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“RUSSIA AND THE CASPIAN STATES
IN THE GLOBAL ENERGY BALANCE”

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Closing Keynote Address: Russia and the Caspian States in the Global Energy Balance

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Commodity markets experienced a dramatic fall in prices after July 2008, a fall that serves as a reminder that fundamental to all commodity markets is their cyclical nature. This cyclical nature is reflected not only in price trends but also in commodity investments and commodity demand. Almost without exception, analysts of oil and of other commodities — indeed virtually all of us who analyze commodities — forget about their cyclical nature and instead take a very linear view of commodities, which leads to the expectation that what happened yesterday will again happen tomorrow.

It was in this vein of expectations — working under the assumption that the recent past provides the best guide to the future — that the Russian government built its revenue projections and its foreign policy plans. The optimism about the Russian economy and the growing self confidence of Russian foreign policy were based on the assumption that what will happen tomorrow would look exactly like what happened yesterday: rising commodity prices would continue to go up, world oil demand would continue to rise and the world economy will continue to grow.

One of the most intriguing aspects of cyclical nature in the petroleum sector is its predictable regulatory. When cycles turn the corner, the change tends to be directionally abrupt, unexpected and significantly sharper than anyone might have anticipated. This is true when prices turn up as well as when they turn down. But another equally intriguing aspect of the oil cycle is that each completed cycle results in a dramatically altered situation, a new configuration of forces that is very different from what preceded it. At the end of every cyclical peak just as the market enters a cyclical trough, the structure of the commodity that you're looking at, in this case oil and natural gas, the structure of the sector and the structure of industry within it, turns out to be very different from what it was when the industrial cycle started. History provides two critical examples of what I mean and these are instructive for anyone trying to understand the parameters of opportunities as well as constraints that lie ahead for oil- and gas-producing countries, including Russia.

One of the myths about where the energy business is today is the myth that upstream investment is coming to a halt. One hears discussion of this myth more in Russia today than in almost any other producing country in the world. The theory goes: When you enter into a cyclical trough,

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you end investments on the supply side. So one of the expectations in Russia is that Russian production will fall sharply as will production in many other so-called “non-OPEC countries” as a result of more limited cash flows that result from lower oil prices. This myth about the cycle is actually factually untrue, and it’s not only been untrue in the past, but I would wager it’s going to be untrue now because there are certain things that happen when you’re moving to the peak of the cycle. One of the changes that occur is that the industry applies new technology to find and develop resources. There are two new critical frontier areas in which resources have been found and unlocked during the half decade that has just been completed and that will have an impact on this market whenever demand picks up (I suspect that will be sometime well into the next decade). At some point in the 2010s, the oil and natural gas sector will arrive at a point and time when the current supply that we see on the market from OPEC countries and non-OPEC countries will have to be replaced by something else. In another presentation at this conference Amy Jaffe spoke about shale gas in the United States, and she provided a sense of the magnitude of this new area of production. But I don’t think she stressed two elements of the importance of those numbers. One of them is that one of the half dozen or so plays for shale gas in the United States — the Marcellus, which covers area in the state of Pennsylvania which was where the oil industry began in the U.S., just as Baku was at the start of the Russian oil production — might well have more natural gas potential than the Yamal peninsula, more gas in it than any other large gas field in the world including the Qatar/North Dome field. It may be the largest gas producing area ever discovered in terms of recoverable material. Initially, the U.S. shale gas play faced costs in the range of \$10/million BTU or higher. For some regions, this cost structure has been lowered to less than \$4/million BTU to extract this kind of gas. Ironically, this North American shale gas resource, which extends from the east coast of North America to the west coast of North America, means that North America, including the United States if our regulators will be willing to allow it, could in the next decade be a net natural gas exporter to the outside world. There will be LNG exported from Canada, if not from the lower 48 states, just as there is currently LNG exported from Alaska.

Now the shale play is interesting because however robust shale may be in North America, where the innovations have been taking place, the shale gas resources of Europe might well be greater than those of North America. And where are these shale gas resources in Europe? They’re in

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Poland, Ukraine, Romania, Hungary, Germany, France, Belgium and the United Kingdom. They also can be found in Russia. And one of the aspects of the aftermath of Ukrainian natural gas transit problems of the last winter has been that the acceleration of interest in how to delineate and exploit the shale gas resources of the European Union. One can be sure that a decade from now we will be seeing European shale gas resources being developed. And at whose expense will those gas discoveries within the European continent be developed? Russia! For every molecule of new European shale gas, there will one less molecule of Russian natural gas that will have a market in Central and Western Europe.

