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The XVI Repsol YPF–Harvard Seminar on Energy Policy was held in Barcelona Spain on September 29–30, 2006. In many ways it was a reprise of the V Repsol–Harvard Seminar of June 1944, also held in Barcelona. The organizing theme of the XVI Seminar was a tripartite one: Markets, Security, and Transparency. All these topics are important as applied to energy, but as our discussions continued, it was clear that one topic was first among equals: Security.

This primacy was set forth in the Keynote address by the Honorable Javier Solana, the EU’s High Representative for Common Foreign and Security Policy and Secretary-General of the European Council. In his address that he titled “Energy, Security, and Foreign Policy,” Secretary-General Solana described how energy is now explicitly among the most controversial (and often confrontational) issues in international affairs. He concluded his talk by asking the Seminar participants, as international leaders, to work for equitable outcomes for such divisive energy issues as the sharp competition for the finite supplies of energy from fossil fuels, the underlying threats that accompany nuclear energy, and the use of energy for political ends.
Once again the Seminar benefited from the contributions of participants from around the world. Some participants represented the newest realities of the energy—such as the dramatic growth in economic development and energy consumption of nations like China, for example, or the emergence of new geographic sources of energy, such as Equatorial Guinea. Other participants highlighted the increasingly strategic importance of traditional areas of energy supply such as the Middle East and the Russian Federation. And still others spoke for the OECD nations, the developers and the traditionally dominant consumers of energy products.

Whatever their perspectives, the participants all spoke to the same questions: How and where will the necessary supplies of energy come from? Who will control the supplies at the source, how will they be developed and priced? How will producer nations and consumer nations benefit from energy? And what are the implications of these questions for international security? The history of the Repsol YPF–Harvard Seminars reinforces the importance of discussion across many perspectives to address these crucial questions.

As is traditional, one of organizing principals took the role of Seminar rapporteur. Bijan Mossavar-Rahmani’s “Summary and Comment” appears at the front of the book, framing the deliberations and providing an early overview of what transpired at Barcelona.

Both the participants at the Seminar and its organizers owe particular thanks to Repsol YPF’s Antonio Brufau and the Fundación Repsol YPF’s Jorge Segrelles and their colleagues for their support and facilitation of the gathering. The XVI Seminar has provided another example of the splendid Repsol YPF hospitality.

The presentations made at the Seminar and the edited versions reproduced here reflect the views of the speakers and not necessarily those of the institutions with which they are associated, nor of the sponsors of the Seminar.

Bill Hogan
SUMMARY AND COMMENT

BIJAN MOSSAVAR-RAHMANI
Mondoil Corporation

It is a great pleasure to attend this, my sixteenth Repsol YPF–Harvard Seminar, and the second to be held in Barcelona. And to be recruited once again to serve as summarizer and rapporteur of these proceedings. For those of you here for the first time, my assignment is to sit through all the sessions, carefully listen to the presentations and the discussions that follow, take notes, reflect, and then try to make sense of what was said.

By tradition, the summarizer has considerable latitude to challenge the speakers, quote and sometimes twist their words if only to make a point, and draw his own conclusions. And of course the summarizer gets in the last word before we close. Well, in this year’s program, Antonio Brufau gets the final word as he closes the Seminar—but I suppose if I do not misquote him in my summary, he will let me get away with all that I have to say.

Actually, the speakers will eventually have the final say, as their presentations are recorded and transcripts are prepared which, as Bill Hogan indicated at the start of our meeting, will be sent back to the
speakers for their final approval. The reviewed drafts are then delivered to the summarizer, who, as reward or punishment for his performance here today, is expected to read and reread and edit them in preparing the Proceedings for publication.

With that background, let me now begin.

And I do so with the price of oil—which has dominated news and discussions about energy markets in 2006. Oil prices this year have climbed to record levels in nominal terms—$75 a barrel is uncharted territory—before retreating in the past several weeks to more manageable but still robust levels in the low $60s range. Consistent, as Antonio Brufau said in his introduction, with the forecast I made at the Seminar a year ago based on my two digit rule: Take the last digit of any year and add a zero behind it to get a reasonable forecast of that year’s average price of oil. Try it. It has worked since about 2002.

But then we learned yesterday about a more robust predictor of oil prices, as least in the short term. Javier Solana suggested that the press watches him closely each time he meets with his Iranian counterpart to discuss Iran’s plans for uranium enrichment and perhaps more. If he signals that he has had a good conversation, which I think he always does, the market is relieved and the price of oil drops. So monitor the timing of his next meeting and go short on crude. To go long, stick with the two digit rule.

In the oil market, price levels—particularly when they are especially high or low—seem to drive everything. Certainly they help drive supply and demand.

What did we learn about the link between high prices and global supplies at this meeting?

Participants seemed to be bullish, by and large, about the ultimate geological availability of oil and gas resources, though they noted that political access under attractive fiscal terms is another matter. There was also considerable optimism about technological breakthroughs that could add to global availability of liquid fuels derived from such
unconventional sources as tar sands and shale. Ditto about breakthroughs in processes that transform coal or gas to liquids and in those that manufacture other fuel blends and fuel substitutes, such as ethanol or biodiesel, from a variety of agricultural crops.

Several speakers were excited about the outlook for advanced technologies for conventional oil and gas exploration and production in such areas as very deep waters and from very deep reservoirs.

Over the past several years, some two-thirds of new oil discoveries globally have been offshore in deep waters rather than onshore or in the shallow continental shelf. In the early 1990s, only about one-sixth of new oil discoveries were in deep waters.

You will recall the recent excitement over the so-called lower tertiary reserves of the Jack prospect in the Gulf of Mexico—appraised by a well drilled by Chevron, Devon, and Statoil in 7,000 feet of water into a reservoir located 30,000 feet beneath the seabed. While much hype surrounded this well—some analysts claim the lower tertiary could boost U.S. reserves by 50 percent—what can be said is that the Gulf of Mexico continues to be an area of frontier oil and gas exploration with tremendous upside potential that will be increasingly tapped and developed as new technologies are perfected and applied. And by the largest international oil companies, according to Tony Meggs, who of course had in mind his own company, BP. More, much more, about BP later.

But Lisa Stewart, for one, asserted that her business model is largely insensitive to price levels or even to price fluctuations. Do not explore, she admonished, and face worries about geological or price risk. Do not even acquire other companies—too messy, she added. First, acquire reserves—in a focused, disciplined, and informed manner. Then sell your production forward long enough to cover your initial investment. Finally, aggressively exploit the fields and add to reserves and production. And pocket the incremental value created. If you do this long enough, she suggested, you will get the hang of it.

The problem with this business model, though, is that while reserves musical chairs might profit some companies, it does nothing
to add to the overall pool of available reserves. What it does is to get geologists, geophysicists, engineers, and other technical staff dismissed from the company selling the assets; many then move on to other occupations and are lost to the industry.

Lack of technical personnel is a major hurdle to expansion of exploration and production activity in the current market environment in which both traditional and non-traditional players rush to invest more while prices are still high. Tony Meggs lamented the lack of good people to tackle the great opportunities he said are available to his company.

But this frenzy goes beyond competition for scarce people to competition for—and the resultant shortage and escalating costs of—just about everything associated with drilling or field development. Today, as an example, if you want to engage an offshore drilling rig, the wait can be as long as three years and the daily rates as much as three times what they were three years ago.

There is also fierce competition for exploration and production acreage—a point to which I will return.

I sensed less consensus among the participants on where demand is going, short term or long term. Antonio Brufau, in his overview of the global economy and energy markets, asserted that there is an increasing responsiveness of oil demand to higher prices. He noted that the International Energy Agency, whose Claude Mandil is a regular participant in these meetings, has lowered its forecast of growth in global oil demand by as much as 40 percent for 2006.

Adrian Lajous, on the other hand, felt that shy of global recession, higher prices will at best only moderately temper the rate of growth in demand. Tell that to workers at U.S. automakers, particularly GM and Ford, who are being laid off by the tens of thousands because buyers are shying away from gas guzzling, but high profit margin, large SUVs.

I think I can capture the sentiment of the meeting by suggesting that consumers will continue to adjust to the new price environment.
And that expensive oil will impact the world economy: Past runups in global oil prices led to greater inflation and higher interest rates that triggered recession. The combination of slower growth, conservation, and the switch to alternatives resulting from higher oil prices will eventually curb demand—but at what price and at what cost to the global economy—no one really knows.

Now to high prices and the competition for acreage. Adrian Lajous summed it up when he said that terms and conditions have gotten tougher for access to oil and gas resources.

The discussion that followed on the impact of higher prices on relations between oil companies and host governments was especially lively.

Notwithstanding the tougher terms and the uncertainties about the future sanctity of contracts and security of investments, high prices have intensified the competition for access to supply and introduced new players to the international scene. Yesterday, Nader Sultan complained that China and India seem to be absent from fora in which international energy issues are debated and strategies developed. Well, they are not absent from the competition for exploration and production opportunities worldwide. In my own oil and gas activities in West Africa, I now regularly run into Chinese and Indian companies when even five years ago the competition was largely the French, Anglo-Saxon, Italian, or other European companies, some of which, we were reminded yesterday, have since disappeared.

And the new competitors are fierce and sometimes play by different rules. A Chinese company this year offered to pay $1.1 billion—that is right, billion—as a signature bonus for rights to an offshore exploration block in Angola with no proven reserves on it. And, of course, won the bid.

But in addition to competing head on, and sometimes paying substantially above market rates to get the deal done, China and its neighbor and sometime partner India pursue diversified portfolios. And so they look to markets where competition is less intense, not because of poor geology but because of geopolitics.
This leads Beijing to cut deals with regimes that are politically iso-
lated and therefore hungry for Chinese cash and political cover, 
triggering political face-offs with Washington which wants these 
regimes—whether Iran or Myanmar or Sudan—isolated and pressured.

Wang Dongjin characterized the Chinese approach as “a more 
patient” one than that taken by the rest of us. I am not sure how 
that patience helps find and develop oil and gas. Actually, I have 
heard pleas for patience in this industry, but typically from geologists 
who keep recommending drilling of what turn out to be dry explo-
ration wells.

Anyway, it seems to me that the Chinese are moving at warp 
speed and are impatient for positive results, which they seem to be 
getting if you count barrels purchased and blocks signed up from the 
information in Wang Dongjin’s very comprehensive presentation.

Why this push?

A simple set of numbers helps explain China’s rush to oil. In 1995, 
there were around 10 million vehicles on the road in China. Ten years 
later, in 2005, the number had grown three-fold to 30 million vehi-
cles. By the year 2020, less than 15 years from now, the Chinese 
government predicts the number of vehicles will reach 140 million!
Let me repeat: from 10 million to 140 million vehicles in 25 years.

With such statistics surely in mind, Javier Solana, reflecting on 
the future growth of energy demand in China, said it would be 
impossible to meet China’s burgeoning energy needs barring some 
dramatic technological breakthroughs. Or something.

Some of our most provocative discussions—in part because so 
many of us are directly impacted by this—were on the topic politely 
called “resource nationalism.”

The oil market has long been characterized by a struggle 
between producing governments and oil companies over the division 
of oil’s spoils. Our Keynote speaker was more blunt—he said this was
a battle. A battle for control of resources, not only over who gets what share of the revenues, but which producer or consumer is punished by withholding supplies at the front end of the pipeline or by withholding liftings or investments at the back end. Thus, as Javier Solana observed, energy has become a fundamental ingredient of any country’s foreign policy and national security policy.

When prices are low and money is scarce, the international oil companies are sought out for their access to capital, the latest technology, and their ability to find and produce oil and gas. When prices rise and money is plentiful, the skills of these companies seem less critical and their fees—that is to say, their share of production revenues—seem extortionate.

That is when resource nationalism kicks in.

Venezuela has been the initiator and, at least in Latin America, the ring leader in the most recent round of resource nationalism.

Since 2005, Venezuela has unilaterally raised income taxes on upstream oil operations to 50 percent from 34 percent, raised royalties from 1 percent to 33 percent, and given a 60 percent stake in all new oil ventures to state-owned PDVSA. Companies that balked at these harsh new terms saw their fields confiscated.

In Ecuador, the government revoked the operating contract of its largest foreign investor, Occidental Petroleum, when its energy ministry determined that the company had improperly transferred a 40 percent interest in its fields to EnCana of Canada in 2000. When Occidental filed an arbitration claim, Ecuador seized a billion dollars of its assets. Incidentally, this is the same asset that was subsequently purchased by CNPC, as we learned from Wang Dongjin.

I wonder if Ecuador would have the nerve to seize a billion dollars of Chinese assets in a similar dispute.

Elsewhere, last May, Bolivia decided to go all the way, announcing a nationalization of its entire hydrocarbons sector. Now that took
nerve—here is a country with little cash, little know-how, and no ability to staff or manage its oil and gas industry by itself, chasing off those who do have the cash and technology and management skills. Including our host Repsol YPF. Maybe Adrian Lajous had Bolivia in mind when he referred to dysfunctional nationalism.

Across the ocean in Africa, Chad has threatened to expel two of its producers, Chevron and Petronas, in a tax dispute and is demanding a 60 percent stake in its oil deals.

Russia instituted an oil export duty in 2002 and has since levied a variety of back-tax assessments on its producers. More spectacularly, Russia effectively destroyed its largest private oil company, Yukos, by confiscating its prized assets and imprisoning its founder and chief executive following a judicial assault. Russia now seems to be maneuvering to improve its operating and fiscal conditions in the Shell Sakhalin II LNG project with legal challenges covering environmental compliance. Alexander Arbatov confirmed that the environmental dispute was only an excuse, and added that as a Russian citizen, he is not always sure what his government is trying to accomplish. Peter Tjan added that this is not uniquely a Russian problem. Most of the rest of us can agree.

What are the companies to do when faced with demands to tear up long-term agreements and rewrite them to their own disadvantage? Is a contract a contract, and do you hold firm and risk unilaterally imposed changes or even outright expropriation? Or do you agree to renegotiate some terms to reflect the fact that many contracts were signed in a very different oil market environment, and that today's much higher prices allow you to return part of the windfall, while it lasts, to the host country?

There probably is no one right answer—each contract and each circumstance is different. Zsolt Hernádi recognized this problem when he said that “high prices and record profits are politically explosive,” but then he suggested working with governments on “social compensation.” I expect a lot of these countries want hard cash not social compensation, however that is defined.
Isaac Yanovich complained that Colombia asked the oil and gas companies, both domestic and international, to sit down and renegotiate certain terms in their contracts. Not surprisingly, the companies declined the invitation. What is surprising, and pleasantly so, is that Colombia did not threaten to act unilaterally.

But when some of Colombia’s Latin American neighbors did act unilaterally to change their fiscal and operating terms and conditions, Isaac Yanovich observed, some companies seemed to swallow their medicine and continue operating as before. Not fair, he said. Certainly, hard for politicians to explain.

Just you wait, responded Nemesio Fernández-Cuesta. Companies will redirect their investments away from those countries that acted unilaterally and towards Colombia. He gave his own company, Repsol YPF, as an example and promised to drill four new exploratory wells in Colombia next year and none in the ones that manhandled Repsol YPF. Assuming Nemesio can find the rigs.

As an aside, Isaac, one of the privileges of fair play is that you have been invited back to this Seminar year after year while I see no one here today from countries like Venezuela, Ecuador, and especially Bolivia.

Minister Atanasio-Ela Ntugu declared that it was more important for his country, Equatorial Guinea, to develop long-term relationships than to squeeze the companies. “We realize we cannot do it all ourselves,” he said. He said he looked to be respected as a sovereign country, to be treated fairly and to receive technology transfers, among other considerations. And, he might have added, to be invited back to the Repsol YPF–Harvard Seminar.

Iran’s Deputy Oil Minister, Hadi NejadHosseinian explained that Iran’s buy-back contracts are based not on production sharing but on fixed rates of returns that he termed fair and unaffected by oil price movements. No need to do anything now, he concluded.

But Iran’s OPEC partner Algeria is putting the squeeze on the international oil companies by raising the government’s take from projects,
while itself moving to invest in projects overseas where Sonatrach, I am sure, will negotiate hard for advantageous terms. Another example of the contradictions Bill Hogan referred to yesterday.

Jorge Segrelles said some of these Sonatrach projects abroad represent positive South-South cooperation. I say to Chawki Rahal, “Good luck to you.” I just hope that before he and his company decide to build a Nigeria-to-Algeria gas pipeline, feeding the likes of Mali and Niger along the way, he considers what several of the speakers here said about their unhappy experiences with transit countries that host gas pipelines, principally Russia-to-Europe ones. Including his fellow panelist Zsolt Hernádi.

I suggest if you truly want to do South-South deals, you will find, arguably, marginally better deals taking Repsol YPF’s stranded Latin American assets than trying to sell gas to farmers in Timbuktu.

Other victims of high prices and the shift in power to the producers have been anticorruption programs and other efforts at creating transparency in our business. Several years ago, in a milestone project, the World Bank set forth an extraordinary set of conditions for its financing of an oil pipeline linking landlocked Chad with Cameroon on the West Coast of Africa. Normally, the oil companies build their own infrastructure but the risks here seemed too high, in part, I remind Chawki Rahal, because of the South-South transit problem. With no alternative and eager to get its oil fields developed, Chad agreed to the dispersal terms specified by the World Bank: In general terms, Chad’s government was to disclose its oil revenues and commit to spending most of the money on social needs such as health, education, and environmental protection. Many of us knew this was a naive—perhaps even a cynical—gesture on the part of the World Bank. It was clear that once the project was financed, built, and operational, Chad would renege on the deal. And that is exactly what has happened. Chad first faced down the World Bank and made a mockery of its compact and then tore up its contract with two of the three companies in the project, Chevron and Petronas, and ordered them out of the country unless they pay claimed back taxes of $450 million.
Chad won more cash and less transparency.

Randy Gossen told us energy industries are one of the five industries most prone to corruption, and I expect he would list oil and gas extraction at the top of the list within the energy industries. He also treated us to a map of corruption hot zones around the globe—the map seemed to show that most of the world’s oil and gas reserves are found in corrupt countries. Or did he really mean that oil and gas extraction results in corrupt practices?

Maybe the representatives of some of the countries with large oil and gas reserves here at the Seminar—Maxim Barskiy and Alexander Arbatov, Hadi NejadHosseinian and Atanasio-Ela Ntugu—can help answer this question: Is the link between oil and corruption one of nature or of nurture?

One cut at answering this question is to go back to Randy Gossen’s presentation in which he also listed the defense and aviation industries as prone to high risk of corruption. Here it is clear that most countries that sit on large oil and gas reserves, however corrupt, do not have strong, homegrown defense and aviation industries. Those industries are based in places like the United States, France, Italy, Britain, Germany, Russia, Canada, China, and even Spain. Their defense and aviation industries are prone to corruption in the sense that they pay bribes to officials in developing countries to gain advantage in the sale of their products. Wait a minute. Are not these countries—the United States, France, Germany, Britain, Russia, China, etc.—the same ones with the large integrated oil companies that, backed by their governments, have often been willing to deal with anyone who could assure them of a concession? If that meant paying bribes to officials to grant oil and gas contracts under favorable terms, so be it. This is the supply side of the corruption equation that David Murray referred to at the close of the last panel. Such behavior, along with the demand side pull, too, breeds corrupt and repressive governments that shun transparency and accountability. And good governance and good government suffer.
A couple of weeks ago at its annual meeting in Singapore, the World Bank came under attack from European governments—manufacturers of defense and aviation products and home to oil and gas companies sometimes referred to as national champions—that objected to the Bank’s proposed crackdown on corruption through tough new guidelines designed to hold governments and companies accountable. But Peter Cleary assures us that, notwithstanding, the World Bank is committed to enforcing its anticorruption practices where it can, particularly with respect to companies, if not the host governments. I do not know how far the World Bank will get, but I do want to recognize and applaud its efforts and also those of other private and public initiatives, including ones David Murray listed.

I end my comments on this topic by noting that Bill Hogan, in instructing the speakers and panelists, said that “less is more.” On corruption, too, I think all here would agree with that sentiment: less is more. Never mind that Randy Gossen put the size of annual bribes globally at a humongous $1 trillion. Not a penny of which, we were assured by Steve Baum, is paid by his former colleagues at Sempra whom he had trained to “just say no.” In several languages, he emphasized.

Another consequence of high prices has been to put the spotlight on our industry and our comings and goings, something, I suppose, that is largely unwelcome. I will talk about one instance: the savaging this year of once high-flying BP, ably represented over many years at these Seminars by Luis Javier Navarro, often joined by other colleagues from London.

I remember as a child, Hadi NejadHosseinian probably does, too, that BP was called the Anglo-Iranian Oil Company. The name was changed to British Petroleum when Iran nationalized its oil industry in the early 1950s and booted the British, who then returned the favor by booting the country’s nationalist government, with help from the Central Intelligence Agency. Many years later, Nader Sultan’s government took a large stake in the company, perhaps with the thought of rebranding it Anglo-Kuwaiti Oil Company. It did not happen as, under pressure, Kuwait sold off its shares.
But it was John Browne who ended up rebranding and renaming the company, first to BP from British Petroleum, and then, for a little while, to Beyond Petroleum. Beyond Petroleum, created by some clever ad agency, hinted at a warm, fuzzy, and environmentally friendly company. This reinvention has now come to haunt the company as disingenuous.

Some of us in the industry have known for many years, and the rest of the world has more recently discovered, to BP’s discomfort, that under John Browne BP has not exactly been green, it has been, well, brown. Sometimes very dark brown. Particularly in the United States. The list of mishaps is a long one and, to borrow from Adrian Lajous, the company appears dysfunctional: oil spills from neglected and corroded pipelines in Alaska; 15 dead and 500 injured in an exploding refinery in Texas; component failures leading to production delays in a much-touted and key offshore platform; and most bizarre, perhaps, charges of manipulation by BP traders of unleaded gasoline markets in 2002, of the oil market in 2004, and of the propane market again that year. All intended, it would seem, to cut operating costs and drive up trading margins. Criminal probes and civil complaints and congressional hearings are all under way. What a mess.

