

WESTERN HEMISPHERE ENERGY SECURITY

HEARING
BEFORE THE
SUBCOMMITTEE ON
THE WESTERN HEMISPHERE
OF THE
COMMITTEE ON
INTERNATIONAL RELATIONS
HOUSE OF REPRESENTATIVES
ONE HUNDRED NINTH CONGRESS

SECOND SESSION

—————
MARCH 2, 2006
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Serial No. 109-204
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Printed for the use of the Committee on International Relations



Available via the World Wide Web: http://www.house.gov/international_relations

U.S. GOVERNMENT PRINTING OFFICE

26-334PDF

WASHINGTON : 2006

For sale by the Superintendent of Documents, U.S. Government Printing Office
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WESTERN HEMISPHERE ENERGY SECURITY

THURSDAY, MARCH 2, 2006

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON THE WESTERN HEMISPHERE,
COMMITTEE ON INTERNATIONAL RELATIONS,
Washington, DC.

The Subcommittee met, pursuant to notice, at 2:06 p.m. in room 2172, Rayburn House Office Building, the Honorable Connie Mack presiding.

Mr. MACK. Good afternoon. A quorum being present, the Subcommittee on Hemisphere will come to order. I ask unanimous consent that all Members' and witnesses' opening statements be included in the record. Without objection, so ordered.

I ask unanimous consent that all articles exhibits and extraneous or tabular material referred to by the Members or witnesses be included in the record. Without objection, so ordered.

I ask unanimous consent that any Member who may attend today's hearing be considered a Member of the Subcommittee for the purposes of receiving testimony and questioning witnesses after Subcommittee Members have been given the opportunity to do so. Without objection, so ordered.

Today we are convening a hearing on energy security in the Western Hemisphere. Your testimony will help the Subcommittee in making an assessment of hemispheric oil market and the ongoing development of energy resources in North America and the Caribbean regions. By the time we are finished today, I hope the Subcommittee will have a better understanding of the energy investment climate in these regions and the risks in the hemispheric energy markets linked to political trends, the politicization of these strategic commodities, and the potential production and supply disruptions.

We undertake this oversight hearing with the keen eye toward our broader foreign policy goals of strengthening stability in the Americas through growth and development and strong support for further democratization.

I first want to welcome our distinguished new Ranking Member, Congressman Eliot Engel of New York. Congressman Engel represents the 17th District which includes the Bronx, Westchester and Rockland Counties. He is a member of the Human Rights Caucus, serves as Vice Chair of the House Democratic Task Force on Homeland Security and the Democratic Task Force on Health. We look forward to working with you and your staff on Western Hemisphere affairs.

Mr. ENGEL. Thank you.

Mr. MACK. Welcome.

I would like to for the record state that Chairman Burton is not able to make it today. He is feeling ill, and I will be reading and also placing his opening statement into the record, and I must say it is an honor and privilege to do so. The following is his statement.

I believe that the energy and ideas are two primary drivers of growth and development. When free market forces drive the exchange of both of these commodities, nations stand a better chance of enjoying equitable distribution of the fruits of economic growth. When energy markets are free of corruption and promote open, responsible, and environmentally-safe investment, nations stand a better chance of governing these resources and the revenue that is generated for the benefit of their people.

Conversely, when rigid artificial mechanisms are put in place, development of energy resources is often stifled, or these resources are exploited, squandered and enjoyed by only a select few.

This is a subject we have been focusing on for many months, with high oil and gas prices costing consumers more than ever. Obviously, Hurricane Katrina focused our attention like a laser beam to the very real threat of disruption in our own domestic energy supply.

Almost 40 percent of the energy we consume in the U.S. is supplied by petroleum, and our appetite has nearly tripled in the last half century. In his most recent State of the Union address, President Bush, like many of his predecessors, rightly pointed to the need to reduce our dependency on foreign oil from volatile suppliers in the Middle East.

Just last week, Saudi Arabia security forces thwarted a terrorist attack against a facility which produces two-thirds of the country's output. The threat of supply distribution saw crude oil futures spike more than \$2.30 to almost \$63 per barrel. Militants in Nigeria and protestors in Ecuador have disrupted output in these countries, and insurgents in Iraq have interrupted production there.

Political instability and security threats in the countries that supply our energy needs, along with greater competition for fossil fuels, is driving costs even higher. Clearly, part of our strategy must be to conserve and diversify our sources of energy. We cannot afford to delay research and investment in alternative fuels. Equally important is to work with the major stable partners we have—like Mexico and Canada—to improve technologies and to develop infrastructure and expand investment. We can and we must do more to encourage multilateral investments that foster greater integration and development of regional energy sectors.

The newly-elected President of Bolivia, Evo Morales, will be making decisions about the hydrocarbons industry in that country that will have deep social, economic long-term implications. Expectations are high, particularly with Mr. Morales' supporters in the indigenous communities that have been marginalized historically.

Despite conflicting signals to foreign investors, President Morales has pledged to renegotiate with foreign oil companies in order to develop Bolivia's natural gas reserves. The people of Bolivia will benefit from increased development of natural gas, and the economic growth that will come from expansion beyond traditional markets like Argentina and Brazil. Fresh investments however re-

mains on the sidelines as political uncertainties and risks appear high.

Similarly, political instability and legal uncertainties in Ecuador have resulted in prolonged investment disputes for United States companies and a 50 percent drop in oil production. Strikes, protests, and sabotage of oil pipelines in the country have further exacerbated problems there.

Venezuela has been a dependable supplier of oil to the United States, and up until recently, bilateral relations have been good. As this Subcommittee knows, Chairman Burton has tried to temper public remarks about Venezuela in the last 12 months, and he wants to make it very clear that he wishes to continue to pursue dialogue with Caracas.

Nevertheless, in recent weeks I have become increasingly convinced that the Government of Venezuela is seeking to destabilize the region and dismantle the institutions of democracy within its borders and beyond them.

Equally worrisome, in recent weeks President Hugo Chavez and Communist Dictator Fidel Castro of Cuba, along with other Latin American leaders, have begun reaching out to known Islamic terrorist organizations, such as Hamas, and cozying-up to renowned terrorist-sponsoring nations like Iran and North Korea.

Any alliance between terrorist-sponsoring nations and leftist leaders in Latin America will be viewed as a serious and direct threat to the national security of the United States and our friends in the hemisphere. When they cooperate with terrorist organizations such as Hamas, or cooperate with renowned terrorist-sponsoring nations like Iran or North Korea, President Chavez and the Cuban dictator are putting themselves and others at risk, and several world bodies will be no longer tolerate it.

The Venezuelans can sell their oil anywhere they like. Venezuela is a sovereign state. They can sell it at deep discounts or finance consumption of their oil. Some observers point to the obvious with arrangements in Cuba. The artificial mechanisms will further indebtedness in some of the poorest countries in the hemisphere, not to mention, over-reliance on a single energy source. I believe it also bears mentioning in this hearing that huge oil revenues have not resulted in a reduction of poverty rates under Hugo Chavez's version of democracy in Venezuela.

I will ask our witnesses today to address these and other concerns I have in the hemisphere.

President Bush has laid out a roadmap for cooperation to consolidate democracy in the Western Hemisphere, and to use trade as a catalyst for positive growth in the region to create conditions which will alleviate poverty and strengthen democratic institutions. A cohesive energy security framework will provide the economic underpinnings for the growth and stability that most of the governments in the region are pursuing. Twenty-nine of the thirty-four Western Hemisphere nations that met in Argentina last year are in favor of moving forward on free trade negotiations. Cooperation in these areas of energy development and investment and integration must be a top priority of policy makers.

[The prepared statement of Mr. Burton follows:]

PREPARED STATEMENT OF THE HONORABLE DAN BURTON, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF INDIANA, AND CHAIRMAN, SUBCOMMITTEE ON THE WESTERN HEMISPHERE

Today we are convening a hearing on Energy Security in the Western Hemisphere. Your testimony will help the Subcommittee in making an assessment of hemispheric oil markets, and the ongoing development of energy resources in North America, the Andean and Caribbean regions. By the time we are finished today, I hope the Subcommittee will have a better understanding of the energy investment climate in these regions, and the risks in hemispheric energy markets linked to political trends, the politicization of these strategic commodities, and potential production and supply disruptions.

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I first want to welcome our distinguished new Ranking Member, Congressman Eliot Engel of New York. Congressman Engel represents the 17th District which includes the Bronx, Westchester and Rockland Counties. He is a member of the Human Rights Caucus, serves as Vice Chair of the House Democratic Task Force on Homeland Security and the Democratic Task Force on Health. We look forward to working with you and your staff on Western Hemisphere Affairs.

I believe that *energy and ideas* are two primary drivers of growth and development. When free market forces drive the exchange of both of these commodities, nations stand a better chance of enjoying equitable distribution of the fruits of economic growth. When energy markets are free of corruption and promote open, responsible, and environmentally-safe investment, nations stand a better chance of governing these resources and the revenue that is generated for the benefit of their people. Conversely, when rigid, artificial mechanisms are put in place, development of energy resources is often stifled, or these resources are exploited, squandered and enjoyed by only a select few.

This is a subject we have been focusing on for many months, with high oil and gas prices costing consumers more than ever. Obviously, Hurricane Katrina focused our attention like a laser beam to the very real threat of disruptions in our own domestic energy supply.

Almost 40% of the energy we consume in the U.S. is supplied by petroleum, and our appetite has nearly tripled in the last half century. In his most recent State of the Union address, President Bush, like many of his predecessors, rightly pointed to the need to reduce our dependence on foreign oil from volatile suppliers in the Middle East.

Just last week, Saudi Arabian security forces thwarted a terrorist attack against the Abqaiq facility, which processes two-thirds of the country's output. The threat of supply disruptions saw crude oil futures spike more than \$2.30 to almost \$63 per barrel. Militants in Nigeria and protestors in Ecuador have disrupted output in those countries, and insurgents in Iraq have interrupted production there.

Political instability and security threats in the countries that supply our energy needs, along with greater competition for fossil fuels, is driving costs ever higher. Clearly, part of our strategy must be to conserve and diversify our sources of energy. We cannot afford to delay research and investment in alternative fuels. Equally important is to work with the major, stable partners we have—like Mexico and Canada—to improve technologies and to develop infrastructure and expand investment. We can and we must do more to encourage multilateral initiatives that foster greater integration and development of regional energy sectors.

I have personally raised this with Inter-American Development Bank President Moreno, and was briefed on his plans to finance both public and private sectors to generate electricity and transport and distribute electricity and natural gas. Last year alone the IDB approved more than \$1 billion dollars in lending to energy projects/investments in Latin America and the Caribbean.

The newly-elected president of Bolivia, Evo Morales, will be making decisions about the hydrocarbons industry in that country that will have deep social and economic long-term implications. Expectations are high, particularly from Mr. Morales' supporters in the indigenous communities that have been marginalized historically. Despite conflicting signals to foreign investors, President Morales has pledged to renegotiate with foreign oil companies in order to develop Bolivia's natural gas reserves. The people of Bolivia will benefit from increased development of natural gas, and the economic growth that will come from expansion beyond traditional markets like Argentina and Brazil. Fresh investment however, remains on the sidelines, as political uncertainties and risks appear high.

Similarly, political instability and legal uncertainties in Ecuador have resulted in prolonged investment disputes for U.S. companies and a 50% drop in oil production. Strikes, protests and sabotage of oil pipelines in that country have further exacerbated problems there.

Venezuela has been a dependable supplier of oil to the United States, and up until recently, bilateral relations have been good. As this Subcommittee knows, I have tried to temper public remarks about Venezuela in the last twelve months, and I want to make it very clear that I wish to continue pursuing DIALOGUE with Caracas. Nevertheless, in recent weeks I have become increasingly convinced that the government of Venezuela is seeking to destabilize the region and dismantle the institutions of democracy within its borders and beyond them. Equally worrisome, in recent weeks President Hugo Chavez and Communist Dictator Fidel Castro of Cuba, along with other Latin American leaders, have begun reaching out to known Islamic terrorist organizations, such as Hamas, and cozying-up to renowned terrorist-sponsoring nations like Iran and North Korea. Any alliance between terrorist-sponsoring nations and leftist leaders in Latin America will be viewed as a serious and direct threat to the national security of the United States and our friends in the Hemisphere. When they cooperate with terrorist organizations such as Hamas, or cooperate with renowned terrorist-sponsoring nations like Iran or North Korea, President Chavez and the Cuban dictator are putting themselves and others at risk, and several world bodies will not long tolerate it.

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I now recognize the distinguished ranking member from New York, Eliot Engel, for any statement he may wish to make.

Mr. MACK. I now recognize the distinguished Ranking Member from New York, Eliot Engel, for any statement he may wish to make.

Mr. ENGEL. Well, thank you very much, Mr. Chairman, and thank you for your very kind words of welcome. I really appreciate them, and I look forward to working with you.

Before I turn to the Subcommittee hearing, I want to reiterate what you already mentioned, that today marks my first hearing on the Western Hemisphere Subcommittee, and I am honored to join you as Ranking Member. Again, thank you for the very, very kind words.

I look forward to working with our Subcommittee Chairman, Mr. Burton, with whom I have worked closely over the years. I have heard such good things about how he runs the Subcommittee that I am excited to collaborate with him on future legislative efforts. I understand, as you mentioned, he is not feeling well today, and I wish him a speedy recovery. I also look forward to working on a bipartisan basis with all of my fellow Subcommittee colleagues to raise the profile of the Western Hemisphere region and help ensure that its numerous pressing issues receive the attention they deserve.

Turning to the issue at hand, as President Bush said during his State of the Union address, America is dangerously addicted to oil. We consume nearly 21 million barrels of oil per day, every day, and our appetite is increasing. Today the American economy demands over 25 percent of global oil production while our known oil reserves make up only 3 percent of global supply.

For our imports, the United States has long relied on Western Hemisphere suppliers of oil and gas. Indeed, according to the most recent statistics, crude oil imports from Canada, Latin America, and the Caribbean amount to 50 percent of total United States imports.

Even as our thirst for more oil increases, China, India, and the development world are demanding a greater share of the pie. Being so completely dependent on a single finite and pollution-causing fuel might only be an economic or environmental problem if it were not for the fact that the United States must import over 60 percent of our oil, which is over 12 million barrels per day, and much of that from nations with fragile, unfriendly or outright hostile governments to ours.

Whether it is the kidnappings in Nigeria's oil fields, the rampant corruption in Russia, the war in Iraq, or the nuclear stand off with Iran, when it comes to oil imports America has few good options.

In an era of increasing volatility in the Persian Gulf and the Gulf of Guinea, events have shown that some Western Hemisphere energy suppliers are not immune. From Bolivian riots over natural gas and natural gas policy to Venezuelan musings about shifting export focus away from the United States to developing Chinese interests in the Western Hemisphere region, even our closest neighbors are not a completely stable source of supply.

Addiction to foreign oil limits our actions on the global stage and our choices here at home. It leaves us vulnerable to acts of God and acts of man, and it is intertwined with terrorism. Dependency on foreign oil is one of the central national security problems we will face in this 21st century. It is therefore imperative to U.S. national security that we wean ourselves off of oil.

Mr. Chairman, I am proud to add that I am Co-Chair of the bipartisan Oil and National Security Congressional Caucus, which I Co-Chair with Congressman Jim Saxton, that I am also the lead Democratic sponsor of H.R. 4409, the Bipartisan Fuel Choices For America's Security Act, which I am doing with our colleague Jack Kingston.

As in our hearing today, our efforts seek to find ways to reduce the amount of oil we use and import as well by finding alternatives to gasoline in the cars we drive.

At today's hearing, I welcome the opportunity to explore the profound challenges our dependency on foreign oil poses to our national security and questions related to energy security in our hemisphere. I also welcome the opportunity to learn about developments in the Western Hemisphere region, and how the United States can improve its relations within the hemisphere and reduce its vulnerability to supply disruption.

Thank you, Mr. Chairman.

Mr. MACK. Thank you, and now I will recognize myself for an opening statement.

I am glad to be able to play a part in this important hearing today. I want to thank the witnesses for sharing their insight with us, and I would also like to thank the Subcommittee for all of their help in preparing for today's hearing.

Today, the United States is the largest consumer of global energy resources, thereby making access to energy a strategic importance for our nation. The President, in his State of the Union speech, said that America is addicted to oil, which is often imported from unstable parts of the world.

Although I strongly agree with the President that we must become a country less dependent on foreign sources of energy, the reality is that in the near term we are very dependent upon energy from places and countries that may not have the United States best interest at heart.

Today's hearing is focused on understanding the risk in the Western Hemisphere energy markets, the political trends which may impact the energy, markets, and the potential production and supply disruption. I think this issue is of critical importance to this Congress, especially in light of the growing instability in Latin America.

While freedom is on the march on many places around the world, a resurgence of socialist, communist and anti-freedom governments and movements in Latin America represent an emerging threat to freedom in the region and to the energy needs of the United States.

The instigator is Venezuela's Socialist President Hugo Chavez who is using state-owned oil money to underwrite his iron-fisted control of Venezuela people and to back his alliance with leftist leaders and causes through Latin America.

With Venezuela as the world's fifth largest oil producer, and oil at over \$60 a barrel, Chavez has assumed the identity of a modern-day Simon Bolivar who attempted to unify Latin American in the 1800s. Oil is Chavez's ATM to finance a bolivarian revolution that abuses Presidential power in Venezuela and fans the flame of Socialism and regional instability.

In many of the Western Hemisphere, we are seeing a free market approach to energy production. However, in Venezuela I am alarmed by the changes we are witnessing. While Chavez still respects an arrangement with foreign companies doing business side by side with government-owned oil companies, Hugo Chavez has slowly stepped up controls of foreign operators.

Many foreign energy companies are doing well in Venezuela, and are hesitant to make much noise to fear upsetting the apple cart. But make no mistake, Chavez aims to nationalize the Venezuelan oil sector. He is putting increased pressure on foreign companies by forcing them to pay back taxes, threatening seizures of property, and energy fields, and even renegotiating contracts.

I will ask our witnesses today to address my concerns about Venezuela, Hugo Chavez and his growing influence in the region, and his impacts upon our energy security.

I now would like to introduce our first guest, our first panel, Karen Harbert, is Assistant Secretary of Policy and International Affairs with the U.S. Department of Energy. Her office is the primary policy advisor to the Secretary in the department of domestic

and international energy issues, new policy initiatives and implementation of the national energy policy.

Previously, she served as Deputy Assistant Administrator for Latin America and the Caribbean at the U.S. Agency for International Development, with primary responsibility for foreign assistance programs in South America and the Caribbean, and she also had oversight of programs in 11 countries, totaling over 800 million and 1,000 employees.

Good to have you with us, Secretary.

[Witness sworn.]

Mr. MACK. Thank you, and now if you would please summarize or give your opening statement, we would appreciate it.

TESTIMONY OF THE HONORABLE KAREN A. HARBERT, ASSISTANT SECRETARY, OFFICE OF POLICY AND INTERNATIONAL AFFAIRS, U.S. DEPARTMENT OF ENERGY

Ms. HARBERT. Good afternoon, Mr. Chairman, and welcome, Congressman Engel, to the Subcommittee. I look forward to working with both of you and Members of the Subcommittee in the times ahead.

I am very pleased to be here today to discuss the importance the Administration places on energy security and efforts to strengthen energy security in our hemisphere. As you both have stated, U.S. energy security is inextricably intertwined with our economic prosperity and our national security, and that is why the President has made energy security a real focus of his Administration, and chose to highlight new initiatives in the State of the Union.

We believe that a secure and prosperous Western Hemisphere is vital for our national interest. Integrated markets, interconnected infrastructure, technologically-advanced deployment of a broad range of resources, and efficient end-use of energy will create a strong, confident and prosperous Western Hemisphere.

The prospects for economic growth in the hemisphere and development in the region are going to be increasingly reliant on unlocking valuable resources that are in the Western Hemisphere.

The United States consumes 20.7 million barrels of oil per day, of which close to 6 million of that comes from the Western Hemisphere, especially from our border countries of Canada and Mexico. The United States imports 58 percent of its oil and petroleum products and 19 countries in the Western Hemisphere contribute to half of that imported from those energy sources.

When we look at how we apply our international energy policy on the international front, we believe and we presume that access to secure, reliable, affordable sources of energy is fundamental to national economic security. Energy is clearly the life blood of economies around the world. Global economic growth that we want to see sustained and increase is dependent upon the supply of this energy. It has to be adequate, it has to be reliable, it has to be affordable.

Our key foreign policy objectives, like the promotion of democracy, the promotion of trades, sustainable economic development, poverty reduction, environment protection, all of those rely on the provision of this energy.

We are the world's largest producer and consumer of energy, and therefore the U.S. must assume a leading role in addressing the world's energy challenges. As you all have pointed out, there are a few key trends out there that are of particular concern. Most of the energy that drives the economic growth that we are experiencing today is derived from fossil fuels from a relatively small number of producers.

Record high oil prices indicate limited spare oil capacity, and that is due to the lack of new investment and new supply, and unforeseen levels of demand in parts of the world like India and China.

New resources are located in places that are geographically hard to reach, geologically difficult to develop, politically unstable, and unfriendly to new investment. Also, we have to keep in mind that nearly 2 billion people in the world lack access to reliable affordable energy.

We must be mindful of the environmental challenges and the climate change challenges that will only become more prevalent in years to come, and they will require us and others to respond in ways that provide energy for economic growth and poverty reduction, but they have to ensure the long-term safety and environmental safety of our planet.

With all of that as a backdrop, what are the U.S. goals to achieve the very vital energy diversification that we and others in national security depend upon?

First, we must expand energy production to meet the needs of a growing economy. We have to do that by using technology to diversify the types of energy we consume, improve energy efficiency, and lessen the environmental burden of energy consumption.

We have to do that by improving investment climates in resource countries, and we have pursue market-based pricing, and lastly and very importantly, we have to modernize and protect the global energy infrastructure.

The Western Hemisphere produces one-fourth of the world's crude, one-third of the world's natural gas, one-fourth of its coal, and over a third of global electricity, but our focus in the Western Hemisphere must begin here at home as well.

Our domestic resources still provide a major portion of the energy consumed in the United States, and we have to remember that. The United States produces almost 90 percent of the hemisphere's coal. We have significant coal reserves. We possess the sixth largest natural gas reserves, and the eleventh largest crude reserves. We still produce 40 percent of what we consume, and obviously we are importing 60 percent of what we consume.

Our most important energy partners lie on our borders. Our most important energy partner in this hemisphere and in the world is Canada. The current and future energy supply and our integrated energy infrastructure further binds an already strategic and fruitful relationship.

The Canadian provinces of Alberta, British Columbia, Saskatchewan provide the majority of our natural gas imports, and Canada provides almost 80 percent of all the natural gas that is entering the United States.

Twenty-five percent of our imports come from Canada and Mexico combined. Mexico is our second largest supplier and the prospects between Canada and Mexico of increasing production in both those countries through technological break-throughs and hopefully private sector investment will only further solidify a very strong cultural, economic, and trade relationship.

Of course, other countries have important roles to play to ensure hemispheric energy security and economic prosperity to us and their citizens.

Venezuela sends close to 60 percent of its oil to the United States. We are a very important export outlet for Venezuela's state-owned oil company, PDVSA. Venezuela outfitted CITGO, its refineries here in the United States, to particularly use Venezuela's heavy sour crude as its feedstock, and very few refineries around the world exist that could actually be sufficient in number to make Venezuela's crude oil imports be economic.

Venezuela also possesses the continent's largest gas reserves, but significant investment and expertise are needed to develop this substantial resource, and in a few minutes I will detail what those challenges are.

The U.S. appetite for LNG is growing, and new authorities under the EPACT that was signed into law by the President in August 2005 are going to allow for increased import capability. At present, we have no greater, no more reliable LNG partner than Trinidad and Tobago. This Caribbean country accounts for 70 percent of our total LNG imports, and it is continuing to expand its supply.

Bolivia, as you all have pointed out, has the second largest proven natural gas reserves in South America, and those reserves, if used for development of their country, could be a tremendous platform for prosperity for that country.

There are other projects underway in Central America, like the Central American Natural Gas Pipeline and South American gas ring that could also lead to greater integration of our energy infrastructures.

Undiscovered oil and gas in the hemisphere is estimated at 30 percent and 20 percent of the world's total undiscovered resources, respectively. Oil producers in the hemisphere have tremendous potential for increasing output over the next decade, and certainly at the price points we are experiencing today there is ample incentive. However, technical, economic, and political challenges exist.

The United States is firmly committed to promoting the importance of a stable transparent investment climate which invites private sector investment to unlock those resources and invites the expertise that is resident in the private sector to do so. Those resources, if developed responsibly, will help Latin America lead its way out of poverty.

Where are these new sources of production? They reside first in North America. Canada has very rich resources in its oil sands. They rank second only to Saudi Arabia. Mexico also has great potential to increase its output. However, they must address their current prohibitions on private investment in the oil and gas sector.

Venezuela also has significant additional heavy oil. Venezuela needs capital, it needs technological expertise to untap or to develop these resources.

Currently, PDVSA's production is declining significantly, producing almost 50 percent less than at its peak. Total Venezuelan output is now only 2.5 million barrels per day. It does not even meet its OPEC crude quota. This emphasizes PdVSA's need for investment and technical expertise. Without it, and without the new investment which is similar to the amount of investment needed in Canada to unlock the oil sands, future production will continue to decline.

In 1998, the Department of Energy made a forecast based on what it new then of what Venezuela's production would be in 2005. They estimated it to be 5.5 million barrels. It is now at 2.5 million barrels, a 3 million barrel differential.

How do we unlock these resources in the Western Hemisphere and abroad? The best way to do it is to harness the power of technology to diversify. Harnessing the power of technology and of markets to improve energy conservation and efficiency is a goal that we have embraced and was outlined in the State of the Union.

Renewable energy offers the possibility to reduce reliance on oil, not just for the United States but for many countries in the Western Hemisphere. Brazil is notable in its efforts to transform its transport sector and use ethanol. We also have to do this not just bilaterally, but by using multilateral initiatives through hydrogen, carbon sequestration, and new nuclear technologies.

A few words about the investment climate, and then I look forward to answer your questions.

In order to develop and secure these energy resources now and for the future, massive amounts of investment are necessary. The International Energy Agency estimates that Latin America will require \$1.3 trillion of investment in the energy sector between 2001 and 2030. That type of investment will only happen if there is the right investment climate. Capital is a coward and will go where it is most comfortable. We want it to be comfortable in the Western Hemisphere.

Therefore, the Western Hemisphere countries must establish predictable, transparent, and nondiscriminatory investment in trade policies. Retroactive contract changes, investment disputes, and unclear rules will drive away investment, damage economies, and in the long run ultimately it is the citizens of the Western Hemisphere that will pay the price.

Countries such as Canada and Trinidad and Tobago have developed regimes and created new opportunities. Others are choosing to close off their sectors to foreign investment, or are rejecting their openness to investment. Some positive examples right now are Colombia and Peru where increased transparency and predictability is showing new exploration. Trinidad and Tobago is developing their natural gas resources.

Right now Ecuador is experiencing tremendous problems. The importance of forthright negotiation and communication is critical. There are significant investment disputes right now in Ecuador. We hope that the Government of Ecuador will make the right decision.

Bringing energy infrastructure throughout the Western Hemisphere up to meet contemporary needs depends on deepening our interconnections and expanding our markets. We have already done that with a variety of trade pacts between us and Canada and Mexico, the Central American, Dominican Republic Free Trade Agreement, and the new agreements in the Andes.

The United States recognizes that as part of the Western Hemisphere our energy future rises and falls with our neighbors. While energy exists in the world market, our energy security is best served by working with our partners in the hemisphere to ensure that we all produce at optimal levels, and that our infrastructure development and energy consumption occur at the most efficient levels and in the most efficient ways.

However, energy security depends on the choices countries make, and we are concerned that some countries in this hemisphere are making the wrong choices. Moves to restrict foreign investment and implement or increase the reach of state-run industries limit their ability to access capital for investment, restricting the development and access to energy supplies and infrastructure.

It is a model that many hold as patriotic, but delivers less prosperity to their citizens, and ultimately threaten world energy markets.

Thank you.

[The prepared statement of Ms. Harbert follows:]

Testimony before Subcommittee on the Western Hemisphere
Committee on International Relations
U.S. House of Representatives

“Western Hemisphere Energy Security”

Karen A. Harbert
Assistant Secretary for Policy and International Affairs
U.S. Department of Energy

March 2, 2006

Good afternoon, Mr. Chairman and Members of the Committee. I am pleased to appear before you today to discuss the Administration’s efforts to strengthen Western Hemisphere energy security, detailing both our strong successes and the challenges we face. In my testimony today, I plan to provide an update on our efforts, as well as the Department of Energy’s view on the outlook for energy markets, integration, diversification, and exploration and development of energy resources in the Western Hemisphere.

