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The Kashagan Production Sharing Agreement (PSA)

*Without foreign investment and the sanctity of contract(s), Kazakhstan can't develop.*¹

– Karim Masimov, Kazakh Prime Minister (2007)

*Eni's greatest triumph has become its biggest headache...The (Kashagan) development has turned into a nightmare, plagued by delays, cost overruns, geological problems and contract wrangles.*²

– Financial Times (2007)

Although the Kashagan oil field was supposed to be completed and pumping oil by 2005, it was still under construction in early 2007. In February of that year, one of the project's sponsors (shareholders), the Italian energy company Eni, hinted there might be further delays and additional construction costs. An Eni spokesman subsequently confirmed those rumors in July 2007: production would not start until late 2010, and there was going to be a significant cost increase from \$10 to \$19 billion for the first phase of the project, and from \$57 to as much as \$136 billion for the total project.³ To soften the impact of this announcement, the spokesman said: "It's a mix of bad and good news. Yes, the time and the costs of the project are growing. The good news is that Kashagan is even a bigger giant than we thought. Every well we have drilled has been a success. Even the satellite areas are looking promising."⁴

Nevertheless, Kazakhstan's Prime Minister Karim Masimov responded almost immediately:

We are very disappointed with the execution of this project ... When the costs increase by 5%, by 10%, that's one thing. But when they rise by 2 ½ times, either the planning was wrong, or the execution is wrong, or it was deliberate...This means fewer schools, fewer hospitals (for Kazakhstan)...There is real discontent in society about what is happening.⁵ I am warning the company through the media that adjustments in the Kashagan timeframe will be seen as an adjustment in the contract...Our response will be appropriate.⁶

Baktykozha Izmukhambetov, the Kazakh energy minister, elaborated on what an "appropriate" response meant: Kazakhstan wanted to be compensated for the delay and, therefore, for the

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reduction in benefits accruing to Kazakhstan under the current contract. One possibility was to increase Kazakhstan's share of the "profit oil" (i.e., oil extracted after covering capital costs through "cost oil") from 10% to 40%.⁷ Facing this demand for contract renegotiation, the sponsors had to decide how to respond. Should they renegotiate the contract and, if so, which parts of it?

The Kashagan Project

Country Overview

The Republic of Kazakhstan was formerly part of the Soviet Union, but became an independent country in 1991. It was the ninth largest country in the world by land. The government faced a series of on-going disputes with neighbors regarding both the country's land boundaries and its sea rights particularly in the Caspian Sea (see **Exhibit #1**). President Nursultan Nazarbayev had led the republic since 1991, and was recently re-elected in 2005 with 91% of the votes.

The country had extensive natural resources including oil and gas as well as a variety of minerals such as gold and uranium. There had been onshore production of oil along the coast of the Caspian Sea for most of the 20th century. To speed development of the country's natural resources, the leaders had signed various bilateral and multilateral contracts aimed at facilitating international investments by prohibiting breach of contracts and mandating international rather than local arbitration for legal disputes.⁸ Despite these attempts to increase investment and diversify the country's economic dependence on natural resources, the Kazakh economy remained heavily largely dependent on natural resources, particularly oil.

Nevertheless, the economy had grown rapidly in recent years: GDP was growing at more than 10% per year and real GDP per capital had more than doubled in the past 10 years. At the same time, inflation had been cut in half (from 17.4% to 8.6%), unemployment had fallen (from 13.0% to 7.8%), and the country's long-term credit rating had improved to investment grade (from BB- to BBB-). **Exhibit #2** provides economic indicators for Kazakhstan, Russia, the US, and the European Union.

Project Overview

Since the early 1970s, experts had suspected there was oil and gas lying beneath the Caspian Sea. Seismic studies completed during the mid-1990s subsequently confirmed the existence of large reserves, possibly on an enormous scale. In November 1997, a consortium of international oil companies (IOCs) and the Kazakh state signed the North Caspian Sea Production Sharing Agreement (NCPSEA), a 40-year agreement designed to govern the project and develop the field through an operating company—the operating company was subsequently named Agip Kazakhstan North Caspian Operating Company N.V. (Agip KCO).

Almost three years later, in June 2000, the consortium discovered a major oil field, named it "Kashagan" after a nineteenth-century Kazakh poet, and declared it commercially viable.⁹ The Kazakh President Nursultan Nazarbaev highlighted the importance of the discovery:

Today is the happy day for Kazakhstan people. The oil discovery at Kashagan is a great help for our independence, for the further prosperity (or our country), and the improvement of our people's lives. Great hopes of Kazakhstan people have (been) realized.¹⁰

The Kashagan field covered an area of 75 km by 45 km (47 by 28 miles) and contained both oil and natural gas. Experts predicted that 11 billion of the field's 35 billion barrels of oil were recoverable,

making it one of the largest discoveries since Alaska's Prudhoe Bay was discovered in the late 1960s.¹¹ Other estimates predicted Kashagan's total reserves could exceed 50 billion barrels of oil, which would make it the second largest oil field in the world after the Ghawar oilfield in Saudi Arabia with 66 billion barrels.^{12,13} At its peak, Kashagan might produce as much as 2% of world output.

The oil in the Kashagan field was located at 4,000-5,000 meters (13,100-16,400 feet) below the seabed of the Caspian Sea in water that was 3-4 meters (10-13 feet) deep. To extract the oil, the consortium would need to build a series of artificial drilling islands; an artificial hub island to collect the oil and separate the gas; and pipelines to transport the oil and gas to shore where they would be processed, refined and pumped into international pipelines for export. (**Exhibit #3a** shows a schematic of the project and **Exhibit #3b** shows a map detailing the export strategy). The operating company, Agip KCO, planned to develop the field in three phases (see **Exhibit 4**) and operate it for up to 40 years (until 2044).¹⁴ Depending on the reserves, the PSA could be extended in 10-year increments for another 20 years (until 2064).¹⁵

Project Sponsors

Although Agip KCO (Agip) was fully owned by the Italian company Eni S.p.A., it acted on behalf of six international oil companies (IOCs). Eni, ExxonMobil, Shell, and Total had the largest shares (18.5% each) while ConocoPhillips and INPEX had smaller shares (9.3% and 8.3%, respectively). The remaining 8.3% share was held by KazMunaiGas (KMG), the national oil company. Collectively, these seven firms were known as the Kashagan "consortium". **Exhibit #5** shows the sponsors, their individual ownership shares, and some limited financial data on each firm.

Eni, the company responsible for developing the first phase of the project, was incorporated in Italy in 1926. It had originally focused on drilling for oil and gas in Italy and North Africa, but had expanded its operations into China, Africa, and Central Asia in recent years. As of 2006, Eni was an integrated energy company with extensive exploration and development experience, production of 1,700 thousand barrels of oil equivalent per day (kboe/d), operations in 68 countries, and revenues of \$113 billion. By most accounts, it was considered one of the "major" oil companies, but not one of the "super majors".

