House Foreign Affairs Committee
Subcommittee on the Western Hemisphere

Pursuing North American Energy Independence:
Mexico's Energy Reforms

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July 23, 2015

Chairman Duncan, Ranking Member Sires, and members of the Committee, I appreciate the opportunity to testify before you on Mexico's Energy Reforms and their significance for North America.

Since 2012, Mexico has embarked on an historic opening of its energy sector to allow private investment and competition in the production, transit and sale of oil, gas and electricity, and in the coming years in retail markets as well. On July 15, Mexico completed the first tender since 1938 for the sale of hydrocarbon assets. Even though the results did not meet expectations, it formalized a process of opening the energy sector to private investment – and with that, the benefits that will eventually ensue from infusions of capital and technology. Mexico will benefit from these reforms, but so will American businesses and workers. North America can improve its energy security and play a more profound role in stabilizing energy markets regionally and globally. I will address these issues in my testimony.

I appear before you in my capacity as Senior Vice President for IHS. IHS is a global consultancy that specializes in energy, capital-intensive industries, data and analysis with a worldwide presence. While my responsibilities are global, I am based in Mexico, and have had the opportunity to engage many of the key players in Mexico's energy reforms. I previously served as the Coordinator for International Energy Affairs and Special Envoy on Energy at the State Department. I am associated with Columbia University as a Fellow at the Center on Global Energy Policy. I served as the U.S. Ambassador to Mexico from 2009 to 2011.

Mexico's Energy Reforms

Although Mexico nationalized its hydrocarbons sector in 1938, energy cooperation between the United States and Mexico has a long history. U.S. oil investor Henry Clay Pierce helped finance the start of Mexican oil production in 1901. American oil entrepreneur Edward Dohenny, one of the pioneers of the oil industry in California, founded the Pan American Petroleum and Transit Company in Mexico and drilled the Cerro Azul No. 4 well in Mexico, which became the world's largest producing oil well at the time. By the early 1920s, Mexico became the world's largest exporter of oil and the second largest producer after the United States.

The House of Representatives played a key role in resuscitating that tradition of cooperation by championing the passage of the U.S.-Mexico Transboundary Hydrocarbons Agreement in 2013, which has made possible the development of transboundary reserves that require the cooperation of both the United States and Mexico. The Agreement creates a framework for U.S. and Mexican companies to

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work together on the joint exploration and production of reservoirs that cross our maritime boundary anywhere in the Gulf of Mexico. As a result, it provides a foundation for increasing energy supplies that will benefit both economies and it promotes cooperation between our two countries on safety and environmental regulation, including providing for joint inspection and enforcement of activity under the Agreement.

Although Mexican oil production grew steadily in the 1900s, as of 1938 the Mexican constitution prohibited private investment, and as a result deprived Mexico of revolutionary progress in energy technologies. Production peaked in 2004 at about 3.6 million barrels per day (bpd), and since then has declined to current levels of about 2.35 million bpd – a 35 percent decline. This decline, contrasted with the general international practice of allowing international companies to participate in oil and gas production around the world, influenced the Mexican government under President Enrique Peña Nieto to make energy reform a core pillar of its policy agenda when it took office in December 2012. Equally important was the recognition that a healthy energy position was necessary to support economic growth and create opportunities for Mexican workers, and that such a position required opening up the industry. The pace, breadth and depth of implementing these energy reforms has been unprecedented.

In December 2013, within a year of taking office, Mexico passed a constitutional reform to allow private investment and competition in every aspect of its energy sector. This included the support of two thirds of the Mexican House of Representatives and Senate, and a majority of the 32 state legislatures. On August 12, 2014, Mexico passed the secondary legislation needed to implement reforms related to oil and gas production, pipelines, private competition in the power sector, and competitive retail sales. The very next day, Mexico announced the results of the so-called Round 0, allocating 83% of the proven and probable oil reserves to the state oil company PEMEX, but in so doing making clear that this was the basis to end PEMEX's role as a government agency and transform it into a productive enterprise that must survive on its own resources. In December 2014, just two years after it took office, the Mexican government announced its first round of international tenders – what they call Ronda 1 – with five phases that will consider the sale of about 160 fields over the course of a year. I will come back to the implementation of Round 1 and future prospects later in the testimony.

In the power sector, by end of August 2014 Mexico created an independent systems operator for a new electricity market called the National Center for the Control of Energy (CENACE). In doing so, it created the foundation for competition with the monopoly held by the Federal Electricity Commission (CFE). CFE could contract with independent power producers (IPPs) for power supply, but under the new market, these IPPs will be also able to bid against CFE to supply electricity to the power market, breaking the government's monopoly control over electricity supply. By February 2015, the Mexican Government published the draft new market rules for the power sector. In September it will conduct a live test of the power market, and the new power market and its associated elements for a capacity market, clean energy certificates, and transmission and distribution will come into force in January 2016.

