ALASKA LNG (AK LNG) SEMINAR

Presentation for State of Alaska Legislature
Anchorage Legislative Information Office › Friday, September 25, 2015

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AGENDA

9:00—10:30 AM	AK LNG 101	2
10:45—12:15 PM	IN KIND PARTICIPATION: GAS OFFTAKE, BALANCING, MARKETING	17
1:45—3:15 PM	PROJECT GOVERNANCE, FINANCING, ROLE OF TRANSCANADA	30
3:30—4:50 PM	FISCAL TERMS, STABILITY, PROJECT COMPETITIVENESS	46
4:50—5:00 PM	WRAP-UP	59

AK LNG is a major project to commercialize North Slope gas; it consists of four major components:

. Gas production from Prudhoe Bay (~75% of the total) and Point Thomson (~25%)

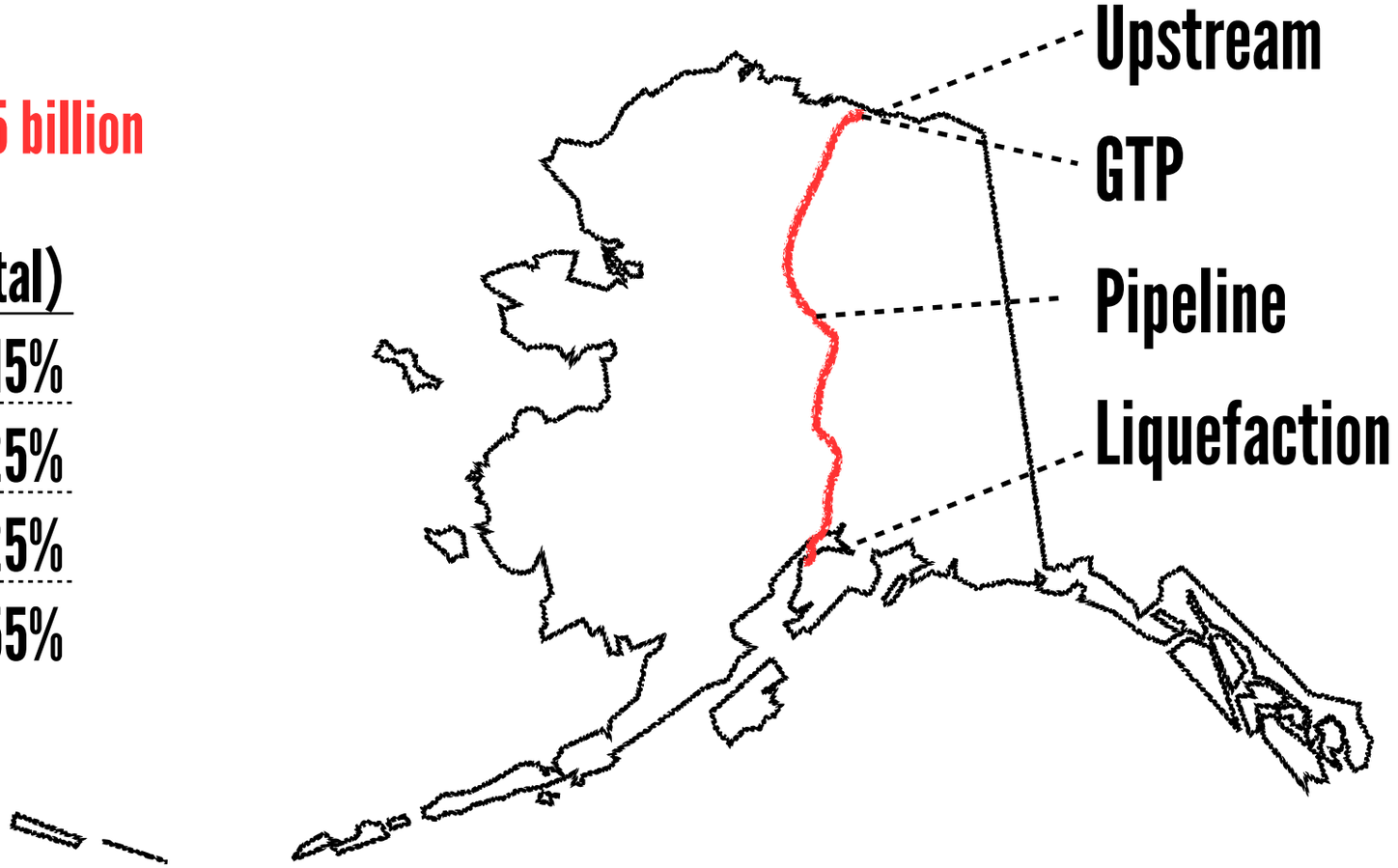
. A gas treatment plant (GTP) on the North Slope to remove impurities and make gas ready for transport

. A large scale gas pipeline to Nikiski, with at least five off-take points for gas use within the state

. A 15-18 million ton per annum liquefaction facility at Nikiski to cool the gas and make it ready for export

Approximate cost estimate is $45 to $65 billion

Segment	Approx. Cost (% Total)
Upstream	10-15%
GTP	20-25%
Pipeline	20-25%
LNG	40-55%



AK LNG path set in three agreements: a Heads of Agreement, a Memorandum of Understanding and SB 138.

Heads of Agreement (HOA)

The HOA envisioned that the state would take physical possession of 20-25% of the gas and the same share of the infrastructure associated with this project.

Memorandum of Understanding (MOU)

The state assigned to TransCanada (TC) its 25% equity in the GTP and pipeline. TC bears the state's share of the pre-construction and construction costs, and the state pays TC a tariff to use these facilities. State has an option to buy back 40% of its original 25% share in the pipeline and GTP from TC (up to 10% of the total).

Senate Bill 138 (SB 138)

SB 138 provided changes to the tax code and other key areas of statute, authorized the executive branch to negotiate a range of subsequent agreements that would be required to move the project to the next phase of development, and established a broad roadmap for how the Legislature will oversee and consent to these negotiations.

PROJECTS NEED TO MOVE ON MANY PARALLEL FRONTS

Upstream	Delineate resource base, certify reserves, define production plan
Midstream	Define pipeline path, secure right-of-way, environmental permits
Liquefaction	Define project size, processing / gas quality, project structure
Shipping	Decide whether to own, lease or outsource shipping to buyers
Marketing	Define commercialization plan, secure buyers, sign contracts
Financing	Define financing plan, secure in-house and third-party lending
Permitting	Secure permits to construct facility, export gas

Partners conduct front-end engineering and design studies (pre-FEED and FEED)

They then sign engineering, procurement and construction (EPC) contracts

Construction starts with final investment decision (FID); usually less than 10% of CAPEX spent before FID

PROJECTS EVOLVE: QC LNG (AUSTRALIA) CASE STUDY

	FEED (JULY 2008)	FID (OCTOBER 2010)	FIRST CARGO (JULY 2015)
Size	One train: 3-4 mmtpa Expandable to 12 mmtpa	Two trains 8.5 mmtpa	Two trains 8.5 mmtpa
Upstream	Queensland Gas Company (QGC) gas BG owned 9.9% of QGC and 20% of QGC's coal-bed methane in Surat Basin	CNOOC 5% in parts of Surat Basin Tokyo Gas 1.25% in parts of Surat Basin Remainder was BG	Third-party gas (AP LNG); Gas storage CNOOC up to 25% in Surat & Bowen Basin BG 74% of resource base
Liquefaction	T1: BG 70%, QGC 30%	T1: BG 90%, CNOOC 10% T2: BG 97.5%, Tokyo Gas 2.5%	T1: BG 50%, CNOOC 50% T2: BG 97.5%, Tokyo Gas 2.5% T3: CNOOC option for 25% BG: 100% of common facilities
Off-take*	BG Group: 100%	CNOOC: 3.6 mmtpa* Tokyo Gas: 1.2 mmtpa* BG Group: balance	CNOOC: 8.6 mmtpa* Tokyo Gas: 1.2 mmtpa* Chubu Electric: ~0.6 mmtpa*
External Financing			JBIC: 175 mn to Tokyo Gas US EX-IM: $1.8 billion

** Off-take is supplemented by BG's global portfolio—not all LNG will come from Australia*

SOURCE: BG GROUP DATABOOK 2008—2013 EDITIONS, INDUSTRY PRESS

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Project Stage	Pre-FEED		FEED				Construction				Online		
Investment (Entire Project)	$400–$500 mm		$1,500–$2,000 mm (Equity)				$45–65 billion (Debt and equity)				O&M Met from cash flow		
Investment (State of Alaska)	$50–$125 mm		$200–$500 mm (Equity)				$6–$15 billion (Debt and equity)				O&M Met from cash flow		

FROM PRE-FEED TO FEED

Technical	Conceptual design, route selection, narrowing of cost estimate, risk management
Regulatory	Export approvals, FERC permitting and input process from stakeholders
Commercial	Domestic gas, off-take and balancing, transportation services, LNG disposition, financing
Organizational	FEED-stage JV agreements & governance, lease modifications, RIK determination
Fiscal	Fiscal agreement, property tax, method of stabilization

UNLIKE OIL, LNG DOMINATED BY MIDSTREAM COST

Fixed nature of tariff in 'in value' alternative amplifies impact of price movement on state returns

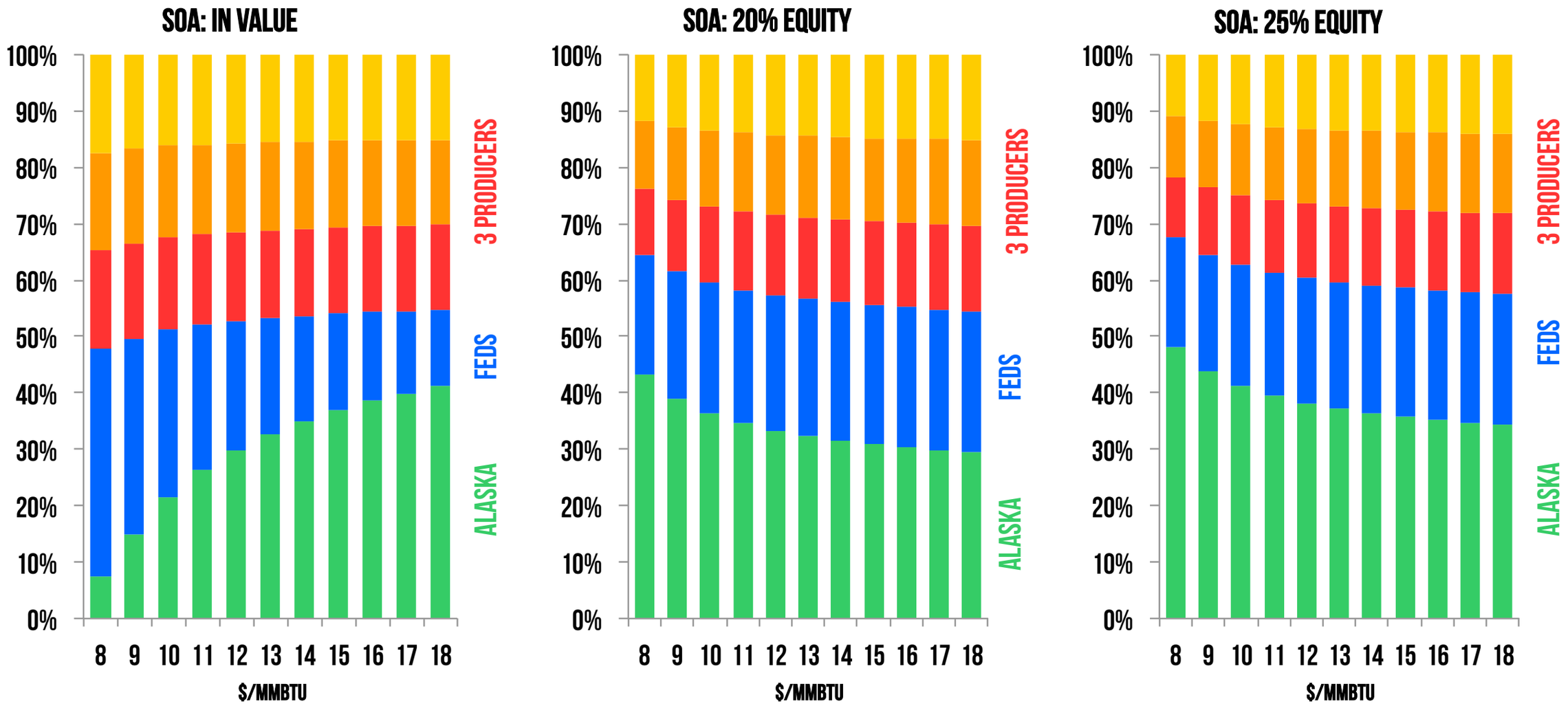
INDICATIVE LNG VALUE CHAIN IN ALASKA	OIL ($/BBL)	GAS ($/BOE)	GAS ($/BOE)	GAS ($/BOE)
RESOURCE PRICE	$100.00	$81.00	$75.00	$70.00
LESS: MARINE TRANSPORT	$3.46	$6.00	$6.00	$6.00
LESS: PIPELINE & LNG TARIFF	$6.58	$60.18	$60.18	$60.18
GROSS VALUE AT POINT OF PRODUCTION	$89.96	$14.82	$8.82	$3.82

25% OF PROJECT, BUT MORE THAN 25% OF VALUE

With equity ownership, SOA takes a disproportionate share of the cashflows, especially at lower prices

Physical ownership of gas (royalty in kind, tax as gas) aids state, producer and project economics

PERCENT OF CUMULATIVE CASH FLOWS OVER PROJECT LIFE

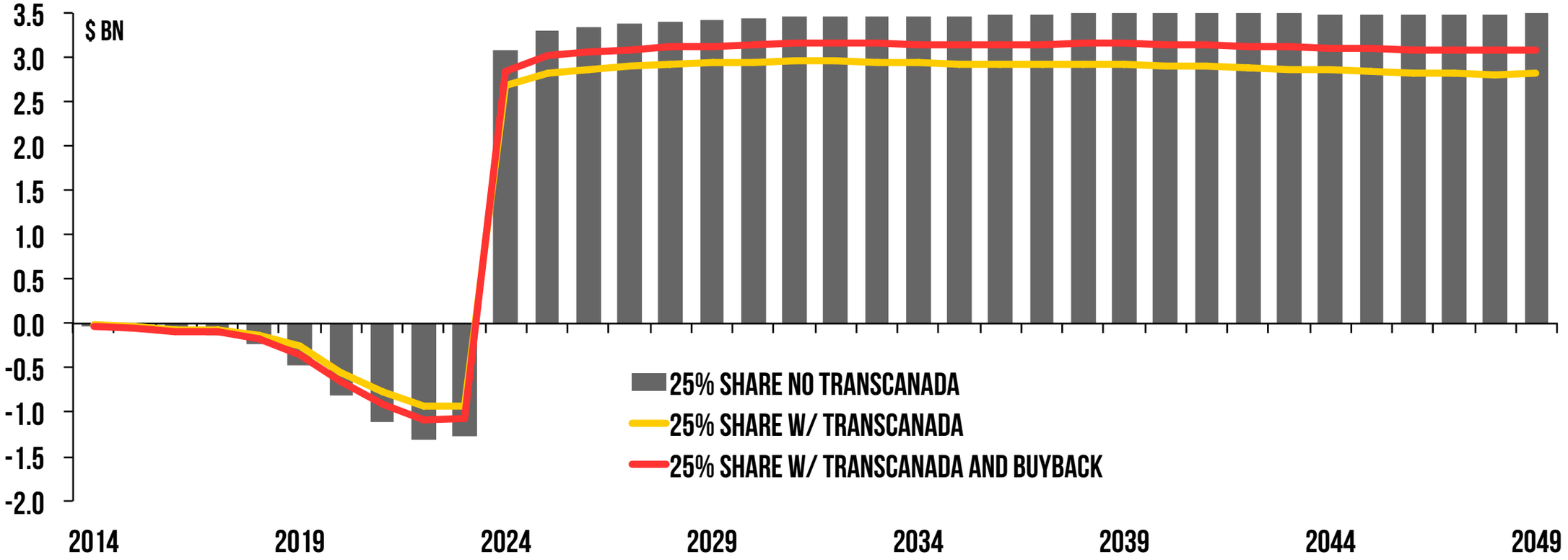


FINANCIALLY, TRANSCANADA DEAL IS AKIN TO A LOAN

TransCanada shoulders a share of SOA's capital commitments and Alaska repays over time with tariff