As a national oil company (NOC), KazMunaiGaz was 100% owned by the Kazakh state. The company had more than 34,000 employees, produced 95 kboe/d, and reported operating income of \$5 billion in 2005.¹⁶ A Standard & Poor's analyst described KMG and its BBB- long-term corporate credit rating this way:

The outlook is stable...KMG is the cornerstone of government policy in Kazakhstan's strategically vital oil and gas industry. The company's tight links with the government bring with them substantial ongoing state support, and we expect these links to ensure extraordinary support from the state in case of distress... and [KMG has] limited direct access to cash flows, as KMG has only minority stakes in some of the best oil assets.¹⁷

Project Risks

Right from the start, industry analysts raised concerns about the project, its complexity, and the inherent risks. For example, the Kazakh energy minister admitted: "Neither Kazakhstan nor (the) foreign companies have had the experience (with) such projects."¹⁸ In addition to the challenge of developing the field, there would be the challenge of exporting the oil, as well. An analyst from Deutsche Bank said:

Given the political and geographic challenges of exporting crude from Kazakhstan to western markets, an early development of Kashagan looks unlikely. The choices would either be around/across the Caspian and out through the Black Sea and the Mediterranean (environmentally a challenge), or south across Turkmenistan and Iran to the Persian Gulf (politically a nightmare).¹⁹

As a large greenfield project, the project entailed two kinds of completion risks: the potential for schedule delays and significant cost overruns. A reporter from the *Financial Times* described the project this way: “Kashagan, although vast, is a geological nightmare: the field is rich in toxic hydrogen sulphide, and the oil is trapped in small compartments from which it does not flow easily. The best project manager in the world (would find) it a challenge.”²⁰ Development would be challenging for a combination of reasons: first, the oil was located at least 4,000 meters below the seabed; and second, the region experienced extreme weather across the year—temperatures ranged from -40°C (-40°F) in the winter to +40°C (+104°F) in the summer.²¹ An energy analyst said:

Much effort has gone into understanding how the sheet ice that forms most winters in the North Caspian will affect the rig. Studies show that when the ice meets an obstacle such as a ...drilling rig, it forms large mounds of "rubble ice". The potential threat from such ice caused (the operating company) to amend its original plan and install heavy steel ice deflectors around the rig...But such issues are theoretical until drilling determines whether the biggest gamble of the oil industry in recent years (is) worth the time, money, and effort.²²

In addition, the project faced a wide range of operating risks including reserve risk (how big was the field, what kind of oil did it contain, and how many barrels of oil could actually be recovered?), *force majeure* risks (so called “acts of god” due to the extreme weather and political instability in the region), throughput risk (could oil be recovered, refined, and transported at reasonable cost?), and market risk due to fluctuating oil prices. Whereas oil prices had been as low as \$10 per barrel during the early years of exploration (1998-2000), they were now at record levels—over \$70 per barrel in 2007 (see **Exhibit 5a**)—and were expected to remain high in the coming years according to oil futures prices (see **Exhibit 5b**). Although not technically operating risks, project cash flows were also subject to macroeconomic risks such as changes in interest, inflation, and exchange rates.

The project also faced a series of environmental and social risks: Project construction and subsequent accidents or spills could endanger the pristine coastline and the biodiversity of the Caspian Sea which was home fish, birds, and numerous marine mammals. For example, the Caspian Sea was a major breeding ground for sturgeon and was the world’s largest single source of caviar.²³ Even more important, however, was the presence of highly-toxic hydrogen sulphide gas, which was expected to be approximately 15% of the gas found.²⁴ According to the operating plan, the poisonous gas would be separated and treated or captured and then re-injected into the wells. One energy consultant said: “(R)e-injection poses a significant technical challenge in this deep, highly-pressured reservoir and (may) result in higher development costs.”²⁵ A writer at the *Financial Times* concurred:

It is highly likely that the Kashagan reservoir contains large quantities of deadly hydrogen sulphide gas, which can kill within seconds... Such high levels would be expensive to deal with and would probably require the development of new technology...Both the drilling rig and the...evacuation vehicles have elaborate emergency breathing apparatus on board...officials say their studies suggest that a release of the gas would not affect people on land, but they acknowledge that the local population is concerned about the wider environmental impact of their operations. The extensive precautions put in place have, however, caused some Kazaks to become even more concerned.²⁶

Finally, the project could face sovereign risks in the form of creeping or direct expropriation. At some point in the next 40 years, the Kazakh government could seize the entire project or change any number of contractual terms such as tax rates or royalty rates as a way to gain a great share of the project cash flows. Like most projects, the host nation had considerably more power once the project was completed and operational, certainly more power than before the investment was made.

Production Sharing Agreements (PSA's)

Through the middle of the 20th century, most oil fields were developed using service agreements whereby host countries hired foreign oil companies to perform specific exploration or development services, or using concession agreements whereby countries gave *de facto* control of their natural resources to foreign oil companies. In response to criticism regarding the loss of sovereignty under concession agreements, host nations began to use Production-Sharing Agreements (PSAs) in the 1960s.²⁷ In a typical PSA, the host country allowed one or more IOCs to explore and develop natural resources at their own expense. The state was traditionally represented by a government agency (e.g., the Energy Ministry) or by its national oil company (NOC). Under this arrangement, the IOCs carried all of the exploration risk. In addition, and in contrast to concession agreements, the government retained ownership of the resources and the physical installations under a PSA structure.

In its most basic form, a PSA was a long-term contract between a host nation or NOC and an IOC which contained four main provisions. First, the IOC agreed to pay the government a **royalty** based on gross production. After the royalty was deducted, the IOC was entitled to a pre-determined share of production to pay for capital expenditures and operating costs—this share of the output was known as the “**cost oil**”. The remaining production, the “**profit oil**”, was then shared between the host government and the IOCs at a pre-determined rate. Finally, the IOC had to pay **income tax** on its share of the profit oil.²⁸ **Exhibit 7** provides a flow chart highlighting these four provisions. Because the early PSAs had pre-determined contractual terms, they were referred to as “**fixed PSAs**.” **Exhibit 7** provides a flow chart highlighting these four provisions and how they divide project cash flows. **Exhibit 8** provides a graphical example of how alternative PSA structures (e.g., high vs. low early cost oil allocations) affect the timing and distribution of cash flows, but not necessarily the total value of the project.

One problem with long-term contracts with fixed terms set upfront was that they did not account for changes that invariably occurred after the contract was signed, which meant the project's underlying economics could change, sometimes drastically, over time. Other factors that affected the durability of long-term contracts included unequal negotiating power between IOCs and NOCs (or host countries) at time the original contract was signed. In addition, political, economic, or social conditions in the host country could change over time, sometimes for the better (e.g., economic recovery and growth) and sometimes for the worse (e.g., coups or economic recessions,). Finally, the inability to write a sustainable contract was also due to information differences between the parties regarding the project, its cost structure, and its potential value.

