

House Committee on International Relations

Hearings on “Oil Diplomacy”

Testimony of

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Chairman

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June 20, 2002

(revised)

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I. Introduction

I am very pleased and honored to be invited by the Committee on International Relations to participate in this very important hearing on "Oil Diplomacy." Energy security is a subject that has much engaged me for over 25 years. It constitutes one of the major themes of *The Prize: the Epic Quest for Oil, Money, and Power*.

I would like to begin by observing that energy security has recurrently been an issue since the rise of industrial society more than a century ago. The precise beginnings may well have been when Winston Churchill, as First Lord of the Admiralty, converted the Royal Navy from coal to oil on the eve of the First World War. As a result, the Royal Navy moved from Welsh coal as the source of its propulsion to Persian – Iranian -- oil. Confronted by this new risk, Churchill articulated a principle of energy security that is no less apt in the first decade of the twenty-first century: "Safety and certainty in oil lie in variety and variety alone."

Over the century since Churchill's decision, energy security has persistently come to the fore. It was a very critical dimension in World War II. In the decades after World War II, there were five Middle East crises that either disrupted or threatened to disrupt the world oil supply system.

Of course, we are not in a crisis situation today. But energy security is front and center again -- for the first time since the Gulf Crisis a decade ago. At that time, the imminent threat was that the breadbasket of world oil production – the Persian Gulf – would fall under the sway of Saddam Hussein, enabling his regime to translate oil into political, economic, and military power – and into weapons of mass destruction.

A decade later, energy security concerns are once again on the table. Events demonstrate that, with the end of the Cold War and the resolution of the Gulf Crisis, we passed into a decade of exaggerated confidence about security. That includes energy security.

My objectives in today's hearing are three-fold.

First – to provide the Committee with a clear framework for understanding our national energy position.

Second – to identify key axioms for thinking about energy security.

Third – to relate our international relations in various regions -- including Russia, West Africa, and Latin America - - to the future of oil supply.

We need to begin, however, by asking why energy security has come to the fore again:

Rise in U.S. Oil imports. A quarter century ago, at the time of the 1973 oil crisis, the United States imported 36 percent of its oil. Today, it' over 50 percent.

Turmoil in the Middle East. There is growing concern that the Middle East could be destabilized by a number of factors – Iraq, terrorism, al-Queda, demographic pressures, Israeli-Palestinian conflict, generational change.

Market pressures. Energy price spikes in recent years have -- in this post-new economy world - - reminded us of the importance of energy.

Vulnerability. To all this, add a new concern in addition to the traditional concerns about the flow of oil – the security of our energy infrastructure, part of the overall focus on homeland security.

II. Our Energy Position

Our \$10.3 trillion economy rests on an energy foundation. Some 93 percent of that foundation is provided by oil, natural gas, coal and nuclear power. (Oil – at about 20 million barrels per day -- alone provides 40 percent of the total. Natural gas is 23 percent). Another 2 percent is hydropower; and biomass also provides 3 percent. Wind, though growing, and solar provide one-tenth of one percent – the equivalent of about 75,000 barrels per day.. It is noteworthy that the United States consumes about a quarter of the world's oil, while its GDP is about a third of total world GDP.

Imported oil meets over 50 percent of our total oil consumption. (See Table 1) Seventy percent of our imports come from the following six countries. Two are Middle Eastern; three, Western Hemisphere; one, West African.

Table 1
U.S. Oil Imports – 1st Q 2002
(million barrels per day)

Canada	1.84 mbd
Saudi Arabia	1.50 mbd
Mexico	1.47 mbd
Venezuela	1.45 mbd
Iraq	.83 mbd
Nigeria	.53 mbd

Source: USDOE, *Monthly Energy Review*

The simple reason that United States oil imports are going up is that U.S. demand has for many years been increasing more rapidly than production, which is increasing only modestly.

