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Mexico's Oil and Gas Sector: Background, Reform Efforts, and Implications for the United States

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Summary

The future of oil and natural gas production in Mexico is of importance for both Mexico's economic growth, as well as for U.S. energy security, a key congressional interest. Mexico has consistently been a top crude oil supplier to the United States. However, its oil production has declined dramatically in recent years. On December 20, 2013, President Enrique Peña Nieto signed into law constitutional reforms related to Mexico's energy sector aimed at reversing those declines. The Mexican Congress has 120 days to draft the secondary legislation to implement the historic reforms to open Mexico's oil and natural gas sector to international companies. Depending upon the details of the secondary legislation, the changes could create significant investment opportunities for U.S. companies, increase the already robust U.S.-Mexican energy trade, and bolster North American competitiveness.

Mexico's state oil company, *Petroleos Mexicanos* (Pemex), established in 1938 as the world's first major national oil company, remains an important source of government revenue even as it is struggling to counter the country's declining oil production and reserves. Experts have long urged the Mexican government to reduce the heavy fiscal burden on Pemex and reform the constitution to enable Pemex to partner with international companies that have the experience and capital required for exploring Mexico's large deep water and shale resources. Leftist parties and other stakeholders in Mexico remain concerned; however, that increasing private involvement in Pemex could threaten Mexico's traditional control over its natural resources.

President Enrique Peña Nieto of the nationalistic Institutional Revolutionary Party (PRI) assumed the Mexican presidency on December 1, 2012 after 12 years of rule by the conservative National Action Party (PAN). Even though Peña Nieto stood for the PRI, the party that originally nationalized the oil industry, he campaigned on an economic platform that prioritized allowing Pemex to form joint ventures with private companies. President Peña Nieto introduced a modest energy reform proposal in August 2013, but eventually agreed to a deeper reform favored by the PAN. The recently-enacted constitutional reforms create several different types of contracts, including production-sharing and licensing; allow companies to post reserves for accounting purposes; give Pemex budget autonomy; establish a sovereign wealth fund; create new regulators; and remove the union from the Pemex board. The PRD opposed the reforms and is mobilizing legal challenges and popular referenda to overturn them.

The U.S. Congress has legislative and oversight interests in examining the potential implications of Mexico's oil and natural gas reforms on U.S. hydrocarbons imports and exports, bilateral trade and investment, and economic conditions in Mexico (a top trade partner). Congress recently approved the U.S.-Mexico Transboundary Hydrocarbons Agreement that is intended to facilitate joint development of oil and natural gas in part of the Gulf of Mexico (H.J.Res. 59, the Bipartisan Budget Act of 2013). Other legislation has been introduced dealing with U.S. approval processes for North American energy infrastructure, including oil and gas pipelines (H.R. 3301). The opening of Mexico's oil and natural gas sector could expand U.S.-Mexico energy trade and provide opportunities for U.S. companies and investors involved in the hydrocarbons sector, as well as infrastructure and other oil field services. If these reforms accelerate growth and investment in Mexico (as the government has promised) they could also benefit North American competitiveness.

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Introduction

The United States has a strong economic interest in ensuring energy security, bolstering exports, and reducing barriers to U.S. trade and investment. The United States also has a national security and an economic interest in ensuring that Mexico, a key ally and top trade partner with which the United States shares a nearly 2,000 mile border, is economically vibrant and politically stable.¹ U.S.-Mexico energy trade and cooperation has come to play an important role in achieving those goals. U.S. policy makers are therefore likely to closely monitor the implementation of the reforms promulgated on December 20, 2013, that allow Mexico's struggling state oil company, *Petroleos Mexicanos* (Pemex), to partner with international companies to boost production.

In recent years, Congress has convened a number of hearings on Latin American energy issues and, more specifically, U.S.-Mexico energy issues. During the first session of the 113th Congress, lawmakers focused on legislation related to implementing a U.S.-Mexico Transboundary Hydrocarbons Agreement.² The stated goal of the legislation is to help establish a framework for joint development of oil and natural gas resources in part of the Gulf of Mexico.³ H.J.Res. 59, the Bipartisan Budget Act of 2013, approved the U.S.-Mexico Transboundary Hydrocarbons Agreement. While joint development in the transboundary area could be a step forward for bilateral energy cooperation, Congress arguably has a greater oversight and potentially legislative interest in increasing U.S. trade and investment in Mexico's broader hydrocarbons sector and U.S. natural gas and refined petroleum products exports to Mexico.

In August 2013, President Enrique Peña Nieto of the Institutional Revolutionary Party (PRI) introduced a constitutional reform proposal that would, among other things, allow Pemex to form partnerships with international companies.⁴ With support from the conservative National Action Party (PAN), whose past efforts to reform Pemex were watered down by the PRI, and two small parties, the reforms were enacted in December 2013. Hailed by many analysts as the most significant economic reform undertaken by Mexico since its entrance into the North American Free Trade Agreement (NAFTA), the energy reforms are expected to boost investment, growth, and eventually oil and gas production in the country. The leftist Party of the Democratic Revolution (PRD) and other allied parties opposed the reform, maintaining that private involvement in Pemex could threaten Mexico's control over its natural resources.

This report provides an overview of Pemex and the content and prospects for the energy reforms passed by the Mexican Congress in December 2013, before discussing specific issues facing Mexico's oil and gas industry. It then examines the U.S.-Mexico energy relationship through the lenses of trade and energy cooperation. It concludes by suggesting several oversight issues for Congress related to what the enactment of energy reform in Mexico might portend for the U.S. energy matrix, U.S. trade and investment in Mexico's hydrocarbons industry, and Mexico's economic development.

¹ For background on U.S.-Mexican relations, see: CRS Report R42917, *Mexico's Peña Nieto Administration: Priorities and Key Issues in U.S.-Mexican Relations*, by Clare Ribando Seelke.

² H.R. 1613, S. 812, H.J.Res. 59, the Bipartisan Budget Act of 2013.

³ For background, see: CRS Report R43204, *Legislation Proposed to Implement the U.S.-Mexico Transboundary Hydrocarbons Agreement*, by Curry L. Hagerty and James C. Uzel.

⁴ The proposal also addressed the electricity sector, but that is not the focus of this report.

Pemex: A Brief History

Foreign investment in Mexico's oil industry has had a tumultuous history.⁵ After oil was discovered in Mexico at the turn of the 20th century, foreign investors – primarily from Britain and the United States – played a significant role in helping the country become the world's second largest oil producer by the early 1920s. However, political unrest during and after Mexico's bloody revolution (1910-1920) and the country's 1917 constitution, which established national ownership of all hydrocarbons resources, caused investment in Mexico's oil and natural gas sectors to gradually decline. By the 1930s, reduced foreign investment had resulted in dramatic declines in production levels, and fraught relations between U.S. oil companies and successive post-revolutionary presidents had damaged U.S.-Mexican relations. Tensions culminated in President Lázaro Cárdenas' historic 1938 decision to abandon efforts to mediate a bitter labor dispute between Mexican oil workers and foreign companies and instead follow through on his threat to expropriate all U.S. and other foreign oil assets in Mexico.