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Private investment is also advancing in pipelines and refineries, and will be open for retail sales in 2016. Opportunities will expand further when subsidies are phased out on liquefied petroleum gas (LPG) in 2016 and for gasoline in 2018. Both CFE and PEMEX have completed tenders to expand the national gas pipeline system and to complete new interconnections with the United States. This expansion of the pipeline system will bring U.S. natural gas to Mexico, help reduce household and industrial costs, and increase North American competitiveness. By the end of 2015, the Mexican Energy Regulatory Commission will complete new regulations that will allow investments in existing and new refineries, either as a partner or in competition with PEMEX.

North America's Interests

The strategic and commercial significance of these reforms for the United States and North America cuts across the energy sector and beyond.

In hydrocarbons production, the completion of these reforms gives the United States, Canada and Mexico an opportunity to make North America a new foundation for global energy security. On November 27, 2014, OPEC demonstrated that, today, it would not act as a bloc to adjust production and affect energy prices. Instead, Saudi Arabia, Kuwait and UAE decided to protect their global market share in oil, and to rely on market forces to rebalance supply and demand to the disadvantage of high cost producers.[1] North America can contribute to filling the space left by OPEC to help shape global oil market conditions that drive stable and sustained economic growth. The U.S. Energy Information Administration has projected that the United States, in a high case scenario, could increase crude production from current levels of 9.3 million bpd to 13.3 million bpd in 2020. The National Energy Board of Canada's high forecast estimates that Canada could increase its production from 3.6 million bpd in 2015 to 4.3 million bpd in 2020. Mexico now has the chance to enter this club of rising production as its energy reforms attract investment. North America will not act like an oil cartel. Rather, it represents three democratic and market-oriented states establishing a reliable base of production that will set standards in international conduct and transparency in energy development and trade that can influence the global industry. But to achieve this new foundation, the United States must be an exporter, a key issue addressed below in the policy recommendations.

Mexico's new focus on extending gas pipelines has created business opportunities for U.S. companies and investors. In one pipeline extending from Arizona to Mazatlan on the Mexican Pacific coast, El Paso Natural Gas (a Kinder Morgan subsidiary) won the contract to build the U.S. portion. For the Los Ramones II pipeline, which completes a route from Agua Dulce, Texas to Aguascalientes and Queretaro in Mexico, the American investment firms Blackrock and First Reserve have invested $900 million to acquire 45% ownership. On June 22, 2015, CFE announced tenders for 24 energy infrastructure projects estimated at $10 billion in investment, including a $3.1 billion subsea pipeline from Brownsville to the Mexican port of Tuxpan and seven additional pipeline projects. U.S. companies have comparative advantages to participate in construction and finance. The extension of

[1] IHS, *Oil Change: A World Without OPEC as We Knew It* (February 2015)

natural gas pipelines and lower electricity prices directly benefit companies like GM, Ford, Chrysler, Boeing, GE, Intel and other major American companies invested in Mexico, operating integrated production lines and global export platforms that have made their American products more competitive in the United States and globally.

Similar investment patterns in the power sector and refineries are possible as final regulations and market rules come into effect. CFE has launched a major program to invest in natural gas power, creating opportunities for suppliers of generation equipment, but also leaving much of the renewable energy sector open to private investors. Mexico imports 40% of its gasoline and has huge and urgent demand to upgrade existing refineries to meet environmental standards and expand supply. All of these openings in the energy sector will certainly drive Mexico's economic growth and competitiveness, but they represent a huge strategic and business opportunity for the United States. To realize that potential, Mexico and its investment partners will have to manage difficult market challenges.

Ronda 1 and Global Oil Markets

Since Mexico amended its constitution to allow private investment in energy, the price of the Brent benchmark price for crude oil has dropped from a range of $105-110 per barrel to about $50-60 per barrel over recent months. This hearing is not the forum to address the reasons for this price collapse, but there is no doubt that it affects the implementation of Mexico's reforms. Lower prices are forcing oil companies to reduce capital expenditures,[2] financial institutions to cut investments in independent producers, and oil producing countries to demonstrate that their fiscal terms compete with the best international alternatives. Mexico has a disadvantage: international players do not have first-hand knowledge of Mexican assets and how to operate in Mexico. Simply put, to compete effectively, Mexico has to make completely clear that its assets, contracts, fiscal terms, and local business and security environments offer investment returns that attract production and capital to Mexico at a time when the industry is cutting expenditures and costs.