Energy security is inextricably intertwined with economic prosperity and national security. This concept is at the heart of the energy bill signed by President Bush last summer, and his Advanced Energy Initiative (AEI) announced as part of his 2006 State of the Union address. But our energy future requires more than just a national approach. We believe that a secure and prosperous Western Hemisphere is vital for our national interest. Integrated markets, interconnected infrastructure, technologically advanced development of a broad range of resources, and efficient end-use will create a strong, confident Western Hemisphere that benefits the United States and the populations of each country in our hemisphere.

The United States consumed 20.7 million barrels per day of petroleum in 2005, of which 6 million barrels originated from sources (net total supply) in the Western Hemisphere, especially from our border countries of Canada and Mexico. In 2005, net imports accounted for 58 percent of U.S. total petroleum consumption. Thirteen countries in the Western Hemisphere provided 49 percent of the United States’ gross imports of crude oil and petroleum products, according to Energy Information Administration (EIA) analysis. Our neighbors in the hemisphere make up three out of our top four suppliers – Canada, Mexico and Venezuela – with the Canadians holding the top spot among all suppliers of crude oil and petroleum products. These three countries accounted for 39 percent of U.S. gross imports in 2005, with Ecuador, Colombia, Brazil, Trinidad and Tobago, and Argentina also falling in the top 25 sources.

For the most part, the Western Hemisphere energy picture is starkly divided into producer and consumer countries, with some degree of overlap. Energy markets are highly integrated in some areas and disconnected in others. The prospects for economic growth and development in the region depend increasingly on unlocking valuable resources to supply reliable, affordable and clean energy.

Western Hemisphere energy security is enhanced with the adoption of policies that expand the sources and types of global energy supplies, increase efficiency of energy production and consumption, encourage the use of the most environmentally responsible technologies, enhance the transparency and efficient operation of energy markets, and strengthen the capacity to respond to oil supply disruptions. To realize greater energy security in the Western Hemisphere, we must work together with our neighbors to achieve common goals and take responsibility for the role we each play in the global energy market. The Department of Energy and other U.S. government agencies are engaged in the implementation of these strategic goals.

Some of the most important challenges facing countries in the hemisphere include:

- High oil prices
- High natural gas prices
- Infrastructure vulnerability
- Political volatility in traditional production areas
- Security issues in protecting production and distribution infrastructure
- Declining production in traditional areas
- Unpredictable and nontransparent legal, regulatory and fiscal regimes that impede necessary resource and infrastructure development
- Temptation to increase state involvement and government shares of natural resource revenue, imposing limits on access to needed capital for investment
- Concerns over refining capacity, especially in meeting a shift toward heavy oil
- Massive energy investment requirements in the coming years (the International Energy Agency estimates that Latin America will require nearly US\$1.3 trillion of investment in the energy sector between 2001 and 2030)
- Lack of financing for alternative energy sources

However, opportunities far outweigh these challenges. The United States is committed to fostering an era where we can realize our mutual goal of hemisphere-wide energy security. Each country must make choices to achieve energy security. In order to ensure the most efficient development and use of energy, these choices must include commitments to market-based pricing and open investment in order to assure that each country realizes its full potential. These choices represent political challenges in many of the countries of our hemisphere, but making the right choices will make a real difference in the quest by each country to achieve energy security and economic prosperity for its people.

International Dimensions of U.S. Energy Policy

The underlying belief of our energy policy presumes that access to secure, reliable and affordable energy sources is fundamental to national economic security. As energy is the lifeblood of economies around the world, global economic growth depends on adequate, reliable and affordable supplies of energy. Key foreign policy objectives, including support for democracy, trade, sustainable economic development, poverty reduction, and environmental protection, rely on the provision of safe, reliable and affordable energy supplies.

As the world's largest producer and consumer of energy resources, the United States must play a leading role in addressing the world's energy challenges and ensuring a secure energy future. However, energy markets are increasingly integrated, and ensuring our national energy security requires well-coordinated international efforts. The global nature of energy markets means that supplying adequate, affordable and reliable energy services is a responsibility we all share and one we must continue to address as a global community. Actions taken by any country to misuse or mismanage their energy resources without considering the global implications of their actions will have a negative impact on every country. As traditional energy resources become scarce and more difficult to develop, energy security will become an even more critical component of economic security and national security.

A few key trends are of particular concern. Most of the energy that drives world economies today is derived from fossil fuels, in particular petroleum, and this energy comes from a relatively small number of producers. The world's dependence on a few countries is neither responsible nor sustainable over the long term. Record high oil prices indicate limited spare oil production capacity in the world market due to a lack of investment in new supply and unforeseen levels of demand growth in many parts of the world. Resources are often located in places that are geographically hard to reach, geologically difficult to develop, politically unstable, or unfriendly to new investment. Our poverty reduction goals are challenged by nearly 2 billion people who lack access to a reliable, affordable supply of energy. Environmental and climate change challenges will only become more prevalent in the years to come and require responses in ways that provide energy for economic growth and poverty reduction, while ensuring the long-term safety of our planet.

To cope with the full range of possible consequences of these trends, we must employ forward-looking policies that proactively address the energy challenges of today and tomorrow. We must maintain a diverse energy mix coming from varied sources. In the United States, we are striving to be better consumers through our efforts to promote conservation and diversify our supply sources. We are working to make energy efficiency improvements in our homes, places of work and modes of transportation. In the long-term, the Department of Energy is focusing on transformational technologies that will fundamentally change how we produce and consume energy. In the meantime, we must use the energy resources at our disposal in the most efficient, effective, and strategic manner possible.

The U.S. goals to achieve a more diversified world energy market to improve global energy security include:

- Expanding energy production to meet the needs of a growing global economy;
- Using technology to diversify the types of energy we consume, improve energy efficiency, and lessen the environmental burden of energy consumption;
- Improving investment climates in resource-rich countries and pursuing market-based pricing; and,
- Modernizing and protecting global energy infrastructure.

Overview of Western Hemisphere Energy Resources

The Western Hemisphere supplies one-fourth of the world's crude oil; one-third of the world's natural gas; almost one-fourth of its coal; and over a third of global electricity.

Oil production is concentrated in a few countries, and the United States, Canada, Mexico, Venezuela and Brazil produce almost 90 percent of the hemisphere's crude oil. Conventional oil resources are declining, and the Western Hemisphere imports about 30 percent of global oil shipments and one-fourth of oil products to meet its growing needs. In 2003, total oil consumption in the hemisphere was 29.5 million barrels per day, and total liquids production was 22.3 million barrels per day.

The hemisphere has few significant natural gas producers, and Canada and the United States produce more than 80 percent of its natural gas. Gas reserves are important but account for less than 10 percent of world reserves. Dry natural gas consumption in the hemisphere in 2003 was 31.2 trillion cubic feet, and production was 31.2 trillion cubic feet.

The United States produces almost 90 percent of the hemisphere's coal and has significant reserves. In 2005, coal consumption was 1,135 million short tons, and production was 1,120 million short tons. Electricity generation is linked to economic size, and key electricity producers include the United States, Canada, Mexico and Brazil. These four countries produce more than 90 percent of the Hemisphere's electricity. In 2003, net electricity consumption in the Western Hemisphere was just over 5 trillion kilowatt hours, and generation was nearly 5.5 trillion kilowatt hours.

Crude oil reserves in the hemisphere are significant – the second largest in the world outside the Middle East by some estimates, thanks in great part to Canada's 174 billion barrels of oil sands. Venezuela also has very large oil deposits estimated at as much as 270 billion barrels, but these are not yet proven reserves. Mexico has potential, but unproven reserves of more than 50 billion barrels. Brazil has the second largest proven reserves in South America, at 11.2 billion barrels, behind Venezuela.

Our focus on the Western Hemisphere begins here at home. U.S. domestic resources still provide a major portion of the products consumed in the United States. The United States possesses the 11th largest crude oil reserves in the world at 21.4 billion barrels and still produces approximately 40 percent of the petroleum it consumes, or about 8.25 million barrels per day (includes, crude, NGL, refinery process gain and other inputs). Domestic reserves will continue to play an important role in our energy security and prospects for increased domestic production exist. Despite the steady decline of Alaskan production, the state's wells still average about 872,000 bbl/d, or about 17 percent of total U.S. crude oil production. The most promising site for oil in America is ANWR. Developing a very small portion of ANWR could eventually yield up to a million barrels of oil every day, making us less dependent on foreign sources of energy.

On natural gas, analysts saw declines of U.S. production in 2005 due to the impact of the hurricanes, but the United States still possesses the sixth largest reserves in the world, at 192.5 trillion cubic feet (Tcf). Production remains between 18 and 19 Tcf/year, with consumption

levels of between 22 and 23 Tcf/year. The balance, of course, comes from imports, with the vast bulk of these supplies originating in the Western Hemisphere, primarily transported in gaseous form by pipeline from Canada but also imported as liquefied natural gas (LNG) flowing into the country's five import terminals. It should be noted that Mexico imports natural gas from the United States. Natural gas-fired power generation has increased its share of the U.S. power mix in recent years.

Coal continues to make up a vital element of our energy mix, as do our important nuclear energy and renewable energy sources. Production by U.S. coal miners still accounts for close to one-quarter of total U.S. energy consumption, and the expansion of clean-coal technology will provide an even greater demand for this resource that the United States possesses in abundance – about 21 percent of the world's annual production. Nuclear energy provides about 20 percent of the country's electricity generation, second only to coal, and renewable energy from hydroelectric, solar, geothermal, wind, and biomass continue to grow in importance in providing the United States with a secure and stable domestic energy base.

The technologies that make – and will make – these latter sources viable received an important boost in the form of President Bush's signing of the Energy Policy Act of 2005 (EPAAct 2005) and the President's Advanced Energy Initiative (AEI) unveiled in his 2006 State of the Union address. Both are bold steps toward expanding the use of advanced sources of energy. A key focus of the EPAAct 2005 involves important measures that seek to promote greater energy efficiency and for a more diverse energy supply, including tax incentives for emissions free and renewable sources of energy and a strengthened emphasis on nuclear power. The President has repeatedly emphasized the importance of using cleaner, more efficient energy technologies to help meet the Nation's energy needs with fewer environmental impacts. The AEI demonstrates U.S. commitment to investing in our energy future through technology advancement.

Our most important energy partner in the hemisphere and in the world is Canada. The current and future energy supply and our integrated energy infrastructure further binds an already strategic and fruitful relationship. The Canadian provinces of Alberta, British Columbia and Saskatchewan provide the vast majority of our natural gas imports, and Canada provides more than 80 percent of all natural gas entering the United States. There are a number of new oil and gas projects on the horizon in Canada. However, current Canadian production has slowed, and we must promote the full embrace of liquefied natural gas from other countries in order to provide supplemental support for the traditional, piped gaseous form.

The importance of realizing a fully integrated North American market goes beyond strong economic and cultural ties. More than 25 percent of total U.S. imports of oil and petroleum products come from Canada and Mexico – 16 percent and 12 percent, respectively – and the prospects of marked increases in crude oil production in both countries through technological breakthroughs in Canada's oil sands or a Mexican embrace of private-sector energy investment would further solidify these ties. The North American Energy Working Group of the Security and Prosperity Partnership has facilitated optimal development of resources, infrastructure and end use across the continent.

Of course, other countries have an important role to play in ensuring hemispheric energy security and economic prosperity. We have a long energy history with Venezuela, and we want this mutually beneficial relationship to continue. Venezuela sends around 60 percent of its oil exports to the United States, approximately 1.5 million barrels per day. One of the most important outlets of Venezuela's state oil company Petroleos de Venezuela (PdVSA) lies on our shores. Venezuela fitted its CITGO refineries in the United States to use Venezuelan heavy, sour crude oil as feedstock, and few refineries of this kind exist anywhere in the world in numbers sufficient to make Venezuela crude oil imports economic. Our West Coast refineries import approximately 195,000 barrels of oil per day from Ecuador, and we will see growing imports from Colombia, Brazil and many others. In 2005, 49 percent of U.S. crude oil and petroleum imports came from countries in the Western hemisphere.

The U.S appetite for LNG supplies is growing and new authorities provided in EPAct 2005 should allow for increased import capability. Our future LNG supplies are expected to either originate in this hemisphere or at least to pass through LNG facilities in our hemisphere. Mexico has two LNG regasification plants under construction – one on the Pacific coast and another in the Gulf of Mexico – with an additional seven sites under various stages of consideration, in all totaling 6.5 billion cubic feet per day (Bcf/d) of natural gas. For its part, Canada has seven LNG sites under consideration, with six in the environmental impact assessment or regulatory review stages. These facilities would account for close to 5 Bcf/d. LNG entering Canada and Mexico could be regasified in those countries and then shipped by pipeline to the United States. LNG imports into Mexico could also offset that country's need to import gas from the United States.

At present, however, we have no greater or more reliable LNG partner than Trinidad and Tobago. This Caribbean country accounts for more than 70 percent of our total LNG imports, and it continues to bring more supplies online, with the opening of a fourth train – or production unit – this year. This close, reliable source of natural gas has significant impact on the critical margins of our supply situation, and increased production in Trinidad and Tobago will assist in relieving some of the pressure on our traditional sources. Another exciting source of LNG continues to take shape in Peru, as the huge natural gas field at Camisea develops. An international consortium broke ground on a liquefaction plant earlier this year. Peru has at least 11 Tcf in reserves, but with greater exploration, this figure looks set to increase.

Bolivia's proven natural gas reserves of 24 Tcf – the second largest in South America (including Trinidad and Tobago) – could provide a tremendous platform for economic prosperity if those resources reach the international market. Further, Venezuela possesses the continent's largest gas reserves, with an estimated 151 Tcf, but significant investment and expertise are needed to develop this substantial resource. However, given the very slow development of its gas resources in the near-term, Venezuela plans to build a pipeline to Colombia, by which it will import natural gas for use in the production of its heavy oil and later reverse the flow once Colombia supplies diminish and Venezuelan resources are developed.

Natural gas development and integration in our hemisphere is following a rocky path. We continue to watch with interest, the various natural gas integration plans throughout the hemisphere. The two most prominent projects under consideration are:

- A Central American natural gas pipeline connecting Mexico and Colombia while serving Guatemala, Honduras, El Salvador, Belize, Nicaragua, Costa Rica, and Panama
- A South American “gas ring” that would link Peru, Chile, Argentina, Paraguay, Uruguay, and Brazil, with the potential to bring in Bolivia

While the bulk of the energy consumption throughout the hemisphere depends on hydrocarbons, some countries continue to invest in renewable energy and nuclear power generation. Hydroelectric power generation has been a mainstay in many Latin American countries for many years. The small island states of the Caribbean must reduce their oil dependency – and continue to explore the deployment of new technology for developing solar, geothermal and wind resources. A number of multilateral organizations and development banks, especially the Inter-American Development Bank, have a very constructive role to play in expanding the use of and spurring greater private investment in these non-traditional resources. Smaller economies’ future prosperity may depend on minimizing the need for expensive foreign oil.

Other renewable sources of energy, such as wind, solar and biomass, have become economically feasible for power generation in many countries, while some countries explore increased use of biofuels in the transportation sector. Of course, Brazil’s well-documented employment of ethanol for transportation is a model for the region.

A small amount of nuclear power generation capacity exists in the Western Hemisphere outside of the United States. Canada produces about 15 percent of its electricity from 18 operational nuclear units, 15 of which are located in Ontario. Ottawa and the provinces continue to explore the construction of additional generating capacity, but the country also faces challenges, just as we do in the United States, in addressing future work-force shortages, plant aging and plant re-licensing. Mexico has published estimates that it must increase its generating capacity by 50 percent in the next 12 years and has considered new nuclear plants to join its two existing facilities to meet those needs. Brazil and Argentina also have active nuclear energy programs. Operations at Cuba’s two nuclear power plants remain suspended.

Improving Energy Production

The Western Hemisphere supplies significant quantities of global energy, producing about one-fourth of the world’s crude oil; one-third of the world’s natural gas; almost one-fourth of its coal; and about 35 percent of global electricity. Undiscovered oil and gas in the hemisphere is estimated at 30 percent and 20 percent of the world’s total undiscovered resources, respectively. Oil producers in the hemisphere have significant potential for increasing output over the next decade. However, technical, economic and political challenges exist.

Integrated markets provide opportunities to optimize the use of our current energy supplies, not just through economies of scale but also economies of precision, where supply and demand converge in the most efficient manner possible, reducing energy wastage. From a trade perspective, the United States has demonstrated its commitment to mutually beneficial open

markets; NAFTA, CAFTA-DR, the Andean Free Trade Agreement and the Caribbean Basin Initiative all serve as examples. We have reinvigorated our relationship with regional organizations like Caricom to facilitate further cooperation, as Caribbean countries feel the heavy impact of the continued high cost of oil and gas. Our successful trilateral North American energy relationship is a good example of integration based on market-based principles and frequent and open communication. Successful integrated markets require a stable investment framework and strong stakeholder relationships to ensure that resources are efficiently developed in an environmentally sound and publicly acceptable way.

We will continue to promote the importance of a stable, transparent, investment climate which invites private sector investment to unlock valuable natural resources. Natural resources if developed responsibly will help to lead many Latin American economies out of poverty. This development is another area where the World Bank and the Inter-American Development Bank should play a leading role.

Potential Areas of New Production

Potential additional oil and gas production in North America is significant. Canada is the U.S. top supplier of imported petroleum and significant new resources are on the horizon. Under new rules for counting reserves, which now include Alberta's heavy oil sands, Canada with 174 billion barrels of proven oil sands reserves, ranks second only to Saudi Arabia in world reserves.

Canada has opened its energy sector to private sector investment, affording it access to the technology required to tap its unconventional energy reserves. According to EIA, with investments of more than \$25 billion already committed to the oil sands, production should reach about 1.8 million bbl/d by 2010 and 2.3 million bbl/d by 2015. By 2015, approximately two out of every three barrels of Canadian oil production will come from the oil sands. By 2020, oil-sand operators and their partners will have invested more than \$100 billion.

Both the United States and Canada have significant unconventional oil reserves in their respective countries. However, to produce these reserves, numerous challenges must be overcome: improving availability of capital and skilled labor, financial uncertainty, limitations in natural gas supply, and environmental issues, as well as the need for adequate infrastructure to process and transport the product. The U.S and Canada are continuing to cooperate on the development and application of technologies needed to unlock the potential of these resources, as well as reducing the impact associated with their development. Technology has been, and will continue to be, the key to unlocking the potential of these resources, as well as reducing the impact associated with their development.

Mexico also has great potential to increase its output. However, provisions in its constitution prohibit private investment in the oil and gas sector, limiting the country's production and ability to access new technologies that would spur output. The Fox Administration has proposed numerous energy reforms to attract private investment to develop its resources. So far, reform efforts have fallen short, and progress in this area will likely take time. Mexico ranks fourteenth in world proven oil reserves with 12.9 billion barrels, but must import both gasoline and 25 percent of its natural gas needs from the United States, even though

it has the potential to be a natural gas exporter, given its sizeable reserves. While Mexico has the seventh-largest gas reserves in the Western Hemisphere, its demand for natural gas (especially for electric power generation) has outpaced production, and projections suggest that the country will continue importing natural gas for the rest of the decade. It must look to imported LNG, as well as gas from the United States, to meet its demand. Some of this LNG could also benefit consumers in our country, especially in California. Two LNG importing projects are underway in Mexico and many have been announced, but natural gas from these projects is not expected to reach U.S. consumers before 2007. Through existing cooperative mechanisms like the North American Energy Working Group, we will continue to work with Canada and Mexico to increase their oil and gas production. Cross-border infrastructure for natural gas and electricity trade exists, although trade in electricity remains limited.

The United States and Mexico share a long-standing cooperative relationship in energy, and the DOE and the Mexican Secretariat of Energy (SENER) have maintained a strong and active relationship since 1981 and cooperate bilaterally on energy trade and policy, primarily under the auspices of the Energy Working Group of the U.S.-Mexico Binational Commission. DOE and SENER continue to focus on increasing our cooperation in energy trade and cross-border energy issues and the implementation of our shared vision for science and technology cooperation. Significant opportunities exist in terms of offshore oil exploration and production, but private investment is needed in order for Mexico to fully realize the potential of its hydrocarbons reserves.

Venezuela has significant additional heavy oil potential. According to PdVSA, Venezuela has as much as 270 billion barrels of extra-heavy and bitumen deposits. Venezuela would require significant amounts of investment, similar to the current investment levels in Canada's oil sands sector (around \$25 billion to date, and projected to reach \$100 billion by 2020) to develop these resources. Venezuela needs technological expertise to fully develop this important reserve. Currently PdVSA production is declining significantly - producing almost 50% less than its peak. Total Venezuelan crude output is now only 2.5 million barrels day total crude output (EIA, 2/06). This is the lowest level of PdVSA production since the oil workers strike in Venezuela in 2002-2003 and emphasizes PdVSA's need for investment and technical expertise. Without new investment, future production is expected to continue to decline. While expansive new programs for refineries, tankers and natural gas sectors have been announced, it is unclear how the country's ambitious agenda will be funded, even at high oil prices, given the lack of expertise and increasing restriction on foreign investment in the oil sector.

Harnessing the untapped natural resources of this hemisphere can be the engine for economic prosperity in many countries. The United States is working with the international financial institutions to promote the use of revenues from energy extraction as an engine of economic development.

Using Technology to Diversify Fuels and Improve Energy Efficiency

Harnessing the power of technology and markets to improve energy conservation and efficiency is another key goal for providing greater energy security. High oil prices have caused resurgence in interest in alternative fuels sources. Renewable energy offers the possibility to

reduce reliance on oil in certain markets, but countries will have to make legal and regulatory changes to become attractive to major private investment. Brazil has led in this area of the sector, with its widespread use of alternative fuels for automobiles and innovative programs to encourage greater renewable energy use in power production.

Brazil has successfully encouraged domestic use of ethanol and biodiesel for transportation fuel, in part by utilizing ethanol subsidies early on in its commercialization and by taking advantage of new technology in promoting the widespread use of flex-fuel vehicles. During the first ten months of 2005, 650,883 flex-fuel cars sold in Brazil, as compared to 580,063 regular cars purchased in the same period. Brazil seeks to expand domestic use of ethanol and promote greater use around the world. The International Energy Agency (IEA) predicts ethanol alone has the potential to make up 10 percent of world gasoline use by 2025 and 30 percent in 2050, up from around 2 percent today.

The proliferation of renewable energy technology and sources offers countries in the hemisphere an opportunity to diversify their energy mix away from traditional and expensive fuels and to reduce emissions from traditional energy production. In some cases, production of renewable energy also offers opportunity to revive domestic industry, as the case may be in Central America and the Caribbean when it comes to raising crops and processing ethanol.

For example, Caribbean countries are heavily dependent upon petroleum as their primary energy source. In 2002, the islands in the Caribbean region consumed 2.4 quadrillion Btu of total energy, of which petroleum accounted for 93 percent. Most electricity produced in the region comes from conventional thermal sources, chiefly oil-fired power plants. The islands' reliance on fuel oil makes them vulnerable to market prices. Great opportunities exist to break this dependence through sustainable energy planning. Regional cooperation among governments in the region to standardize energy regulation and coordinate planning could leverage the financing available to introduce clean, renewable and efficient energy technology.

Engaging in Multilateral Technology Partnerships

Increasing the use of alternative fuels and promoting greater energy efficiency in the near term using existing technologies requires constant and concerted effort. However, it is equally important to address future energy needs by working together to create transformational, next-generation technologies. President Bush has requested a 22 percent increase in clean energy research to accelerate these technological breakthroughs. The United States has spent nearly \$10 billion since 2001 on research and development to reduce the costs of advanced energy options, such as electricity from wind and photovoltaics and biofuels for transport. These funds enable many bilateral and multilateral technology efforts that can help to accelerate deployment of options with low net carbon emissions. A few examples of our many next-generation technology initiatives are:

International Partnership for the Hydrogen Economy (IPHE)

The United States works with 15 other countries to accelerate deployment of economic hydrogen technologies through the International Partnership for a Hydrogen Economy (IPHE).

Hydrogen holds great potential to serve as the energy vector of the future, whereby a variety of energy sources are converted to hydrogen, which is then used in highly efficient fuel cells to run cars, trucks, power plants, and factories. In the Western Hemisphere, Canada and Brazil are involved in this partnership.

Carbon Sequestration Leadership Forum (CSLF)

Coal will continue to dominate electricity generation in many countries for the foreseeable future. To continue to use this abundant resource in view of concerns over global warming and the substantial contribution of coal-fired power plants to global carbon emissions, it is vital to encourage investment in the most efficient and least polluting coal-fired power plants available. For the long term, it is also essential to develop and deploy carbon sequestering coal plants, like the FutureGen demonstration plant now under construction, as affordable alternatives to conventional coal-fired power plants. The framework for international collaboration on sequestration technologies is the U.S.-led Carbon Sequestration Leadership Forum (CSLF), whose 16 partners are eligible to participate in FutureGen. Brazil, Canada, Colombia, and Mexico are all partners within the hemisphere.

Generation IV International Forum (GEN-IV)

The Generation IV International Forum (Gen-IV) is pursuing next-generation nuclear technology as a zero-emissions energy supply source. The United States, with ten other partners, including countries in the Western Hemisphere, is working to develop nuclear reactors with enhanced safety features and simplified designs that improve plant economics. We must cooperate with the International Atomic Energy Agency (IAEA) to strengthen the international nuclear nonproliferation framework needed to keep civilian nuclear power a robust option.

Methane to Markets

Methane to Markets is an international partnership with the goal of reducing global methane emissions to enhance economic growth, promote energy security, improve the environment, and reduce greenhouse gases. Other benefits include improving mine safety, reducing waste and improving local air quality. The initiative focuses on cost-effective, near-term methane recovery and use as a clean energy source. Argentina, Brazil, Canada, Colombia, Ecuador, and Mexico are all partners in this initiative.

High oil and gas prices have created momentum for research and development and investment in technologies that diversify fuel sources and increase energy efficiency. However, planning for our common energy future requires sustained investment, coherent energy policy and planning to bolster the introduction of new and existing technologies, a commitment to public education about where energy comes from and what technologies are available to improve production and consumption, and the political leadership to make hard choices to secure resources for the future.

Transparency and Market-Based Pricing

In order to develop secure energy resources now and in the future, massive amounts of investment are necessary to provide the capital that will drive infrastructure, production and technology projects. Investments are needed to unlock new supplies of oil and natural gas and to improve or prolong the lifespan of existing sources. Attractive trade and investment policies that provide access to reserves and promote the expansion of oil and gas production capacity around the world are necessary to match demand in developed and developing countries alike. The substantial untapped hydrocarbon reserves in the hemisphere require large sums of private investment. While some countries, such as Canada and Trinidad and Tobago, have developed investment regimes and created openness that is expanding their hydrocarbon output, others have mostly closed off their sectors to foreign investment. Other governments, like that of Bolivia, may begin to reject some of their openness to investment established in recent periods. Venezuela continues to change its investment regime to reflect the government's revenue needs and desire for greater control of the energy sector, despite the evidence that these decisions result in sub-optimal levels of investment. Unresolved investment disputes in some of these countries, like Ecuador, may also deter future investment.

One positive example of a government's ongoing effort to increase energy investment is in Colombia. Colombia is the fourth largest Latin American supplier of crude oil and petroleum-related products to the United States and was the 16th leading supplier worldwide in 2004. However, much of the country's prospective natural resource areas remain unexplored. Facing the prospect of becoming a net oil importer, Colombia took effective steps to improve their investment climate in 2003. In an effort to increase transparency and spur exploration, the Colombian government created the National Hydrocarbons Agency (ANH) to administer the sector, a responsibility previously under the control of state-owned oil company Ecopetrol. As a result, Ecopetrol now competes on a level playing field with private companies, and oil companies may now assume up to 100 percent of investment and risk activities in all exploration and production contracts. Royalties changed from a 20 percent flat rate to a sliding scale, starting at 8 percent for smaller production amounts, increasing to 20 percent as production grows. The Colombian government also established innovative new methods of working with companies to address security concerns, invested significant amounts of money to provide improved geological information, and set out a number of strategic objectives. The goal of this initiative was to provide new incentives to investors to return to Colombia and explore its vast and virtually unexplored resource base. Throughout 2005, the U.S. government helped Colombia to promote investment in its energy sector highlighting the much improved and predictable investment climate. ANH signed 31 new upstream contracts and 28 technical evaluation contracts in 2005 with private firms and state-run Ecopetrol, surpassing their contract target of 30 for the year. By comparison, in 2004 the ANH signed 21 upstream contracts and 7 technical evaluation contracts. The reforms have successfully attracted new investment, and we believe they will continue to do so over the coming years.

Another positive development can be seen in Peru. Over the last few years, the government awarded new licenses under a revised contract structure, companies have moved forward with exploration and production plans, and progress on the Camisea gas project and LNG project continues. The giant Camisea gas fields located in the Peru contain at least 11 Tcf

of natural gas and as much as 30 Tcf and could provide supplies to the U.S. market either directly to regasification sites on the U.S. West Coast or via facilities under construction in Mexico. The Hunt Oil-led Peru LNG project will build the necessary liquefaction plant on the Peruvian Pacific Coast to export LNG to overseas markets. It is important that Peru continue to move aggressively on the LNG project to secure a presence in the U.S. West Coast LNG market. Any change in this approach to developing Peru's natural gas resources would be a tremendous setback at this point.