SOA cash outlays fall by $1.7 bn (no buyback) to $1 bn (buyback) during development period

STATE OF ALASKA: CASH FLOWS FOR ALASKA LNG (70% DEBT / 30% EQUITY)



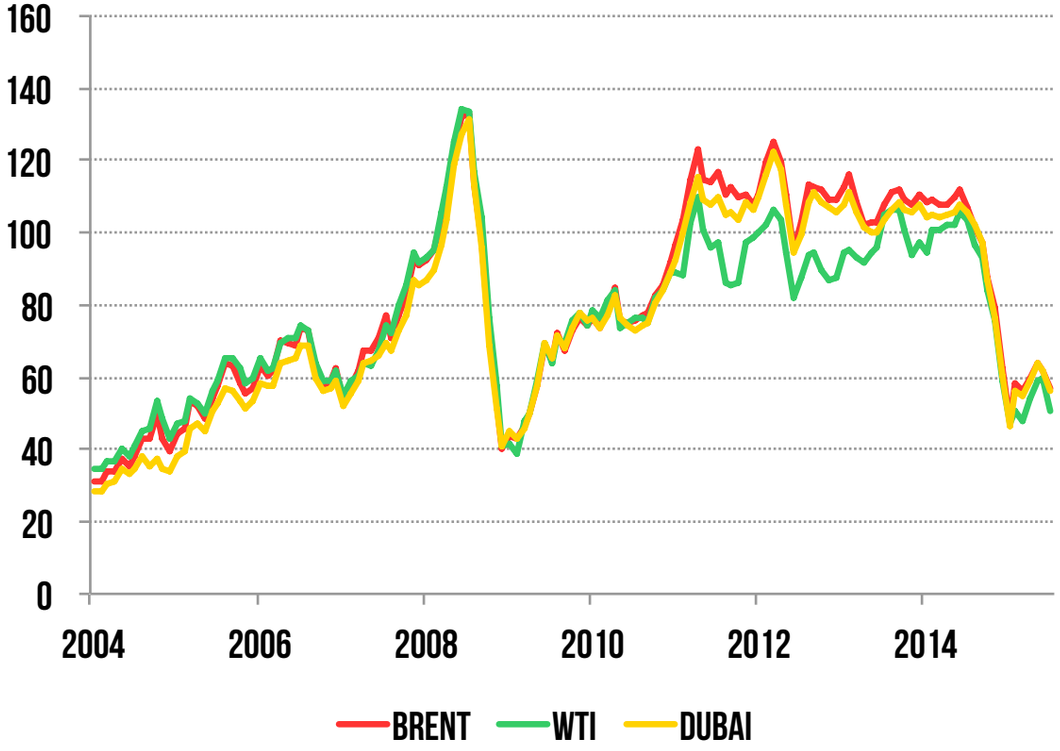
IN ABSENCE OF GLOBAL GAS PRICE, MARKETING MATTERS

Oil is priced globally, but gas is priced regionally or locally; no "global" gas price; marketing matters

Idiosyncratic factors more important than global fundamentals in driving gas pricing

In oil, SOA can take a "step back" in terms of marketing; in gas, SOA has to be engaged

SELECT OIL PRICES



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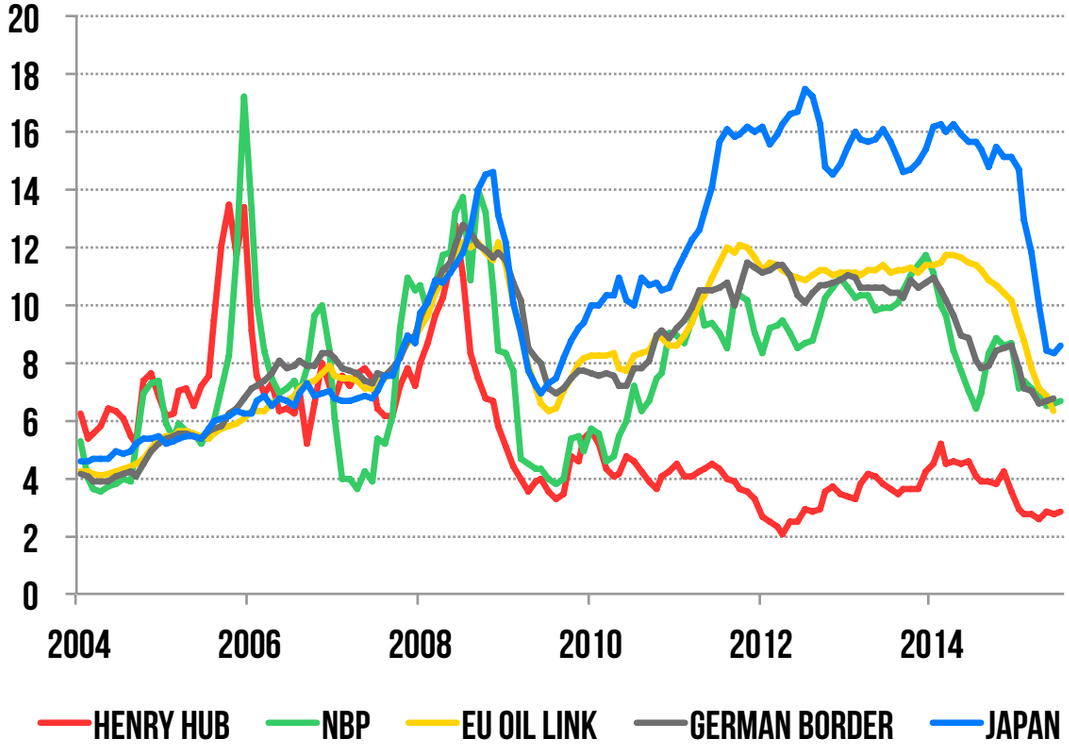
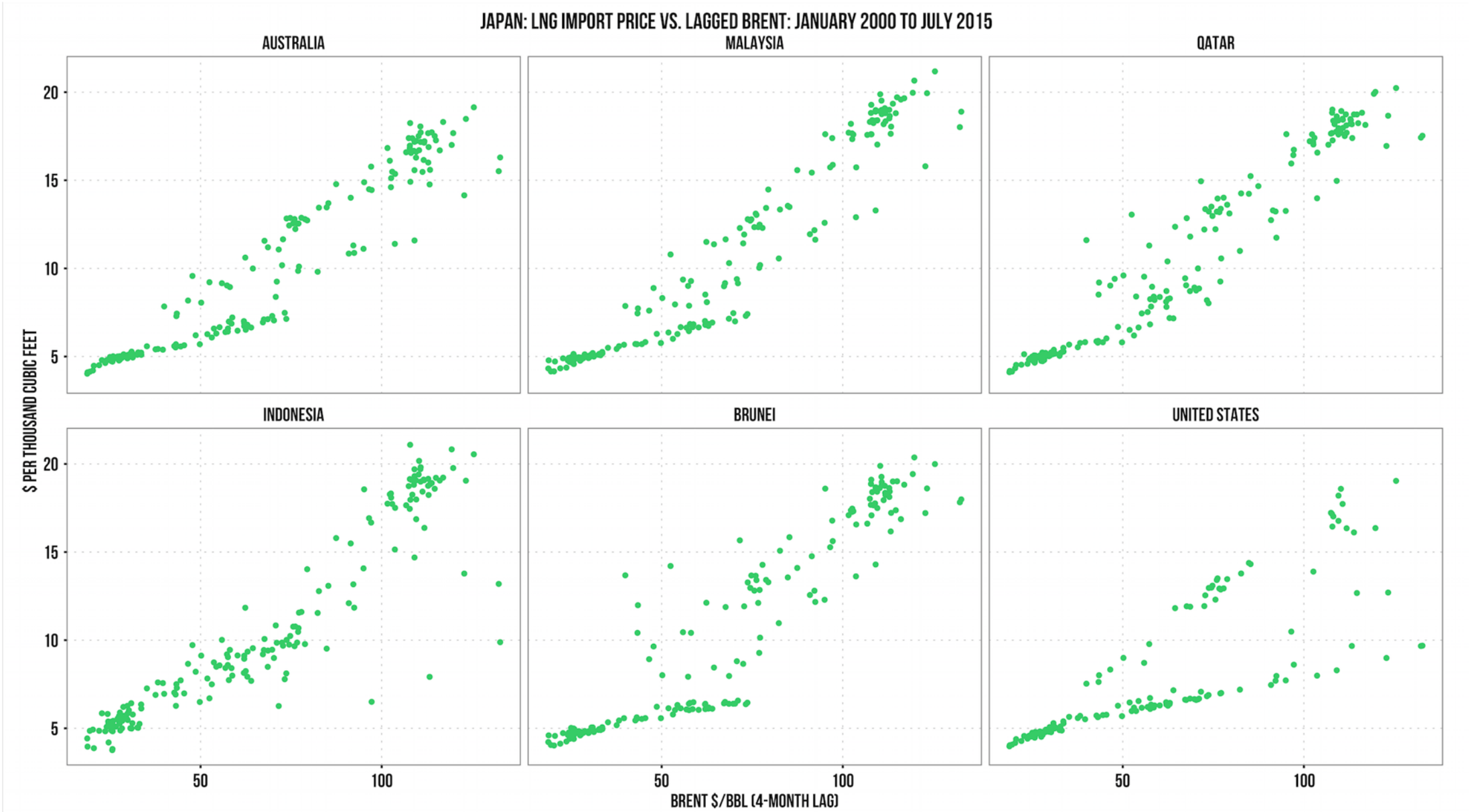


SOURCE: EIA, IMF, INTERCONTINENTAL EXCHANGE (ICE), TRADE STATISTICS OF JAPAN, BUNDESAMT FÜR WIRTSCHAFT UND AUSFUHRKONTROLLE (BAFA), ST LOUIS FRED

EVEN IN SAME MARKET, OIL LINKAGE = DIFFERENT PRICES

Oil indexed prices show different patterns in Japan; timing and formula matter a great deal



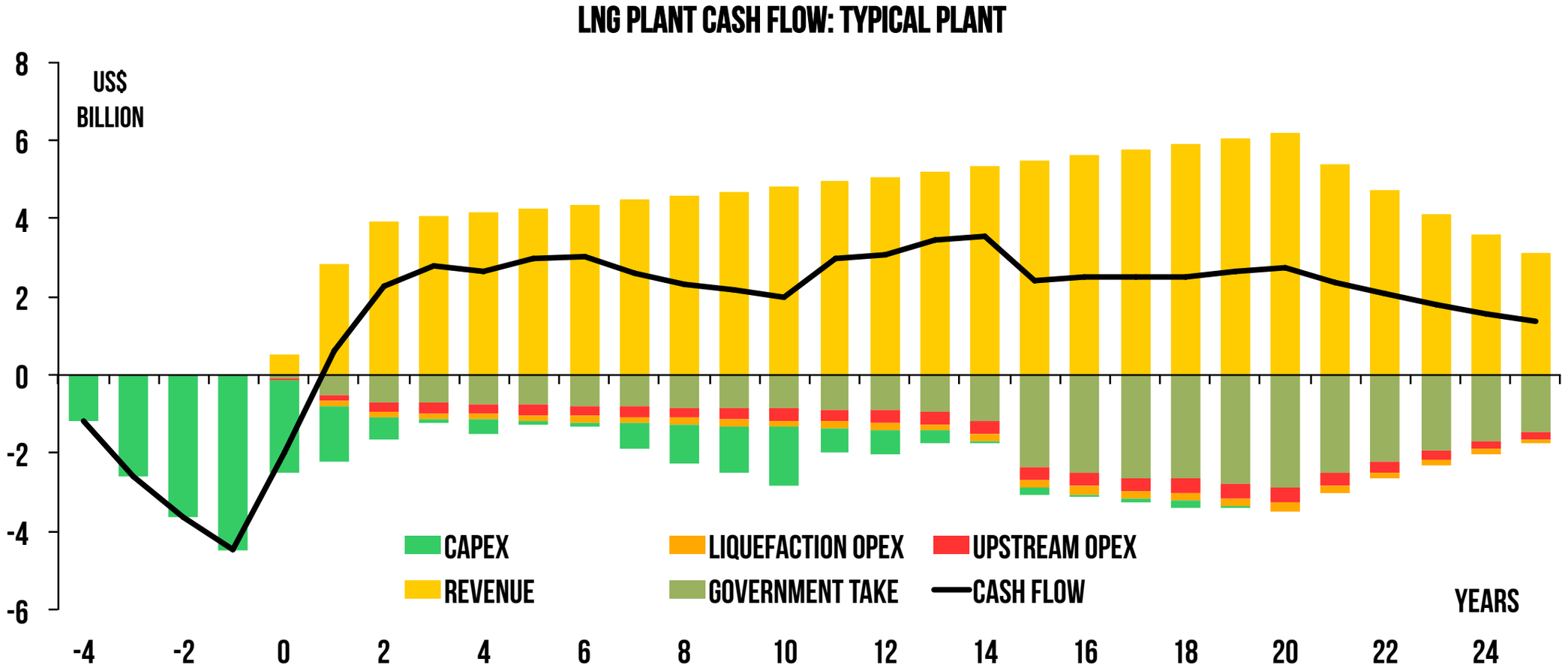
SOURCE: EIA,TRADE STATISTICS OF JAPAN, ST LOUIS FRED

LNG PROJECTS ALL ABOUT MANAGING LONG-TERM RISK

LNG projects take many years (often decades) to "arrange" but most money is spent during construction

LNG consists of making big upfront investments (for 4-5 years) that repay capital over 20+ years

Risk management across the board (technology, commercial, fiscal, political, etc) is key to success



AK LNG IS A TOUGH PROJECT IN A WEAKENED MARKET

Lower oil prices

Lower oil prices limit CAPEX budgets, they limit demand upside (where gas competes with oil) and they put pressure on prices

Market is already feeling loose and the boom in supply hasn't hit yet

Supply growth and weakening demand are already creating a sense of oversupply in physical market; and LNG capacity will grow by 150 mmtpa in 2015–2019 (LNG in 2014 was 241 mmtpa)

LNG buyers believe they have ample choice

From the L48, to Western Canada, to Eastern Africa and new projects in Pacific (Indonesia, Russia, Malaysia, Australia), buyers have many choices; and that's before adding Iran to the mix

Cost structure has come down

The era of super-expensive LNG projects has passed; new projects far cheaper than the headline cost of AK LNG

…. but AK LNG project start-date is beyond current negotiation window; fighting for a place in next tranche

HOW DO COUNTER-PARTIES JUDGE A PROPOSED PROJECT?