Mexico has announced plans for five phases of bids under Round 1 of its hydrocarbons tender process: (1) shallow water exploration (14 blocks), (2) shallow water production (5 blocks), (3) onshore (26 blocks), (4) deep water (13 blocks) and extra heavy oil (11 blocks), and (5) unconventional fields (61 blocks) and Chicontepec (a massive, complex onshore field,12 blocks). Bids for phase 1 were opened on July 15. Bids will be opened for phases 2 and 3 on, respectively, September 30 and December 15. The timelines for the other phases have not yet been announced

On July 15, Mexico saw the impact of the difficult business climate in global oil production with the disappointing interest in Phase 1. 39 companies paid for data to investigate the blocks offered in Phase 1, 34 companies prequalified to compete, but on July 15 there were only 9 bidders, with 4 of the bids coming from consortia. Only two out of fourteen blocks were awarded. Six blocks received offers, but five were under the minimum bids set by the government and were not awarded, and one lost

[2] *IHS Upstream Spending Report – 1Q 2015.* Global exploration and production (E&P) spending is expected to drop by 16.6% year on year in 2015, followed by a further 12.6% decline in 2016.

to another bidder. The consortium formed by Sierra Oil & Gas (a newly formed Mexican company), Talos Energy, and Premier Oil won both blocks. Talos is a Houston-based company.

Mexican officials will spend time investigating and applying lessons from Phase 1, either to contract terms for phases 2 and 3, but most likely for a deep-water tender that has yet to be announced. Some key issues might include:

- Field offerings were small, and perhaps not of high interest to the larger international companies.
- Contracts were offered for four years with a two-year extension, but some companies may have wanted longer contract terms to perform more extensive exploration, such as whether there might be complex pre-salt formations that could be exploited at deeper levels.
- Government minimum bids may have been influenced by historic PEMEX production costs, which may be lower than the costs estimated by potential investors.
- Fiscal terms may not have met investor requirements to mobilize capital given increased pressure from low international oil prices to cut costs and capital expenditures.

The important point is that all of these issues can be addressed. Mexico took an historic first step, demonstrating the potential for an important combination of international oil partners, American capital, and a start-up Mexican private industry. There will be more issues to address, such as the capacity of the Mexican service sector, whether other Mexican private companies can secure international partners, the role PEMEX will play in future bid rounds, and pipeline and storage capacity. However, with the sector now open for investment, these potential issues can be turned into business opportunities. If the Mexican government and outside investors take that perspective, these difficult first moments could help consolidate the profound need for sensitivity to international markets and competitiveness that Mexico needs to demonstrate to fulfill its aspirations.

<u>Transforming the Power Sector</u>

Less attention has been focused on electricity than on oil production, but the transformation of the power sector could be the lynchpin that sustains political support for energy reform. By the end of the President Peña Nieto's Administration, successful implementation of its oil tenders should allow Mexico to demonstrate contracts for tens of billions of dollars in new investment, but those investments will take time to halt and reverse current production declines. In the power sector, the fast expansion of U.S. natural gas imports has already allowed CFE to lower Mexican electricity prices by 27% for industry, and between 2-11% for households. Investments in natural gas pipelines from the United States will help Mexico sustain these major and tangible gains that benefit consumers and industry and help create jobs. President Peña Nieto retains a majority in parliament after mid-term elections. Polls suggest that the next government and parliament after 2018 will still support energy reform. But the best way to secure that support is if the Mexican people benefit tangibly from the results – and here the power sector is key.

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As in oil and gas, there will be implementation challenges as Mexico overhauls every aspect of its power sector. It will face a conundrum many states have seen in the United States: as competition drives down prices, how do you create an incentive to invest in capacity? As competition increases with legacy utilities and takes away parts of their base market, how do you manage stranded assets that are not competitive, must be closed, and workers laid off? As clean energy targets are established, what are the cost implications and how are intermittent renewables integrated with base-load generation requirements? It is inevitable that Mexico will face these questions and need industry partnerships and technical support to avoid mistakes where it can, and adjust quickly when needed.

Both CFE and the Mexican government's National Program for the Electricity Sector make clear that natural gas will underpin the Mexican power sector and CFE's investments through 2020. Yet Mexico has also made very aggressive commitments on clean (zero greenhouse gas emission) energy: 35% of all generation by 2024, with emissions peaking in 2026. It will reduce GHG emissions between 25-40% by 2030 relative to business as usual, depending on market conditions. To meet these targets, Mexico will conduct long-term auctions for new capacity. With CFE focused on the gas sector, the renewables sector will offer a huge target for private investment, where the United States can be a major supplier and investor.

Policy Implications

From this discussion, let me highlight five areas for policy actions that might be considered by this Committee that would enhance the future energy position of North America.