And made especially so by Jesse Jackson, the civil rights leader, who is now leading protests against BP in the United States, as higher energy prices have emerged as a big political issue in this election year.

Why does this matter? Because the rest of us will suffer by association. Much as we did when Exxon was raked over the coals following the Valdez tanker oil spill in Alaska.

I have more on BP and on other companies, but my allotted time is almost up, and I expect your indulgence is coming to an end as well.

So I will wind up by asking all of you to ponder the implications of our deliberations over the past two days for both corporate and public policy. It might be helpful to pose four more specific questions which, while not presented in this manner, in fact framed our conversation here at this XVI Repsol YPF–Harvard Seminar. Indeed, these
questions, in one form or another, have preoccupied us in these Seminars since the mid-1980s.

1. Notwithstanding development of alternatives, demand for energy in general and fossil fuels in particular will continue to grow, driven largely by developing countries such as China and India. How and where will the necessary supplies come from?

2. Who will control supplies at the source, how will supplies be priced and revenues shared, and how will we manage the movement of energy across national boundaries? And what will be the implication for energy security?

3. What does all this mean for our ability to deal with the threat of climate change?

4. And finally, how can further study, dialogue, and discussion among the players—such as participants in these Seminars—contribute to anticipating, understanding, and managing these developments?

I expect these questions and our continuing attempts at answering them will still preoccupy our gatherings five and ten and fifteen years from now.

With that closing thought, let me, on behalf of all the participants, thank our hosts, Repsol YPF Chairman Antonio Brufau and Harvard Professor William Hogan, together with their colleagues, and also the Repsol YPF Foundation and its Managing Director Jorge Segrelles, for bringing us together for another stimulating conversation, and for the warm hospitality extended to us over the past two days in this beautiful Spanish—and Catalan—city.
ENERGY MARKETS, SECURITY, AND TRANSPARENCY
OPENING SESSION

WELCOME AND INTRODUCTION

ANTONIO BRUFAU
REPSOL YPF

It gives me great pleasure to welcome you to the XVI Repsol YPF–Harvard Seminar on Energy Policy. This is the second Seminar at which I have presided as Chairman and CEO of Repsol YPF, and I am particularly pleased that we are meeting in the special city of Barcelona. I know you will enjoy both the Seminar and the city.

Our organizing theme, Energy Markets, Security, and Transparency, is a timely one, and I am sure our distinguished speakers, headed by the Honorable Javier Solana, Secretary-General of the Council of the European Union and High Representative for the Common Foreign and Security Policy, will stimulate lively discussions. To open the proceedings, I will review the recent evolution and future prospects of the world economy, with particular attention to the oil and gas markets.

Recent years have seen outstanding economic development. World economic growth is the highest it has been in 30 years. Since mid-2003, the world economy has grown at an average annual rate of 5 percent. More importantly, per capita income has increased 3.5 percent per year. This rate is the highest ever, certainly greater than what we saw during the 1950s and 1960s, the golden years of
growth in industrialized countries. It is especially relevant that, since 2005, emerging economies—particularly in Asia—have accounted for more than half of global growth. And although we expected only moderate growth in 2006, activity so far has been surprisingly positive, leading us to revise upward our growth prospects for 2006 and 2007. These good results owe partly to continued strong growth in the emerging countries of Eastern Europe and Asia, especially China, the largest of them all.

We should not forget that sustained economic activity in Latin America also contributed in a major way to the present optimistic outlook. It is remarkable that forecasts for that region for 2004 to 2007 project a nearly 5 percent average yearly growth, yielding some of the highest sustained growth of the last 20 years. This growth in Latin America is due in large part to orthodox macroeconomic policies adopted by countries there, as well as to the rising international prices of the raw materials that those countries export. This situation, combined with a favorable exchange rate, has allowed the region to grow without generating fiscal and external account imbalances for the first time in many years. In fact, Latin America as a whole will experience a current account surplus in 2006. I should stress that these positive economic results come despite a particularly complicated political scene, as dozens of elections are being held in 2006 throughout the region. Further, this sustained growth has accelerated energy consumption and produced supply constraints, leading to security questions for regional energy supplies, particularly in the Southern Cone.

To return to the world economic situation, another important development in the last several months is the acceleration of inflation. Strong economic growth and high energy and raw material prices have finally translated into inflationary pressures. Inflation rates in most advanced economies are above levels that Central Banks consider appropriate. As a result, many countries, including those in the Euro Zone, the United States, and Japan, have begun to tighten their monetary policies. These changes have two objectives: to restrain inflationary pressures and to increase real interest rates to a more appropriate level for this phase of the economic cycle.
Although the prospects for world economic growth in 2006 and 2007 are very positive, we should also recognize that downward risks have increased recently as well. These risks, which could lead to a rather sharp deceleration in the world economy, are partly the result and partly the side effect of the splendid economic performance and the outstanding advance of globalization during the last few years. Let me mention a few of the more significant risks. First, countries around the world could correct their increasing current accounts imbalances in a disorderly manner. Second, increasing inflationary pressures could lead advanced economies to tighten their monetary policies more aggressively. This possibility has been mitigated somewhat as corrections in oil and non-energy commodity prices have diminished inflationary expectations, but it remains a concern. Lastly, the risk of a sharp price correction in the housing market in industrial economies has increased during the middle of 2006. Even though such worries are focused on the United States, they could also extend to European countries whose housing markets might likewise be overvalued.

Turning to the oil market, let me begin with a comment regarding price. Ruling out a dramatic fall in price for the rest of the year, the average price for 2006 will reach an all-time high, in the range of $60 per barrel. This price was already forecast in our previous Seminar by Mondoil Corporation’s Chairman, Bijan Mossavar-Rahmani. Although he was right in his forecast, I do not know whether his reasoning, based on the hypothesis of the existence since 2002 of a link between the last digit of the current year and the first digit of the price of oil in the same year, will be valid for 2007.

Undoubtedly, the most important—and sad and painful—event in 2005 was the devastating hurricane season. First, let me express my solidarity with the American people affected by the natural disasters along the Gulf coast. As the United States faced one of the greatest humanitarian operations in its history, more than 2 million consumers were left without electricity in Alabama, Florida, Georgia, Louisiana, and Mississippi. These disasters had an enormous impact on the energy industry, but quick market response and the policies adopted by national authorities and international organizations...
helped to avert the potential crisis. One year later, although operations have not been totally re-established, the hurricanes’ effects on the energy system are hardly perceptible.

In addition to the all-time high oil price and the dreadful effects of the hurricanes, the year also witnessed increasing responsiveness of oil demand to high prices. Since the middle of 2005, we have seen evidence of a slowdown in the growth of oil consumption. In recent months, the International Energy Agency (IEA) has revised its demand growth forecast downward for 2006, and the number of downward revisions since January has been substantial. The IEA has reduced expected demand increase from 1.8 million barrels per day (mmb/d) to 1.2 mmb/d, or nearly 40 percent.

I would not be surprised to see this downward revision of oil demand continue in 2007. As we look to future oil demand trends, we must recognize that more and more emerging countries have introduced reforms in their price systems. They are allowing the transmission of international prices to domestic prices, because subsidizing domestic prices is becoming increasingly costly. We see this trend in Indonesia, India, and Thailand, among other nations, where these changes partially explain the moderation in oil consumption. Given the weight of emerging countries in demand growth, changes in their energy price policies might be a deciding factor in the evolution of the global oil market.

From a historical perspective, the fact that demand is still growing significantly is relevant, particularly in contrast with past episodes of high oil prices. Even though prices have risen to over $60 per barrel, neither economic growth nor oil demand has collapsed. That oil consumption continues to grow (contrast this to what we saw at the beginning of the 1980s), confirms that the key question is how supply will respond, particularly in terms of production growth and costs.

With regard to production, the latest figures on production increases in countries outside of the Organization of the Petroleum Exporting Countries (OPEC) have not met expectations. This is partly due to the fact that local production in some OECD countries has
been diminishing. In the last five years, the United States, Norway, and the United Kingdom, among others, have seen their production decrease 2.5 percent, 3.5 percent, and 7.8 percent per year, respectively. We see similar trends in Argentina, where oil production has been declining 3 percent per year for the last four years. Other producing countries have had to compensate for this decrease. Further, these producing countries have had to supply additional barrels to the market in response to other countries’ low stocks.

Two other supply side considerations that are playing a major role in the market are costs and spare capacity. Increases in the costs of exploration and production (E&P) operations still remain significant. Most analysts highlight the 50 percent increase in E&P costs from 2003 to 2005, and no one expects lower costs in 2006 and 2007. In addition, spare capacity in the OPEC countries is low, creating a situation that exacerbates the perception of geopolitical risks and thus leads to increased volatility in oil prices.

Let me now turn briefly to the natural gas market. Global natural gas production during last year increased 2 percent over 2004, reaching 2819.5 billion cubic meters (Bcm). Additionally, gas traded among countries, either through pipelines or as liquefied natural gas (LNG), grew faster than final demand. The LNG trade, which represents a third of global transactions, is growing at almost 9 percent. Pipeline trade growth is about 3.5 percent.

Another important consideration for the gas market in 2005 was the price level; the average Henry Hub price was $9 per million British thermal units (MMBtu), 50 percent higher than in 2004. Since the beginning of 2006, however, prices have moderated, mainly due to mild weather conditions and supply and demand responses. The average Henry Hub price today is close to $6.5 per MMBtu.

Looking to the future, start-up operations for new gas infrastructure will limit the risks of upward price movements in the medium and long term. In fact, current and projected investments are notably large, especially for LNG. For example, 16 new terminals are currently under construction, and there are over a hundred new
projects. Considering both proposed projects and projects already under construction, the supply of LNG in the Pacific and Atlantic basins will double by 2015. At the same time, we expect the number of natural gas vessels to double by 2015. This remarkable expansion of LNG will require an outstanding effort in the sector, even as the cost of raw materials increases.

As we analyze the recent evolution and prospects for the gas market, one issue becomes increasingly important: Consuming countries are becoming more dependent on exporting countries at a time of increasing resource nationalism and complicated geopolitical situations. How are we to address this?

Let me conclude by turning to more general considerations. In the twenty-first century, we face a very different scenario from what we experienced during the last half of the twentieth century. To visualize the magnitude of these changes, consider that every year 80 million people reach the per capita income level that triggers a change in their consumption pattern toward Organization for Economic Co-operation and Development (OECD) standards, e.g., a substantially increasing demand for cars and domestic appliances. Equally relevant, if emerging countries continue growing as they have in the past five years, in 20 years time they will account for two-thirds of global output.

It is clear that these are times of rapid change, when “globalization” is linked to “emerging countries” that are acquiring a new role in the world’s economy. This is creating a new scenario in which energy security is a global matter. As we all know, energy is a pillar of the world’s economic and social development. Energy security therefore has been, is, and will be of paramount importance for the economic development of all countries. More and more, however, energy security is linked to transparency, and transparency is linked to economic development.

I am particularly pleased that we will devote a session to transparency at this Seminar. As a recent report by the Extractive Industries Transparency Initiative (EITI) pointed out, more than 3.5 billion peo-
ple live in countries rich in oil, gas, or minerals. However, the positive opportunities that these resources can provide are too often undermined by bad management and lack of transparency, leading instead to poverty, conflict, and corruption.

I am firmly convinced of the social responsibility that international oil companies have for fighting the “resource curse.” This can be accomplished through increased transparency and accountability around payments from firms to governments and the use of the revenues governments receive from firms. In this sense, clear and open licensing procedures are fundamental to transparency. As the G8 Summit has stated, transparently managing public revenues from energy exports is a crucial tool in the fight against corruption. In addition, greater transparency enhances the security of supply for developing countries that import oil and gas. Transparency in handling resource revenues is not only in the best interest of international companies, but also in the best interest of exporting countries.
The array of forces driving international relations has changed in the twenty-first century; the glare of the public spotlight focuses on the struggle over energy resources. The situation is rife with irony—energy has been indispensable for creating our modern lifestyle, but in the twenty-first century it has become an increasingly costly burden throughout the world. The political landscape is changing as the worldwide population increases, national economies grow at unprecedented rates, and the demand for energy grows exponentially. Secure access to energy supplies has become a fundamental ingredient of any country’s survival and success, and therefore a key component of national security. How nations pursue the struggle for finite energy resources will strongly affect the political and diplomatic course for this century.

What are the implications of this new international driving force? One implication is that nations must prepare to deal with shocks to the security of their energy systems, shocks such as supply cutoffs and price spikes, the kind of situation that can trigger serious strategic
consequences. There are two related options available in order to maintain energy security against such inevitable shocks: diversifying the sources of energy and diversifying the forms of energy.

My comments today will focus on the current diversity of energy sources and implications for further global changes. But events do not permit me to completely ignore the second option, diversity of energy forms. Hence I will close with a note on the place of nuclear energy among available energy forms.

Reviewing the diversity of energy sources requires a quick trip to examine the regions across the globe where energy sources are changing traditional political and economic structures and the impact these changes will have on the world’s future. I will begin with the energy situation in the European Union (EU) where the lack of diversified energy sources has already affected energy security. The EU imports more than 50 per cent of its energy and it is projected that this figure will jump to over 70 per cent by 2030. Russia is the single largest source of that energy for much of the continent. In Europe, only Norway exports energy (and it is not in the EU). The rest of the European nations are consumers. Even the United Kingdom, formerly a net energy exporter, is now interested in having pipelines extend to London. Little diversity of energy sources, either internal or external. What strategies and policies should we then develop?

First, we should have an integrated energy policy. Our current policy is not integrated because different countries have different suppliers. Russia contributes more than 25 per cent of Europe’s energy, but that is not evenly distributed. For example, Germany is almost totally dependent on Russia for its natural gas, while Spain depends to a far greater extent on several sources in the South. Although such differences in suppliers have prevented Europe from creating a consolidated energy strategy, we must work toward that goal.

For Europe, Russia is a very important country that fulfills two roles simultaneously. It is an independent state with a complex history in the context of Europe, and it is also a modern-day strategic partner. Russia’s dual role, and the appropriate response to it, make
it sometimes difficult to define a common foreign energy policy. However, both producers like Russia and consumers like Europe want stable and cooperative markets. The potential for a balanced partnership is clear. For its fiscal well being, Russia seeks the secure energy demand the EU market represents; to fund its economic activities, the EU needs the security of Russian resources. But the points of difference are significant, too. Russia wants a high market share in the internal EU energy market, guaranteed legal security for long-term gas supply contracts and the acquisition and control of downstream EU energy assets. Additionally, Russia seeks EU technology investments for the development of Russian energy resources. The EU, for its part, wants equal access to the Russian market for EU investors, a level playing field in terms of market conditions, investment, and acquisitions in the upstream and downstream Russian energy infrastructure and resources, third-party access to Russian pipelines, including those for transit of energy products from the Caspian region and Central Asia, and high levels of environmental safety and security.

Troubling new aspects of the relationship have developed. One relates to the question about Russia’s ability to honor the energy contracts it holds with many European nations. The International Energy Agency (IEA) has declared that Russia may not be able to meet some of its commitments because of decreasing production, increased demand, lack of upstream investment in exploration and production, and a mix of political issues. Another emerges from growing Russian investment in European markets. Business relations and energy contracts are complicated by asymmetries in investment rules between Russia and other countries; reciprocity is very difficult to achieve with Russia. Russia is eager to invest in the West, to gain equity shares in significant western business firms. In this way, Russia has tried to buy into one of the most important European companies, the producer of Airbus. It is difficult to imagine an opposite case, however, whereby Europeans could buy into significant Russian companies. We must work together with Russia to achieve better reciprocity in our business relations and a more stable and balanced relationship in general, particularly in the field of energy.
Looking beyond Russia toward the East, the energy resources of countries in Central Asia and the Caucasus will enable them to become increasingly important international players in the years to come. Like Russia, however, they have complicated national security situations and shifting political relations with the West. In the Central Asian region, the three most important oil producers are Kazakhstan, Turkmenistan, and Uzbekistan. The United States originally identified Uzbekistan as its most important partner in Central Asia, but that relationship has changed recently. Uzbekistan housed U.S. military bases for the war in Afghanistan and was involved in important pipeline projects. Today, however, Uzbekistan’s President Islam Karimov seems to be moving his country into the orbit of Commonwealth of Independent States (CIS) countries, Russia in particular, creating a major change in the region. Kazakhstan has now emerged as America’s strongest ally in Central Asia, and it is poised to play a pivotal role in the region. Not only is Kazakhstan the United States’ most important regional partner, it is also the first CIS country to apply for the chair of the Organization for Security and Co-operation in Europe (OSCE). Kazakhstan is a country that wants to move towards the West, and its actions, too, have strategic implications.

The Caucasus also has major importance for oil and gas, both as a source and as a transit route. The region has experienced a tremendous growth in international investment in recent years. Yet the region is also the site of crucial political conflicts that threaten to impede the development of energy resources. This has made a peaceful resolution very difficult. Georgia is another country with a complicated history, in this case vis-à-vis Russia. As the United Nations Security Council debates the question of Russia and Georgia, the question for Europe is how to maintain secure energy supplies from the region. Gas from the Caucasus must move through pipelines that will travel through areas where instability is the norm.

Let us turn now to the Middle East, historically the primary source of energy for world markets. Never the most stable region, the Middle East’s three main countries, Iran, Iraq and Saudi Arabia, all used to be far more stable than they are today. Iraq is in a state
of quasi war, of course, and it remains unclear when that nation will be able to provide the quantity of oil and gas that it produced previously. Furthermore, Iran has particular concerns with its great resources. First, while it holds one of the world’s most significant oil and gas reserves, Iran’s refining capacity is very small. Forced to export and import at the same time, that country has all the problems associated with large nation exporters as well as with large nation consumers. Second, there is the international concern regarding Iran’s move towards nuclear power. Dialogue continues, but this crucially important issue of Iran’s nuclear capacity will remain a complicated energy issue for some time. Saudi Arabia’s situation is more stable, although the terrorist risk is doubtless increasing. The entire Middle East, then, is undergoing difficult changes that impact on global energy strategies.

In Latin America, it appears that the level of production for the global energy market will decline. The situation there clearly demonstrates how energy can be used as an instrument of politics on all levels—international, regional, and local—which complicates market transparency and the successful development of energy for the global economy.

Let me now say a word about Asia. China and Japan are the second and third largest importers of energy respectively, yet there is a very important difference between their import strategies. Having, in the past, tried to purchase “oil in the ground” as China now does, Japan has recognized the greater efficiency of the world market to address its energy needs. The Chinese approach has the potential of distorting the market and of creating relationships based on dependency which would have a geopolitical impact.

China, as a permanent member of the United Nations Security Council, has an important role to play in that body’s current discussion of two crucially important world issues: Iran and Sudan. Neither has much to do with classical ideological battles between East and West, but each has a great deal to do with energy. The UN General Assembly has attempted to address the issue of Sudan, one of the great tragedies of today’s world. China’s hesitation to use its weight
on the Security Council to help solve that problem simply compounds it further.

This example compels us to question how nations treat their responsibilities in the international arena. All nations need a steady supply of energy, yet all nations do not work to achieve and maintain global stability or human rights. As we talk about energy, therefore, we must consider more than its strategic good to one nation. The global energy community must focus not only on feasible strategies to secure supply, but also to make our world more stable. I believe primary responsibility for this falls on the large nations of the Security Council.

Despite the challenges, I believe creating a more stable and balanced market is possible. As a first step toward that goal, we must engage in a large-scale, transparent debate on the nature of the energy market involving firms, regulators, and the international diplomatic community. Recent examples of more transparent debate are encouraging. This must be accomplished soon. We must recognize that, from the strategic point of view, the twentieth century is over. In the twenty-first century, world stability depends tremendously on the production and distribution of energy. Energy has always been an instrument of politics, as we saw during the first energy crisis in the 1970s. That experience pales compared to the way energy producing countries, particularly in the Middle East, wield the power of energy today.

Before I close, I must offer a brief note on a particular problem regarding the search for diversity of energy forms. The diversification of sources will have an impact on the second option that nations must confront—the diversification of forms of energy. This discussion, even among oil and gas companies, must begin with nuclear energy and its future. As nations turn once again to nuclear energy, we know the serious risks that arise on two fronts: proliferation of nuclear weapons and the disposal of toxic nuclear wastes. Yet, despite the serious risks associated with nuclear energy, we are entering a period when nuclear power will become an important form of primary energy in an increasing number of nations. We need international ground rules to deal with these risks.
In conclusion, I will go back to that New Year’s Eve of 2006, a night I will never forget. The impending crisis regarding the transit of Russian gas to Europe through Ukraine held such terrible potential for European security that I could not sleep. From that moment on, we in foreign policy have experienced nothing but long days and long dark nights, and the energy dilemma has been a primary cause. As international leaders, those of you at this Seminar have a tremendous responsibility to work towards the resolution of tensions. The energy challenges that we face today have the potential to damage world stability. But if nations can reach across borders and build consensus, a robust infrastructure can be built to ensure global stability and safeguard the common good.
Although energy security is an issue as old as the energy sector itself, in recent years, it has become a major concern for governments, international agencies, markets, and other organizations around the globe. This growing emphasis on energy security is due not only to changes in the energy sector but also to the new challenges and realities that they have created. Let me briefly list some of these changes.

• In the case of natural gas, the security of supply issue has acquired regional tensions of late. In Europe, there are deep concerns about Russia’s ability and/or willingness to meet supply commitments. Similarly, the relationships among the countries of Latin America’s Southern Cone are difficult because economic growth has exacerbated demands for gas within the region.