WILL THE GAS SUPPLY BE RELIABLE?	How much gas do the sponsors have? What is the technical complexity of the resource? What is the gas quality (level of processing needed)? What factors might interrupt supply (technical or political)?
ARE THE SPONSORS CREDIBLE AND COMMITTED?	Do they have the technical capacity to execute project (track-record, complexity)? Do they have access to sufficient internal and/or external funds? Are they organizationally committed within their portfolios? What partnerships or commitments do they have (buyers, financiers, contractors)?
IS THERE STAKEHOLDER BUY-IN?	Does the sovereign support this project? Is the support durable and demonstrated tangibly? Does the local community support it (project footprint, engagement, NGO activity)? Is there a clear, speedy, and transparent regulatory and judicial review?
DOES THE ECOSYSTEM SUPPORT DEVELOPMENT?	Can the government manage approvals and negotiate contracts (e.g. level of corruption)? Is there a physical risk to the infrastructure (personnel and assets)? Is there sufficient existing infrastructure (roads, ports, pipelines)? Is there a strong labor pool (visa restrictions) and auxiliary industries (local content)?
IS THE PROJECT COMMERCIALLY VIABLE?	What is the project's estimated cost relative to price expectations? What is the fiscal burden (government take and fiscal stability)? At what stage of development is the project? Do the project rewards offset the project risks?

HOW TO JUDGE AGREEMENTS THAT COME TO LEGISLATURE?

Wearing a project hat

Project timeline	Does this agreement push the project forward or does it delay it?
Competitiveness	Does this agreement make AK LNG more competitive in the market?
Ability to change	Is this a “final” decision or is there opportunity to revisit / adjust later?

Wearing an owner hat

Risk and reward	To what risks does this agreement expose the state over time? What’s the upside?
Risk management	What tools can the state employ to manage this risk? What’s the cost of those tools?
Risk tolerance	How much of this risk is the state willing to take?

Wearing a sovereign hat

Organization	How to set up environment, structure and responsibilities to manage project?

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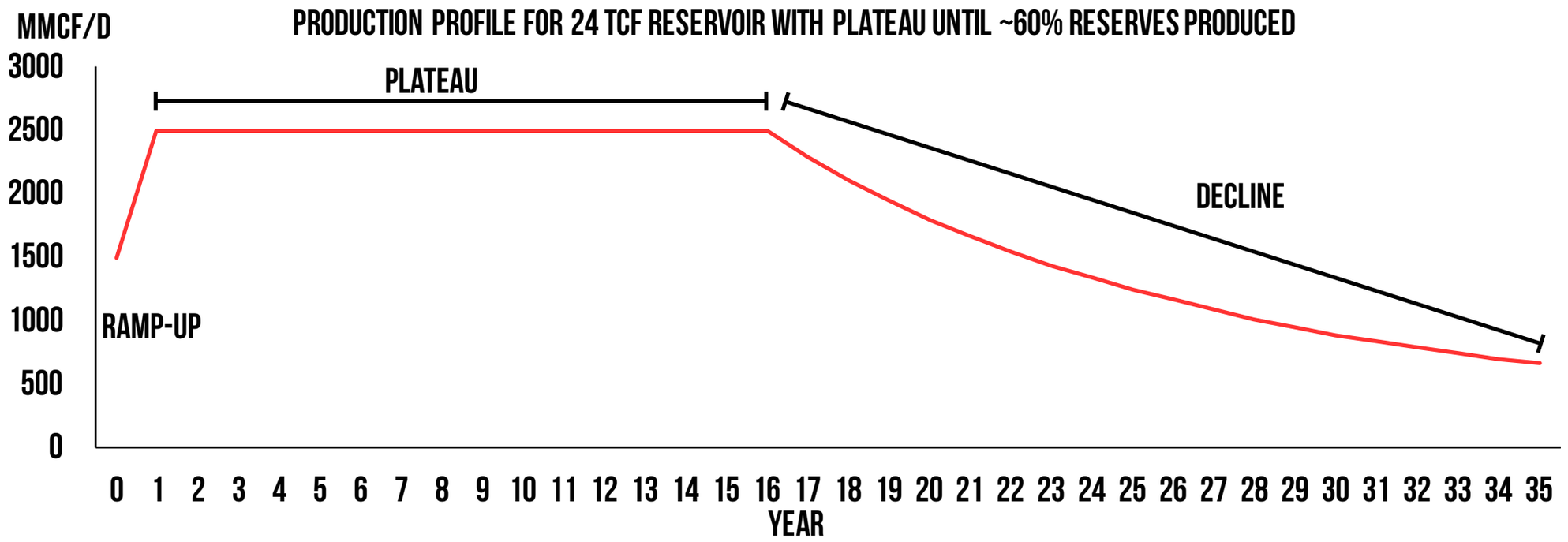
DELIVERABILITY IS KEY TO LNG PROJECTS

Projects underpinned by 15-20 year contracts with binding minimum supply and purchase commitments

Deliverability risks by phase include:

Ramp-up	Can we reach target peak production quickly and without difficulties?
Plateau	Will the plateau last long enough to meet our supply commitments reliably?
Decline	Once decline sets in, how predictable will production be?



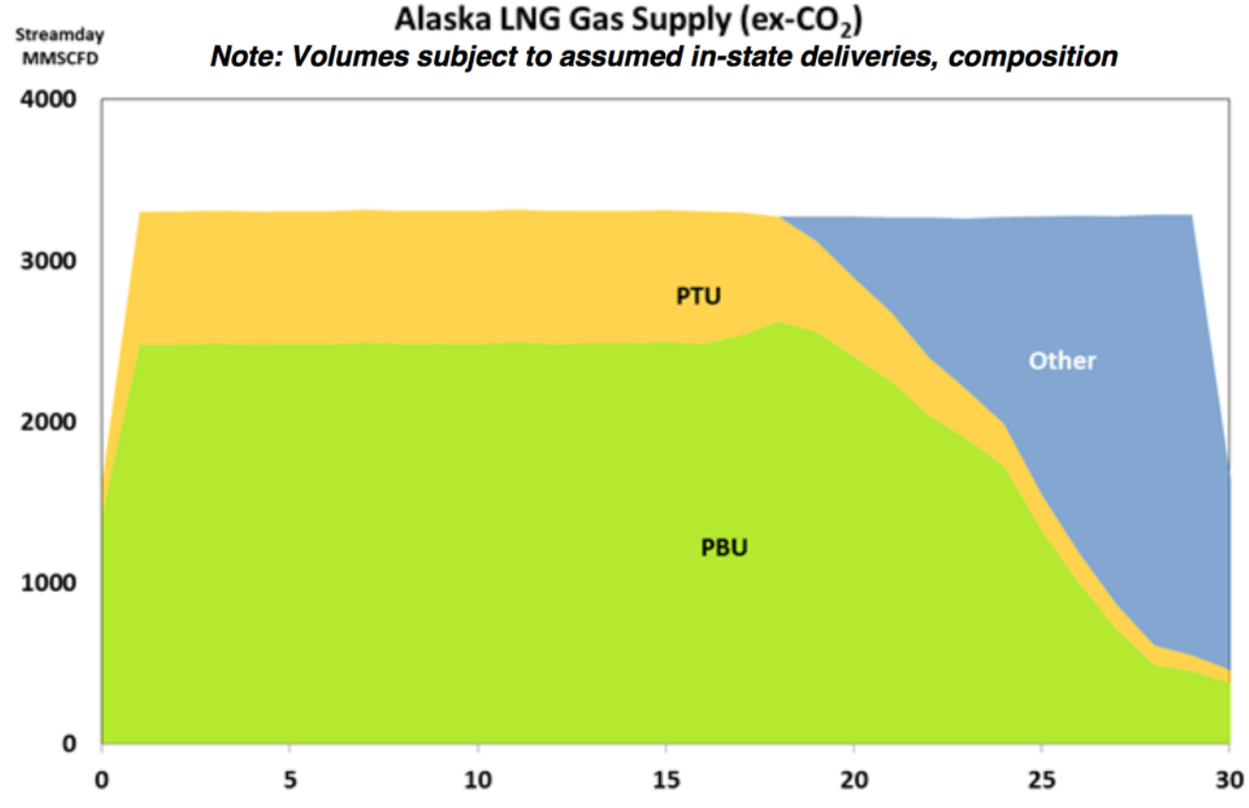
UPSTREAM STRUCTURE BOTH ASSET AND COMPLICATION

Prudhoe Bay — Exceptionally well understood - gas has been produced multiple times over

Significant upward production flexibility - very rare in LNG projects

Point Thomson — Technically complex, not yet produced at volume - ramp-up deliverability risks

Prudhoe Bay upward flex could mitigate Point Thomson deliverability risks - unusually low ramp-up risk



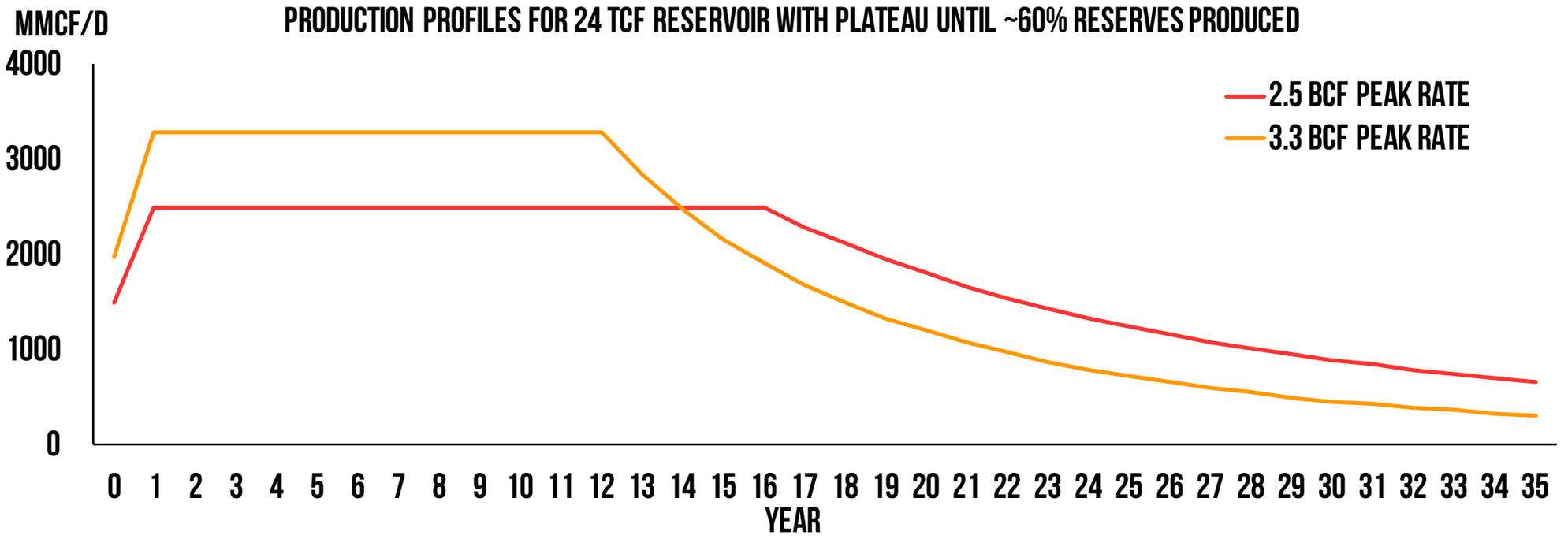
SOURCE: ALASKA LNG PROJECT UPDATE TO JOINT RESOURCES COMMITTEE, SEPTEMBER 2015

UPWARD FLEX CAN SHIFT RISK FROM RAMP-UP TO PLATEAU

Producing any reservoir at a faster rate reduces plateau length and brings forward decline phase

For producers with equal exposure to Prudhoe Bay and Point Thomson, this can be balanced

Producers with differential exposure among the two fields face different impacts



DIFFERENT FIELD OWNERSHIP CREATES DIVERGENCE

One partner has minimal exposure to Point Thomson risks, while another has outsized PT exposure

Over-lifting Prudhoe entails a 'loan' of gas from Prudhoe-concentrated partners to PT-concentrated ones

Can this loan be paid back during the reliably deliverable plateau phase?

From which field? How does that impact questions of control over production in meeting commitments?

How does it impact length of supply obligations that can be incurred?

PRUDHOE BAY	W. I.
EXXONMOBIL	36.40%
CONOCOPHILLIPS	36.08%
BP	26.36%
OTHERS	1.16%
POINT THOMSON	W. I.
EXXONMOBIL	62.26%
BP	31.07%
CONOCOPHILLIPS	4.94%
OTHERS	1.73%

75%

25%

BLENDED SHARE	%
EXXONMOBIL	32.1%
STATE OF ALASKA	25.0%
CONOCOPHILLIPS	21.2%
BP	20.7%
OTHERS	1.0%

MARKETING APPROACH ALSO IMPACTS UPSTREAM RISKS

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75%

25%

EQUITY MARKETING
EACH GAS OWNER SELLS THEIR OWN GAS

BLENDED SHARE	%	
EXXONMOBIL	32.1%	LNG BUYERS
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75%

25%

JOINT VENTURE MARKETING
ALL GAS SOLD THROUGH ONE ENTITY

BLENDED SHARE	%
EXXONMOBIL	32.1%
STATE OF ALASKA	25.0%
CONOCOPHILLIPS	21.2%
BP	20.7%
OTHERS	1.0%

AK LNG — LNG BUYERS

* NOTE: BLENDED SHARE IS APPROXIMATE AND HAS NOT BEEN FINALIZED YET

GAS SUPPLY/BALANCING IS AKLNG FOUNDATION

Partner balance	Sales commitments may deviate from agreed share (lower demand/ sales)
	Working interest partners may lift more/less than their working interest share
Cross-field balance	If PTU or PBU suffers production outage, other field may need to boost supply
	If there is long-term underperformance, PTU or PBU may need to supply more gas
SOA gas sales	In equity marketing, and assuming RIK determination, SOA must sell its gas
SOA derivative share	State of Alaska will have sales commitments but no control of upstream decisions

How will balancing work between and within fields? Over what time frame will balancing occur?

How can the project ensure that balances do not grow to unsustainable levels?

Can state achieve sufficient supply certainty through supply contract?

Can state instead achieve sufficient control through upstream governance arrangements?