Upon its creation in 1938, Pemex became a symbol of national pride and a rallying point around which Cárdenas and what became the PRI united a disparate Mexican society against foreign intervention. Oil remains deeply tied to Mexican nationalism. Nevertheless, Pemex continued to pursue service contracts with some U.S. oil companies until the practice was definitively outlawed by a 1958 regulatory law implementing Article 27 of the constitution.⁶ Since that time, Pemex has retained a monopoly over Mexico's oil and natural gas sector and the Mexican government, namely the Finance Ministry, has kept tight control over the companies' finances and management.

Seventy-six years since its founding, Pemex is facing significant challenges. Pemex had its heyday in the late 1970s following the discovery of the huge shallow water Cantarell oil field, but the company's long-term performance has been hindered by a number of factors. For years, Pemex sustained itself on the revenue produced from its relatively easy-to-exploit shallow water fields without investing the capital necessary to replace those reserves with new fields or even maintain its infrastructure. Pemex has a high percentage of losses, low worker productivity, and facilities that are in significant need of repair; 37 people were killed in January 2013 after an explosion occurred at one of the company's offices in Mexico City.⁷ In part because of the Mexican government's heavy tax demands, Pemex has operated at a loss since 1998 and significantly increased its debt burden. Until recently, the government had also prevented the company from reinvesting its profits into maintenance and new exploration.⁸ Some analysts argue that Pemex's pension liabilities, negotiated by the company's powerful and, for some observers,

⁵ For an overview of Mexico's oil industry from 1901 through the 1970s, see: George Grayson, *The Politics of Mexican Oil* (Pittsburgh, PA: University of Pittsburgh Press, 1980).

⁶ Article 27 of Mexico's 1917 constitution gives the Mexican government exclusive legal authority to exploit, distribute, and process hydrocarbons in the country and states that the government may not, per the regulatory law, grant private concessions for their exploitation. Article 28 establishes petroleum and other hydrocarbons as strategic sectors over which the government (public sector) exerts total control.

⁷ Adam Thompson, "Rusty Wheels of Pemex Require Much Oiling," *Financial Times*, April 3, 2013.

⁸ Reforms passed in 2006 allowed Pemex to fund a portion of its capital investments with earnings rather than through the issuance of new debt. Ognen Stojanovski, "Handcuffed: an Assessment of Pemex's Performance and Strategy," in *Oil and Governance: State-owned Enterprises and the World Energy Supply*, ed. David G. Victor, David R. Hults, and Mark C. Thurber (Cambridge University Press, Cambridge: UK, 2012).

corrupt workers union, have become an unsustainable drain on its finances.⁹ Pemex has also recently been losing hundreds of millions of dollars a year due to criminal groups illegally tapping into its pipelines.¹⁰ Pemex's inability to partner with other companies arguably inhibited it from benefitting from new expertise and techniques, particularly in deep water drilling where significant resources may be located.

The Path to Pemex Reform

Proposals for Energy Reform

Upon his inauguration, President Peña Nieto announced a reformist agenda aimed at bolstering Mexico's competitiveness. He also concluded a "Pact for Mexico" agreement with the PAN and PRD to develop legislation to enact that agenda that facilitated the passage of historic financial, education, telecommunications, and fiscal reforms. As with the other constitutional reforms that had been enacted in 2013, the energy reforms that Peña Nieto proposed in August 2013 required a two-thirds vote in the Mexican Congress and approval by a majority of the country's 32 state legislatures. As discussed below, a PRI-PAN alliance enabled the December 2013 approval of constitutional reforms on energy, but led the PRD to leave the Pact for Mexico.

The Peña Nieto Administration's August 2013 energy reform proposal would have removed hydrocarbons from the list of strategic sectors that can only be developed by the government and allowed Pemex to form "profit-sharing"¹¹ partnerships with international companies in exploration and production. The reform would also have allowed Pemex to sign agreements with private companies for transporting oil and gas, refining, and producing petrochemicals. In secondary legislation, the President pledged to introduce reforms to give the company budget autonomy, improve its transparency, and change its fiscal structure, among other measures.

The PAN put forward deeper reforms than the PRI that would permit private concessions in upstream and downstream¹² operations and production-sharing agreements between Pemex and private companies. Former PAN President Felipe Calderón tried to enact far-reaching energy reforms in 2008, but his proposal was watered down by the PRI-led Congress.¹³ The PAN also sought to establish a strong regulatory body and a sovereign wealth fund to support social needs.

⁹ Thompson, *op. cit.*

¹⁰ Patrick Corcoran, "Oil Theft is Big Business for Mexican Gangs," *InSight Organized Crime in the Americas*, March 20, 2012.

¹¹ Under this scenario, private companies receive a percentage of the remaining revenue earned once exploration and production costs have been recovered, but would not own a share of production.

¹² Upstream refers to the exploration, development, and production phases of oil and natural gas production. Midstream refers to the transportation of the resource, and downstream refers to the refining and marketing of the resource. Natural gas does not need to be refined, so downstream in that sector relates to the marketing of natural gas.

¹³ President Calderón originally proposed measures that would have allowed Pemex to enter into joint ventures with foreign companies in exploration and production, and permitted private companies to build and operate refineries, pipelines, and storage facilities in Mexico. Calderón's proposal prompted strong resistance from the PRD and was significantly watered down by the PRI in the Mexican Congress. Nevertheless, the final legislation brought private sector experts into Pemex's management structure, created an independent board to advise the company, and added greater flexibility to its procurement and investment processes. Most significantly, the 2008 reforms permit Pemex to create incentive-based service contracts with private companies.

Some PAN legislators reportedly conditioned their support for energy reforms on the PRI backing political reforms, which were also approved in December 2013.¹⁴

The PRD vigorously opposed allowing private involvement in Pemex. Instead the PRD proposal focused on reforming the company while simultaneously granting it greater budget autonomy and a less onerous tax burden. Past and present PRD party leaders joined forces to oppose the PRI and PAN versions of energy reform.

Key Provisions of the December 2013 Constitutional Reforms¹⁵

In the end, the reforms approved by the Mexican Congress¹⁶ and a majority of state legislatures and then signed into law by President Peña Nieto on December 20, 2013, bear most in common with the PAN proposal, but contain elements of all three parties' energy reform propositions.

Key elements of the reforms include:

- Maintaining state ownership of subsoil hydrocarbons resources, but allowing companies to take ownership of those resources once they are extracted and to book reserves for accounting purposes;
- Creating four types of contracts for exploration and production: service contracts (companies are paid for activities done on behalf of the state), profit-sharing contracts, production sharing contracts, and licenses (enabling a company to obtain ownership of the oil or gas at the wellhead after it has paid taxes);
- Opening refining, transport, storage, natural gas processing, and petrochemicals sectors to private investment;
- Transforming Pemex into a productive state enterprise with an autonomous budget and a board of directors that does not include union representatives;
- Strengthening four federal entities with regulatory roles in the hydrocarbons industry (the Ministries of Energy and Finance, the National Hydrocarbons Commission or CNH, and the Energy Regulatory Commission) and creating a National Center of Natural Gas Control; and,
- Establishing a sovereign wealth fund, the Mexican Petroleum Fund for Stabilization and Development, to be managed by the Central Bank.