• Overall, reliability of sources of energy supply is a major challenge. The greatly increased demand has sparked a fierce competition worldwide among consuming nations for supply. These consumers, particularly Organization for Economic Co-operation and Development (OECD) nations, are worried about their dependence on potentially unreliable sources outside their borders.
The world’s emerging countries are becoming voracious energy consumers. This demand will challenge the system’s production capacity—as well as the system itself. These nations currently account for more than 70 percent of the increase in oil demand, and it is estimated that they will soon account for more than 90 percent. Further, the national oil and natural gas companies of emerging countries may develop policies affecting long-term access to resources, possibly leading to fundamental changes in the status quo.

A fundamental shift toward greater government control of natural resources is yet another challenge—one that directly contrasts with past open policies regarding foreign investments. This trend includes the nationalization of natural resources by some producing countries.

Shrinking surplus production capacity also impacts the market. Since 2004, when spare capacity in the Organization of the Petroleum Exporting Countries (OPEC) hit a record low, the market has had an increased perception of risk regarding supply security, especially when geopolitical tensions flare.

Another issue contributing to the perception of a tight energy supply comes from bottlenecks in refining capacity. After the large refineries experienced idle capacity in the 1990s and halted expansion, recent rapid growth in demand for products created tensions in the system, with an imbalance between consumer demand and refining capacity. In particular, the refineries lack the capacity for production of middle distillates, a product that has experienced notable growth in global demand.

An often-overlooked aspect is the increasing role that markets play in assigning resources and in determining prices within the world oil system. It is not only that oil is traded on a global market, but also that market mechanisms have improved. In addition, new groups, such as financial investors, have appeared in the market and are now playing a key role in price formation. These trends all increase the markets’ ability to react to changing situations.
In the debate regarding energy security, these challenges are not the only ones. The meaning of the term energy security varies by country and by energy sector. For example, exporting countries analyze energy security in terms of demand in order to achieve adequate fiscal returns and justify new investments. By contrast, energy security for consuming countries has always meant access to an adequate supply at a reasonable price.

Among consuming industrialized nations, the perception varies by country. In the United States, the concept of energy security is more often associated with dependency on oil and natural gas imports. The American debate centers on maintaining geographical diversification of energy sources, as well as on identifying present and potential shocks. In Europe, energy security focuses largely on natural gas issues. One dimension is internal, concerning infrastructure development and the creation of a truly competitive European energy market. The other dimension is external, aimed at strengthening the European Union’s negotiating power with producer nations in order to ensure access to energy resources.

As concern about energy security has intensified, the concept of diversifying energy sources has gained importance. Simply put, diversification is paramount to any energy policy. Shocked by the oil crisis of the 1970s, the consumer countries banded together to plan how to jointly face an interruption in supply. This led directly to the present system of national strategic oil reserves which can be used in a coordinated manner by the member countries of the International Energy Agency (IEA).

Currently, the concept of supply security combines all of the previous answers with the need to provide a global solution that will include emerging countries. This will favor the functioning of the market as an assigning tool and will also allow supply to meet the demand at prices that will not risk the world’s economic growth.

I have the pleasure and privilege of presenting a distinguished group of speakers with a variety of backgrounds. Their comments will shed light on several aspects of energy security.
H.E. Atanasio-Ela Ntugu Nsa, Minister of Mines, Industry, and Energy in Equatorial Guinea, a new producing nation, will present his country’s approach to developing its natural resources in light of geopolitical pressures.

H.E. Dr. M. Hadi NejadHosseinian, Deputy Minister for International Affairs at the Ministry of Petroleum in Iran, will speak from his vantage point in the Middle East, the world’s major source of energy. He will discuss different political strategies that nations may take toward ensuring market security.

Claude Mandil, Executive Director of the International Energy Agency, will speak for both consumer nations and producer nations. He will discuss how to develop robust energy security policies and a stable environment in the face of increasing global interdependence.

Dr. Alexander Arbatov, Vice-Chairman of the Committee for the Productive Resources in the Ministry of Economic Development and Trade of the Russian Federation—a nation endowed with a bounty of natural resources—will examine the role of producing nations in the energy system. He is particularly concerned with Russia’s dual role as an energy producer and an industrializing nation.

Fabrizio Barbaso, Deputy Director General for Energy in the European Commission, will discuss the role of the European Commission as an advocate for European interests in the arena of energy security.
Equatorial Guinea is a prime example of the adage that geography is destiny. It is a small country in central Africa that occupies a strategic location on the Atlantic Ocean and is also a crossroads for energy delivery from neighboring countries. The discovery of oil and gas reserves in the Gulf of Guinea in the 1990s has drastically changed the country’s role in the global economy. The country is responding to the rapid development of its energy resources and its growing significance in the world economy by developing long-term strategies for economic growth.

A brief overview of Equatorial Guinea illustrates the impact of this rapid change in economic opportunity. Equatorial Guinea shares borders with Gabon and Cameroon, with the inland part bordering Nigeria and Sao Tome. Its population is a little over one million people, with a surface area of more than 28,000 square kilometers. It is the only Spanish-speaking country in Africa.
In 1995 major oil reserves were located in the oil-rich Gulf of Guinea, and since that time new reserves of oil and gas have been discovered and developed in its coastal and offshore areas. As Figure 1 shows, Equatorial Guinea’s energy industry has made great progress since the onset of production in 1992, when the country produced fewer than 20,000 barrels a day. The country currently exports about 400,000 barrels a day of liquid hydrocarbons, a sign that full-fledged trading activity based on gas has been developed successfully. Equatorial Guinea has become the number three producer of energy in sub-Saharan Africa and possesses an abundance of unexplored natural wealth in oil and mineral resources.

Equatorial Guinea is a very small producer and exporter on the global scale, but energy is the dominant industry in its economy. Political and economic developments that influence global energy markets have a significant impact on the country, which is extremely sensitive to market pressures.

One type of pressure is the expectation of continuous growth in global demand for energy as a result of increased growth in developing economies including China and India. One-third of China’s energy comes from imports, as does 80 percent of India’s. This demand for
Equatorial Guinea

imports is growing even as consumption in developed countries continues to grow. For example, half of the energy used in the United States comes from imports, as does half of the energy in the European Union. As the world energy markets contend with continual problems in other important oil-producing regions such as the Middle East, international focus has turned to West Africa. Equatorial Guinea has been singled out for its great potential for hydrocarbon exploration.

In addition, as demand rises for energy products, it is not a surprise to find that growing global competition has made security of supply an increasingly important element in the foreign and trade policies of industrialized countries that import oil. Equatorial Guinea is experiencing this first-hand, as the number of companies and countries that have taken an interest in its resources has increased. In response to increased global interest in Equatorial Guinea’s resources in recent years, the government is emphasizing the need for dialogue and cooperation on the international stage. Equatorial Guinea’s energy ministry takes part in or is a member of regional and global associations, and also participates in conferences and seminars. In negotiations with outside entities, the government of Equatorial Guinea stresses how important it is for importers to be aware of the country’s needs as an exporter. These needs include being respected as a sovereign nation, being treated fairly as a true trade partner, and having mechanisms in the industry that will ensure income and adequate participation to support the country’s long-term social and economic development.

The leadership of Equatorial Guinea aims to optimize the opportunities provided by this global energy competition by not being overly committed to or dependent on any particular part of the world. The government is implementing a two-prong strategy to have greater control over the country’s assets and to be better able to regulate their exploitation in order to benefit its people. The first is to establish national companies that will partner with international firms to develop Equatorial Guinea’s energy infrastructure. The second is to diversify Equatorial Guinea’s energy industry and avoid reliance on any one company or energy source.
To achieve the first goal, there must be domestic structures in place that will enable Equatorial Guinea to interact with global organizations and nations within a global market. To this end, the government created a national oil company (NOC) called GE Petrol and a national gas company called Sonagas. GE Petrol now has production sharing agreements with international oil companies (IOCs) and is an active partner with them in all of the country's upstream prospecting and production activities. GE Petrol plans on expanding its operations to transport, refinery, and retail sales. Sonagas is a partner in all of its current gas projects for liquefied petroleum gas (LPG), methanol, and liquefied natural gas (LNG). Although these projects aim to control Equatorial Guinea's entire gas infrastructure, the government does not intend to nationalize this industry. The government realizes that it cannot do it all, and is committed to global trading.

The second goal, diversification of the industry, has several different aspects. An important element of the national companies' strategy is to reach joint agreements with foreign investors and to develop the industry with a view to diversification. In addition, Equatorial Guinea is pursuing a diversification strategy in terms of its own companies and sources of energy. To ensure that the country does not rely on a single production company, there are now three upstream crude oil production companies and another three companies that produce gas derivatives. To avoid being overly dependent on a single product, the country also produces and exports condensate, methanol, butane, propane, and LPG in addition to crude oil.

Another key part of the strategy is to increase gas products in order to reduce the country's oil production. The first LNG train is scheduled to begin production during the first half of 2007. There is a firm commitment to the feed study for the second train, which may go on stream by 2010 or 2011.

The government has a stake in all of these projects through its domestic companies, but U.S. companies control all the projects. That makes the country dependent on one primary partnership, and the government is actively pursuing diversification by issuing
prospecting licenses with limited timeframes to stimulate fast exploration and trade competition in upstream work. Also, greater diversification is being pursued in license awarding. A bidding process for upstream activities is under way, with 14 oil prospecting contracts involving 22 companies from 13 different countries currently on track.

Equatorial Guinea is also evaluating opportunities within the region. With a key location at the center of the Gulf of Guinea, Equatorial Guinea can become the regional facilitator for energy trade. The Punta Europa project is a good example of regional cooperation. Equatorial Guinea is developing its Punta Europa gas processing facilities in the north of Bioko Island. This central location makes it commercially feasible to locate gas facilities there for a regional distribution center. There are currently negotiations under way to bring gas from East Nigeria and Cameroon to Punta Europa and to involve those two countries’ national companies in this project. This project does not involve competition with Nigeria’s LNG, which is mainly committed to processing the gas burned by its partner companies.

Overall, the Punta Europa project will expand regional capabilities both economically and politically, and develop as a regional industrial complex for gas processing. An LPG and a methanol plant have been built, and the country’s first LNG train is doing well. The intention is to continue expanding Punta Europa and its facilities.

In summary, the government of Equatorial Guinea is committed to long-term economic strategies to develop the country’s resources as it becomes an integral part of the global economy. These strategies include stabilizing and improving the trade climate and ensuring investor confidence while improving living conditions and the economic welfare of its citizens. The government’s goal is to ensure that the country will continue to enjoy economic stability and growth at least for the next 50 years, and thus become a serious player in the global oil economy as well as a natural focal point for trade development in the Gulf of Guinea region.
My subject today is the greatly increased importance of energy security for all nations—for producer and consumer nations, for nations with advanced economies, and for developing nations. I will explain the role of globalization in creating intense competition for energy resources and the implications of that competition. In conclusion I will discuss the role of Iran in this new global environment marked by heightened concern with energy security.

The welfare and prosperity of nations are very much dependent on their sustainable economic growth, and this growth depends on their energy security. In recent decades, especially during the past few years, the world has experienced substantial changes in geopolitical and geo-economic conditions; one of the most striking changes is in the greatly increased importance of energy security. The issue now has the highest priority and is among the most important challenges facing all countries, especially the major powers.

What explains this new, broader significance? Globalization is one cause, as it has increased the level of economic interdependence of
states. A related factor is the continued increase in the world consumption of oil and natural gas, linked to a concern about the adequacy of the existing energy resources to meet the increasing demands. How long the balance of supply and demand for energy resources can be maintained is a critical question, one that has produced a fierce worldwide competition for these resources. Energy security can no longer be taken for granted and has become one of the principal drivers of the economic and foreign policies of great nations.

Global demand for oil has increased dramatically. The world consumption of oil in 2005 was 82.5 million barrels per day, seven million barrels per day greater than in 2000. In the next two decades the worldwide demand for energy should increase by an average of 1 percent annually, with fossil fuels accounting for over 80 percent of total energy consumption. Significant new demand comes from the continued growth of the economies of China, India, and other developing countries. Reflecting this trend, in 2005 consumption of oil in Asia exceeded that in North America for the first time.

The location of the world’s energy resources is a critically important issue. The countries of the Persian Gulf possess 64 percent of the total world oil reserves, over 700 billion barrels of oil and natural gas, a fact that has marked strategic significance for the nations in this region. The policies and government of these nations—and who sets the policies—may ultimately determine the international balance of power.

The major powers have defined three different strategies to control a secure energy supply to meet their future energy needs. In the United States, the neoconservatives (Neocons) put the security of energy supply at the top of the U.S. foreign policy agenda. This policy evolved into extreme unilateralism that ultimately led to the invasion of Iraq to secure a continuous supply of energy for the increasing United States demand as well to deny such supplies to its competitors. The Neocons failed in their first adventure in Iraq.

The second strategy calls for multilateral cooperation among nations. This is the strategy that the majority of states, including the
European countries, believe is the right one. Working through established international organizations such as the Energy Charter Treaty (ECT) is the proper way of persuading the producing, consuming, and transit nations to join together and cooperate to stabilize energy markets and secure the present and future supply and distribution of energy.

The third strategy focuses on bilateral cooperation between individual producers and consumers. In particular, Asian nations with large and growing economies are trying to secure their energy needs by signing long-term bilateral agreements with national oil and gas producers, and by investing in their upstream sectors to gain more equity. They hope that the resulting deals will lead to increased bilateral economic and political cooperation or even the emergence of new political blocs.

How to evaluate these strategies? In my view, the first strategy, based on extreme unilateralism, will not succeed. The Neocons, failing in their first experiment in Iraq, shifted their emphasis to a new approach, the so-called “democratization” of the Middle East, an experiment whose birth turned out to be its funeral as well. By contrast, the second strategy of multilateralism, utilized by European and many other nations, seems to be more transparent, logical, workable, enduring. It gives greater satisfaction to all parties, producers, consumers, and transit countries. The third strategy, bilateralism, may be effective in the short and mid-terms, but it is likely to produce unpredictable problems in the long run.

In addition to the influence of these controversial big-power policies, energy markets are influenced by other constraints. One such constraint is an undue influence of political over economic considerations. Political developments, particularly those in oil-rich regions, have significant influence on oil markets and prices. In Venezuela, for example, the strikes that curtailed exports when President Chavez came to power had obvious psychological impact on market reaction. Or the American invasion of Iraq that, after three years, has cut Iraqi oil production to levels below pre-invasion levels. Recent oil market experience illustrates that with a near-balance existing
between the supply and demand for global oil, political developments, terrorist threats and attacks, and natural disasters can have a considerable effect on the oil market.

Other important influences include a lack of accurate, adequate, and timely information that could negatively influence supply by misleading producing countries. Producing countries also are constrained by insufficient investment in technological development and infrastructure creation. This shortfall reflects the limited financial resources of producing countries and lack of security for the investments of international oil companies. The situation has been exacerbated by the economic sanctions levied against several major oil producing countries.

Concern about energy security focuses on natural gas as well as on oil. Increased demand for natural gas in the United States and Asia, linked with inadequate domestic resources, encourages them to compete over access to gas resources in the Middle East. Every nation is pursuing its particular policy to ensure the supply of gas it will need in the upcoming decades. Today, the United States’ share of liquefied natural gas (LNG) in its energy mix is less than 3 percent. In China it is nearly zero. Yet by 2020, each nation’s share is estimated to reach around 25 percent. The competition of East and West will gradually help develop a new global pricing system for gas. The current differential pricing system, which was determined on the basis of the regional prices of other fuels, is gradually losing creditability.

Energy is a global subject affecting even the remotest corner of our world. And naturally there are wide-ranging related issues that need to be addressed in a global context: Global problems need global solutions. But solutions must come through regional as well as international cooperation.

Allow me to say a few words about the approach of the Islamic Republic of Iran to the issue of energy security in the context of regional activities. We believe that regional energy cooperation will promote regional economic cooperation, strengthen the political, cultural, and security ties among countries, and promote regional convergence. Ultimately, regional convergence will lead to increased
regional economic prosperity and to international stability. The national interests of the Persian Gulf countries would be better served if we all promote this approach. Such cooperation will not only help us to live in peace, but also will allow us to play a valuable role in contributing to international stability and security. It will secure the free flow of oil and gas to the industrialized countries and generate more revenue for producers.

Iran is not only a major resource holder in the Middle East, but also a unique connector, a land bridge between East and West, between the Caspian region and Central Asia to the Persian Gulf and international waters. Although facing a wide range of foreign pressures, Iran possesses a great potential for easing the growing energy requirements, in Asia, especially East Asia, and in Europe. Iran is also the largest regional market for energy investment, technology, and products.

However, currently we consume about half of our domestic oil production. The nation’s increasing domestic consumption of oil is alarming, particularly given the low domestic prices of oil and products. To counteract this trend, we have created a well-researched plan to seek alternate sources of energy in order to free up half of the nation’s oil production for conserving or for exporting at much higher prices. We have also defined a gas export initiative, consisting of both LNG and pipeline projects. The LNG supply proposals are aimed at China and India, as well as Europe; the pipeline projects are principally directed to neighboring countries.

In summary, the interdependence of countries and their economies has increased the interconnections in our already globalized world. The present limited model of energy security is no longer valid or useful. Although energy producers and consumers are dependent on one another, it is important to note that different groups have different definitions of energy security. For the producing countries, demand security is of paramount importance; they must know with some certainty that there are buyers for the oil they produce. For developing countries that are also consumers, reasonable oil prices are important; and for industrialized countries, market
stability has priority. In order to reach out to all groups’ concerns, the basic principles of energy market orientation must be re-shaped through an all-inclusive and multilateral process, leading to energy security and a win-win situation for all.

We in Iran are committed to such a process.
I will discuss energy security in terms of a few key words, but these words will not include “independence” or “self-sufficiency.” Such concepts are irrelevant for most energy consuming regions or countries, which may import 50, 70, or 90 percent of their energy. If these imports are secure, such a dependence on imports is not necessarily a problem. Instead, I will direct my focus on other key points: increased capacity, which is linked to greater investment in the oil producing countries; greater efficiency, to reduce demand and increase capacity while keeping gross domestic product (GDP) constant; diversity of fuel types, sources of energy, and transportation links; and transparency. In a period of crisis, however, these may not be sufficient. Ultimately, energy security must be based on a safety net.

To increase capacity, we need more investment on behalf of oil producing nations. Researchers at the International Energy Agency (IEA) think that the present high prices of oil and gas are the consequence of very low spare capacity, a situation resulting from long-term low levels of investment, both upstream and downstream.
The various reasons for that low investment are beyond the scope of this talk. However, the situation appears to be improving—currently it seems that everybody is investing. Based on current projects and plans, as Figure 1 shows, the level of spare production capacity could rise in the near term, providing a cushion to counteract any unpleasant surprises. However, the longer-term investment prospect is rather bleak, particularly because the new nationalism prevalent in many areas is highly detrimental to investment.

Figure 1
World Spare Oil Production Capacity, 2006–2011

In the gas sector, we are worried about Russia’s ability to deliver product, particularly gas, as Figure 2 shows. This is ironic in the face of Russia’s huge gas reserves. Our concern is based on available data that show a lack of investment in Russian production and transportation facilities, putting at risk the ability to export product sufficient to fulfill existing contracts. Current data indicate declining
production in most of the existing gas fields in Russia. This decline means an increasing supply gap, which is a matter of great concern.

However, there are two ways to improve spare capacity: by increasing production capacity and by reducing consumption by means of energy efficiency. The IEA places maximum emphasis on energy efficiency for several reasons. It is a multipurpose strategy, beneficial for supply security as well as for environmental protection, particularly in combating global warming. Furthermore, energy efficiency is good for economic growth, because most energy efficiency decisions are cost-effective. In addition, techniques are immediately
available with existing technologies and equipment. But if this is the case, why doesn’t everyone invest in energy-efficient decisions? The answer seems to be that even in a market economy that is functioning well, some signals are too weak to reach the consumer. For example, consider how many consumers—and I count myself in this group—go shopping for a computer and take its energy consumption into account before they make their purchase? Energy use is simply not a common criterion when purchasing a new machine. To increase energy efficiency will require more than market mechanisms; it will require regulation, norms, and standards.

The third issue is creating better diversity. In simple terms, this means not putting all one’s eggs in the same basket. The world energy market should not rely on one primary energy source, one supply country, one supply company, or one transmission route. In European markets, diversity is a particularly significant concern. Although the division among primary energy sources in Europe’s energy mix appears balanced, serious flaws exist. For example, 37 percent of oil use is concentrated on transportation—and transportation is absolutely dependent on oil with no readily available alternative. In the case of natural gas, the total share is 24 percent.

Transparency is another key word. The IEA believes that a sound energy policy is not possible without accurate, reliable, and timely data; it cannot be built on incorrect or obsolete information. For this reason, the IEA has launched an effort in conjunction with other organizations, including the Organization of the Petroleum Exporting Countries (OPEC) and the Joint Oil Data Initiative (JODI), to obtain accurate and timely data on oil production and consumption stocks from the most important countries. This process began in 2005 at a meeting of the International Energy Forum in Riyadh, where Saudi King Abdullah and Energy Minister Ali Al-Naimi attended the inauguration of the forum secretariat.

Basic to the whole issue is the realization that world energy security requires a safety net. In the case of oil, the safety net is the IEA emergency system that holds in strategic stocks at least 90 days of net imports for each IEA member country. In the event of a serious
supply disruption that could not be covered by other producers, the IEA could put these stocks on the market and create spare capacity. Legislation in each member country provides that 4 billion barrels are available in case of emergency, and 1.5 billion barrels are directly in the hands of governments or state-owned agencies. This safety net was used last year after hurricanes devastated the Gulf of Mexico, affecting both upstream and downstream facilities. This effort contributed, together with market forces, to stabilizing the situation. The goal of the IEA is not to work against market forces, but rather with them. In the recent hurricane example, oil products were made available to the market and operators channeled these products where they were needed. The system worked well, enabling the IEA to allocate 2 million barrels per day (mmb/d) after Hurricane Katrina. This rate could have been maintained for two years. Alternatively, if 4 mmb/d were allocated, it could be sustained for one year. However, there is no similar plan for gas, which is a much more complicated and expensive issue.