NEW PROJECTS TYPICALLY PRE-SELL 90% OF OUTPUT

CONTACT STATUS OF LNG PROJECTS SANCTIONED AFTER 2012 (THROUGH SEPTEMBER 2015)

PROJECT NAME	COUNTRY	SANCTION DATE	CAPACITY (MMTPA)	CONTRACTS (MMTPA)	% SOLD
ICHTHYS, TRAINS 1-2	AUSTRALIA	JAN-12	8.4	8.3	99%
CARIBBEAN FLNG	COLOMBIA	MAR-12	0.5	0.5	100%
PFLNG 1	MALAYSIA	JUN-12	1.2	0.0	0%
AUSTRALIA PACIFIC, TRAIN 2	AUSTRALIA	JUL-12	4.5	4.3	96%
SABINE PASS, TRAINS 1-2	UNITED STATES	JUL-12	9.0	8.0	89%
MALAYSIA LNG, TRAIN 9	MALAYSIA	MAR-13	3.6	0.0	0%
SABINE PASS, TRAINS 3-4	UNITED STATES	MAY-13	9.0	8.0	89%
YAMAL, TRAINS 1-3	RUSSIA	DEC-13	16.5	14.3	87%
PFLNG 2 (ROTAN)	MALAYSIA	JAN-14	1.5	0.0	0%
CAMERON, TRAINS 1-3	UNITED STATES	AUG-14	12.0	12.0	100%
COVE POINT	UNITED STATES	OCT-14	4.6	4.6	100%
FREEPORT, TRAINS 1-2	UNITED STATES	NOV-14	9.3	8.8	95%
FREEPORT, TRAIN 3	UNITED STATES	APR-15	4.6	4.4	95%
CORPUS CHRISTI, TRAINS 1-2	UNITED STATES	MAY-15	9.0	7.5	83%
SABINE PASS, TRAIN 5	UNITED STATES	JUN-15	4.5	3.8	83%
TOTAL			98.2	84.5	86%
TOTAL EX. PETRONAS			91.9	84.5	92%

SOURCE: ENALYTICA BASED ON COMPANY ANNOUNCEMENTS, INDUSTRY PRESS AND REPORTS

SELLING LNG: PATTERNS FROM RECENT PROJECTS

Reliance on LT	Number of changes in what contracts companies sign these days More portfolio contracts, more flexibility, shorter duration, new pricing systems etc. But new projects still overwhelmingly get sanctioned on back of LT contracts
Share to pre-sell	Over 85% in long-term (20-years) contracts before or soon after taking FID
Counter-parties	Average 3 buyers per project (range from 1 to 6)
Price exposure	US projects linked to Henry Hub; others mostly oil-linked
Contract size	Range from 1 million tons per annum (mmtpa) to 4+ mmtpa (132–530 mmcf/d)
Transfer point	No trend between FOB/DES; increasing tendency to destination flexibility
Equity partners	About a third (30%) of the buyers had equity in the project

WHAT'S IN A SALES AND PURCHASE AGREEMENT (SPA)?

Most SPAs are over 100 pages and are customarily confidential (with limited details released)

Pricing	Formula, usually oil link, but also Henry Hub; fixed and variable parameters; inflation
Term	Usually 20-year for new projects; date of first cargo; treatment of delays
Volume	Average contract quantity plus any flexibility (±10-20%); make-up gas
Title transfer	Delivery point; destination restrictions; profit sharing for diverted cargoes
Logistics	Delivery schedule; tanker/facility specs and approvals; measurement
Gas quality	Gas specs (molecular breakdown / heating value); provisions for off-spec gas
Financial	Invoicing process; payment terms; guarantees; currency; taxes; insurance; indices
Precedents	Precedent conditions (FID, finance); regulatory approvals; activation window
Legal	Jurisdiction; dispute resolution; renegotiation; force majeure; liabilities; termination

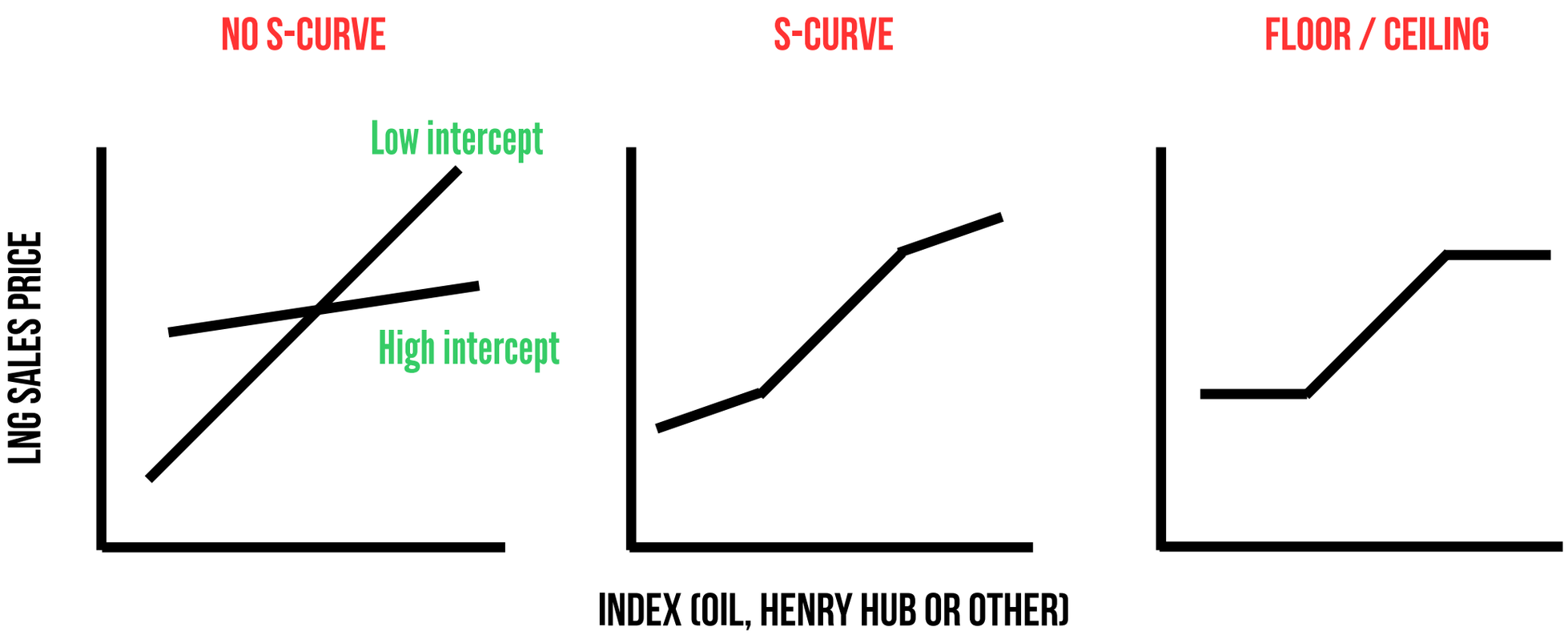
PRICING FORMULATE CAN HELP MITIGATE VOLATILITY

Price volatility is a function of two parameters: intercept (fixed) and slope (variable component)

"S-curves" are clauses that change the link between gas price and index above or below thresholds

Instead of a linear link, gas prices do not rise/fall as much if oil prices rise/fall above certain thresholds

They reduce downside risk by forgoing some upside—they can even provide a floor/ceiling on prices



Focus on performance over time

LNG contracts last a long time; volatility is inevitable, and the goal is a plan that suits the state's interests over time, not a plan that delivers the best result at every point over a 20-year timeframe.

Focus on risk not the "highest" price

The highest price today may not be the highest price tomorrow; and the highest price could mean being priced out of a market and having LNG unsold; the state should focus on understanding its risk tolerance and developing a portfolio mix that serves its exposure appetite.

Don't outsource your risk profile

Selling LNG through its partners, the state would also be assuming their risk tolerance—even though the state might have a different risk appetite. Judge offers on their ability to satisfy the state's risk profile.

Build in-house expertise

The LNG market is highly fragmented, and expertise makes a difference; an autopilot approach will not serve the state's interests over the long term.

WHAT LEVERS DOES THE STATE HAVE?

Share to pre-sell	Does Alaska want to pre-sell 100% of its output?
Counter-parties	How many counter-parties? Few are simpler but concentrate risk
Price exposure	Oil vs. Henry Hub indexation; S-curves and other protections
Volume risk	How important are steady sales to the state?
Transfer point	Will the state be involved in shipping?
Equity partners	Will the judge select buyers based on their interest to invest in AK LNG?
Intangibles	What other interests does the state have? For example, links to foreign sovereigns

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A LOT STILL TO BE CLARIFIED ABOUT PROJECT STRUCTURE

PROJECT ENTITIES	AK LNG LLC is entity involved in FERC permitting process, DOE export license Is it solely a cost-center, used to manage capital commitments and operating expenses? Or does it sell LNG? How will the flow of funds work? How is the project-within-a-project structure maintained?
EQUITY VS JV MARKETING	Has project JV Marketing been ruled out? Are there benefits to the state from seeking JV arrangements individually with other partners? Would there be separate legal vehicles established for each such JV arrangement?
WITHDRAWAL TERMS	If one partner doesn't want to proceed, how is their project share acquired? Will they sell their gas? Should this be established in advance, or negotiated at the time? Benefits of advanced establishment: - Reduced risk of project stalling due to to non-commitment by one participant Risks of advanced establishment: - Contingent commitment for producers to sell means contingent commitment for state to buy - Potentially major contingent liability on state's balance sheet - Price at which producers willing to agree sale may not be one at which SOA should want to buy - Pre-agreed terms unusual and may be difficult to negotiate
ROLE OF TRANSCANADA	What role, if any, will TC have in the project structure going forward? Is the Limited Partnership structure proposed by the MOU still relevant/applicable?

VARIOUS FINANCING OPTIONS OPEN TO LNG PROJECTS

Balance Sheet Finance

Project sponsors provide funds

Funds can combine debt and cash flow

Guaranteed by project sponsor (recourse)

Rate depends on sponsor's balance sheet

Easier if all parties have strong balance sheets

Project Finance

Third parties lend to project directly, not to sponsors

Sponsors put up some equity (e.g. 30%)

Guaranteed by projected revenues (non-recourse)

Rate depends on project risk

Easier to accommodate riskier sponsors

Key Questions for State of Alaska

What mix of debt and equity?

Will debt be specific to LNG project, or broader state balance sheet liability?

Will equity come from recurrent revenues, or other sources?

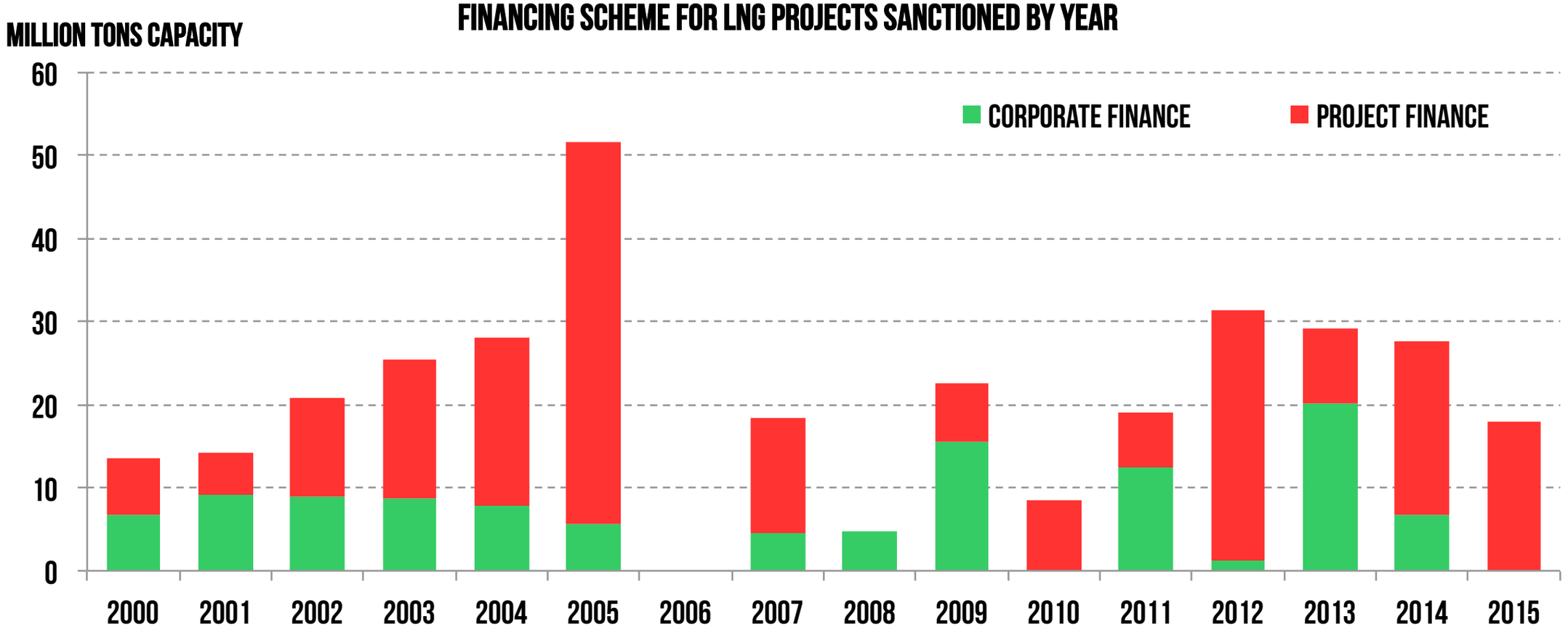
What role does the Permanent Fund play and how does this affect restricted / unrestricted revenue?

PROJECT FINANCE WELL ESTABLISHED IN LNG

Since 2000, two-thirds of the LNG capacity sanctioned has relied on some form of project finance

Diverse financing from sponsors, export credit agencies, multilateral banks and commercial banks

Projects often raised in excess of $10 billion and even up to $20 billion—but funding brings scrutiny



SOURCE: ENALYTICA BASED ON COMPANY ANNOUNCEMENTS, INDUSTRY PRESS AND REPORTS, PROJECT FINANCE INTERNATIONAL ANNUAL LEAGUE TABLES

UNINCORPORATED JV: FLEXIBLE BUT HARD TO NEGOTIATE

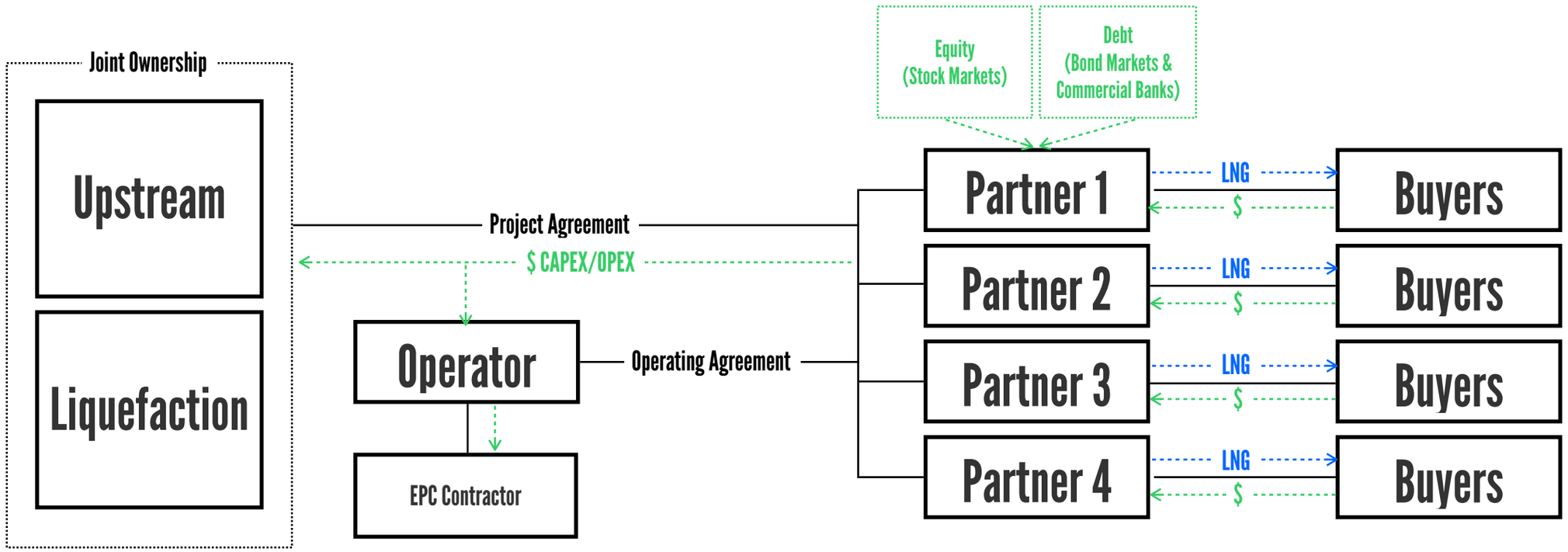
Ubiquitous for upstream, much rarer for LNG; North West Shelf (Australia) and Kenai LNG main examples