The prospect of rising oil imports has caused concern in the United States ever since we became a net importer in the late 1940s. After all, the United States provided six out of seven of all barrels of oil used by the Allies in the Second World War. For 30 years, “energy independence” has been a recurrent cry. Yet, during these years, we have become more integrated in into the world economy in many ways that have contributed to higher standards of living and higher employment. This integration emerged as one of the major themes of our new PBS series, *Commanding Heights: the Battle for the World Economy*. Some of the more startling examples: U.S. foreign trade doubled during the 1990s and is now equivalent to 25 percent of GDP, compared to 10 percent a couple of decades ago. Americans made 200 million overseas phone calls in 1980. By the end of the 1990s, that number was over 5 billion. One out of seven U.S. manufacturing workers is employed by a non-U.S. owned firm.

Oil, however, is a strategic economy. The issue is not whether we should import oil, but, rather, how to avoid being in a position that makes us vulnerable to disruption. Unless we are able to imagine some draconian regulations or a series of technological breakthroughs that are not now apparent, the practical question does not revolve around substantial reductions in imports, but rather about stabilizing them.

But how to do that? There is no single answer or formula.

Conservation has a significant role. We have already made a good deal of progress. Today, the amount of oil used per unit of GDP is only half of what it was in the 1970s.

Stabilizing or increasing oil production is also important. Technology has meant extraordinary strides in the capabilities and efficiency of oil production within a strong environmental framework. The deepwater Gulf of Mexico is the major reason that U.S. is increasing – offsetting strong declines elsewhere. But the ability to continue to

increase production will depend, more than anything else, on policy decisions made on access to resources.

New technologies, particularly in the transportation sector, will be important – although this will only unfold over time, as the U.S. vehicle fleet cannot quickly turn over. While there is much discussion about the fuel cell, it does not seem imminent as a competitive technology in transportation. It appears that we will see the biggest medium-term impact from hybrid vehicles – part internal combustion, part battery-driven.

III. Principles of Energy Security

Being that the United States will be a large oil importer – the world’s largest -- for some years to come, what are key principles for thinking about energy security. Based upon the experience of the United States over the last 30 years, I would offer the following common-sense observations:

1. Recognize that there is really only one oil market. The United States is part of a global oil market, an extraordinarily huge logistical system that moves 77 million barrels of oil around the world every day. Our security resides in the stability of the overall market.

2. Churchill’s maxim of 90 years ago still holds true – diversification of supplies is one of the key guarantors of security and this has been an important element of United States policy since the 1970s.

3. Emergency stocks, such as our Strategic Petroleum Reserve, are a front-line defense against disruption. But their value should not be devalued and undercut by turning them into a market-management schemes that confuse temporary hikes – seasonally-induced or the result of regulatory-induced balkanization of the gasoline market – with a serious disruption.

4. The oil market is far more flexible than it was in earlier decades. Intervention and controls can be highly counter-productive, hindering the system from readjusting. As tough as it is, resisting the temptation to micro-manage markets can be one of the most significant contributions of public policy. After all, the famous gas lines of the 1970s were largely home-made – the result of controls that prevented moving gasoline to where it was needed from places where it was not needed.

5. Pursue cooperative energy relations with other importing nations, whether they be the other industrial nations, the new “globalizers” like China and India that will be the most rapidly-growing importers of oil, or the poor nations. These can be pursued on a multilateral basis, as with the International Energy Agency, or bilaterally.

6. Government can allay the panic that creates self-fulfilling prophecy through quality information and by facilitating the exchange of information within the industry that makes possible more rapid adjustment.

7. Most oil exporting nations recognize the mutuality of interest and are deeply interested in “security of demand” – stable commercial relations with their customers, whose purchases often provide a significant part of their national revenues. Thus, we should be maintaining strong dialogues on a consistent basis with the exporting nations.