Finally, let me turn to the issue of demand security. Our friends in producer countries say that while supply security is often discussed, their concern is with the other side of the coin: demand security. In response to these concerns, the IEA has done several studies with long-term projections to investigate the likelihood of a long-term sustainable demand for oil if technology developments allow a decrease in CO$_2$ emissions. One study, in the 2005 *World Energy Outlook* (WEO), projected scenarios to 2030; another study, *Energy Technology Perspectives, 2050*, projected an even longer time frame. The WEO 2030 study includes a business-as-usual (BAU) scenario and another that includes increases in energy efficiency and the use of biofuels. The 2050 study has “Accelerated Technology” (ACT) scenarios that reflect changes in demand deriving from increases in energy efficiency, improved technology for renewable and advanced nuclear energy, environmental regulations for carbon capture, and so on. It also has a “breakthrough” scenario (ACT Tech Plus) reflecting changes resulting from widespread commercial use of such advanced technologies as hydrogen and fuel cells. As Figure 3 shows, any feasible scenario confirms the interdependence of producers and
consumers: The call for oil will remain extremely important for a very long time.

I will conclude with a question which I raise not to answer but to generate debate: Who is responsible for energy security in a liberalized market? I refer to security in general as well as, more specifically, the reliability of electricity and natural gas services. In the past when the market consisted of vertically integrated monopolies, such a question did not need to be raised—the integrated monopoly was clearly responsible. Now that these utilities have been or will be unbundled, however, responsibility has also been unbundled, and nobody knows who is responsible for reliability. I emphasize that I am not advocating for a return to the old system. Quite to the contrary, I am totally convinced that liberalization of the markets is a huge improvement. At the same time, I believe we should reflect on this issue and develop a framework to examine this as well as other security issues in greater detail.
As discussions of energy security have intensified in recent years, I have adopted a detached view in an effort to comprehend more fully how the various players involved in the search for energy security are interconnected and how they each pursue their goals. The International Energy Agency (IEA) takes a similar approach. In these remarks, I will outline how the various players in energy security are interconnected and then offer specific examples of how the Russian Federation fits into this energy security paradigm.

The IEA’s approach to energy security analysis is basically sound. However, too often such analyses have focused in large measure on how to maintain the energy security of consuming nations (the leading net importers), in terms of providing them with hydrocarbons on a reliable basis and at a relatively moderate price. According to this paradigm, the other stakeholders in the energy system are identified principally by their roles in maintaining producer-oriented security. For example, the role of producing nations (the net exporters) is to maintain the necessary reserves and produce the needed supplies to meet consumer demand. In the event of a decrease in supply from one country or region, those reserves would permit an increase in
production and supply from other countries. This paradigm is obviously flawed.

If we broaden the paradigm to include non-consumer stakeholders as players in their own right, with their own issues, it becomes clear that the global energy system is composed of a range of stakeholders—nations, firms, and people—with interests in production, transportation, and trade, as well as consumption. Some specialize in one of those operations, while others participate in several. Within this global system, particular groups hold particular interests that may be complementary and, at the same time, could compromise or contradict the interests of other groups. The system generally works despite these contradictions, and a broad-based campaign for energy security should focus on maintaining this system. That being said, I would like to examine some of the non-consumer interests involved in global energy security.

Let us begin with producers, who are most often accused of playing a major destabilizing role and threatening energy security as a result. Since oil production generally has low costs, notably in many Organization of the Petroleum Exporting Countries (OPEC) countries, and leads to monopoly operations, oil price stability might appear to be guaranteed. On the contrary, in the decades since their sharp jump in 1973 and 1974, oil prices have fluctuated significantly on many occasions. Further, the national economic situations of many producers, relying on oil revenues, are far from satisfactory. Indeed, the fiscal health of those nations is largely dependent on the consumer nations’ demand and the price of oil.

Considering energy security from the standpoint of the producers reveals how many significant risks they face. In addition to price volatility linked to the cyclical nature of global demand and economic development, producers face the need to maintain reserves and improve infrastructure, activities that require vast expenditures. They also face ongoing uncertainty regarding demand as the international economy fluctuates and as consumers consider switching to alternative energy sources or imposing embargoes on energy exports. In addition to demand fluctuations, producers are influenced by inflation
of the U.S. dollar, the major currency in which oil is traded. These issues demonstrate that neither exporters nor importers should receive preferential consideration. We need a paradigm that emphasizes shared interests and shared burdens.

To create such a paradigm, we must face the contradictions within the system as well as its complementarities. Take price, for example. To be sure, exporters like high prices and importers like low prices, but oil exporters usually do not favor excessively high prices. Indeed, they often speak of the so-called “fair price” of oil. This figure allows for stable long-term consumption for consuming nations and reasonable economic return for producing nations, while avoiding a number of negative consequences both for exporters and importers. Setting prices too high can lead to a slowdown in consuming nations’ economic growth, which eventually can lead to a global economic recession. Many experts, including some connected to OPEC interests, note that steadily maintaining high hydrocarbon prices over the long term increases the probability that commercially viable alternative energy sources will emerge. Russia and other net hydrocarbon exporting countries also distrust excessively high prices because they negatively influence domestic economic development, increase the importance of energy within national economies, and accelerate the depletion of mineral resources.

This concept of a fair price for oil—as well as for natural gas and other energy forms related to oil—allows us to define an “oil price corridor” that benefits both exporters and importers. OPEC countries, for instance, attempt to provide such a corridor by using production quotas for oil supplied to the world market. Yet, as recent events have shown dramatically, price volatility remains a reality and can create major tensions between producers and consumers.

There are other shared interests with shared contradictions. A major concern for all participants in the global energy system is access to preferred markets through critical infrastructure: pipeline networks, railroads, terminals and plants for liquefied natural gas (LNG) production, and oil refineries. Finding the funds to support such projects is of critical concern.
The direction of the flow of energy resources also changes as a result of infrastructure projects, including new pipeline projects such as Baku-Ceyhan, the North European natural gas pipeline (North Stream), and the oil pipeline system Eastern Siberia-Pacific Ocean. This process can create friction. For example, the Eastern Siberian pipeline could lead to an increase of oil supplies from Russia to the Asian Pacific Rim (APR) and China of up to 80 million tonnes per year during the initial period. Such an increase might take several tens of millions of tonnes of oil per year away from what Russia supplies to Europe (depending on the success of geological prospecting in Eastern Siberia). Developments such as these impact the relationship between consumers and producers and also increase competition within groups of consumers and producers for energy resources.

Both importers and exporters contend with significant political risks, whether domestic or foreign. Developing a reliable risk management system to address these vulnerabilities is one of the most important components of world energy security policy. At present, an informal union between exporters and importers has been formed to promote stability. While I highlight concerns specific to exporters, it is clear that the interests of both groups intersect a great deal. Principally, all parties share a desire to provide for the stable growth of the global economy. Robert Skinner, the Director of the Oxford Energy Institute, uses a noteworthy concept of “co-dependence” to describe the interrelations between net exporters and net importers of hydrocarbons. When we discuss energy security, then, we should mean “fair economic interdependence.” While this may be obvious, I wish to stress the general spirit of compromise that pervades the field of energy resources, production, and supply. Discussions at the G8 Summit in 2006 confirmed this trend.

Having spoken about the general relationship between producers and consumers, let us turn to the Russian energy prospect and how it might fit into an expanded energy security paradigm.

Russian oil production has entered a period of rapid growth. As shown in Table 1, high world prices have encouraged oil companies and organizations to produce as much oil for export as possible and
Energy Security

Currently, Russia’s oil and natural gas export industry is the main stimulus for national production growth. However, this heavy reliance on the export of a single raw material poses the danger that the nation will be transformed into the global economy’s raw material “supplier of last resort” and will fall victim to the “Dutch disease” or the “energy curse.” Russia already has some of the characteristics of countries that suffer from this illness with its stunted national economies. For example, wealth is concentrated among a relatively small group of people, there is a trend toward replacing other domestic production with imports, and the volumes of currency earnings from raw-material export—oil and natural gas—dominate the economy. The investment of petrodollars in the economy is estimated to have ranged between 20 percent and 33 percent in the past few years.

On the other hand, Russian oil and natural gas revenues boast a solid foundation and can maintain a stable fiscal return if the world

to develop the necessary transport infrastructure. In 2000, official Russian estimates show that oil production increased by 6.1 percent; in 2001, by 7.7 percent; in 2002, by 9.1 percent; in 2003, by 11.1 percent; in 2004, by 8.9 percent; and in 2005, by 2.7 percent. This growth took place without the benefit of any large new projects. In fact, the growth came from the existing raw-material base, formed mostly in the Soviet period. This reliance on earlier development efforts explains, to some extent, the slowdown in the rates of production since 2005.

Table 1

Russian Oil Production and Exports, 2000–2005

(tonnes per year)

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
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<tbody>
<tr>
<td>Production</td>
<td>323.2</td>
<td>348.2</td>
<td>379.0</td>
<td>421.3</td>
<td>458.8</td>
<td>470.0</td>
</tr>
<tr>
<td>Total exports</td>
<td>147.0</td>
<td>156.2</td>
<td>173.4</td>
<td>195.1</td>
<td>228.1</td>
<td>251.0</td>
</tr>
<tr>
<td>Exports beyond CIS</td>
<td>125.0</td>
<td>125.9</td>
<td>128.5</td>
<td>139.5</td>
<td>182.8</td>
<td>204</td>
</tr>
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price level is sufficient to make such production profitable. The country can then spend that income on economic and social needs and still maintain a favorable balance of payments. Some of that income also can be spent on modernizing Russian industry, much of whose production base has become obsolete.

In the 1990s, no new serious production facilities were established, except in a few industries that produced raw materials or were guaranteed quick returns (such as the food industry). After the collapse of the Soviet Union, the Russian Federation’s newly formed financial institutions seriously considered only projects that offered a payback period of less than a year or, in rare cases, two years. While the payback period has by now increased somewhat, it remains insufficient.

The situation suggests that the energy security paradigm of producer-consumer interaction has changed since the Soviet era. During and immediately after the Cold War, this paradigm was founded on the common interests of Western Europe and the Soviet Union. For the former, the consumer nations of Europe, it offered a reliable supply of Russian energy resources located close to them. For the Soviets, it provided a reliable supply of hard currency. Despite the protracted tensions of the Cold War, this paradigm was not threatened.

In the post–Soviet era there are reasons for retaining and developing this energy relationship, but there are also limits and drawbacks to consider. We should recognize that although Russia is considered to be one of the major producers and exporters of energy resources, its energy supplies are closely linked to its ability to finance economic development, especially in the energy sector. Further, Russia’s energy reserves are limited, a reality particularly relevant to an increase in oil demand.

Most importantly, Russia cannot be content with the consumer view that the country is principally a reliable energy supplier—even a strategically significant one. The export of energy resources, even taking into account all the “multiplier effects,” cannot guarantee modern living standards in a country with Russia’s population size.
While there is no doubt about Russia’s desire to enjoy the benefits that the export of its abundant natural resources brings, successful integration into the modern world economy remains questionable if this is its principal economic role. Russia also needs the capability to process raw materials into goods for final consumption.

Many nations face the problem of modernization, and this challenge is sharpening under relentless global competition. Numerous corporations have already moved their facilities—especially those that require substantial labor input—to Asia, particularly to China, that developing “world factory.” For processing the first stages of raw material, however, China’s appeal decreases because producers find that it is more efficient to locate facilities closer to the sources of the raw materials themselves. Here, Russia has a considerable advantage.

Processing natural resources has its downside; it can hardly be characterized as environmentally-friendly. However, the level of pollutant emissions in Russia is substantially lower than it was in 1990, giving the country opportunities stipulated by the Kyoto Protocol to make additional investments in more up-to-date and ecologically-friendly facilities. Further, replacing obsolete equipment could reduce the negative ecological impact of raw-material processing.

The expansion of raw-material processing would provide the Russian economy with substantial volumes of construction materials, metals, and substances used to make high-tech products. A growth in the supply of such materials would promote demand. This in turn would boost the sectors that produce high value-added goods intended for final consumption, encouraging competition in investment markets and facilitating the technological development of the Russian economy.

For an accurate and effective paradigm of energy security in the new century, the goals, demands, and concerns of each participating stakeholder need to be taken into account. Energy consumers and producers must address their own economic issues yet encourage a shared agenda. And the Russian Federation, with its abundance of oil and natural gas as well as the need to move a more diversified and
modern economy, has a special challenge. To be effective, the new paradigm must expand to include such new stakeholder realities in its shared agenda.
The Role of the European Commission in Facing Europe’s Energy Security Challenge

Fabrizio Barbaso
European Commission

My topic is the role of the European Commission (EC) in confronting Europe’s energy security challenge. On this issue, as well as on many others, the EC works very closely with the European Council. For example, in June 2006, the EC and the European Council produced a joint study entitled External Policy at the Service of European Energy Interests. This work speaks to the interests of all the citizens, industries, and consumers in the European Union (EU).

Assessment of energy issues must always be informed by the past. In Europe, the recent past was a time of low energy prices, resulting in a lack of incentives for developing alternative sources of energy and an increasing dependence on traditional external supplies. In addition, this period witnessed the impressive economic growth in many developing nations, a growth that has been followed by their adoption of the European lifestyle, based on mass consumption and high energy use. Thus China and other large developing nations have started to consume a great deal of energy.
This growing demand is creating increased dimensions of risk, some of which can be conceptualized as regional risks. A principal example of regional risk is the Middle East with its vast store of resources. The region has been a site of major tensions for many years, tensions that are now escalating. Concern is also directed at a second resource-rich region, consisting of Russia, the Caspian area, and Central Asia. This region has traditionally looked west to export its energy, but is now starting to look east because of the growing demand for energy in that part of the world and in response to political tensions.

Russia, as Europe’s major supplier of energy, merits closer examination. One-fourth of Europe’s oil and gas supplies come from Russia; this percentage will substantially increase. In the case of natural gas, it has been estimated that by 2013, Europe will need an extra 100 billion cubic meters (Bcm) of gas, a demand that will probably double by 2030. Where will this gas come from? A small share will come from Norway, but the bulk will have to come from Russia. Responding to this reality, the EC has proposed to negotiate a revised partnership and cooperation agreement with Russia, updated to place a larger emphasis on energy. This broader emphasis will permit a more balanced approach and create a win-win situation. The EC believes that the EU and Russia should see the long-term benefits of a new kind of energy partnership based on such a balance.

The potential benefits of a balanced partnership are clear. For its economic growth and well-being, Russia seeks the secure energy demand the EU market represents; to fund its economic activities, the EU needs the security of Russian resources. But the points of difference are significant, too. Russia wants a high market share in the internal EU energy market, guaranteed legal security for long-term gas supply contracts, the integration of electricity rates, and free trade for electricity and nuclear materials, as well as the acquisition and control of downstream EU energy assets. Additionally, Russia seeks EU technology investments for the development of Russian energy resources. The EU, for its part, wants equal access to the Russian market for EU investors, a level playing field in terms of market conditions, investment, and acquisitions in the Russian energy
infrastructure and resources, third-party access to Russian pipelines, including those for transit of energy products from the Caspian region and Central Asia, and high levels of environmental safety and security.

During the negotiations over the new framework agreement, the EC believes it may be possible to reach an agreement that will strengthen this energy relationship by creating a level playing field, with a system of reciprocity to assure long-term mutual benefits. Such an agreement would be based on eliminating the existing barriers to investment and trade in Russia and on regulatory convergence and technology sharing.

The EC’s overall energy strategy has been described in the document titled *A Green Paper on a European Strategy for Sustainable, Competitive and Secure Energy* (March 2006) and it is based on a combination of internal and external policies. The *Green Paper* is being transformed into an action plan based on a strategic energy review, which the European Council plans to adopt in March 2007.

As identified in the *Green Paper*, priorities on the external side include the assurance of supply security through strengthened dialogues and cooperation with Europe’s current main suppliers, as well as through the diversification of sources, countries of origin, and countries of transit. Internal priorities include establishing or enforcing energy partnerships, as well as creating an extension of the EU internal market throughout the EU energy community and the EU neighborhood policy. Internal investment in infrastructure projects must be supported, including oil and gas pipelines and liquefied natural gas (LNG) terminals, as well as application of transit and third-party access to existing pipelines. The European Commission is preparing an interconnection plan built upon 42 priority projects endorsed by the European Parliament and the Council, which will require significant investments. This will ensure the full integration of internal and external networks.

Also a priority is the need to promote energy efficiency and renewable energy, not only within the EU, but also internationally, to help mitigate global warming. An ambitious action plan based on
cost-effective proposals is being created. The proposals to be included will be most effective in promoting energy efficiency, while preserving EU standards of living and high overall economic performance. This is not an easy task, but progress has been made. What remains now is to decide the best time to make this new action plan public.

What is the real role of the Commission in developing an effective policy for EU energy imports? It is clear that the Commission alone can represent the 450 million EU citizens (a number that will increase by close to 30 million beginning on January 1, 2007). If countries act individually, they will never have the same negotiating power as a single institution that represents the whole of the EU. The Commission can accomplish this important goal, but only if it is given the authority to do so. Ironically, the EC has no legal basis for establishing an energy policy, despite the fact that the EU is built on three treaties, one dealing with economics, and two dealing with energy (coal and steel and atomic energy, and nuclear energy). To date, no one has had the political will to create a specific EU competence in the field of energy. But times are changing. There is a provision in the constitutional treaty, not yet ratified by all Member States, that gives the EU this authority. However, it must be noted that so far a large number of initiatives have been taken and planned on the basis of legal provisions related to other policies.

The most effective solution would be to grant the Commission exclusive negotiating powers in the field of energy as it has in the area of trade. Thus, there is concern regarding a recent proposal to create a new High Representative for Energy Policy, in addition to the existing High Representative for the Common Foreign and Security Policy, Mr. Javier Solana and the Energy Commissioner, Mr. Andris Piebalgs. What is the added value of another EU representative charged with negotiating energy agreements and partnerships? Stronger EU coordination may be needed, but if more institutions and representatives are created, how would coordination be improved? I believe that the European Commission has proven to have the knowledge and nego-
tiating skills to establish relevant dialogues and agreements with consumers and producers.

The creation of an energy policy for Europe would also respond to the new demand for a European government of specific projects that meet the concerns of EU citizens, pending the final ratification of a constitutional treaty. The direction is toward a visible European government, clearly working for the benefit of European citizens. Energy is an area where all parties can progress together, provided that a clear and converging political will exists.
The topic of the Seminar’s second session, “Energy Investment: Criteria for National and International Oil Companies,” has many dimensions. As a brief introduction, I would like to share with you some of my concerns on several of those dimensions. And then I will turn the discussion over to our distinguished panel.

During the last several years, we have heard many reports, opinions, and complaints—from analysts, the press, and even producing countries—that the oil industry had not invested, or was not able to invest, the large sums necessary for the industry to keep up with the growing demand. This lack of investment and the inevitable shrinking of supply, the argument goes, has been one of the main drivers behind the increase in the prices of oil and products. One way to answer these complaints is to point out that energy is a cyclical industry and that we have been in a long cycle of low energy prices. I well remember the onset of that low-price cycle: the breathtaking drop in oil prices in January 1986 when the price of a barrel of oil plunged from $35 to an average of $6 or $7 by the end of the
month. The world economy benefited from a very long period of low oil and energy prices at an average of $16, $17, or $18 per barrel. That cycle ended suddenly at the end of 2000 when worldwide demand and prices began their linked surge upward.

Whether that marked the start of a long cycle of boom and fortune is not clear. It is clear, however, that investments have risen. This year will be the sixth year in a row that capital expenditures in exploration and production (E&P) have increased at phenomenal rates. It has been reported that 2006 saw a 22 percent increase in investment over 2005, totaling more than $250 billion for the companies surveyed. But how much of this growth is really a net growth in investment? We know that the base costs for the industry have expanded due to the demands of the service industry. We see cost and investment increases, but we do not know how much is net activity increase and how much is rising costs that go to the service industry, without adding any new capacity.

Returning to the charge that international oil companies (IOCs) have not invested enough in recent years, one must consider how perilous the investment process has become for IOCs. It is difficult, for example, to access accurate data about reserves. More telling, locating new exploration areas is increasingly difficult. Data indicate that 19 percent of reserves are held by IOCs, while more than 80 percent are held by national oil companies (NOCs). Production now is balanced, split almost evenly between IOCs and NOCs, but what will this potential imbalance bring in the future? Politics, too, are posing difficulties. We are seeing a new wave of tax and royalty increases, restrictions on foreign firms, and uncertainty about the stability of existing agreements and treaties.

Let us turn to investment issues downstream. Eighty percent of current reserves now contain heavy and sour crudes, posing another very important problem for the industry, not only for developing those resources, but also for their use in downstream industry. The downstream industry faces not only a capacity creep, but also needs huge investments to transform the search for lighter products and uses of sour crudes. Regional imbalances in downstream capacity
create net deficits in areas like the United States and Asia, as well as surpluses in the Middle East, Europe, and Russia.

Another downstream issue of importance, especially in Europe, is the so-called “dieselization,” or the rush to diesel fuel. Here, again, the policies of the sectors involved are clearly not aligned. The European auto industry chose diesel because of perceived technological advantages vis-à-vis U.S. and Japanese carmakers. European governments have subsidized development efforts, and tax policies have favored it. The oil industry, meanwhile, has been forced to invest large amounts to accommodate decisions that were perhaps not completely logical. In fact, those decisions compel the industry—only in Europe—to face more than 15 billion euros in investments for diesel adaptation.

During the period of low energy prices, the industry suffered a profound transformation. Ongoing consolidations, mergers, and acquisitions have taught the industry a hard lesson. Firms are more conservative in their approach and are more concerned with rates of return, answers to investors, press conferences, and investor presentations. Our speakers may tell us whether IOC criteria for investment are different than those of NOCs, with their particular geo-strategic and financial goals. With each passing quarter, the gulf between international and national oil companies widens.