To address these and other concerns, firms began using “**flexible PSAs**” in the 1980s.²⁹ The objective was to make contracts more sustainable by sharing gains or losses incurred after the original signing date. The basic idea was to build flexibility and, therefore, fairness into the contracts by making critical terms subject to contingencies and *ex post* realizations. For example, the royalty rate, the fractional allocation of cost and profit oil, or the income tax rate could vary based on such things as project schedule, production volumes, oil price and quality (e.g. quality as measured by its American Petroleum Institute gravity, API gravity), internal rates of return (IRRs), profit over

investments (the so called R-factor^a). David Wood, an international petroleum consultant, summarized the new approach:

The more fiscally flexible the [PSA] model, i.e. the more it varies the contractor-government profit takes according to market and field performance variations, the more likely it is to last and not be meddled with by taxation authorities in the long-term. Notwithstanding the above, no matter how flexible the fiscal mechanism negotiated and no matter how well it is defined in the contract, where the long-term objectives of the parties are not aligned or unstable political circumstances prevail, many governments will be tempted to increase their fiscal take as and when circumstances allow. For this reason it is important for IOCs to be aware of situations that might lead to fiscal and contractual instability.³⁰

*Kashagan North Caspian PSA*³¹

The Kashagan PSA addressed the four key provisions found in most PSA's (see **Exhibits 7 and 9**). Instead of a royalty, however, KazMunaiGas received an equity share in the project company. Initially, the IOC's would get 80% of the output to cover the costs of exploration, development, and operations (cost oil), a percentage that would drop to 55% after payback was achieved. The remaining output, the profit oil, would be divided using a series of sliding scales based on the project's R-factor, cumulative output, and internal rate of return (IRR). Initially, the consortium's share of profit oil would start at 90%, but would decline down to 10% based on actual performance. Finally, the host country was entitled to a profit (income) tax ranging from 30% to 60% depending on the project's realized IRR. The PSA also contained provisions regarding investor protection and establishing procedures for arbitration to resolve disputes.

Although it was a confidential corporate document, the Kashagan PSA was leaked to the public and was quickly analyzed by industry participants who disagreed in their assessments of the contractual terms.³² Greg Muttitt, an independent energy expert at Platform London^b, criticized both the secrecy of the PSA – the fact it had not been freely disclosed – and its structural design:

The Kashagan contract is one of a new breed of economically 'flexible' PSAs...One advantage of this new approach is that if the project turns out to be very profitable, the state captures the excess profits (after all, it is the owner of the resource.) But the Kashagan contract does not protect the state sufficiently against 'downside' risks...Oil fiscal systems usually set a minimum proportion of revenues that will be received by the state. This is done by setting a limit (commonly 40-60%) to how much of the extracted oil can be used to cover the investor's (the consortium's) costs. The Kashagan PSA sets this cost recovery limit very high, at 80%, later falling to 50%...The one improvement in the Kashagan PSA...is that the slide scales consider volume extracted as well as profitability – thus production sharing starts to move in favor of the state beyond a certain point in the extraction, even if high profits have not yet been achieved.³³

Equity analysts from the energy sector at Deutsche Bank also analyzed the Kashagan PSA. **Exhibit 10** shows how they interpreted the PSA, how they valued the project (e.g., calculated net present values and internal rates of return), and how they assessed the risks using sensitivity

^a Although the specific definition can vary from project to project, the "recovery factor" or R-factor is a kind of payback ratio. It is typically defined as the ratio of cumulative revenues to cumulative expenditures. The ratio begins at zero and rises over the life of a project.

^b Platform London was a civil society organization (CSO) that sponsored campaigns focusing on the social, economic, and environmental impacts of the global oil industry.

analysis. Their analysis showed a base case NPV of \$48.7 billion and an IRR of 18.5% for the consortium assuming an oil price of \$40 per barrel. **Exhibit 11** shows market information and interest rates as of both 1997 and 2007. Based on their analysis, they concluded:

Despite the negative rhetoric, our analysis indicates the PSC (production sharing contract, or PSA) terms are well designed and fair, giving downside protection to the providers of capital and expertise, and commodity exposure to the underlying owner of the resources—i.e., the state...the (recent cost overruns and) delays are more due to the nature of the field, environment and tight oil service industry than Eni or consortium incompetence, and regardless, the state's favorable PSC oil price exposure implies its stake is worth ~2.5X more than it was three years ago, even if we assume 100% CapEx increase and another one year's start-up delay.³⁴

Daniel Johnston, a petroleum consultant, provided a third perspective on the PSA:

It's an amazing contract, it has more sliding scales than an amusement park...[I have] seen no other contract in the world with this degree of flexibility or complexity. But this does not mean the terms are unfair...Only later, after costs have been recovered and the contractor group reaps a reasonable rate of return, does the government take kick into high gear.³⁵

Finally, a legal expert summarized the Kashagan PSA this way:

It is easy to forget just how difficult it was in Kazakhstan in the early 1990s—when these original big three deals were negotiated and signed—the big political, economic, and technical risks. Would you offer these terms today? Probably not. However, could you have done any major oil deal in 1994 under the terms offered today? Probably not.³⁶

Conclusion

In August 2007, after the consortium had confirmed the new budget and completion schedule, and the Kazakh Energy Minister had raised the possibility of renegotiating the PSA to give the country 40% of the profit oil as compensation for the delay, the consortium had to weigh its options and decide how to proceed. According to one analyst, the consortium had several options ranging from doing nothing (i.e., leaving the PSA alone) to renegotiating specific terms:

It's billions of dollars in cash flow that the republic [of Kazakhstan] has lost irretrievably... It's a very sad story and the root of the problem is the nonperformance of the companies (the consortium) rather than any resource nationalism.

One option would be to change the profit sharing mechanism, so that Kazakhstan receives 40% of 'profit oil'—the oil produced after costs are recovered—instead of the 10% written in the contract. Another option would be for Kazakhstan's state oil company, KazMunaiGas, to take a much larger equity stake in the project at the expense of the other partners; it currently holds just 8.33%... One thing is for sure: The Kazakhs will not let the companies off the hook and will seek some form of compensation that's likely to run into billions of dollars. Emboldened by high oil prices and rising production...Kazakhstan has become much more assertive toward Western companies, which secured attractive upstream projects in the 1990s after independence...Kazakhstan has kept a close eye on developments in Russia, where the likes of Shell and BP were forced to cede control of major development projects to state Gazprom or face the prospect of losing licenses. At the same time, the Kazakh government

realizes it cannot execute the complex project on its own and that it needs Western technology and know-how.³⁷