Joint Venture through contract, not legal vehicle

Structure offers flexibility upfront but rigidity in instituting changes

Flow-through tax partnership

In US, many of these benefits now available through LLC corporate form



INCORPORATED JV MORE TYPICAL LNG PROJECT STRUCTURE

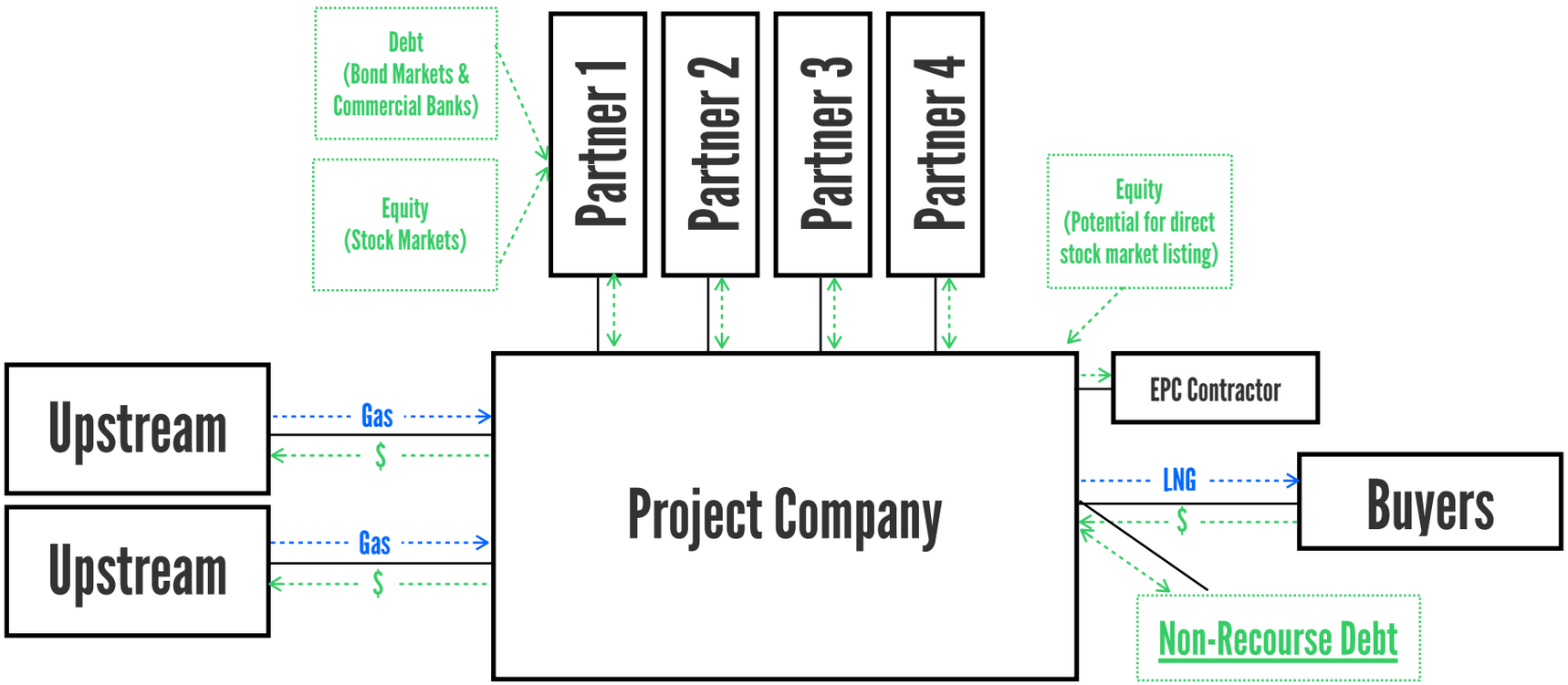
Concentrates assets, liabilities, contracts in project company

Project company is central; may or may not need separate operator

Gas may be purchased from partners at transfer price, or from third parties

JV marketing straightforward

Project non-recourse debt can be backed by buyer contracts, not partners



TOLLING: LIQUEFACTION AS INFRASTRUCTURE

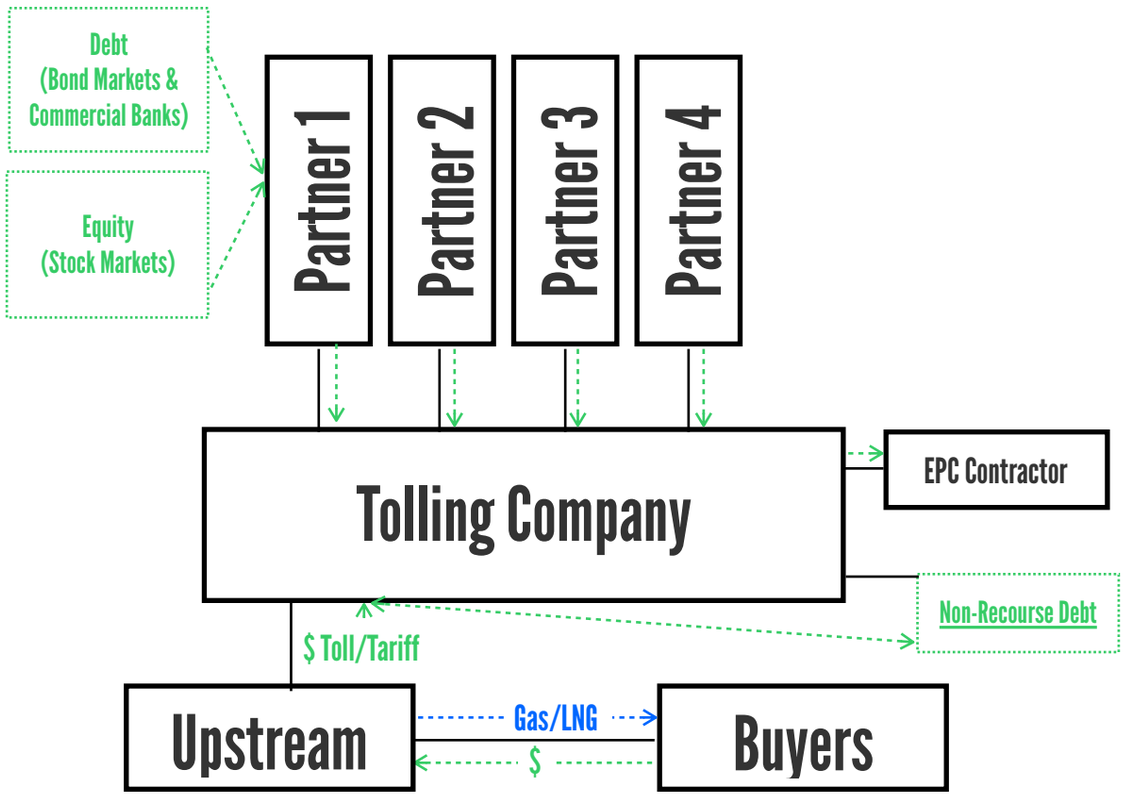
Standard structure for US GOM projects and places where liquefaction developers are not gas owners

Project earns toll rather than gas revenue; minimal commodity risk/reward

Toll contract frequently with gas supplier, who deals directly with buyer

Sometimes toll contract with buyer, who deals directly with upstream supplier

If project financed, financing on basis of toll contract



KEY GOVERNANCE AGREEMENT TERMS

MEMBERSHIP & DISTRIBUTIONS	Do all members fall in the same category, with the same rights and responsibilities? Is the vehicle a profit-generating one does it receive proceeds of LNG sales? Is it solely a cost-center, used to manage capital commitments and operating expenses? Are all profits distributed to members, or are some retained? Are there particular tax considerations for distributions?
DECISION MAKING & CONTROL	Establish management positions, rights and procedures in case of management conflicts Establish decision making bodies and procedures, including quorum and voting requirements: - Decisions requiring unanimity among members: stage-gate decisions / major capital commitments - Decisions that can be made with a super-majority - Decisions that can be made by a simple majority - Decisions that can be made by a single member, with regard to their share
CAPITAL CALLS	Once decisions have been made about committing capital: - How long do members have to contribute new capital - What happens if a member fails to meet a capital call, either short or long run?
EXPANSION TERMS	HOA includes broad terms on expansion and third-party access including: - Expansion process can be initiated by any AKLNG party, provided doesn't adversely impact others - All parties have the right but not the obligation to participate - Expansion parties pay costs and have exclusive access to incremental capacity How are these operationalized in the governance agreements?

KEY GOVERNANCE AGREEMENT TERMS

WITHDRAWAL TERMS	Either within LLC agreement or a separate contract: - Under what terms can a member leave the project? - How is work undertaken remunerated or the overall project valued? - Will a non-participating leaseholder provide gas to the project, and under what terms? Most details of withdrawal terms usually negotiated at the time, rather than in advance - Are there benefits and risks in seeking to codify these at this point?
SALE & TRANSFER RIGHTS & RESPONSIBILITIES	What restrictions apply on members' ability to sell their project share, to other partners or third parties? What approval to members wanting to sell require, and what pre-emptive rights to other members have? - Rights of first refusal? - Tag-along rights? - Drag-along rights?
OPERATORSHIP & SHARED SERVICES	Will one member act as operator? - How will this relationship be codified? - Will this be for FEED and/or Execution phases, or also once operations begin? How will access be provided to North Slope shared infrastructure and services?

CASE STUDY: ELK-ANTELOPE AND PREEMPTIVE RIGHTS

DEC 2013:

NEWS RELEASE

InterOil

INTEROIL SELECTS TOTAL SA FOR PNG GAS DEVELOPMENT

- **Transformational transaction to monetise InterOil's Elk-Antelope fields**
- **InterOil to maintain a material 30% interest in integrated LNG development**
- **Highly-credentialed partner to facilitate certainty of development**
- **Illustrative final transaction price of US$1.5 – US$3.6 billion (for a range of 5.4 – 9.0 tcfe of hydrocarbon gas equivalent), with payments to be based on appraisal drilling and certification**
- **Limited conditions with completion expected in Q1 2014**

Gross Interests in PRL 15, post-acquisition of the Pacific LNG minority interests in PRL15

Entity	Gross interests pre-transaction	Gross interests post-transaction	Net working interests post-transaction
InterOil	75.6114	38.7097	30.0
Total SA	0	61.2903	47.5
Indirect participating interests	24.3886	0	0
PNG Government and landholders[1]	0	0	22.5
Total (%)	100.00	100.00	100.00

[1]Assumes the Papua New Guinea Government and landholders in PRL15 exercise their rights under the PNG Oil and Gas Act to take their respective 20.5% and 2% interest in the licence when a petroleum development licence is issued.

FEB 2014:

Oil Search buys into Elk-Antelope fields in Papua New Guinea

MELBOURNE, Feb. 27
02/27/2014
By Rick Wilkinson
OGJ Correspondent

Oil Search Ltd. has signed a deal to acquire a 22.835% stake in retention licence PRL15 containing the Elk and Antelope fields in the eastern Highlands of Papua New Guinea for $900 million.

The deal involves the acquisition of 100% of Pac LNG Group (formerly Pacific LNG), which is affiliated with the privately owned Swiss banking firm Clarion Finanz AG. The transaction is unconditional and expected to settle within 2 weeks.

Pac LNG holds the 22.835% interest in PRL15 as well as being a major shareholder of InterOil Corp., which in turn currently holds a 75.6114% stake in the Elk-Antelope permit.

InterOil brought France's Total SA into the PRL15 permit last December for a 61.3% stake in a deal worth $3.6 billion. That deal is due for completion by the end of this year's first quarter.

Oil Search will fund its Pac LNG acquisition with the placement of 149.39 million fully paid ordinary shares to the PNG Government at $8.20 (Aus.)/share.

MAR 26 2015:

TOTAL AND INTEROIL CLOSE ELK-ANTELOPE TRANSACTION

March 26, 2014

TOTAL InterOil

Paris:

- Revised sales and purchase agreement closes
- Total acquires 40.1% gross interest and brings its global expertise to developing second LNG project
- InterOil receives US$401 million and maintains material 35.5% gross interest in Asia's largest gas fields

Interests in PRL 15

Entity	Gross interests pre-transaction	Gross interests post-transaction	Net working interests post-transaction[1]
Total	0.0	40.1	31.1
InterOil	75.6	35.5	27.5
Oil Search	22.8	22.8	17.7
Indirect participating interests	1.6	1.6	1.2
PNG Government and landholders[1]	0.0	0.0	22.5
Total (%)	**100.0**	**100.0**	**100.0**

MAR 28 2014:

UPDATE 2-Oil Search fights sale of PNG gas field stake to France's Total

* Oil Search fights over loss of right to match Total offer
* Battle over gas for PNG LNG expansion or rival project
* InterOil says will defend sale to Total (Adds InterOil, analyst comments)

By Sonali Paul

MELBOURNE, March 28 (Reuters) - Papua New Guinea energy company Oil Search Ltd launched a fight on Friday to contest French oil giant Total SA's purchase of a 40 percent stake in PNG's biggest undeveloped gas field.

The dispute surrounds stakes in the Elk and Antelope fields, coveted because the gas could be used either for a possible expansion of a $19 billion liquefied natural gas (LNG) project that ExxonMobil Corp is building with Oil Search, or for a rival project.

Oil Search recently bought into the Elk and Antelope fields, controlled by PNG's InterOil Corp, which this week signed a final agreement selling down its stake to Total.

Total and InterOil want to use the gas from the fields for a new LNG plant that would compete against ExxonMobil's PNG project, which is due to start exporting around July.

Oil Search said on Friday it had filed a notice of dispute to InterOil surrounding Total's acquisition. The dispute would need to be resolved by international arbitration.