Two more areas of investment opportunity are Trinidad and Tobago and Chile. Trinidad's vast natural gas reserves and efforts to develop those resources have revitalized the country's plan for development and economic growth. Trinidad and Tobago, through harnessing this opportunity, has strengthened its position as a leader in the region and constitutes a modern example of how energy resources can open new doors to a nation's economy. Maintaining a stable, transparent and fair investment environment will be critical to their growth as a major LNG producer in the region. Likewise, Chile is opening up new investment opportunities to secure the energy resources necessary to fuel their economic growth. Chile recently solicited bids for a 0.35 Bcf/d LNG regasification terminal with the potential for startup in 2009. LNG will allow Chile to reduce its vulnerability to cuts in Argentine gas exports, which Argentina reduced several times over the past two years. Short-term shortfalls and unreliable supplies have led Chile to take a serious look at new ways to secure future supplies.

Future Investment Needs & Challenges

The IEA estimates that Latin America will require nearly \$1.3 trillion of investment in the energy sector between 2001 and 2030. Western Hemisphere countries, like all countries, must establish predictable, transparent and non-discriminatory investment and trade policies in order to promote adequate levels of local and foreign investment and increased trade to provide for growing energy needs. Retroactive contract changes, investment disputes, and unclear rules drive away investment and damage economies and citizens in the long run.

High oil and natural gas prices have brought about a resurgence of government control over previously privatized or semi-privatized energy sectors, but this is a step in the wrong direction, only adding to costs for governments and creating additional economic burdens. In Venezuela, a country blessed with abundant natural resources, the government has reasserted state control over the country's oil and natural gas resources by retroactively changing contract terms and structures and insisting upon greater involvement by PdVSA in energy projects. Contrary to the government of Venezuela and PdVSA's claims, production levels are down, current production is increasingly coming from private sector-sponsored fields, as state company investment and expertise declines. Private foreign companies have all but frozen new investment due to the uncertainty of the situation. Ultimately, it is the government of Venezuela's decision how to manage its energy sector, and it is its responsibility to choose the best use for its natural resource. However, we are concerned, and many investors are concerned, about declining production figures and efforts to squeeze out the much-needed private investment necessary to maintain production levels into the future.

Another opportunity in the region is the development of Bolivia's natural gas resources. Bolivia has an estimated 54 Tcf of proven and possible natural gas reserves, discovered and partially developed due to private investment and private company involvement in the energy sector. Unfortunately, the development of natural resources in Bolivia has a long and troubled past. Over the last two years, natural gas development has become entangled in a broader political debate over the diffusion of power and wealth in Bolivian society. The new government in Bolivia faces a choice to either use these resources for the benefit of its people or remain mired in political debate and continued poverty. The challenge is to learn from past lessons about how to embrace the opportunity that natural resources bring as a positive force for economic development. Successful models abound. However, it is important to remember the experience and technology that private sector involvement brings to energy resource development, and we encourage Bolivia to look at energy companies as partners. Communication and forthright negotiation is of the utmost importance in this regard.

Nowhere is the importance of communication and forthright negotiation more pressing than in Ecuador, where investment disputes, efforts to restructure state-oil company PetroEcuador, and legislation that would re-work existing contracts with foreign oil companies to give a greater share of the revenue to the state threaten to damage private sector interest in future upstream investment. Clear leadership from the highest levels of government is critical to the settlement of investment disputes and establishing clear rules. Much is at stake and the U.S. is very concerned about the lingering disputes and urges their speedy and fair conclusion. Ecuador is endowed with 4.63 billion barrels of proved oil reserves, and about 50 percent of their exports go to the United States, mostly to refineries on the West Coast.

Further south, the Southern Cone region of South America represents a good example of how integration and cooperation are essential to energy security of sub-regions in the hemisphere. Repeated natural gas shortages over the last few years continue to show that a failure to establish a sound investment climate in one country adversely affects energy security in other countries. Chile, a notable, dynamic economy in the region, has taken control of its energy future by preparing to weather the uncertainty of natural gas production in the Southern Cone. However, pricing policies and an inability to attract new investment hinders the development of natural resources in Argentina. Countries in this region need to be mindful of their responsibilities to their neighbors to be consistent producers and suppliers of natural gas. Similarly, Brazil is looking to its own domestic resources to lessen its dependence on Bolivian natural gas imports. We are encouraged by Brazil's decision to continue its opening up of its oil sector to foreign companies, as was confirmed by a high court decision last year.

It is important to keep in mind that political trends in the region have the potential to lead countries away from a market-based approach to developing their respective energy sectors. Ten presidential elections have or will take place in 2006, and energy will likely be an important topic in each race. High prices have launched energy into the political debates in many of these countries and popular pressure to deliver relief from high energy prices or claim greater shares of natural resource revenue puts pressure on political figures to offer short-term fixes unsustainable solutions. We are mindful of the economic difficulty that high costs place on poorer segments of society. However, it is important to remember that short-term solutions implemented today will not remedy unsustainable energy policies in the long run. We desire an open dialogue with

political leaders in the region to form a consensus view of how energy policy should adapt to the advent of high oil prices.

U.S. government agencies have and will continue to work to address these issues through regular policy dialogues and outreach, especially with the smaller economies of the Caribbean and Central America. We are reaching out to the international financial institutions to ensure they have the proper mechanisms to help countries cope with the impact of sustained high oil prices and energy market price shocks. We generally support Mexico's efforts to spur energy development and integration in Central America, as well as greater efficiency and use of renewables in the region. We will continue to promote the importance of private sector involvement in developing natural resources and providing critical new investment. We will move forward on plans to develop a mechanism stimulate private financing through a facility that finances feasibility studies and provides for independent project ratings. Finally, we will support efforts to attract new investment by providing clear, open and stable investment regimes.

Modernizing and Protecting Energy Infrastructure

Bringing energy infrastructure throughout the Western Hemisphere up to meet contemporary needs depends on deepening interconnections and expanding markets. Two such endeavors exemplify this idea – one established and one emerging: the integrated North American market and emerging links in Central America.

North American Energy Market Integration

North America's energy infrastructure and energy flows are increasingly interconnected. Both the quantity of flows and the complexity of the infrastructure are growing.

- Cross-border oil flows are very important to the region's economies. Canada and Mexico are key suppliers of crude oil to the United States. Oil products flow back and forth among the countries – conveyed in trucks and pipelines and by ship.
- Canada ships major quantities of its natural gas output to the United States through several pipeline connections.
- Natural gas flows from the United States into Mexico. There are several pipeline connections. Currently there are no natural gas flows from Mexico into the United States, but if Mexico builds LNG receiving terminals, this could change.
- Both Canada and the United States are net coal exporters, some of which is metallurgical coal. Mexico imports small quantities of coal from the United States.
- Electricity connections across the borders of the three countries provide important regional supplies and help offset the need for expansion of national capacity

The expansion of these interconnections allow for all three countries to consider energy supply and demand on a continental level, while still putting their national priorities at the fore. Coordinated regulatory work on the siting of LNG terminals and transportation routes provide an excellent example of the benefits that can accrue from collaboration through this initiative.

Central American Electrical Interconnection System

Linking the energy markets of Central America will increase the efficiency of each nation's energy system, diversify its energy supply, reduce the proportion of fuel oil use, spur economic activity, and has the potential to lower overall fuel costs and provide more incentives for foreign investment. To that end, the countries of Central America began discussing plans to link the region's national electricity grids in the 1960s and hope to reach their goal within the next two to three years. The Central American Electrical Interconnection System (*Sistema de Interconexión Eléctrica para América Central* or SIEPAC) project entails the construction of a transmission line connecting countries between Panama and Guatemala, coupled with similar lines linking Mexico with Guatemala and Panama with Colombia; the creation and commencement of a Central American wholesale electricity market; and development of the first regional transmission system. The Inter-American Development Bank has granted the bulk of funding to support the grid integration plan, along with efforts to promote the importance of rural electrification and renewable energy sources. Central American energy integration not only enhances the power sector but also has second-order impact, such as developing human capital, promoting market-based behavior, boosting regulatory maturity, ensuring contract sanctity, and encouraging regional coordination and cooperation.

The entire U.S. government is involved in a variety of ways to support and advance energy integration in North America and Central America, as described above. We believe this type of cooperation and recognition of regional energy interdependence is exactly what needs to occur in sub-regions around the hemisphere. Over the past several months, a number of regional energy integration and infrastructure projects have come to the fore – an “energy ring” and Mexico's MesoAmerica Plan, to name but two. We look forward to discussing these projects where our input would be appropriate and hope that countries engaged in these talks consider the economic viability of each project, consider a role for the private sector, and prepare to make the tough regulatory, legal and investment decisions that will make integration and infrastructure projects successful.

Concluding Remarks

The United States recognizes that, as part of the Western Hemisphere, our energy future rises and falls with our neighbors in the hemisphere. While energy exists in a world market, our energy security is served by working with our partners in the hemisphere to ensure that we all produce at optimal levels and that our infrastructure development and energy consumption occurs at the most efficient levels and in the most efficient ways. We believe that all countries are best served by a strong, stable hemisphere. We also believe that a strong, stable and prosperous hemisphere is created by all countries basing their energy development, transportation and use on market reliance; by allowing for private capital to ensure optimal development; and by using the best technologies and a broad range of energy resources to give consumers the best choices.

However, energy security depends on the choices countries make, and we are concerned that some of the countries in our hemisphere are making choices that will not optimize the

development of energy resources. Moves to restrict foreign investment and implement or increase the reach of state-run energy industries limit their ability to access capital for investment, restricting the development and access to energy supplies and infrastructure. It is a model that may hold patriotic appeal but delivers less prosperity to citizens.

Private companies have capital and technologies to share in a way that we believe will benefit the citizens of each country. We believe our partnerships in the region – with Canada and Mexico in the North American Energy Working Group; with Brazil; with Colombia and Peru; with the Central American countries; and with Trinidad and Tobago – demonstrate the rewards that foreign investment and market-based energy policies bring to the people of our country and those countries. Other countries may make other choices, but their long-term prosperity and the well-being of their citizenry are at stake. The United States stands ready to work with our partners in the Western Hemisphere to achieve a stronger energy future for all of our citizens – one that is grounded in open and integrated markets and open and transparent economic regimes.

Mr. MACK. Thank you, thank you very much.

I would like to focus some questions on Venezuela, and Latin America. You talked a little bit about the crude that they have and that it takes a certain capacity refineries to be able to handle that crude. I have read and seen statements from Hugo Chavez threatening to stop selling oil to the United States. I am also under the understanding that there is not too many other places that can take what he has to sell, and bring it to market.

Can you talk a little bit about that?

Ms. HARBERT. Certainly. We in the United States are well equipped to refine his crude. The type of crude that Venezuela produces is a very particular type of crude that requires a certain type of refining capacity. We are the closest place that can actually do that. If there are other countries that he is interested in selling to, it is a sovereign country and can do that.

If you incorporate transport costs and the infrastructure and investment that would be needed to build new refineries to process that, the price of that crude would go up significantly. So I am not sure how many people would be interested in making those new investments, and then paying the much higher price if their citizens would have to pay to actually utilize that crude.

So it is a mutually beneficial arrangement. We are close to him and we have got the capacity here to actually accommodate his crude.

Mr. MACK. So I guess the point that I am trying to get to is if we are looking to diversify our energy supply or to find ways for more secure energy sources here in the Western Hemisphere, countries talking about stopping selling of oil and trying to limit investment into the future is not going to move us toward security for anybody in the hemisphere, and it seems to me this is what Venezuela is up to; that they are trying to isolate at least the United States, whether it is with Ecuador and others, and not investing into the future.

You talked about how the production in Venezuela has dropped some. What was the number?

Ms. HARBERT. Well, it has dropped by 3 million barrels relative to our forecast from 1998. We thought they would be at about 5.5, and they are at 2.5 right now.

Mr. MACK. And that is as a result of not investing into their own infrastructure, is that how you—

Ms. HARBERT. At high oil prices certainly all countries have ample incentive to be producing at maximum capacity. Unfortunately, their capacity right now is 2.5 million which, as I said, is under their OPEC quota.

Energy is a commodity traded on the global market, and I think we have to be very aware of if one country or another decides not to sell to another country, it does not take those commodities off the market. They will just be reallocated.

The market is a very efficient mechanism. As we found in the wake of Hurricanes Katrina and Rita, resources will be allocated where the demand is, and so we have to be aware that should one country choose not to sell to another country, it just means that other countries and the markets will reallocate that supply to where the demand is.

Mr. MACK. Can you talk a little bit about diversification? We talk a lot about finding new places to drill for oil. We talk about conservation. We talk about alternative energy supply. Can you talk a little bit about in the Western Hemisphere what you see as a trend toward diversifying our energy supply?

Ms. HARBERT. Well, I see it as threefold. Diversification of where we get our energy from, and we certainly see new ample supplies of both oil and natural gas because gas is certainly becoming a more important commodity to the United States economy, and we see supplies from Canada, from Mexico, from Bolivia, from Peru, from Colombia, and limited supply from Brazil. So those new resources we see as an important part of our diversification of where we get our energy from.

We also see important diversification of the type of energy that we use. As we seek to reduce our dependence on oil, certainly there is going to be increasing demand for natural gas and liquified natural gas, and we are seeking to have a better ability to import liquified natural gas from places in this hemisphere and outside of this hemisphere. Trinidad and Tobago certainly is our primary partner in the hemisphere, and they are expanding in that regard.

In addition, not only the United States but other countries in the hemisphere are looking to expand their use of ethanol, their use of solar and wind and geothermal and hydro for some countries, and Central America is still a very important part of their energy mix.

We have to incorporate a whole variety of energy sources in order to secure our energy future. It has to be a short, medium, and long-term strategy. In the United States, we are looking for the long-term where we are investing in such technologies as hydrogen. In the medium term, we are looking at ethanol. We are looking at solar and wind to be an increasingly larger part of our energy mix. In the short term, we have to have to have much more effective energy efficiency measures.

In 2006, we have, because of the energy bill, a lot of new tax incentives that encourage consumers, residents, homeowners, businesses, to be more efficient users of energy. We are trying to help countries in the Western Hemisphere to employ the same type of legal and regulatory framework that we have here to encourage those countries to be more efficient users of energy. We all have to be better producers, and equally as important is to be better consumers of energy.

Mr. MACK. One of the things I did not hear you say, and maybe I just did not hear it, but does nuclear energy also play not just here in the United States, but also in the hemisphere?

Ms. HARBERT. There is no more nuclear-friendly Administration than this Administration, and the President strongly believes that we in the United States have to incorporate nuclear power in a much larger way, and has received new authorities in the Energy Policy Act to do that, and unveiled in his Fiscal Year 2007 budget a new global nuclear energy partnership that will help countries around the world incorporate energy in a proliferation-resistant manner, and we will be willing to assist them.

The President today is in India, and they were able to ink a new agreement on being able to expand the use of civilian nuclear power in India.

We believe globally it is in our interest and it is a very climate-friendly, environmentally-friendly technology, and if we are able to help Brazil, Argentina, that are already using nuclear power, and other countries in the hemisphere that will be interested in expanding it in a proliferation-resistant way, we are able to do that.

So we are strongly in support of it, and we are strongly supporting this to be used on a global basis.

Mr. MACK. Thank you.

Congressman Engel, do you have any questions?

Mr. ENGEL. Yes, thank you, Mr. Chairman.

Secretary Harbert, thank you for your testimony, very excellent testimony.

You said that Latin America and energy resources will need \$1.3 trillion of investment. While obviously we all want to see oil prices drop, will not investments of this size merely extend or addiction to oil and fossil fuels and in essence keep prices high as a result?

In comparison, we invest only a few billion dollars in alternative fuels. And if the President, and I welcome his words at the State of the Union, if the President is serious about ending our addiction to oil, I think that we need to put those tens of billions into alternative fuels, and use our technological edge to make other forms of energy economical and efficient, and I am wondering if you could respond to that.

Ms. HARBERT. The President in his 2007 budget, you will see a 22 percent increase in the research and development component of our budget to develop clean energy. He strongly believes that the way that we are going to get out of the energy situation in which we find ourselves is not to drill our way out of it; it is to innovate our way out of it, and innovation is something that the United States has always excelled in.

He has an Advanced Energy Initiative, along with that an advanced American Competitiveness Initiative that will increase our investments in science and technology, and help to what I call make sure that we have the back bench; that the people that are in kindergarten, the people that are in college actually are given the opportunity to study technologically advanced solutions to our energy problems and will be able to carry that forward, because this is not a solution that we are going to solve today or tomorrow or even during this Administration.

We have to set the framework in place to make the investments over time that will help us to have those technologies available and be able to be commercialized and used not only here and not only in the Western Hemisphere but in economies like China and India that are growing at a very rapid pace.

Mr. ENGEL. Well, thank you, but since you mentioned the budget, let me say that many of us, myself included, believe that there needs to be much more allocated for energy and alternative fuels, and looking to wean us off of oil, and I hope that the budgetary process that is going to go on here in the next weeks and months that we will be able to add to that because I think that while we are all in a pinch, and obviously we wish we had more money for everything, I think the President's budget is inadequate, frankly, in the monies allocated to look at alternative fuels.

I would like to—yes.

Ms. HARBERT. I want to say on the 1.3 trillion, just to answer your question on that: That is actually from the private sector that will need to be invested, private capital to actually develop the energy infrastructure so that there is affordable, reliable access to energy in Latin America.

As I pointed out in my testimony, and both of you mentioned that that is dependent on an investment climate in the Western Hemisphere that will attract that capital. Otherwise, we are not going to be able to have the people in this hemisphere have access to the energy that they need to develop their own economies.

Mr. ENGEL. Thank you. I want to ask you about the proposed Latin American pipeline because that is something that obviously can be very important.

South American leaders from Venezuela to Argentina are proposing to build this pipeline, and it would be the world's largest pipeline across Latin America. They say they see the plan as the first blue print for a new era of regional cooperation, greater independence from international markets, and the United States, and a more prominent voice on the world stage.

President Chavez, as has been mentioned, of Venezuela has called the proposal a symbol of diminishing United States influence in Latin America, and observers have called the project an effort to forge a new South American identity.

Despite the public pledges of unity, the pipeline is still a long way from being built. What do you think is the likelihood that the many remaining obstacles—finding the estimated 20 billion to pay for it, resolving the environmental concerns of burrowing through the Amazon Rain Forest, dealing with competing interests of individualized nations—can be overcome?

Then let me also throw out that how vulnerable is the project to political and financial turmoil in the area, in your opinion, given that the Presidential elections is slated for many countries, including Brazil, Venezuela, before the end of the year, does the pipeline have a future beyond the planning of photo opportunities in summits?

Ms. HARBERT. The best model of energy integration is actually found in this hemisphere, and it is what the United States, Canada and Mexico have already undertaken and integrating our energy infrastructure, and for whether it is in Central America or in South America as countries look to integrate their energy infrastructure to be more economic and more efficient, they should look at the model we have currently employed, whether we have harmonization of our regulatory frameworks, harmonization of supply, it is truly a model that one needs to look at.

For this specific project, you correctly point out, it is years in the offing, if it ever comes to fruition. Tremendous technical challenges. There are tremendous environmental challenges. But most importantly, there are tremendous financial feasibility challenges to that.

Capital will be attracted to this project if the investment climates in all of the countries that it has to traverse actually make the decision that they are willing to open up and be inviting to the private capital. It is in the interest of everybody for there to be a more efficient allocation of natural resources. I do not see this pipeline's coming to fruition of being exclusionary of the United States.

As I said before, energy is traded on an open market. And so if it is used there, then other energy will be freed up somewhere else to come to the United States. But it would be up to the countries and their governments to make the decision that they are going to open up, that it is going to embrace market principles, and that they are going to be open for business to the very significant technical expertise that is needed, and the technical expertise does not rely or reside in state-owned oil companies. It resides in the private sector that is putting their own private capital into research and development, so they will have to be open to capital and to foreign expertise.

Mr. ENGEL. Mr. Chairman, if you will indulge me, I would just like to ask another series of questions.

We have talked a lot about Hugo Chavez and Venezuela and some of the things that he has threatened. There are a lot of eyes looking at Bolivia as well. The new President, Evo Morales, obviously has some decisions to make. There has been rhetoric, there has been all kinds of things, no one really knows what direction he will go.

In your estimation, what do you think is the likelihood of the Bolivian President Morales nationalizing the Bolivian gas sector? And what are the political, economic, and social implications of nationalization in Bolivia, and how should investors approach a potential nationalization?

Ms. HARBERT. You correctly point out that the new President, President Morales, has a tremendous opportunity before him. He has the opportunity to make the right decision for the people of Bolivia, and that is that he is going to unlock those resources and use them for the development of his country.

I do not believe that nationalization will lead to that in the most economic and efficient way, and probably not within the time frame of his presidency. This type of resource and the amount of capital that is needed does not reside in Bolivia.

Bolivia does not have a very good economy. And if they are going to unlock these resources to actually pump up their economy, even pay their external debt, they need to do that using foreign capital, using foreign expertise that comes only if he is willing to make the decisions to have the type of climate and have the type of predictable investment climate that will allow companies to actually make the decision to stay in Bolivia or to come to Bolivia for the long run.

Mr. ENGEL. Well, thank you, and I have one final question that I would like to ask you about Canada, because you made a point to emphasize that our major supplier and trading partner in this sector is Canada.

What mechanisms exist to work toward common ends and to address issues of concern with Canada, be they energy issues or other issues that could spillover and affect our energy relationship with Canada?

I represent New York, and we all remember the infamous black-out of August 2003, I think it was, and that had something to do with Canada. Everyone put the blame on everybody else, but obviously it was very important that we coordinate things with Canada.

So if there are disputes, what mechanisms do we have to address common issues of concern?

Ms. HARBERT. Certainly. Just a note on the blackout. From everything that happens that is unfortunate you hope to learn from it, and we learned from that that we needed far more cooperation on the regulatory side of things, and I am pleased to say that our FERC regulators and their regulatory agencies are now meeting on a very regular basis to find out where there are glitches, where there are gaps, how we can harmonize things to actually ensure the reliability of the system because they are very interconnected, and we have now invited Mexico into this process because increasingly we are going to have a connected system on our southern boarder, and we think it is in our interest in their interest to see how we are solving our problems with Canada.

We have a very strong bilateral relationship with Canada today. We unveiled a new report that is called "The North America: The Energy Picture II," which is a very concrete picture of how we see our relationship with Canada and Mexico, how we see ourselves trilaterally, and that was published by the Security and Prosperity Partnership Working Group, and that is a set of government officials from Canada, the United States and Mexico that worked together on a regular basis to address issues, whether they be trade, whether they be on the energy side, whether they be—whatever issue that we might have either bilaterally or trilaterally.

Energy is one of the most important parts of the relationship, and we have nine working groups that work throughout the year to address issues.

Mr. ENGEL. Thank you very much.

Ms. HARBERT. Thank you.

Mr. MACK. Thank you, and just to follow up on that question, I think this will probably be it. But can you talk a little bit about China's involvement or role or stake in the oil sands that you talked about in Canada?

Ms. HARBERT. As I pointed out, and I detail a little bit more in my written testimony, the importance of the oil sands for the United States, for Canada, and ultimately for the world energy market, and it requires a tremendous amount of investment. Canada has been open to investment just as we are open for investment, and the Chinese have invested in a small part of the oil sands.

I think that that is perfectly normal. We need investment to unlock those resources. They are not taking by this investment any of these resources off the table and cipher them off for other things, so we are quite comfortable with additional investment going into the oil sands.

Certainly if we do not develop those oil sands over time, it is not in our interest since the destination of a majority of that product will be the U.S. market.

Mr. MACK. Okay, thank you very much, and we appreciate you coming before the Committee, and your testimony, and we look forward to hearing from you again soon.

Ms. HARBERT. Thank you.

Mr. MACK. I now would like to invite the second panel to come forward. Eric Farnsworth, Dr. Sidney Weintraub, and Anne Korin.

[Witnesses sworn.]

Mr. MACK. Ms. Korin, if you would like to begin with your opening statement.

**TESTIMONY OF MS. ANNE KORIN, CO-DIRECTOR, INSTITUTE
FOR THE ANALYSIS OF GLOBAL SECURITY**

Ms. KORIN. I will try not to repeat what was said before. I am co-director of the Institute for the Analysis of Global Security, which is a think tank focused on energy security, and I also Chair the Set America Free Coalition, which is a coalition of national security and foreign policy-focused organizations and prominent individuals along with environmental, labor, religious and business groups, all concerned about our increasing dependence on foreign oil, and focused on ways to reduce that dependence.

I want to thank the Chairman and the Ranking Member for inviting me to brief you today.

I think it is very obvious that we have a situation of increasing global instability in the energy sector, and most particularly in the oil market, and unfortunately, there is very, very little that we can do about it in terms of ensuring our security of supply and the stability of supply.

When we look at the Persian Gulf or the Gulf of Guinea, we see increasing violence, increasing attacks against infrastructure, and of course political disruptions, and different statements by the leaders, various leaders in these regions that indicate that they might use oil as a weapon.

Unfortunately, we are also seeing that kind of behavior in the Western Hemisphere. Following the President's remarks on our addiction to oil and the need for the United States to stop being so dependent on countries that do not particularly like us, it would seem natural that we increase our dependence on our own hemisphere where it would seem that it should be easier for us to secure supply and to develop better relationship with the countries in the region.

Unfortunately, what we see is that we have very little control over what is going on in our own back yard.

While obviously we have a very excellent relationship with Canada, even when you look at Mexico, we can do very little to improve the investment climate in Mexico and to open Mexico up to foreign investment, and that is what is going to be required for a country like Mexico to really develop its energy resources, and to not drop down in terms of its energy production, and because we are so dependent on Mexico, it would be very much detrimental to our national interest to see the production in Mexico go down.

Looking further south, Venezuela is clearly the biggest problem that we have in the Western Hemisphere in terms of energy production because Chavez, who appears to want to replace Fidel Castro in terms of being the regional troublemaker and instigator against the United States, is kind of leading the charge, and what he is doing is basically bribing, trying to bribe the countries around him with preferential terms for energy, and using energy to expand his sphere of influence.

That, of course, is detrimental to our national interest. We need to increase our own influence in our own back yard, and instead

we are watching it go down. We are watching anti-Americanism increase in our own back yard.

We can go country to country, and I think we see an enormous amount of problems, from riots in Bolivia over natural gas issues, and keep in mind that the last several governments in Bolivia were toppled because of energy issues. You look at Ecuador, and just like in Nigeria, you are seeing a tax against energy infrastructure there. You even had attacks in Venezuela. Right on the eve of the election December you had attacks against the pipeline there.

I just came back from Prague where IGS organized the NATO Forum on Energy Security, and the major focus there was critical energy infrastructure protection, and the fact is that it is extremely, extremely difficult no matter how many resources you throw at the problem to protect pipelines from attack; just too easy to do, and in an area where you see increasing discontent, increasing discontent and an increasing anger targeted especially at foreign oil companies, unjustified in my view, but certainly a lot of anger targeted at foreign oil operators in the region. You are going to see, I believe, more and more of these types of attacks.

So what we need to do since we are, I think, unable to do much to influence the internal politics of these countries, what we need to do is look inward, is look inward and think about what the U.S. in terms of policy can do to better insulate itself to energy supply shocks, and how it can use energy policy as a tool to improve the geo-political situation.

What we have really seen is because of our increasing energy consumption, particularly our oil consumption, we hear a lot about energy dependence, but the fact is that the U.S. has a lot of energy. We just do not have enough oil to meet our needs. We have 3 percent of the oil reserves and we account for a quarter of world oil demand, and our import rate has grown from 30 percent in the early 1970s to over 60 percent today and steadily increasing. We do not have enough oil to meet our needs.

So what we see is, unfortunately, very often our energy imperative has the effect of forcing our hand when it comes to foreign policy. But I think we have a real opportunity in the Western Hemisphere to do something different here, and when I think of doing something different, I think specifically of ethanol.

We are in a very bizarre situation where we do not tax oil coming from Saudi Arabia. We do tax ethanol coming in from Brazil, for instance. When we talk about increasing the energy security of the United States and diversifying our fuel supply, and keep in mind that over two-thirds of our oil consumption is in the transportation sector, so diversifying fuel, increasing fuel choice in the transportation sector is really key to improving our energy security just as we did in the power sector. Today, only 2 percent of our electricity is generated from oil.

Alternative fuels are a very good way to do that, and we have an opportunity to develop economic interdependence with our neighbors in the Western Hemisphere. There is a limit to how much ethanol we can produce here at home cheaply. The best way to produce ethanol, there has been a lot of talk about cellulosic ethanol and all this, and this is worth investing in. It is a promising technology, but it is not yet economic at a commercial scale, and

it remains to be seen if the technological and economic hurdles will be overcome.

