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Energy and the Western Hemisphere

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Thank you Chairman Salmon, Ranking Member Sires, and members of the sub-Committee. I appreciate the opportunity to be here today to discuss our perspectives on the importance of energy in the Western Hemisphere. This is a story that integrates geopolitics with the extraordinary technology boom in our energy sector today, and it sees tremendous opportunities for U.S. energy security, commercial interests, and regional development and stability.

The United States is undergoing a revolution in our energy sector. A combination of technology innovation, entrepreneurship, and strong commodity prices has spurred a revolution in the production of shale gas, shale oil, and offshore oil. Production, combined with vehicle efficiency measures has decreased U.S. import dependence on fossil fuels. A decade ago, most experts predicted that the United States would become the world's largest importer of liquefied natural gas – today, we're seen as potentially one of the world's more significant exporters. Our experience in unconventional oil and gas opens an array of commercial and technological opportunities for U.S. companies. We are on the verge of a similar revolution in renewable energy, which, if developed well, can provide similar benefits for U.S. industry. At this crucial moment, U.S. leadership on these opportunities will have important implications for continuing and long-term energy security in North America and the rest of the Western Hemisphere.

North American Energy Development

The energy trading relationship with Canada is a cornerstone of North American energy security. The U.S. Energy Information Administration (EIA) estimates that the U.S. has 24 billion barrels of shale oil resources, and the state of North Dakota now produces more oil than Ecuador, an OPEC nation. Proven Canadian oil reserves are estimated at 175 billion barrels. As essentially all Canadian energy (oil, gas, and electricity) exports are to the United States, our countries have an unparalleled energy trading relationship, but it is also experiencing a phase of adjustment as U.S. production of oil and gas soars.

As the United States and Canada experience an increase in production, trade, and interconnectedness, the trend has been quite different with Mexico. Mexico has 10.2 billion barrels in proven reserves, but its production fell by 23 percent from 2004 to 2011, and nearly all projections forecast Mexican production will continue to decline in the short-term. This significant trend is often attributed to the maturation of major fields and the challenges for the national oil company, PEMEX, to maintain the necessary levels of investment in the sector. Newly elected Mexican President Pena Nieto has made energy reform a priority, and if it is successful, Mexico could attract international investment to develop its hydrocarbon resources. This would strengthen both North American energy security, and Mexico's fiscal position.

Despite the challenges facing Mexico in the near term, the exciting story here is that North America as a whole could boost national and global energy security. Global oil prices are increasingly driven by the demand of non-OECD countries, mainly China and India. For this reason, increased North American production could be critical to world supplies, and provide greater consumers and economic growth.

Natural Gas Market Development

A similar story is playing out with global natural gas markets. As U.S. natural gas production, largely from unconventional sources, has increased from 18 to 23 trillion cubic feet (tcf) since 2005, there has been a boom in manufacturing and other industries, and reductions in green house gas emissions. Canada is exploring opportunities to export Liquefied Natural Gas (LNG), and has attracted significant American, Malaysian, Chinese and UK investment in the sector. Mexico's shale gas potential is enormous as its northern border contains portions of the Eagleford Shale play that is producing gas and gas liquids in Texas, and Argentina has great potential as well. In this formative stage of unconventional gas development, the United States has a critical role: as the pioneer of shale gas technologies and with significant industry talent and capability, we can share lessons learned and best

practices with other countries that choose to explore their own shale gas resources, and help them do it in a sound and sustainable way. For example, preventing fugitive methane emissions not only preserves a valuable product, but also avoids emitting one of the most dangerous green house gasses. In addition to helping other countries prevent avoidable mistakes, this outreach brings more confidence and stability to gas markets, which are still in the formative stages of development. While gas is not yet a global commodity, we may witness, in the coming years, vast increases in gas production from an increasing number of countries. With respect to markets, this will tend to create an environment of greater competition, which can drive down costs and bring benefits to consumers. But it will also have extensive geopolitical consequences.

Just 20 years ago, most gas importers, particularly those in Europe, relied on pipeline monopolies for gas supply. The countries that supplied these point-to-point pipelines had significant leverage over those that depended on them. However, gas markets are now evolving towards Liquefied Natural Gas (LNG) trade, which can be shipped in tankers to any place in the world with LNG import terminals. The United States' own decision on whether to allow the export of LNG will be completed by the Department of Energy. Beyond the United States, gas markets are changing globally. Currently, the second largest gas reserves in the world are in Iran. Whether those resources are used to compete in a global marketplace, or are used to gain excess leverage, is a concern for the United States. Therefore, it is in our interests to see strong, competitive gas markets that preclude suppliers from using gas as a geopolitical point of leverage with its neighbors. It is also one more reason why the ability to produce more gas resources in the Western Hemisphere is also in our own national interest to support.