TRENDING ON REUTERS

1. Kentucky clerk still in contempt of gay marriage order: plaintiffs
2. Volkswagen says 11 million cars hit by scandal, probes multiply | VIDEO
3. EU backs refugee-sharing plan, exposing east-west rift | VIDEO
4. Russian aircraft in Syria consistent with 'force protection': Kerry
5. Kentucky clerk Davis rejects marriage

FEB 2015:

Total to retain PNG gas after Oil Search loses arbitration

Sydney (Platts)--11 Feb 2015 411 am EST/911 GMT

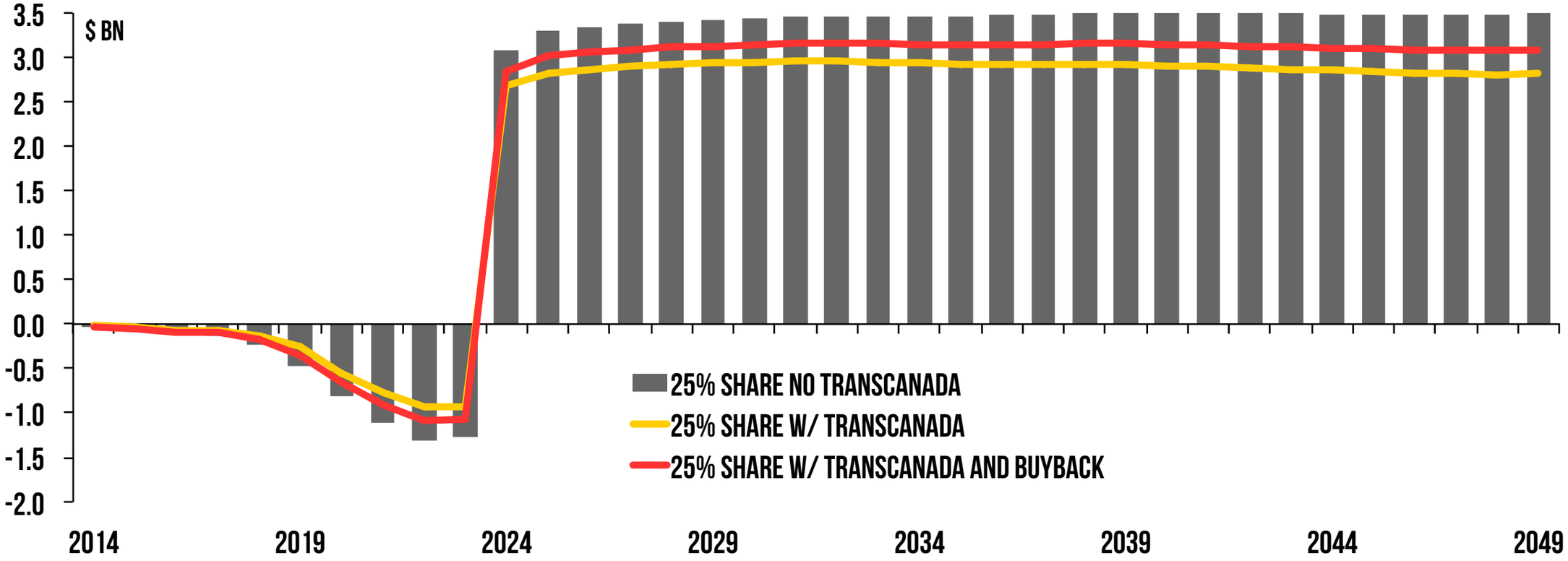
French major Total will retain its foothold in Papua New Guinea's emerging LNG sector, after an international arbitration ruling confirmed the validity of its acquisition of a stake in the promising Elk-Antelope gas resource.

FINANCIALLY, TRANSCANADA DEAL IS AKIN TO A LOAN

TransCanada shoulders a share of SOA's capital commitments and Alaska repays over time with tariff

SOA cash outlays fall by $1.7 bn (no buyback) to $1 bn (buyback) during development period

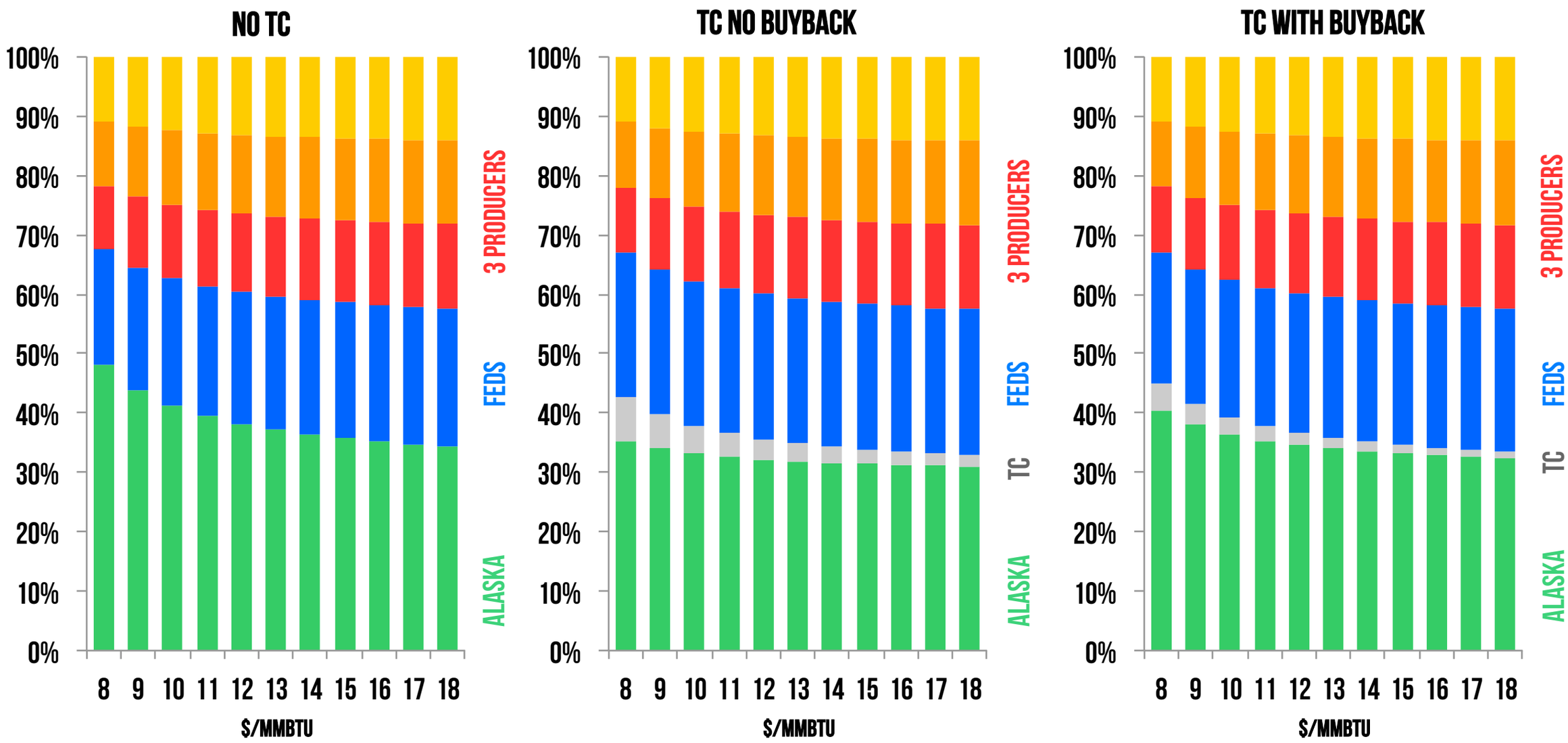
STATE OF ALASKA: CASH FLOWS FOR ALASKA LNG (70% DEBT / 30% EQUITY)



TC'S SHARE OF CASH IS RELATIVELY SMALL

TC's share ranges from 1% to 7%, depending on price levels and state's exercise of buyback

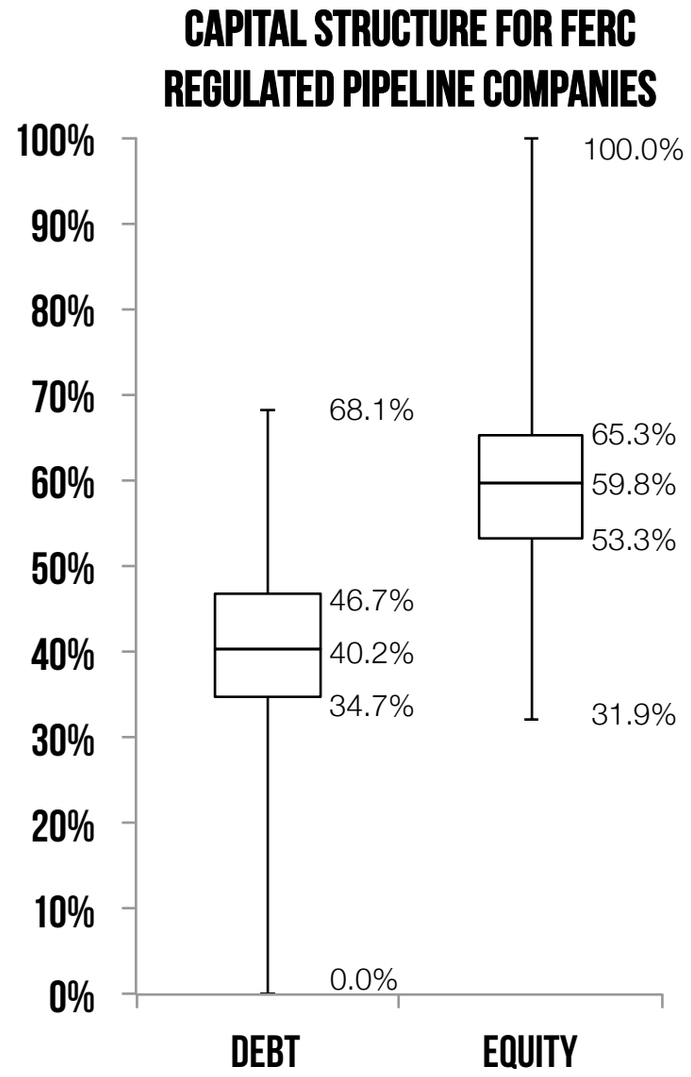
PERCENT OF CUMULATIVE CASH FLOWS OVER PROJECT LIFE, 25% EQUITY CASE

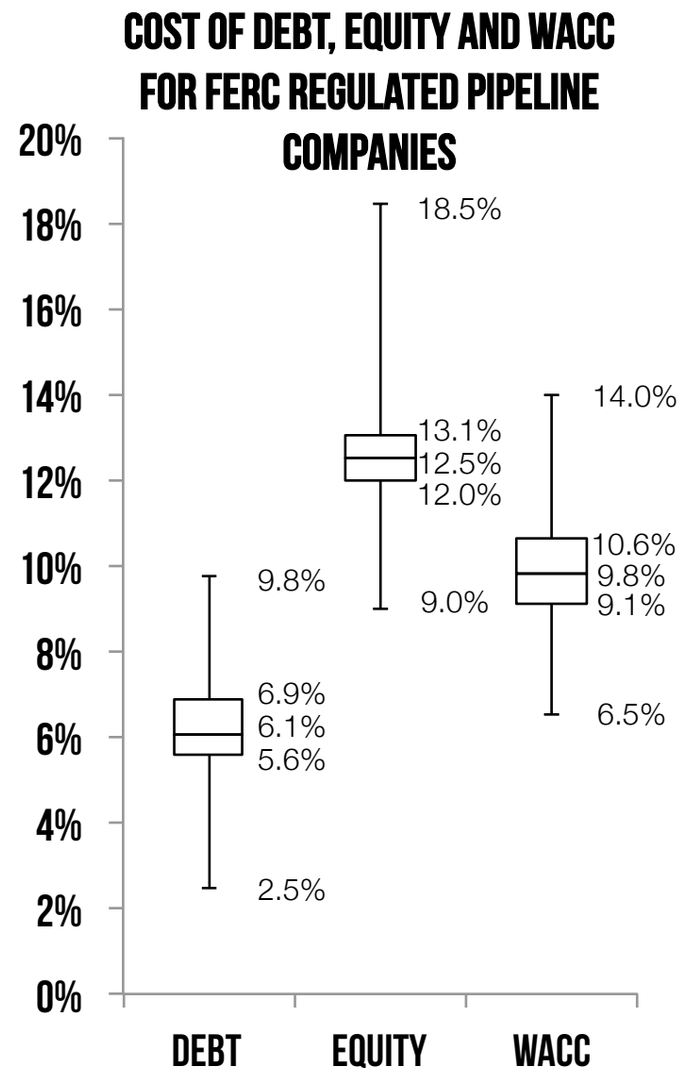


TRANSCANADA TARIFF OFFER WITHIN US MARKET NORMS

Capitalization structure (75:25 debt:equity) is more weighted toward debt than average FERC pipeline

Cost of equity (12%) and debt (5%) below average; weighted cost of capital (6.75%) near bottom of group





SOURCES: ENALYTICA BASED ON "FORM 2/2A - MAJOR AND NON-MAJOR NATURAL GAS PIPELINE ANNUAL REPORT," 2012

TC INVOLVEMENT HAS STRENGTHS AND WEAKNESSES

	Financial	Non-Financial
Pros	• Substantial portion of initial capital cost not borne directly by state • Attractive tariff terms relative to US pipeline market norms • Exit from potential AGIA liabilities	• Expansion-oriented partner to drive future expansion development • Presence at negotiation table, especially during early, project-defining stages • Execution capabilities • Continuity and momentum
Cons	• State pledge of "full faith and credit" to tariff may be equivalent to bearing costs directly - liability likely capitalized • Significantly higher cost of capital • State reimburses TC in full with interest in all circumstances - even if TC decides to terminate	• State retails almost all risk, but gives up significant control • Potential 'partner alignment' cost • Potential loss of transparency to state of key project components

TRANSCANADA DECISION POINT APPROACHES

SOA has until December 2015 to:

-execute a Firm Transportation Services Agreement (FTSA)

-exercise Equity Option (EO) to buy-back 40% of the 25% portion of pipe & GTP held by TransCanada

Until gas supply/balancing issues and marketing approach are sufficiently resolved to enable SOA take an RIK decision, SOA has no gas and cannot sign an FTSA

From here two routes are possible:

Terminate relationship with TransCanada

- Pay TransCanada development costs to date + AFUDC (April 2014 Pre-FEED estimate: ~$70mm)
- Appropriate additional funds to conclude pre-FEED work program without TC
- Plan for SOA to fund full 25% share of FEED program (~$450-500mm vs ~200-320mm)

Continue relationship with TransCanada

- Renegotiate timeline for decisions, to ensure RIK decision can be reached before FTSA

KEY QUESTIONS TO ASK RE TRANSCANADA

Finance	What is SOA cost of capital? How would FTSA impact SOA balance sheet?
Project timetable	TC heavily involved in pre-FEED; who takes over and what's the impact?
Negotiations	TC still represents state in negotiation; how will SOA advance expansion principles?
Expansion	SOA relied on TC to drive expansions; what is SOA plan now?
Withdrawal	In case of withdrawal by one party, might having TC help?