What we do know is that ethanol from sugarcane is——

Mr. MACK. I am sorry. If you could wind it down, so we can get the others.

Ms. KORIN. Sure.

Mr. MACK. And have time for the entire panel to ask questions.

Ms. KORIN. Sure. I would just say I want to commend Ranking Member Engel, along with Chairman Burton, who are both leading the H.R. 4409, the Fuel Choices for American Security Act, which basically removes this barrier to free trade, and increases energy security by removing this tariff on imported ethanol, among many other measures to improve energy security. I think it is the most comprehensive bill on the issue of oil savings brought before this chamber in many, many years, and I would encourage other Members to get on this bill as well.

[The prepared statement of Ms. Korin follows:]

TESTIMONY BY ANNE KORIN
CO-DIRECTOR
INSTITUTE FOR THE ANALYSIS OF GLOBAL SECURITY (IAGS)

Presented before
HOUSE INTERNATIONAL RELATIONS COMMITTEE
SUBCOMMITTEE ON WESTERN HEMISPHERE

Energy Security in the Western Hemisphere

March 2, 2006

Mr. Chairman, members of the subcommittee, I would like to thank you for inviting me to brief you on the energy challenges facing the Western Hemisphere and their effects on U.S. interests. The Institute for the Analysis of Global Security is an independent research institute focused on energy security. I am also chair of the Set America Free Coalition, a bipartisan alliance of national security and foreign policy groups as well as scientists, environmental, religious, labor and business groups dedicated to reducing America's dependence on foreign oil.

President Bush's call for the U.S. to reduce its dependence on countries that "don't particularly like us," would seem to entail increased reliance on energy resources concentrated in areas that are not only geographically closer to the U.S. but also those less prone to political instability. Considering the growing instability in other energy domains, Western Hemispheric countries are still America's most appealing option, though far from being a paragon of stability. Home to a seventh of the world's population, the Western Hemisphere has 13.5% of the world's conventional oil reserves. This amounts to about 160 billion barrels of oil, of which 101 billion barrels are concentrated in Central and South America, particularly in Venezuela, Brazil, Colombia, Ecuador, Argentina and Peru. These countries accounted for 8% of total world output in 2004. The U.S. has long relied on Western Hemispheric suppliers of oil and gas. Currently, about half of U.S. oil imports and over 95% of U.S. gas imports are from the Western Hemisphere, particularly Canada, Mexico, and Venezuela.

In an era of increasing volatility in the Persian Gulf and the Gulf of Guinea, it is more critical than ever that the Western Hemisphere be a reliable source of supply. However, recent events have shown that some Western Hemispheric energy suppliers are not immune to disruption and political changes cast a doubt over their future relations with the U.S. From Bolivian riots over natural gas policy, to Venezuelan rumblings about shifting export focus away from the U.S., America's backyard is becoming a less certain and reliable source of supply. At the same time, developing Chinese interest in the region indicates that the U.S. will face growing competition by other energy hungry nations and can no longer take Western Hemispheric energy for granted.

In light of these developments, the U.S. needs a shift in policy to strengthen its relationships in the region and address South America's chronic poverty as well as insulate its economy from supply disruptions.

The biggest challenge to U.S. energy security in the Western Hemisphere is the consolidation of a so-called anti-imperialist bloc in South America, led by Venezuela's Hugo Chavez who appears to vying for Fidel Castro's mantle. When it comes to the region's energy security Venezuela, a founding member of the Organization of Petroleum Exporting Countries (OPEC) which owns 77.2 billion barrels of proven conventional oil reserves, is the most pivotal of all other Western Hemispheric nations. Venezuela also has an estimated 270 billion barrels of unconventional crude, 151 trillion cubic feet (Tcf) of proven natural gas reserves, a hemispheric endowment second only to that of the U.S., and 528 million short tons (Mmst) of recoverable coal reserves. It is the world's fifth-largest oil exporter and supplies more than 10 percent of American oil imports.

In recent years Venezuela has expressed its intention to part ways from the U.S. and reduce its dependence on the U.S. market, which now accounts for about two-thirds of the country's oil exports. The acrimonious relations between Caracas and Washington have yielded some stern warnings by Venezuelan officials that Venezuela might use the oil weapon should Washington assume an aggressive posture. Only last week, Venezuela's oil minister warned that his country could steer oil exports away from the U.S. and toward other markets and that for starters it will double exports to China to 300,000 barrels a day. Looking forward, Venezuela expressed its desire to become the source of twenty percent of China's imported oil. Examining the trajectory of growth of China's oil demand, such a commitment would surely come at the expense of exports to the U.S. By 2025 China will require 15 million barrels per day, out of which 11 will be imported. Twenty percent of that is 2.2 million barrels per day, which surpasses Venezuela's current exports to the U.S.

To increase its choice of clients, Venezuela is positioning itself as an energy hub for the entire continent, creating interdependencies with many of the region's countries. Among its prospective regional integration projects are a 140-mile gas pipeline designed to link Venezuela and Colombia and a pipeline across Colombia to the Pacific Ocean intended to ease Asian access to Venezuela's petroleum. A proposed South American mega-pipeline that would carry natural gas southwards from the Caribbean Sea across the Amazon jungle to Brazil and Argentina is also on the drawing board. It is not clear whether the gas could be offered at a competitive price due to the huge investment required to build the pipeline, on the order of some \$23bn. It is even less clear whether Venezuela would have the capacity to keep up such a large steady supply of gas. Which brings me to the issue of investment and replenishment of depleting reserves.

Of the region's largest energy producers, only Brazil and Ecuador still experience production growth. Conventional oil production in the rest, specifically Peru, Colombia, Argentina, Mexico and Venezuela, has been declining. According to a study by PFC Energy, non-OPEC Latin America's crude reserves are expected to peak around 2007 and decline steeply thereafter. Venezuela has been losing output of 1mbd per year since 2002.

Considering the projection that in the next two decades the region's own need for oil will nearly double, it seems that Latin America's long term ability to satisfy global oil demand will be increasingly compromised unless significant investment is made in both the upstream and downstream sectors. This is contingent on the creation of a hospitable investment climate for the oil majors. The region's energy markets opened at the beginning of the last decade, with the privatization of Argentina's national oil company and the deregulation of its upstream production. In 1995, Venezuela began opening up parts of its petroleum sector to foreign investment. Brazil also liberalized its petroleum sector through a constitutional amendment, eliminating the state monopoly on fuel importation and offering offshore oil-lease licensing contracts. But despite past positive movement, there is still a troubling lack of free-market conditions throughout the region. More recently operating terms for foreign investors in some countries have worsened and state control has tightened. Since Venezuela's oil production was disrupted by a strike by employees in December 2002 and January 2003 President Hugo Chavez has tightened his nationalistic political control over the country's national oil company, PDVSA. The ouster of a large portion of PDVSA's technical talent following the strike has no doubt impacted its reserve management abilities and does not bode well for future production. Venezuela also follows a global trend of reduced transparency regarding oil producing countries' reserve data and less openness to foreign investment. Last month, Venezuela's Energy Minister Rafael Ramirez said that PDVSA would no longer file financial reports with the SEC as the country moves to reduce its traditional reliance on the U.S.

Additionally, Venezuela has significantly worsened the terms under which foreign oil companies can operate within its borders, changing the structure of agreements, drastically increasing royalties, and charging billions in backtaxes based on retroactively changed rulings on tax status. The current high price of oil is giving Chavez the leverage to execute these changes as despite mutterings of protest foreign oil companies have grudgingly acquiesced to these demands. Bolivia also drastically increased taxes on energy production, adding a 32% levy above and beyond an existing 18% royalty, and energy operators in that country are being renationalized. This will doubtless serve to dampen future development of the country's oil and natural gas resources. It is worth noting that the past several governments in Bolivia were toppled due to protests over energy issues. Similar problems appear in other regional producers. Attempts to reform Ecuador's oil sector in order to attract investment have been struck down by the country's legislature. Mexico energy sector is still closed to foreign investment and Pemex, Mexico's national oil company, has had to dramatically revise its reserve figures.

Adding fuel to the fire are riots, sabotage and terrorism. Protestors in Ecuador have repeatedly taken oil workers hostage, sabotaged installations, and disrupted production. Over the years attacks on the Cano Limon pipeline in Colombia have been so frequent that the pipeline is called "the Flute." While the frequency of attacks has decreased they still occasionally cause significant disruption. Pipeline sabotage also occurs in Venezuela. Last December the Ule-Amuay oil pipeline which goes from Lake Amraicaibo, at the center of Venezuela's oil industry to Paraguana, the world's largest oil refining facility, was bombed right before the elections.

Mr. Chairman, despite all the problems posed by Latin American producers, considering the chronic instability in other domains like West Africa and the Middle East it seems that there could not be better potential for partnership between the supply side and the demand side than that of Latin America and the U.S. Latin America poses less underlying complexity than other regions and can therefore continue to be a major supplier of energy to the U.S. But this can only happen through true commitment to open markets and continued liberalization and privatization. As anti Americanism spreads across the world it is critical that the U.S. maintain its strategic posture and popular support in the Western Hemisphere. This can be done through increased effort to promote democracy, economic reforms and good governance and, no less importantly, by enriching our neighbors and promoting economic interconnectedness with them. Energy is one of the areas in which such mutually beneficial relations can be easily established. Beyond conventional energy sources, there are two potential areas for energy cooperation:

Non-conventional petroleum

If the Western Hemisphere has any future in oil production it is in the field of non-conventional sources of petroleum such as extra heavy oil, tar sands and oil shale. By 2010 only 4% of the world's oil will come from non-conventional sources, but clearly the next several decades will show increasing role of these energy sources. About 1.2 trillion barrels of extra heavy oil are in place in Venezuela. At current technology and prices only 2-3% of this endowment is economically recoverable but it is likely that 100-270 billion barrels will eventually be economically recoverable. In Canada, there are close to 180 billion barrels which can be derived from Alberta's tar sands. Of this endowment, about 20% are economically recoverable at current market conditions. Shifting to non-conventional oil requires substantial investment and a long lead time. In most cases the production of non-conventional crude consumes other hydrocarbons. For example, extraction of oil from Canada's tar sands endowment requires a large amount of natural gas, which has negatively impacted Canada's ability to pipe gas to the U.S. This has brought about an increased U.S. need for LNG imports. While significant additions of supply are expected from non-conventional sources in the decades to come, one should remember that not all of this supply will go to the U.S. China and India are likely to buy ever increasing shares of non-conventional crude, hence limiting its availability to the U.S. market.

Turning Latin America into the Middle East of sugar alcohol

President Bush's vision of reducing America's oil dependence entails a shift to alternative transportation fuels and the vehicles that can run on them. Large scale deployment of ethanol requires the development of new ways to convert cellulosic material into alcohol. Though a great deal of effort is being made on this front it remains to be seen whether such conversions are economically and technologically feasible on a commercial scale. But to date, the best feedstock for ethanol production is sugar cane. About twenty percent of the fuel used in Brazil is made from this crop. Sugar needs a long, frost-free growing season and expansion of sugar growing beyond Florida, the Gulf Coast and Hawaii is limited. Latin American and Caribbean countries, on the other hand,

including Brazil, Guatemala, Panama, Trinidad and Tobago, Costa Rica, El Salvador and Jamaica-- all low-cost sugar cane producers--could become key to U.S. energy security if they turn their crop into ethanol. Brazil, the Saudi Arabia of sugar, already exports half a billion gallons of ethanol a year and could provide the U.S. with cheap ethanol. "We don't want to sell liters of ethanol, we want to sell rivers," Brazil's Agriculture Minister Roberto Rodrigues said last year.

Expanding U.S. fuel choice to include biofuels imported from our neighbors in the Western Hemisphere would have significant geopolitical benefits. Encouraging poor sugar growers to increase their output and become fuel suppliers to the U.S. could have far-reaching implications for their economic development, and help maintain a U.S. sphere of influence in the region. By opening the market to these countries and increasing economic interdependence with its neighbors in the Western Hemisphere the U.S. will decrease the likelihood that those poor countries adopt an anti-American posture and fall on the side of leader like Hugo Chavez who is securing their support with favorable terms for oil, or on the side of China which has already set its sights on Western Hemispheric energy supplies and has built the world's largest ethanol plants.

Today such a vision is prevented due to a protectionist policy which imposes stiff tariffs on ethanol imports. Oddly, we are willing to import petroleum from Saudi Arabia tax-free but not ethanol from Brazil. Blocking ethanol imports to the U.S. to protect corn growers not only undermines U.S. energy security but also has geopolitical consequences. While the U.S. could encourage sugar growers in Latin and Central America to increase their output and become fuel suppliers, creating a virtuous cycle of economic cooperation with its neighbors, it is China that is doing just that.

I therefore commend Rep. Burton and Rep. Engel for their leadership on The Fuel Choices for American Security Act (H.R. 4409) sponsored by Rep. Kingston which aims, among other useful provisions, to remove this barrier to free trade which undermines energy security. The Bill is the most comprehensive legislative package on oil savings that has come before this House in many years. It provides a real plan for energy security by looking beyond just petroleum to tap the entire spectrum of energy resources available to meet U.S. energy demand. The Bill recognizes that while we have already diversified our power sector away from petroleum the U.S. transportation sector is over 97% oil dependent. The stability and security of fuel supply to the transportation sector, which underlies the modern economy, can be significantly strengthened by diversifying the supply chains which it can tap.

U.S. oil import dependence has increased from 30% during the Arab oil embargo to over 60% today. As should be clear from the instability rife in the U.S.' backyard, there is a limit to what the U.S. can do to stabilize oil producers that are even further afield. The U.S. thus needs to look internally toward measures that can be taken to insulate its energy supply to price shocks. Since two thirds of U.S. oil consumption is in the transportation sector, increasing fuel choice in the transportation sector is an effective way to do that. A shift to flexible fuel vehicles, that can run on any combination of gasoline and alcohols including ethanol and methanol, and to plug-in hybrid electric vehicles that can tap the

electricity grid for a portion of the day's driving needs, particularly appealing since only 2% of U.S. electricity is generated from oil, and accelerated deployment of advanced vehicle technologies which increase efficiency would serve to reduce U.S. exposure to risks that it can not manage.

Mr. MACK. Thank you very much.
Dr. Weintraub.

**TESTIMONY OF SIDNEY WEINTRAUB, PH.D., WILLIAM E. SIMON
CHAIR IN POLITICAL ECONOMY, CENTER FOR STRATEGIC
AND INTERNATIONAL STUDIES**

Mr. WEINTRAUB. Thank you for inviting me.
Mr. MACK. Thank you.

Mr. WEINTRAUB. Let me make two big points. You have heard them before, but I do want to emphasize that 50 percent of our crude oil imports come from the Western Hemisphere. There are more products and other things, and in my prepared statement that you can have will have some details on those issues about what the other refined products are, and more than 95 percent—these are 2004 data—of our natural gas, including LNG, comes from the Western Hemisphere. In other words, we have a big stake in this hemisphere.

Of the five largest oil exporters to the United States, three are in Latin America, Canada, Mexico, Venezuela, and the others are Saudi Arabia, and Nigeria.

You will have a lot more data from my organization, the Center for Strategic and International Studies, in the fall. We are engaged in a project, we are a year-and-a-half into it so far, looking at the situation of 11 countries in the hemisphere, the United States, Canada, nine in Latin America and the Caribbean, looking at each country, looking at the regulatory frameworks, who is producing what, where, and the project really has a double emphasis.

One is, what can be done to foster cooperation among the countries; and then second, analyzing in some detail the political impediments that stand in the way of cooperation, and the political impediments of fears as some of you have already noted with respect to Bolivia, Venezuela, and others.

Let me just say a word, and not much more than that, on our three main hemispheric suppliers. The United States companies are still investing in Venezuela. I will not go into the forms unless you really want to ask, but let me make a point that has not been made here before. The fact that the private sector remains engaged in Venezuela at a time when the public sector, the government cannot really get very far I think is useful for us, and I do not think we would want to interfere with that.

Mexico wants to cooperate, but Mexico, as Secretary Harbert said, Mexico has a capital shortage for many, many reasons, and I can get into that, both its tax system and its system of who controls the oil, which limits exploration and production, and could lead to a crisis in not too many years.

Canada is our most reliable supplier, especially now with the oil sands. I visited the oil sands. If you have not, it is an experience you ought to see. It is a massive, massive operation, and its future depends on technology and massive infusions of investment.

Let me give you three conclusions and I will stop. I think the conclusions are a little different from some of the things you have heard.

United States policy toward Latin America has alienated just about all the countries in the region. We are not very popular in

Latin America. There are some exceptions. And I would think that—this is not the Congress I talked about now, this is the United States Government—that if we really want cooperation in the hemispheric field, we have to be cooperating generally in our foreign policy and take into account Latin America.

In the President's State of the Union message, everybody in Latin America noticed, even when discussing energy, he never once mentioned Latin America, and that was noted.

Two, I do not think there will be any United States energy security if there is not also security in the Latin American/Caribbean region. This idea that we can independently be secure and they are not secure, I do not think is reality.

And finally, I think we must understand their aspirations too. There is a reason they undertake the policy they take. Sometimes they are misguided. Sometimes they are not, but there is a reason in each case, and I think we have to understand that.

My conclusion simply is I urge all of you to think and act broadly. As the title of these hearings imply, energy security in the Western Hemisphere, and keep that point Western Hemisphere in mind.

Thank you.

[The prepared statement of Mr. Weintraub follows:]

PREPARED STATEMENT OF SIDNEY WEINTRAUB, PH.D.,¹ WILLIAM E. SIMON CHAIR IN POLITICAL ECONOMY, CENTER FOR STRATEGIC AND INTERNATIONAL STUDIES

I would like to begin my presentation with a few facts on the importance of the Western Hemisphere in supplying energy resources, especially crude oil and natural gas, to the United States. Imports of crude oil from hemispheric countries (Canada, Latin America, and the Caribbean) amounted to 50 percent of total U.S. crude oil imports in 2004, the latest year for which annual figures are available. Over and above this, the United States imports significant amounts of oil products from countries in the Western Hemisphere, as can be seen in the tables at the end of this presentation. With this much energy resource reliance on the hemisphere, it is remarkable that the U.S. government has so thoroughly ignored the hemisphere in its foreign policy.²

Imports of natural gas, including liquefied natural gas (LNG), from hemispheric countries in 2004 were 95.5 percent of total gas imports that year. The U.S. electric energy grid also involves trade in electricity with both Mexico, and especially with Canada.

The five most important foreign suppliers of crude oil to the United States in 2004 were Canada, Mexico, Saudi Arabia, Venezuela, and Nigeria, in that order. Three of the five are in the Western Hemisphere. Canada, in 2004, supplied 85 percent of the natural gas imported by the United States. Our most important supplier of LNG was Trinidad & Tobago.

The appendix to this presentation contains detailed data on the role of the Western Hemisphere in supplying energy resources to the United States.

The State of Energy Cooperation in the Western Hemisphere

I will devote the rest of this presentation to some key analytical issues related to energy cooperation in the Western Hemisphere and to political problems that impede the extent of cooperation that would enhance hemispheric energy security. The material I am presenting today will be amplified later this year, in the autumn I hope, when the Center for Strategic and International Studies (CSIS) publishes a study now in progress there on energy cooperation in the Western Hemisphere. The study will have chapters on the energy and political situations in 11 hemispheric countries that are producers of oil and/or gas (Argentina, Bolivia, Brazil, Canada, Colombia, Ecuador, Mexico, Peru, Trinidad & Tobago, the United States, and Ven-

¹All views expressed in this statement are solely those of the author.

²It was noted by hemispheric governments, and was the theme of much comment in hemispheric media, that President Bush's state-of-the-union address ignored the Western Hemisphere, even when the president discussed energy.

ezuela), as well as a chapter on cooperation among the three countries of North America, plus material on the energy infrastructure in the hemisphere, a comparative presentation of regulatory procedures and issues, and a discussion of the roles of China and India in seeking energy sources in the hemisphere. The book will also contain educated estimates on which hemispheric countries will be important oil and gas producers in 2025.

The most significant country energy problem from the U.S. vantage is Venezuela because of its large oil and gas endowment coupled with the animosity between its president, Hugo Chávez, and the United States. Venezuela is producing less oil today than it did when Chávez became president in 1999 because of the sacking of key personnel in the state-owned energy company, Petroleos de Venezuela, S.A. (Pedevesa). Venezuela is providing oil at discounted prices to Caribbean countries, including Cuba, and Chávez is using this generosity to organize countries in the Caribbean, and elsewhere in Latin America, against the United States. From time to time he threatens to cut off oil exports to the United States, but it is unlikely that he can do this in the near future and find alternative markets where Venezuela's heavy oil can be refined. Venezuela is raising the government take on oil concessions to private companies, including U.S. companies, but foreign investment continues because operating in Venezuela is still profitable and most companies are looking to the long term to a Venezuela under different leadership. Venezuela, under its president, evidently is not a country interested in promoting hemispheric energy cooperation that includes the United States.

Mexico is friendly toward the United States and wishes to cooperate, but the problem there is the inability to fashion a policy that facilitates cooperation, or even a policy that takes into account Mexico's own medium- and long-term oil and gas needs. Because of insufficient tax collection to meet the needs of the federal government's outlays, about one-third of fiscal expenditures come from taxes on the gross revenues of Petróleos Mexicanos (Pemex), the government oil monopoly. Consequently, despite high oil prices, Pemex in recent years has had a net loss in its accounts each year. The company is already borrowed to the hilt. The Mexican constitution and regulations do not permit private equity or risk investment in oil and gas. As a result, there has been inadequate exploration for oil and gas, and hence little prospect for increases in output, absent some lucky find. It is revealing to look at a map showing deep-water drilling in the U.S. and Mexican areas of the Gulf of Mexico. The U.S. side is covered with dots showing where drilling has taken place, whereas the Mexican side is almost devoid of dots. At current rates of production, if there are no important new discoveries, Mexico will run out of oil in about 11 to 12 years. In addition, Mexico is now a large importer of natural gas and refined products, like gasoline. The unwillingness to allow private risk contracts is deeply rooted in Mexican history and hard to change, perhaps impossible to change during the current presidential election year. It has also proved to be near impossible to raise more tax revenue. A valid question to ask is whether Mexico can alter the politics connected with either private investment and/or tax collections to head off an energy collapse, or whether the country will act only after the crisis has erupted.

Canada is the largest oil and gas exporter to the United States; in 2004, Canada supplied 16 percent of U.S. oil imports and, as noted earlier, 85 percent of U.S. gas imports. Of the big three hemispheric oil suppliers to the United States, Canada is by far the most reliable. Much of Canada's oil production now comes from the oil sands in Alberta, and if past increases in oil sands output is any guide, Canada's oil production future should be comforting from the viewpoint of U.S. energy security. However, future production from oil sands depends on the development of efficient technologies for in situ production to extract bitumen that is far below the surface (as contrasted with mining operations to extract the bitumen closer to the surface), dealing with major environmental problems of water usage and air emissions, and finding substitutes for natural gas to heat the bitumen enough so that it can flow and be recovered and upgraded. Projected investments in oil sands to meet these needs are huge, and are likely to be made. There is no indication in any of the three North American countries that output of natural gas will be augmented enough to meet the needs of the region, which is why much attention is being given to infrastructure needs to import LNG from outside the region.

Hemispheric energy security must deal not only with U.S. and North American security, but the security of supplies for Latin America and Caribbean (LAC) countries as well. I will touch only briefly on LAC country issues in this written presentation.

Bolivia has large proven reserves of natural gas (49 trillion cubic feet), but the political situation in the country makes it an uncertain supplier. Natural gas exports from Bolivia now go to Brazil and Argentina; the Brazilian national oil com-

pany, Petrobrás, is a large investor in Bolivia and Petrobrás has indicated that it is ready to invest further if certain understandings are reached. Bolivia has refused to consider a gas pipeline to a Pacific Ocean port in Chile because of lingering animosity over Bolivia's loss of territorial access to the sea more than 100 years ago. Bolivia's reliability as a supplier depends heavily on the flexibility that Evo Morales, the new president, has to meet the gas needs of neighboring countries, while at the same time fulfilling the nationalist demands of the voters who elected him into office.

Trinidad & Tobago has followed a consistent policy over decades in developing its energy resources, particularly natural gas, and has become the leading supplier of LNG to the United States.

Brazil is not now a major exporter of either oil or gas, and is unlikely to be one in the medium term because of the vast size of the internal market, but considerable exploration and development is taking place. What appear to be major natural gas finds in deep waters in the Santos Basin, off São Paulo state, are likely to reduce the need for gas imports over the next decade. Petrobras, the state-owned oil and gas company has developed considerable proficiency in deep-water drilling. There is also considerable foreign investment in oil and gas in Brazil, and this generally takes the form of joint ventures with Petrobras. Those Mexican officials who believe that private investment will be needed in the Mexican oil and gas industry to head off an energy crisis tend to point to Petrobras as a model that Pemex might emulate in the future.

Development of the oil and gas industry is held back in Colombia by the long-standing guerrilla movements there, including the targeting by guerrillas of oil and gas pipelines.

The reliability of the oil sector in Ecuador has been impeded by political insecurity; for example, martial law was imposed just last week. The oil and gas situation in Peru is much more favorable, and the Camisea project there is proceeding smoothly. There are plans for shipping LNG from Peru to the west coasts of Mexico and the United States over the next few years. Argentina, which has large natural gas reserves (proven reserves are 27 trillion cubic feet), is not now meeting its potential largely because investment was impeded for a long period when sales prices by producers were frozen in depreciated pesos and consumer prices were subsidized as a way for the administration to gain political popularity. Indeed, Argentina felt it necessary to break a long-term contract to supply natural gas to Chile in order to satisfy domestic demand.

Bolivia, as noted above, refuses to sell natural gas to Chile and this, combined with the Argentine cutoff, puts Chile in a bind to obtain secure supplies of natural gas. Some natural gas may come from Peru, but this is not certain, and Chile may fall back on developing the infrastructure to import LNG from Asia. The inability of Chile to be able to rely on its neighbors to obtain natural gas highlights the uncertainty of cooperation in energy matters in the southern area of South America. The political problems are more difficult to overcome than the technical ones.

Conclusion

The foregoing discussion does not deal with the U.S. energy situation or policy to overcome current and projected supply problems. My purpose in this presentation is to look at the situation in the rest of the hemisphere and how this may affect U.S. and hemispheric energy security. Part of the reason for my lack of analysis of the U.S. energy situation is that this is widely available from other sources; and also because I do not know what form U.S. energy policy will take in light of President Bush's state-of-the-union address. My purpose in this presentation is to look at the situation in the rest of the hemisphere and how this may affect U.S. and hemispheric energy security.

The main conclusion I wish to leave is that the hemisphere would benefit greatly if there were energy cooperation from Canada in the north to Argentina in the south. The impediments to this cooperation are more political than they are technical, although there are considerable financial and technical issues that must be resolved. The United States, I believe, can help in dealing with both the political and technical impediments to hemispheric energy cooperation. To play its proper role, the U.S. government must:

- Give higher priority than is now the case to the hemisphere generally, and with respect to energy in particular;
- Take into account hemispheric capacities and aspirations in developing its own energy policies; and
- Recognize that there will be no U.S. energy security if this security is lacking elsewhere in the hemisphere.

U.S. COAL IMPORTS 2004		
Countries	Short Tons	Percentage of imports
Colombia	16,661,238	61.07
Venezuela	4,435,630	16.25
Canada	2,877,616	10.54
Aruba	10,852	0.039
Paraguay	590	0.002
Mexico	390	0.0014
Dominican Republic	122	0.0004
Western Hemisphere	23,986,357	87.92
Africa	33,809	0.0001
Europe	634,703	2.32
Asia, Oceana, and Australia	2,625,135	9.62
World Total	27,280,004	100

Source: Energy Information Administration (EIA).

U.S. CRUDE OIL IMPORTS 2004		
Countries	Thousand Barrels	Percentage of imports
Canada	591,489	16
Mexico	585,023	15.84
Venezuela	474,531	12.85
Ecuador	84,937	2.3
Colombia	52,049	1.4
Argentina	21,499	0.58
Brazil	18,733	0.50
Trinidad and Tobago	18,027	0.48
Guatemala	6,699	0.18
Peru	383	0.01
Bolivia	311	0.008
Western Hemisphere	1,853,681	50.20
Africa	705,714	19.11
Europe	198,389	5.37
Asia, Oceana, and Australia	50,333	1.36
Middle East	883,946	23.94
World Total	3,692,063	100

Source: Energy Information Administration (EIA).

U.S. NATURAL GAS IMPORTS 2004		
Countries	Million Cubic Feet	Percentage of imports
Canada	3,606,543	85
Trinidad and Tobago	462,100	11
Western Hemisphere	4,068,643	95.54
Middle East	21,266	0.5
Africa	132,161	3.1
Asia, Oceania, and Australia	34,989	0.82
Rest of the World	1,500	0.035
World Total	4,258,558	100

Source: Energy Information Administration (EIA).

