

RUSSIA – Tough Investment Environment

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(Column Editor)

Although it is not a happy story, the Sakhalin II project embodies many of the key issues-of-the-day in the former Soviet Union (FSU). The project is an offshore oil and gas field development in the Sea of Okhotsk off the eastern shore of Sakhalin Island, Russia. It involves the Piltun-Astokhskoye and Lunskeye fields. Piltun-Astokhskoye is primarily an oil field, and Lunskeye is primarily gas. The two fields contain an estimated 1-1.2 billion barrels of recoverable oil and 14-18 TCF of natural gas.

The Sakhalin II production sharing agreement (PSA) dated 22 June, 1994^{1,2} was the first of the 3 Russian PSAs (followed by the Sakhalin I and Kharyaga PSAs). Sakhalin II has been described as “an agreement so advantageous it becomes part of corporate lore and is analyzed in business school textbooks for years to come.”³ One common explanation is that the government agreed to forego its share of the revenues until the IOCs had recouped their costs.^{4,5}

There is the added claim that the Sakhalin PSA structure transferred “most of the risks of both construction overspend and change in the oil/gas price to the Russian government.”⁶

¹ Production Sharing Agreement, *SAKHALIN –Marathon Group Production Sharing Contract Agreement...on the Development of Piltun-Astokhskoy & Lunskeye Oil and Gas Fields* (Russia, 22 June 1994)

² The term “production sharing *contract*” did not translate well in the Russian language/culture. As a result the term “production sharing agreement” came into wide use once such agreements came into use in the FSU. Otherwise there is no difference between a PSA and a PSC.

³ T Krysiak, ‘Production Sharing Agreements in Putin’s Russia’ *Energy Publisher* 10 December 2007) 1 <<http://www.energypublisher.com>> accessed 23 January 2008

⁴ Ibid.

⁵ Ray Leonard, ‘Why Production Sharing Agreements (PSA’s) Failed in Russia’ Presented at “Production Sharing Contracts Roundtable” (YukosSibneft, Houston, November, 2003)

⁶ Dr. I Rutledge, ‘The Sakhalin II PSA — a Production ‘Non-Sharing’ Agreement’ (Sheffield Energy & Resources Information Services (SERIS), November 2004)

This claim is fortified with the claim that the government did not foresee the long delays and increase of projected costs that have afflicted the project.⁷

Other issues prominent in the Sakhalin II story include claims of environmental abuse and lack of compliance with the Russian 70% “local content” requirement. The key issues and claims associated with the Sakhalin II PSA boil down to:

- 1) It is overly advantageous to the IOCs
- 2) The government must forego share of revenues until the IOC recoups costs
- 3) Risk of cost over-runs and price volatility shouldered mostly by government
- 4) Russian 70% local content requirement not being met⁸
- 5) Environmental abuses exist at Sakhalin II development

Arguments 1,2 and 3 were pillars of YUKOS chairman Mikhail Khodorkovsky’s position when he lobbied against PSA legislation in Russia in the late 1990s. His efforts were based in-part on comparison of PSAs with royalty/tax systems.⁹

⁷ —, ‘Barking louder, biting less’ *The Economist* (8 March 2007)

⁸ Darius Snieckus, ‘Sakhalin Campaigns Soldier On’ *Offshore Engineer* (14 January 2003)

⁹ Ray Leonard, ‘Why Production Sharing Agreements (PSA’s) Failed in Russia’ Presented at “Production Sharing Contracts Roundtable” (YukosSibneft, Houston, November, 2003)