AGENDA

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3:30—4:50 PM	FISCAL TERMS, STABILITY, PROJECT COMPETITIVENESS	46
4:50—5:00 PM	WRAP-UP	59

NEW LNG MARKET: BOOM AFTER YEARS OF TIGHTNESS

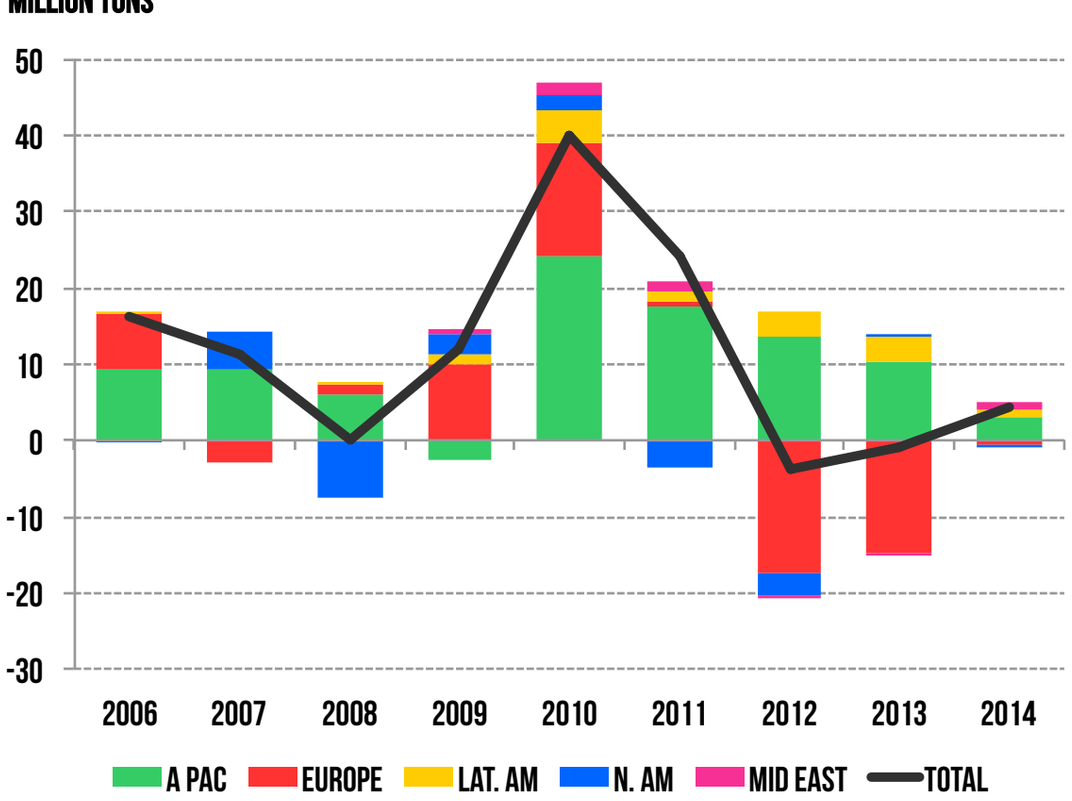
LNG supply grew little in 2012–2014 due to limited capacity additions and utilization problems

LNG market coped mostly by re-directing gas from Europe and North America to Asia and Latin America

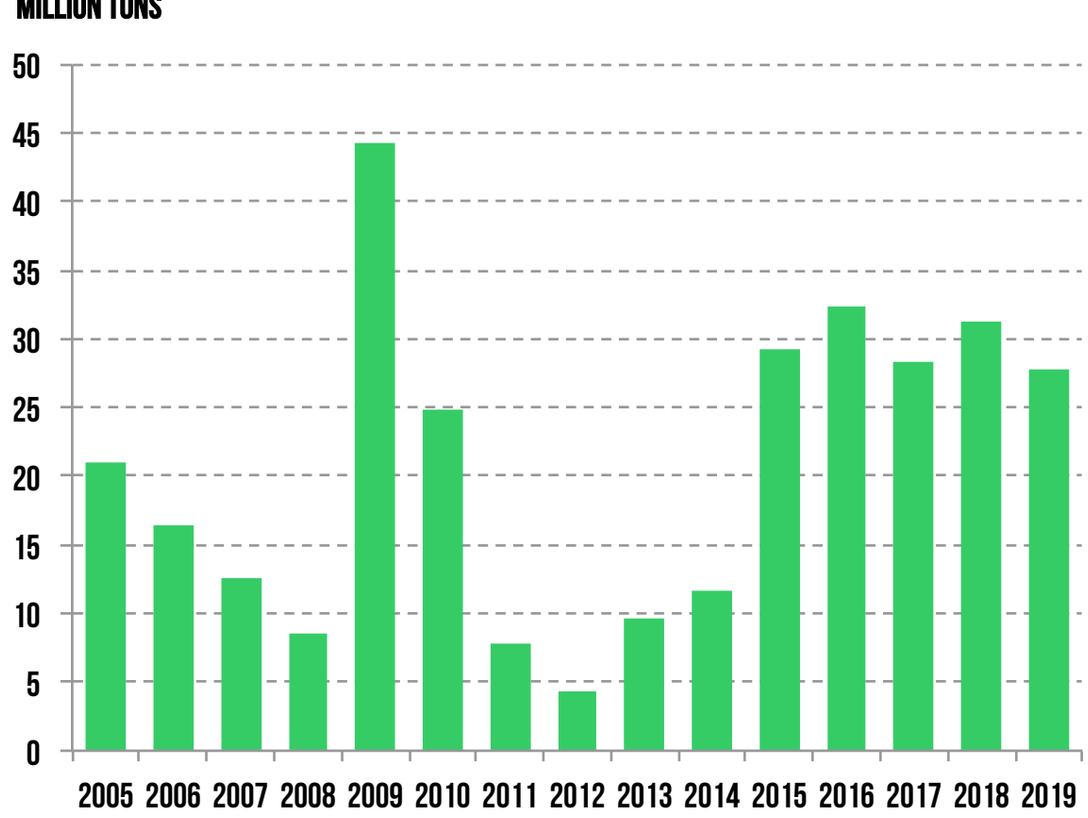
Supply response (new project development) after years of tightness is showing up; and oil has crashed

In 2010–2014, global LNG capacity grew by 58 mmtpa; in 2015–2019, it will grow by 150 mmtpa

LNG IMPORTS BY REGION: YEARLY CHANGES



LNG CAPACITY ADDITIONS BY YEAR



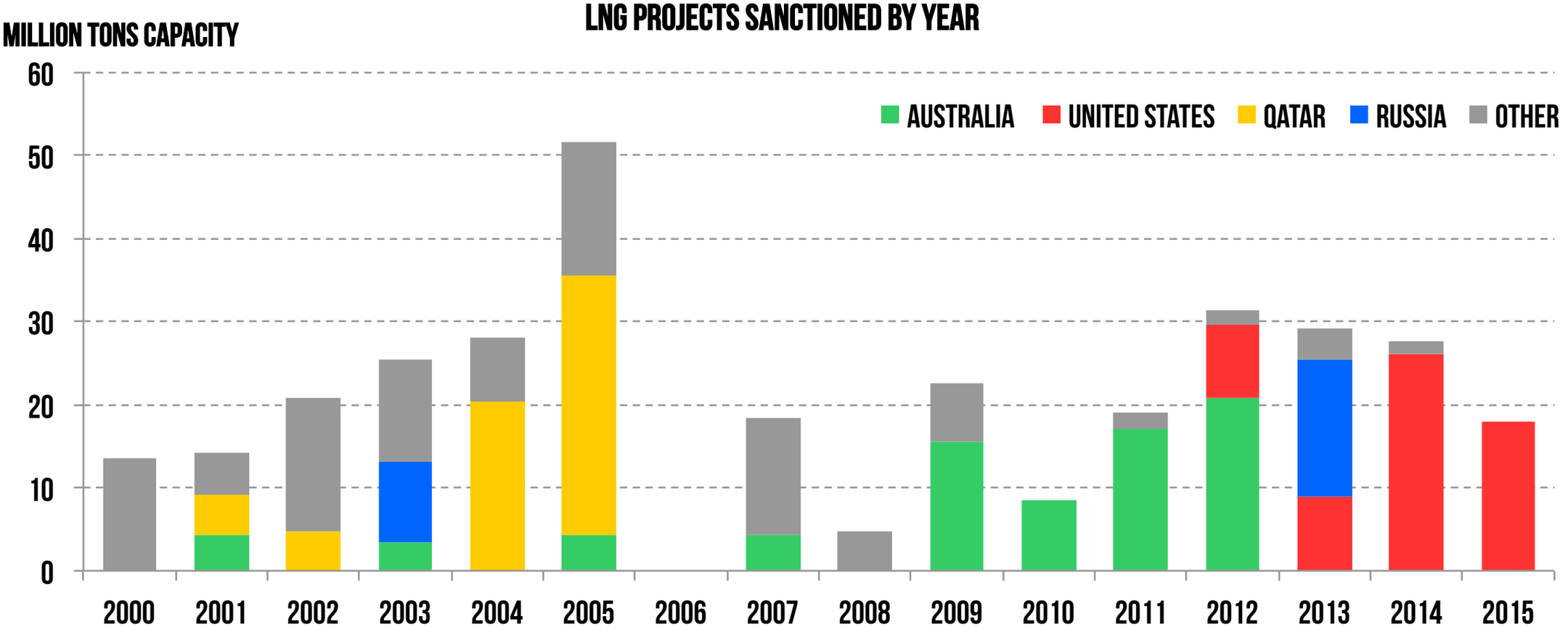
SOURCE: ENALYTICA BASED ON IGU WORLD LNG REPORT 2015, COMPANY REPORTS AND PRESS RELEASES, INDUSTRY PRESS

UNITED STATES L48 MAIN SOURCE OF NEW LNG SUPPLY

Since 2000, LNG industry has sanctioned 21 mmtpa of new capacity each year, range from 0 to 52 mmtpa

Three waves (68% total): Qatar (2001–2005), Australia (2007–2012) and now US L48 (2012–present)

Since first L48 LNG project was sanctioned in 2012, 60% of new capacity has been from L48



SOURCE: ENALYTICA BASED ON IGU WORLD LNG REPORT 2015, COMPANY REPORTS AND PRESS RELEASES, INDUSTRY PRESS

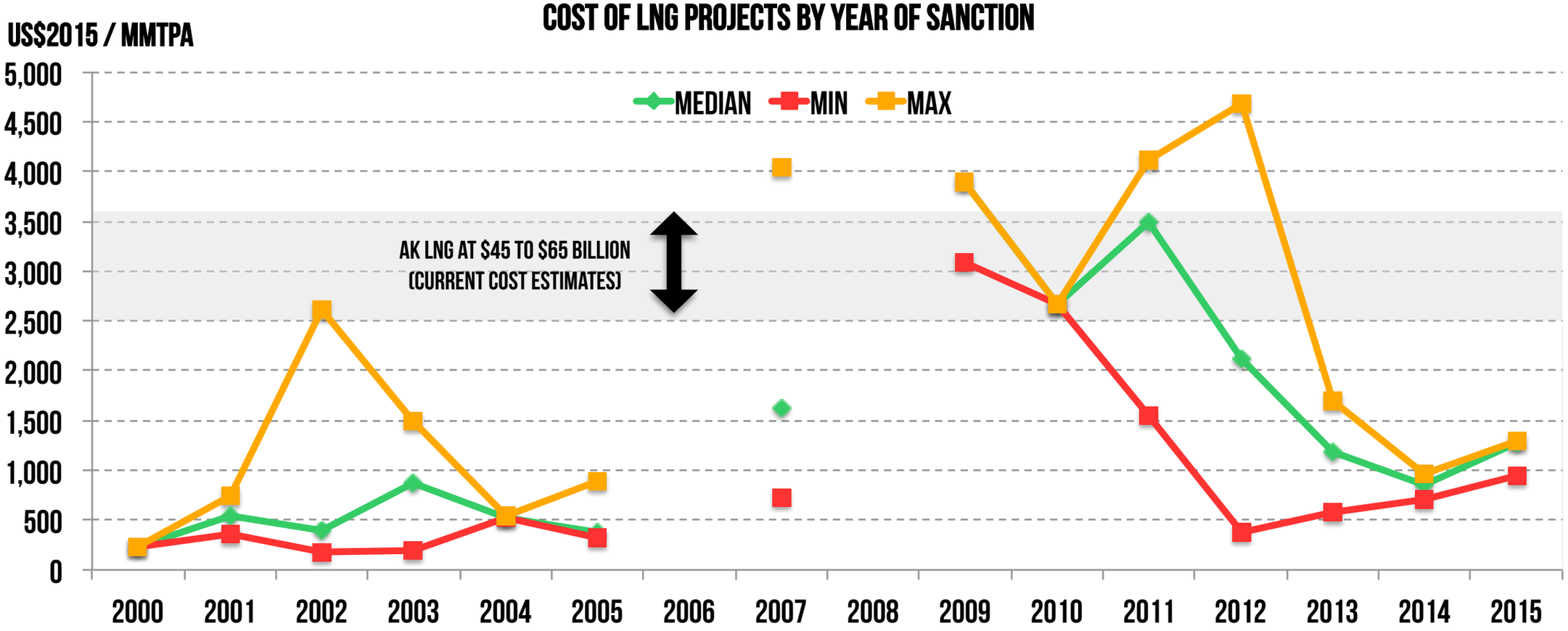
ERA OF SUPER-EXPENSIVE LNG IS OVER (FOR NOW)

Between 2007 and 2012, the cost of developing LNG projects rose dramatically

Several LNG projects in Australia cost over $2,500 per ton of capacity

US L48 projects are much cheaper even accounting for fact that they do not include upstream costs

Alaska's current cost structure is closer to Oz LNG projects than to L48 projects



SOURCE: ENALYTICA BASED ON COMPANY REPORTS AND PRESS RELEASES; INCLUDES GREENFIELD AND BROWNFIELD PROJECTS; US PROJECTS (2012 ONWARDS) INCLUDE ONLY MIDSTREAM

NEW PRICING EXPECTATIONS POSE CHALLENGE FOR AK LNG

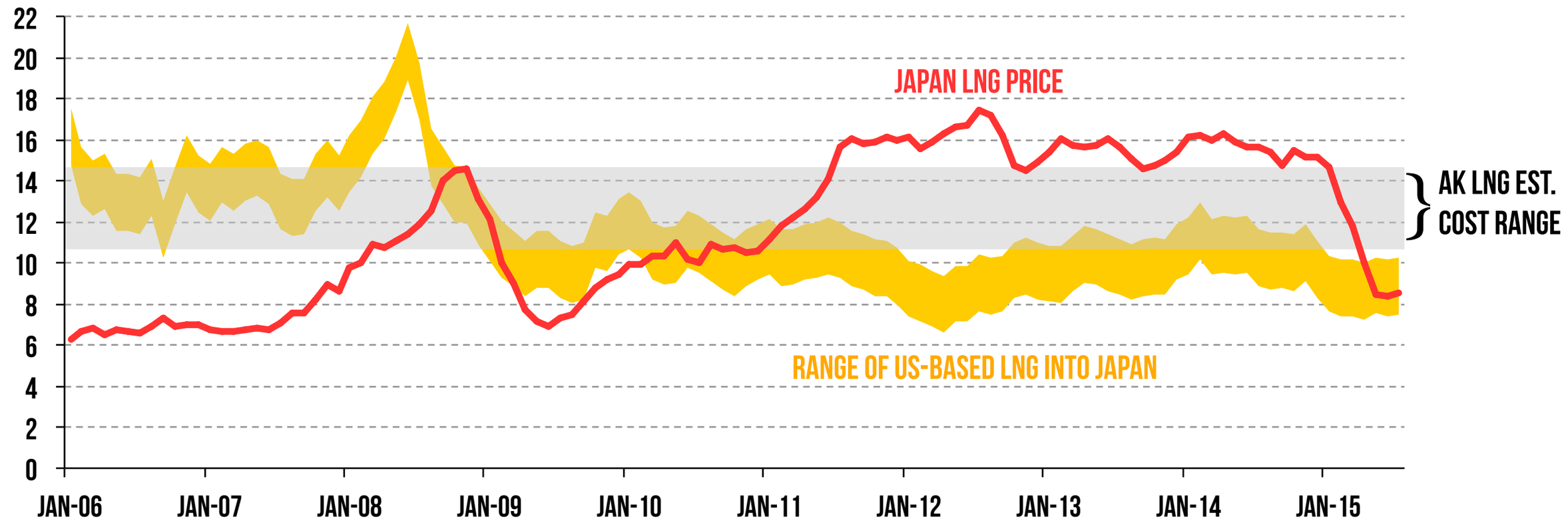
Lower oil prices and US-based LNG have reshaped pricing expectations for buyers

The average price for LNG into Japan was around $8.50/MMBtu in June/July 2015

LNG from the L48 could reach Japan for a price around $7.50 to $10/MMBtu

Market will change until mid 2020s, but environment has changed; cost competitiveness is crucial

ESTIMATED US-BASED LNG IN JAPAN VS. JAPAN BORDER PRICE



SOURCE: ENALYTICA BASED ON DATA FROM ENERGY INFORMATION ADMINISTRATION, TRADE STATISTICS OF JAPAN, ST LOUIS FRED

IN ALL MARKET SCENARIOS, AK LNG NEEDS A BIG PUSH

Previous booms halted due to policy (Qatar moratorium) or costs (Australia); but Lower 48 "limitless"

LNG contract prices can converge towards Henry Hub plus

Suppliers match US-based LNG because buyers can always turn to L48 to get supply

US LNG creates a floor for LNG pricing, but market overshoots (overhang)

Suppliers refuse to match US-based LNG, especially in contract roll-overs (expirations); US LNG keeps growing and creates overhang

Henry Hub based LNG is priced out of the market

Higher Henry Hub, lower oil prices or lower LNG costs price Henry Hub out of market.

