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Challenges for the U.S."

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Good afternoon. I would like to thank Chairman Duncan and members of the subcommittee for extending me the privilege to testify today. As this hearing underscores, the topic of energy is one of great relevance and importance for the United States and our entire hemisphere. It is an honor to be here today on behalf of the Institute of the Americas and to be able to draw on our 32 year history as one of the hemisphere's leading policy centers examining issues from energy to regional integration to economic development.

Through this written testimony, I would like to offer some insights on several of the most important energy producing nations in the region, their production outlook, geopolitics, and challenges and opportunities for the United States. In doing so, I would like to discuss three main points:

- Not all countries are the same – it is important to distinguish between above ground and below ground issues;
- The lessons learned from the energy boom in the United States, particularly in terms of un conventionals, provide a major opportunity to export knowledge, technology, goods and services, as well as energy to the region;
- Latin America offers important investment and energy diplomacy opportunities for the United States.

Not all countries are the same

In discussing the production profile and investment climate of the major energy producing nations in Latin America it is important to distinguish between above ground

and below ground issues. In many cases, a country's oil and gas potential, its resources in the ground, may be less important than what is occurring in Congress, the halls of government and in the geopolitics of the day. Or, as I like to say, not all countries are the same.

From Canada to Argentina, the Americas have a formidable natural resource endowment. But beyond the important resource potential "below ground" it is vital to consider and understand the "above ground" elements across the hemisphere. Indeed, the geopolitical conditions throughout the life cycle of energy investments and above ground or non-technical risks such as political, financial, social, and environmental issues are often just as critical and constitute key success factors for sustainable development and investment. How governments, industry, NGO's and communities engage and interact warrants increased attention by companies and policymakers alike.

Moreover, the return of volatility in international oil markets and today's lower price environment demands even closer consideration of above ground ramifications.

To better understand how this issue manifests itself in terms of opportunities and challenges for the United States in the Western Hemisphere, I would like to highlight three key markets in Latin America.

Argentina

Argentina's energy sector is headed towards an important juncture. After a rocky decade for the Argentine economy and energy industry, the nation's significant unconventional resource potential has revived interest. Argentina is now faced with the onerous task of restoring investor confidence damaged by years of political and institutional instability. Many are hopeful that the October presidential elections will usher in a more business friendly administration.

The reversal of Argentina's fortunes is rooted in its vast unconventional oil and gas potential. According to the United States Energy Information Administration,

Argentina's shale formations contain the world's second largest shale gas resources and fourth largest shale oil. This translates to 802 trillion cubic feet (tcf) of technically recoverable shale gas and 27 billion barrels of technically recoverable shale oil. Much of this is contained in the Neuquén basin in west-central Argentina, and in particular the shale formation known as Vaca Muerta. At this time, Argentina is one of just four nations to produce commercial quantities of shale oil or gas, along with the United States, Canada and China.

While Argentina's market fundamentals are relatively strong, some serious financial obstacles must be cleared before the nation can re-emerge as a major regional energy player. Chief among these are the issues of subsidies and a massive energy deficit, which is adding further pressure to an already strained fiscal outlook.

Mexico

Mexico has entered a new energy era. In the year since the nation passed an historic constitutional amendment and legislation, progress on the path to a major overhaul of the energy sector has been remarkable in both its speed and reach. As the country embarks on its first major tests – the Round One oil and gas auction and the creation of a wholesale electric market – the outcome will have a significant impact on determining the reform's durability and eventual success.

Success will take many forms, and in Mexico's case both short- and long-term benefits must be taken into account. In the short term, Round One will be judged based on the number of participating firms, company profile, and overall investment received. These figures will be influenced by global factors such as plummeting oil prices, and the contractual vehicle and tax and royalty scheme. But Mexico will also be assessed on a set of broader factors, including its handling of environmental and community issues and how the government manages and invests its eventual returns.

With the bulk of the energy reforms and implementing legislation now passed into law, new regulatory bodies established, and Pemex's so-called Round Zero out of the way,

Round One is considered the first real opportunity – and test – for private players in Mexico’s new energy landscape. The Mexican government will auction 169 blocks for exploration and production across a range of oil and gas prospects, from mature fields to shale to deepwater. Round One is itself a series of smaller bids, set to span most of 2015. Thus far, three smaller packages covering 45 shallow water and onshore blocks have been released. The Mexican Energy Secretariat (SENER) expects Round One to raise \$50.5 billion for the 169 blocks plus farm-outs by 2018.