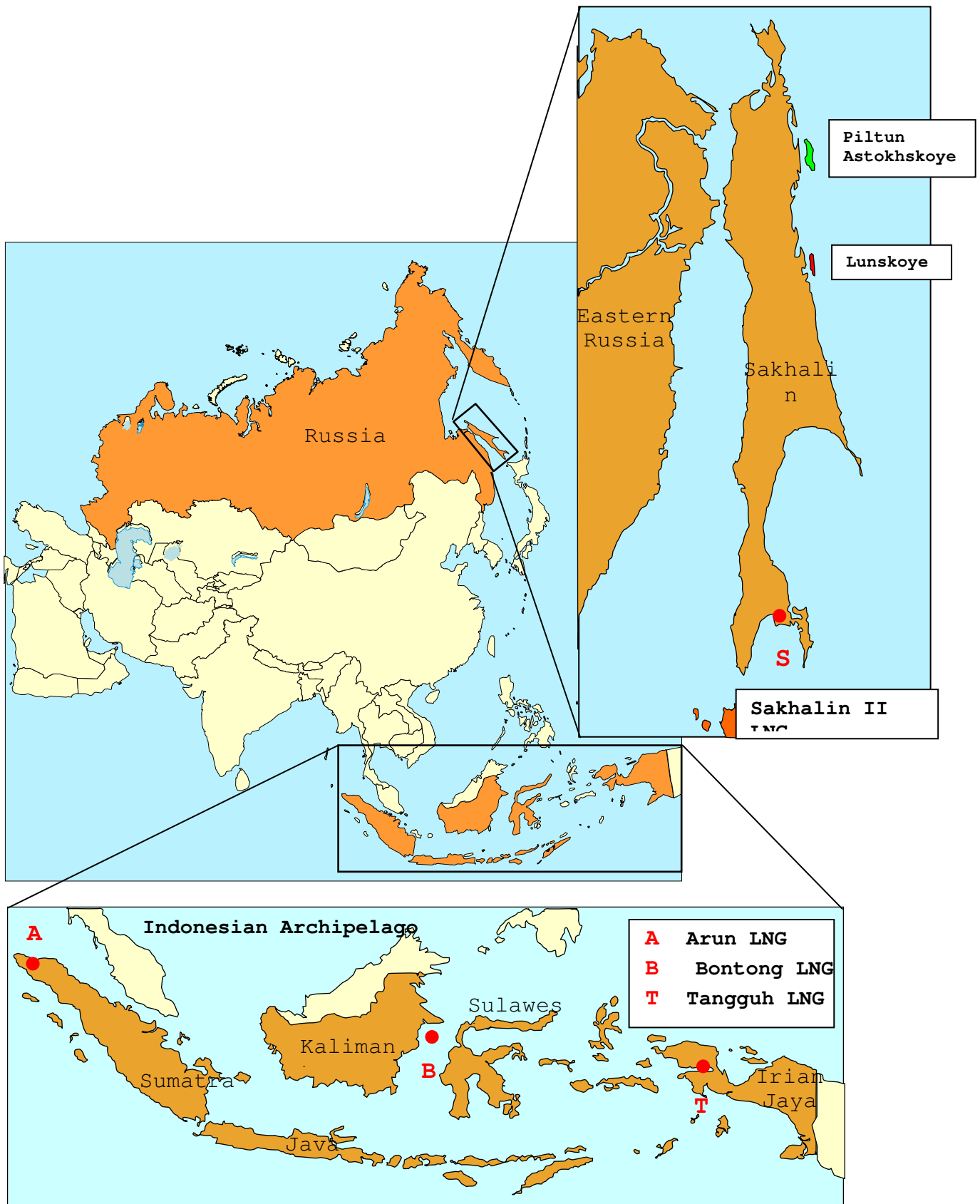


Figure 1 - Location Map - Indonesian and Russian LNG Projects

Other claims of lopsidedness in the Sakhalin II PSA are fortified by comparison to a ‘standard’ PSA.¹⁰ However, comparing the Sakhalin II PSA with either a standard PSA or with a typical royalty/tax system is misleading. Alternatively, in Table 2 a comparison is made with another large-scale, frontier-type LNG project—Tangguh LNG in Eastern Indonesia.

Indonesians have considerable experience with both PSAs as well as grassroots LNG project development. Tangguh LNG is the third such project in Indonesia following the Bontang and Arun LNG projects which came on-stream in 1977 and 1978 respectively. Tables 1 and 2 below summarize key aspects and terms of the two projects and the underlying agreements. This comparison of key economic indicators for these two projects indicates the similarities outweigh the differences on most of the issues outlined above.