¹⁴ Those reforms provide for the re-election of federal deputies for up to four terms beginning in 2015 and of senators for up to two terms beginning in 2018, the reelection of mayors and local legislatures, the replacement of the current Attorney General's Office with an independent General Prosecutor's Office, the creation of a new national electoral institute, and the annulment of an election if there is evidence that a party engaged in "systematic" violations of campaign finance restrictions.

¹⁵ White & Case, "Client Alert: Landmark Mexican Energy Reforms Approved," December 2013.

¹⁶ The reforms were approved by the Mexican Senate on December 11, 2013, (95-28) and the Chamber of Deputies on December 12, 2013, (354-134).

Next Steps

While the broad contours of Mexico's oil and gas reform have been enacted, many details that have been left to be defined in secondary laws will be crucial for attracting oil companies to Mexico. When it reconvenes in February, the Mexican Congress will have 120 days from the enactment of the energy reforms (December 20, 2013) to enact the secondary laws to implement those reforms. Implementing legislation reportedly needs to establish the terms under which private firms can be involved in upstream operations, create transparency and anti-corruption measures, and define the duties of each of the aforementioned regulatory entities.¹⁷ Although some of these laws may prove controversial, they only need a simple majority to be passed.

As the Mexican Congress is considering secondary legislation to implement the reforms, Pemex will be in the process of requesting approval from the Ministry of Energy and the CNH to maintain control of certain areas where it has been engaged in exploration and production. After those entities determine Pemex's "round zero" lease allocation, the company will then determine whether to exploit those areas alone or in partnership with private investors. At the same time, the Ministry of Energy and the CNH, possibly with assistance from international companies, will conduct surveys to assess Mexico's potential resources, particularly in deep water. Those entities will then work with the Ministry of Finance to determine what types of contracts to issue and under what terms, with the first bids likely to be held in 2016.¹⁸

Mexico's Energy Resources

Oil: Attracting a lot of Interest

Mexico is the world's 9th largest producer of oil and holds approximately 11.4 billion barrels of oil reserves—the 18th largest in the world.¹⁹ Mexico may also have the 5th largest tight oil²⁰ resources globally, about another 13 billion barrels.²¹ With these reserves and their potential natural gas resources, Mexico has the potential to halt its decade-long decline in oil production (see **Figure 1**) and possibly become self-sufficient in natural gas.

¹⁷ David L. Goldwyn, *Mexico Rising: Comprehensive Energy Reform at Last?* Atlantic Council, December 2013, http://www.atlanticcouncil.org/images/publications/Mexico_Rising.pdf.

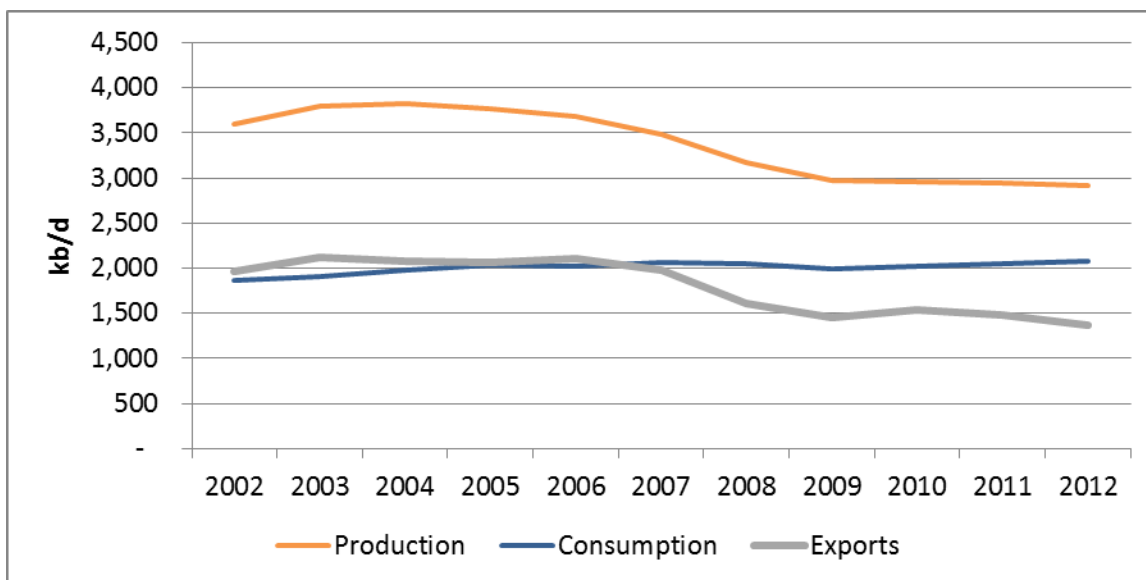
¹⁸ Ibid.

¹⁹ *BP Statistical Review of World Energy*, June 2013, p. 6.

²⁰ Tight oil refers to oil that is trapped in impermeable formations, such as shale or sedimentary rocks, and requires artificial fractures to allow the hydrocarbons to flow.

²¹ U.S. Energy Information Administration, *Technically Recoverable Shale Oil and Shale Gas Resources: An Assessment of 137 Shale Formations in 41 Countries Outside the United States*, Washington, DC, June 10, 2013, p. 8, <http://www.eia.gov/analysis/studies/worldshalegas/>.

Figure 1. Mexican Oil Production, Consumption, and Exports
2002 - 2012



Source: BP Statistical Review of World Energy 2013, June 2013.

Notes: Units = thousand barrel per day (kb/d).