Let me close with an optimistic remark: Never in the history of our industry have we seen the surplus of cash that we now see. There is a great deal of money in the industry, and debt is very low. Firms are giving money back to shareholders in many cases. Perhaps the fact that we do not need the cash now bodes well for good projects in the future. What is most important now is a clearer perception of what will happen in the future. Where are we in the cycle? Are we at the top going down, so companies must be prudent? Or are we starting a new cycle with very high prices?

With that question, I would like to introduce the members of our panel, five distinguished speakers who will illustrate how the investment choices made today will determine how robust, flexible, and secure our industry will be in the future.
Lisa A. Stewart joined Warburg Pincus in September 2006 to form Sheridan Production Partners as the first President and CEO. She will combine her expertise as an engineer and as a veteran of the business development side of the industry to analyze the investment challenges facing IOCs.

From China, Wang Dongjin, Assistant President of the China National Petroleum Corporation (CNPC) will speak about the impact of China’s energy investment activities on the international oil markets.

Dr. Chawki Rahal, Vice President for Marketing at Sonatrach, will examine the challenges facing national oil companies as they evaluate their energy investment alternatives.

Zsolt Hernádi will analyze the role of private investment in the security of energy resources in the New Europe. Mr. Hernádi is the Chairman and CEO of the MOL Group.

Maxim Barskiy, CEO of West Siberian Resources (WSR) in the Russian Federation, will provide insight into how his firm evaluates and pursues acquisitions, and how good management can have an immediate and measurable impact on a firm’s financial health.
My comments today will focus on the issue of growth in international oil companies (IOCs), specifically, the challenge of balancing risk and reward while meeting the demands of the market. This will lead me to the conclusion that merger and acquisition (M&A) activity will continue to be the catalyst for growth for most oil and gas companies even though it does nothing to solve the issue of growth in worldwide reserves.

Throughout my comments, I will be referring to information from a recent study by John S. Herold and Harrison Lovegrove entitled The 2006 Global Upstream Performance Review. The study used information on approximately 200 public companies worldwide regarding their spending and profitability for 2005. The result presented some fascinating conclusions regarding the investment dilemmas that face everyone in the industry.

During 2005, wellhead commodity realizations were up 32 percent. Most public companies were flush with cash and were seeing debt levels well below historic norms. Service and operating costs
rose in conjunction with a rising commodity price environment. Lifting costs were up 35 percent, leaving profit margins nearly flat at 29 percent of realized price on a pre-tax basis. Worldwide production was up about 1 percent over 2004, while proved reserves rose 2 percent. In the United States, spending was up about 30 percent over prior levels, but production fell 6 percent on flat proved reserves. Too much cash with too few places to reinvest is causing public companies’ managers to make tough decisions relative to the risk and reward of spending capital. Those decisions are influenced by the drivers in the stock market.

Public markets value stocks based on traditional metrics that include price to earnings, price to cash flow, and expected value per unit of reserves. However, the real premium in energy stocks is management’s ability to show short- and medium-term growth in production and reserves. It is a metric that causes conflict between global contribution and stock price realization. The outcome is largely driven by the opportunity set within each organization and the movement of assets among companies. Meeting the growth metric often leads companies to increase the number of assets under management and to make investment decisions that compromise the ultimate objective for any company: the rate of return for stakeholders.

There are three basic options available to an upstream company for reinvestment: share buybacks, exploration and development (E&D), and mergers and acquisitions.

Once seen as a sign of weakness, share buybacks have become more popular in the past two years as commodity prices have risen and companies are finding it harder to locate sufficiently attractive opportunities to drill wells. In 2005, more than $60 billion was spent in share repurchases, almost double the amount spent in 2004. Dividends, the more traditional option, have continued to rise steadily as companies distribute part of the excess cash flow to their investors. A total of $128 billion, or 45 percent of the total capital spent in E&D, was paid to shareholders in either dividends or buybacks last year. While fewer shares improve the per-unit metrics, this is a clear sign that there are diminished reinvestment opportunities
that generate real growth in the underlying asset base or improvement in the overall business.

E&D opportunities, traditionally the source of growth in the industry, are where the shortfall exists. In 2005, overall development spending increased by 30 percent (to $159 billion), while exploration drilling accounted for only 13 percent of the total capital spent (or $36 billion). Even with a 36 percent increase in E&D expenditures, reserve growth was only 2 percent, the result of a decreased percentage spent in exploration.

A company’s portfolio of assets coupled with its risk tolerance drives decisions on capital allocation. Worldwide, more money needs to be spent to find new reserves. This has always been an industry of innovation and new technology. However, as environments become harsher, the costs have gone up, requiring higher prices to support similar returns. Companies need to have enough low-risk, high-return development opportunities to replenish production and must be willing to commit sizeable capital to the exploration process without sacrificing overall returns. The risk/reward balance in capital allocation makes it difficult to meet the demands of the market to insure growth and at the same time take sufficient risk to find new resources.

That leaves the world of M&A to fuel the growth desired by the markets. There has been a recent resurgence of corporate mergers. A merger is one of the fastest ways to reconstitute a tired portfolio with new opportunities, but it comes with a price. Corporate evaluations are typically done as a topside look from primarily public information. Markets tend to be relatively efficient in determining a company’s asset and upside values, so that by the time a premium has been placed on the company, it often appears that the buyer has overpaid.

Asset acquisitions are the better source of growth potential for a company. Valuations are generally more stringent because they are built from the individual asset level in cooperation with a willing seller who provides more thorough due diligence information. Yet skills for
efficiently completing an evaluation need to be developed by a team that focuses solely on this effort. Success in the asset arena requires speed, accuracy, and flexibility to craft a transaction that meets both parties’ objectives. In addition, the serial acquirer, if diligent about post-acquisition analysis, will learn how to quantify the value of operational efficiency into the model. Selection of assets for purchase requires patience and self-realization. Buyers should never believe they are going to buy something cheap; instead they should see the natural value enhancement when an asset is in the right hands.

The perceived risk, not unlike drilling investments, is the price paid in a high commodity price environment. However, in the case of acquisitions, the market responds quickly to changes in commodity price, and in mature areas such as the United States the relationship is consistent.

In 2005, North American acquisition prices rose to $15 per barrel while those outside North America came in around $10 per barrel. This led many to ask the question: Is the price too high? I will show some data indicating that, just like the equity markets, the M&A market is quite efficient in valuing proved reserves. Over the past 10 years in the United States, there has been an average of $21 billion per year of upstream assets changing hands through M&As. Figures 1 and 2 show the relationship of the oil price per barrel and the gas price per million cubic feet (Mcf) to the benchmark price for the product.

Using West Texas Intermediate (WTI) as the oil benchmark, the cost of acquisition on a per barrel basis has averaged 26 percent of the benchmark price. Excluding the Gulf of Mexico (GOM), which is typified by high rate and short life assets, the ratio approached 40 percent of the benchmark only in 1998 when oil prices fell below $20 per barrel. Figure 1 illustrates that the costs are relatively stable, ranging between 20 and 30 percent of the oil price. The same is true for acquisition cost as a percentage of gas price. Because of the disconnect in the U.S. market between the two commodities’ heating value, as well as the transportation and basis differential relationships, the average acquisition price is somewhat higher at 33 percent of the Henry Hub (HH) posting, the pricing point for natural gas.
The IOC Investment Dilemma

Figure 1
U.S. Acquisition Market Is Efficient for Oil . . .

Figure 2
. . . and for Natural Gas, 1996–2006
futures contracts traded on the New York Mercantile Exchange (NYMEX). Figure 2 shows a consistency on a relative basis. The Gulf of Mexico is the outlier with a higher cost per unit than any of the other geographic areas as a result of shorter risk exposure to the commodity price and higher realized prices for the product.

These figures would lead one to believe that the operating margin on the assets purchased is still intact if the price can be protected, and that it is only our perception that makes us shy away when prices are high. Showing these relationships demonstrates that serial acquirers who build a core competence in the evaluation of assets—and then apply that skill during all phases of the commodity cycle—can and will be successful from a rate of return perspective. They will have confidence in their ability to predict reserves and future production, which leads to confidence to hedge commodity prices to protect the economic outcome of the bargain. Given the liquidity of the commodity markets, oil and gas prices can be protected through the use of price risk management techniques to guarantee cash flow through payout and therefore insure the rate of return on a transaction. For those who believe they can lower the risk from an evaluation standpoint, M&A becomes a more attractive investment alternative than exploration to fuel growth.

Even though commodity prices are currently falling, there is an excess of cash available to public companies for reinvestment. Yet opportunities to make a meaningful impact are limited, especially for larger companies. Dividends will continue to increase as companies are flush with cash, but increased share buybacks are a sign that there are insufficient economic investment opportunities in the core business. M&A will continue to fill the void created by the lack of exploration and development opportunities. We will continue to see consolidation through mergers, and assets will continue to change hands to find the natural owner, and we will call it growth. The real challenge for our industry lies in the ability to remain focused on the economics of our business and not be driven by the requirements of the public market.
I would like to share with you my views on the international investment activities of the Chinese national oil companies. China has three national oil companies (NOCs): China National Petroleum Corporation (CNPC); Sinopec (China Petroleum & Chemical Corporation); and China National Offshore Oil Corporation Ltd. (CNOOC). Although all three are state owned, each company is a distinct organization, varied in scale, strategic goals, and resources.

CNPC is a totally state-owned oil company, which owns 88 percent of PetroChina, a firm that is publicly listed on the Hong Kong and New York stock exchanges with a market capitalization of $222 billion. It is China’s largest oil producer and the largest of the three Chinese NOCs. CNPC also owns 100 percent of CNPC International Ltd., which is responsible for CNPC international business. CNPC has invested in over 20 countries: Internationalization has been an increasingly important part of CNPC’s strategy.

China’s second largest oil producer, Sinopec, is a leading downstream and petrochemical player in China with a market capitalization
of $73.8 billion. Sinopec’s international expansion has moved rapidly. Significant acreage positions have been acquired in West Africa and the Middle East, including Yemen.

CNOOC is China’s offshore oil producer with a market capitalization of about $37.8 billion. It holds a first-mover advantage in the development of liquefied natural gas (LNG) import terminals in southern China. CNOOC’s $18.5 billion bid for Unocal in 2005 revealed the scale of its ambitions in the mergers and acquisitions (M&A) market.

With economic development and internationalization, Asian NOCs have become increasingly involved in international business. CNPC/PetroChina, Sinopec, and CNOOC are at the forefront of this trend. Over the last ten years, they have invested progressively in international businesses, and their M&A activity has increased dramatically. Some of the largest deals have attracted industry headlines:

- CNPC’s acquisition of PetroKazakhstan, $4.1 billion, 2005;
- CNPC’s acquisition, with India’s Oil and Natural Gas Corporation (ONGC), of PetroCanada’s share in Syria, $574 million, 2005;
- CNOOC’s unsuccessful bid for Unocal, $18.5 billion, 2005;
- CNOOC’s acquisition of a stake in deepwater development in Nigeria, $2.3 billion, 2006.

Given the forecasts for continued energy growth, the potential for rewards from international investment is great, but the competition is harsh and so are the risks. These can range from radical currency devaluations and inflation to political unrest, and from inconsistencies in national laws and regulations and a lack of infrastructure to local cultural and labor issues.

How do Chinese NOCs minimize these risks and uncertainties? We have learned from our experience in investing internationally. For example, to access upstream opportunities, Chinese NOCs increasingly cooperate with both Chinese and other national oil companies. Joint bids have been made by various combinations of CNPC, Sinopec, and CNOOC, and with ONGC. CNPC and Sinopec bid jointly for EnCana’s assets in Ecuador at $1.42 billion in September 2005.
CNPC and ONGC jointly bid for PetroCanada’s holding in Syria at $574 million recently. In addition, CNPC’s subsidiaries have signed broad-based cooperative agreements with NOCs such as ONGC, Petronas, and Petróleos de Venezuela S.A. (PDVSA). This type of cooperation has reduced direct competition for M&A opportunities among these NOCs.

Cooperation with national oil companies in host countries is another effective way for Chinese NOCs to develop win-win scenarios in international investment. CNPC has worked to build stable relationships with many NOCs in their host countries. For instance, after acquiring PetroKazakhstan from a Canadian oil company for $4.1 billion, CNPC sold 33 percent of its interest to KazGerMunai, Kazakhstan’s national oil company.

As an alternative to corporate acquisitions, we take steps to minimize our exposure. One of the most common approaches is to set up joint ventures and partnerships with international players. A joint venture strategy may provide a mechanism for NOCs to access desired overseas reserves and production while avoiding local sensitivities and overpaying. For IOCs, joint ventures are attractive primarily because they allow access to the local markets and provide the opportunity to expand downstream business in Asian countries.

International expansion in today’s oil and gas industry is not an easy task, and success requires a great deal of patience. Given the petroleum industry fundamentals, the demand for upstream assets continues to far outstrip supply, driving deal valuation ever higher. The rapidly increasing cost, service industry capacity constraints, and creeping fiscal regime changes all increase the pressure for high returns from acquisitions—even when commodity prices are high. To win a deal, firms must achieve appropriate returns from a high-priced acquisition. Given these current market conditions, patience is perhaps the most likely strategy for success.

The investment of Asian NOCs in international business has been a growing theme in the industry over the last several years and has led to a new competitive landscape. In 2005, acquisitions by Asian com-
panies attracted considerable industry and government attention. While many observers believe that Asian NOCs are aggressively buying up assets at inflated prices in order to satisfy their governments’ concerns for oil supply security, this is not the case. For example, Chinese NOCs have invested substantially in overseas oil and gas projects and have a presence in more than 30 countries. Their total equity oil production is currently around 30 million tonnes a year. However, of this production, only about 10 percent was shipped back to China; the rest was sold on the international market. Thus far the scale of resources secured by Chinese companies is small compared to China’s needs. These resources largely serve the global market and thus contribute to world energy security. Despite common beliefs, then, the effect of Chinese overseas investment in oil and gas is either economically neutral or positive for the world market.

I believe that the Asian NOCs have sought to expand and diversify their developing upstream businesses at a reasonable cost. Their motivation is to build multinational businesses that can be competitive over the long term. To achieve this goal, geographic and segmental diversification will be a key theme for the Chinese NOCs in the coming years. In addition, these companies will increasingly integrate unconventional oil, LNG, and even alternative energy into their growth strategy.

As Asian NOCs become increasingly involved in the international M&A market, many will come to compete more directly with established IOCs. Chinese NOCs, however, are a group of distinct companies that have varying strategies, resources, and capabilities. Their involvement in the international arena will create a range of potential opportunities for established international players and other NOCs. In this new, competitive environment, mutual understanding, further cooperation, and creating a win-win scenario are more important than ever.
My remarks will focus on energy investment from the perspective of national oil companies (NOCs), and concentrate on Sonatrach in particular. For considering investment decisions, the obvious place to start is with demand. The facts are clear: World energy consumption has increased significantly, doubling between 1970 and 2005, and will continue to grow in many parts of the world. In addition, there are areas that have no access to energy now, but they will acquire it in decades to come. We have the resources to meet this demand if we combine all existing energy sources: conventional fossil fuels; unconventional fossil resources (methane hydrates, permafrost, tar sands, and very deep offshore deposits); renewables (hydropower, wind, and solar); hydrogen; and nuclear power. Our challenge is to make these resources available to end-product consumers around the world. A number of complex strategies are available for NOCs to meet this challenge, and all involve major financial investment. Sonatrach has plans to implement many of them.
One major strategy is investing in new development schemes. This includes developing liquefied natural gas (LNG) chains. However, the costs of developing such chains are asymmetric; upstream liquefaction and shipping on the producer side are far more expensive than regasification on the consumer side. It costs about $3 billion to build a chain to supply 20 years’ worth of gas at a capacity of 4 million tonnes, but building a regasification plant only costs half a billion dollars. At Sonatrach, we have determined that foreign partnerships in all segments of the LNG chain present a good way to counterbalance this situation. Gassi Touil, a project that we are working on with Repsol YPF and Gas Natural, is a good example of a partnership between an NOC and an international oil company (IOC) to make energy available on the international market.

A second strategy is investment in new technologies. Sonatrach has decided to invest in developing gas-to-liquid technology because it offers an alternative to gas flaring and yields high-quality and environmentally friendly products. We have an integrated gas project called Tinhert which involves IOCs in both upstream and downstream activities, as well as in marketing and technological co-development. This strategy reduces the exposure to technology and market risk for both Sonatrach and our partners.

Sonatrach is also involved in the development and expansion of the infrastructure required for exporting natural gas. One such project is the extension of the Trans-Tunisian pipeline that will export gas to Italy. Set to begin in 2008, this project will be accomplished in two phases, the first at 3.2 billion cubic meters (Bcm) and the second at 3.3 Bcm six months later. The extension will thus bring 6.5 Bcm of additional gas to supply Europe through the Italian market. In addition, Sonatrach will develop two new export pipelines to Europe. The first is MedGaz, a direct pipeline between Algeria and Spain, with a capacity of 8 Bcm for the Spanish market. The second is the Galsi pipeline, which runs from Algeria to Sardinia and supplies 8 Bcm of gas to the Italian market. A final example of infrastructure development relates to the LNG fleet. Algeria is the world’s third largest exporter of LNG, Sonatrach is the largest LNG exporting company in the world, and
shipping is a key element of the value chain. We have launched a vessel acquisition program to give us greater flexibility for marketing LNG. Our two new large LNG carriers supply LNG to European, Asian, and North American markets.

Sonatrach is committed to investing in mature markets which we find particularly attractive because they involve limited volume risk. Through sales of regasified LNG, Sonatrach ensures a direct connection between gas producers and consumers. One good example of this trend is our recent acquisition of 50 percent of the re-gasification facility at the Isle of Grain terminal in the United Kingdom. Similarly, in Spain’s Galicia region, we are developing a regasification terminal that will offer a new Spanish entry point for LNG. Spain is becoming a very important “energy island” for Western Europe; the country itself will consume 32 percent of European LNG imports. To penetrate the European gas market downstream, we have created two gas subsidiaries in the European market: Sonatrach Gas Comercialisadora (Spain) and Sonatrach Gas Italia (Italy). We also plan to strengthen Sonatrach’s position in the U.S. gas market, which we helped to develop in the 1970s and 1980s. In 2005, we were the second-largest short-term supplier of LNG to the United States, and we intend to continue to develop our presence in U.S. LNG markets.

We are also interested in investing in remote areas that have high potential for regional integration. Through the Trans-Sahara Gas pipeline (TSGP), for example, we aim to participate in the development and promotion of gas resources as well as to promote the role of natural gas as an integration vehicle among countries and regions. Additionally, our strategy focuses on providing gas to remote areas such as northern Nigeria and transporting natural gas from Nigeria through Niger, Mali, and Algeria to meet European needs. Studies show that this project is economically viable and will allow gas to flow from Nigeria to Algeria and then to Europe. Further, it will allow us to supply countries such as Egypt, Mali, Niger, and Nigeria with energy resources.

Finally, Sonatrach is dedicated to developing hydrocarbon
resources beyond our borders. The African continent is one of the cornerstones of our international upstream strategy. We have recently signed a memorandum of understanding with the government of Niger and set up an upstream subsidiary in that country. Similarly, we have been awarded an exploration and production license in Libya for an oil field of 100 million barrels. Further afield, we have acquired 10 percent of the reserves of the Camisea field in Peru as well as a 21 percent interest in its gas and condensate pipelines.

In conclusion, Sonatrach’s energy investment strategy takes into account both the security of supply and the security of demand to markets in Europe and around the world. As energy markets become more global and less regulated, it is our goal to continue to expand our international activities.
Central Europe—the “New Europe”—joined the European Union in May 2004, completing a momentous transition from Communist-party rule to a democratic society and from a socialist to a capitalist economy. The effects of this process are clear: Central Europe is the fastest growing region of Europe. My firm, MOL, is the largest company in Central Europe, with $12 billion in market capitalization. We are almost fully privatized, and our operations extend from the Baltic to the Mediterranean to the Black Sea. MOL plays an active role with downstream businesses in Central Europe and in regions throughout the world.

Today, I will speak on energy security and private investment in the new Central Europe. I will start with an emblematic moment: the “almost crisis” that ensued when Russia cut off natural gas supplies to Europe on January 1, 2006. Central Europe felt the impact of this day more than other parts of Europe did because 80 percent of the region’s gas and oil supplies come from the former Soviet Union. (The
remaining 20 percent comes from domestic production.) Practically speaking, Central Europe is entirely dependent on Russian energy and/or supply routes.

January 1, 2006 was the “almost crisis” only because we were very lucky. We were able to avoid a full-blown crisis because of better-than-average weather conditions between January 1 and January 4. In the end, this “almost crisis” had no negative effects—in fact, it had a positive impact. Earlier, most Central European policymakers held a relaxed view of supply security and had a strong preference for low wholesale gas prices. As a result, regulatory support for investments that would improve supply security but would also cost the taxpayers money was largely missing. After the crisis, the cost of not investing became clear, and policymakers devoted significant political and social attention to supply security.

Nevertheless, the underlying questions regarding energy security remain. After the crisis, all the countries involved realized that they had underestimated the risks of depending on a single supply route and the difficulties of predicting the behavior of their transit partners. Russia began to explore alternate export routes to China, Israel, and other countries. European countries are discussing new supply routes.

Agreeing that investments are needed is easy enough; deciding which investments to make is considerably more difficult. When energy CEOs evaluate investment options, they face intransigent questions. One of these is whether we are in another iteration of the traditional oil price cycle or in a new age of permanently high oil prices. Many analysts are predicting the latter. While I do not believe that we will ever again see a cycle that goes to the level of $10 oil, I do see a number of cyclical elements contributing to current high oil and gas prices. On the supply side, there are many indications that oil is not running out, at least not in the short term. Moreover, while accessing reserves is difficult, current prices have already triggered a boom in upstream investment. On the demand side, modern market economies have a strong ability to adapt to changing realities, often by increasing efficiency. For example, several MOL refineries in
Hungary are refining increasing volumes of high yield products while using less than half the crude oil of the past. This is possible because we made a great many counter-cyclical investments in the refineries before the current era of high demand. This counter-cyclical investment strategy is typical of what we have done in refinery upgrading. The result: These Mol refineries are two of the highest cash generating refineries in Europe.