Tangguh LNG

The Tangguh project is comprised of three (now unitized) contract areas: the Berau, Muturi and Wiriagar PSCs in the Bintuni Bay area of Papua, Eastern Indonesia. Final approval from the Government of Indonesia and Partners took place in March 2005. The total cost of the project was estimated at around \$6 Billion¹¹ not including tankers and re-gas facilities.

The Tangguh project encompasses 6 gas discoveries, Vorwata, Wiriagar deep, Roabiba, Ofaweri, Wos and Ubadari with around 14.4 TCF gas. Production will come from two normally unmanned offshore production platforms located in Bintuni Bay.

Sakhalin Problems Continued

There is considerable mention in the industry literature of how the Russian government must forego a share of revenues at Sakhalin II until the IOCs have recouped their costs (plus interest).¹² However, during the capital cost recovery phase of this project the Russian government receives a 6% royalty. Under the Eastern Indonesian PSAs (for gas) the government is guaranteed only around 4% of production during the cost recovery period (plus interest).¹³

It appears at times that the implication is the IOCs at Sakhalin have an incentive to spend more than they otherwise would (called “goldplating”) or at the very least there is not sufficient incentive to keep costs down. However, the risk of cost over-runs is captured to

¹⁰ Dr. I Rutledge, ‘The Sakhalin II PSA — a Production ‘Non-Sharing’ Agreement’ (Sheffield Energy & Resources Information Services (SERIS), November 2004) 18

¹¹ BP Indonesia – Tangguh LNG Project
www.bp.com/sectiongenericarticle.do?categoryId=9004779&contentId=7008759

¹² —, ‘Barking louder, biting less’ *The Economist* (8 March 2007)

¹³ In the 1994-vintage E. Indonesian PSCs there is no royalty but the 15-20% first tranche petroleum which acts like an 80-85% cost recovery limit which in conjunction with the profit gas split guarantees around 4% to the government each and every accounting period.

a large extent with the savings index. Like most petroleum agreements around the world, if costs increase then there is a reduction in total available profit oil or gas and/or taxable income. As both the government and the IOC have claim to a share of profits they both stand to suffer to some degree. The savings index measures that. In the Sakhalin and Eastern Indonesian gas agreements the IOCs have claim to around 34% to 37% of the after-tax profit oil or gas—no real difference. If there is a cost over-run the governments shoulder most of the burden (66-63%) and the companies shoulder the rest. Therefore, this index shows why governments (in both cases) are concerned about keeping costs down. But so are the oil companies. Furthermore, the oil companies incentive is magnified when present value discounting is factored-in¹⁴, and that is not shown in Table 2. So it is clear that the IOCs at Sakhalin (and Tangguh) have an incentive to economize (within reason – considering health, safety and environmental issues). The reality is though that costs have been increasing for most goods and services. LNG manufacturing costs have increased nearly 5-fold and much of this trend is shown in Appendix 1. The Sakhalin project is notoriously over-budget but considering the harsh arctic environment and relatively remote location (compared to Tangguh) it is not surprising. The one advantage that Sakhalin LNG has is that it has a hefty temperature advantage. Cooling the methane gas temperature down below 162° Celsius is much easier when the mean annual surface temperature is close to 1° Celsius as it is at Sakhalin. At Tangguh the average temperature is around 30° Celsius.

The Russian content requirement of 70% (which is part of the PSA) is a noble ambition. However, it is hard to imagine that the Eastern Russian provinces have the technology and workforce to adequately supply up to 70% of the goods and services (and 80% of the labor force¹⁵) needed for a state-of-the-art, harsh-environment, frontier LNG development. Part of the explanation for IOCs lack of compliance with the local content requirement is that the IOCs don't care about keeping costs down, so they have no incentive to use less-expensive local companies.