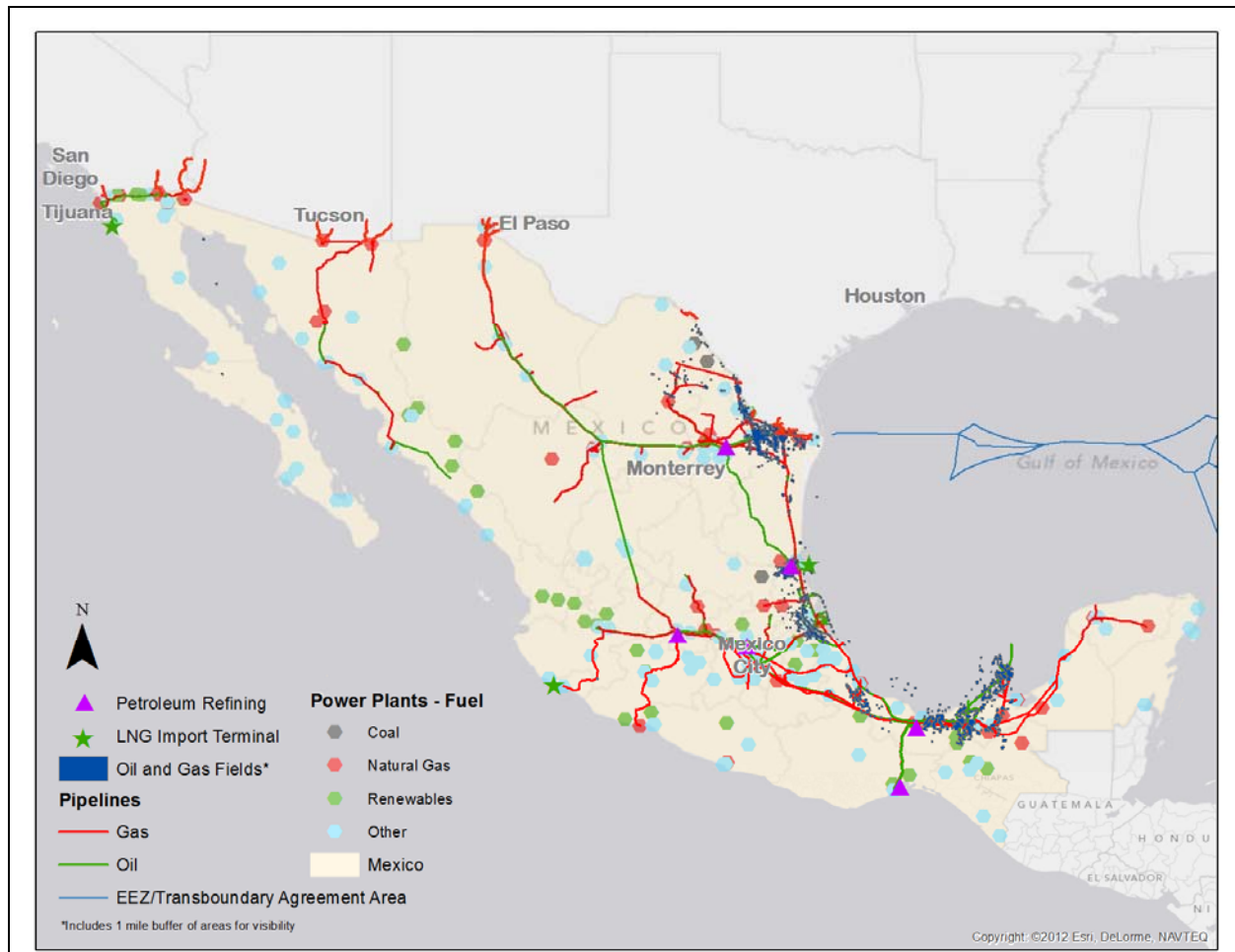
Mexico's oil production has declined by almost 20% over the last decade (see **Figure 1**) due, in part, to aging and inefficient infrastructure (see **Figure 2**). Nevertheless, Mexico lags only behind Russia, the United States, China, and Canada as an important non-OPEC oil producer. Most of Mexico's production (75%) is found offshore in the shallow waters of the Bay of Campeche, which is part of the Gulf of Mexico, and concentrated in two fields—Ku-Maloob-Zaap (KMZ) and Cantarell. KMZ production has been on the rise since 2006, reaching almost 867,000 barrels per day (b/d) at the end of 2012, and has replaced part of Cantarell's decline.²² Cantarell was once one of the largest producing fields in the world, but started having pressure problems in the mid-1990s.²³ Efforts to reverse the decreasing production were successful for a while and the field reached its peak in 2004 at 2.1 million b/d. Since then, the decline has been precipitous and Cantarell produced about 400,000 b/d less in 2012.²⁴

²² Laurence Illiff, "Pemex Ups Year-End Oil Output, but is Likely to Miss 2012 Target," *Dow Jones Newswires*, December 18, 2012.

²³ U.S. Energy Information Administration, *Mexico*, October 17, 2012, p. 4, <http://www.eia.gov/countries/analysisbriefs/Mexico/Mexico.pdf>.

²⁴ Illif.

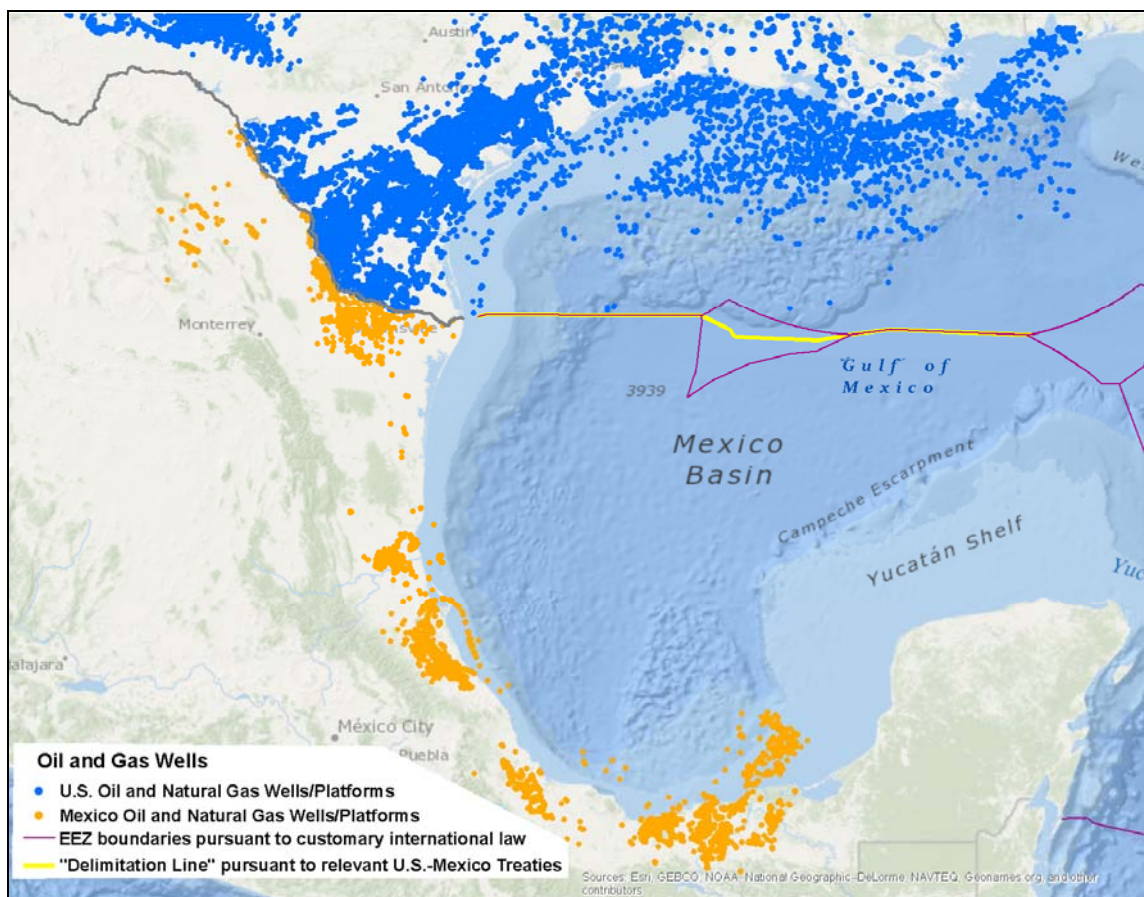
Figure 2. Mexico Energy Infrastructure



Source: Compiled by CRS using data from IHS, Platts, and Esri. Date: September 2013.