8. A healthy, technologically-driven, domestic energy industry is part of energy security. So is a commitment to research and development and innovation across a broad spectrum that takes into account current and future environmental considerations.

IV. Today’s Oil Supply - - and Tomorrow’s

The following table provides the basic outline of share of world oil production and world oil reserves. (See Table 2) As is evident, the Middle East provides about 30 percent of total world liquids production. One of the most noteworthy features since the 1970s is the significant growth in non-OPEC production. Reserves is a different story. A far larger share of world oil reserves – 66 percent -- is concentrated in the Persian Gulf region.

Table 2
Regional Shares (per cent)

	World Liquids Production	Reserves
North America	17.6	5.4
U.S.	9.9	2.1
Canada	3.1	0.4
Mexico	4.5	2.8
Middle East	29.8	66.6
Saudi Arabia	11.6	25.5
Iran	4.9	8.7
Iraq	3.2	11.0
Kuwait	2.8	9.3
Africa	10.0	7.3
Asia/Pacific	9.5	4.3
Latin America	8.6	9.3
Europe	8.7	1.9
Eurasia	11.0	5.4

Russia	9.0
Other	4.0

Source: Cambridge Energy Research Associates and Sun Microsystems, *Global Oil Trends 2002*

We see significant growth in world oil supplies over the rest of this decade – measured in terms of additions to capacity, something on the order of a 22 percent increase. (See attached graphic/table “World Liquid Productive Capacity”). Some of the most noteworthy growth will occur in Eurasia (Russia and the Caspian), West Africa, and Latin America. The deepwater U.S. Gulf of Mexico is also very important. But the largest growth, at least this point, looks to be in the Middle East. (See attached graphics, “Shifts in World Productive Capacity” and “Shifts in World Liquid Capacity”)

The overall growth in capacity will be required to meet rising demand from developing countries, led by China and India. (China’s oil consumption has doubled since 1990, and today China is the world’s third largest oil consumer – and is rapidly moving up on Japan).

But we need to remember that the prospects for future oil supplies are not fixed. They will be determined by economics, politics, public policy, and technology. Whatever the part of the world one is talking, one critical factor will be the stability and reasonableness of the investment framework and its openness to foreign investment. The second thing that needs to be taken into account is time frame. There is no quick button to push. An ineluctable “law of long lead times” seems to govern when it comes to major oil and gas development. Projects unfold over five or ten or fifteen years. At every stage, the investors are managing risks. This reinforces the need to shape investment environments that meet the needs of both host governments and international companies over time.

V. Russia and the Caspian

Russia and the Caspian have taken on new significance for the world oil market over the last year. Waves of optimism and pessimism about the potential contribution of the former Soviet Union have swept over the world oil market in the last decade. At one point, there was expectation that the Caspian region might be a new “el dorado,” a new Persian Gulf. At other points, there was focus on the decline of output from the Russian Federation.

CERA’s forthcoming study – *The New Game: Russia, The Middle East, and World Oil* – identifies several factors that have come together to strengthen the confidence about potential sizable growth from this area.

- The Russian oil industry is going through considerable modernization, as it shifts from an industry that was the remnant of old Soviet ministries towards that of independent oil companies seeking to operate at world

standards. New technology, new organization, and new attitudes are turning around the production outlook. Observers are noting a shift in the outlook of the industry toward an emphasis on efficiency and cost reduction. Transportation bottlenecks are in the process of being reduced, although they are still significant. The results can be seen in the sharp increase in production last year and this year, as well as an increasing appreciation in the scale of reserves.

- After years of frustration and disappointment, Russia is now a higher priority for significant investment on the part of Western companies that want to diversify their resources. As time goes on, world capital markets may well attribute higher value to Russian oil reserves than they do today.
- The August 1998 financial crash in Russia was a great shock to Western investors. Russia has had several years of solid economic growth since, however, combined with continuing market reform. This strengthens the confidence of western investors and creates a more solid basis for economic and political cooperation.
- The new strategic relationship between the United States and Russia provides a context for a growing energy relationship. And, in turn, the energy relationship is a significant dimension of the overall relation.