On the other hand, if this is a cycle, where in the cycle are we? Although those recent investments have almost overpaid the replacement costs, they have never touched the forward curves. Everybody in the industry understands forward curves, but they cannot be calculated more than two years in advance. The same is true with upstream investments. Most of the upstream investments are still being valued at around $30 per barrel because they are really long-term projects.

Another question focuses on consolidation. Cross-border acquisitions can make or break a company; I believe in cross-border consolidation. There are certainly obstacles: political problems, integration challenges, and high valuations. But the synergy gains in both financial and security effects can be huge—especially in a market segment such as the New Europe. By Central European economic standards, most energy projects are enormous. In order to participate, a company from the New Europe has to internationalize, almost by default. Consolidation will not decrease the probability of natural disasters, but a powerful international company has a far better chance of building a stable and strategic partnership with energy exporters. MOL’s vision, therefore, involves integration with companies from other Central European countries.

Every oil company ought to think strategically about biofuels. At MOL, we do not believe in ethanol because it creates a bad energy balance and has no impact on crude imports; its effect on supply security is zero or negative. In Europe, diesel requirements have created a bottleneck, so displacing gasoline will simply lead to greater gasoline exports. We are much more positive, however, about investment in biodiesel, especially with the advent of second generation
technologies. Biodiesel brings advantages for both the environment and supply security. Our positive approach has led us to invest in a new biodiesel plant and to work on advanced biodiesel technology.

Democratic governments require firms to make serious efforts toward corporate transparency. But transparent, stable democracies account for a small proportion of the countries holding global oil reserves, of course, and oil companies are likely to operate in countries where government standards are much weaker. Standards found in some oil-rich countries pose a real dilemma for all of us, and it is a challenge to apply the same standards around the world. At MOL, our approach is to enter, invest, and ensure that we improve the local society. In addition, we closely monitor our subsidiaries. For example, our operators in Romania began to apply European environmental standards well before the government mandated doing so. In Pakistan, all of our employees have medical insurance although over 100 million of their fellow citizens do not.

It is a basic principle of Economics 101 that high prices are good for supply security. The worst thing that can happen for supply security is for a government to keep energy prices artificially low. Today’s high prices will ensure energy security in the years to come, even though the oil industry is rarely popular, and the combination of record prices and high profits is politically explosive. As a privately owned company, MOL aims to maximize profits in the long run. Because we consider social sensitivity to high prices to be one of our primary responsibilities to our shareholders, we work with governments to compensate socially vulnerable groups.

Another dilemma comes from the push for diversification, which is often advertised as a one-size-fits-all, “holy grail” solution to ensuring supply security. Diversification is important, but it must be part of a larger strategy. There is no sense, for example, in diversifying into more risky sources. For example, additional infrastructure will clearly be needed in Central Europe, and MOL will be a major investor. If diversification leads to excess infrastructure, however, diversification itself may be threatened.
A final challenge related to diversification is understanding and dealing with the differences between oil and gas. Oil is a global commodity; gas is dealt with in more segmented markets. Oil can be stored in tanks, but gas requires a continuous supply. Oil allows for infrastructure diversification, but gas needs a dedicated infrastructure. Oil has a strategic stockpile system, whereas storage facilities for gas are in short supply.

I would like to say a word about interdependence. Interdependence is problematic, and we must find a way to provide as many supply routes as we can. A question frequently raised after January 1, 2006 was whether there are any good strategies for improved supply security, especially for gas. One example might be the Ceyhan pipeline project in Turkey, which draws from a diverse mix of Russian, Central Asian, and Iranian gas. Whatever the solutions, they will always have to include how they will be paid for.

In conclusion, it is clear that energy security relies significantly on private investment. A sustainable business model requires that management pay attention to supply security. Finding a business model that solves the problem of energy security will be the challenge that both managers and policymakers face in the future.
We talk a good deal about the “battle for assets” in our industry and I agree that such a battle exists. I believe this battle can be won, however, and I would like to present the case of West Siberian Resources (WSR) as an example. My remarks will focus on how we won the battle in Russia and what investment criteria were involved.

WSR is a public company traded on the Stockholm Stock Exchange and has about 30,000 individual shareholders, mainly from the Nordic countries. The company that I represent, Alltech Inc., is the largest shareholder, with a 15 percent stake. As of 2006, we are proud to partner with Repsol YPF, which recently acquired a 10 percent stake in the company. We are present in three main oil provinces: the Tomsk region, the Volga-Urals region, and the Timano-Pechora region, as Figure 1 shows. We hold 176 million barrels, or 24 years of reserves. The company currently produces 27,000 barrels per day, with a target of 50,000 barrels per day by 2009–2010. In addition, we are pursuing significant off-site explo-
ration managed by a professional team of technical specialists. Our strong current position is the result of activities begun when I became CEO in 2004. Advances and improvements in productivity, reserves growth, net income growth, and market capitalization growth have all helped turn WSR around in the last two years.

Certain investment criteria have been key to our success. First, before making any acquisition, we engage in a comprehensive standard analysis and due diligence valuation that include financial, technical, and legal aspects. Based on a geological model and a production profile, we build a discounted cash flow (DCF) model with

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<tr>
<th>Region</th>
<th>D&amp;M 2P Reserves, '000 bbl</th>
<th>ABC1 + C2 Reserves, '000 bbl</th>
<th>August 2006* Production, b/pd</th>
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</thead>
<tbody>
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<td>Tomsk</td>
<td>56,447</td>
<td>88,893</td>
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<td>Timano-Pechora</td>
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<td>Volga-Urals</td>
<td>23,924</td>
<td>50,679</td>
<td>9,278</td>
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*as of August 31, 2006
very specific characteristics. In particular, we look at the quality of reserves and potential for development, either through exploration or drilling, as well as infrastructure considerations. One factor that is especially important in Russia is independent pipeline access. Further, we seek control over assets and do not acquire non-controlling stakes; leverage is extremely important. Finally, we weigh consolidation potential in the region as well as the existing competition regarding the asset. As our rising share price indicates, the market has appreciated what we have done with the company.

Let me step back and provide a bit of history. WSR was known originally as Vostok Oil, a company founded by the VostokNafta Fund in 1998 which became public in 1999. From 1999 to 2004, Vostok Oil invested about $45 million in the Tomsk region. It was a single-asset company with many problems: almost no production (about 2,000 barrels a day), $27 million in debt, and a conflict with a strong minority shareholder. Vostok Oil Company built a 120-kilometer pipeline that was connected to the Yukos Oil pipeline, and sometimes transportation was cut off. Furthermore, the management style was unfocused.

In 2004 Alltech acquired a 24 percent stake and took over the reins of the company. From our point of view, there were pros and cons to this deal. On the positive side, Vostok Oil was very cheap at less than $2 per barrel, and the field and wells had shown good flow rates. It was also important that the company was public and had access to capital markets, which in 2004 were crucial for a young oil company in Russia. On the other hand, we were unhappy about the minority interest problem and the company’s transportation dependence.

Our first task was financial reorganization. We transferred the debt to equity and raised $30 million in equity. We hired new staff and began an aggressive drilling program, drilling four horizontal wells that tripled our production. We reduced the controllable cost from $8 to $5 per barrel and had the first profitable two quarters in the company’s history. We changed the management and the board of directors, which came as something of a shock since the chairman of the board was the Swedish ambassador to Russia.
Having established the Tomsk asset as a profitable base, we were then able to shift our focus on further acquisitions. Since the beginning of 2005, we have made five acquisitions, entered two main oil provinces, and attracted a strategic partner.

Our second acquisition was a company called Pechoraneft, which, along with its subsidiary NBNK, was located in the very promising oil province of Timano-Pechora, where LukOil has a joint venture with Conoco Phillips. In the fall of 2005, we arranged to buy Pechoraneft and NBNK for $168 million. The company had 44 million barrels of 2P reserves, produced 7,000 barrels per day, and had sufficient infrastructure to create 18,000 barrels per day. We paid $3.80 a barrel. While the market questioned that price, we knew a state auction for new fields was coming soon. One of these fields, North Kharyaga, was next to those owned by Pechoraneft. Just three weeks after we finished the Pechoraneft acquisition, the government held the auction, and we won the bidding; we acquired 50 million barrels of 2P reserves for $67 million. This set of assets in a very promising province cost us only about $2 per barrel. At the auction, we competed with large companies like Sibneft and Surgutneftegas, but the results show that smaller companies can hold their own at open auctions. Moreover, the Pechoraneft acquisition turned out to be very successful, as we discovered many synergies between the two companies. We increased the earnings before interest, taxes, depreciation, and amortization (EBITDA) margin from $7 to $11 by the end of the year, and we enjoyed substantial development in the two new fields.

In 2006, we completed our latest major acquisition, moving into the Volga-Ural region by buying for $140 million a company called Saneco. This acquisition was unique for Russia because, for the first time, a small Western company used shares as a payment. We paid 50 percent with shares and 50 percent in cash. Saneco had a very high exploration upside and three production and three exploration licenses, of which several were already producing. Its exploration hit rate was 100 percent. Like any acquisition, however, this company had pros and cons. The pros were that the Volga-Urals region is very
promising for future consolidation. Saneco had very strong exploration as well as leverage, since the company was producing. On the downside, it had high transport costs because it was not linked to the Transneft pipeline and transported all its oil by railway. Since WSR acquired the company, however, we have initiated a drilling program that increased production from 6,000 barrels to almost 10,000 barrels, in just three months. Also in that time, we have found two new fields, both with extraordinary flow rates of more than 2,500 barrels per day.

In January 2006, Repsol YPF signed on as a strategic partner to the company, bringing with it all the strengths that a multinational firm can add to a situation like ours. By increasing our access to financing, Repsol YPF has enhanced our ability to conduct sizeable acquisitions. The involvement of its senior management on our board and investment committee has strengthened our decision making. We have formed a business development team to deal with new projects and have gained operational expertise by adding a reservoir engineer and exploration geologist to our staff. We maintain close contact with the Madrid technical team for help when evaluating new opportunities. Finally, our relationship with Repsol YPF has opened up opportunities for a new series of acquisitions in the exploration of natural gas in the Commonwealth of Independent States (CIS) nations. We are currently looking for fields in Azerbaijan, Kazakhstan, and Ukraine.

In conclusion, I believe that the example of West Siberian Resources, culminating with its partnership with Repsol YPF, shows that a foreign company with a local partner can achieve a great deal—even in a country like Russia. As I noted, the battle for assets can be won if Western expertise and access to money can partner with Russian expertise and opportunities. This is the goal for our partnership with Repsol YPF.
SESSION III

INDUSTRY AND CORPORATE RESPONSIBILITY: BUILDING TRANSPARENCY

CHAIRMAN’S INTRODUCTION

WILLIAM W. HOGAN
HARVARD UNIVERSITY

We have assembled an excellent panel today to provide a range of perspectives on the challenging topic of industry and corporate responsibility for building transparency in the energy industry. The issue of transparency has been hovering in the wings, if not taking center stage, in these Seminars for many years. My colleague and organizing co-conspirator, Bijan Mossavar-Rahmani, has been a consistent proponent for delving deeper into the subject. This year, we decided to bring the subject to center stage—and to consider how we might push the boundaries for understanding and dealing with the underlying problem of corruption.

Our focus, industry and corporate responsibility, can be approached from many perspectives. A primary perspective is that of the corporations and the problems they confront in the course of doing business in the energy world. Another is that of public institutions, such as the World Bank, as they seek the best ways to interact to use their authority to address transparency issues. Advocacy groups bring their concerns for pushing the boundaries to set stan-
dards for best practice for all involved groups. And there is the perspective from academia, as scholars identify areas of research and analyze data to advance our understanding of the issues.

Let me introduce our distinguished speakers who, by their diverse expertise, can discuss the topic of transparency from a variety of perspectives. They should be able to help us in the quest to push the boundaries in understanding this complex topic.

Randy Gossen is President of the World Petroleum Council (WPC) and Vice President of Safety, Environment, and Social Responsibility for Nexen, Inc., a Canadian-based global energy company. From this dual perspective he will present his views on the sustainability of the petroleum industry and the need to establish clear parameters to control corruption.

David Murray, an independent Professional Ethics Advisor, is the former Deputy Chairman of the UK chapter of Transparency International. He currently is a consultant to the British government on the implementation of the Extractive Industries Transparency Initiative (EITI). His vantage point is that of an advocacy group leader.

Rafael Di Tella, the Joseph C. Wilson Professor of Business Administration at Harvard Business School, will speak as a scholar who has investigated how a culture’s beliefs, attitudes, and assumptions can affect a nation’s definition of corruption and its ability to benefit from economic development.

Peter Cleary is General Counsel of the Multilateral Investment Guarantee Agency (MIGA), a member of the World Bank Group. He will present his thoughts on the interplay among governments, private industry, and non-governmental institutions in light of new World Bank initiatives to monitor financial transactions.

To cap our discussion, we asked Steve Baum, the retired Chairman and CEO of Sempra Energy, to review the practical realities facing companies engaged in the energy world. His many years of experience in the international corporate world give weight to his perspective on how to combat corruption and promote transparency.
ADVANCING SUSTAINABILITY IN THE PETROLEUM INDUSTRY

RANDY GOSSEN
WORLD PETROLEUM COUNCIL
AND
NEXEN, INC.

The topic of this session is certainly relevant and timely. It underscores the notion that business cannot succeed in societies that fail. It fits well with the mission of the World Petroleum Council (WPC), which I now have the honor to lead, as well as that of my own company, Nexen, Inc. Let me begin with the WPC and give you an overview of who and what we are.

The WPC was established in 1933 to promote the management of the world’s petroleum resources for the benefit of mankind. Headquartered in London, its membership comes from over 60 countries that represent about 95 percent of the global production and consumption of petroleum. The membership includes the Organization of the Petroleum Exporting Countries (OPEC) and non-OPEC countries, international oil companies (IOCs), and national oil companies (NOCs). I underscore the fact that the WPC is a non-advocacy, non-political organization, and that we are accredited as a
non-government organization (NGO) with the United Nations. The governing body of the WPC is a council of representatives from each of the member countries.

How does the WPC add value? Its primary function is to be a catalyst to facilitate dialogue among stakeholders, including entities both internal and external, in the petroleum industry. We foster dialogue to seek solutions to key technical, social, environmental, and management issues. The WPC on its own cannot find these solutions, but it can bring the appropriate entities into the conversation and thus contribute toward the search for answers. The WPC does not take formal positions on key issues, but it does provide a forum for communication among those sectors of society that do.

The WPC’s main event is a triennial congress, which I like to refer to as the “Olympics of the petroleum industry.” Each congress involves four to five thousand delegates, representing all sectors and regions of the petroleum industry, and provides an excellent networking opportunity. The WPC, however, is not a one-event organization. Between congresses, we host smaller events. A recent sampling of our efforts includes a youth forum in China, a joint workshop with OPEC and the International Energy Agency (IEA) on carbon sequestration, and a workshop on European Union energy policy hosted by Slovenia, one of our smaller members. We also cooperate and collaborate with many organizations, industry associates, governments, United Nations agencies, and NGOs.

At our most recent congress in Johannesburg in 2006, one plenary topic was transparency. Peter Eigen, the former Chairman of Transparency International (TI), said that the lack of progress in tackling corruption, especially in the developing world, is a failure of governance by the globalized economy. Eivind Reiten, CEO of Norsk Hydro, also appeared on that plenary panel and told the congress that companies should make proper corporate governance procedures an integral part of their business models. In particular, he promoted expanding an initiative to encourage energy companies to publish what they pay and receive.
Those two statements set the framework for today’s discussion. I view transparency as an integral component of social responsibility. This panel is trying to make links between social responsibility and transparency. Let me try to put that into context from my perspective.

First, we should begin with some terminology. What is social responsibility? This definition developed by the World Business Council for Sustainable Development defines it well: “Our continuing commitment to behave ethically and contribute to economic development while improving the quality of life of our workforce and their families as well as of the local community and society at large.”

Put simply, I think social responsibility puts a human face on business. More importantly, it helps us link our decision making to ethical values, legal compliance, and respect for people, communities, and the environment, in addition to enhancing shareholder value. It is not rocket science. It is a means of linking economic, environmental, and social considerations into decision making.

I am going to change hats here for a moment, taking off my WPC hat in favor of my Nexen company hat. At Nexen, we translated this definition of social responsibility into a framework that cuts across almost everything we do as a corporation. We identify five key elements of social responsibility: business practices; employee relations; partner, supplier, and customer relations; safety and environment; and community involvement. Transparency fits into the context of business practices and is an integral component of social responsibility. Indeed, I believe social responsibility is synonymous with sustainability. Furthermore, there is a very important link between community involvement and transparency. While corruption driven by greed is very difficult to address, corruption driven by need can and must be addressed through community involvement.

Social responsibility is founded on two key principles. The first principle is that the communities impacted by our oil and gas activities have a legitimate right to participate in the decision-making process for issues that affect their lives. The second is that those communities have a right to a fair share of the benefits derived from our activities. All too
frequently, we fail to meet these principles, which creates a situation that breeds discontent and corruption based on need.

Our community involvement can put us in a very difficult position, because the last thing an oil company wants is to be perceived as another level of government. So what happens when you are in a situation where a host government is not meeting community needs? I believe we have a role in such scenarios, as facilitator and catalyst, and that one of our responsibilities is to lead by example.

As a result, community-based development projects are extremely important. In order to be sustainable, community development projects must be self-help initiatives where the communities themselves contribute—giveaways won’t work and are not sustainable.

Integrating transparency into our business practices and ultimately into our corporate culture poses a number of challenges. It should not come as a surprise that corruption is the single largest barrier to foreign investment. The World Bank estimates that more than $1 trillion is paid in bribes each year, equivalent to roughly half the gross domestic product (GDP) of a country the size of Germany, or 2 percent of the gross world product. Not surprisingly, the energy sector experiences a high risk of corruption.

The link between corruption, investment, and access to reserves is one of the most significant challenges IOCs face. Perhaps only 16 percent to 19 percent of world energy reserves are accessible to IOCs. When the location of reserves is compared with the world’s most corrupt countries, the challenges are highlighted. We encounter not only the technical challenges of entry to these areas, but also the significant and well-known risks posed by corruption. The risks include increased liability exposure, reduced access to capital markets, and risk to reputation. All this points to the need for increased due diligence, good corporate policy, and enhanced industry cooperation.

The playing field is changing. The regulatory response to corruption is growing in the form of anticorruption treaties and laws, and a growing number of prosecutions have raised the benchmark for compliance programs. The industry now boasts many initiatives aimed at combating corruption.
Where do we go from here? One key approach centers on partnerships and initiatives such as the TI Integrity Pact, the Extractive Industries Transparency Initiative (EITI), and the United Nations Global Compact (which recently added a tenth principle dealing with corruption). Such programs all provide opportunities to tackle corruption in partnership with others. In addition, we need to integrate transparency into corporate culture. This project should not be viewed as an add-on—integrity must be a core corporate value. Operating in our business has always required regulatory licenses; we are one of the most highly regulated industries in the world. The current environment of corruption tells us that we also require a societal license to operate.

I want to touch on several other aspects of transparency. This topic is not just about bribery and corruption, but also openness and transparency of results. In this regard, it is absolutely essential that firms obtain independent, third-party verification of their results. At Nexen, we publish an annual sustainability report that documents key economic, financial, and social data. To our skeptics, that may appear to be just talk. Not so; we have gone further and assembled an independent third party body with representatives from academia as well as some of the communities we operate in. We involve NGOs, and our own employees represent the labor and non-labor sides of our company. These members of the verification team focus on the qualitative information in the report. In addition, we have included the accounting firm PricewaterhouseCoopers to provide overall definition and attestation of the quantitative data. We have given this consortium of stakeholders a free hand to examine all aspects of our report and to question everything in it. We have received some extremely useful feedback, not all of it flattering.

In conclusion, let me quote from Charlie Fischer, CEO of Nexen: “How we conduct our business is just as important as the outcomes.” In other words, we need to be competitive, and we need to be profitable—but not at any cost. We need to achieve those goals by implementing our values, and at the end of the day that is what will lead to our sustainability.
I am speaking today in a strictly personal capacity. Although I am still contracted to the British government to support the Extractive Industries Transparency Initiative (EITI) as senior advisor to the chairman of its International Advisory Group (IAG), I should make it clear that I do not speak on behalf of either the IAG or the British government.

My comments will focus solely on the EITI and its program. It would be possible to talk about corruption more broadly, as many forms of this economic disease are widespread in the energy and other natural resource industries. EITI, however, has a highly specific focus: accounting for the transmission of revenues. Why is this limited emphasis so important? Looking around the world, one sees many examples of the dramatic coexistence of natural resource wealth and appalling poverty, a tragic situation that is often referred to as “the oil curse” or “the paradox of plenty.” The ongoing investigation into the billions of dollars of oil revenue missing from Nigeria under earlier regimes is an extreme case, but is by no means the only one.
Let me begin by describing briefly what the EITI is before moving on to consider some of the preconditions necessary for its eventual global success. The President of Nigeria, Chief Olusegun Obasanjo, once described the program as a stable three-legged stool. The first leg is that companies should report everything that they pay to governments. The second is that governments should report everything that they receive from companies. And the third leg is that an independent auditor should check that those figures actually agree with each other. It is a very straightforward and defined program that does not pretend to address all problems of revenue and fiscal management. Nor does it attempt to replace the very good work done by agencies such as the International Monetary Fund (IMF) and, for example, its guide to a much broader definition of transparency in the fiscal management of natural resource-rich economies. Rather, the EITI focuses very sharply on one question: How much money is going into a country? If you can answer that question effectively and accurately, then the people of that country can ask the next question: Where has it gone? How has it been used? The EITI’s goal is to make possible the answering of these questions.