Claims of environmental abuse are particularly inflammatory these days. For many industry personnel who have worked in the former Soviet Union the claims must seem odd. However, in 2005 the European Bank for Reconstruction and Development (EBRD) said of the Sakhalin II project that it lacked “environmental awareness” and, unless the operator improved environmental protection measures, funding would be withheld.¹⁶

One of the problems with the Sakhalin II agreement unfortunately and probably unexpectedly is self imposed because of public statements regarding the virtues of the agreement from the IOC point of view. Steve McVeigh CEO of the Sakhalin Energy Investment Company (SEIC) in 2002 claimed the Sakhalin II PSA had “some of the best

¹⁴ D Johnston, ‘More on the Savings Index’ *Petroleum Accounting and Financial Management Journal* (Vol. 23, No. 2, Summer 2004) 112-120

¹⁵ Yevgeny Shchukin, ‘Update on PSA Legislation: A Russian Perspective’ *BISNIS Bulletin* (April 2001)

¹⁶ Eric Watkins, ‘Whales delay Sakhalin II’ *Oil & Gas Journal* (8 August 2005) 30

terms you will ever get in Russia.”¹⁷ To many in the petroleum industry this isn’t saying much but statements like this are being used against SEIC.

The Harvard Business School claimed that Sakhalin II was widely considered to be favorable to SEIC and that the agreement was “designed to be attractive to the investors.”¹⁸ Frankly, for an industry practitioner this would sound reasonable because Eastern Russia is a particularly harsh frontier environment that *required* attractive terms to make an LNG project work.

By 2000 the Sakhalin II consortium—SEIC was comprised of Shell (55%), Mitsui (25%) and Mitsubishi (20%). In December, 2006 Gazprom acquired a controlling interest in Sakhalin II. It had intended to take a 25% interest plus one share which would have given it veto power. However, just before this acquisition was consummated the Sakhalin partners reportedly changed the Charter with respect to passmark voting thresholds without informing Gazprom.¹⁹ Whether this story is true or not is not as important as the issue it highlights. Many governments these days are finding that their power and control is or can be mitigated because of the nature and structure of the agreements between consortium members whether it is a charter or a joint operating agreement. Key examples these days include provisions dealing with rights of first refusal, area(s) of mutual interest, sole-risk, unitization, and passmark voting rules.

The most cogent complaint about the Sakhalin II PSA is the nature of the rate-of-return (ROR)-based profit oil/gas split and more precisely, the first ROR threshold of 17.5% (real). This means that before the government receives much more than the minimum share of 6% (due to the royalty) the IOCs must receive their money back and a real rate of return of 17.5%.

During the mid-to late 1990s ROR-based fiscal systems began to fall from favor in the industry with claims of potential “goldplating”. Even Papua New Guinea where the approach was first proposed²⁰ has turned away from their ROR-based elements.

While Sakhalin II is the most glaring example of problems, the Russian government has put considerable pressure on the other large-scale Western oil projects in which the government does not have controlling interest: Sakhalin I; BP’s (BP-TNK) venture, Total’s Kharyaga; and the Caspian Pipeline Consortium (CPC), which exports Kazakh oil through Russia to the Russian Black Sea port of Novorossiysk.

¹⁷ Steve McVeigh, ‘Sakhalin 2 - On Track to Phase II’ (Sakhalin Oil & Gas Conference, London 18-19 November 2002)

¹⁸ Rawl Abdelal, *Journey to Sakhalin: Royal Dutch/Shell in Russia* (Harvard Business School, 24 March 2004)

¹⁹ Andrew Kramer, ‘Shell Offers to Sell Stake in Russian Project to Gazprom’ *The New York Times* (11 December 2006)

²⁰ R. G. Garnaut and A. I. Clunies-Ross, ‘Uncertainty, Risk Aversion and the Taxing of Natural Resource Projects’ *Economic Journal* (85,338, June 1975) 272-87

The action in Russia prompted one analyst to state that the future for foreign oil companies in Russia “does not bode well.”²¹ This statement though implies Russia’s past (presumably since the breakup) had some bright moments—although it is hard to find evidence of this.