U.S. CRUDE OIL AND PETROLEUM PRODUCTS IMPORTS 2004		
Countries	Thousand Barrels	Percentage of imports
Canada	782,598	16.26
Mexico	609,225	12.66
Venezuela	568,944	11.82
Virgin Islands	120,860	2.51
Ecuador	89,640	1.86
Colombia	64,413	1.34
Brazil	38,052	0.79
Argentina	35,536	0.73
Trinidad and Tobago	32,116	0.667
Bahamas	13,916	0.29
Netherlands Antilles	10,641	0.22
Guatemala	6,699	0.14
Peru	6,672	0.138
Chile	2,766	0.057
Uruguay	2,064	0.043
Jamaica	723	0.015
Costa Rica	491	0.01
Bolivia	311	0.008
El Salvador	128	0.002
Western Hemisphere	2,385,795	49.59
Middle East	922,118	19.16
Africa	841,697	17.49
Asia, Oceania, and Australia	100,568	2.09
Europe	534,910	11.12
Rest of the World	26,016	0.54
World Total	4,811,104	100

Source: Energy Information Administration (EIA).

Mr. MACK. Thank you. Mr. Farnsworth.

**TESTIMONY OF MR. ERIC FARNSWORTH, VICE PRESIDENT,
COUNCIL OF THE AMERICAS**

Mr. FARNSWORTH. Thank you, Mr. Chairman. I appreciate the opportunity to be here before you today.

My name is Eric Farnsworth, and I head the Washington Office of the Council of the Americas, and it is a privilege to appear before you.

Congratulations as well, Mr. Engel, for your position with the Subcommittee, and we look forward to working with you in the future.

Mr. Chairman, let me give you the proverbial bottom line first if I can. Energy in the Western Hemisphere whether we realize it or not is of the highest strategic importance to the United States.

As you know, we are the world's largest energy user, we have talked about that already this afternoon. Even if we are overtaken at some point by China, our own energy needs will continue to increase as our economy and our populations both continue to grow.

At the same time though we ourselves have abundant energy resources as has also been mentioned, including oil and gas and coal, and a growing potential for alternatives, we are not self-sufficient, and frankly, self-sufficiency really is not a realistic goal at this point. Rather, we are energy interdependent, and to meet our needs we are going to have to continue to rely on imported energy. I think that is just a statement of fact.

Dr. Weintraub has mentioned that of our primary energy partners three of our top five in terms of imports come from the Western Hemisphere—Canada, Mexico and Venezuela—joining, of course, Saudi Arabia and Nigeria, making the Western Hemisphere key to our economic and strategic self-interests.

All other things being equal then, energy partnership in the Americas can and really must support our broader economic and strategic interests.

At the same time, and I think this is the key point, this is not a one-way street, it is two sides, if I can use another cliché, two sides of the same coin. The democratic development of Latin America and the Caribbean is a top priority for United States policymakers on a bipartisan basis and enhanced wealth creation in the region is a critical component of that development.

To give just one statistic which really caught my eye just recently, the World Bank recently reported that between 1980 and 2000 per capita GDP in Latin America grew over a 20-year period less than 1 percent. On the other hand over the same period of time, China enjoyed per capita GDP growth of over 8 percent per year. That kind of puts it into perspective. It is addressing this development gap which increases every year that energy in the Americas becomes so important.

The opportunities are solid because Latin America, the Caribbean and Canada are truly blessed in terms of the level of proven energy resources they possess. Canada, for example, possesses an astounding 179 billion barrels of non-conventional oil sands, which are now economically viable given advances in technology and higher oil prices generally.

In fact, recoverable energy reserves in the Western Hemisphere, including unconventional oil reserves, surpass even Saudi Arabia, and dwarf other regions of the world.

In terms of proven conventional reserves in the Western Hemisphere, Venezuela is at the top—we have talked about that—fol-

lowed by the United States, Mexico, Brazil and Ecuador, and Brazil, in fact, has just announced some additional promising finds.

The hemisphere also enjoys plentiful deposits of natural gas, a key fuel source in terms of electricity power generation. After the United States, Venezuela again has the highest level, followed in order by Canada, Bolivia, Trinidad and Tobago, and Mexico as well, and this goes to the point, Mr. Engel, that you were raising earlier, a significant potential exists to produce and consume alternative fuel sources from the hemisphere such as ethanol from Brazil and elsewhere to supplement United States production, or frankly, coal bed methane from Canada.

In terms of coal, just to complete the picture, the United States remains well ahead of our neighbors in terms of both production and consumption.

So there is a real mutuality of interest here in terms of our need for energy resources and the hemisphere's ability to produce energy resources.

What is really not apparent at this point however, and this has already been discussed but I think it bears reemphasis, is how to mobilize the massive investments that will be required to fully develop these impressive hemispheric resources.

Secretary Harbert talked about \$1.3 trillion of investment required over the next 25 years or so. That is clearly an estimate, but the numbers are big, and the numbers are not going to get smaller. The Western Hemisphere is part of a global economy competing for the same marginal investment dollars as everyone else.

To be direct, it is incumbent upon nations in the hemisphere wishing to develop their natural resources that might otherwise lack technical and managerial expertise, as well as significant capital of their own, to create an investment climate whereby foreign energy companies can work in partnership with local governments to develop their resources in a mutually beneficial manner.

Attention to industry-specific and more general investment climate issues is therefore needed. Improvements in education and the rule of law, regulatory certainty, nondiscriminatory and stable tax regimes, effective personal security, anti-corruption, and effective dispute resolution: Last is a critical point, and has already come up, and I would be happy to talk more about it if you would like.

Those countries which have paid attention to these matters have seen investments increase, as well international financing institutions like the Inter-American Development Bank have a very important role to play in mobilizing capital for investment, and indeed have done so.

But we issued a report just before the Summit of the Americas in Mar del Plata which talks about energy security in the Western Hemisphere, and if I can, let me just pull out two or three primary points from that and then I would be delighted to answer some questions.

Briefly, the report argues that increasing partnership in hemispheric energy matters must be an important part of our overall hemispheric policy, not an afterthought, and not taken for granted. A balanced, engaged approach is needed.

Second, in the global environment, competitiveness is perhaps the key issue facing the hemisphere. High direct or indirect energy costs due to market rigidities impact all energy users, making the region a less attractive place to do business, to say nothing of quality of life issues.

As well, investment climates that are unattractive compared to other countries in the region will not attract the direct foreign and domestic investment required to develop either the energy resources mentioned above, or frankly, the broader economy.

Let me raise Mexico for example, which despite sitting on significant natural gas resources, actually has been importing natural gas since 2000, which obviously impacts their national income accounts. Mexicans go to the polls July 2. We do not know what is going to happen. Hopefully, there will be some movement on the investment side in Mexico after the elections, but frankly, this is a call for the Mexicans to make based on who they elect and based on what the newly-elected President and his Administration choose to do.

Finally, in addition to conservation, which somebody has said may be the top form of alternative energy that actually exists, we must do a better job of exploring the possibility of alternative fuels in the hemisphere which could prove to be a boon for development while making the region less reliant on imports from elsewhere.

Of course, we have already talked about President Bush's State of the Union address. He also raised the issue with President Lula of Brazil when he was there in Brasilia in November.

The resources are there to supplement our own given Brazil's agricultural profile. What has been missing has been a market to use ethanol as well as a price point of conventional fuels high enough to make ethanol economically viable.

But really this is not so much a question of energy, it is a question of trade policy, and Chairman Mack, you coming from Florida, you certainly understand this, and it is an issue that is more broader than the energy side because Brazilian ethanol is made from sugar. That has already been put into the conversation, and anyone who followed the recent CAFTA debate knows the political sensitivities of these issues in the United States. That is just a statement of political reality. But as a strategic matter, this issue bears consideration and could provide a way forward not just on energy, but frankly, could provide a way forward perhaps on broader trade issues in the hemisphere.

These issues are ripe for further consideration. The resources exist, and frankly, so does the need. What does not exist yet, though could, is the size and quality of investment needed to develop and effectively utilize these resources. That in fact is the real issue, and I would submit the real opportunity facing those of us who promote energy partnership in the Americas.

Mr. Chairman, again thank you for the opportunity to be here. I appreciate it and look forward to your questions.

[The prepared statement of Mr. Farnsworth follows:]

PREPARED STATEMENT OF MR. ERIC FARNSWORTH, VICE PRESIDENT, COUNCIL OF THE AMERICAS

Good afternoon, Mr. Chairman and members of the Committee. My name is Eric Farnsworth, Vice President of the Council of the Americas. As you know, for over

40 years the Council of the Americas (“Council”) has been a leading voice for policy and business in the Western Hemisphere, from Canada to Argentina. Our members include some 170 prominent companies invested and doing business in the Americas, with a mandate to promote partnership in the Americas based on democracy, open markets, and the rule of law. Thank you, Mr. Chairman, for the opportunity to appear before you on an issue of such importance to both the United States and the Western Hemisphere.

Mr. Chairman, let me give you the proverbial bottom line first. Energy in the Western Hemisphere—whether we realize it or not—is of the highest strategic importance to the United States. As you know, we are the world’s largest energy user; even if we are overtaken at some point by China, our own energy needs will continue to increase as both our economy and population grow. At the same time, though we ourselves have abundant energy resources including oil, gas, coal, and a growing potential for alternatives, we are not self-sufficient, and self-sufficiency really isn’t a realistic goal at this point. We are energy interdependent, and to meet our needs, we will have to continue to rely on imported energy.

Currently, three of our top five sources of imported energy are in the Western Hemisphere: Canada, Mexico, and Venezuela, along with Saudi Arabia and Nigeria, making the Western Hemisphere a key to our economic well-being and strategic interests. That’s particularly important to remember as recent terrorist attacks against Saudi oil refineries or Nigerian supply disruptions fill the news, to say nothing of ongoing difficulties in Iraq and Iran or the exponentially increasing demands of China and other rapidly developing nations. All other things being equal, energy partnership in the Americas can, and really must, support our broader economic and strategic interests.

At the same time, the democratic development of Latin America and the Caribbean is a top priority for US policymakers on a bipartisan basis, and enhanced wealth creation in the region is a critical component for that development. To give just one statistic, the World Bank recently reported that between 1980 and 2000, per capita GDP in Latin America grew, in total, *less than one percent*. On the other hand, over the same period of time China enjoyed per capita GDP growth of over eight percent *per year*. It’s in addressing this development gap, which increases every year, that energy in the Americas becomes so important.

The opportunities are solid, because Latin America, the Caribbean, and Canada are truly blessed in terms of the level of proven energy resources they possess. Canada, for example, possesses an astounding 179 billion barrels of non-conventional oil sands, which are now economically viable given advances in technology and higher oil prices generally. In fact, recoverable energy reserves in the Western Hemisphere, including unconventional oil reserves, surpass even Saudi Arabia and dwarf other regions of the world. In terms of proven conventional reserves in the Western Hemisphere, Venezuela is at the top, followed by the United States, Mexico, Brazil, and Ecuador, and Brazil has just announced promising additional finds. The hemisphere also enjoys plentiful deposits of natural gas—a key fuel source in terms of electric power generation. After the United States, Venezuela again has the highest level, followed in order by Canada, Bolivia, Trinidad and Tobago, and Mexico. As well, significant potential exists to produce and consume alternative fuel sources, such as ethanol from Brazil and elsewhere to supplement US production, or coal bed methane from Canada. In terms of coal, the United States remains well ahead of our neighbors in both production and consumption.

These resources by any measure can play an important, if not paramount, role in regional development if developed and consumed wisely. On the supply side, absent energy, the development prospects for a nation such as Bolivia, South America’s poorest nation, or Ecuador, are uncertain at best. On the demand side, without greater attention to market efficiency in the development and utilization of hemispheric energy resources, it will be more difficult for producers and consumers both to build regional competitiveness in a global economy. This directly impacts the hemisphere’s ability to compete successfully against the rapidly modernizing economic giants of China and India, as well as a host of other nations.

For the United States, if existing trends continue projecting out until 2025 or 2030, the increasing US demand for energy can be met by sources from our own hemisphere, though that is not guaranteed. What’s not yet apparent is how to mobilize the massive investments that will be required to fully develop these impressive hemispheric resources, particularly in an environment where, as former Secretary of State Colin Powell has said, global capital is a coward and it will always seek its highest risk-adjusted return.

Clearly, there would appear to be a mutuality of long-term interests in the hemisphere in building energy partnership in the Americas.

The Western Hemisphere is part of a global economy, competing for the same marginal investment dollars as everyone else. For investors to invest, the risk-adjusted climate must be welcoming. To be direct, it is therefore incumbent upon nations in the hemisphere wishing to develop their natural resources that might otherwise lack technical and managerial expertise, as well as significant capital of their own, to create an investment climate whereby foreign energy companies can work in partnership with local governments to develop their resources in a mutually beneficial manner. Attention to industry-specific and more general investment climate issues is needed: improvements in education, training, and the rule of law; regulatory certainty; non-discriminatory and stable tax regimes; effective personal security; anti-corruption; and effective dispute resolution. Those countries which have paid attention to these matters have seen investments increase. As well, international financing institutions such as the Inter-American Development Bank have an important role to play in mobilizing capital for investment, as the IDB has done, for example, in Peru's Camisea natural gas fields.

With these issues in mind, the Council of the Americas released a report late last year, in advance of the fourth Summit of the Americas in Mar del Plata, Argentina, which suggests a number of recommendations for hemispheric policymakers. With the Chairman's agreement, I would ask that that report be introduced in the record.

Briefly, the report argues that maintaining a secure supply of energy from foreign sources is a strategic matter for the United States, and energy in the Americas must therefore be a priority. Increasing partnership in hemispheric energy matters must be an important part of our overall hemispheric policy, not an afterthought or taken for granted. A balanced, engaged approach is needed.

Second, in a global environment, competitiveness is perhaps the key issue facing the hemisphere. High direct or indirect energy costs due to market rigidities impact all energy users, making the region a less attractive place to do business, to say nothing of quality of life issues. As well, investment climates that are unattractive compared to other countries and regions will not attract the direct foreign and domestic investment required to develop either the energy resources mentioned above or the broader economy. Mexico, for example, despite sitting on sufficient natural gas reserves, actually imports natural gas and has done so since 2000. This directly impacts Mexico's national income accounts and their competitiveness profile at a time when that nation, even with the NAFTA relationship with the United States and Canada, faces a direct economic challenge from China. Hopefully, we'll see some movement on these issues in Mexico after their elections on July 2, but that remains to be seen, and of course it's up to Mexicans themselves to determine how to best develop their own energy resources.

In the North American context, energy issues are an important part of the Security and Prosperity Partnership (SPP) which the Administration has rightfully made a priority, and which the Council has strongly endorsed. As in other hemispheric nations, it's difficult to see how Mexico develops if its energy reserves continue to fall due to a lack of energy sector investment, and an underdeveloped Mexico, as the Council has pointed out elsewhere, is of strategic concern to the United States. But it's not just Mexico; it will be impossible to fully develop Canada's energy resources, discussed earlier, unless the three governments find a means whereby labor markets and products to service the fields are made more flexible through the SPP or alternative means. Addressing market rigidities in North America and throughout the region would help make partnership possible.

Finally, in addition to conservation, which may be the top form of alternative energy available, we must do a better job exploring the possibility of alternative fuels in the hemisphere, which could prove to be a boon for development while making the region less reliant on imports from elsewhere. Of course the President mentioned ethanol in his State of the Union address, and he also discussed it directly with Brazil's President Lula during a short trip to Brasilia in November. The resources are there to supplement our own, given Brazil's agricultural profile; what's been missing has been a market to use ethanol as well as a price point of conventional fuels high enough to make ethanol economically viable. But as oil prices remain historically high, the cost of ethanol production is now economical. As well, flex fuel automobiles, which automatically determine the proper fuel mix between gasoline and ethanol, are becoming a real alternative. The question, though, is not one of energy, but rather trade policy. Brazilian ethanol is made from sugar, and anyone who followed the recent CAFTA debate knows the political sensitivity of these issues in the United States. But as a strategic matter, the issue bears consideration and could provide a way forward not just on energy, but also on trade matters generally.

These issues are ripe for further consideration. The resources exist, and so does the need. What doesn't yet exist, though could, is the size and quality of investment

needed to develop and effectively utilize these resources. That is the real issue, and the opportunity, facing those who would promote energy partnership in the Americas.

Mr. Chairman, thank you again for the invitation to be with you today. I look forward to answering any questions you might have.

Mr. MACK. Thank you very much.

Two quick questions and maybe each one of you can offer some ideas on them.

First, there was a discussion, you have all talked about ethanol, an alternative energy source for us in the United States, and you are correct about the political nature of our friends and sugar producers in the United States. So I would like to get your opinion. How much is this ethanol, how quickly can we move it forward? Is the investment opportunities there. Outside of the United States, is it some people are also looking toward alternative energy? That is one.

And number two, there is no doubt, and I think Dr. Weintraub was heading and talking about this, that when we talk about security in the Western Hemisphere and energy, certainly there has been a void of leadership that has been needed in Latin America and other parts of the United States.

But if places like Venezuela are moving toward nationalizing their energy sector, how is foreign investment, there is not an opening, an opportunity for foreign investment to unlock potential. So I would like, if you could, to talk about, each one of you take an opportunity to talk about those two issues.

Ms. KORIN. I think they are actually both very much tied together, and the reason is if we open up the market to ethanol imports, what we will do is really create an opportunity for our neighbors in the Western Hemisphere and throughout the world really, many poor countries throughout the world whose climate enables them to be cheap sugarcane producers, and thus cheap ethanol producers, we will enable them to grow wealthier, and thus create an economic interdependence, increase or sphere of influence and counteract forces like those of Chavez that are moving against capitalism, against openness to investment and all of these things.

So the way that we can help promote the types of values that we want, the type of transparency and openness that we want is this lever, which is ethanol, and I think we need to do that.

Mr. MACK. And if I could just on that, and you can care to comment if you would like, each one of you, but we have seen the oil prices keep going up, and we have seen Venezuela and Hugo Chavez having the opportunity to make lots of money, but we still see poverty very high, so we could help broaden energy supply with ethanol and others throughout the Western Hemisphere, but how do you make sure that that ultimately goes to help the people in those countries that need the help when you still see, I believe it is in Venezuela 80 percent of the people are still living in poverty, so I think it is a noble goal, and something that the United States ought to take a leadership role in, but what would you suggest that we do to make sure that those fruits are getting to the people of those countries to help rise all boats?

Ms. KORIN. There is very little that we can actually do to change the type of—to improve the governance of the region. However, when you look at oil in particular, it is a resource that requires

very little participation on the part of the population in terms of extraction and so forth, and so you have what is known as a natural resource curse. You do not just see it in Venezuela, you see it around the world. Look at Nigeria. Nigeria has taken in billions of dollars in oil wells, yet most Nigerians live on less than a dollar a day.

If you have a resource that requires more people to work, creates more of a middle class, and ethanol production certain qualifies, then you are just increasing the general wealth of the population.

You have a situation here in Venezuela, it is interesting to note, you did not ask this but I just want to say oil prices are much higher today than it was several years ago. Venezuela is producing less oil than it was several years ago, but making more money, and therefore it is not really in the interest of these countries to produce as much as we would like them to produce, to produce as much as would be necessary to drive the prices down.

One thing that we need to do is create a situation where energy can compete on a btu basis. It can in some sectors. It cannot in the transportation sector, which is almost 100 percent petroleum-dependent. If you create fuel choice in the transportation sector, not just with ethanol, with methanol, with electricity, which is almost not generated from oil in this country, and therefore you can tap into nuclear power, clean coal, solar, all of this, then you are creating a situation where oil price eventually—certainly not in the short term, but over the long haul, decade, 15 years, 20 years, it will become much more—oil will become much more interchangeable with other energy commodities, and that will have the effect of keeping prices much more under control.

Mr. WEINTRAUB. Let me make a comment on ethanol and Brazil. Brazil is one of the 11 countries that we are looking at quite a lot in that study I mentioned.

Brazil today produces ethanol today without any subsidies. It is an independent commodity, and they have developed their cars so they can work on any combination of gasoline and ethanol.

In addition to that, in addition to the United States, in addition to having a big duty on imports of ethanol, and subsidies for production of ethanol, we have been producing it mostly with corn, and there is no doubt that corn is a less efficient base material for producing ethanol.

The part of the President's speech that I think is terribly useful is if we could produce ethanol from cellulose material that he mentioned, that would be a big advantage because then you would not have to go to sugar and take up all the land with the sugar. It will take a long time.

But keep in mind that we are keeping out Brazilian ethanol, and ethanol, Brazil is developing it in such a way that not only is it being used a lot in Brazil, but they are making it a commodity in the Far East, and they are trying to develop their ethanol capacity to make it a commodity for worldwide use.

I guess what I am saying is I think it would behoove you took carefully at Brazil's advances in ethanol.

Let me answer your second question, and I will be very brief, I will not take much time. The word "nationalization" is not necessarily a good word in the context of what you are talking about.

Many, many countries are in oil. Almost all of them own the oil in the ground. Canada is clear, the oil in the ground is owned by the Canadian Government or the Canadian people. It is true in most countries. It is true in Mexico. It is mostly true in Venezuela.

It is not that, it is how that oil is being explored, produced, and how it is done. Petrobras, for example, a Brazilian company is, I think, if I recall correctly, owns something like 40 percent by the Brazilian Government, but they control the policy, but they do have joint ventures with oil companies from all over the world.

So the question I think you sort of have to ask is not whether it is nationalized or not. Saudi Arabia nationalized its oil, but how it is operated and what kind of private investment and under what terms they allow that private investment to take place.

Mr. MACK. And if you do not mind answer your own question. What kind of policies could we move forward? Obviously, the first one is have a better relations with Venezuela, but that is a two-way street. What can we do to help Venezuela understand that the ideas of freedom will be much more beneficial to their country just in terms of security and energy than trying to isolate itself?

Mr. WEINTRAUB. I do not think they are producing less than they did before because they are holding it back in Venezuela. I think they are producing less than they did before because the PdVSA, you know, the national oil company, they lost a lot of its key people at the time of the strike and they got rid of them. They had to bring in other people to run the oil company, and they are just not as efficient.

My answer to your question though is is that I do not think there is very much we can do as a U.S. Government to convince Chavez to do other things. If he stepped over a line of some kind, I suppose we could have some kind of retaliation, but right now the oil is being shipped out of Venezuela. We are getting the oil. United States companies are investing still, and they are changing their contracts, and they are changing to equity contracts compared to the service contracts they had earlier.

So I would think that our major interest other than get in a shouting match with Chavez, which would just help him, our main interests I would think is to keep getting the oil in our market or in the world market.

Mr. FARNSWORTH. Thank you, Mr Chairman, if I could just add a couple points to what has already been said, and maybe a point of divergence in one area.

Just a quick point on ethanol. There is a huge potential there, but it is not today, it is not tomorrow. It is not next week, and we are probably talking in the midterm. What has not existed to be able to create the market in the United States, or frankly, most places for ethanol, particularly in the transport sector, has been two aspects.

One, it has not been economically viable to produce based on the price of alternatives, which in this case oil is the alternative, and so the actual production process has been too expensive on a unit basis.

But more importantly, although the production capability has existed, the usage capability has not existed, so you have had the possibility to supply but there has been no demand for it because,

particularly again in the transport sector, the autos and trucks and in some cases actually aircraft that are now being produced to be ethanol-capable simply did not exist.

There are some exciting research and technology and it has moved well beyond the R&D stage now to application in terms of flex fuel automobiles. In fact, seven out of every 10 new cars in Brazil today that are sold are flex fuel cars, and what that means is that the computer within the engine itself, you can fill it with ethanol, you can fill it with gas, you can fill it some combination, it does not matter. The engine itself tells what fuel to burn for peak performance in the engine.

It is astounding technology. In fact, U.S. producers in large measure are leading the charge. It is a very exciting alternative.

That said, we are still a ways away from full implementation of that. The market simply has to develop, but the possibilities are very, very large, and very interesting, so I would just put that on the table.

Your question about how to ensure that the wealth from natural resources are spread more equitably through Latin America is, frankly, a question that has vexed Latin American watchers for literally hundreds of years. I mean, Latin America has been and in large measure now continues to be a resource-based economy, whether it is oil, gas, whether it is copper or tin, what have you, and yet the Latin American region continues to be the most disequitable region in the world.

So you have this very difficult situation whereby the countries, the nations of Latin America are very wealthy, but that wealth has not been spread throughout the economy broadly.

I certainly do not have an answer for you. I wish I did. A lot better minds than mine have looked at it and come up empty. But one thing I would suggest as a way to at least get at these issues is for countries to really begin to drill down or in some cases continue to drill down—no pun intended—in terms of the institutions of democracy that they establish.

The rule of law has got to be much more actively and appropriately instituted in countries throughout the region. The education system so you are not just educating the elite, but rather more broadly throughout the societies. The access to capital for micro enterprises, and frankly, for people who are not already rich. There is less of a sense of venture capital or entrepreneurialism in the Western Hemisphere broadly than there is in the United States. The list goes on and on.

But I think if you begin to address some of these issues, then you are going to have the ability to distribute wealth from wherever it comes from, whether it is trade, whether it is natural resources, whether it is technology, wherever it is from, to be able to get that more actively through the economies, and I think that is the critical question facing Latin America as a whole.

A country like Chile, frankly, has done pretty well doing that, but Chile has concentrated on remaking the institutions into a modern globally-focused country, and they have done that very, very well. Other countries are also trying to do that. Some countries are not doing as well, and I think that is kind of where the dynamics go.

So yes, the supposition or the assumptions behind your question, I believe, are spot-on. The answer is a long-range answer, but I do not think it is directly related to energy per se. I mean, it is a much broader development question.

Energy has to play a role however, and if we can find a way through creating institutions that work better both in the energy sector and more broadly, rule of law, again I come back to that, is just a critical aspect. I think what we would begin to see is in the region generally, each country would do it a little bit differently, no doubt about that, but in the region generally you will start to see that wealth that is created more equitably spread throughout the economy.

So I would just add that into the equation, and again, it is a long-term result.

Mr. MACK. Thank you.

Congressman Engel.

Mr. ENGEL. Thank you, Mr. Chairman, and I want to thank all the witnesses for very enlightening testimony, and I think there is a unanimity and you are all essentially saying the same things.

I would first like to ask unanimous consent, Congresswoman Barbara Lee has asked me to submit questions and a statement for the record for her, and I would like unanimous consent to do so.

Mr. MACK. Without objection, so ordered.

Mr. ENGEL. Thank you.

One of the things that she points out, which I want to mention because you are all touching on it. Mr. Farnsworth, you talked about a partnership with Latin America, and it would seem to me that because we are all in the Western Hemisphere it would be natural for the United States and South and Central America to have a partnership along, of course, with Canada, but other nations who are rivaling us understand that, and they are going to try to move into it as well.

But one of the things that I have noticed as taking over as Ranking Member of the Subcommittee is that there are so many disparities that exists in Latin America between the very tiny percentage of ultra rich people and most of the rest of the people, and Congresswoman Lee points that out, and one of the questions she asks, which I think is a question that we need to think about, is why should foreign companies have tax breaks and concessions that strip poor people in these countries from benefitting from their very own natural resources, and she points out that in many of these countries natural resources are on the lands of the poorest, most marginalized communities like the indigenous and Afro descendants.

So it is a problem, and it is a feeling that we have to be very careful about not being on the wrong side of that issue because if we are on the wrong side of that issue, then there are democratic elections, as we encourage being held in Latin America, then we find that many of the people who come to power are people that raise these issues and raise them in the context of the United States being on the wrong side.

So I am wondering if anyone would like to comment on that. Mr. Farnsworth, you have talked a lot about partnershipings, and perhaps you should start.

Mr. FARNSWORTH. I would be happy to, and thank you for the opportunity.

I think that the Congresswoman's sensitivities are well placed, and in fact again this goes directly to what I was talking about just previously in response to the earlier question. I do believe that income disparities across the region are a real challenge, and they have political consequences.

Now, with regard to what you are saying, or more accurately, what the Congresswoman is asking in terms of foreign companies, I think that the right way to look at this would be in terms of the investment climate globally.

I mean, Latin America no longer, if it ever was, is existing in its own region without connections to the rest of the world, and the folks that are looking to make investments in the region are also people by virtue of the amount of investment that is required who have the ability and are looking at alternatives around the world, whether it be in China, whether it be in India, whether it be elsewhere.

The whole point is that without the ability to direct investment, which we do not have and we certainly are not looking for, the companies in question are going to make, and these just are not international companies, they are domestic companies as well, are going to make investment based on where they perceive the best rate of risk adjusted return is going to be.

So each country is going to have a different climate, investment climate, not weather climate, but that is going to impact on the individual decisions of the companies.