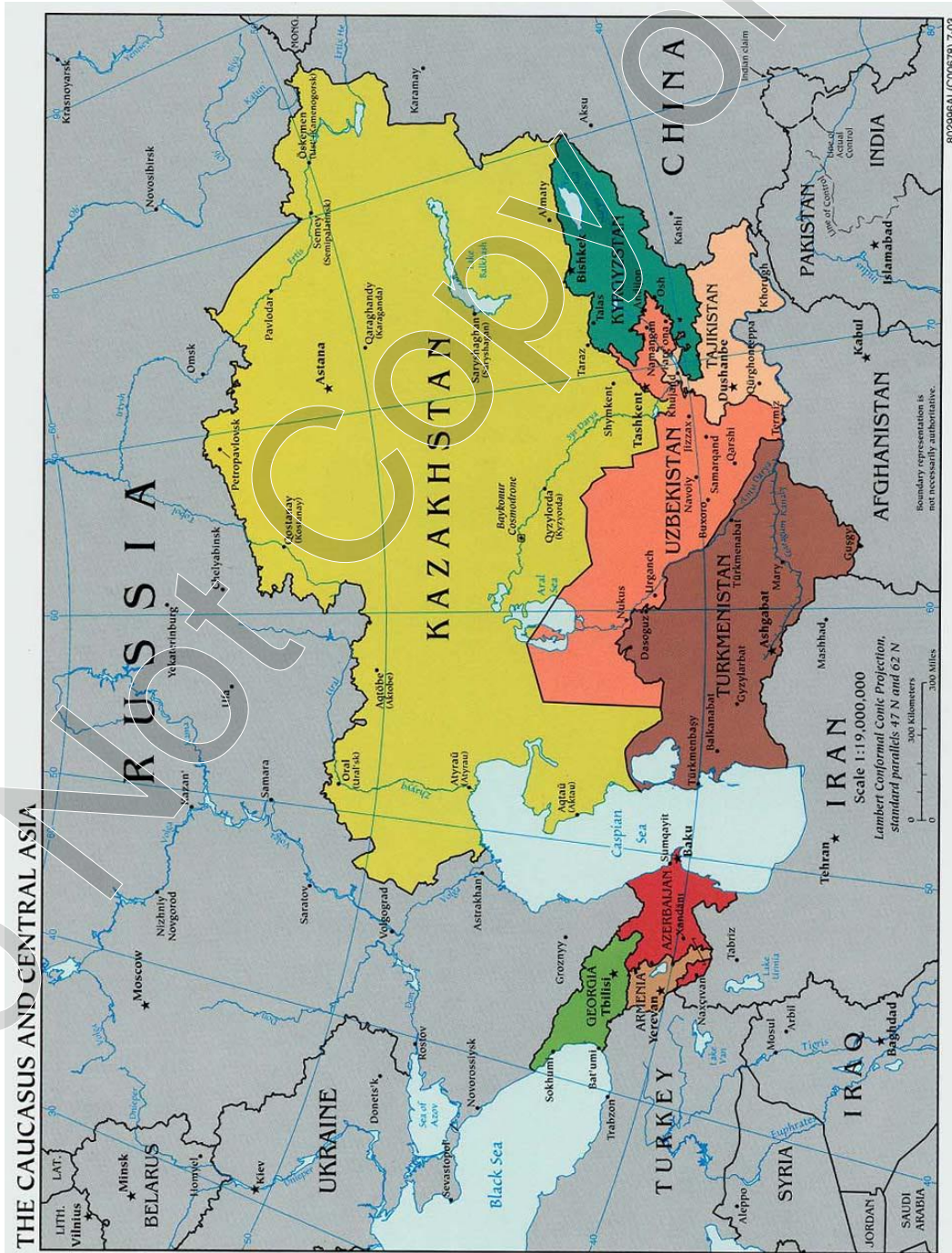
Other options, many of which were floated in the press at the time, included a one-off payment of \$7 billion to compensate the Kazakh government, the introduction of a 15% royalty payment on all production, or an increase in KazMunaiGas' ownership stake from 16.7% (a doubling) up to 50%.³⁸

Eni's response would affect not only its returns on the Kashagan project, but also its other projects in Kazakhstan and in other parts of the world. An analyst at ABN Amro explained:

Eni has additional exposure in Kazakhstan through its co-operatorship of the Karachaganak field, in which it holds a 32.5% interest. Karachaganak is a large oil, gas, and condensate field in onshore North-West Kazakhstan...It is possible that ENI could come under pressure from the authorities at Karachaganak in order to gain advantage in the Kashagan talks.³⁹

An Eni spokesperson responded: "Kashagan is a very important project that will be central to the Kazakh economy and the world energy market for decades to come...All members of the consortium are working together toward the success of the project."⁴⁰ But after hearing rumors the Kazakh Finance ministry was considering a possible criminal investigation against the consortium for tax evasion; learning the Ecology ministry was threatening to revoke Agip KCO's operating license because of construction-related pollution; and receiving a letter from the Kazakh government asking for a "friendly re-discussion of the contract," the need for a response became even more apparent and more immediate.⁴¹

Exhibit 1 Map of The Caucasus and Central Asia



Source: http://www.lib.utexas.edu/maps/commonwealth/caucasus_cntrl_asia_pol_2003.jpg, accessed October 29, 2011.

Exhibit 2 Macroeconomic Data, 1997 and 2006

Indicator	Kazakhstan		Russian Federation		USA		European Union	
	1997	2006	1997	2006	1997	2006	1997	2006
Population (millions)	15.3	15.3	147.3	142.5	272.7	298.6	480.9	494.5
Life Expectancy (years)	64.5	66.2	67.0	66.6	76.4	77.6	76.4	78.7
Internet Users (per 100 people)	0.1	3.3	0.5	18.0	22.0	70.6	5.1	54.4
Mobile Cellular Subscriptions (per 100)	0.1	50.8	0.3	105.7	20.3	81.0	11.6	105.0
Electricity Consumption (kWh per capita)	3,174	4,293	4,956	6,122	12,890	13,574	5,529	6,380
GDP per capita (constant 2000 US\$)	\$1,078	\$2,166	\$1,591	\$2,654	\$31,831	\$38,342	\$16,012	\$19,379
GDP growth (annual %)	1.7%	10.7%	1.4%	8.2%	4.5%	2.7%	2.8%	3.2%
Inflation Rate (consumer prices)	17.4%	8.6%	14.8%	9.7%	2.3%	3.2%	1.6%	2.2%
Unemployment Rate (annual %)	13.0%	7.8%	11.7%	7.1%	4.9%	4.6%	10.4%	8.2%
Central Gov't Debt (% of GDP)	n/a	5.9%	n/a	9.9%	n/a	46.4%	n/a	46.6%
Fuel exports (% of merchandise exports)	34.5%	69.4%	45.8%	48.7%	1.9%	3.7%	3.1%	5.3%
Ore/Mineral exports (% of merch. exports)	23.2%	14.6%	11.3%	8.2%	2.1%	3.6%	2.4%	3.1%
Net Foreign Direct Investment (% GDP)	6.0%	7.8%	1.2%	3.0%	1.3%	1.8%	1.8%	4.6%
S&P Foreign Currency LT Credit Rating	BB -	BBB	B	BBB	AAA	AAA	n/a	n/a
Instit. Investor Country Credit Ratings (a)	20.9	60.8	23.5	66.2	91.2	94	n/a	n/a
Instit. Investor Country Credit Rank (a)	100	56	95	48	4	13	n/a	n/a
Strength of Legal Rights Index (0 = weak to 10 = strong)	n/a	4.0	n/a	3.0	n/a	8.0	n/a	6.6

Source: Standard & Poor's Global Credit Portal and World Databank, accessed October, 24 2011; and Institutional Investor (various issues).