What does this add up to in terms of additional oil production? Based upon what is known today, we see strong oil growth coming out of Russia and the Caspian – from 9 million barrels per day today to 13.2 million barrels per day – a 50 percent increase. In addition, Russia has an enormous role as the “Saudi Arabia of natural gas,” supplying large volumes to Western Europe and, in the years ahead, to growing economies of East Asia.

Of course, there could be further surprises that throw either Russian or the Caspian off the new track. But it certainly has much stronger foundations than in the past. The growth of oil supplies from Russia and the Caspian can be one of the most important new contributions to stability in world oil markets – especially in the face of non-OPEC declines elsewhere. The United States has many reasons to pursue continued strengthening and broadening of our political and economic relations with Russia. By developing further those relations in general, and working with the Russian government to facilitate energy development, the U.S. government can make one of its most important contribution to energy security.

VI. West Africa: At the threshold

The upstream oil and gas industry in West Africa is at a threshold. After several years of steady, but unspectacular gains in oil output, West Africa is on the cusp of becoming a leader in global oil production growth. West Africa’s potential is manifested by large oil discoveries in recent years offshore Angola, Equatorial Guinea and Nigeria.

Most new oil field developments are offshore, but not exclusively. Once the Chad-Cameroon pipeline is completed, a billion barrels of hitherto untapped oil reserves in southern Chad will begin to be exported to the global market. Many American oil companies hope to participate in West Africa's growth.

How significant is West Africa's potential? West African oil production capacity could increase from 4.3 million barrels per day (mbd) in 2002 to 6.8 mbd in 2010—an increase of 58 percent. Based on CERA's projections, approximately one out of every seven barrels of global capacity growth could come from West Africa between 2002 and 2010. This growth could strengthen the diversification of United States oil imports and thus improve US energy security. The US is a natural market for West African oil.

Angola and Nigeria account for the lion's share of regional production capacity—roughly 80 percent in 2002—but some of the smaller producers are likely to record significant gains to 2010. Equatorial Guinea, which produced no oil until the mid-1990s, could see production more than double from 0.25 mbd in 2002 to 0.55 mbd in 2010. Chad could see its production grow from nothing to roughly 0.25 mbd in the next several years. Oil has been discovered in Niger, but lack of an export pipeline is one of the factors preventing its reserves from being developed. Oil has yet to be discovered in the waters offshore São Tomé & Príncipe, but it is attracting strong interest from oil companies as it makes preparations to license acreage.

West Africa's potential is clear, but political and market factors could lead to reality falling short of potential. The only certainty is that West Africa has tremendous upstream growth prospects. If West Africa is to realize its potential for production growth, three risks need to be successfully managed. A new CERA study, *West African Oil & Gas to 2020: Opportunity, Potential and Risk*, identifies these risks:

- **OPEC quota/Government policy.** In all West African producers, government policy—such as domestic content rules—could lead to slower than expected growth.
- **Marketing natural gas.** Could the lack of market outlets for associated gas production create indefinite delays for new oil field developments? If the gas associated with an oil development can't be re-injected or marketed, it could threaten new oil field development. Developing outlets for gas production—LNG, domestic/regional markets, gas-to-liquids—is essential for West Africa to realize its growth potential. Gas could even spur real regional economic integration. A much discussed natural gas pipeline from Nigeria to Ghana would, if it is built, represent a true milestone in regional integration.
- **Political environment** Political instability—unexpected changes of government or civil unrest or even war—could complicate exploration and development by injecting delays and increasing uncertainty about who in government makes the rules. Moreover, lack of political stability could result in simmering conflicts over control of oil revenue that would preclude the use of such revenue as an engine of economic growth and higher living standards.