Now that might not necessarily be totally true. It may be the case that there will be opportunities for Russian companies to participate in the development of those shale gas resources in Europe. It might be the case that the European Union, if it's smart enough, will condition access to European resources by Russian enterprises by reciprocity, and not just paper reciprocity, but real reciprocity. And I suspect that will certainly be on the agendas of European countries, so it will affect the European continent's position in the natural gas world, the LNG world as well as the pipeline gas world, and it will be a kind of fundamental parameter framework for where the future of the Russian energy industry goes.

The second area of technological innovation of the last five years of high oil prices has been in the exploitation of deepwater reserves, and by deep water, I mean water levels of 2000 meters or deeper. Over the past five years, there have been many discussions about resource nationalism. The Baker Institute has taken a leadership position in conducting research on this topic as has the Institute for Energy Economics of Japan (IEEJ). During the last five years, Russia has certainly benefited from resource nationalism, which has increased the country's revenue base and international stature and influence. Resource nationalism is frequently thought of as the major obstacle for international companies to find and develop new hydrocarbon resources, because resource nationalism motivates resource rich countries to restrict access to those resources. But when it comes to the deep water, the issue slowing resource development has not been resource nationalism; the issue has been lack of access to drilling services and equipment to exploit those resources.

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What we now know is wherever these deepwater resources have been found; they have turned out to be robust. We now have, in the last few weeks, ExxonMobil, the largest of the international oil companies (IOCs), announcing, in conjunction with Hess Corporation, a discovery in the deep waters offshore Brazil that appears to be of the same scale as the giant Tupi discovery that was made in Brazil more than a year ago. And the Tupi discovery appears to have been perhaps the second or third largest oil field ever discovered in the world, next to the Ghawar field in Saudi Arabia and the Cantarell field in Mexico, if statements by Brazil officials are correct.

Wherever there has been exploitation of deep water, something very large has been found. What has been the difficulty of exploiting the deep water? It's not lack of access, it's lack of available drilling services and equipment. If we go back to the beginning of this decade in the year 2000, there were 17 vessels in the world capable of exploring for, finding a discovery, or delineating a discovery in waters deeper than 2000 m. And at the beginning of this decade, there was an effort to expand the drilling fleet, and it happened slowly. So, the global deepwater drilling fleet grew from 17 at the beginning of 2000 to 27 at the end of 2007. And then beginning in 2008 and extending to 2011 and 2012, another 130 vessels are being added to this fleet based on existing contracts. New discoveries are inevitable. They are going to be major, even if we don't know how major they will be. If you look at where these resources are being sought, they are all places where resource nationalism has not been a major factor — in the Gulf of Mexico, waters of Mexico and the United States; in the waters of the Atlantic basin, offshore Brazil; offshore West Africa, including offshore Angola, where Sonangal announced in March its expectation that the deepwater sub-salt play in Angola is at least as large as the sub-salt play offshore Brazil; in the deep waters offshore the Northwest shelf of Australia; in the deep waters of the Caspian; offshore Indonesia. Other deep waters where large potential reserves are possible are the Mediterranean and all of the countries that are littoral to the Arctic (the United States, Canada, Denmark, the United Kingdom, Norway and Russia). It is noteworthy that Russia is the one country that, at the moment, has no company with any experience exploiting deepwater areas, no equipment capable of doing it, no service company that is trained to do it, given the magnitude of the undertaking. And that means that any Russian deepwater exploitation will require an international major as a partner if the exploitation is to succeed.

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One of the intriguing and potentially transformational aspects of recent deepwater discoveries relates to what has happened this past winter in the Eastern Mediterranean, where to date there have been a couple of large natural gas discoveries — one offshore Gaza, and the other offshore Israel. The one offshore Israel was first announced as a one trillion cubic foot (tcf) natural gas field. Now, with further delineation, it's now believed to be about 5 tcf, around the level of the Troll field offshore Norway. I believe that as this field is further delineated it will look more like 50 trillion cubic feet of natural gas, which would make Israel a potential long-term natural gas exporting country. That should provide a sense of the revolutionary changes that happens from the unfolding of a cycle as it enters a trough — it provides on the upside the incentive to companies and opportunity to exploit new technology and to enter areas that were previously inaccessible.