Note: The *Institutional Investor* rating is based on a survey of 75-100 international bankers who were asked to grade each country on a scale of 1 to 100, with 100 representing the least chance of default. The *Institutional Investor* rank is out of 135 rated countries in 1997 and 174 rated countries in 2007 (low numbers represent less risky countries). The data shown for 2006 is actually the March 2007 ratings.

Exhibit 3a Schematic Drawing of the Kashagan Project

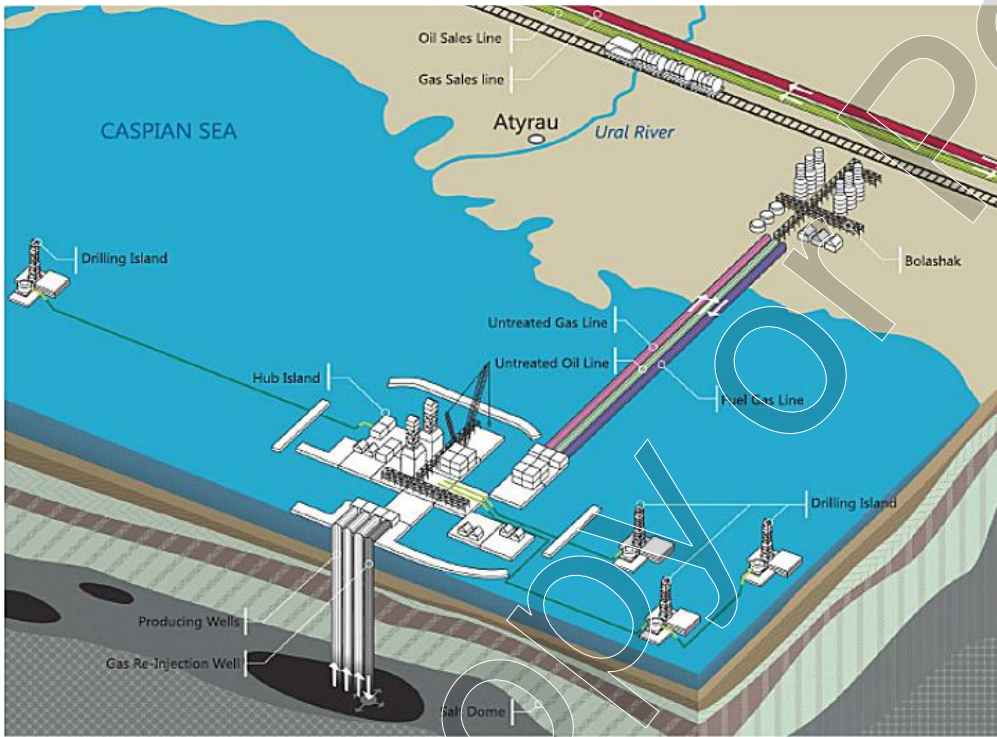
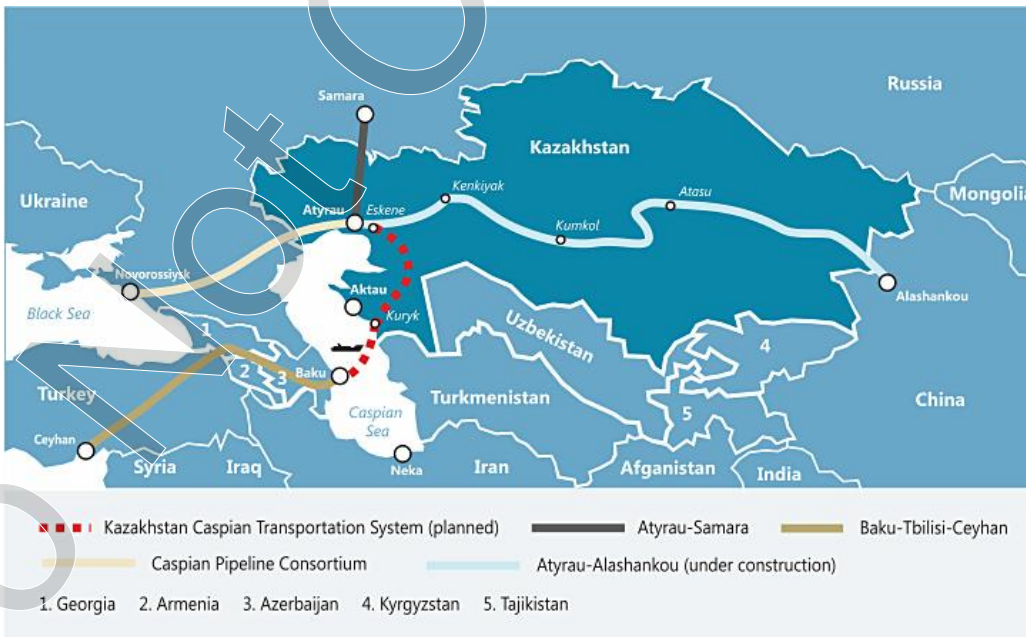


Exhibit 3b Kashagan Oil Export Strategy and Pipelines



Source: http://www.ncoc.kz/en/kashagan/development_strategy.aspx and http://www.ncoc.kz/en/kashagan/export_strategy.aspx, accessed October 24, 2011. Used with permission of the North Caspian Operating Company (NCOC).

Exhibit 4 Kashagan Project Schedule – Original vs. Revised Forecasts

	<u>Total Cost (\$USD billions)</u>		<u>Construction Schedule</u>		<u>Production Level</u>	
	<u>Original</u>	<u>Revised</u>	<u>Original</u>	<u>Revised</u>	<u>Thousands of Barrels per Day</u>	
	<u>Nov-97 (a)</u>	<u>Jul-07</u>	<u>Nov-97</u>	<u>Jul-07</u>	<u>Original</u>	<u>Revised</u>
Phase 1	\$10.3	\$19.0	1997-2004	1997-2010	300	300
Phase 2 (b) } Phase 3 (b) }	\$18.7	\$117.0	2005-2010	2011-2019	300-900	300-900
			2011-2044	2019-2044	up to 1,200	up to 1,770
Total	\$29.0	\$136.0				

Notes:

- a) By 2001, the total estimated cost for all three phases had risen to \$57 billion.
b) Phases 2 and 3 were not yet conceived or approved. As a result, the construction cost, schedule, and production levels were speculative even though they were often cited by the media.