US-based LNG is somehow restricted

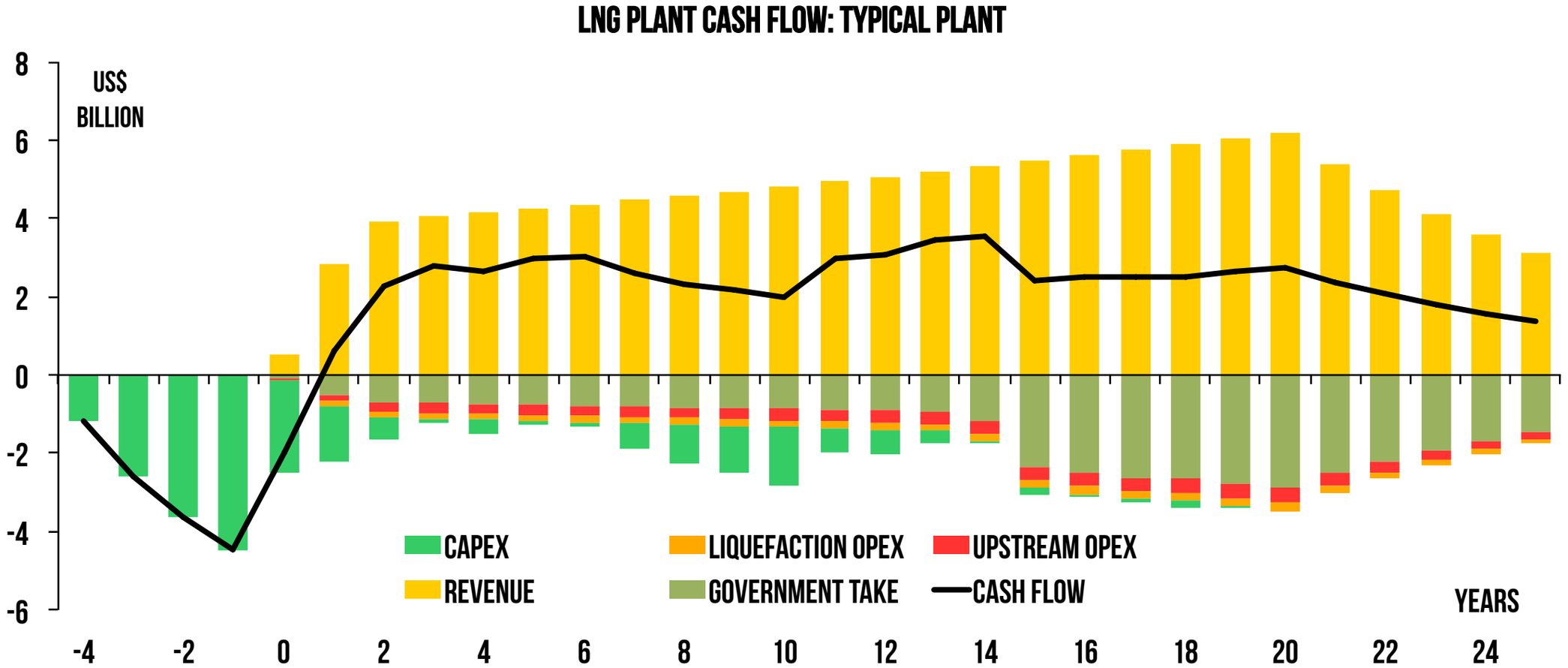
US LNG supply remains competitive but market either avoids over-exposure to US or US policymakers seek to restrict LNG (energy) exports

LNG PROJECTS ALL ABOUT MANAGING LONG-TERM RISK

LNG projects take many years (often decades) to "arrange" but most money is spent during construction

LNG consists of making big upfront investments (for 4-5 years) that repay capital over 20+ years

Risk management across the board (technology, commercial, fiscal, political, etc) is key to success



RIK/EQUITY APPROACH HELPS MANAGE LONG-TERM RISK

Alignment

RIK structure transforms state from taxing authority to co-venturer, with capital at risk

State has equal interest in reducing project costs and maximizing project competitiveness

Capital Commitment

State equity investment retains revenue benefits for state but improves Return on Capital Employed (ROCE) for companies, since no longer responsible for capital commitment to monetize state entitlement; helps make marginal project viable

STABLE, DURABLE FISCAL TERMS KEY TO LONG-TERM RISK

Reaching FID is a process of 'nailing down' details to reduce risk and uncertainty to manageable level

Extensive technical and engineering work to define exact scope of project cost and potential overruns

Negotiated LNG Sales Purchase Agreements strictly define scope of commodity price and offtake risks

Without stabilization, potential that future terms changes could cause major economic deterioration

Once capital has been committed, without stabilization, limited ability to protect against changes

Fiscal stability a particularly big issue for:

- High cost projects (marginal economics, easily eroded)

- Jurisdictions with high resource-rent dependence (strong incentives to change terms)

- Jurisdictions with histories of unstable terms

PROPERTY TAX HAS A MAJOR IMPACT ON ECONOMICS

Why property tax matters?

Lots of money (e.g. $1 bn, or up to $1/mmbtu)

Long construction period

Regressive (fixed regardless of revenue)

Possibly contentious (given history)

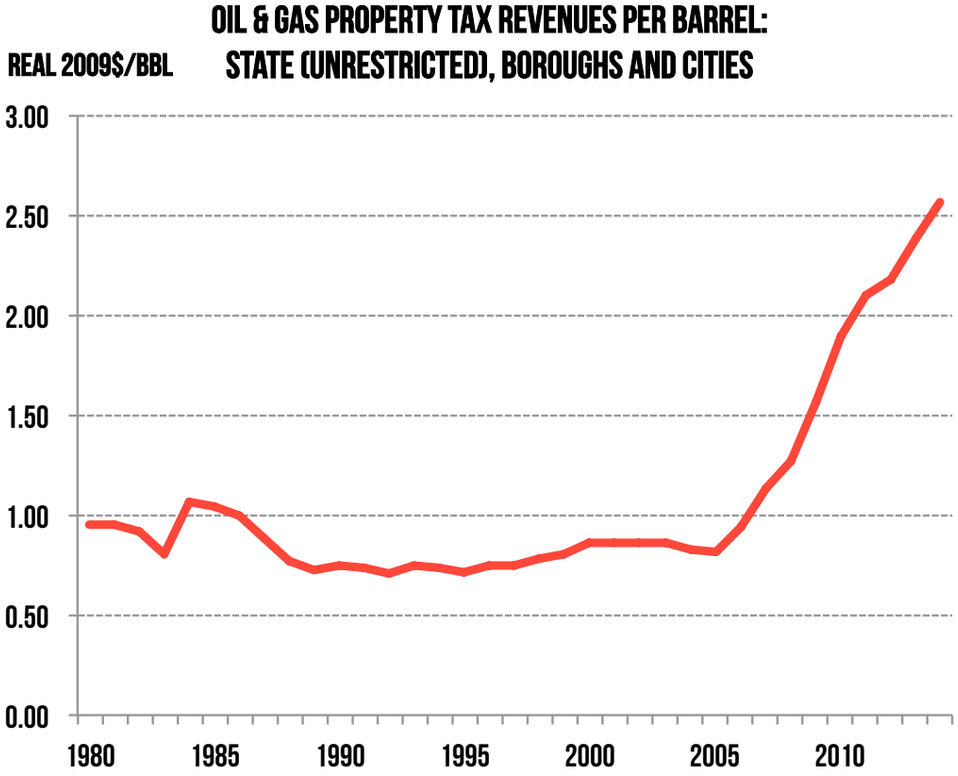
What does a good framework look like?

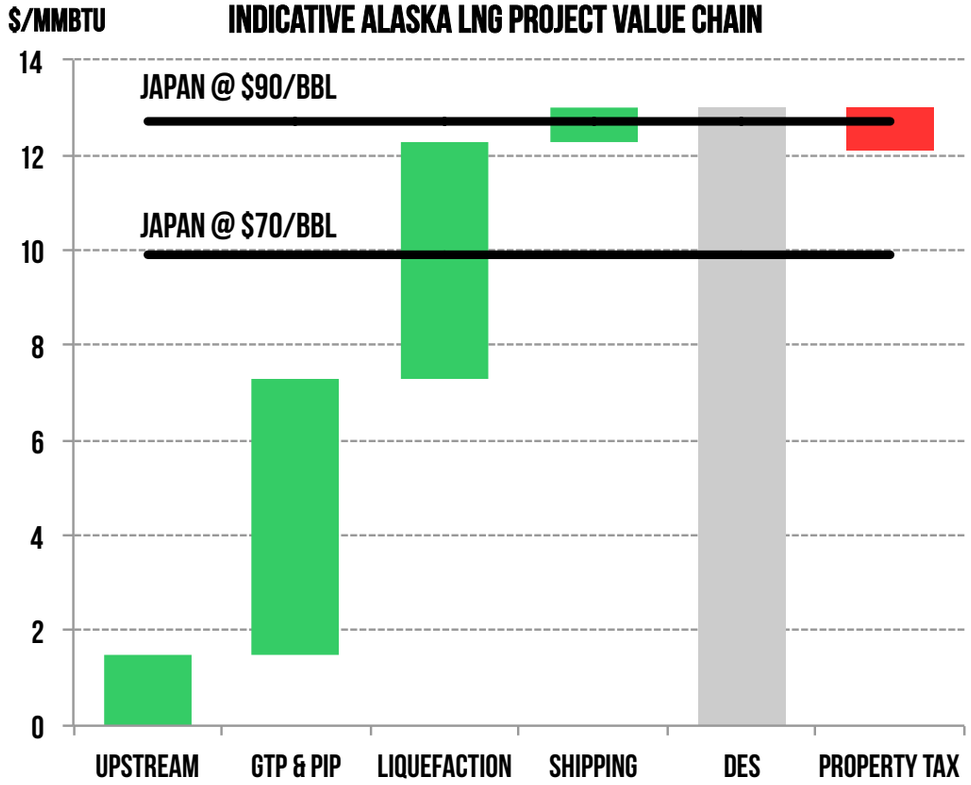
Clear formula (simple)

Predictable / stable

Balanced (fair, equitable)

Enables project development





SOURCE: ENALYTICA BASED ON DOR, REVENUE SOURCES BOOK (VARIOUS EDITIONS); DEPARTMENT OF COMMERCE, COMMUNITY, AND ECONOMIC DEVELOPMENT, ALASKA TAXABLE (VARIOUS EDITIONS)

MORE PREDICTABLE PROPERTY TAXES: TWO APPROACHES

Negotiated PILT

Simple, stable $/mcf payment

Numerous payment profiles possible

Contractual - stabilization implicit

Separated from property assessment

$/mcf Property Tax

Emulate PILT $/mcf figure through property tax

Depreciation/Inflation - limited levers

Additional stabilization essential

Link to property assessment remains

FISCAL STABILITY CASE STUDY: PACIFIC NORTHWEST LNG

B.C. signs LNG deal with Petronas-led group, but tax promises criticized

BRENT JANG AND JUSTINE HUNTER
VANCOUVER and VICTORIA — The Globe and Mail
Published Wednesday, May 20, 2015 1:22PM EDT
Last updated Wednesday, May 20, 2015 11:59PM EDT

84 Comments | 375 | 155 | 84 | 136 | G+1 16 | Print / License | AA

The B.C. government has signed a development deal with Pacific NorthWest LNG in an aggressive move to spur the Malaysian-led project to become the first major Canadian exporter of liquefied natural gas.

The pact spells out the tax regime and LNG rules for the long term, aiming to reduce the risks for the project's Asian backers.

ENERGY & RESOURCES
Video: Can Petronas overcome the opposition to its LNG project?

B.C. Premier Christy Clark and Pacific NorthWest LNG president Michael Culbert signed a memorandum of understanding Wednesday, clearing the way for the project development agreement's ratification later this year from the B.C. legislature.

"There has been a lot of work getting here in obtaining and securing a $36-billion investment and there's still a lot of work ahead of us," Ms. Clark said during a news conference in Vancouver. "We've worked hard to build strong partnerships with First Nations and that work is still under way, as is the federal government's regulatory process for environmental approvals."

LNG protected from tax hikes for 25 years in deal with B.C. government

Finance Minister unveils details of agreement with Pacific NorthWest LNG

CBC News Posted: Jul 06, 2015 6:06 PM PT | Last Updated: Jul 11, 2015 5:22 PM PT

Finance Minister Mike de Jong takes reporters' questions on Monday after revealing the government is granting the LNG industry a 25-year tax freeze. (CBC)

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- Christy Clark

The B.C. government has agreed to compensate a major liquefied natural gas project if it raises taxes on the LNG industry for a 25-year period after the plant starts shipping.

Finance Minister Mike de Jong released details on Monday of the $36-billion deal it reached in May with Pacific NorthWest LNG, a consortium led by Malaysian energy giant Petronas which wants to build an LNG export terminal near Prince Rupert.

Under the terms of the agreement, B.C. has agreed to compensate the LNG consortium if taxes on the industry are raised, natural gas tax credits are reduced or new carbon taxes targeting the LNG sector are imposed. But the minister says the agreement does not protect the company from increases in provincial sales and corporate taxes.

De Jong says the deal gives the company the certainty it needs to make a final investment decision on a project he says should contribute more than $9 billion into provincial coffers in its first decade and create up to 4,500 jobs.

SOA / PRODUCERS MAY VIEW STABILIZATION DIFFERENTLY

Growing convergence on the need for fiscal stabilization, including constitutional amendment

But the details of what stabilization means and how to achieve it could still prove controversial

	APPROACH	PROS	CONS
Fiscal system fully contractualized	Contract defines and locks down all fiscal matters that will govern AKLNG	Stabilization fully specified in precise detail, and guaranteed for all terms	Most constrictive approach Contract creates fiscal terms 'from whole cloth' - significant deviation from historical statutory approach; more like a PSC
Statutory fiscal system, guaranteed by contract	Contract locks down fiscal system as set by statute at the time of signature and provides for remedies to any statutory changes down the line	All terms have reference in statute and/or established practices	What is stabilized and what isn't? Harder to deal with matters that are determined through regulation or agency interpretation rather than statute.

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HOW TO JUDGE AGREEMENTS THAT COME TO LEGISLATURE?

Wearing a project hat

Project timeline	Does this agreement push the project forward or does it delay it?
Competitiveness	Does this agreement make AK LNG more competitive in the market?
Ability to change	Is this a “final” decision or is there opportunity to revisit / adjust later?

Wearing an owner hat

Risk and reward	To what risks does this agreement expose the state over time? What’s the upside?
Risk management	What tools can the state employ to manage this risk? What’s the cost of those tools?
Risk tolerance	How much of this risk is the state willing to take?

Wearing a sovereign hat

Organization	How to set up environment, structure and responsibilities to manage project?

WRAP-UP

LNG projects are big, complex beasts and they take years from inception to execution; this is normal

The agenda may be daunting, but AK LNG has made enormous progress over the past few years

Given multiplicity of issues, SOA will engage in lots of back-and-forth to find right answer

Market is getting tougher and AK LNG will need a strong push to compete

But Alaska has a strong history in LNG business and other assets that it can capitalize on

http://enalytica.com