The Power Sector

This global revolution in gas markets is also leading to a transformation in the power sector. How the world generates and uses energy, especially electricity, is changing quickly. The availability of natural gas has led to innovations in the power sector, resulting in cleaner, more efficient generation and a reduction in green-house gas emissions. Looking forward, it has the potential to be the foundation of the U.S. power sector, both as a cleaner thermal fuel and as a fuel that can complement intermittent renewable technologies. How this is managed will have massive global implications for carbon dioxide emissions and climate change.

But let us look practically and pragmatically at the near term, and what this power sector transformation could mean for our industries in natural gas, renewable

energy, and transmission and distribution infrastructure. The size of the power market is enormous: the IEA estimates that the power sector in the Western Hemisphere, excluding the United States, will need US$ 1.4 trillion in investment by 2035 to keep up with demand. It is in the interest of the United States to play a part in this market, and take advantage of this development to grow our own economy. A number of U.S. companies are already active in these markets: for example, U.S.-based AES has operations in the Dominican Republic, El Salvador, and Panama, where it operates 3.5 GW of installed capacity. The Ex-Im Bank has recently helped create 200 jobs in six states, when it approved a $28.6 million direct loan to a Honduran power company, which will purchase high-tech U.S. wind turbines for the Cerro de Hula wind farm in Santa Ana, Honduras.

One Initiative provides an example where benefits for U.S. commercial interests, U.S. and regional energy security, and greater regional growth and stability can all be achieved. The "Connecting the Americas 2022" Initiative (Connect 2022), unveiled by President Obama and Colombian President Santos at the Sixth Summit of the Americas one year ago, is a hemispheric Initiative that works to assist countries to achieve their renewable energy goals and promotes regional interconnection of power markets, from Canada to Chile. The United States already has extensive interconnections with Canada; last year our countries traded over 62 billion kilowatt hours (kWh) of electricity. Mexico and the United States trade much less, with 11 interconnections and about 1.5 billion kWh of trade in 2011. We continue to build on these opportunities, as do our businesses. For example, Sempra Energy, a San Diego-based energy company, has plans to build a wind farm in a region of world-class wind resources in Baja California, using U.S. wind technology components, and exporting the power back across the border to serve the San Diego market.

Interconnection can bring different kinds of benefits to different regions. For example, in Central America, markets are very small -- all together they account for less electricity demand than the state of South Carolina -- which makes it difficult to attract large-scale investment. They have a strong dependence on heavy fuel oil for electricity production, which is dirty, expensive, and almost entirely imported. The cost of this energy dependence is large, and links their economies to volatile oil prices, undermining their ability to grow and develop economically. Interconnection within Central America, and also with Colombia and Mexico, would promote greater energy security through the creation of more competitive, standardized, resilient, and larger markets. It is also an important step toward regional integration and prosperity.

Connect 2022 is also working in the Andes region, where the markets are larger but experience severe weather effects. Colombia derives approximately 70 percent of its electricity from hydropower, and most years it has excess capacity. But it is also hypersensitive to the *El Niño* effect, which causes droughts every two-to-seven years, requiring them to maintain a large number of inefficient thermal plants to cover shortages. Ecuador and Peru also have hydropower resources, but experience their *El Niño* effects during different months than Colombia, such that "wheeling" power north and south between these countries will allow their systems to complement one another during shortages. Interconnection among these countries would enable a more efficient use of existing resources, eliminating the need to build redundant large-scale dams, which increasingly raise concerns for environmental and indigenous rights groups. Governments in the region with large hydro-dependence are already exploring additional ways to provide their population centers with affordable power, such as through solar, wind, geothermal technologies, as well as natural gas and smaller-scale run-of-river hydro projects. In order to take advantage of those resources, countries must develop their power sector infrastructure, including smartgrid technologies. All of this spells tremendous commercial and development opportunities, and companies around the world are taking notice.