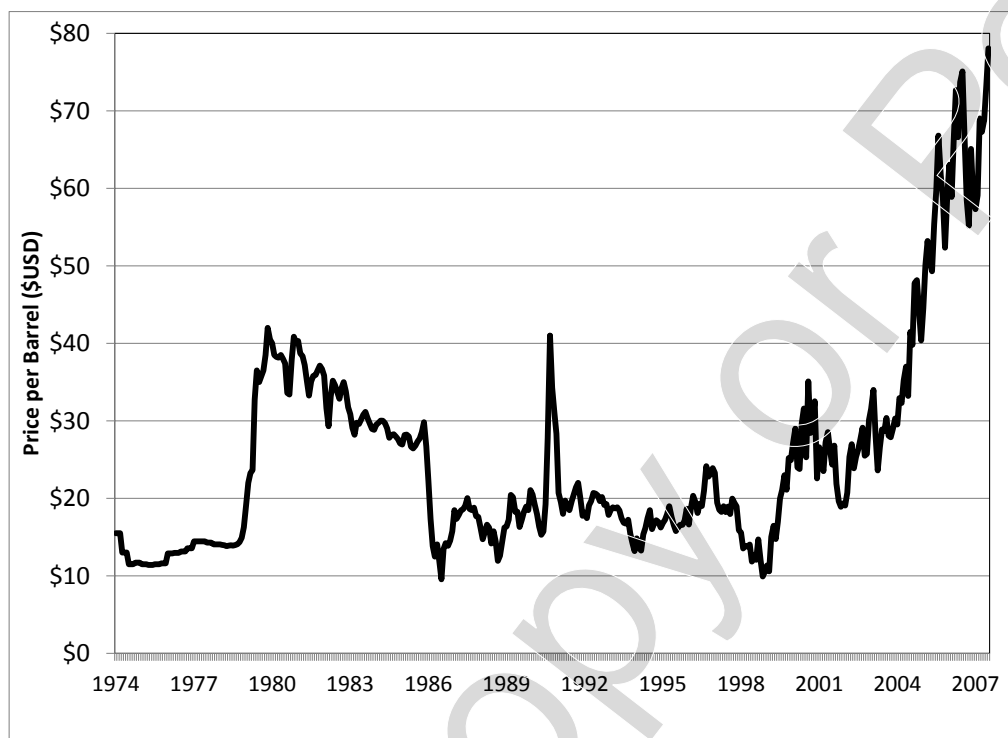
Source: Compiled from Convention on the Settlement of Investment Disputes between States and Nationals of Other States (ICSID); https://icsid.worldbank.org/ICSID/StaticFiles/basicdoc_en-archive/9.htm; The Energy Charter Treaty (<http://www.encharter.org/index.php?id=28&L=0>); Greg Muttitt, "Hellfire Economics: Multinational Companies and the Contract Dispute Over Kashagan, the World's Largest Undeveloped Oilfield" (www.platformlondon.org), accessed May 2013; and casewriter estimates.

Exhibit 5 Project Sponsors and Financial Information as of July 2007:

<u>Company</u>	<u>Location of Headquarters</u>	<u>AGIP KCO Ownership Share</u>	<u>S&P Credit Rating</u>	<u>2006 Financials (\$USD billions)</u>		
				<u>Assets</u>	<u>Sales</u>	<u>EBIT</u>
ENI	Italy	18.52%	AA	\$116.3	\$113.4	\$26.5
Exxon Mobil	USA	18.52%	AAA	\$219.0	\$365.5	\$69.1
Royal Dutch Shell	UK/Netherlands	18.52%	AA	\$235.3	\$318.9	\$44.4
Total S.A.	France	18.52%	AA	\$138.6	\$174.8	\$32.0
Conoco-Phillips	USA	9.26%	A-	\$164.8	\$183.7	\$29.4
INPEX	Japan	8.33%	A	\$13.7	\$8.2	\$4.8
KazMunaiGas (KMG)	Kazakhstan	<u>8.33%</u>	BBB-	\$31.0	\$11.0	\$5.0
Total		100.00%				

Source: ORBIS database, accessed on October 27, 2011.

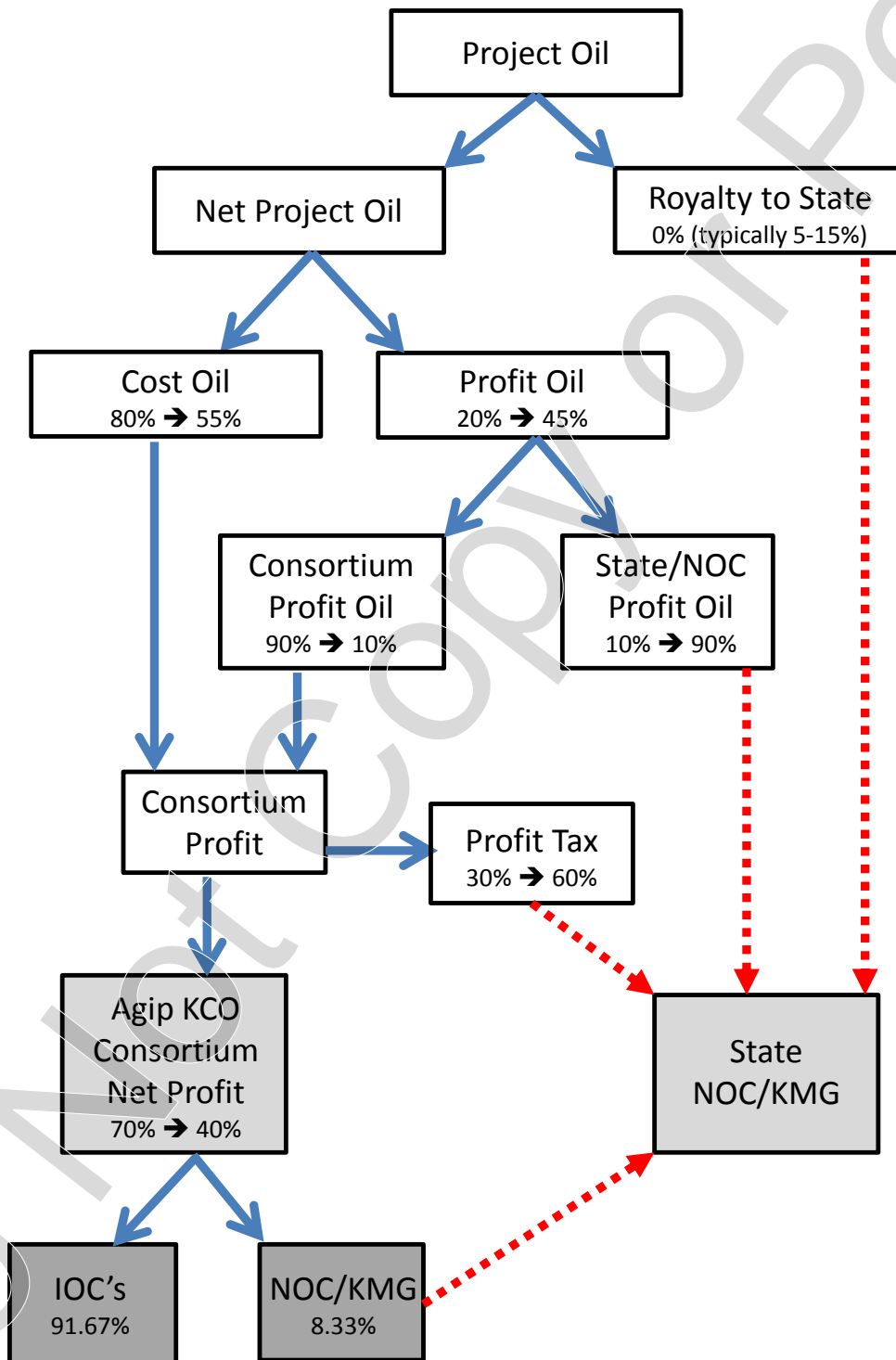
Note: Financial information as of December 31, 2006 except for INPEX (March 31, 2007) and KMG (December 31, 2007 expected).