One of the other myths that abound in Russian thinking in addition to the myth that supply will not be forthcoming is that costs are so great that they impede companies from finding and developing resources as cash flows and capital expenditures fall. We forget that on the cost side the services and equipment sector is also cyclical. Just as costs go up, so too do they go down, and we know that some of the critical costs for the oil industry, including steel, which has fallen 50 percent over the last year, and tubular equipment and drilling services are all now in a cost deflation trend. Indeed, one of the most significant factors that are delaying projects today is not falling cash flows but strategy, as the large companies believe that they will be able to negotiate better terms with contractors the longer they wait. This has been particularly true with the most expensive projects such as Canadian oil sands projects. The contractors who are capable of putting cokers on-site on oil sands in Canada are the same companies that are currently building refineries around the world. There are going to be more of these companies available to exploit the oil sands starting next year, because refining investment is going to slow. And, investing companies are postponing projects not because of the price of oil, they're postponing these projects because of the view of Shell and ExxonMobil and ConocoPhillips and ENI and Total and others that are looking at the oil sands that time is on their side. They believe that the costs of finding and developing this material next year will be 50 percent of what it was last year. Last year, it required an oil price of \$90 to incentivize them to make new investments in oil sands; next year it will likely require an oil price of \$40-\$45 to incentivize them to do it.

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In short, just because cash flow is going down does not mean that budgets are going down in real terms. The efficiency of budgets is rising. If you look at the current pace by which the costs of finding and developing oil have receded, over the last three months it's been at a pace of 4 percent per month, and that pace is accelerating. So the last month that we have data for, last month, it is now going down at 5 percent per month, and if they continue to go down at this pace, then by the end of this year, we will see oil and gas development costs at less than half of what they were in the middle of the boom a year ago. So here, too, these trends are all factors that must be considered in making judgments about the magnitude of future supply.

One additional factor requires noting, in the context of the current cycle, where is global oil demand likely to be heading? There is a common assumption today in the oil patch that global oil demand will rebound in a V-shape along with the resumption of economic growth and that it will be sustained at a "brik" 1.8 percent per annum growth rate, similar to what prevailed in the middle years of the current decade. But again, the strongest historical lesson about demand is that when cyclical growth resumes, it is inevitably at a substantially lower rate than what previously prevailed.

This pattern of a ratcheting down in demand is strongly supported by the evidence from every price rise since the 1970s. For two decades before 1973, global demand for oil grew at a 7.6 percent clip; after adjusting to higher prices, global demand resumed at 4.3 percent in the late 1970s; the another price rise accompanying the Iranian Revolution resulted, when demand resumed, of annual increases at a little above 2 percent. In addition to this historical lesson, there is good micro-level evidence support our general conclusion to expect demand to rebound at 1-1.2 percent with economic recovery. The evidence stems from investments triggered in energy savings technologies and in the impact of significant price liberalization in some emerging markets. Additionally, we should expect demand for distillate for power generation to fall off significantly in emerging markets where hyper-growth has ended and where infrastructure is catching up with power generation that will be fueled much more by natural gas than by oil. It will make a big difference for supply to see annual demand growing closer to 850,000 bb/d to 1 million bb/d rather than at rates of 1.5 million bb/d or higher.

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It is in this context that changes in the geopolitics of energy need to be understood. There are really three energy superpowers in the world. They have very different orientations to the world. They are Saudi Arabia, the United States and Russia. They are the three countries that potentially have the most influence on hydrocarbon development and whose policies are vital to this sector. That means understanding the geopolitics of energy in no small measure requires understanding what they represent, what their governments seeks and what their chances are of succeeding. They are larger by orders of magnitude than any other individual countries that participate in the global energy sector. One other country that counts, but which remains a potential energy giant, is China.

One of the striking differences between Saudi Arabia and the United States, on the one hand, and Russia, on the other hand, is that Saudi Arabia is a waterborne exporter. All of its exports go on the waters, and that gives them, as the largest exporter of oil in the world, the opportunity to direct a third of their exports to North America, a third to Europe, a third to Asia, more or less in equal amounts. In recent years, Saudi Arabia has trimmed its exports to Europe and increased its exports to Asia, where markets have been growing and netback receipts have been higher. But they have something, as a waterborne exporter, that is enviable, namely the security of markets, because they can export to any place in the world.

The United States occupies, by virtue of its size, by virtue of its openness to trade, another enviable position, because it is a market where you know you can sell if you have access to it, both in good and bad times; even in times like today, when demand is shrinking, the U.S. market is open to crude oil from around the world, whether you have light oil or heavy oil, and the size and openness of the market makes it an attractive market for any oil exporter. The United States has also become the market of last resort for liquefied natural gas given the largest storage capability on the U.S. Gulf Coast.