Venezuela

Among the world’s major oil exporters, Venezuela was probably in the most vulnerable macroeconomic situation when the price of oil collapsed in 2014. According to research by Harvard Professor Francisco Monaldi, even at peak oil prices, the country was running high fiscal deficits of 17 percent of GDP while foreign debt increased at an unsustainable pace and the domestic currency was severely overvalued. Meanwhile, shortages of everyday goods have been widely reported in the international media.

Venezuela’s woes began during the largest oil-derived windfall in the history of the country and the increasingly problematic oil dependency during the boom cannot be overstated. Oil represented over 90 percent of exports during the last seven years, compared to 60-70 percent in the late 1990s. At the same time, oil exports (measured in volume) declined approximately 28 percent between 1999 and 2013, meaning revenues are increasingly dependent on the oil price.

Oil production in Venezuela has declined more than 350,000 barrels per day (bpd) since 2008 and more than 800,000 bpd since its peak level in 1998. Current crude production is estimated at 2.5-2.6 bpd and is comprised of increasingly heavier crude oil and thus less profitable. National oil company PDVSA’s production is falling even more rapidly, and the portion that generates cash flow is almost half of the total production.

The country’s net oil exports have also declined due to an increase in domestic consumption. Worse yet, exports that generate cash flow are being negatively impacted

by the heavily subsidized exports to other countries in the region, including 100,000 bpd destined for Cuba. PDVSA's cash flow is even further reduced by the barrels it has to send for repayment of the loans-for-oil deals, such as with China.

The trend lines for Venezuela were worrisome during a high price oil environment and ever more problematic given the current price volatility and forecast.

More recently, the power sector experienced outages as high temperatures caused demand to rise by 1500MW in a week. The government pledged to reduce its consumption by 20 percent, closing government offices early. Climate change induced drought and low electricity prices are partly to blame, as is underinvestment in the electricity system.

Despite all of the grim news, Venezuela has tremendous energy potential. According to the United States Energy Information Administration, Venezuela's natural gas reserves are the second largest in the Western Hemisphere after the United States, or 196 trillion cubic feet of proven reserves. In terms of petroleum, the nation holds an estimated 298 billion barrels of proven reserves. A 2010 US Geological Survey analysis noted that Venezuela had one of the world's largest oil accumulations in the Orinoco Belt with an estimated 513 billion barrels of technically recoverable heavy oil.

Exporting the lessons learned from the United States energy boom

On the back of a major innovation in how hydrocarbons are extracted and billions of dollars of investment, the United States has become the world's largest hydrocarbons producer. Indeed, US oil production in 2014 was the largest increase ever by a country other than Saudi Arabia. Shale oil production alone jumped from 600,000 bpd in 2008 to 3.5 million bpd last year.

Latin America has much to learn from the shale revolution in the United States. Policymakers in the region must also understand the critical factors that drove this success: 1) Natural resource ownership; 2) Finance; 3) Technology; and 4) Infrastructure

That is to say, who owns the rights to the subsoil – the hydrocarbons in the ground – the ease and access to significant finance and risk capital and cutting edge technology, and being able to use existing infrastructure to move the product to market are extremely crucial ingredients.

Latin America faces many challenges in adopting the shale model from the United States, not least on the issue of natural resource ownership. Most governments across the region fiercely guard their role and rights as the owners of the “subsurface” be that oil, gas, gold, copper or coal reserves.

Moreover, it has become increasingly clear that not all shales are created equal, and, indeed, all shale is local. A key hurdle for the region is to adapt the technology and innovative techniques developed in the United States to local conditions, both above ground and below.

Argentina offers an excellent lens through which to view how the lessons from the United States can be leveraged. For many years, the high cost of unconventional production in Argentina has cast a dubious shadow over its resource potential. As recently as 2011, the cost per well was around \$11 million. National oil company, YPF aims to almost halve that figure to \$7 million by the end of this year. These costs are being reduced through adaptations of US technology to local conditions.

Similarly, there are expectations that lessons for unconvensionals and opportunities for US firms in Mexico will become a reality this year through a bid round offering blocks just across the border from some of the United States’ more prolific shale plays.

Latin America’s investment and energy diplomacy opportunities

United States energy exports

Over the last few years, there has been a debate over the possibility of the Western Hemisphere re-emerging as a global energy hub. This is in part due to the energy boom in

the United States, which creates a specific opportunity for US energy exports to the region – both natural gas and crude oil.

Natural gas exports by pipeline to Mexico have more than doubled in the last five years, from an average 0.9 billion cubic feet (bcf) per day to over 2 bcf per day in 2015. At the same time, huge progress has been made on exports of liquefied natural gas (LNG). Several projects along the coastal United States are nearing completion and will firmly plug United States natural gas exports into the global gas market. Countries from Central America and the Caribbean to Chile stand to benefit from greater access to cleaner burning natural gas.