Exhibit 6a Brent Crude Oil Spot Prices (\$USD per Barrel), monthly from 1974-2007**Exhibit 6b** Brent Crude Oil Futures Prices (\$USD per Barrel) as of 7/31/07

Term	Price per Barrel (\$USD)
1 Month	\$77.05
3 Months	\$76.66
6 Months	\$75.59
1 Year	\$74.20
2 Years	\$72.72
3 Years	\$71.60
4 Years	\$70.57
5 Years	\$70.02
6 Years	\$69.82
7 Years	\$69.36
8 Years	\$69.05

Sources: Global Financial Data and Bloomberg, accessed October 27, 2011.

Exhibit 7 Schematic of Oil/Profit Sharing in the Kashagan Project



Source: Casewriter interpretation of the Kashagan Production Sharing Agreement.

Exhibit 8 Schematic of Project Cash Flows under Alternative Production Sharing Agreements

Exhibit 8a Example of Rapid Cost Repayment Through High Cost Oil Allocation

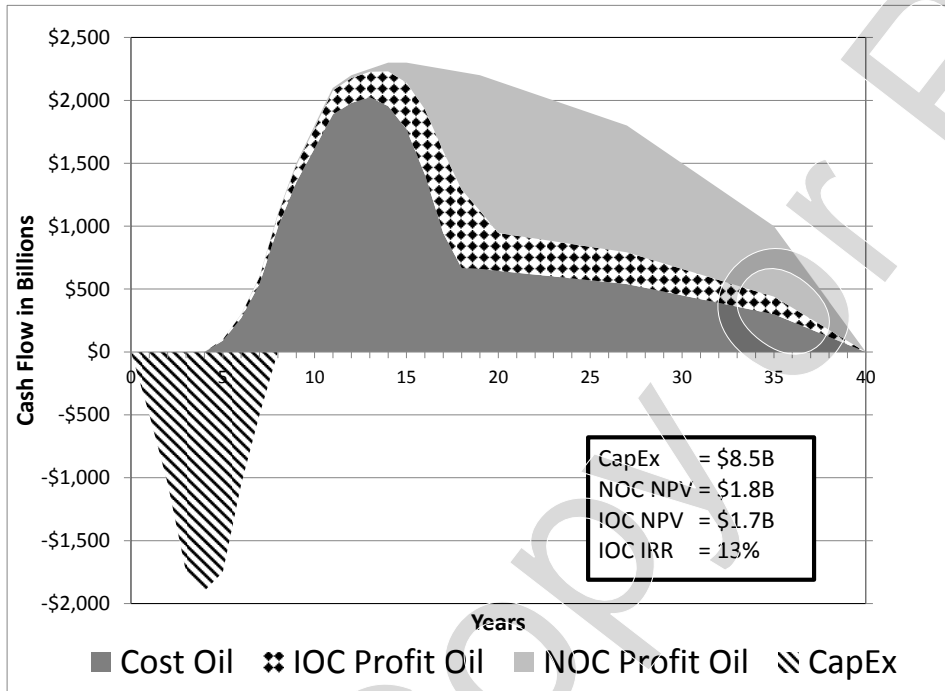
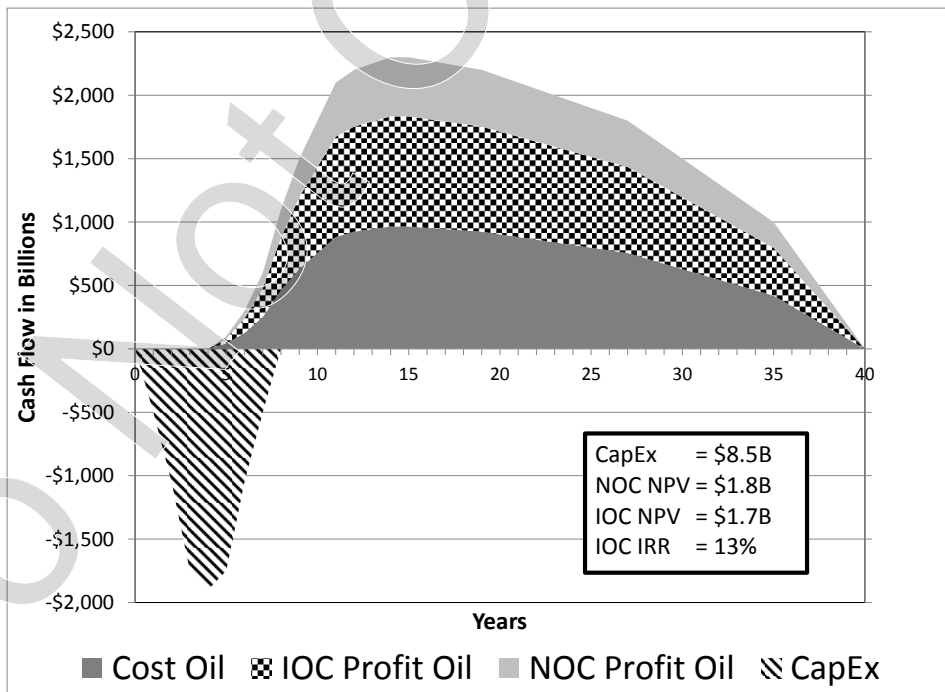


Exhibit 8b Example of Slower Cost Repayment Through Lower Cost Oil Allocation



Source: Casewriter analysis and numerical example.

Exhibit 9 Kashagan Production Sharing Agreement (PSA)--Key Contract Terms

Contract Terms

Duration:	48 years (1997-2044)
Exploration:	Within 5 years of oil discovery
Expected Reserves:	14.6 billion barrels of oil
Parties:	AGIP KCO (the "Consortium") and Republic of Kazakhstan

Cost Recovery Oil ("Cost Oil")

Objective: Payments to cover the Consortium's expenditures.

Definitions:

- 1) Recoverable Costs:** The cost of capital expenditures (CapEx), operating expenses (OpEx), financing costs, and transportation costs to a defined export location.
- 2) Payback:** The point when cumulative Consortium receipts (net of taxes) equals cumulative Consortium expenditures (the "Recoverable Costs") on an undiscounted basis. The ratio of receipts-to-expenditures is known as the payback ratio or "R-Factor".

Scale: **80%** of oil produced until payback of cumulative recoverable costs
55% of oil produced after payback

Profit Oil

Objective: Payments to provide a financial return.

Scale: The Consortium's profit oil share is determined by the lowest percentage determined by three different factors; these calculations are done semi-annually.