It really is up to the countries themselves to determine what they believe is in their own interest, and then the companies, whether they be United States, Canadian, Spanish, Brazilian, are going to determine whether they should put their own money and their stockholders' money into those types of economies.

I do not think that there is one common framework that one could say is applicable to all countries. They are going to develop their own, and that is okay. But again, the companies in question will then either take advantage or not based on their perceptions.

Mr. WEINTRAUB. Let me add one sentence.

Mr. ENGEL. Yes.

Mr. WEINTRAUB. Not much on this point. I am sympathetic with the concerns that are expressed underlying the question. It has been a long struggle, as Eric Farnsworth said dealing with that. I have been knocking around Latin America for a long time. I was once an AID mission, a director in Chile before it became so prosperous, and I know something about all of these issues.

In general, Latin American countries have relatively low savings rates. They do not save enough. They are a little like us, and if they do not save enough—I am not sure they are as bad as us—if they do not save enough, what they do is they need foreign savings; in other words, they need capital in-flows, and that is a critical element of their development processes, so these capital in-flows can go into a new investment.

That recognition came after the collapse, the debt crisis of the 1980s, and a lot of countries changed their laws, and they realize that borrowing money was no more a secure method than getting

capital through investments, so they searched for capital, and that is still the case. What they are looking for is more capital.

Brazil has just proposed a new law to give some concessions to people, companies who buy government bonds so they can get more money in there.

What happens after the money gets there and they use it, that the policies of the country are somewhat inadequate, sure, they are, they are inadequate.

But I would like to add one further point here to keep it in context. Chile, because it has had steady growth in GDP since about 1985, has reduced the level of poverty from about—well, it was before about 40 percent to less than 20 percent.

In other words, the steady growth was the critical element in reducing their poverty, but inequality in Chile has risen over that same period, just as inequality in the United States is greater now than it ever has been before. There are a lot of reasons for that, I do not want to get into that here, but you are dealing with a really difficult issue. I mean, the answer to your question would take volumes just covering, or filling up this whole room, I think.

Mr. ENGEL. Well, thank you. I think those are both excellent answers.

Ms. Korin, let me ask you since you are so active with Set America Free, and as you know I am an admirer of the organization and have worked closely with the organization Set America Free.

What really strikes me, and I said this in my opening statement about Set America Free is you have people from all different ideological persuasions coming together all coming to the same conclusion that America needs to look at alternative energy sources, and America needs to wean itself off of oil.

Even if we did not feel that way, it is only a matter of time before we deplete the oil reserves in the world, and so why not start now so that we can be free in terms of our national security policies and not be blackmailed, or as people have said, not let them hold us over a barrel.

I am wondering if there is anything that you would like to add about Set America Free and what some of our goals should be in terms of when we are dealing within the Western Hemisphere?

Ms. KORIN. I think one of the most important things, and thank you for bringing up Set America Free, I think one of the most important things to understand is that many of the national security vulnerabilities that we face across the world are really only one degree of separation away from the oil issue.

If you look, for instance, you know, looking far away from our hemisphere, but you look at Iran's transients in regards to its nuclear program, and see that we have actually very little influence over them, you start to understand, well, Iran has bought itself a third of humanity with energy deals with China and India. China is sitting on the Security Council, and so you know, it is not really concerned about sanctions. It is not really concerned about anything.

You look around the world at proliferators of radical Islam, of developers of weapons of mass destruction, financiers of terrorism, and all of that is tied to petro dollars. If all of the oil in the world

came from Scandinavia and Kansas, and you know, it was easier to secure, then Set America Free would not exist.

But we are in a situation where we are fighting a war against terrorism, and unfortunately we are paying for both sides of the war, and beyond that our most critical supply chain, the life line of our economy, what underlies the global economy is energy. It is plentiful and affordable energy, and most particularly oil.

That has been targeted as a prime target by terrorists, and we saw that just recently with the attempted attack on Abqaiq, but I think we need to understand that this really is a global problem. Whether it is Islamist terrorists or other groups, it is very, very easy to attack oil infrastructure and by doing that you create a really profound impact on our economy here.

If you just think about it, terrorists have removed over 1 million barrels a day from the oil market. If that million barrels a day were back in the oil market, oil prices would be \$10–15 lower per barrel than it is now.

So I think one of the things that we really need to do is focus on where we are using the oil and how we can be diversifying. We are always going to need oil. We just need to shift it from being a strategic commodity to just another commodity, and to do that it has to be interchangeable with other energy commodities.

Like I said, we essentially do not use oil to generate power in this country, so what we need to focus on is the transportation sector.

I just want to comment, Mr. Farnsworth mentioned ethanol, and talked about how it is not really there yet. In Brazil, ethanol is cheaper than gasoline. Yes, they went through a period of incentives and so forth, but today without incentives it is cheaper than gasoline. So what we need to do is open up the market and let the market work.

I would strongly suggest that what this chamber do is encourage by law if necessary automakers to make sure that every car sold in the U.S. is a flexible fuel vehicle. It costs less than \$150 extra to make a car that can run on gasoline and a variety of alcohols, not just ethanol, also methanol which by the way can be made from coal for under 50 cents a gallon, and the U.S. is rich in coal.

So there is a lot that we can do and we need to do that as soon as possible.

Mr. ENGEL. Thank you very much. Let me in my questioning to piggyback on what Congressman Mack was saying about ethanol, and you just mentioned ethanol again. I am going to use this to give my bill, and Congressman Kingston's bill a plug, H.R. 4409, The Fuel Choices for American Security Act.

That aims to wean us off of 2½ million barrels of oil per day by the 2015, and 5 million barrels a day by the year 2025, and somebody pointed out, I think it was Mr. Farnsworth, that one of the problems with ethanol right now is that people think it is not economically viable.

That is why I think our government policies ought to be giving the tax breaks for people who use hybrid cars for instance and to the manufacturers who make hybrid cars, and using the tax breaks to make ethanol economically viable. I have gone from someone who was very dubious about ethanol to someone who is absolutely

convinced that that is the direction we ought to go, and we can make it from wastes, from corn husks, from soybeans, switchgrass to you name it, we can do that.

I want to just finish with Brazil. We talked a lot about automobiles and flex fuels, and I think you excellently pointed out that it is very cost-efficient to make sure that all cars are made with flex fuel engines.

In Brazil, very interesting statistic, ethanol made from sugarcane constitutes about one-fifth of the fuel used, 20 percent of the fuel used.

So you have answered some of these questions, but I want any of you to expand on them. What is the impact of expanding sugar-based ethanol production in Brazil and elsewhere in the hemisphere? Would there be an impact on the American sugar industry, American corn industry, or other American products used to produce ethanol?

Can imported ethanol be a fuel source to significantly reduce our imports of oil? And are there impediments preventing imported ethanol from having a substantial impact on the amount of oil America imports?

Any of those questions any of you would like to address, particularly from the Brazil/United States angle.

Ms. KORIN. If I could just address a quick point. I know there is a lot of concern, I mean, the reason we have a protectionist policy is because there is concern that cheap ethanol coming in from overseas would negatively impact our ethanol in the U.S., which is primarily produced from corn and is more expensive.

I just want to say it costs less than \$2 a barrel to lift oil in Saudi Arabia. It costs much more to lift oil in the United States. Yet United States oil producers still make money. They make less money per barrel than the Saudis, but they still make money.

Especially in an era of high oil prices where the price point at which ethanol, you know, needs to be sold in order to be competitive is higher than if oil prices were at \$20 a barrel, there is plenty of room for all sorts of producers of ethanol to compete at all sorts of price points. There is much more room to absorb ethanol in the market than the U.S. corn producers can provide.

So yes, they would face more competitive, and they would make less money per gallon than an ethanol producer from the Caribbean or from Brazil, but they would still make money.

Mr. ENGEL. Thank you. Anybody else?

Mr. FARNSWORTH. Thank you. Let me just make a couple of points if I could with the Brazil-specific prism, if you will.

In fact, Brazil, as I mentioned in the testimony, has the fourth largest conventional reserves in the hemisphere, and they have just announced some additional finds, and yet Brazil is not self-sufficient in oil, and the fact is they have used very aggressively government programs to support the ethanol industry which has changed the terms of trade in Brazil.

So now instead of importing massive amounts of petroleum, they are able to actually export petroleum. It is a very interesting dynamic going on.

I am not sure that it is directly transferrable to the United States for a number of reasons; politics being not the least of them.

But I would also say that the U.S. market is much larger, frankly, and I do not know that we need to get into this fuel over that fuel, this is better, this not. We can use additional ethanol to supplement what we already have.

The market is big enough. It can handle more fuel moving into the marketplace, and that is a good thing because that gives alternatives, whether it is corn-based, sugar-based, switch grass-based, whatever it is, in addition to the petroleum-based gasoline that we already utilize.

I do not see personally petroleum being moved, being replaced by ethanol, if you will, anytime soon. I guess that is just a statement of fact. But I do see that with an expanding market the small percentage of ethanol usage in the United States could certainly be expanded, and I think that would help in terms of our imports and in terms of our trade profile.

But there is again, and I come back to the issue and it has been raised by others on the panel in terms of the base from which certain ethanols are made are directly impacted by U.S. trade policy. So this not just an energy issue, it is a trade policy issue, and so you are getting into some bigger related issues, but it is not unified around one subject.

So I would certainly encourage additional conversation along those lines, but we are not there yet. We have got a long way to go.

Mr. ENGEL. Dr. Weintraub, any final comments?

Mr. WEINTRAUB. No. I agree with what has been said, but please remember that Brazil spent a lot of years developing their ethanol industry. They spent a lot of money at it until they got to the point today where they do not need subsidies anymore to be able to produce it.

The problem they face though is whether or not they can devote more land to sugarcane growing because that is what it takes, and there is a limit to how far they can go. We cannot do the same very easily. We do not have the same kind of land for sugar. If more sugar went into production of ethanol, it probably would have an effect on sugar prices. I do not really know. I am not an expert on world sugar.

But I sort of think here in this country our sugar policy will be driven more by politics than it will be by economics.

Mr. ENGEL. Thank you. Thank you, Mr. Chairman.

Mr. MACK. Thank you, and I want to thank each one of you for being here and your testimony and your insight. Thank you very much.

Before we would adjourn, I would like to ask unanimous consent to enter into the record the report from the Council of the Americas that was just released, "Energy in the Americas." Without objection, so order.

[The information referred to follows:]



Energy in the Americas

Building a Lasting Partnership
for Security and Prosperity



A Report of the Council of the Americas' Energy Action Group

Energy in the Americas Building a Lasting Partnership for Security and Prosperity

Secure access to global energy resources on market terms is a strategic imperative for the United States. The devastation wrought by Hurricanes Katrina and Rita is a tangible reminder of the potential impact on the health of the US economy and the well-being of US citizens when energy supplies are interrupted. Few issues have as significant a strategic national component. At the same time, Canada, Latin America, and the Caribbean have been blessed with abundant energy resources, which, if developed efficiently and effectively, can be a leading engine of regional development and an important contributor to global competitiveness.

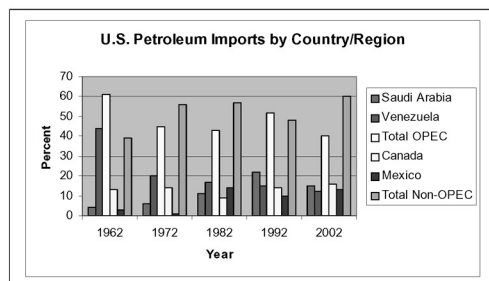
If geography is destiny, the Americas are ripe for development of an energy partnership benefiting both suppliers and consumers while linking our economies as envisioned at the Miami, Santiago, Quebec City, and Monterrey Summits of the Americas.

Indeed, as the hemisphere convenes for the next Summit, in Mar del Plata, Argentina, in November 2005, the idea of a united hemisphere is largely a vision that remains unfulfilled, even utopian, and the Free Trade Area of the Americas announced with fanfare 10 years ago in Miami will not occur in 2005 as originally agreed. As disappointing as this may be—and it is disappointing to those of us who have worked diligently for hemispheric integration—the fact remains that a regional free trade area remains a goal worthy of consideration and active pursuit, particularly as Asia, Eastern Europe, and others move smartly ahead in the global economy.

Without a greater sense of what is at stake and a strategy to position the Americas for success in the global economy, however, the Western Hemisphere will fall increasingly behind. A seminal report prepared by the Council of the Americas in advance of the 2004 Defense Ministerial of the Americas in Quito clearly showed that, from personal security to corruption and rule of law to education and other critical indices, Latin America and the Caribbean writ large are less attractive places to do business than other areas of the world, although a handful of countries, like Chile, are positive exceptions.

Regrettably, those broad trends have continued. If the region is to achieve its maximum potential by attracting the domestic and direct foreign investment that will otherwise seek safer harbors, there must be a new way of thinking, and creative leadership, that literally begins to transform Latin America and the Caribbean into a globally competitive commercial region built on true political and economic partnership. This is a long-term project, to be sure, but it must begin now.

Enter energy as a significant catalyst for broader hemispheric partnership and a means to increase broad-based development prospects.¹



In a global economy, competitiveness is a key, and energy is a critical input in the productive process. The cost of energy and reliability of supply are paramount in every nation. It bears noting, in fact, that the day the Council of the Americas launched our Energy Action Group activities in September 2004, oil had just breached the \$50/bbl threshold, a historic nominal high. Yet even as this report is issued, oil has gone over \$70/bbl, and is now hovering in the upper \$60's/bbl. Numerous analysts predict a drag on US economic growth as higher energy costs ripple throughout the broader economy. Indeed, the energy bill that passed the US Congress in July 2005 seeks to increase domestic energy supplies, in part to keep costs relatively stable. Whether or not it will have the desired impact absent greater attention to conservation measures will be seen, but the point is that, even before Katrina, energy security has been much on the minds of national leaders. That is now not likely to change.

As the United States seeks to increase supply and moderate demand, energy exploration and production can—and should—form a backbone of regional economic development, particularly given a lack of viable alternatives among various energy producing nations in the hemisphere. As well, Brazil's global leadership in the production of non-traditional energy including sugar-based ethanol must be considered. Nonetheless, historical realities, political maneuvering, grandstanding, uncertain conflict resolution, and the subversion of efficient energy production and usage to overtly political ends in numerous countries has limited the prospects for hemispheric energy development and integration while raising energy costs along the entire spectrum of the production chain. Regional competitiveness and long term prospects have suffered accordingly.

Of course, significant changes in global energy markets are also apparent. On the demand side, the rise of China, India, and other emerging markets has permanently altered the energy landscape, as those economies grow and mature and their leaders

¹ Annual Energy Outlook 2005. Energy Information Administration.

increasingly seek to guarantee their own energy supplies, either by purchasing assets outright (with Bank of China lending at 2 percent) or by entering into long-term energy contracts. We do not yet have a sense of the true implications for these dramatic changes. Suffice it to say, however, that there is no going back. Energy markets, and the global economy, are in flux, and questions naturally abound with regard to energy in the Americas. Greater systematic attention to energy issues and a long-term strategy for the region are clearly required.

With these issues in mind, the Council of the Americas established an Energy Action Group to facilitate the interaction between private and public sector representatives in the establishment of a strategic approach for US engagement in hemispheric energy affairs. In conjunction with the US Department of Energy and the Inter-American Development Bank, as well as with the support of numerous Council member companies, the Council has gathered a select number of private and public sector experts to shed light on hemispheric energy issues and to suggest a path forward in the development of a hemispheric energy strategy.

In five meetings in Washington from September 2004 through July 2005, with additional meetings in Cartagena and Rio de Janeiro, the Council has devoted significant attention to building a body of evidence for hemispheric energy cooperation while recommending a mutually-rewarding, forward looking approach. The report that follows represents the fruit of these discussions.

It is our hope that, in the run-up to the Mar del Plata Summit, hemispheric leaders will return to the idea that energy partnership is an obvious area for exploration and development, working diligently to establish a framework for energy cooperation in a sustained and thoughtful manner. For the United States, the stakes are high. When it comes to US energy security, and thus national security, the Western Hemisphere must play a significant role. Policymakers, take note. The Americas are critical to our well-being; energy in the Americas must be a national strategic priority for the United States.

On a personal note, I would be remiss if I did not thank the numerous people who have participated actively in our deliberations, either as speakers, meeting participants, or in the many discussions we have had concerning these issues. I would like especially to thank those companies who have generously underwritten our Energy Action Group activities, encouraging our exploration of issues and themes that otherwise receive only limited attention within the broader policy community. Though these are the distilled ideas and best thinking of a number of Council members, nonetheless this report is the product of the Council itself and no part of this report can nor should be ascribed to any individual or specific company. I would also like to thank Council President and CEO Susan Segal for her support, as well as Luis Pinto who coordinates our Energy Action Group efforts and who was also the primary author of this report.

*Eric Farnsworth
Vice President, Washington
October 2005*

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Executive Summary and Synopsis of Recommendations

Energy is a strategic matter for the United States, pure and simple, and a priority area for regional development. The entire Western Hemisphere stands to gain if energy partnership is pursued, assuming the implementation of terms and conditions consistent with a market-based, public-private approach to energy sector development. Actions must begin now, however, given the long-term changes to energy markets brought on by the economic maturation of China, India, and other developing nations, as well as short term shocks including recent hurricanes and refining bottlenecks.

Beyond politics, the key questions for the development of energy in the Americas center on the ability to raise and utilize effectively the massive amounts of increased investment required to develop the resources that already exist. Fundamentally, unless investment climates are improved in the energy sector and elsewhere, investors will continue to look to other markets as opportunities with greater interest than the Americas. Without necessary investment, reserves will be depleted, energy imports will increase, and terms of trade will deteriorate. That affects all consumers and hurts competitiveness. For a region struggling to find its way in the global economy, such a result would be a serious setback.

Some countries, among them Brazil, Canada, Chile, Colombia, Peru, and Trinidad and Tobago, have instituted aggressive measures to develop their respective resources in productive ways. Their leaders are thinking creatively, implementing forward-looking policies to draw the investment needed for energy sector development. Other countries in the region, regrettably, are going in the opposite direction, in some cases letting events take their course and hoping for the best, in others actively taking steps that are driving investors away. There is still time to reverse course, as necessary, even though much of the world is moving ahead, threatening to leave Latin America and the Caribbean behind.

With these issues in mind, the Council of the Americas makes the following recommendations for the development of lasting energy partnership in the Americas:

- Energy is a strategic matter for the United States and support for increasing partnership in hemispheric energy must be a priority. For energy producing nations of Latin America and the Caribbean, energy offers a significant potential engine of growth and development. Such long-term, mutual interests should form the basis of regional partnership.
- Increasing energy production in Latin America and the Caribbean requires massive new investment, drawing from a limited pool of global capital. As a result, increased attention must be paid to overall investment climate matters generally, and energy investment specifically. Conditions must be proactively created to draw the amounts of investment required. Among them: improved

education rates, regulatory certainty, non-discriminatory and stable tax regimes, effective personal security, anti-corruption, and effective dispute resolution.

- Long-term investors in all sectors are reassured when laws are respected and regulations are clear and fair. In a competitive global environment, nations that seek healthy investment inflows in their respective energy sectors must abide by contractual obligations as mutually agreed. When disputes arise, they must also be willing to implement the rulings of international arbiters in good faith.
- Energy in the Americas is traditionally viewed as part of the national patrimony, but it is also a commodity. Governments must therefore do a better job of communicating the long-term benefits of energy projects to the broad spectrum of their citizens, while ensuring that such benefits are widely and visibly distributed. Beyond such benefits, reducing the cost of energy generally will also improve consumer well-being and improve competitiveness across the entire production chain. Both countries and companies should ensure a robust consultative process with environmental and indigenous communities during the development of new projects, and be willing to listen to legitimate concerns.
- In the North American context, trilateral energy coordination focused on regulatory and harmonization standards, improved infrastructure, and increased Mexican energy production is fundamental to strengthen regional security and competitiveness.
- Greater integration requires the standardization of regional and sub-regional laws, taxes, royalties, and transmission rates. Nations should consider linking their energy sectors more closely together based on a high standards, best practices approach in order to enhance market efficiencies and economic development.
- Energy diversification would lessen the impact of supply shocks, while increasingly utilizing alternative resources of significance in the Americas. Creative means should be found in trade policy and elsewhere whereby the use of such alternative fuels is encouraged or, at a minimum, not discouraged, understanding that alternative fuels will not be a large percentage of the regional energy profile for many years. More generally, the sustained application of new technologies can deliver solutions to supply, efficiency, and environmental challenges that currently vex regional markets.
- Finally, multilateral organizations should continue to prioritize support for infrastructure development projects in the Americas, particularly those focused on energy. Enhanced project support and guarantees would encourage the rapid development of the energy sector in the Americas. Regional partnership should be encouraged.

Introduction

Global energy markets are unsettled. The mere mention of China, India, and other emerging economies on the demand side, or the Middle East, Hurricanes Katrina and Rita, oil sands and shale, tar bed methane, or alternative fuels on the supply side, highlights the fact that global energy markets are in flux. At the same time, energy is both a strategic and a political matter for the United States, as it is most everywhere else, and virtually nothing attracts the attention of political leaders, strategic planners, or economic forecasters more quickly than uncertainty in global energy markets or significant changes in energy costs.

Outside the United States, the nations of the Western Hemisphere are no different. Certain nations, particularly those that produce only limited energy on their own, remain vulnerable to sudden energy shocks or even measured but consistent energy cost increases. Unsettled markets have significant implications for national budgets and economic well-being, productivity, competitiveness, income levels, and job creation. Indeed, in Honduras, one gallon of gasoline now costs more than a day's wages for many Hondurans. Such realities contribute to perceptions of whether democratic governments can deliver a better way of life for their citizens. Over time, broad economic discontent can lead to demands for political changes that may be anathema to the consolidation of democracy, putting pressure on democratically-elected leaders to find alternative solutions. Given the strategic US interest in promoting democracy, this becomes a priority matter for high-level consideration among US foreign policy leaders.

At the same time, there is a huge upside to higher energy prices for those nations in the Americas that produce energy. It would be unwise not to take full advantage. In the absence of viable development alternatives, those nations blessed with energy resources would do well to work actively and aggressively to bring such resources to market as a significant component of their respective national development strategies. To do so, however, greater attention must be paid to creating the appropriate political, economic, and financial conditions that will draw the foreign investment and technical expertise needed to develop hemispheric energy resources. With these points in mind, this report has three primary goals:

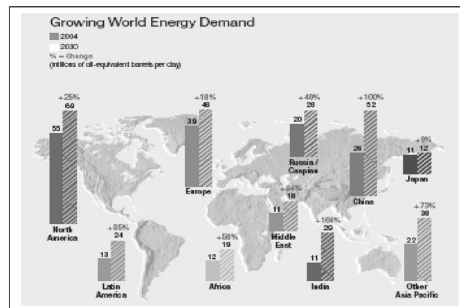
- Within the context of existing and projected global energy conditions, illustrate the natural energy partnership that exists within the Americas, assuming relevant political and economic obstacles to integration can be overcome;
- Identify best practices for emulation, and existing roadblocks for elimination, for energy sector investment and integration, given that the profile of regional energy investment is changing due to a more uncertain investment climate; and,
- Recommend specific actions to improve the hemispheric energy landscape.

Before we discuss the hemisphere, however, we must have a better understanding of global energy trends, and where the hemisphere fits in.

Global Energy Trends

World Energy Demand to 2030

Literally and figuratively, energy drives the global economy. As the global economy grows, naturally, too, will total energy demand. Total North American and other industrialized region energy demand is expected to grow at a constant rate through 2030. But in the developing world, GDP in emerging Asia is expected to expand at an average annual rate of 5.1 percent, compared with 3.0 percent per year for the world as a whole. With such strong GDP growth, total demand for energy in emerging Asia is projected to *double* by 2030, accounting for about 40 percent of the total projected increase in world consumption and 70 percent of the increase in the developing world. On their own, Chinese and Indian consumption of oil to fuel factories and automobiles will *more than quadruple* between 1990 and 2030.²

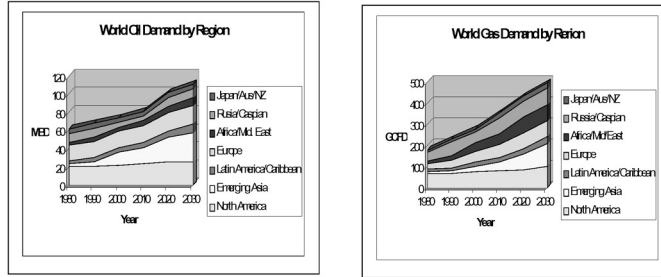


While reliance on oil is projected to remain steady with a growth rate of 1.5 percent annually in all regions except emerging Asia, all other things remaining equal, natural gas is projected to be the fastest-growing primary energy source in the world due to increasing requirements for power generation.³ (The demand for power generation will also increase the demand for coal and alternative energy such as nuclear, hydro, wind, and solar, though to a much lesser extent.) As countries continue to diversify their energy sources, global demand for natural gas is expected to double by 2030. Specifically, developing countries will play a large role in the increased demand, accounting for some 75 percent of that growth—almost 50 percent of which will go to power generation. Much of this growth in demand will come from the Russian and Caspian regions, which will be able to supply their own increasing demands from their

² ExxonMobil, *The Outlook for Energy – A 2030 View*, 2/1/2005, <www.exxonmobil.com/Corporate/Citizenship>

³ Ibid.

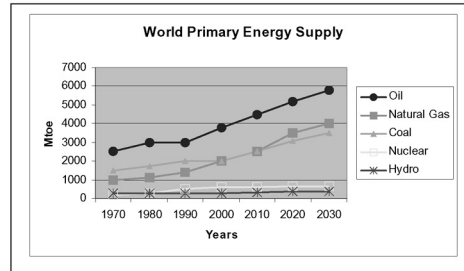
own plentiful reserves of natural gas, and, once again, emerging Asia. Demand growth in Latin America and the Caribbean barely registers.



World Energy Supply to 2030

Despite advances in different energy technologies, such as nuclear, hydro, wind, biomass, and solar, fossil fuels will remain the leading source of world energy for the foreseeable future. According to the International Energy Agency's (IEA) 2005 World Energy Outlook, fossil fuels will account for almost 80 percent of the growth in energy supply between 2005 and 2030.⁴ To be sure, if consumption and production patterns remain stable, world petroleum and natural gas reserves are sufficient to last at least through 2030 and well beyond; at issue is the necessary \$3.5 trillion in investment needed to meet that demand. The question is not whether the energy resources exist—at this point, they do. Rather, the question is whether cost-effective means can be found to get at them, and whether governments will create the conditions necessary for such high risk investments to be made. It is that question which increasingly vexes the Western Hemisphere. In part, this is because the IEA also reports that new oil and gas production will increasingly come from non-OECD countries, where fossil fuel extraction is dominated by state-run companies and political rather than economic factors often drive exploration and production decisions. This increases long-term political risk in the energy sector thus reducing potential investor interest absent a greater potential upside. Lack of investment leads to a lack of exploration and production, and a concurrent reduction in the quantity of energy supplied.

⁴ World Energy Outlook 2005, International Energy Agency.



Hemispheric Energy Trends

Energy Outlook for the United States⁵

Absent significant conservation efforts, total US energy consumption is projected to grow steadily through 2025 at 1.4 percent per year, approximately one-half the rate of GDP growth. To meet this demand, the United States will have to increase net energy imports even if domestic production increases. As a result, imports are expected to constitute 38 percent of total US energy consumption in 2025, up from 27 percent in 2003.

For the foreseeable future, the two largest US energy sources, as with the rest of the world, will be oil and natural gas. According to the EIA Administrator, "Led by growth in the transportation sector, which accounted for 67 percent of total petroleum demand in 2003, petroleum demand will rise from 20 million barrels per day (2003) to about 30 million barrels per day by 2025; while US oil production will stagnate at about 9 million barrels per day—creating an oil import deficit of about 68 percent if the trends remain."⁶ (See appendix Chart 1 for the US oil balance.) Currently, the United States imports more oil from Canada than anywhere else; Saudi Arabia is second, Mexico third. Additionally, Venezuela accounts for approximately 14 percent of total US oil imports.

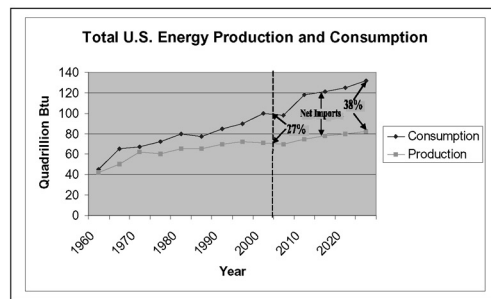
Demand for natural gas in the United States will rise at an even higher rate than oil, about 20 percent by 2030, outpacing national production capabilities whose growth has been flat since the middle of the 1990's. Without concerted conservation efforts, by 2030 the United States will have to import approximately 30 percent of its annual needs. (See appendix Chart 2 for the US natural gas balance.) To feed this increased gas consumption in the medium to long-term, 75 percent of which will be used to generate electricity, the United States will have to continue to diversify its natural gas sources. After 2015, due to depletion and growing domestic demand within the US' largest natural gas provider—Canada—net exports to the United States from Canada are projected to

⁵ Annual Energy Outlook 2005. Energy Information Administration.