Geopolitics

In addition to the technical and investment challenges that must be overcome by the region, there are also significant geopolitical challenges. The Caribbean region suffers some of the highest electricity prices and lowest investment rates in the world. The energy security of many in the region, including the Dominican Republic, Jamaica, Haiti, and Cuba, relies upon Venezuela's Petrocaribe agreement, which supplies below-market financing for Venezuelan oil, and has left a number of them in serious debt to the Venezuelan parastatal oil company, Petroleos de Venezuela S.A., or PDVSA. Venezuela's oil policies going forward will continue to have important implications for the region, as well as the Venezuelan people. For countries in the region, a step toward greater energy diversification gives them the opportunity to lessen their dependence on imported oil, to build greater resilience in their markets and economy, and to enable those reforms that could bring down their electricity prices and give them the opportunity to compete.

Venezuela itself faces questions about its energy future. Despite extensive heavy oil resources, PDVSA's oil production has been generally falling since 1997, due to a lack of capital investment and maintenance of its facilities, as well as the politicization of its workforce. The EIA estimates Venezuela currently produces

2.5 million barrels per day, versus 3.5 million barrels per day in 1997. While the United States continued to import approximately 900 thousand barrels per day from Venezuela in 2012, the ascendance of North American production may affect this amount. But the greatest effects of Venezuela's energy policy will be for Venezuela itself. In the last few years, ordinary citizens in Venezuela have been subject to longer and more frequent power shortages, which hurt businesses and affect everyday life. Many of these challenges could be tackled by addressing the commercial viability of the sector. Ultimately, this is a question for the Venezuelan people to decide for themselves.

Brazil is another place where political decisions will have a strong impact on energy security and international opportunities. Brazil has vast potential in the hydrocarbons sector, with pre-salt recoverable resources estimated at 50 billion barrels of oil equivalent, one of the largest and most advanced biofuels industries in the world, and extensive wind and hydro resources. Brazil has also begun to explore its potential in shale gas development. Brazil's oil parastatal Petrobras, which has been given the lead in pre-salt development, faces significant technical, human and manufacturing capacity challenges to exploit these resources. Due to its economic growth over the last 10 years, Brazil is estimated to need to double its energy capacity in the next 10-15 years. Its power sector, like Colombia's, is 85 percent reliant on hydropower. This mix, while it makes important contributions in terms of Brazil's greenhouse emissions, has also led to severe power outages due to shortfalls in hydroelectric power plant capacity during peak demand periods. As Brazil faces these challenges and choses a strategy including local content requirements, its ability to draw on international skills and resources to ensure the safe and efficient development of its oil, gas, and renewables sectors will have major consequences for global opportunities in these sectors.

Another example is Argentina, which may have the third-largest shale gas reserves in the world. One potential challenge is the effect that last year's YPF expropriation had on the overall investment climate in Argentina's energy sector. We hope that YPF's recent agreement with Dow Argentina is a sign of a more productive attitude toward supporting a transparent and open investment environment. Argentina has great potential to help supply world energy markets and contribute to global energy security. Attracting private investment and creating confidence in Argentina's business climate over the long term are elements of meeting their potential.

There are also some issues that are universal for all energy-producing countries, such as the need to develop new resources responsibly and transparently. The

"resource curse" thesis was first used in describing the situation in several Latin American countries, and countries in the region continue to face governance challenges today in managing these resources. A number have taken steps to address them, including by joining the Extractive Industries Transparency Initiative, and we will continue to make this a priority in our bilateral relationships with resource-rich countries in the region. The Energy Resources Bureau at the State Department also supports programs such as the Unconventional Gas Technical Engagement Program, the Energy Governance Capacity Initiative, and the Power Sector Program, which work to help countries throughout the hemisphere to explore conventional, unconventional, offshore resource development, and power sector development through technical assistance and sharing of best practices.

Fundamentally, the energy picture in the Western Hemisphere is deeply complex and interconnected, with spectacular opportunities for U.S. jobs, commercial interests, economic development, and energy security linked to the political perspectives in Canada, Mexico, Venezuela, the Caribbean, and beyond. As world energy markets transform, reflecting our own energy revolution, the United States has much to share and much to gain from being a formative part of the picture. This is especially true in the Western Hemisphere. From building North American energy security and shaping natural gas markets to paving the road for tomorrow's commercial and innovative transformation, the United States must continue to lead, to share our best practices and lessons learned, to support transparency and an even playing field, and to give our companies and innovators access to tomorrow's energy markets. All these activities are critical to achieve our own energy security, as well as to deliver greater economic development, energy access, and stability for a stronger, safer, and more prosperous future for the Americas. Thank you for the opportunity to discuss these important issues with you today.