The EITI is sometimes referred to as a “curious coalition” in that it brings together governments, industry, and civil society, both on a global basis and in many individual countries. These various bodies work together to create consensus on an agenda, as well as an actual program. Parties normally in confrontation on many issues have learned to work together effectively on this specific project. Originally, the public proposal and the funding for the EITI came from the British government, but the effort is now supported by governments around the world. Today, the governments of approximately 20 countries, rich in oil, gas, and mining resources, have signed up to implement the program.

At the executive level, EITI is at this stage headed by an International Advisory Group that has been working on a number of key themes for the future. The 16-member group includes representatives not only from governments, industry, and civil society, but also from international financial institutions (IFIs), major financial bodies such as the World Bank and the IMF, and a representative
from a group of investment houses that together manage around $9 trillion in investments.

On the global level, the EITI program is intended to address, albeit indirectly, serious issues involving many of the world’s poorest countries, encouraging a reduction in tension and reducing the risks of conflict which can so easily arise from natural resource wealth. At the national level, the EITI emphasis on transparency helps countries develop institutional quality and build a national reputation for fiscal responsibility. The Nigerian government, for example, believes that its strenuous implementation of EITI has influenced recent negotiations that led to debt relief. Transparency also allows nations to create accountable fiscal and budgetary management practices; when numbers are obscured, real accountability is nearly impossible. In countries where trust in government is currently lacking, a transparent financial program can ultimately lead to stability. Finally, at the corporate level, the reduction of social tension, a particularly serious issue in some regions, can lead to greater staff security, and increased transparency can provide a more amenable business and investment climate.

As already mentioned, EITI has a sharp focus. It does not, for example, deal with the distribution and the application of revenue. Nor will it solve all the problems of countries where even very large oil revenues have to be shared among large populations, so making the benefits per capita relatively small. It does, however, provide a basis for accountability to the people.

I would like to turn now to what I call the “success factors” at both the international and the national levels. The International Advisory Group chose two topics that they felt were crucial for the future and focused on these during 2006. The first is a validation process, an arrangement that allows the Group to monitor a country or a company that signs up for an EITI implementation, ensuring that they do what they promise to do. It is, after all, very easy for a government or a company to sign a piece of paper or stand up in a public meeting and make a declaration, and then to do little or nothing. For the EITI to have any value, there must be an effective validation process developed and backed collaboratively by governments,
industry, and civil society. The International Advisory Group’s report, to be presented at the EITI high-level conference in Oslo in October 2006, describes this process. The report is available on the EITI website, www.EITransparency.org.

The second major proposal of the IAG is the establishment of an effective secretariat to support the EITI for the next three to five years. The IAG will cease to exist and will be replaced by a board of directors, but through election rather than appointment. The board, supported by the secretariat, will seek to refine the process and promote it around the world.

Another critical success factor on the international level will be the retention of a sharp focus, resisting the temptation to expand the process before it is fully operational in its present form. As I have mentioned, the EITI concentrates explicitly on the question of how much money is going into a country. It must keep that narrow approach and seek to spread it geographically, drawing in a wider range of major countries and their governments, especially India and China.

In addition to these international-level objectives, the EITI must also consider a number of success factors at the national level. This is a voluntary scheme for individual nations to adopt. Although it is hoped that a United Nations General Assembly resolution might support the program within the next year, the process will never be mandatory; countries must choose to implement it. However, once a government decides to use the program, the companies operating within its borders no longer have a choice about participating. Since one of the scheme’s fundamental requirements is that every item of revenue flow be identified, a government that implements the EITI must ensure that every company within its territory provides payment figures to the independent auditor, and that every department within the government that receives funds from the companies must also report to the auditor. For EITI to be meaningful there must be no exclusions.

Another key to the program’s success is the effective replication at national level of the international level’s multi-stakeholder
approach. This precondition places challenging requirements on significant groups within the nation. First of all, civil society organizations must be prepared to work within that framework. They must overcome any tendencies to be anti-corporate, anti-oil, or opposed to a particular company if they are to be meaningfully involved. They must be willing to focus on this one issue and to work constructively with each other, with companies and with governments, even where they may differ profoundly on other issues. They must be prepared to learn about economics, financial flows, and the nature, structure, and financial management processes of both industry and government.

Governments have to meet certain requirements as well. The governments of resource-rich countries must learn to allow rights of inquiry and critique and to value the contribution of people who do not necessarily agree with all official decisions. To accept civil society representation on an EITI multi-stakeholder steering group, and then to harass the representatives whenever they raise serious questions, does not create a climate conducive to progress. A key indicator of democratic maturity is the willingness to be challenged.

Companies also must meet a number of requirements in the national arena. It is easy for a large international company to make policy decisions on EITI transparency in Paris, London, Houston, Madrid, or Rome, but implementing those decisions in countries where they operate is a very different matter. In some instances, companies have committed to the transparency program at the international level but their national level managers have fought the decision. Some companies have worked hard to minimize the amount of data released into the public domain. It is vital, therefore, that companies which sign up at the international level fully collaborate with national governments and not drag their heels in the process. On a positive note, many companies already provide admirable examples of acting with integrity on this point.

Finally, the EITI’s ultimate objective is to help ensure that natural resource revenues actually reach government budgets and so are available to help the poor. The two main pilot countries, Nigeria and Azerbaijan, have implemented EITI in slightly different ways, using
different models but still complying with the basic criteria. Both have done extremely well, and their reports are publicly available on their national websites. Nigeria’s reports, for example, review several past years, showing exactly how much money has gone into the government from each oil company, and reconciling those figures with the physical flows. In this case, the country took the basics of the EITI program and went beyond them.

The head of the Azerbaijan oil fund summarized his country’s experience in telling words. When I asked him what the benefits had been for his nation, he without hesitation replied, “Two things. Firstly, government and civil society have learned to work together; we didn’t know how to do it before. And secondly, we have now instituted a national program with this philosophy: that oil money belongs to us all.”
Corruption, Oil, and Pro-Market Beliefs

Rafael Di Tella
Harvard Business School

An important subtext of this Seminar has been a concern with the growing worldwide prevalence of "creeping fiscal regime changes," or, more bluntly, "expropriation." I would like to face this topic directly by focusing on the role that beliefs play in shaping political institutions and economic decisions. Beginning with the assertion that capitalist ideas overall do not flow in this generally leftist world, I will move to consider the particular factors—including links to oil—that discourage capitalist, pro-market beliefs in developing nations, and conclude with some implications for oil companies and other concerned institutions.

We can start by considering "reform fatigue," the trend among countries to halt their economic reform programs and move leftward. Advocates of market-oriented economies view the idea of reform fatigue with dismay and surprise; some argue that current nationalization efforts may be exceptional. But these responses miss the larger issue: The world is very much to the left. Looking at the world in general shows that capitalist ideas do not flow easily or inevitably.
To prove this claim intuitively, one need only look at what candidates and parties say, around the world. How often do their platforms talk about economic redistribution in contrast to economic efficiency? More substantively, the claim is supported by a number of surveys. For example, in Figure 1, using data produced by Beck et al. (2001) at the World Bank, we find that in rich countries there is a preponderance of right-leaning parties and political platforms, while in poor countries left-wing parties and platforms are far more prevalent. Middle-income countries see an even political split.

*Figure 1*

*Does Capitalism Flow?*

*National Governments and Political Parties, 1975–1997*


Economists tend to explain these results by arguing that inequality is to blame. Left-wing ideas, the standard theory in Economics 101 claims, flourish in poor countries because people there are trying to redistribute what little income they have. This argument, however, is untrue. Poor countries with greater equality are actually further to the left while poor countries with more marked inequality are more to the right. The link goes the wrong way!
Consider the examples of the United States and Europe. Economic inequality is greater in the United States than in Europe, yet Americans want to redistribute less, not more. This apparent anomaly is indicative of the varieties of successful capitalism that exist in the world. The American model demonstrates one variety, associated with high income inequality. The European variety involves more redistribution and a leftward slant. This is important: The difference between the American and the European economic models is at the heart of the problem; it explains capitalism’s lack of appeal around the world.

As an example of how this difference manifests itself in popular beliefs, consider the following. When people around the world are asked why they think the poor are poor, they give a variety of answers. Sixty percent of Americans say that the poor are poor because they are lazy, and 20 percent say it is because they are unlucky or because society treats them unfairly. Asian nations share the Americans’ perception. In France, quite the opposite results are found. Sixty percent of the French say the poor are unlucky, not lazy. Figure 2 shows a national distribution of this belief.

Figure 2
GDP Growth Rates and National Beliefs about Why People Are Poor, 1980–1997
Now let’s narrow our focus to developing nations. Among these nations, a number of factors are at work to discourage a belief in free markets. Chief among these are frequent shocks to the economic system (often related to economic dependence on natural resources), corruption, and low levels of property holding.

Countries with a history of macroeconomic disturbances and/or a heavy economic dependence on natural resources have a history of very noisy income processes. In such countries, the result is a belief that luck dominates the creation of income, which clearly reduces the credibility of any pro-market beliefs. Look at oil-producing countries such as Kazakhstan, Nigeria, and Venezuela for examples of this. If oil, or natural resources more broadly, play an important role in driving overall gross domestic product (GDP) movements, then forces outside the individual’s control clearly determine a large component of his income.

Using data from the World Values Survey, we can test the effect that resource dependence and macroeconomic volatility have on beliefs. The results are consistent with the idea that macroeconomic volatility and dependence on mineral rents discourage pro-market beliefs. To illustrate this, imagine two countries. Country A has a diversified production matrix along the optimal path; Country B is a country that depends greatly on a single commodity with a price that shifts sharply, such as oil. Since Country B’s capital inflows vary with the price of oil, whether its citizens do well or poorly depends very much on something they cannot control. In a sense, they are living in a casino, and people who live in a casino probably do not believe that effort pays off. Similarly, it is difficult for people in a country with a shock-prone economy to believe that effort pays, because in their case, it usually does not. If the price of oil declines in a given year, these people will suffer regardless of how much effort they exert. On the other hand, when the price of oil is high, they might as well sit back and relax, because they will do well no matter what they do individually.

A similar issue arises with respect to macroeconomic volatility in politically unstable countries that lack financial institutions to absorb some of the shocks. An observer would expect a general lack of
belief in the efficacy of the market in these countries, and indeed our results show a strong positive correlation between left-wing beliefs and a primary dependence on the production and export of oil.

How does oil itself affect beliefs? Return to the question of whether poor people’s lot in life is due to bad luck or laziness. In non-oil dependent economies, there is a 50/50 split between belief in luck versus belief in laziness. In oil dependent countries, holding all other characteristics constant, 75 percent of people ascribe poverty to bad luck and only 25 percent think it is due to laziness. This is an even greater split than that observed between Europe and America.

The implications of these data are significant. In graphic terms, a map that shows the locations of oil also shows a great many locations of people who do not believe that effort pays off. This puts resident businesses, particularly international oil companies, in the unenviable position of trying to convince people who do not believe that effort pays (which is the basis for U.S.-style capitalism) to respect contracts—contracts that, realistically, these people have no reason to respect.

This relationship to beliefs holds true for other types of shocks, such as crime. The rationale is similar: “If I exert a great deal of energy but then am a victim of crime, I still wind up poor. It stands to reason that I do not believe that effort pays, because in my case it did not.” Indeed, there is evidence that the more a group has been victimized by crime, the more its beliefs move to the left, not to the right. Intuitively we would expect the opposite; we would expect that people who are worried about crime would want to keep thieves in check. Their political ideology should shift to the right, in favor of repression. Yet this evidence suggests that although people may want tougher policies against criminals, their faith in effort declines anyway. They support redistribution and higher taxes, and oppose foreign-owned business. They reject claims that prices should be determined by free competition, that the market economy is more efficient, and that privatization of public companies has benefited the country.

Pro-market beliefs are also negatively correlated with perceptions of corruption. As with oil price shocks and crime, people who experience an economy (and a society) rigged through corruption
tend to move to the left. If the market system and the political system allow favors and connections—not effort—to dictate results, people will demand redistribution. Although economists predict that corruption, like crime, should move countries to the right, my research suggests a move to the left. Countries believing that most officials are not corrupt see a 50/50 electoral split between left and right. On the other hand, countries where the people believe that almost all officials are corrupt, such as in Africa or Latin America, show approximately a 65/35 split between left and right.

This highlights a predicament that faces many international oil companies. They often are accused of corruption, whether rightly or wrongly, but are unwilling to undergo the difficulties and the frustrations involved in challenging those accusations. But corruption delegitimizes business and commercial institutions, which reduces the appeal of capitalism. People are willing to vote for a socialist system under which they would likely earn less money (but where businessmen would also earn less, and thus be perceived as more fair). Indeed, over time, countries that experience a shock to their corruption levels tend to elect parties that espouse greater government intervention. The lesson for oil companies is not only to avoid corrupt practices but also to publicly challenge the accusations and perhaps the corruption itself. It is the best way to bolster the legitimacy of free enterprise.

By contrast, we see evidence that owning property may change the beliefs that people hold, away from the left. Indeed, recent research suggests that these effects can be quite large. Consider, for example, a study in Argentina that focused on the difference in pro-market beliefs between the general population and a group of squatters in the lowest-income quintile. The squatters, of course, had beliefs that were markedly more anti-market than the general population. Yet, this research concluded that nearly the entire belief gap between the groups could be bridged simply by giving the squatters property rights to the small plots of land they already occupied.³

For nations that want to develop growth-oriented economies—and for the international institutions that want to aid them—evidence
suggests that they “invest” in the creation of pro-market beliefs. One strategy would be to promote industrial diversification, which would minimize the connection between overall GDP and volatile natural resource income. This would then lend support to the idea, or belief, that effort pays. In addition to the usual arguments for industrialization, weakening the connection between GDP and oil would reduce the drive toward interventionist policies. Another strategy would be to keep macroeconomic volatility low. Countries could potentially accomplish this aim by appointing conservative central bankers to keep inflation low or by accumulating foreign exchange to reduce the likelihood of speculative attacks.

As I have discussed, oil income shocks, crime, and corruption all contribute—however counterintuitively—to moving countries to the left and toward opposition to pro-market beliefs. Because of this, international oil companies must consider their roles in the politics of countries around the world. Additionally, they would do well to understand the significance of political and economic systems and the beliefs, including the appropriateness of expropriation, that are likely to accompany the various systems. And lastly, they should consider joining with other organizations to work for the creation and reinforcement of popular useful beliefs.

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2. The Combined World Values Survey is produced by the Institute for Social Research, Ann Arbor, MI. The survey has interviewed 168,482 people in 64 nations to enable a cross-national comparison of a wide variety of values and norms and to monitor changes in values and attitudes around the globe. See, for example, Ronald Inglehart’s Culture Shift (1990).

The World Bank has stepped up its efforts in the area of anticorruption for compelling reasons. Our research and experience have shown that the quality of a country’s governance, including the control of corruption, has a direct and significant impact on its development. Yet companies around the world continue to identify corruption as a significant impediment to doing business. The figures for the developing world, the World Bank’s particular concern, are very high. For example, over 70 percent of people who do business in Asia and Africa believe that corruption is a significant impediment to getting things done, and figures are much the same throughout the developing world.

President Paul Wolfowitz of the World Bank Group has stepped up the Bank’s war against corruption, making it a central pillar of World Bank Group policy. He has identified four specific initiatives that will sharply impact how countries and companies with which the Bank does business must conduct themselves. Further, these policies are designed to correct the somewhat asymmetric nature of prior efforts. For example, in the past the Bank has devoted more energy
to telling developing countries what they must do to eliminate corruption, and somewhat less to articulating to developed countries and multinational corporations their obligations for combating corruption. Our four new initiatives, directed at both sides of the equation, deal with this asymmetry. One is directed at the country level and three are aimed at the conduct of private firms from developed countries—and the initiatives are very specific. Let me address them very quickly.

The first, focused at the country level, mandates that World Bank financial assistance to member countries will be linked in part to those countries’ governance and anticorruption efforts.

Second, turning to private firms, at a meeting in Singapore in August 2006, the World Bank and all the multilateral development banks (MDBs) adopted common definitions of corruption, including corrupt practices, fraudulent practices, coercive practices, and collusive practices. These common definitions will be incorporated into the contractual documentation for all MDBs, and breach of these provisions can lead to sanctions, including temporary or permanent disbarment. Breaching the new anticorruption laws can also lead the World Bank Group to exercise contractual remedies, including canceling and accelerating loans and terminating Multilateral Investment Guarantee Agency (MIGA) guarantees.

Third, as part of the sanctioning program, the Bank is dramatically expanding its Sanctions Board. In the past, the Sanctions Board has confined its regulatory activities to the contract procurement stage only. One of the significant new reforms empowers the Sanctions Board to investigate corruption and impose sanctions over the entire life of a World Bank-financed project.

Fourth, perhaps as a transitional measure, the Bank has adopted a voluntary disclosure policy for firms. Now firms that have engaged in corrupt behavior may disclose that information to the Bank’s Department of Institutional Integrity in exchange for immunity from disbarment. However, the company would be obliged to implement a robust internal anticorruption program. If it breached that program, it would be subject to a mandatory 10-year disbarment.
Having outlined the four programs, I would like to address the first two—the country-level policy and the new anticorruption definitions—in more detail.

At the country level, the World Bank will determine its level of engagement with countries according to an assessment of where they stand on governance and anticorruption. To accomplish this, we will employ the Country Assistance Strategy (CAS), a periodic evaluation of a developing country’s economy that has been specifically designed to identify areas where we believe the Bank can facilitate growth. We have formalized a policy to explicitly make governance and anticorruption efforts a part of the CAS. If we determine that a country is actively engaged in promoting good governance and fighting corruption, we will recognize that activity by increasing Bank involvement. Conversely, if a country is not taking corruption seriously, we can scale back the Bank’s engagement to more limited forms of technical assistance. In rare cases, we could perhaps curtail or completely cut off financial assistance. We still have to work out the details, but it is clear that the commitment to governance efforts will be a major determining factor in our level of engagement with developing countries.

Let us now turn to the private sector. Recently, the World Bank Group and the other multilaterals adopted common definitions for corrupt, fraudulent, coercive, and collusive practices. The groups involved include not only the World Bank, but also the International Finance Corporation (IFC), MIGA, the African Development Bank (AfDB), the Asian Development Bank (ADB), the European Investment Bank (EIB), the European Bank for Reconstruction and Development (EBRD), and the Inter-American Development Bank (IADB). We strongly believe that adopting common standards is a significant step in the fight against corruption. Just as World Bank initiatives in the environmental sector have led to the development of such common standards as the Equator Principles, we hope that these anticorruption standards will form a base that the broader financial community will adopt. Furthermore, some of these definitions expand the scope of corruption beyond what existing laws and
treaties include. No longer limiting their definitions to corruption in the public sector, multilaterals now apply the concept to activities among private firms. Corruption that occurs between private entities will now be equally subject to sanctioning.

These new definitions will be incorporated into all World Bank, MIGA, and IFC financing documents, and breaching these definitions can lead to two very distinct consequences. First, World Bank entities can exercise contractual remedies, such as canceling undrawn loan commitments, accelerating existing loans, or, in the case of MIGA and other political risk guarantors, canceling insurance policies. The second remedy is to impose sanctions. To this end, we are significantly enhancing the power of sanction boards. If a company engages in corrupt behavior, these boards may impose a range of sanctions, from reprimands to temporary or even permanent disbarment. If disbarment occurs, the World Bank website will publish an announcement, and President Wolfowitz hopes that the MDBs will collaborate in their disbarment proceedings, perhaps eventually creating a process of cross-disbarment. Such a step is admittedly a long way off, but it is the goal to which we aspire.

It might be useful to articulate the actual text of the definitions. 1 “Corrupt practice” is probably the most important one: It involves offering, giving, receiving, or soliciting, directly or indirectly, anything of value to improperly influence the actions of another party. The second definition is “fraudulent practice,” which is any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit, or to avoid an obligation. “Coercive practice” is impairing or harming, or threatening to impair or harm, directly or indirectly, any party of its property or to improperly influence a party’s actions. Finally, “collusive practice” is an arrangement between two or more parties designed to achieve an improper purpose, including improperly influencing the actions of another party.

Although these definitions appear simple, they are exceedingly broad. For example, consider the most important definition, that of “corrupt practice.” The key here is that “another party” is not limited
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... to public officials. This provides a significant advance over the U.S. Foreign Corrupt Practices Act and both the United Nations and Organization for Economic Co-operation and Development (OECD) conventions, none of which actually prohibits private-to-private corruption. Now the World Bank and the multilaterals have done just that, and we recognize that this has taken us into uncharted territory. Another key point is that “fraudulent practices” are not confined to intentional misconduct, but also apply to reckless misconduct.

MIGA and IFC, as the private sector arms of the World Bank, fully support this new anticorruption initiative. At the same time, we recognize that the new definitions are exceedingly broad and might not give our private sector clients the level of clarity and predictability that they require in their financing documents. As a result, MIGA and IFC established guidelines for private sector operations. These rules will go into effect in October 2006 and will provide more certainty as to how these broad new definitions will be interpreted and enforced.

I would like to share with you some key concepts of the private sector guidelines. Most of the guidelines relate to the interpretation of corrupt practices. As an initial matter, the guidelines make clear that MIGA and IFC construe corrupt practices to mean bribery and kickbacks and not other conduct. We will not use the broad definition of corrupt practice to regulate other conduct, such as antitrust or securities violations. Second, we recognize that there is a need for exclusions and safe harbors with respect to corrupt practices. Importantly, we believe that customary corporate entertainment and hospitality between private parties should not be considered corrupt.