1. Oil Exports. I indicated earlier the strategic benefits of cooperation among Mexico, Canada, and the United States to make North America a foundation for energy security – for our own region, and with a stabilizing impact globally. North American self-reliance on energy would be a critical point of flexibility and leverage in policy discussions with countries in Asia and the Middle East. North America will still depend on global oil prices – we cannot disconnect from global markets – but we are less vulnerable to interruptions of energy. To fully realize the benefits of our energy abundance, we should also have the opportunity to export oil. Other Congressional committees have addressed this issue. IHS has completed two exhaustive studies[3] that demonstrate that lifting the ban on oil exports will bring major benefits across the United States between 2016-2030:

- $86 billion in additional GDP,
- about 400,000 new jobs annually,
- 25% higher pay for workers in the energy industry supply chain – an additional $158 per household, and
- $1.3 trillion in federal, state and municipal revenue from corporate and personal taxes.

[3] See IHS, *US Crude Oil Export Decision: Assessing the impact of the export ban and free trade on the US economy* (2014), and IHS, *Unleashing the Supply Chain: Assessing the economic impact of a US crude oil free trade policy* (2015).

The strategic benefits for North America only accentuate the benefits we would see from lifting the export ban on the U.S. economy.

2. North American Energy Forum. Before the passage of its energy reforms, Mexico could not address energy seriously in its annual North American Leader Summits and its parliamentary exchanges with the United States. That can now change and be underpinned by a North American Energy Forum that would include the energy ministers of all three countries, and also establish a forum for private company engagement. To be effective, it would create committees or working groups that facilitate public-private engagement. In oil and gas, companies and governments could cooperate on sharing best practices on issues from capturing methane emissions, to hydraulic fracturing, to transparency in contracting and payments. Such a forum would generate inputs for policy measures, and perhaps financing opportunities. It would make cooperation among energy leaders in government, legislatures, and the private sector more concrete and presumably more effective.

3. The Caribbean. Since 2005, Venezuela has subsidized oil for the Caribbean states through an initiative called Petrocaribe as a means to increase its relevance and influence and bolster its opposition and hostility to the United States. The global collapse in oil prices has deepened what was already a severe financial crisis in Venezuela, compromising its ability to sustain these subsidies. The loss of these subsidies will create economic hardship for many of the Caribbean nations. But with lower oil prices, the Caribbean states have a chance to find competitive sources of supply. There is currently an active dialogue among the United States, Canada and Mexico through the North American Leaders Forum to open new sources of supply or financing for alternative forms of power that reduce the Caribbean's dependence on high-priced diesel. The openings in Mexico for private investment and international engagement will make it easier to make Mexico a partner in such endeavors. To have an impact, the United States will need to invest in technical assistance and financing, potentially through the Overseas Private Investment Corporation, to bring alternatives to Petrocaribe within commercial reach.

4. Central America. A power line now exists from Mexico to Panama that has begun to facilitate electricity trade across Central America. The Inter-American Development Bank has helped finance infrastructure and technical assistance costs. The United States has provided technical assistance to help develop the market rules and conditions for private investment. The question of power access and costs is a critical underlying factor in the Central American economies, which may pay 20-50% more for power than we would pay in the United States. But just as important, the lack of reliability affects business interests, job creation, and educational opportunities – all factors central to combating organized crime and illegal migration from Central America to Mexico and the United States. Mexico is already an electrical power source for Central America, and it could provide additional supplies at competitive prices that would reduce costs and increase reliability in the region. There is also a joint effort among Mexico, Guatemala, El Salvador and Honduras to build a natural gas pipeline from Mexico at an estimated cost of $1.2 billion. The pipeline would introduce another lower cost energy and fuel source. This Committee is well placed to encourage the Administration to engage aggressively with Mexico on energy supply to Central America, and to help secure the resources for technical assistance through the State Department and USAID, and for investment through

OPIC, to help the emerging Central American power market in Central America contribute to regional stability.

5. Mexican Power. We have already discussed the complex challenges that face the Mexican power sector. The United States has skills and experience to contribute, perhaps most usefully through energy partnerships between utilities, and through targeted technical assistance. Such programs exist in USAID, the State Department and the Department of Energy. There is now a political opening that did not exist before Mexico's energy reforms to target and expand these in ways that will support private investment.

Mr. Chairman, I congratulate the Committee for its leadership in addressing the potential that Mexico's energy reforms offer strategically and commercially – not just to Mexico, but to the United States and North America. In the energy field, no other region has today what North America can offer: energy abundance and technology leadership across three democratic states and market economies, with huge consumer markets, financing potential, and a global reach and influence. The successful implementation of Mexico's reforms is critical to make the most of these opportunities. The global oil price collapse has made the reform challenge more complex for Mexico. The correct response is to learn from these market conditions, adapt, and use these lessons to capture the potential for investment, production and trade. Thank you for the opportunity to address the committee. I look forward to your questions.

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