Russia is the only one of these three superpower energy centers that does not have access to the waterborne world. Indeed, Russia is characterized by two significant handicaps when it comes to wielding global energy influence. First, it is essentially a pipeline exporter of oil and natural gas. Second, while it is a giant when it comes to world standards for the number of barrels of

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hydrocarbons it can produce, it is both a lumpy supplier and an exporter that is overly dependent and constrained by dependence on the European market. It is also a giant that is constrained by having very large companies at home and a tiny presence internationally. Much of the politics of Russian oil and natural gas development of the past few years — including the politics associated with its current government, as it has used oil and gas to consolidate power in Moscow, to consolidate power in the country, to consolidate influence in the Near Abroad — has been dominated by an extremely limiting geopolitical framework. At the end of the day, a pipeline-constrained superpower has much less freedom to change strategies and gain influence than a country whose access to markets is waterborne. This is a matter to ponder over when considering what options Russia has and what they might develop into over time. Beyond the consolidation of power in the Caspian Basin, Russia has limited leverage by being at the wrong end of the pipeline as exporter rather than buyer. Were the EU to get its act together and behave as a single buyer, Russia would be greatly disadvantaged as a seller locked to one single monopsony market.

The fact of the matter is that hydrocarbon-rich countries with limited waterborne access have historically under-optimized revenues as well as influence. Pipelines appear to give sellers power over markets when they are negotiated and built. But once built and capital costs are fully spent, pipelines give the buyer significant power over the seller that severely handicaps the seller. Let's say the pipeline to Daqing, China, is completed, and there's no spur line that goes to the Pacific Ocean. That means the Chinese can say, "Well, the pipeline is built. If you want to put oil through, we'll pay 50 percent of what you thought we were going to pay, and if you don't want to accept that, now that all the costs are totally spent, we can always buy the oil from someone else." A producer is unbelievably constrained if you're the exporter on a pipeline system.

There is a second set of geopolitical conditions beyond a look at the differences among the three energy superpowers that is worth considering: the international institutional architecture of the global energy market. There are three different worlds of energy and three different rules of the game — the worlds of the OECD, of OPEC and of some other countries that are neither in the OECD nor OPEC, the latter world that describes Russia. And here is where we need to go back to my original remarks about cycles.

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We ended the cycle in the 1970s, a period of time like today's of unexpected, rapidly increasing prices, followed by dramatically unexpected price collapses in the early 1980s. In the 1970s, the OECD countries were the countries in the world that had protected national industries, which were thriving amid resource nationalism. The OECD countries had, each of them, except for the United States and Germany, national heroes; they had national flag oil and gas companies that were owned by the state, that were used by the state to pursue nonenergy purposes or energy purposes which were buttressed by other kinds of foreign policy linked purposes. It also appeared as though there were going to be newcomers to the world of national oil companies within the OECD. Canada created PetroCanada at the end of the cycle, a company that was perhaps the most nationalistic of all of the national oil companies of the OECD.

And then what happened in the 1980s as prices fell? All of these national oil companies were either demolished as national oil companies — they became, through IPOs, normal companies, or as the one case that remains, Statoil, it became a company operating under commercial regulations. Sure, it is majority-owned by the state, but the state does not do anything with it for national interest purposes, other than to earn money. Statoil is treated, *pari passu*, as an equal participant on the Norwegian continental shelf along with international private companies, against which it has to compete, and as a nonsubsidized investor abroad. So we've seen the state disappearing from the energy sector of the industrialized world, which represents 40 percent of the international oil market and more than half of the global economy.

OPEC is largely at the other extreme. The key members of OPEC, Saudi Arabia in particular, don't like markets. They don't like market mechanisms. They don't like the private sector, although they deal with private firms to the degree they must. Strikingly different from the OECD world, where we who live in it tend to think that if you trade more, if you have no political barriers to trade flows, or to capital flows, everybody in the end wins; citizens and economies and governments are all better off. Looking at the energy world from the perspective of Saudi Arabia and most other OPEC producers is to adopt the perspective of, "if we win, you lose," or "maybe if we win, you're going to win too, but we're going to win a lot more than you, and if there's a bad period of time of low prices, such as the one we're going through today, we're going to do what we can to push the burden of adjustment onto other countries."

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Saudi Arabia's also unique in this regard, and I do think this a critical part of the Russian context. Saudi Arabia is unique in that it has a GDP about the same size as the state of New Jersey, in the United States. Saudi Arabia would not count for very much in the world were it not for the fact that it has, as a matter of policy, the ability to maintain spare oil production capacity offline. Having a surplus, as Amy Jaffe has indicated in her presentation, if Iran goes offline, for whatever reason tomorrow, Saudi Arabia can, overnight, replace all of Iran's exports. Saudi Arabia can actually, overnight, replace all of the oil exports not just of Iran but all of the oil exports of the number two and the number three exporters within OPEC. That is a phenomenal position to be in. Saudi Arabia had lost that position, for surprising reasons that have nothing to do with peak oil, but rather having to do with the unexpected failure of states like Venezuela and Nigeria, in Iraq and Iran, to meet the production rates that had been expected. All of those countries should be producing today 8 million barrels/day more than they're producing, and ten years ago most people, whether in Saudi Aramco or Lukoil or in ExxonMobil, thought that they would be producing 8 million barrels/day more, so Saudi Arabia delayed its investments because it did not want to compete in a market where it thought that 8 million barrels/day of additional oil was going to be there.