Table 1

Technical Comparison of Sakhalin and Tangguh Projects

	<u>E. Russia Sakhalin II LNG</u>	<u>E. Indonesia Tangguh LNG</u>
Operating Environment	Arctic – Harsh	Tropical
Production	Offshore	Offshore
Platforms	Concrete Gravity-Based	Steel
Water Depth	100 – 160 ft	200 ±
Initial Cost Estimate	\$10 Billion	\$6 Billion
Revised Cost Estimate	\$20 Billion	N/A
Gas Production Start-up	2008	2008
Oil Production Start-up	1999	N/A
Published proven gas reserves	14 TCF	14.4 TCF²²
Published proven oil reserves	1 Billion BBLs	N/A
<u>Expected Peak Production Rates</u>		
Raw Gas	1.3 BCFD	1.1 BCFD
Liquids	180 MBOPD	Nil
Tons per year LNG	9.6 MTPA	7.6 MTPA

²¹ Andrew Kramer, ‘A Mix of Oil and Environmentalism’ *Pacific Environment* (6 October 2006) –“The official rhetoric is getting steadily more shrill and does not bode well for the future of foreign oil companies in Russia,” the director of Goldman Sachs’s Moscow office, Rory MacFarquhar, wrote in a note to investors recently. “We continue to believe that the aim of this campaign is to force the foreign companies to accept Russian state companies as equal or even majority partners in their projects, possibly for no compensation.”

²² Asian Development Bank, Summary Environmental Impact Statement – Tangguh LNG Project in Indonesia, 2005

Table 2

Fiscal Comparison of Sakhalin and Tangguh Projects

	E. Russia Sakhalin II LNG June, 1994	E. Indonesia Tangguh LNG 1994
Contract Vintage		
Government Take	72%²³ 80%²⁵	70%²⁴ 63%²⁶
Royalty	6%	0%
Cost Cap	None	85%²⁷
Effective Royalty Rate	6%²⁸	4%
Interest Cost Recovery	Real 17.5%²⁹	Nominal 9%³⁰
Savings Index	34%³¹	37%

²³ D Johnston, *International Petroleum Fiscal Systems Analysis* (Database, PennWell Books, Tulsa 2001)

²⁴ Ibid.

²⁵ P Van Meurs, 'World Fiscal Systems for Gas' (Barrows, New York 1997) 86 – based on assumed \$2.50/MCF gas price

²⁶ Ibid. 432

²⁷ The Indonesian First Tranche Petroleum (15% in Eastern Frontier for gas) behaves like a 85% cost recovery limit.

²⁸ D Johnston, *International Petroleum Fiscal Systems Analysis* (Database, PennWell Books, Tulsa 2001)

²⁹ The (real) internal rate of return hurdle rate (17.5%) at Sakhalin II behaves much the same as the interest cost recovery under the Indonesian PSCs, i.e. government share of production or revenues only begins to increase after costs have been recovered plus interest (17.5% real at Sakhalin and 9% nominal at Tangguh).