1) Consortium Internal Rate of Return (IRR, section 14.6.c)

Note: Calculated as of 7/1/93 using actual cash flows to the Consortium on a semi-annual basis.

<u>IRR Range</u>	<u>IRR Percentage</u>
IRR ≤ 17%	90%
17% < IRR ≤ 20%	= {90% - [26.67 * (IRR - 17%)]}
IRR > 20%	10%

2) Project Volume (in billions of barrels, section 14.6.a)

Note: The Volume Percentage is cumulative barrels extracted since 7/1/93, and is subject to a floor based on the Consortium IRR.

<u>Volume Range</u>	<u>Volume Percentage</u>
Volume ≤ 3.0	90%
3.0 < Volume ≤ 5.5	Greater of Volume Floor or {90% - [32% * (Volume - 3.0)]}
Volume > 5.5	Greater of Volume Floor or 10%

<u>IRR Range</u>	<u>Volume Floor</u>
IRR ≤ 12.5%	60%
12.5% < IRR ≤ 15.0%	35%
15.0% < IRR ≤ 17.5%	20%
IRR > 17.5%	10%

Exhibit 9 Kashagan Production Sharing Agreement (PSA)--Key Contract Terms (continued)**Profit Oil**

Objective: Payments to provide a financial return.
 Scale: The Consortium's profit oil share is determined by the lowest percentage determined by three different factors; these calculations are done semi-annually.

3) R-factor (RF, section 14.6.b)

Definition: See Payback above

<u>R-Factor Range</u>	<u>R-Factor Percentage</u>
RF ≤ 1.4	90%
1.4 < RF ≤ 2.6	= {90% - [66.67% * (RF - 1.4)]}
RF > 2.6	10%

Profit Taxation

Scale: The taxation of project profits is a function of the Consortium IRR (section 28.2).

<u>Consortium IRR Range</u>	<u>Profit Tax Rate</u>
IRR < 20%	30%
20% < IRR ≤ 22%	34%
22% < IRR ≤ 24%	38%
24% < IRR ≤ 26%	42%
26% < IRR ≤ 28%	48%
28% < IRR ≤ 30%	54%
IRR > 30%	60%

Other Legal Terms:

- 1) Authorized Cost Overruns (13.1.c):** Contractor is allowed to make expenditures in excess of the authorized budget up to 5% of total expenditures and 10% for any single budget item.
- 2) Extraordinary Circumstances (14.5.d):** If extraordinary circumstances result in economic hardship for the Consortium (e.g., an environment accident), the parties shall meet to discuss adjustments to the profit oil allocation. (The State does not have an equivalent right to adjustment).
- 3) Capitalization (28.2.e):** The debt-equity ratio cannot exceed 70:30.
- 4) Expropriation (29.1.d):** In the event of expropriation, the State shall provide prompt compensation.
- 5) Arbitration (38.2.1):** The parties consent to submit any dispute under Section 29.1 for settlement by arbitration.
- 6) Change of Law (40.2):** If there is a change in local law that has a materially adverse effect on the Consortium's economic benefits, the parties shall act to restore the overall economic benefit.

Source: Agip/BP et al Kashagan Production Sharing Agreement (November 18, 1997).

Note: Some of the PSA terms have been simplified to clarify and shorten the presentation.

Exhibit 10 Kashagan Valuation and Sensitivity Analysis

Scenario	AGIP KCO Consortium			Kazakh State			Total Project		
	NPV (\$US Bn)	% Change in NPV	IRR	NPV (\$US Bn)	% Change in NPV	NPV (\$US Bn)	% Change in NPV	NPV (\$US Bn)	% Change in NPV
Base Case (See Note)	\$48.7		18.5%	\$94.9		\$143.6			
Oil Price +50% (\$90/bbl)	\$54.1	11.1%	20.7%	\$157.9	66.4%	\$212.0	47.6%		
Oil Price +20% (\$72/bbl)	\$56.3	15.6%	20.0%	\$126.0	32.8%	\$182.3	26.9%		
Oil Price -20% (\$48/bbl)	\$37.6	-22.8%	16.0%	\$66.0	-30.5%	\$103.6	-27.9%		
Oil Price -50% (\$30/bbl)	\$21.3	-56.3%	11.7%	\$23.4	-75.3%	\$44.7	-68.9%		
Startup Delay +1 Year (2011)	\$47.0	-3.5%	17.0%	\$84.0	-11.5%	\$131.0	-8.8%		
Startup Delay +2 Years (2012)	\$42.9	-11.9%	15.7%	\$77.0	-18.9%	\$119.9	-16.5%		
Startup Delay +3 Years (2013)	\$42.7	-12.3%	14.9%	\$66.7	-29.7%	\$109.4	-23.8%		
CapEx +20% (\$73B)	\$46.6	-4.3%	17.8%	\$92.0	-3.1%	\$138.6	-3.5%		
CapEx +50% (\$88B)	\$45.7	-6.2%	16.9%	\$86.3	-9.1%	\$132.0	-8.1%		
CapEx +100% (\$114B)	\$42.1	-13.6%	15.4%	\$78.8	-17.0%	\$120.9	-15.8%		
Profit Tax Rate + 20%	\$45.2	-7.2%	18.0%	\$97.8	3.1%	\$143.0	-0.4%		
Profit Tax Rate + 50%	\$42.4	-12.9%	17.2%	\$100.6	6.0%	\$143.0	-0.4%		
Consortium Profit Oil Share -20%	\$44.4	-8.8%	17.6%	\$98.6	3.9%	\$143.0	-0.4%		
Consortium Profit Oil Share -50%	\$34.4	-29.4%	15.5%	\$108.6	14.4%	\$143.0	-0.4%		
Combination: Oil Price -33% (\$40/bbl), CapEx +100%, and Startup Delay + 1 Year	\$17.5	-64.1%	10.4%	\$30.4	-68.0%	\$47.9	-66.6%		

Source: Adapted from Figure 4 in Eni: Storm in a Caviar Cup, Deutsche Bank Special Report by J. Hubbard and L. Herrman, August 9, 2007.

Note: The Base Case assumes the real long-term price of Brent crude oil is \$60/bbl, Capital Expenditures (CapEx) are \$59B, and Start-up occurs in 2010.

Exhibit 11 Capital Markets Data as of November 1997 and July 2007

	Nov. 1997	July 2007
Yield on US Treasury Bonds		
10-Year Bond	5.90%	5.00%
30-Year Bond	6.20%	5.10%
Yield on US Corporate Debt		
AAA Rated	6.90%	5.70%
BBB Rated	7.50%	6.65%
Equity Betas (5-Year monthly data vs. S&P 500) for:		
Oil Majors (Integrated)	0.90	1.10
Independent Oil & Gas Companies	0.80	0.90
Exploration & Production Companies	0.80	0.80
Typical Oil & Gas Project Leverage		
(Debt-to-Total Capitalization)	70%	70%

Sources: Casewriter estimates, Federal Reserve Board (Report H.15 Selected Interest Rates), Capital IQ, Standard & Poor's Research Insight, accessed October 27, 2011.

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