⁶ Congressional Testimony by Guy F. Caruso, Administrator, Energy Information Administration, Department of Energy. United States Senate, Energy and Natural Resources Committee. February 3, 2005.

decline steadily.⁷ Demand will remain, though, and the supply exists within other hemispheric nations including Trinidad and Tobago, Bolivia, and Peru to meet US needs.

Coal will remain the third largest US energy source. It could be the top source of energy, given massive US reserves, but environmental concerns have limited its usage. In 2003, the United States produced 1,072 million short tons (Mmst) of coal, a 2.1 percent decrease in production from 2002. In 2004, however, the US coal industry experienced an increase in year-to-year production of 3.0 percent in the first ten months alone. Nonetheless, the United States imported an estimated 25.0 Mmst in 2003, a 48 percent increase from 2002. This trend should continue if new domestic sources are not exploited. On the flip side, US coal consumption rose in 2003 to 1,095 Mmst, a 2.7 percent increase from 2002. A rebounding US economy in conjunction with above average summer temperatures helped drive this demand increase as coal-based energy generation rose to meet these conditions. Coal-based energy generation increased by 1.6 percent, resulting in a 26.8 Mmst increase in total coal consumed in the electric power sector. The use of coal for power generation will likely remain constant in the near future. Prices, however, will continue to increase, as the United States will have to import more coal due to environmental restrictions on the use of lower quality, "dirtier" North American coal.



Energy Outlook for the Western Hemisphere⁸

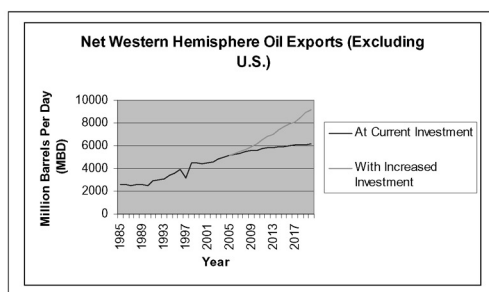
Although total energy consumption is expected to grow in North America and Latin America and the Caribbean, the region as a whole will remain a net energy exporter through 2025 *if current investment trends continue*. With increased production of natural gas in Trinidad and Tobago and Peru, increased exploration in Colombia and the deep waters of the Gulf of Mexico, and the increased feasibility of unconventional energy sources especially including Canadian oil sands, the regional energy surplus could well

⁷ Ibid.

⁸ Excluding the United States.

continue positive growth for the next twenty years. In fact, advances in exploration and production technologies will allow the Western Hemisphere's net oil import/export balance to grow from 5.5 mb/d in 2004 to just over 8 mb/d by 2025.⁹

This surplus is potentially misleading however, because as production has increased the region's proven reserves have stagnated. According to analysis, apart from Venezuela, Canada, and to a lesser extent Brazil, countries in the region have not seen any important expansion in the reserve base, and some like Mexico have actually seen a decline in reserves.¹⁰ As can be observed in the following graph,¹¹ Western Hemisphere net exports will begin to level off in the next five years if current production and reserve levels remain unchanged. However, the hemisphere has the second largest global production capability (second only to the Middle East), and with increased investment in exploration and production the region could significantly increase its net export surplus.



Canada is perhaps the best example in this regard. With the use of new technologies in the extraction of unconventional oil deposits (oil sands), Canada's proven oil reserves have ballooned from 4.3 billion barrels of conventional oil to 179 billion barrels including non-conventional oil (see appendix Map 2).¹² Remarkably, this dramatic increase in reserves now gives Canada the second largest reserves in the world, and by far the largest in the hemisphere. Additionally, given the current price of oil, the extraction of Canadian oil deposits is now commercially viable. Global investors are rushing in, from the United States, Canada, China, India, and elsewhere, as companies and nations seek to tap into the largest new source of non-renewable energy deposits the Western Hemisphere has ever seen.

⁹ World Energy Outlook 2005. International Energy Agency.

¹⁰ Palacios, Luisa. "Latin America Update." Japan Bank for International Cooperation. July 2004.

¹¹ Espinasa, Ramon. Presentation to Council of the Americas Energy Conference on behalf of the Confederacion Andina de Fomento. December 2004.

¹² PennWell Corporation. Oil & Gas Journal, Vol.102, No. 47. December 2004.

As elsewhere, the Western Hemisphere's natural gas demand will grow by 4 percent per year, nearly doubling by 2010.¹³ This increase will be due primarily to increased production of electricity using natural gas and the conversion of public transportation vehicles and flex fuel vehicles to natural gas from gasoline or diesel. All other things being equal, however, this increasing demand could well be met with the increased production of liquefied natural gas (LNG). Venezuela, with proven reserves of 151 tcf;^{14/15} Trinidad and Tobago (26 tcf), Bolivia (24 tcf), and Peru (9 tcf) are the leading candidates to supply additional LNG under such a scenario, though as will be seen later, the politics of energy in certain of these countries are complicated at best. As well, Brazil is a global leader in the production of sugar-based ethanol, with the ability to produce massive, as yet untapped quantities of such fuel for use in automobiles and elsewhere. Depending on the course that hemispheric markets take, such alternative fuel could also play an increasing role in satisfying some percentage of the regional demand for gasoline.

As a region, however, in spite of the existence of proven energy resources that could produce an increasing (non-US) Western Hemisphere energy surplus, governments and national energy companies from North to South have not produced and dedicated the daunting amounts of investment revenue required to finance the oil and gas exploration internally. In virtually all cases, this has been due to political decisions that have been made over time either to limit private participation in oil and gas extraction, to create disincentives for private investment, or to use the receipts from energy production for general budget support. Exploration and production activities have not been given optimal levels of investment, and energy output has suffered accordingly.

Fortunately, though not always easily, political decisions can be reversed if the political will exists to do so. As nations seek the direct foreign investment required to increase exploration and production, they realize that they are competing for a portion of a fixed pool of global capital, and must begin to refocus their efforts to draw such capital if they are to be successful. Without concrete steps designed to frame a competitive investment climate for energy, better matching overall risk and reward, countries will not reach optimum returns. Some countries in the region are aggressively seeking to take such steps, while others are going in the opposite direction. It is to these matters that we now turn.

¹³ Palacios, Luisa. "Latin America Update." Japan Bank for International Cooperation. July 2004.

¹⁴ Proven reserves are estimated quantities that analysis of geologic and engineering data demonstrates with reasonable certainty are recoverable under existing economic and operating conditions.

¹⁵ PennWell Corporation. Oil & Gas Journal, Vol.102, No. 47. December 2004.

Examples of Best Practices in the Hemisphere

As previously noted, greater investment in the hemispheric energy sector is required to allow for the region to increase total exploration and production. The resources exist; at this point, the capital does not. Nonetheless, in spite of historic and political obstacles, some of the countries in the region are actively seeking to improve their investment climates to attract capital for energy sector growth and development. The following section will highlight a few countries that are taking the necessary steps to improve their investment climates to attract foreign capital. Though each nation is different, certain common approaches can be discerned, including a long-term commitment to sector stability, clear and transparent government rules and responsibilities, an appropriate role for state-owned energy companies, and an improved risk-reward profile. Both sector-specific (exploration and production) and political and economic risk must be mitigated.

Petroleum

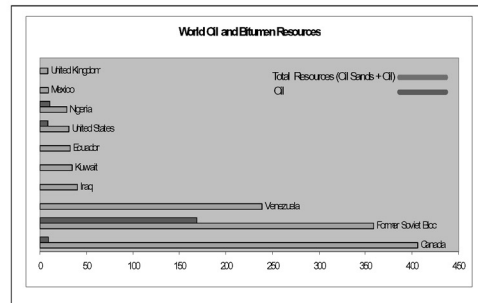
Canada¹⁶

Canada is the United States' most important trading partner. It provides an equivalent of over \$1 billion a day in goods and services to the United States. It is also the largest supplier of energy, including oil, natural gas, and electricity to the United States. Canada exports over 30 percent of its total energy production, and the United States is the main customer. In fact, almost 90 percent of US natural gas imports come from Canada.

Canada possesses an astonishing 179 billion proven barrels of crude oil, including oil sands, representing the world's largest proven crude reserves after Saudi Arabia. In 2002, however, Canada did not even rank in the top 20 countries in terms of crude reserves. This massive increase in Canadian reserves reflects the inclusion of oil sands, which currently stand at almost 175 billion barrels (see chart on following page).¹⁷ In 2003, Canada's total oil production averaged 3.1 million barrels per day and is expected to increase as new oil sands production comes on line. The increase in oil sands production will offset the decline in conventional crude production, thereby becoming Canada's main energy source. Forecasts estimate that by 2012, combined production of oil sands and conventional oil will reach 3.7 million bbl/d, 77 percent of which will be supplied from oil sands concentrated in Alberta. With such vast potential in the oil sector, Canada has seen significant mergers, acquisitions, and investment in recent years. In 2001 alone, US firms purchased over \$35 billion in Canadian oil and natural gas assets. In 2005, mirroring global trends, Chinese firms made their first investment, and a pipeline from the Canadian fields to the West Coast, primarily to supply Chinese markets, will likely come on line in the next few years.

¹⁶ Energy Information Administration, Official Energy Statistics from the U.S. Government, December 1, 2005, <www.eia.doe.gov>

¹⁷ Alberta Oil Sands Technology Research Authority.



Despite Constitutional issues impacting energy, the Canadian political system has been able to create conditions that both domestic and international investors find favorable. The Canadian Constitution divides the responsibility for energy policy between the provincial and federal governments. The provincial governments own the natural resources, and they are responsible for most aspects of regulation and energy sector development within their geographical boundaries. The federal government is responsible for harmonizing energy policy at the national level, promoting regional economic development, frontier lands, offshore development, interprovincial facilities, plus international and interprovincial trade. Both levels of governments are involved with energy research.

In addition to Canada's unquestioned commitment to democracy and the rule of law, Canada's federal energy policy underwent a major reform during the mid-1980s, the result of which was a more market-oriented energy sector. Ownership restrictions in the upstream oil and gas industries were relaxed and oil exploration and fuel switching subsidies removed. The government's commitment to a market-based energy policy is evident by ratification of the North American Free Trade Agreement and by the elimination of foreign ownership restrictions for production licenses on frontier lands. Though each nation is different, the Canadian model offers interesting ideas to other hemispheric nations on ways to open their respective energy sectors while remaining within the framework of Constitutional requirements and provisions.

Colombia

Colombia became a net oil exporter in the 1980s following important discoveries in the Caño Limón, Cusiana and Cupiagua reservoirs. The country's oil production grew from 126,000 bbl/d in 1980 to 816,000 bbl/d in 1999, and oil exports peaked at \$4.5 billion in 2000. By 2004, however, as a direct result of a lack of investment, production had decreased to 529,000 bbl/d. In spite of high potential, Colombia was not able to attract new investment due to a deteriorating internal security environment brought on by the ongoing civil conflict coupled with unfavorable energy investment terms. As reserves

have fallen, fears have risen that Colombia will become a net energy importer by 2010, dramatically changing the nation's terms of trade and fiscal condition. Despite its potential, Colombia remains more than 80 percent unexplored. Indeed, Ecopetrol (Colombia's national oil company) estimates that the country's potential petroleum reserves are approximately 47 billion barrels, but so far the investment has not materialized to find out.

To turn the trend around and attract more international investment, the Colombian government has instituted several policy reforms to benefit the investor by creating a new, more favorable environment for discovery, exploration and production. First, although additional progress must still be made, the security environment has dramatically improved (see appendix Chart 3 for Advances in the Colombian security environment), leading to increased investment generally. Second, seeing opportunity in regional uncertainty, Colombia's leaders have shrewdly taken concrete steps to attract investment in the energy sector specifically by doing away with unnecessary bureaucratic steps, decreasing the required participation in new projects by Ecopetrol, and formalizing regulatory standards to allow for fair bidding on exploration and production contracts by all national and international companies.

Ecopetrol, which once served dual roles as the administrator of Colombia's hydrocarbon resources and also as a for-profit oil and gas exploration and production company, has now been split into two independent entities. This initiative has eliminated Ecopetrol's dual role as regulator and partner. Additionally, Colombia has revitalized its exploration and production contract model and royalty and tax systems. Working with international investors, Colombia's royalties and taxes are now more attractive than the former production sharing system, giving greater autonomy and flexibility to the contractor. Under the new system, the contractor gains the upside from undertaking exploration risk, with no back-in by Ecopetrol. Moreover, the contractor has more autonomy to develop and operate facilities, and has full ownership of project assets. Finally, the contractor does not have to commit a proportion of the production in advance, when the costs, reserves, timing, development, and production are unknown. This arrangement provides a more attractive model for investors, limiting the potential downside, increasing the upside, and securing better rates of return. In turn, investors are returning to Colombia.

As well, working with neighbors Ecuador and Peru, Colombia has also led the effort for an Andean Free Trade Agreement with the United States to lock in reforms and build a long-term bridge to the United States. Once ratified, the free trade agreement will expand market access by Colombian companies to the United States and US firms to Colombia. It will also lower and eliminate tariffs, provide permanent rules and regulations for investment, and, critically, establish dispute settlement procedures. By helping to improve the trade and investment climate generally, a US agreement with the Andean nations will also help long-term investors in the energy sector specifically.

Natural Gas

Peru

The Camisea natural gas project is the most ambitious energy project in Peru's history. Consisting of the extraction, transportation, and distribution of natural gas throughout the region, the development of this project is a fundamental aspect of Peru's energy strategy. By tapping into a reliable, low-cost energy source, Camisea will not only provide direct benefits to electricity end-users, it will also improve the competitiveness of Peruvian industry and increase Peru's technical capacity. Furthermore, if all goes according to plan, the project will help alleviate Peru's trade deficit by converting the country from an energy importer (mainly diesel) to an energy exporter by as early as 2007.¹⁸ Camisea will require approximately \$1.6 billion in direct investment.

Camisea comprises the development of reserves, the construction and operation of two pipelines, one for natural gas (NG) and one for natural gas liquids (NGL), and the distribution network for natural gas in Lima and Callao. Over the course of the following years, additional networks will be developed to connect an increasing number of industrial, commercial, and residential customers. The development of Camisea also presents the possibility of developing a liquefied natural gas project for export to countries such as Mexico and the United States.¹⁹ The first phase is already complete. Gas is currently being delivered in Lima, and the export of liquids has also begun. It is estimated that within the next year, Peru's fuel trade deficit, approximating \$700 million per year, will be eliminated and ultimately replaced by a surplus of up to \$300 million per year. Furthermore, by reducing the country's energy costs by an estimated 40 percent, Camisea is expected to add a full point to Peru's GDP for every year the project operates.

Environmentally and culturally speaking, Camisea is located in an area that requires detailed attention and could be significantly and negatively affected if not developed properly. As a result, specific measures have been taken to ensure the environmental and social viability of this project. Leading this initiative is the Inter-American Development Bank (IDB), devoting itself to establishing the necessary protocols to ensure that the direct, indirect, and cumulative negative impacts and risks associated with Camisea will be properly mitigated. In fact, protective measures have been an important part of Camisea since the early stages of development. It was designed with a specific focus on protecting the area's unique biodiversity and ensuring respect for the indigenous communities in the Camisea region. The project's erosion control and re-vegetation initiatives have been designed so that the areas affected by the gas pipelines will be returned to their pre-construction state. In addition, the Camisea project companies have implemented protective measures to prevent migration and colonization, a main concern of local communities. Finally, through a ground breaking public-private partnership designed to ensure that these issues will continue to be adequately addressed, the IDB has approved a \$5 million loan to the Government of Peru to help strengthen social and

¹⁸ Camisea Project, *Camisea*, 2002, June 27, 2005, <www.camisea.com.pe>

¹⁹ *Ibid.*

environmental investments, monitoring, and enforcement, helping to stabilize the politics surrounding the project for the long-term.²⁰ Such actions are of fundamental importance to investors.

Trinidad and Tobago

Unlike the rest of the islands in the Caribbean Basin, Trinidad and Tobago is hydrocarbon rich and is the largest producer of oil and natural gas in the region. Since the 1970s, Trinidad and Tobago has embarked on several successful initiatives that have expanded its local natural gas industry as a part of a deliberate government strategy to promote further industrialization. Most of Trinidad and Tobago's inward investment to date has been pegged for the energy sector, which, in turn, produces about 72 percent of the country's exports. Its hydrocarbon resources and natural gas reserves (a proven 17.3 tcf and rising) have enabled Trinidad and Tobago to become the most industrialized country in the Caribbean.

Currently, foreign participation in the Trinidad and Tobago energy sector is governed by Exploration and Production Licenses and Production Sharing Contracts (PSC), allowing for an initial six-year exploration period, divided into three phases, only the first of which is obligatory. If a commercial discovery occurs, the contract totals 25 years, with five year extensions available and subject to negotiation with the Ministry of Energy and Energy Industries. Furthermore, the PSC defines the maximum portion of production that is available for recovery of capital and operating expenses on an annual basis. As a result, the foreign contractor's share of production varies from year to year as a function of costs, price, and production volumes.²¹ This contractual regime has proven to be a great incentive for foreign companies to invest and re-invest in the Trinidadian energy sector. Trinidad and Tobago's political stability and attractive geology, as well as its proximity to the high demand US, Latin American, and European markets, have further supported high levels of direct foreign investment.

Internationally, Trinidad and Tobago is exploring the idea of regional integration. Such integration would include the construction of an undersea natural gas pipeline, which would link its reserves to eastern Caribbean states, thereby providing a greater number of outlets for its energy production and increasing supply to otherwise isolated island nations in the Caribbean. In addition, there has been significant discussion between the Venezuelan and Trinidadian governments of combining the two countries' gas reserves. Such integration would be the beginning of an important process by which Venezuela would use Trinidad and Tobago's existing LNG export infrastructure to bring its own natural gas to market.²² Though there may be political questions of the integration plan that must be addressed, nonetheless the economics of this plan would appear to be sound, both for Trinidad and Tobago and also for investors in the regional energy market.

²⁰ Amazon Alliance, *The Camisea Project*, July 15, 2005, <www.amazonalliance.org>

²¹ BHP Billiton, *Major Developments*, June 28, 2005, <<http://tt.bhpbilliton.com/majordevelopment/angustura.asp>>

²² International Energy Agency, *Caribbean Energy Outlook*.

Power Generation

Chile

As with many other sectors in its economy, Chile has led the way in developing an appropriate investment climate to attract long-term energy investment in the country. Through the enactment of Short Laws I and II, Chile incorporated three crucial elements into electricity contracts. The first element includes a long-term contract requirement between supply and regulated demand, with price setting mechanisms to secure interest, and price transferring mechanisms to end-customers. The second element provides for an interim period, allowing newcomers to enter the market, thereby furthering competition within the sector. Third, short-term economic signals are included in the regulated prices so as to sensitize markets to material changes in energy prices. By transferring the “real” price of electricity to the consumer, Chile has allowed the market to set the price rather than imposing a price subject to potentially arbitrary government intervention.

Chile has also made significant advances in maintaining competition among suppliers by incorporating crucial elements into its Short Laws. By providing clear tolling and access rules, Chile is able to avoid significant barriers to any supply competitor wishing to enter the market. The law also calls for transparency of information, thus regulatory studies are made available to all relevant parties and criteria for regulatory enforcement are clear and public. Furthermore, Chile has recently established the concept of a Panel of Experts as an arbiter of last resort on electricity regulatory matters. The Panel expedites the resolution of disputes and relies on a highly technical body. Provisions such as the Panel of Experts within Short Law I allow for adequate and expeditious conflict-resolution mechanisms by which stability in the sector can be maintained. Strict criteria on the qualifications of panel members has allowed the process of nomination to be transparent and free from politics, strengthening transparency for all involved parties.

By allowing the market to set prices, minimizing government intervention in contracts, and transmission, and promoting transparency across the board, Chile has created an electricity sector where private investment can flourish in a fully competitive environment. From free trade and trade diversification to macro-economic stability to strong democratic institutions and political stability, Chile continues to set the pace in many regards for other hemispheric leaders to consider.

Bio Mass

Brazil

Brazil is the world’s largest producer and exporter of ethanol. Over half of all cars in the country are flex-fuel, meaning that they can run on 100 percent ethanol or on an ethanol-gasoline mixture. Ethanol in Brazil is made from sugar, which prospers in the country’s tropical climate. In the mid-1970’s, Brazil, then a military dictatorship, launched efforts to wean the nation off oil imports. Those efforts included its National Alcohol Program,

known as Proalcool. With the help of public subsidies and tax breaks, farmers planted more sugar cane, investors built distilleries to convert the crop to ethanol and automakers designed cars to run on 100 percent alcohol. The government financed a mammoth distribution network to get the fuel to gas stations and kept alcohol prices artificially low to entice consumers. By the mid-1980s, virtually all new cars sold in Brazil ran exclusively on ethanol. Nonetheless, by 1989 a shortage coupled with low gas prices soured many on the renewable fuel. The market fell apart. Sales of alcohol-only cars tumbled in the 1990s, and the government gradually withdrew its subsidies and lifted price controls.

However, with oil prices again on the rise, the Brazilian government has instituted a mandate requiring all gasoline to contain 25 percent alcohol. This, and a new generation of flex fuel cars that can run on gasoline, ethanol or any combination of those two fuels, have once again sparked interest in Brazilian ethanol production. With such an approach, as well as regional interest in utilizing such alternative fuels, Brazil's biomass industry is poised for takeoff.

Regional Integration Projects

Just as the United States depends on other nations to help meet significant energy needs, so too do other hemispheric nations depend on significant energy imports. To make up for their energy deficits many of the hemisphere's countries have developed or are in the process of developing sub-regional agreements to formalize partnerships, provide financing (through multilateral lending institutions or country-to-country loans), and build connecting infrastructure to help make regional energy markets more efficient. With a number such projects underway, it is appropriate to ask which will ultimately prove to be the most effective.

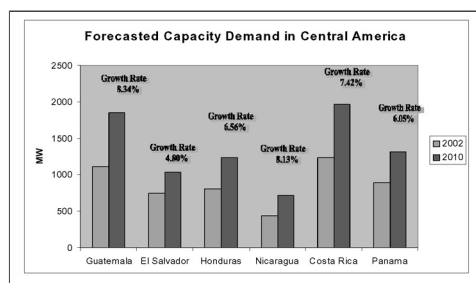
Plan Puebla Panamá (PPP)

PPP is a five-year integration initiative including the states of Southern Mexico and Central America launched by Mexico in 2001. It supports three regional development goals: equitable economic growth, sustainable management of natural resources, and human and social development. In conjunction with its regional development goals, PPP also seeks to promote regional integration and encourage dialogue among authorities and civil society in order to promote a shared vision of social and economic development. As well, it takes the first steps toward linking the NAFTA and CAFTA countries more formally, thus providing a model for deeper economic integration that should be more broadly considered by hemispheric trade negotiators.

The PPP consists of eight initiatives, one of which is electrical interconnection. Led by SIEPAC (Central American Electric Interconnection System), the initiative seeks to improve the region's power grid and create a regional market for power generation. In so doing, PPP is designed to reduce both the risk and cost of regional power generation—by an estimated 20 percent—greatly increasing economies of scale and making private

investment that much more attractive while increasing the use of alternative energy such as hydro and geothermal which is more plentiful in Central America. Regional economic growth spurred by the Central American trade agreement with the United States passed in 2005 could increase regional electrical demand more than 550 percent over the next 30 years.²³ As a result, the region will inevitably face the challenge of meeting its energy needs. PPP is therefore a timely and necessary initiative. The interchange of power through interconnected power lines is scheduled to begin in 2007.²⁴

By standardizing transmission rates, creating economies of scale, lowering costs throughout the economy, and providing the necessary infrastructure to make investment in the power generation sector more attractive, Southern Mexico and the countries of Central America should increasingly attract much needed, long-term investment into the region. SIEPAC may be the key to unlocking significantly greater foreign investment in Central America, and ultimately the capacity to meet the potential expansion of power demand in the region. Once the unified energy market within the Central American countries begins operating efficiently, investment in power generation could reach as much as \$700 million annually for the ensuing ten years. Estimates indicate that foreign investment at such levels would increase regional power generation capacity almost fourfold over the next 30 years to 26,000 gigawatts. On their own, the relatively small nations of Central America and the underdeveloped region of Southern Mexico would never draw such levels of investment in energy or the compounded investment in other sectors that a secure energy infrastructure brings. Without PPP, power generation would lag, electricity costs would remain high, and other, non-energy investment in the region would remain below optimal levels. PPP is thus a creative way to promote both integration and regional development, using sound, targeted government actions to draw direct foreign investment that would otherwise go elsewhere.



²³ International Energy Agency. Central America Energy Outlook. September 2004.

²⁴ Japan Bank for International Cooperation. PPP-Stage II Tokyo Presentation 2002.

Southern Cone Energy Ring

As political and social instability continues to mount in Bolivia, in part caused by the potential extraction and sale of natural gas, a void has been created in the Southern Cone's natural gas market. With the second largest natural gas deposits in South America, second only to Venezuela, Bolivia would normally be in perfect position to become the leading source of that commodity for its neighbors. However, with Bolivian politics and energy markets currently inhospitable to energy investors, supplies have become less reliable and members and associated members of MercoSur are looking to find a more stable partner from which to import natural gas to meet their increasing demand.

With Camisea, discussed earlier, Peru is rapidly acting to diversify its export markets by seeking to become the Southern Cone's natural gas hub, providing natural gas to Argentina, Brazil, Chile, and Uruguay. This market expansion will require an initial infrastructure investment of over \$2.5 billion to transport the natural gas to regional markets. Using existing pipelines from Chile to Argentina, the proposal is to construct a 1,760 km pipeline from the Camisea gas fields to Chile (which could be finished as early as 2007), then onward to Argentina, Uruguay, and finally Brazil, which already has an existing pipeline with Bolivia.

Peru and the other interested nations are asking the IDB to provide the bulk of the initial financing for the pipeline extension, while looking to private investors to make up the difference in pipeline costs. At the time this report was written, the IDB had conceptually supported these efforts by the regional governments, but had not committed any funds. However, the IDB's outgoing President offered to create a study group to bring experts from the Bank and private lending institutions together with potential investors to work out financing details. With the recent change of IDB leadership, it remains to be seen what will ultimately come of this plan.

But financing is not the only issue Peru and its neighbors must contend with. A major question that must also be answered is whether Peru can supply the Southern Cone's demand while still honoring current contracts to supply natural gas to Mexico and the United States. With estimated reserves of only 9 tcf (Bolivia has estimated reserves of 24 tcf), the long-term viability (20-30 years) of the project has been raised. More overall investment needs to go into exploration and production to make the entire project feasible. Accordingly in virtually every other sector in Peru and throughout the region, general investment climate issues once again come to the fore.

Regional Energy Sector Investment Concerns

Unlike the examples highlighted in the previous section, concerns about the regional energy sector are also prevalent. Primarily, these center on respective investment climate matters, but the broader development implications are significant.

In some countries, like Bolivia, despite the existence of significant energy resources, investment has slowed to a trickle and some companies are leaving due to an insecure and arbitrary operating environment. This is more than just a shame; it is a tragedy. Though the popular will might be for Bolivia to reserve its natural gas for domestic use, there is virtually no credible alternative scenario whereby Bolivia—the third poorest nation in the hemisphere behind Haiti and Nicaragua—would be able to develop economically without the effective exploration, production, and sale to external markets of its natural gas reserves. By choosing to create a climate for energy investors that is risky and unrewarding, Bolivia's leaders, ultimately, are condemning their population to continued underdevelopment.

At the same time, Ecuador is also seeing international energy investors depart due to what they perceive to be an unfair and arbitrary investment climate without recourse to effective redress. Ecuador's primary engine of economic growth becomes uncertain if its highest foreign currency earner—petroleum—is reduced as direct foreign investors pull out, as some are already beginning to do. As well, the implications of replacing US and Canadian investment in Ecuador with Chinese investment, in terms of corporate social responsibility, the environment, and worker rights, have yet to be addressed. These are significant questions with national and regional implications.

Elsewhere, national budgets have taken priority over necessary reinvestment in the energy sector as profits from the state energy companies are used to support general government spending. In Mexico's case, for instance, this has led to the unfortunate scenario whereby, with the fourth largest crude oil reserves in the Western Hemisphere, Mexico nonetheless imports billions of dollars of gasoline and natural gas every year. A lack of investment has led to falling reserves, since Mexico has not yet been able to attract significant foreign investment in the energy sector despite the priority efforts of the current administration. Venezuela, too, has been diverting petroleum sector resources over the last several years, reducing potential energy sector investment by the state and impacting future production capacity. To be sure, these are decisions made by sovereign governments, but the practical impact of such decisions is that in some cases the investment needed to develop resources at optimal levels has not materialized.