To better understand the debate over exporting crude oil it is important to also appreciate how the boom in United States production has affected oil trade flows. Historically, oil flowed East to West, but trends are shifting to a West to East pattern. This is evident in Latin America where Mexico, Brazil, Colombia, Ecuador, Venezuela and Bolivia have all dramatically increased their shipments of oil to China, South Korea and India this year.

The shift in crude oil trade flows underscore how important it is to address the topic of the United States crude oil export ban, starting with Mexico. Mexico's national oil company, Pemex, has submitted a request for an exemption to the crude ban in order to complete a swap of crude oil with the United States. If approved, the swap between the United States and Mexico will allow the United States to export 100,000 barrels of oil per day to Mexico. The deal is historic for several reasons, not least of which the fact that so few exceptions have been made since the crude oil export ban went into place in the 1970s. The deal would bring relief to United States producers struggling with a light oil glut at home and for Pemex, which is hoping to mix the lighter crude coming out of US shale fields with its heavier blend.

However, the arrangement is not just about the relationship between the US and Mexico. It's also about broader North American energy integration. The oil swap with Mexico not

only makes economic sense but also political sense as the North American region becomes increasingly connected.

The North American Free Trade Agreement (NAFTA) celebrated its 20th anniversary last year to significant fanfare, but much remains to be done, particularly when it comes to energy trade and cooperation between Canada, Mexico and the United States. The United States and Canada already form the world's largest integrated energy market yet there are additional opportunities for cross-border cooperation, particularly with Mexico.

Joint development of unconventional energy resources and greater electric integration would bring economic, environmental, and political benefits. However, the continued saga of the Keystone XL pipeline underscores the challenges that remain for the transportation and transmission of energy across borders.

Central America and the Caribbean

For nations of Central America and the Caribbean, the deleterious economic and environmental effects of oil dependency are well known. The arrival of an era of abundant and cheap natural gas propelled by the shale boom in the United States has advanced the case for a natural gas market in the region. Add to the financial and environmental drivers the instability in the region's most regular oil supplier, Venezuela, and the impetus for change has never been stronger. Technological advances have made it easier and cheaper to transport and distribute natural gas, be it in a liquefied (LNG) or compressed (CNG) form. Moreover, natural gas burns cleaner than fuel oil and can provide the firm power needed as countries increase renewable deployment, at least in the electricity sector.

Historically, small market size has kept suppliers from focusing on the region; the power generation demand in most Central American and Caribbean nations does not reach the threshold for traditional LNG imports.

More importantly, in a global market where ‘credit is king’, it is not just market size but credit worthiness that has proved the steepest challenge and stalled natural gas development in Central America and the Caribbean.

United States leadership and commitment to energy security in the Caribbean has been encouraging, including the White House Summit in January and several initiatives to facilitate clean energy financing and promote technology and innovation in the sector. Still, they are only the beginning of what must be a consistent and concentrated effort by the United States in Central America and the Caribbean if it truly is to provide a needed alternative to Venezuela’s Petrocaribe.

Role of China

I would be remiss if I discussed energy in Latin America and did not mention China. Now the world’s largest energy consumer, China has needed to develop a strategy to deal with spiking energy demand and insufficient domestic production. The strategy is comprised of three parts: securing access to and acquiring material reserves, securing access to and gaining production positions in oil projects, and doing both with an overarching aim to diversifying their sources of supply. In simple terms, China is working to assure that all of its oil reserve and production eggs are not in the same basket. Across the Western Hemisphere, Chinese state-owned companies, directly supported by Beijing, have fanned out in search of access to Latin America's oil patch. In pursuing their goals of diversification and security of supply, the Chinese have been particularly fortunate in the last few years to be able to rely on the windfall produced from their economic boom. Many have called it Chinese Dollar Diplomacy.

Given its oil reserves and political profile, Venezuela is Exhibit A illustrating China's marriage of resource geopolitics and dollar diplomacy in Latin America. But Venezuela is not alone. China has also made major acquisitions, investments and loans in Argentina, Ecuador, Brazil, and the Caribbean.

Conclusion

Latin America requires massive investments in energy and infrastructure. And given its importance to the United States, we must continue to engage, particularly with the largest oil and gas producing nations. Without question, Latin America's outlook and opportunities are complex and at times challenging, but given the region's potential the energy glass is at least half full over the long term.

Thank you for your time. I hope that my remarks have been useful. I look forward to the opportunity to respond to any questions or comments that you may have.