There may also be significant deep water resources in the Gulf of Mexico yet to be discovered. As can be seen below in **Figure 3**, Mexico has undertaken very little activity in its portion of the Gulf of Mexico, particularly compared to the United States, in part because Mexico does not yet have the technical capacity to effectively explore or produce its deep water areas. This is one of the reasons that international companies, particularly those with deep water expertise, are excited about the reforms in Mexico. Additionally, the U.S.-Mexico Transboundary Agreement (see below) may play an important role in raising Mexico's standards of operation in deep water.

Figure 3. U.S./Mexico Oil & Natural Gas Activity Around the Gulf of Mexico
Active Wells and Platforms



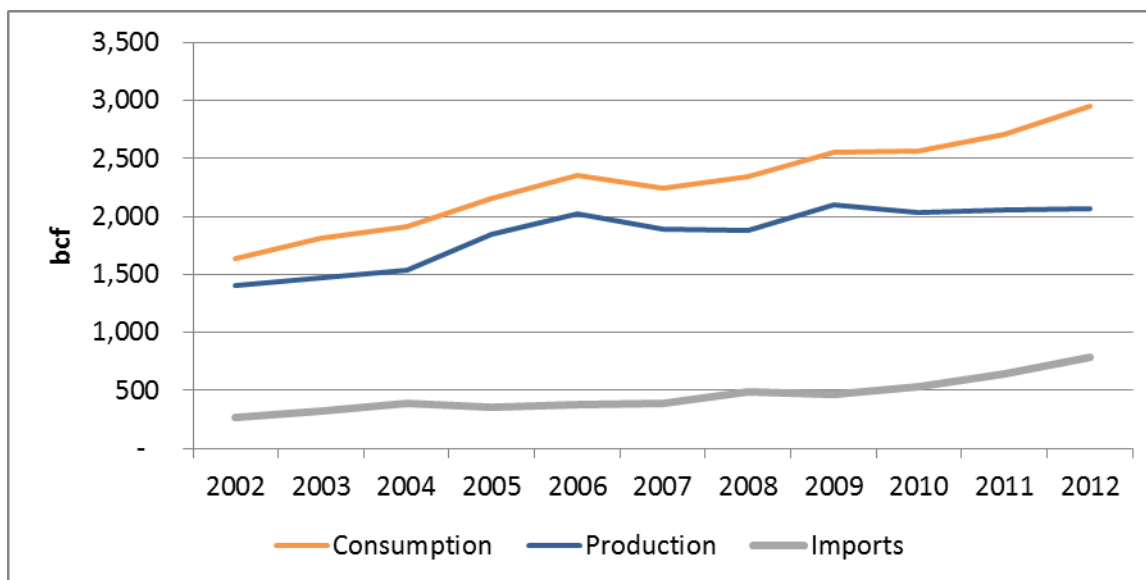
Source: Compiled by CRS using data from HSIP Gold 2012 (Platts), IHS 2012 Wells, and Esri.

Natural Gas: More Needed

Mexico's natural gas production has risen almost 50% since 2000, but it has not been able to keep up with demand (see **Figure 4**), which has increased about 80% during that same period. Most of Mexico's natural gas consumption supports its oil operations and national electricity generation. Despite rising domestic production, Mexico's proven gas reserves are on the decline due to underinvestment in exploration. And, although Mexico may have significant unconventional natural gas resources, it is further behind in developing these resources than other countries, such as Canada. Opening up of Mexico's natural gas sector to international companies could help raise natural gas production even faster.

As a consequence of demand rising faster than production, Mexico's imports of natural gas have also been increasing, accounting for about 27% of consumption today compared to less than 10% in 2000. In 2000, Mexico imported 30% of U.S. natural gas exports which accounted for 100% of Mexico's natural gas imports. In 2006, Mexico started importing liquefied natural gas (LNG), from Qatar, Nigeria, and Peru to help meet its growing demand for gas. Mexico has three LNG import terminals, two on the Pacific side and one on the Atlantic.

Figure 4. Mexican Natural Gas Production, Consumption, and Imports
2002 - 2012



Source: BP Statistical Review of World Energy 2013, June 2013.

Notes: Units = billion cubic feet (bcf).

As a free trade partner, exports of U.S. natural gas to Mexico are assumed in the public interest by U.S. statute and permitted without delay, which has spurred U.S. natural gas exports to Mexico. As of November 2013, there were four new pipelines and three expansion projects pending before the U.S. Federal Energy Regulatory Commission (FERC) that would increase U.S. natural gas pipeline export capacity by 3.56 bcf/d to 7.38 bcf/d.²⁵ In 2012, U.S. natural gas exports accounted for approximately 80% of Mexico natural gas imports, and 21% of its natural gas consumption. It would appear that for the immediate future Mexico will likely remain dependent on U.S. supplies of natural gas to meet its growing demand.

Unconventional Oil and Natural Gas Opportunities

One of the areas gathering interest with the possible opening of Mexico's oil and natural gas industry is shale development. The U.S. Energy Information Administration (EIA) has assessed Mexico's tight oil and shale gas resources to be significant (the 4th highest globally). The proximity of some formations in northern Mexico to U.S. developments makes them attractive to some U.S. companies. As an example, the Eagle Ford basin in Texas, one of the fastest growing shale producing areas in the United States, may extend down into Mexico.

Mexico, through Pemex, has already started exploring some of its unconventional formations. A limited number of test wells have been drilled, but Pemex has ambitious plans for scaling up development and production over the next 10 years. However, Mexico will need to implement reforms to attract outside investment to strengthen regulatory and environmental protection measures, expand pipeline infrastructure, address water management issues, and deal with security concerns. Some of the states in northeastern Mexico where shale formations are located

²⁵ According to FERC and EIA data sources.

have experienced significant violence in recent years, possibly deterring additional business opportunities. The United States has already been working with Mexico in some of the more technical areas such as resource assessment, environmental protection, and regulatory policies.

Refining: Limited Capacity and in Need of Modernization

Although Mexico is a large exporter of crude oil, it is a net importer of refined petroleum products, such as gasoline and diesel fuel. Mexico does not have enough refining capacity of its own to meet its domestic demand for refined products, nor has it made the investment to process heavy crudes like its Maya crude. Mexico has six refineries with a total capacity of 1.54 million barrels per day, but in recent years has operated below capacity because of operating mishaps.²⁶ As in many other countries throughout Latin America, Mexico's refineries are in need of major repairs and upgrades and often operate at below their stated capacity.²⁷ Mishaps and other losses are expected to result in a \$7.7 billion loss for the company in 2013.²⁸ To remedy these problems, Pemex has recently announced plans to build a \$3.5 billion expansion of its Tula refinery and is building a new \$10 billion refinery to expand Mexico's refining capacity.²⁹

Mexico and the United States already have a close relationship in the refining sector. Much of the U.S. Gulf Coast refining capacity is designed to process heavy crudes, which require more sophisticated and expensive technologies than Mexican refineries currently possess. Mexico exports its heavy crude to U.S. refineries on the Gulf Coast, which then sends some of the refined products back to Mexico. Pemex, which operates all of the refineries in Mexico, also owns 50% of a refinery in Texas. The refining relationship between Mexico and the United States could potentially be expanded even further as the reforms fully open up Mexico's downstream (marketing and refining) hydrocarbons market to international companies.