Moreover, we recognize that, in many countries, companies bidding on projects will often offer to make charitable contributions or reinvest a certain percentage of profits to social development funds, such as those for schools or hospitals. These are often legitimate. Therefore, our private-sector guidelines will make clear that such contributions will not be viewed as corrupt provided that they are legal in the host country, conducted in a transparent way, and, most importantly, accurately reflected on the books of the payor corporation. Similarly, the private-sector guidelines recognize that paying...
reasonable travel expenses for foreign officials can be legitimate in some cases, such as those for road shows, attending negotiations, and so forth.

Facilitation payments were perhaps the most controversial issue. MIGA and IFC wanted to create an express carve-out for facilitation payments in line with the U.S. Foreign Corrupt Practices Act. Neither the World Bank nor the other international financial institutions (IFIs) found that proposal acceptable and mandated a zero-tolerance policy. Nevertheless, I believe all parties recognize that IFI private sector operations need flexibility to choose whether or not to take enforcement action with respect to facilitation payments, simply on grounds of practicality. While the World Bank views facilitation payments as corrupt, MIGA and IFC have been given discretion to choose whether or not to take enforcement action against them as a matter of policy, consistent with international law and treaties. The IFIs will have different views as to how explicitly they are willing to treat facilitation payments. For MIGA, we would be willing to give our clients some written assurance on that point, but other multilaterals and IFIs may not be willing to go that far.

“Fraudulent practice” was another area we felt needed clarification. The first issue was how to define “reckless misrepresentation.” We believed we should set a fairly high standard so that, to be prosecuted as fraud, reckless misrepresentation would have to involve reckless disregard for the truth or falsity of a given statement. That is a fairly high hurdle, but it makes clear that we will not prosecute merely negligent misrepresentations or inaccurate information as fraud. Second, we will only prosecute a fraudulent practice where the fraud is directed against a World Bank entity or a host government. Even though the definition is broad enough to allow us to take action with respect to purely third-party fraud, we will not do so. If a sponsor engages in fraud vis-à-vis a construction contractor, for example, the situation falls outside the scope of our regulations.

Finally, the World Bank definitions of “coercive” and “collusive” practices are extremely broad and could potentially apply to any kind of criminal conspiracy. With that in mind, we have developed guide-
lines to ensure that we will interpret and enforce those definitions to apply in only two situations: 1) bid rigging in the procurement context and 2) acts in furtherance of corrupt or fraudulent practices.

We view the development of the private-sector guidelines as an iterative process. We retained leading firms in New York and Europe to comment on them and conduct, on an anonymous basis, client consultations. We then took that feedback into account as we developed the guidelines. MIGA will incorporate the guidelines into our contracts in a binding fashion, both for our customers and for ourselves, so that all parties may rely upon them in conducting their businesses in relation to MIGA-financed projects. We believe that further revisions will be made to the guidelines over time to reflect practical experience and further comments of clients.

These initiatives go into effect in October 2006. The Bank’s view is that, for better or worse, we have moved beyond merely talking about the need to fight corruption. We have taken positive, aggressive steps to ensure that all multilateral development banks adopt a common approach in preventing and punishing corruption in the projects we finance.

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1. For complete definitions of these terms, see the MIGA website, www.miga.org.

2. Facilitation payments, also know as grease payments, are de minimus payments to low-level officials to secure performance of a routine governmental action.
I am the retired Chairman and Chief Executive Officer of Sempra Energy as of February 2006. Sempra Energy is listed on the New York Stock Exchange and has a market cap of about $12.5 billion, approximately $12 billion in sales, and assets in the $29 billion range. We have a large utility business in California, power plants in Mexico and the United States, and large gas and electric distribution businesses in Argentina, Chile, Mexico, and Peru. We also have large trading operations in China, Singapore, the United Kingdom, and the United States. My remarks about corruption will be based on experiences and observations that my colleagues and I have had in our years within companies and law firms building large infrastructure projects worldwide.

The face of corruption can take many forms. There is the highly recommended consultant who strides into a meeting oozing self-confidence matched only by an astronomical fee; the politician who is not shy about sharing his menu of prices for helping gain permits or contracts; the relative of an influential official who insists on a payment
in cash or a wire to a Swiss bank account; or the designated local business partner who says that job recruitment contracting and procurement must be done through his company. These bribery techniques are not confined to nations ranking at the bottom of Transparency International's latest corruption perception index. For instance, memories are still very fresh in Sempra Energy's hometown of San Diego, California where this past March, a powerful and influential local U.S. congressman, Representative Randy Duke Cunningham, was sentenced to eight years and four months in prison for taking bribes in exchange for influence involving defense contracts. He even had a written menu of services and prices.

Bribery, graft, extortion—by whatever name, this is a phenomenon known over the centuries, and companies must be prepared to deal with it. For a company that finds itself in such a situation, the only appropriate response is a blunt one: “Just say no.” That is the policy of Sempra Energy. It is a policy that we carry out in intensive training of our employees and we make sure that our contractors and consultants understand it thoroughly. It involves a significant amount of internal discipline because people on the ground can be subjected to considerable pressure, and need to understand that the company's policy is a no-tolerance policy. To be sure, taking the moral high ground and resisting these demands can severely wound or even kill a bid for a major infrastructure project, a large defense contract, or significant drilling leases. Avoiding such situations is a major concern for all companies in the energy world.

Since Sempra is not in an extractive industry, my remarks relate to situations involving the construction of infrastructure, in the United States and internationally. In Sempra's case, projects overseas have tended to involve situations where we have sought to develop major infrastructure projects, not so much in a competitive bidding process, but through a direct company approach to the government. Sempra's proposal would state the mutual benefits of the enterprise and would express a desire to make the project work for the betterment of all parties, including the local community. In these cases, it is perhaps even more important to take early and proactive measures to avoid any semblance of corruption.
In order to avoid corruption and compete with competitors who may view bribes as a sort of value-added tax, some early proactive measures are required. First, we think it is most important to educate the local, state, and national leaders about our industry, and to provide them with sufficient background to inform and defend the project to their own constituents, the press, and the inevitable media-based attacks by project opponents. This education can take a number of forms: building good relationships with government officials, arranging for travel to see similar projects, and participating in conferences. The purpose is to give the government official enough background to be persuasive, not only with other government officials, but with his own constituents, and to be in a position to claim credit for having brought improvements to the region and the country. A related proactive measure is to provide project supporters with the opportunity to explore how the project can benefit the local community and, therefore, improve the official’s position in the next election.

All this activity should be conducted under the watchful gaze of an engaged press corps. We find it quite useful to reach out to reporters early on and invite them to educate themselves about the project. The watchdog aspect of the media is exceptionally important in keeping corruption at bay. However, we have encountered situations where the press is paid by the government to follow the government line.

It is also important to procure assistance from one’s own government, in our case the United States government, to assist in dealing with a foreign government. This assistance can gain valuable support for the infrastructure project, especially by highlighting the idea of how the commerce and the people of both countries can benefit from the project.

Sempra Energy employed several of these strategies when Sempra LNG proposed to build a $1 billion liquefied natural gas (LNG) facility on the Baja California shoreline in Mexico. The company launched a significant communications effort to provide information to elected officials, regulators, and the general public on the scope of
the proposed operation. We also highlighted the thousands of jobs to be created, the benefits of an adequate supply of energy to the region, and made a multimillion dollar commitment to the local community. In addition to public meetings and educational outreach, Sempra LNG provided expertise in helping Mexican regulators craft some of the safest construction guidelines in the industry, more stringent than those in the United States. We believe that this commitment to safety, combined with rigorous regulation, helped a great deal to improve the transparency and the public acceptance of the projects.

Following up on the commitment to the local community, we arranged to allocate $7 million to a charitable trust for public benefit expenditures. The trust is managed by independent trustees. We publicized the gift and made a significant effort to acknowledge the politicians who had licensed the LNG project and thus arranged for the community trust and its funding. They could claim credit for the trust, but of course they could not distribute the funds to themselves or to their relatives or other connected parties.

At some point in such a situation, however, one has to step back. Once you transfer the money and set up the rules for distributing it, you must get out of the way, or else the money may not get distributed. In fact, we were criticized by the Mexican press because the money was not being spent; we had set too many rules.

Efforts to maintain a corruption-free relationship in a region or a country do not end once a project has begun operations. For ongoing projects, it is necessary to be responsive to cases of immediate need in the regions from which you are either extracting a natural resource or maintaining infrastructure. For example, the source of the gas supply at Sempra’s LNG facility in Mexico is Indonesia—the Indonesian government’s share of the Tangguh field. After the 2004 tsunami struck Indonesia, we provided significant financial aid to assist people devastated by the tsunami. We worked through international aid organizations and Indonesian government agencies, after making a considerable effort to ensure that the money would be distributed properly and reach the people for whom it was intended.
Realistically there are occasions when ethical standards and humanitarian efforts will not prevail. However, working with local businesses and governments that are committed to upholding ethical standards can help neutralize corruption. A local partner of high integrity that adheres to the requirements of the U.S. Foreign Corrupt Practices Act can help move a project forward. Sometimes the host country’s government seeks to improve its anticorruption laws and their enforcement. For example, when Mexico opened its natural gas sector to competition several years ago, officials wanted to have an effective regulatory framework to ensure that the services provided by foreign investors would benefit the general populace. We linked Mexican government officials with U.S. government officials, particularly at the Federal Energy Regulatory Commission, to help them write the appropriate laws and regulations.

The ultimate antidote to the disease of corruption must come from efforts of the host country’s government to improve its anticorruption laws and their enforcement. Although difficult to achieve, this kind of reform has happened; countries have changed. A notable example is Singapore, which established a very strong anticorruption statute with strong enforcement. As a result, Singapore’s ranking on the anticorruption index improved markedly in a relatively short period. Another Asian nation significantly improving its anticorruption reform situation is China. The Manila Standard (March 17, 2005) reported that a Political and Economic Risk Consultancy (PERC) survey recently dropped the country from its previous rank of first, the most corrupt nation polled, to fifth. The report noted that Chinese leaders were able to achieve this quantum improvement “by having convicted grafters, no matter how prominent in the bureaucracy or the Party, shot with a bullet to the head in public executions before the assembled masses of people.”

You may disagree with this draconian response to corruption, but the Chinese government knows how to drive home a message: Jiu Shuo Bu Yao. “Just say no.”
A. A. Arbatov currently serves as Deputy Chairman of the Council for the Study of Productive Resources under the Russian Academy of Science and Ministry of Economic Development and Trade. He is also a member of the State Expert’s Evaluation Commissions in the RF Ministry of Economy and the RF State Environmental Committee. In these roles, he has conducted State Environmental Expertise reviews and has chaired State Expert Commissions related to a number of large projects including oil and gas deposits throughout the Russian Federation and the Commonwealth of Independent States (CIS). He has dealt with the complex interdisciplinary problems of natural resource utilization and economics and the national and international implications of energy and environmental issues. Dr. Arbatov is a member of the International Association for Energy Economics (IAEE), Vice-President of the Russian Association of Energy Economics, and a member of the International Advisory Council, Centre for Global Energy Studies (CGES), London. He has written and published extensively on oil and natural gas issues and holds patents.
in the field of gas liquefaction. Dr. Arbatov earned a Ph.D. in geology and mineralogical sciences (oil and gas geology) and an M.Sc. from the IM Gubkin Moscow Institute of Oil and Gas. He is an Academician at the Russian Academy of Natural Sciences.

**Fabrizio Barbaso** has been Deputy Director General for Energy for the European Commission (EC) since September 2006. Joining the EC in 1976, Mr. Barbaso has held a number of executive positions, focused on various aspects of industrial and international relations. He was Acting Director General of DG Enlargement from September 2003 to December 2005, the time when 10 new countries joined the European Union. He was Deputy Director General in the Directorate-General for Agriculture, from October 2000 to August 2003, where he was in charge of market policies and the general agricultural review process. He also served as Director in the External Relations Directorate dealing with the countries of Southern Europe (including the Balkans), the European Economic Area, and Switzerland; and in the Internal Market Directorate he led the unit in charge of textiles, clothes, furniture, leather, and footwear. Educated in the law at the University of Turin, Mr. Barbaso began his professional career as an attorney with an Italian multinational group.

**Maxim Barskiy** is CEO, West Siberian Resources (WSR), Russian Federation. Mr. Barskiy has been a member of the Board of Directors of WSR since March 2004 and the Managing Director since July 2004. Earlier, Mr. Barskiy was head of the Corporate Finance Department at Gazpromenergo LLC, Vice President of the investment company Troika Dialog, and head of the Moscow office of Salford Continental, an investment fund management company. Mr. Barskiy graduated from St. Petersburg University and studied at the Business School of the University of California, Berkeley.

**Stephen L. Baum** is the Chairman and CEO Emeritus of Sempra Energy, a San Diego-based Fortune 500 energy services holding company whose subsidiaries provide electricity, natural gas, and value-added products and services in the United States, Europe, Canada, Mexico, South America, and Asia. Mr. Baum held executive positions at Sempra from its formation in 1998 and served as
Sempra’s Chairman and CEO from September 2000 until his retirement in February 2006. Thus he held a leadership role at Sempra during the critical years of utility industry restructuring and played a pivotal role in ensuring the company’s success in the new utility environment. Previously, he was Chairman, CEO, and a member of the Board of Directors of Enova Corporation, the parent company of San Diego Gas & Electric (SDG&E). Prior to joining SDG&E in 1985, Mr. Baum was Senior Vice President and General Counsel of New York Power Authority from 1982 to 1985. Mr. Baum is a member of the Board of Directors of Computer Sciences Corporation (CSC) and chairs the company’s audit committee. Founded in 1959, CSC helps clients in industry and government use information technology to achieve strategic and operational objectives. Mr. Baum is a graduate of Harvard University and the University of Virginia Law School.

**Antonio Brufau Niubó** has been Chairman and CEO of Repsol YPF since October 2004. He also serves as Vice President of Gas Natural SDG. From 1996 to 2004, he was a member of the Repsol YPF Board of Directors and, in 1997, was appointed Chairman of Gas Natural SDG. Mr. Brufau began his professional career in finance, first at Arthur Andersen, where he became a Partner and Audit Division Head. In 1988, he moved to La Caixa where he was Managing Director of the La Caixa Group. He has remained active in La Caixa, serving on the Board of Directors of Caixa Holding, CaixaBank France, and CaixaBank Andorra. Mr. Brufau also has served on the boards of Suez, Enagás, Abertis SA, and Aguas de Barcelona SA. Active in many professional organizations, Mr. Brufau is Chairman of Barcelona’s Círculo de Economía and a member of the executive board of the International Chamber of Commerce (ICC), where he is the only Spanish participant. He holds a degree in economics from Barcelona University.

**Peter D. Cleary** became General Counsel of the Multilateral Investment Guarantee Agency (MIGA), a member of the World Bank Group, in September 2005 and has overall responsibility for MIGA’s Legal Affairs and Claims Group. Mr. Cleary played a leading role in many of the innovative contracts of guarantee issued by MIGA in
2006, including the Autopistas del Norte toll road private placement in the Dominican Republic, a mortgage securitization in Kazakhstan, and the Kupol mining project in Russia. In addition, Mr. Cleary has been active in resolving investor disputes regarding MIGA-insured transactions and has played a leading role in the development of the new anticorruption guidelines applicable to the International Finance Corporation, MIGA, and World Bank private sector operations. Prior to joining MIGA, Mr. Cleary was a partner at Freshfields Bruckhaus Deringer, based in Hong Kong, where he was head of the Asian Project Finance Group. He has had over 25 years of experience advising sponsors, lenders, and insurers on project finance transactions around the world. Among his major transactions are the $4.3 billion Nanhai petrochemical project (the largest project financing in Asia) and the An Tai Bao coal mine in China (the first project financing in the People's Republic of China). Mr. Cleary is a graduate of Princeton University and Harvard Law School.

Alfonso Cortina de Alcocer became President of Fundación Repsol YPF in 2005. Prior to that appointment, he had served as Chairman of the Repsol YPF Group since June 1996. From 1990 to 1996, he was Chairman and Managing Director of Portland Valderrivas SA. Mr. Cortina has had extensive experience in the banking industry, including service with Banco de Vizcaya Group, Banco Hispano Americano Group, Hispano Hipotecario, Sociedad de Crédito Hipotecario SA, and Banco Zaragozano. Mr. Cortina has been Chairman of the Asociación Hipotecaria Española and a member of the executive committee of the European Mortgage Federation, a European Union agency. He was honored by the Madrid Official Chamber of Commerce and Industry as Businessman of the Year in 1995. A member of both the executive committee of the Foundation for Technological Innovation (COTEC) and the European Round Table of Industrialists, Mr. Cortina holds degrees in advanced industrial engineering from Escuela Técnica Superior de Ingenieros Industriales (ETSII), Madrid, and in economics from Madrid University.

Rafael Di Tella is the Joseph C. Wilson Professor of Business Administration at Harvard Business School. Professor Di Tella focuses
on political economy with a particular concern for institutional development, and his research explores the causes of illegal behavior, with applications for corruption and common crime. Another strand of his work analyzes measures of happiness and how they might inform government policies on issues such as the incidence of inequality and the inflation-unemployment tradeoff. His current research examines the role that beliefs play in economic organization, including the reversals of pro-market reform and, more generally, why capitalism does not flow to poor countries. Professor Di Tella’s work has been published in academic journals; his most recent book is *Institutions, Macroeconomics, and the Global Economy* (with Huw Pill and Ingrid Vogel), World Scientific, 2005. He received his undergraduate degree in economics from the Universidad de Buenos Aires, and his D.Phil. in economics from Oxford University.

**Randy Gossen** is President of the World Petroleum Council (WPC), serving a three-year term, 2005 through 2008. The 60 member countries in the WPC represent over 90 percent of the world’s oil and gas producing and consuming nations, providing a solid base, Dr. Gossen believes, for an improved dialogue between the industry and its essential partners in governments, international organizations, and non-governmental organizations. He is also Vice President of Safety, Environment, and Social Responsibility for Nexen, Inc., a Canadian-based global energy company with a mission to grow value responsibly. These joint positions reflect his wide range of concerns and interests, stemming from more than three decades of varied experience in the oil and gas industry both domestically and internationally. His professional activities began with the Arctic gas pipeline project, where he was responsible for environmental research studies on northern flora and fauna. He then moved to Imperial Oil, Ltd., for 18 years, where his assignments included managing an oil sands project in northern Alberta. As one of the drafters of the International Code of Ethics for Canadian Business, Dr. Gossen worked to ensure that companies uphold certain standards in the areas of human rights, community participation, environmental protection, business conduct, employee rights, health, and safety. Dr. Gossen is the current Chairman of the International Petroleum
Industry Environmental Conservation Association (IPIECA) and an active participant in the United Nations Global Compact. He holds a Ph.D. in soil microbiology from the University of Calgary.

Zsolt Hernádi was appointed Chairman and CEO of the MOL Group, Hungary’s principal energy corporation and an international conglomerate, in June 2001. He has been a member of the Board of Directors since 1999 and its Chairman since July 2000. Mr. Hernádi began his professional career in banking and was CEO of the Central Bank of Hungarian Savings Cooperatives from 1994 to 2001 and a member of its Board of Directors from 1994 to 2002. Earlier, he was the Deputy General Manager of the Kereskedelmi és Hitelbank Rt., after working in various posts at that financial institution since 1989. Mr. Hernádi was a member of the board of the Hungarian Banking Association and currently serves as a member of the European Round Table of Industrialists. Mr. Hernádi graduated from the Faculty of Industrial Planning-Analysis at the Budapest University of Economic Sciences.

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Claude Mandil is currently serving a four-year term as Executive Director of the International Energy Agency (IEA), based in Paris. This position is the climax of his commitment to international cooperation in energy affairs and parallels his career as a distinguished French civil servant. While serving as Director General for Energy and Raw
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**H. E. Atanasio-Ela Ntugu** has been Equatorial Guinea’s Minister of Mines, Industry, and Energy since 2004. Prior to this appointment, he served as National Director of the Equatorial Guinea National Oil Company, GE Petrol. Minister Ntugu joined the Ministry of Mines, Industry, and Energy in 1984 and worked in a variety of departments, including economics, mines and quarries, and planning and statistics. In May 1995, he became the Regional Delegate for the Ministry of Mines, Industry, and Energy in Bata, Mainland Equatorial Guinea until
his appointment as National Director of GE Petrol in early 2004. He has been active in industry negotiations, including the agreement on the processing and commercialization of liquefied natural gas (LNG). Minister Ntugu has served as a member of the National Commission of Borders and of the Extractive Industries Transparency Initiative (EITI). He earned a degree in fuels and energy from the Polytechnic University School of Mining and Technical Engineering of Almadén, Spain.

Chawki M. Rahal is Vice President for Marketing at Sonatrach. This position to which he was appointed in August 2006, caps his 32 years with Sonatrach. Most of his previous service has been in the downstream sector, comprising liquefied natural gas (LNG), liquefied petroleum gas (LPG), refining, and petrochemical plants. Dr. Rahal has applied his first-hand experience from operations, engineering, and business development in the numerous senior management positions he has held, including, for example, Vice President for Liquefaction Studies and Development. Dr. Rahal also has served as Directeur Général of Sonatrach Petroleum Corporation. He is Chairman of the Programme Committee D (LNG) of the International Gas Union for triennium 2003–2006, a member of the Algerian Association of Gas Industries (AIG), and was a member of the LNG Conference Program Committee from 1991 to 2001. Dr. Rahal holds an undergraduate degree in electrical engineering from the University of Salford and M.Eng. and Ph.D. degrees in control engineering from the University of Sheffield.

The Honorable Javier Solana Madariaga is Secretary-General and High Representative for the Common Foreign and Security Policy (CFSP) of the Council of the European Union (EU). He assists the European Council in the application of its policy decisions, represents the Council in political negotiations, and works to maintain the CFSP and the European Security and Defense Policy (ESDP) as expressed in the treaties. He has traveled in troubled regions such as the Balkans and the Middle East and throughout the world as a representative of the EU. He is also Secretary-General of the Western European Union (WEU). Dr. Solana came to these positions in October 1999 after serving as Secretary-General of the North Atlantic Treaty
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