The US government and international financial institutions could work together with West African governments and oil companies to diminish some of the risks that could lead to West Africa falling short of its potential for production growth. Such policies could be focused on:

- **Helping to strengthen state institutions.** Weak government institutions in West Africa often prevent oil revenue from being used as a catalyst of sustainable economic growth and rising living standards.
- **Improving political relations with West African countries.** Strong ties between US and West African governments can help expand oil company investments. Strong ties would benefit other endeavors as well, such as security cooperation.
- **Developing domestic and regional gas markets.** Given the large scale of natural gas reserves in West Africa—Nigeria’s gas reserves match those for oil—gas could serve as the foundation for expansion of the region’s modest industrial base. Abundant gas reserves also offer the possibility of rapid expansion of power generation capacity. Development of regional gas markets, such as the proposed Nigeria to Ghana gas pipeline, would lead to deeper economic integration between neighboring states. A growing industrial base and rising power supplies would create jobs and foster greater economic and social stability in West Africa’s oil producing states.

VII. The Western Hemisphere

A new decade for energy relations within the Western Hemisphere appears to be upon us – one defined less by broad commitment to reform and opening of markets, but rather more on tactical solutions. A number of factors are changing the perspective in Latin America – ranging from the economic collapse in Argentina, political uncertainty in several countries, and the questioning of reform, to the global economic slowdown and Latin perspectives on such problems as the California crisis.

Altogether, this adds up to a backlash against reform and market liberalization. This suggests a new approach on the part of the United States towards energy relations with its neighbors to the South and this approach should begin with understanding the key issues for each of the countries.

The US imports approximately 3.4 mbd of oil and oil products from Latin America. This represents approximately 30 percent of total oil and product imports. Among the top 4 suppliers of oil and products are Mexico and Venezuela. The United States also imports LNG from Trinidad and there are two LNG re-gasification projects being considered in Mexico that would send some gas to the United States. As importantly, there is a tremendous potential for new oil and gas supplies in several countries in the region including Mexico, Venezuela, Brazil, Bolivia, Colombia, Ecuador

and Trinidad and Tobago. Venezuela alone has over 100 billion barrels of proved reserves if --the Orinoco extra heavy reserves are considered. Clearly Latin America represents an important future source of energy supply to the United States, particularly when one considers that this supply is in close proximity to the US; therefore transportation costs relative to Middle East supplies are lower. The development of such supplies adds stability to the market. From the viewpoint of the Latin American countries, energy exports constitute a very important source of earnings.

Yet the large potential of Latin America is being undermined by serious political, economic and regulatory issues in some of the key energy exporting countries. In 1999, CERA estimated that Latin America would produce upwards of 12.8 mbd by 2005. Its estimates have now dropped to about 11.3 mbd due to lower than expected investments and low success rates.

The most extreme case is Venezuela. It used to be the largest exporter of oil to the US but has now dropped to number four. Expectations are that liquid productive capacity in Venezuela, and consequently exports from Venezuela, will actually fall next year and remain flat in 2004. CERA estimates that capacity will average just under 3 mbd in 2002, falling to about 2.8 mbd in 2003. This is due to a precipitous decline in exploration and production investment both from the state owned oil company PDVSA and from the private sector. Rig counts, which were once as high as 110 have fallen below 40. Private sector investment has dried up due to a combination of high political risk under the regime of Hugo Chávez and the introduction of draconian hydrocarbon law which some see as, effectively, a polite dismal of the private sector.

Another difficult country in Latin America is Colombia, where exports to the US have also declined due to drop off in liquid productive capacity from .7 mbd in 2000 to less than .55 mbd today. The security threat resulting from the guerilla attacks have prompted a dramatic decline in private sector investment, and a significant backing off by many large oil and gas companies in the face of this risk.