Energy: a Central Component of U.S.-Mexico Trade

The bilateral economic relationship with Mexico is of key interest to the United States because of Mexico's proximity, the high volume of trade with Mexico, and the strong economic ties between the two countries. The United States is, by far, Mexico's leading partner in merchandise trade, while Mexico is the United States' third largest trade partner in total trade after China and Canada. Mexico is the United States' second largest export market after Canada and ranks third as a supplier of U.S. imports. Since the North American Free Trade Agreement (NAFTA) took effect in 1994, the United States and Mexico have become more economically integrated with strong trade and supply chain linkages. Between 1993 and 2012, total U.S. trade with Mexico increased by 506%.³⁰ In most sectors, NAFTA removed significant trade and investment barriers, ensured basic protections for NAFTA investors, and provided a mechanism for the settlement of disputes

²⁶ U.S. Energy Information Administration (EIA), *Country Analysis Full Report: Mexico*, October 17, 2012. Hereinafter EIA, October 2012.

²⁷ Justin Jacobs, "Refining Woes in Latin America," *Petroleum Economist*, October 2013.

²⁸ "Mexico's Pemex to Incur \$7.7 Billion Refining Loss in 2013," *Fox News Latino*, October 23, 2013.

²⁹ "Pemex Sees \$3.5 Billion Refinery Expansion Adding 40,000 bpd," *Reuters*, September 23, 2013.

³⁰ Based on data from the U.S. International Trade Commission (USITC) Interactive Tariff and Trade DataWeb using Harmonized Tariff Schedule (HTS) at the 4-digit level. For more information on NAFTA and its effects on trade, see CRS Report R42965, *NAFTA at 20: Overview and Trade Effects*, by M. Angeles Villarreal and Ian F. Fergusson.

between investors and a NAFTA country. The agreement, however, included explicit country-specific exceptions to national treatment and the Mexican government reserved the right to prohibit foreign investment in the production of energy.³¹ Despite these exclusions from NAFTA, energy remains a central component of U.S.-Mexico trade, as discussed below.

Mexico Still a Top U.S. Oil Supplier

As previously mentioned, Mexico has been an oil and natural gas producer since the turn of the last century, and has been trading oil and natural gas with the United States at least as long, including after nationalization, averaging around 10% of U.S. imports. Up until 2012, Mexico had been the second largest exporter to the United States behind Canada, but dropped below Saudi Arabia that year. Canada accounted for 23% of U.S. crude oil imports in 2012, followed by Saudi Arabia, which accounted for 17% of the total. In 2012, the value of crude oil imports from Mexico totaled \$37.3 billion and accounted for 12% of total U.S. crude oil imports (see **Table 1**).

Table 1. U.S. Crude Petroleum Oil Imports in 2012

Total in Billions of U.S. Dollars

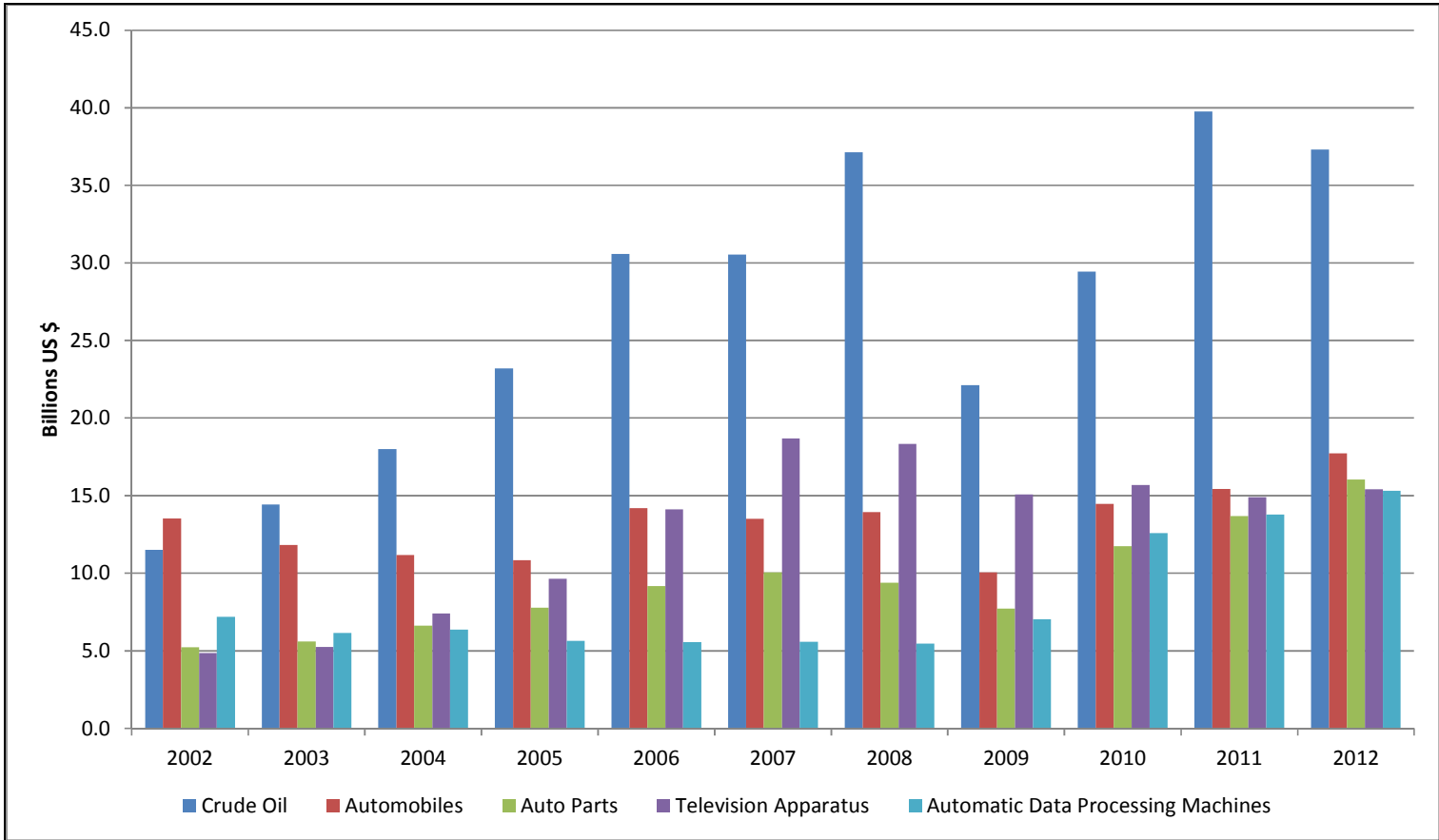
Country	Value	% of Total
Canada	72.5	23%
Saudi Arabia	54.0	17%
Mexico	37.3	12%
Venezuela	34.2	11%
Iraq	19.2	6%
Other Countries	98.4	31%
Total	315.7	--

Source: Compiled by CRS using USITC Interactive Tariff and Trade DataWeb: HTS number 2709 for crude petroleum oil.