In recent years, as markets tightened, Saudi Arabia used its capital to get back to the point where it can replace the number two and the number three exporters. And now in this current environment, they have a clear preference, and the preference is for radically lower prices than what prevailed over the last five years. And by radically lower, it means even lower than \$50/barrel for West Texas Intermediate crude. I think the Saudis want to see oil at around \$40/barrel, which they're very comfortable with in the context of their own budget constraints, at least for a period of time, and I don't think they want to see oil much above \$50 or \$55/barrel until 2010 or 2011. While they talk about \$75, they talk about that as a target for "someday," not this year and not next year. And they know who they want to punish, by the way. They want to punish three countries: They want to punish Iran, they want to punish Russia and they want to punish Venezuela. And they are in a position to do so. The kingdom wants to punish Iran and Russia because it does not like either's policy in their neighborhood. The Saudis don't like Russian policy that has been more supportive of Iranian nuclear ambitions than the policies of

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other countries, and they have a wonderful weapon to show this displeasure: dumping the price of oil.

In between these two worlds is the world of what we would normally call “the BRICs”: Russia, China, and in addition to that, Brazil and India (although to some degree, Mexico fits into this list as well). These are countries that, to one degree or another, have not decided whether they are part of the market world or whether they are part of the nonmarket world. And it’s in this context that in today’s relatively low price environment, when you convert what’s happening in the Russian domestic political system into the international stage, truly stark choices are emerging. Two years ago, it was popular to say that the world of resource nationalism was winning out over the world of markets. But if you look at the third group of countries, who are not part of the OECD and not part of OPEC, and you look at China, Brazil and India in particular, they have all moved over toward market economics. Yes, to one degree or another they use “the state” and the instruments of “the state” for nonenergy policy purposes, but they are inherently reliant on markets and “win-win” solutions. And Mexico, which is, along with Russia, one of the other two remaining in this mid path, is slowly seeing the reasons for overcoming the national monopoly position they provided the state oil company PEMEX and having already joined the OECD formally, it is only a matter of time for them to open their oil sector and withdraw the state from its management. So that leaves Russia, which in the perspective of a decade from now, will be the only BRIC country where you might have to ponder about whether it’s going to take a market or a nonmarket option, and where the “win-win” would be.

I would like to end with my final concluding remarks on what Russia’s choices are in this arena, because it’s clear that Russia, from a national interest perspective, has not liked the rules of the game of the OECD, nor has it liked the rules of the game of OPEC. OPEC countries in any event do not want Russia to be part of their group. I think the challenge for the Russian political community now (if it is going to get beyond the current position where the government is behaving like a deer looking at headlights, paralyzed about what to do) is how to come to grips with a failed vision and build on lessons learned for the future. It’s still the case that the government’s budget is out of whack with actual revenue, and the policy of expecting oil prices

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to come back tomorrow to yesterday's level will soon be seen as wishful thinking. And that means rethinking what the national interests are; rethinking what is sustainable; rethinking how, perhaps, one can overcome the last five squandered years, when high revenue were generated from hydrocarbon exports, which made Russia only five months ago the third largest holder of foreign currency in the world, after China and Japan, but is now no longer in that same league. The country needs to understand what the rules are that will benefit Russia, and how Russia can move from being a lumpy European supplier of resources to being a global supplier of resources. Moscow needs to think about what it takes to be a global supplier, which means different kinds of partnership arrangements and different rules of reciprocity if the Kremlin wants Russian firms to have access to the outside world. Russia needs to consider whether it is in the national interest to give access on a *pari passu* equal basis to foreign companies that it gives to national companies. And it needs to reconsider transit rules, which are rules that have been adopted internationally within the European Union, and whether these are rules that will be in Russia's self interest, going forward internationally.

Rethinking objectives, reconsidering ends versus means of achieving them is always a difficult task, especially when choices seem too stark. But it appears to me that the constraints on Russian policy options, combined with the constraints imposed domestically by lower revenues, will push the logic of political choice in the direction of the OECD world, or at least one hopes they will.