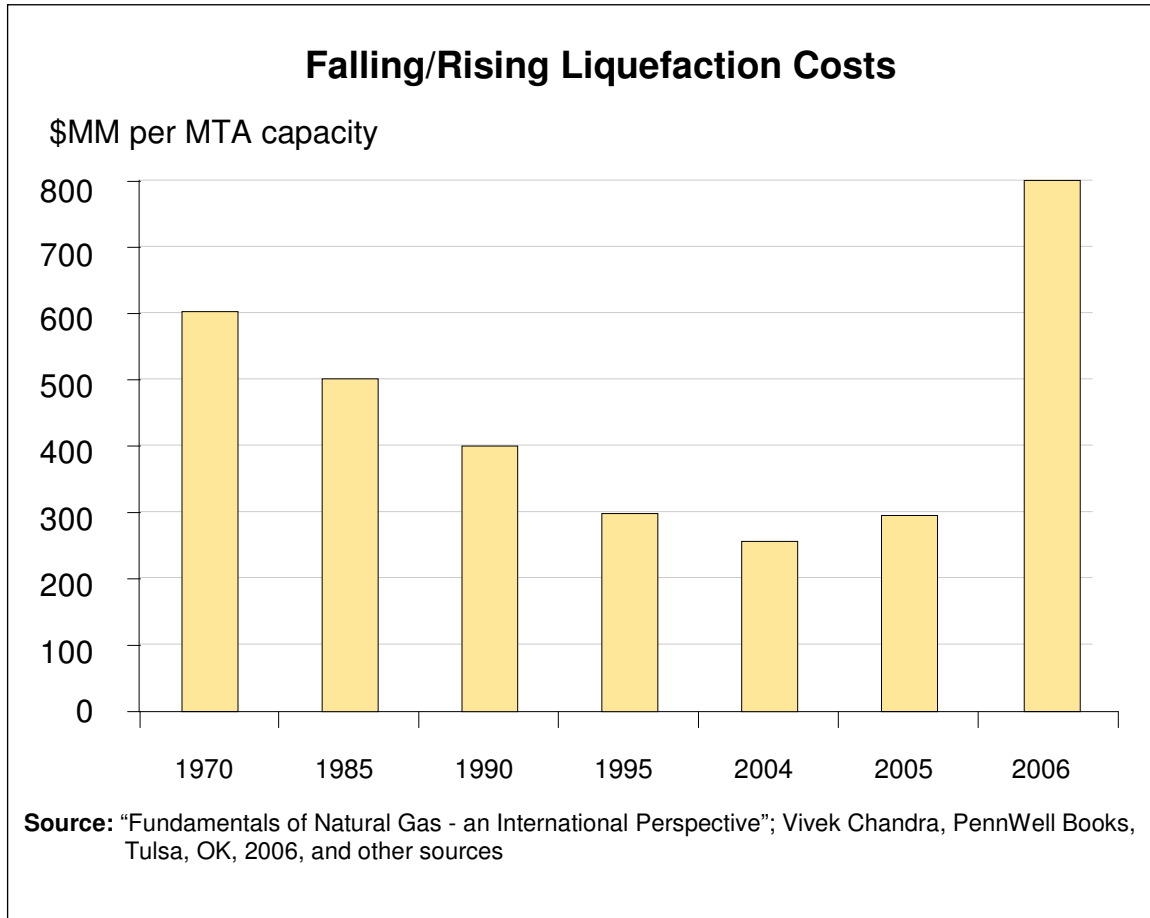
³⁰ A Damodaran, 'Value Line Database' (January 2008)

<http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/eva.html> accessed 23 January 2008 – Here it is assumed that the Tangguh LNG project is structured the same as the Indonesia's Bontong LNG with regard to interest cost recovery. 9% interest is based on the industry standard weighted average cost of capital (WACC) formula. The cost of equity, percent equity, after-tax cost of debt, percent debt, and weighted average cost of capital for the Petroleum (Integrated) industry sector are taken from Cost of Capital by Sector, Value Line database, January 2007

³¹ D Johnston, *International Petroleum Fiscal Systems Analysis* (Database, PennWell Books, Tulsa 2001)

The bottom line is this: The Russian people were neither outwitted nor victorious with the original Sakhalin II agreement. Same is true for the IOCs. It was a fair and reasonable deal. Furthermore, it was consistent with industry standards and practices in that it aligned the interests of the various parties in important ways that ordinarily promote a healthy business relationship. But ultimately the relationship deteriorated. This is because most of the political pressures brought to bear on this project, resulting in virtual takeover by Gazprom, were based on false logic. This problem is not unique to the Sakhalin II situation. Numerous debates are underway worldwide over the relationships between IOCs and governments. Some of these are formalized by litigation in arbitrations and courtrooms but some are being heard in the court of public opinion. Unfortunately, in the court of public opinion mis-information and populist rhetoric often prevail as we have seen with Sakhalin II.