The United States is the destination for approximately 85% of Mexico's oil exports, which arrive via tanker. Although Mexico has an extensive pipeline network that connects major production centers with domestic refineries and export terminals, it does not have any international oil pipeline connections. Exports leave the country via tanker from three Gulf Coast export terminals.

³¹ Chapter 6 of NAFTA applies to energy and basic petrochemicals and reserves investment in most activities in Mexico's energy sector to the Mexican state. Under Annex 602.3, which lists reservations and special provisions in the energy sector, the Mexican state reserves to itself the following strategic activities, including investment in such activities and the provision of services in such activities: exploration and exploitation of crude oil and natural gas; refining or processing of crude oil and natural gas; and production of artificial gas, basic petrochemicals and their pipelines. The annex also reserves foreign trade, transportation, and storage and distribution in the energy sector to the Mexican government.

Figure 5. Top 5 Imports from Mexico
2002 - 2012



Source: Compiled by CRS using USITC Interactive Tariff and Trade DataWeb at <http://dataweb.usitc.gov>; HTS4-digit level.

The majority of Mexico's crude oil exports are of the heavy Maya blend (approximately 82% of exports), while the lighter crude oil produced offshore is mostly retained for domestic consumption. Most of Mexico's crude oil exports will likely continue to be exported to the United States because of its close proximity and also because the U.S. Gulf Coast possesses the sophisticated refineries necessary to process the heavier Maya crude oil.

The leading U.S. import item from Mexico is crude petroleum oil.³² The value of crude oil imports from Mexico in 2012 totaled \$37.3 billion, more than two times the value of auto imports (\$17.7 billion), the second leading import item. As shown in **Figure 5**, crude petroleum oil imports from Mexico are considerably higher than other top imports from Mexico, and have become more significant over the past 10 years as a percentage of trade.

Although Mexico is one of the world's largest crude oil exporters, it is a net importer of refined petroleum products. In 2012, Mexico's imports of refined petroleum products from all countries totaled \$29.6 billion.³³ Refined oil exports are the leading U.S. export item to Mexico. In 2012, U.S. refined oil exports to Mexico totaled \$20.0 billion, or about 19% of total U.S. refined oil exports.³⁴ The value of these exports was 34% higher than the value of the second leading export item to Mexico, auto parts (\$13.2 billion). After a 31% decrease in 2009, U.S. exports in refined petroleum oil to Mexico increased by 81% in 2010, 70% in 2011, and 3% in 2012.

Mexico ranks first among export markets for U.S. refined oil, accounting for 19% of U.S. refined oil exports. The second leading refined products export market for the United States is Canada, accounting for 10% of U.S. exports, followed by the Netherlands, Chile, and Brazil. Exports to Mexico accounted for almost 60% of the overall growth in total U.S. motor gasoline exports between 2007 and 2011.³⁵

Trade in Natural Gas

The United States has been Mexico's largest supplier of natural gas and Mexico continues to be a growing market for additional U.S. natural gas exports. As previously mentioned, Mexico's natural gas production has failed to keep pace with rising domestic demand making U.S. gas exports an important source of energy. The value of Mexico's natural gas imports has increased from \$995.7 million in 2007 to \$1.2 billion in 2012.³⁶

In 2012, Mexico imported 791 billion cubic feet of natural gas from the United States, an increase of nearly 25% from the levels of 2011. The United States imports a very small amount of natural gas from Mexico. The surplus in natural gas trade with Mexico is expected to widen as recent supply and demand trends in both countries are expected to continue.³⁷ U.S.-Mexico trade in natural gas is done exclusively via pipeline.

³² U.S. International Trade Commission (USITC) trade dataweb, using Harmonized Schedule 2709 for crude petroleum oil.

³³ Secretaría de Energía de México, Energy Information System, available at <http://www.sener.gob.mx>.

³⁴ USITC trade dataweb, using Harmonized Schedule 2710 for refined oil products.

³⁵ EIA, October 2012.

³⁶ Secretaría de Energía de México, <http://www.sener.gob.mx>.

³⁷ EIA, October 2012.

Areas of U.S.-Mexico Energy Cooperation

In addition to the aforementioned burgeoning energy trade between the United States and Mexico, energy cooperation has gradually risen to the top of the U.S.-Mexican political agenda as well. The United States and Mexico have been working on geothermal energy projects since the 1970s, but the possibility of expanding joint efforts to produce renewable energy sources, as well as conventional and unconventional hydrocarbons resources, has just recently entered the bilateral agenda.

Bilateral Framework on Clean Energy and Climate Change

On April 16, 2009, President Obama and then-Mexican President Calderón announced the Bilateral Framework on Clean Energy and Climate Change to jointly develop clean energy sources and encourage investment in climate-friendly technologies. Among others, its goals include enhancing renewable energy, combating climate change, and strengthening the reliability of cross-border electricity grids. Four bilateral meetings have thus far been held to advance the Framework. Since Mexico remains a top U.S. crude oil supplier and many of its untapped resources lie in deep waters in the Gulf of Mexico and in shale formations abutting the U.S. border, the countries want to ensure that Pemex (or other companies) develop those resources in an environmentally responsible way.

The U.S. and Mexican governments share a mutual interest in developing renewable energy sources, particularly those capable of serving rapidly growing population centers along the U.S.-Mexico border. As part of that effort, since 2011 the North American Development Bank has provided eleven loans worth \$677 million for projects related to wind and solar energy. The U.S. Agency for International Development (USAID) and Mexico have also expanded cooperation on environmental issues with the *Mexico Global Climate Change (GCC) Program*, a five-year, approximately \$70 million program. The program seeks to help Mexico reduce emissions from deforestation, implement a low emissions development plan, and create a system for monitoring greenhouse gas emissions.

Although Mexico is trying to diversify its energy sources, it, like the United States, is likely to continue relying on oil and natural gas from traditional and unconventional (i.e. shale) sources. In the wake of the 2010 Deepwater Horizon spill in the Gulf of Mexico and amid concerns about the impact of hydraulic fracturing of shale oil in the United States, both governments have an interest in ensuring that hydrocarbons resources are developed in an environmentally responsible way. For example, should Pemex partner with U.S. companies in the Gulf, then it could benefit from participation in the Marine Well Containment Company that was created by U.S. companies to deal with spills. Should Pemex pursue contracts with U.S. companies who have years of expertise in hydraulic fracturing, they could complement the environmental and regulatory advice that Mexico is already receiving from the U.S. Departments of State and the Interior.

United States-Mexico Trans-Boundary Hydrocarbons Agreement³⁸

In 2012, the United States and Mexico signed an agreement known as the U.S.-Mexico Transboundary Hydrocarbons Agreement (the Agreement). The Agreement could mark the start of an energy partnership in an area of the Gulf of Mexico that the U.S. Department of the Interior estimates to contain as much as 172 million barrels of oil and 304 billion cubic feet of natural gas. Although it concerns relatively little oil and natural gas, a main purpose of the partnership is to lift a moratorium on development in that region that had been in effect since 2000. In addition, the Agreement gives Pemex and U.S. companies options for jointly developing oil and gas reservoirs, referred to as “transboundary resources,” that exist in areas straddling the marine border of both countries.