The same is true in the power generation sector. Needed investments in necessary infrastructure are delayed or eliminated by private companies if regulated rates—the lifeblood of the sector—are insufficient to promote growth. After the economic crisis of 2001, for example, Argentina capped rates tightly which led to power shortages. New

investment in the sector dried up, and four years later it remains minimal, leading some analysts to worry about medium- and long-term results.

More broadly, among the most common concerns of foreign companies working in Latin America and the Caribbean is a lack of effective dispute resolution mechanisms and the high level of bureaucracy, unpredictable regulatory processes, and high or arbitrary and inconsistent tax structures. International investors also face serious challenges when conflicts of interest arise with the state and its national company. In some cases, for example, the national oil company is directly linked with the national regulatory agency. This can create an unbalanced environment when bidding for new projects or resolving disputes. Even if such concerns prove to be unfounded, the perception of a conflict of interest can have profound adverse consequences which can only be mitigated by a commitment to transparency and fairness.

In short, there are numerous areas for further investigation and reform. Each nation has its own reasons for treating its respective energy sector as it does. Economic efficiency or investment climate certainty may not be at the top of the priorities list. Indeed, sovereign nations can make sovereign decisions. With that in mind, however, the practical impact of such actions may be that domestic and foreign energy investors begin to look elsewhere, thus limiting investment inflows and reducing the opportunities for energy to serve as a long-term catalyst for broad-based economic growth and development in the Americas. It is a tradeoff that affects not just governments, but also the people whom they represent. Citizens in the Americas need to know: at what cost are they supporting current political policies at the expense of future economic development? Greater education and an understanding of the real tradeoffs is required.

Recommendations

With this overall framework in mind, the Council of the Americas makes the following recommendations for the development of lasting energy partnership in the Americas:

- Energy is a strategic matter for the United States and support for increasing partnership in hemispheric energy must be a priority. For energy producing nations of Latin America and the Caribbean, energy offers perhaps the most significant potential engine of growth and development, especially in a high-price environment. The logic of a mutually-rewarding partnership is straight-forward, assuming political obstacles to greater integration can be overcome. Such long-term, mutual interests should form the basis of US engagement in the region generally, and should be developed even as short-term political disagreements may arise from time to time.
- Increasing energy production in Latin America and the Caribbean requires massive new investment, drawing from a limited pool of global capital. As a result, increased attention must be paid to the overall investment climate—not just the energy sector—in nations across the Americas. Key indicators that investors

routinely review include education rates, regulatory certainty, non-discriminatory and stable tax regimes, effective personal security, and attention to the rule of law including anti-corruption and effective dispute resolution. Absent additional progress, further investment is at stake.

- Long-term investors in all sectors are reassured when laws are respected and regulations are clear and fair, whether in their own immediate sector or more broadly. Investments in the energy sector are inherently risky because they often do not mature for many years. Even when price points are high, as in the current environment, energy sector investments are generally made on the assumption that prices will decrease at some point, perhaps significantly. Non-price indicators of investment risk are therefore equally important. Though each nation is different, certain approaches have proven successful, including a long-term commitment to sector stability, clear and transparent government rules and responsibilities, an appropriate role for state-owned energy companies, and an improved risk-reward profile. In addition, in a competitive global environment, nations cannot expect to receive sufficient investment inflows unless their governments routinely abide by contracts as mutually agreed and, when disputes arise, implement in good faith the rulings of objective international arbiters.
- Energy has traditionally been viewed as part of the national patrimony in Latin America, but it is also a commodity. Efforts to de-politicize, de-sensitize, and commoditize the sector in the regional consciousness will expand the potential for greater regional partnership. Energy resources do no good to anyone from a development perspective if they are not developed in efficient and effective ways. As part of this process, governments must do a better job of communicating the long-term benefits of energy projects to their people, while ensuring that the benefits of such projects are broadly and visibly distributed throughout society. Beyond such benefits, reducing the cost of energy generally will also improve consumer well-being and improve competitiveness across the entire production chain, both for domestic and international producers. As well, in order to help ensure the long-term political viability of energy projects, both countries and companies should ensure a robust consultative process with interested parties during the development of new projects in the Americas, and be willing to listen to legitimate concerns and take mitigation actions as appropriate.
- In the North American context, trilateral energy coordination focused on regulatory and harmonization standards, improved infrastructure, and an increase in Mexican energy exploration and production is fundamental for strengthening regional security and competitiveness. Regulators and interested parties from each country should seek to incorporate best practices from within North America, working toward the full integration of North American energy markets and the efficient, market-based matching of supply with demand. Further, the United States specifically should begin to view North America as an integrated energy marketplace, seeking to strengthen its own security by bolstering strategic relationships with Canada and Mexico. Transport costs are lower and the security

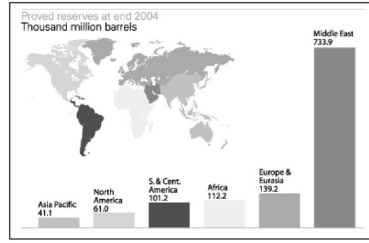
of supply within North America is unquestioned. As well, a North American energy alliance could well be the spark that ignites deeper regional economic integration beyond NAFTA, much as the coal and steel community was an anchor that led to broader European integration.

- Greater integration requires the standardization of regional and sub-regional laws, taxes, royalties, and transmission rates. By linking their energy sectors more closely together based on a high standards, best practices approach, trading blocs such as NAFTA, CAFTA, the Andean Common Market, and MercoSur would greatly enhance market efficiencies and standards, thus leading to greater efficiencies of scale and supporting regional integration. If coupled with the Plan Puebla-Panama process already underway, such energy linkages could engage the entire NAFTA and CAFTA regions, thus leading, perhaps, to the linkage of the two regions on trade terms, as well. Of course, this is highly dependent on standardizing cross-border energy regimes in a manner that will maximize economic efficiency, consumer wellbeing, and investor interest.
- Appropriate energy diversification would lessen the impact of supply shocks, while utilizing renewable sources of significance in the Americas. For example, Central America obtains 50 percent of its electricity from hydroelectric sources, while Brazil is a world leader in ethanol production. Creative means should be found in trade policy and elsewhere whereby the use of such alternative fuels is encouraged or, at a minimum, not discouraged. In Brazil, the development of sugar-based ethanol has already been incorporated into automobile production, led by US manufacturers. Its further use can be considered an opportunity, not a threat. More generally, the sustained application of new technologies can deliver solutions to supply, efficiency, and environmental challenges.
- Finally, multilateral organizations such as the Inter-American Development Bank should continue to prioritize support for infrastructure development projects in the Americas, particularly those focused on energy throughout the region. Energy is the backbone of the global economy, and its effective and efficient usage is a requirement for global competitiveness, at which Latin America and the Caribbean currently lag vis-à-vis their global competitors. Enhanced project support and guarantees would encourage the rapid development of the energy sector in the Americas, encouraging development generally and directly assisting Latin American and Caribbean competitiveness.

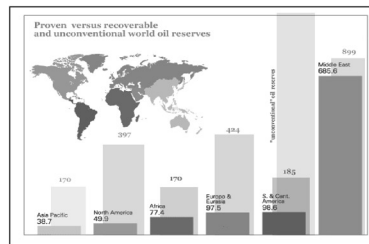
The opportunities are vast, but so are the challenges. To make energy partnership in the Americas workable, governments, industry, and other interested parties must understand the straight-forward reasons to pursue partnership, looking beyond politics to build up mutual interests that would bring us together, rather than pull us apart. Energy is both a strategic issue and a development issue, two symbiotic sides of the same coin. In some ways, the future of hemispheric integration depends on the outcome of this discussion, leading to the implementation of a strategic hemispheric plan for energy cooperation and development. The time to begin is now.

Appendix

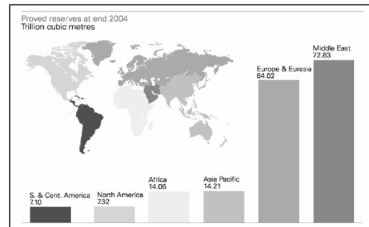
Map 1²⁵ –



Map 2²⁶ –



Map 3²⁷ –



²⁵ BP Statistical Index, 2004.

²⁶ Ibid.

²⁷ Ibid.

Chart 1²⁸ –

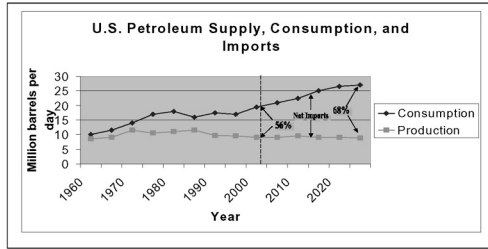


Chart 2²⁹ –

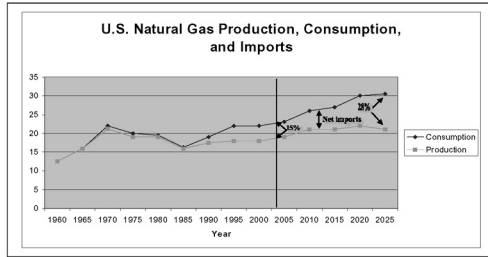
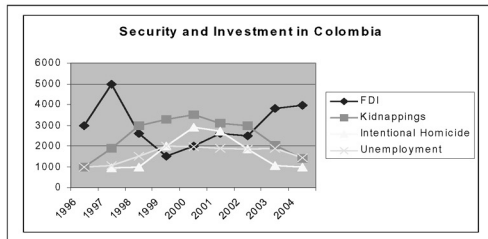


Chart 3³⁰ –



²⁸ Annual Energy Outlook 2005. Energy Information Administration.

²⁹ Ibid.

³⁰ Ministry of Defense, Colombia.

Energy in the Americas Conference on Energy Issues in the Andes

September 28, 2004
United States Department of Energy

Welcoming Remarks

Eric Farnsworth, *Vice President, Council of the Americas*

Opening Presentation: Outlook on Regional Energy

Secretary Robert Mosbacher, *President and CEO, Mosbacher Energy Company*

Panel Discussion

Guillermo Castillo, *President, ElectroPeru*

Chris Steele, *Planning & Commercial Manager, Latin America Upstream, ChevronTexaco*

Iván Díaz Molina, *General Manager, PPL-Global, Latin America LLC*

Moderator: Joaquín Moreno Uribe, *Country Chair for Venezuela, Shell Venezuela*

Featured Speaker

Introduction: Bjorn Fermin, *Director of New Business Development for the Americas, Shell Exploration and Production*

Luis Ernesto Mejía, *Minister of Energy and Mines, Republic of Colombia*

Energy in the Americas Integrating North American Energy

Thursday, December 9
Inter-American Development Bank

Welcoming Remarks

Dennis Flannery, *Executive Vice President, IDB*

Susan Segal, *President and CEO, Council of the Americas*

Opening Presentation

The Honorable John B. Breaux (D-LA), *United States Senate*

Opportunities in North American Energy

Chandler Wilhelm, *Director of Drilling Exploration, Shell Exploration and Production*

North American Energy Integration

Daniel Yergin, *Chairman, C.E.R.A.*

Thomas McLarty, *President, Kissinger McLarty Associates*

Ramon Espinasa, *Consultant, Integration and Regional Programs, IDB and former Chief Economist PDVSA*

Moderator: William Loveless, *Chief Editor, Platts Inside Energy*

New Technology for Extraction of Unconventional Resources

Murray Smith, *Energy Minister for Province of Alberta, Canada*

Darcel Hulse, *President of Sempra Energy LNG Corporation*

Roger Berliner, *Partner, Manatt, Phelps & Phillips LLP*

Luncheon Keynote Address

Jose Alberto Acevedo Monroy, *Undersecretary, Ministry of Energy, Mexico*

Energy in the Americas **Supplying the Demand: Hemispheric Energy Cooperation**

Tuesday, March 15, 2005
Inter-American Development Bank.

Welcoming Remarks

Dennis Flannery, *Executive Vice President, IDB*

Eric Farnsworth, *Vice President, Council of the Americas*

Opening Presentation

Charles Gonzalez (D-TX), *House Energy and Commerce Committee,
United States House of Representatives*

Liquefied Natural Gas as a New Source of Hemispheric Energy

Jaime Aparicio, *Ambassador of Bolivia*

Daniel McElduff, *Senior Director, Natural Gas Research,
New York Mercantile Exchange*

Hector Morales, *Executive Director for the United States, IDB*

Integrating the Region

Luis Enrique Berrizbeitia, *Executive Vice President, Andean Community*

Martin Foley, *Vice President, Gas and Power Americas, Shell Corporation*

Roger Stark, *Partner, Kirkpatrick & Lockhart LLP*

Luncheon Keynote Address

Mark Maddox, *Principal Deputy Assistant Secretary for Fossil Fuels,
U.S. Department of Energy*

Council of the Americas
Energy Action Group
Suite 250
1615 L Street
Washington, DC 20036

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E-mail: lpinto@as-coa.org

Mr. MACK. Thank you very much, and the meeting is adjourned.
[Whereupon, at 3:55 p.m., the Subcommittee was adjourned.]

A P P E N D I X

MATERIAL SUBMITTED FOR THE HEARING RECORD

PREPARED STATEMENT OF THE HONORABLE ILEANA ROS-LEHTINEN, A
REPRESENTATIVE IN CONGRESS FROM THE STATE OF FLORIDA

The importance of energy sources originating in the Western hemisphere is strongly evidenced by the fact that this region has been the main source of energy for US consumption. Nearly 90% of US primary energy sources originate in the Western hemisphere.

Given these numbers and taking into account the pressing energy supply challenges our country faces, we should look to the Americas when trying to face our energy challenges.

Last year, the Energy Policy Act of 2005 established that the Secretary of Energy would carry out a program to promote cooperation on energy issues with countries of the Western Hemisphere. This act greatly encourages the participation of institutions of higher education in programs aimed at strengthening the energy cooperation with the Western Hemisphere.

Even before the passing of the act, Florida International University established the Center for Energy Technology of the Americas (CETA) in my Congressional district.

This outstanding academic institution was awarded \$1.3 million by the U.S. Department of Energy and is displaying great dedication in its efforts to enhance energy security by building on the long-standing historical, commercial, social, and geopolitical ties it has with the Western hemisphere.

However, in order to achieve energy security in this hemisphere, there are still many hurdles to overcome. According to CETA, we are facing restrictions by inadequate regulatory and tax frameworks, rights-of-way, access to capital markets, political and social instability in the region as well as, obvious and very relevant technological challenges.

The questions posed by this situation, which I would like to address, are which efforts has the Department of Energy undertaken to date to carry out the direction provided by the Congress on Western Hemisphere energy cooperation?

Concerning the strategies, I would also be interested in learning what combination of fossil fuels and renewable energy sources the Department of Energy plans to implement in promoting cooperation with the Western Hemisphere. Also, what are the Department of Energy's funding priorities and investments for increased cooperation in the region?

Lastly, I would like to stress the important role universities with a profound expertise and strong connections in the field, such as CETA at Florida International University, can play in carrying out the direction provided by Congress on Western Hemisphere energy cooperation.

Let us use these important resources and join forces to guarantee U.S. energy security independent from imports from the Middle East but based on cooperation with our friends in the Western Hemisphere.

QUESTIONS FOR THE HONORABLE KAREN A. HARBERT, ASSISTANT SECRETARY, OFFICE OF POLICY AND INTERNATIONAL AFFAIRS, U.S. DEPARTMENT OF ENERGY, AND STATEMENT FOR THE RECORD BY THE HONORABLE BARBARA LEE, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

Thank you, Mr. Chairman for hosting this important hearing today. I would also like to extend a warm welcome and congratulations to our new Ranking Member,

Mr. Engel. I look forward to working with you on issues to strengthen relations with our hemispheric friends and neighbors.

Let me also thank you, Assistant Secretary Harbert, for being here today. You have an extensive background in engaging with Latin America. And I hope that you will reflect and share with your colleagues in the administration the concerns outlined today by Members of this Subcommittee from both sides of the aisle.

Across the country, and especially in my home state of California, gas prices have reached historic highs. It is incomprehensible that this administration would allow gas prices to double with practically no checks or balances. Clearly, these policies allow rich oil executives to taking a sizable chunk out of the pay checks of American consumers. However, American wages have not increased at the same rate, and we all know well the stories of families—who must choose between gas or food, or gas and the rent which are becoming more and more common.

Other oil companies are making record profits and are not being asked to explain their actions. Do you really believe that CITGO should be singled out to answer questions about their oil programs to help struggling communities here in the United States?

A CITGO investigation was recently launched. Do you know if there are similar plans to probe American businesses, non-profits, and community leaders who are exploring alternative affordable energy options?

In January, the New York Times reported on how the U.S. government is losing royalties owed by gas companies. Mr. Chairman, I ask unanimous consent to submit the full article for the record. Instead of tightening regulations to prevent these losses, this administration relaxed the auditing process. Assistant Secretary Harbert, who is bearing the brunt of these costs? American tax payers.

While wealth disparities in the United States are shameful, the disparities that exist in Latin America are simply overwhelming, and since the privatization era the gap continues to expand. In many of these countries natural resources are on the lands of the poorest, most marginalized communities like Indigenous and Afro-descendants. Encouraging trade and investment should not necessarily translate in selling-out your constituents and their natural resources.

Why should foreign companies have tax breaks and concessions that strip poor people in these countries from benefiting from their very own natural resources?

Please explain why the Department of Energy and this administration would oppose efforts by South American leaders to protect their constituents from similar burdens?

[NOTE: Responses to these questions were not received from the Department of Energy in time for publishing. Answers will be available in Committee file.]

AS PROFITS SOAR, COMPANIES PAY U.S. LESS FOR GAS RIGHTS

The New York Times
January 23, 2006
By EDMUND L. ANDREWS

WASHINGTON, Jan. 22—At a time when energy prices and industry profits are soaring, the federal government collected little more money last year than it did five years ago from the companies that extracted more than \$60 billion in oil and gas from publicly owned lands and coastal waters.

If royalty payments in fiscal 2005 for natural gas had risen in step with market prices, the government would have received about \$700 million more than it actually did, a three-month investigation by The New York Times has found.

But an often byzantine set of federal regulations, largely shaped and fiercely defended by the energy industry itself, allowed companies producing natural gas to provide the Interior Department with much lower sale prices—the crucial determinant for calculating government royalties—than they reported to their shareholders.

As a result, the nation's taxpayers, collectively, the biggest owner of American oil and gas reserves, have missed much of the recent energy bonanza.

The disparities in gas prices parallel those uncovered just five years ago in a wave of scandals involving royalty payments for oil. From 1998 to 2001, a dozen major companies, while admitting no wrongdoing, paid a total of \$438 million to settle charges that they had fraudulently understated their sale prices for oil.

Since then, the government has tightened its rules for oil payments. But with natural gas, the Bush administration recently loosened the rules and eased its audits intended to uncover cheating.

Industry executives deny any wrongdoing, arguing that the disparities stem primarily from different rules for calculating the sale prices for paying royalties and the sale prices for informing shareholders.

“The price of gas downstream is always going to be higher because you have costs that have to be recouped for getting it to the customer,” said Robert H. Davis, a spokesman for Exxon Mobil. “You have to process the gas. You have to transport it, and you have to sell it. There will always be a discrepancy there.”

Companies that pump oil and gas on federal property are required to pay the government royalties, usually 12 percent to 16 percent of the value of what they sell.

Royalties for natural gas have climbed sharply in the last three years. But while prices nearly doubled from 2001 to 2005, the \$5.15 billion in gas royalties for 2005 was less than the \$5.35 billion in 2001. When oil and gas are combined, royalties were about \$8 billion in 2005, almost the same as in 2001.

Because much of the information about specific transactions is kept secret, it remains unclear to what extent, if at all, the weakness in royalty payments stems from deliberate cheating or from issues with the rules themselves.

But one major producer, Burlington Resources, admitted to shareholders last year that it might have underpaid about \$76 million in gas royalties in the 1990's. And in Alabama, a jury ruled in 2003 that Exxon had cheated on \$63.6 million worth of royalties from gas wells in state-owned waters. The jury awarded \$11.9 billion in punitive damages, which a judge later reduced to \$3.5 billion. Exxon disputes the charges and is appealing the verdict.

The possible losses to taxpayers in gas could be even higher than the losses tied to the scandals over oil royalties. For one thing, natural gas production on federal land is worth twice as much as oil.

Moreover, the Interior Department has scaled back on full audits, pushed out a couple of its more aggressive auditors and been criticized by its own inspector general for the audits that it did pursue.

“We are talking about the same issues and in many cases the same players as before,” said Danielle Brian, executive director of the Project on Government Oversight, a nonprofit watchdog group that exposed many of the oil royalty scandals.

“These companies had knowingly been cheating on oil for years, if not decades,” Ms. Brian continued. “To ignore the likelihood that the same thing is happening on the gas side is absurd.”

Johnnie M. Burton, director of the Interior Department's Minerals Management Service, said the disparities were mostly the result of deductions that the regulations let companies take, reducing the sale prices they report to the government.

But Ms. Burton said she had not known and could not explain why companies were reporting higher sale prices to their shareholders and to the Securities and Exchange Commission than to her office.

“I can't answer because I don't know,” she said in an interview. “We don't look at S.E.C. filings. We don't have enough staff to do all of that. If we were to do that, then we would have to have more staff and more budget. You know, there is such a thing as budget constraint, and it's been real tough, let me tell you.” The contrasts between what companies are telling the government and what they are telling shareholders is stark.

The Interior Department, using the numbers given by companies paying royalties, said the average sale price of natural gas on federal leases was \$5.62 per thousand cubic feet in fiscal 2005, which ended Sept. 30.

By contrast, Exxon told shareholders that it received about \$6.88 per thousand cubic feet in the nine months that ended Sept. 30. Chevron said its average price in that period was \$6.49. Kerr-McGee, which suffered huge losses from hedging against a drop in prices, nonetheless said it still received an average price of \$6.59.

“There's no reason why what the companies report to their shareholders should be higher than what they report” to the Minerals Management Service, said Lee Helfrich, a lawyer who has represented California in many battles with the industry over royalties. “The ultimate goals or mission of the S.E.C. and the M.M.S. are different, but the information reported to each should be the same.”

In the scandals over oil royalties in the 1990's, government investigators, aided by industry whistle-blowers and investigation by the Project on Government Oversight, found that companies were using a host of tricks to understate their sale prices.

These included buy-sell agreements in which producers swapped oil with each other at artificially low prices and then resold it at higher prices. Companies also sold oil at below-market prices to their own affiliates, classified high-priced “sweet” oil as much cheaper “sour” oil and padded their deductions for transportation costs.

In the wake of the scandals, the outgoing Clinton administration pushed through tough new rules for valuing crude oil, which relied on comparing company reports with an index of spot market prices.

A Pro-Industry Approach

But the Bush administration did not close any loopholes for valuing natural gas. Indeed, in March 2005 it expanded the list of deductions and decided against valuing sales at spot-market prices when companies were selling to their own affiliates.

The industry-friendly stance was intentional. Mr. Bush and top White House officials also placed a top priority on promoting domestic energy production. Vice President *Dick Cheney's* energy task force called for giving lucrative new incentives to companies that drill in the Gulf of Mexico and other high-risk areas.

The Bush administration also took a much more relaxed approach to auditing and fraud prevention. In 2003, the Interior Department's inspector general declared that the auditing process was "ineffective" and "lacked accountability" and that many of the auditors were unqualified.

In one instance, inspectors discovered that auditors had lost the working papers for an important audit and tried to cover up their blunder by creating and back-dating false documents. Rather than punish anybody, the inspector general recounted, the minerals service gave the employee who produced the new documents a financial bonus for "creativity."

Administration officials said last week that they had addressed most of the criticisms and that the inspector general had since said its corrective actions were "sufficient."

The Interior Department also fired two of its most aggressive and successful auditors. One of them was Bobby L. Maxwell, a veteran auditor who had recovered hundreds of millions of dollars in underpayments over a 22-year career and received an award for meritorious service in 2003 from Interior Secretary Gale A. Norton.

Mr. Maxwell was fired in early 2005 after clashing with superiors over his belief that Kerr-McGee had shortchanged the government \$12 million. Mr. Maxwell charged that he had been wrongfully fired, and the government paid him an undisclosed amount of money to settle out of court.

Mr. Maxwell is now pursuing Kerr-McGee, which has denied any guilt, with his own lawsuit under the False Claims Act, which allows private citizens who prove fraud to collect some of the money they help recover.

Patrick Etchart, a spokesman for the Minerals Management Service in Denver, said that Mr. Maxwell lost his job because of a reorganization and that he had declined an offer to move to a different city.

But lawmakers who wrestled with the government over previous royalty scandals are dubious.

"It's all gotten worse, not better," said Representative Carolyn B. Maloney, Democrat of New York, who led Congressional investigations into cheating on oil royalties in the 1990's. "They make the process so complicated that no one can really follow the money."

Ending Detailed Inspections

Perhaps the most striking example of sluggish auditing is the government's effort to collect back royalties from companies that blatantly ignored one of the government's basic rules.

Under current rules aimed at promoting energy production in deep waters, companies can produce large volumes of oil and gas without paying royalties at all. But the rules also require companies to start paying royalties if market prices climb above certain "threshold" levels.

As it happens, market prices have been above those levels since the 2003 fiscal year. But even though dozens of companies never bothered to start paying, Ms. Burton said earlier this month that the government had yet to demand repayment three months into the 2006 fiscal year.

"It's more complicated than you might think," said Lucy Querques Dennett, associate director of the Minerals Management Service in charge of the issue.

But enforcing the rules about price thresholds is easy compared with verifying the actual sale value of natural gas.

Over the last four years, the Bush administration has ordered its auditors to move away from detailed inspections in favor of a more cursory approach of looking for anomalies in company reports. If a company in Louisiana, say, reported prices that differed from those of other companies in the same region, it would attract closer scrutiny.

Mr. Etchart, the agency's spokesman, said that the number of full-scale audits had declined slightly over the past few years and that the budget for compliance had fallen.

But he said the government still took a "close look" at 71 percent of oil and gas production. "Our strategy would obviously be to focus on anomalies," he said, "but it is also to focus on large producing areas."

The agency's strategy has drawn protests, however, from many states, which are entitled to a share of federal royalties, and from some of the Interior Department's most aggressive auditors.

One of those auditors was Kevin Gambrell, director of the Federal Indian Minerals Office in Farmington, N.M. Mr. Gambrell fought with his superiors over many issues, one of which was their demand that he do fewer audits and simply monitor posted prices of companies in the same area.

"Where the M.M.S. approach falls short is that there are so many different types of deductions you can take in getting gas and oil to the market, and there are so many premiums and bonuses in the contracts," Mr. Gambrell said in a recent interview. "You have to take a detailed look at the contracts to know what's going on."

The Interior Department forced Mr. Gambrell out in 2003, charging that he had improperly destroyed office documents. Mr. Gambrell sued for wrongful termination, arguing that he had discarded only copies of documents. He also presented evidence that his office had recovered eight times as much money as offices that used the administration's preferred approach.

The government settled his case in 2004 by clearing him of any wrongdoing and paying him an undisclosed amount of money.

For practical purposes, the biggest cost to taxpayers may have less to do with cheating and fraud than with the government's inscrutable rules.

Consider the case of Burlington Resources, a Houston-based producer that ConocoPhillips acquired in December for \$35.6 billion. Burlington paid \$8.5 million in 2001 to settle charges of cheating related to its oil royalties. Last March, Burlington disclosed that it might also have underpaid gas royalties by about \$76 million during the 1990's. It set aside \$81 million to cover possible litigation costs.

Unlike others, Burlington executives provided information to *The Times* on the royalties it paid for natural gas and on the sale prices that it has reported to the Interior Department since 2002.

During those four years, Burlington said it paid \$627 million in gas royalties and that its annual payment shot up from \$89 million in 2002 to \$233 million in 2005.

That surge in royalties does track closely with the rise in market prices. But Burlington's numbers also highlight the essential issue raised by many critics: the rules let companies understate the value of their gas sales by taking scores of deductions.

Those deductions include the cost of transportation, processing, brokerage fees, pipeline reservation fees and even certain "theoretical losses" for companies that own their own pipelines.

In 2001, Burlington reported an average price of \$1.98 per thousand cubic feet to the government but an average sale price of \$3.20 to its shareholders. In 2005, the company reported an average sale price of \$5.75 to the government and \$6.46 to shareholders.

Keeping Royalties Secret

James Bartlett, a spokesman for Burlington, said part of the discrepancy resulted from the fact that much of Burlington's production is in the Rocky Mountains, where natural gas fetches lower prices.

The federal government does not require companies to divulge the amount of royalties they pay or what they tell the government about sale prices. And unlike Burlington Resources, Exxon and most other major oil companies refused to disclose the information when asked.

"It's not required information," said Mr. Davis of Exxon, echoing responses from Chevron, Royal Dutch/Shell and other big producers. "We're not going to publish it."