Mexico is a country that is committed to further reforms under President Vicente Fox. But oil and gas sector remains closed to private sector investment. Clearly this is constraining energy development. Of immediate concern, however, is the growing need for imported natural gas supplies from the United States into Mexico. Developing new gas supplies is a key ingredient for Mexico's future economic growth.

Another critical issue, beyond import/export issues, is the impact that inefficient or insufficient development of hydrocarbon resources in these countries has on the overall economic and political prospects. Mexico depends on hydrocarbons for over 35 percent of government revenues – for Venezuela, it's nearly 60 percent of government revenues. A decline in oil revenues means less money for education, health, and social services. Any major fall in oil prices would have severe economic effects on many of these countries, with significant political and social consequences. This is something the US wants to avoid particularly in Mexico where poor economic conditions lead to additional immigration pressures.

Realizing Latin America's energy potential will require new investment from the private sector. But that investment will be hindered by political, legal, and security concerns. Solutions may not be found on a "hemispheric basis," but on a basis that addresses the specific situation of each country and helps each country address its basic questions. Many of the energy-rich Latin American countries are grappling, in one way or another, with a fundamental issue: how to maximize the value of hydrocarbons in the ground in order to provide a reasonable income stream for the government and, at the same time, ensure the availability of reliable, reasonably-priced supplies required to meet domestic demand and to fuel economic growth.

VIII Conclusion: One Final Axiom

I began by quoting one British prime minister on energy security. I would like to conclude by quoting another. I remember a discussion I had with Margaret Thatcher in the course of working on *Commanding Heights*..

"Remember Thatcher's Law," she said at the end of our talk.

Not being familiar with it, I asked her what it was.

"The unexpected happens," she replied. "You had better prepare for it."

Thatcher's Law seems to me a very good principle – indeed, an essential one -- when it comes to energy security.

Daniel Yergin
Chairman
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Daniel Yergin is a highly respected authority on energy policy and international politics and economics. He is Chairman of Cambridge Energy Research Associates (CERA). Dr. Yergin is both a Pulitzer Prize winner and recipient of the United States Energy Award for “lifelong achievements in energy and the promotion of international understanding.”

His new book *The Commanding Heights: The Battle for the World Economy*, with co-author Joseph A. Stanislaw, has received wide attention for its analysis and narrative of how the “world is changing its mind about markets.” It has been translated into 13 languages, and made into a six-hour documentary which aired on PBS in April 2002 as its major television series on globalization. This nationally broadcast series is receiving extraordinarily positive reaction. *The Washington Post* calls it “stunningly ambitious, brilliantly successful... No more important program for making sense of our life and times has been seen on the air in at least a decade and just possibly a good deal longer.” *Wired* states that it “does for the economy what Ken Burns did for jazz and the civil war.”

Dr. Yergin received the Pulitzer Prize for General Nonfiction for his work *The Prize: The Epic Quest for Oil, Money and Power*, which became a number one national best seller and was made into an eight-hour PBS/BBC series seen by 20 million people in the United States. The book has been translated into 12 languages.

Dr. Yergin is a Brookings Institution Trustee, and a member of the Committee on Studies of the Council on Foreign Relations. He is a member of the Board of the United States Energy Association, and a member of the National Petroleum Council and serves on the NPC Co-chairs’ Coordinating Committee. He is a member of the US Secretary of Energy’s Advisory Board and chaired the US Department of Energy’s Task Force on Strategic Energy Research and Development. He is also a Director of the US-Russian Business Council.

Dr. Yergin received his BA from Yale University and his Ph.D. from

Cambridge University, where he was a Marshall Scholar.

With 250 employees around the world, Cambridge Energy Research Associates (CERA) is one of the world’s leading consulting and research firms. Its offices are in Cambridge, Massachusetts; Washington, D.C.; Oakland, California; Paris; Oslo; Moscow; Sao Paulo; Mexico City; Calgary; Bangkok and Beijing. It provides 27 energy research services to organizations around the world, covering major segments of the energy industries and geographic regions.

