be limits on tolling structure 	
Position on management committee	\checkmark		Integrated	
Participation through secondees on GTP, Pipeline and LNG plant teams	\checkmark		 Integrated 	
Undivided joint interest approach "pipe within a pipe"		\checkmark	Integrated	
Expansion rights to be negotiated within context of JVA		\checkmark	Integrated	

SUMMARY: RISK ALLOCATION & COMMERCIAL STRUCTURE

AKLNG faces various risks that could affect the economic benefits; prices and capital cost are key

2 Direct equity participation by the State can offer benefits to all parties involved in the project; accompanying risk profile changes should be managed

Various commercial terms related to equity
participation will determine whether the State can achieve its transparency and access objectives