Appendix 1 – Rising cost of LNG Liquefaction



Appendix 2 – Summary Commercial Terms - Sakhalin II PSA Signed by MMMMS Consortium - 23 June, 1994³²

Area	1,546 km ²	Piltun-Astikhskoye and Lunskeye fields
Duration	Exploration	5 years
	Production	20 years - right to extend
Relinquishment	No mandatory provisions	
Obligations	\$50 MM Appraisal	
Bonus Signature	\$55 MM	
Other Bonuses	\$15 MM @ Commencement Date 15 MM @ Development Date Piltun-Astikhskoye \$20 MM @ Development Date Lunskeye	
Rentals	1-2% of work program costs	
Payments	\$100 MM to Regional Development Fund \$20/yr beginning with development approval \$160 MM Reimbursement of Prior Russian Expenditures @ \$4 MM/Qtr for 20 Qtrs Another \$4 MM/Qtr for 20 Qtrs starting when Russian Profit Oil Split = 70%	
Royalty	6%	
Cost Recovery Limit	100% after Royalty (i.e. no limit) \$100 MM Regional Dev. Fund + \$160 MM Reimbursement are cost recoverable	
Depreciation	All costs expensed (Assumed)	
Production Sharing	<u>Real pre-Tax IRR</u>	<u>Government Share</u>
(Pre Tax)	Less than 17.5%	10%
	17.5% to 24	50
	More than 24	70
Taxation	32% Profit Tax "shall not exceed" Fees, interest, bonuses deductible; Tax loss carry forward 15 years	
Depreciation	Capital expenditures 3 year SLD (Assumed)	
Ringfencing	Yes	
Gvt. Participation	None	

³² International Petroleum Fiscal System Analysis – Database, D Johnston, PennWell Books 2001

Appendix 3 – Summary Commercial Terms – Indonesia - 1994
Eastern Frontier PSA Gas Terms
(4th Generation Exploration Incentive Package)³³

Duration	Production	30 years
Royalty	None	
Cost Recovery	85% limit because of 1 st Tranche Petroleum of 15% Investment Credit deleted	
Interest Cost Recovery	Assumed to be similar to Bontong LNG where interest is recoverable and tax deductible	
Depreciation For C/R and Tax	Oil 25%, Gas 20%	
Profit Oil Split	32.6923/67.3077	(In favor of the Contractor)
Profit Gas Split	23.077/76.923%	(In favor of Contractor)
Taxation	48% Effective Tax rate Resulting from 35% income tax and 20% withholding tax 110 Investment Credit for pre-tertiary gas	
Ringfencing	Each License Ringfenced	
DMO	After 60 months production from a field Contractor receives 25% of market price for 25% of “share oil” (share oil = 62.5% of contractor entitlement which includes cost oil and profit oil).	

³³ **International Petroleum Fiscal System Analysis – Database, D Johnston, PennWell Books**
2001

Acronyms

°	Degrees (as in API Crude Gravity)
\$M	Thousands of Dollars
\$MM	Millions of Dollars
BBL	Barrel
BOE	Barrels of Oil Equivalent
BOPD	Barrels of Oil Per Day
BTU	British Thermal Unit
Capex	Capital expenses or costs
cum.	Cumulative
DCF	Discounted Cash Flow
DD&A	Depreciation, Depletion, and Amortization (in practice typically “depreciation”)
DMO	Domestic Market Obligation
ft	Feet
IOC	International Oil Company
IRR	Internal Rate of Return
JCC	Japan Custom Cleared (oil index)
LNG	Liquefied Natural Gas
M	Thousands (Note that M in some applications = Millions i.e. MTPA)
MBBLS	Thousands of Barrels
MBOPD	Thousand Barrels of Oil Per Day
MCF	Thousand Cubic Feet (Gas)
MM	Millions
MMBBLs	Millions of Barrels
MMCFD	Million Cubic Feet (of Gas) per Day
MMSCF	Million Standard Cubic Feet (Gas)
MMSCFD	Million Standard Cubic Feet (Gas) per Day
MT	Million tons (is also used for Metric Tons – but not used this way in this report)
MTA	Million Tons per Annum (also MTPA which is used in this report)
MTPA	Million Tons per Annum
Opex	Operating Expenses
PSA	Production Sharing Agreement (same as Production Sharing Contract)
PSC	Production Sharing Contract
Std	Standard
TCF	Trillion Cubic Feet (Gas)
US\$	United States Dollar
yr	Year