Prior to the expected expiration date for the moratorium, the Mexican and U.S. Congresses reviewed and accepted the Agreement.³⁹ Congress enacted legislation approving the Agreement on December 18, 2013, (H.J.Res. 59).⁴⁰ Now that the United States and Mexico have approved the Agreement, the moratorium is considered moot and both countries are examining options for implementing the Agreement in areas in which the ban on exploiting oil and gas resources had been in place. However, until each country publishes implementation plans it is not possible to know the pace nor the various alternatives expected to unfold pursuant to the Agreement.

Issues for Congress

Impact on the U.S. Oil and Natural Gas Sectors

The opening of Mexico’s oil and natural gas sector to foreign investors poses significant changes in the U.S.-Mexico energy relationship that may have advantages and disadvantages for both sides. Reversing Mexico’s production decline would add more oil to the global market and enhance U.S. energy security. Having a neighbor who is a growing oil producer to the south, as the United States has to the north with Canada, could provide a reliable supplier for the long term and it would also contribute to North American energy independence. U.S. companies that are able to enter the Mexican upstream sector would benefit from the opening of Mexican resources to foreign investment depending upon the terms of the reforms. This would be true for both the oil and natural gas sectors, but U.S. natural gas producers who export natural gas to Mexico might potentially lose their market.

³⁸ For background, CRS Report R43204, *Legislation Proposed to Implement the U.S.-Mexico Transboundary Hydrocarbons Agreement*, by Curry L. Hagerty and James C. Uzel.

³⁹ The Mexican Senate reviewed and accepted the agreement in April 2012. On June 27, 2013, the U.S. House of Representatives passed H.R. 1613, the Outer Continental Shelf Transboundary Hydrocarbon Agreements Authorization Act (H.Rept. 113-101). House activity featured signs of a persistent policy divide between “pro-drilling” arguments to accelerate energy production and “anti-drilling” arguments to maintain the moratorium in order to provide time for fiscal, safety, and environmental issues to be addressed. On October 12, 2013, the Senate passed S. 812, to allow the Secretary of the Interior to implement the Agreement.

⁴⁰ Title III of the Bipartisan Budget Act of 2013 (H.J.Res. 59) gives congressional approval of the Agreement and requires the Secretary of the Interior to submit an implementation plan for the Agreement to Congress no later than 180 days after enactment.

An expansion of Mexico's refining industry would benefit U.S. companies involved, but may shrink Mexico as an importer of U.S. refined products. Depending upon the type of refineries Mexico builds and the characteristics of additional oil found, U.S. refiners may lose supplies and market share. It should be noted that the global oil market is well integrated and can adapt to changing circumstances, so any net benefit or net loss to U.S. companies is very much in doubt at this stage.

Trade, Investment, and the Proposed Trans-Pacific Partnership Agreement

The United States and Mexico are currently participating in negotiations to conclude a Trans-Pacific Partnership (TPP) Agreement.⁴¹ The TPP, a proposed free trade agreement involving nations on both sides of the Pacific, would likely enhance the links the United States has with Mexico under NAFTA. While NAFTA removed significant investment barriers and ensured basic protections for U.S., Canadian, and Mexican investors in other NAFTA countries, it excluded the energy sector in Mexico, and the Mexican government reserved the right to prohibit foreign investment.⁴²

Negotiations for a TPP remain ongoing. With 26 negotiating groups and 29 chapters under discussion, the TPP partners seek to eliminate tariffs and non-tariff barriers to merchandise and services trade and to establish trade rules and disciplines on a wide range of issues, including foreign direct investment. They also strive to create a "21st century agreement" that addresses new and cross-cutting issues presented by an increasingly globalized economy.

If Mexico's restrictions on private investment in the energy sector come up in the market access talks on services and investment, a TPP could have implications for U.S.-Mexico energy relations. In November 2013, Mexico's Energy Secretary Pedro Joaquín Coldwell stated that Mexico's energy sector is not part of the TPP talks.⁴³ However, now that Mexico has unilaterally removed restrictions on private investment in its energy sector, that may no longer be the case.

It is unclear if the state-owned enterprises provisions being negotiated under the proposed TPP would affect Pemex because an agreement has not been reached. According to one journal article, Pemex, one of Mexico's biggest state-owned enterprises (SOEs) would likely fall outside the scope of the reported U.S. proposal to discipline state-owned enterprises in the TPP negotiations.⁴⁴ The proposal on SOEs reportedly only applies to SOEs that already compete with private companies and Pemex does not yet compete with private companies.

⁴¹ For more information on the TPP, see CRS Report R42694, *The Trans-Pacific Partnership (TPP) Negotiations and Issues for Congress*, coordinated by Ian F. Fergusson. The twelve countries involved in the Trans-Pacific Partnership (TPP) negotiations include the United States, Australia, Brunei, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore, and Vietnam.

⁴² For more information on NAFTA, see CRS Report R42965, *NAFTA at 20: Overview and Trade Effects*, by M. Angeles Villarreal and Ian F. Fergusson.

⁴³ Susana González, "El sector energético, fuera del TPP," *Política*, November 15, 2013.

⁴⁴ Mexican Energy SOEs Likely Fall Outside Scope of U.S. Proposal in TPP," *Inside U.S. Trade's World Trade Online*, October 11, 2012.

Mexico's Economic Development

Most experts agree that boosting oil and natural gas production and tapping into Mexico's vast hydrocarbons reserves would likely boost economic growth in Mexico and many agree that Pemex lacks the capital and capacity to accomplish those goals alone. The Peña Nieto government maintains that the recently-enacted energy reforms will result in lower energy prices, create 500,000 new jobs, and boost GDP growth by 1% by the end of his term in 2018. JP Morgan has estimated that the reforms may increase annual growth rates in Mexico by up to 0.8% and foreign investment in Mexico by \$20 billion per year by 2016 or 2017.⁴⁵ Higher tax revenues resulting from increased energy production could also result in more funds available for social programs. The reform also intends to boost backward linkages to Mexico's domestic industries by raising national ownership requirements for firms that feed into the oil supply chain.

Although it is difficult to predict how increasing private participation in Mexico's oil and gas sectors would affect the country's economic development, skeptics see reason to doubt the government's positive predictions. Some argue that multinational companies and large Mexican conglomerates that can serve their needs (for infrastructure or other services) stand more to gain from the energy reform than the Mexican people.⁴⁶ Many wonder where the government's job forecasts come from given that most analysts maintain that Pemex is a bloated company with too many employees that would likely shed workers as a result of reform. Others are concerned about increased oil revenue being mishandled by corrupt Pemex or Mexican government officials rather than invested in strategic ways that will benefit the country as a whole.⁴⁷

Outlook

During his first year in office, President Peña Nieto shepherded a number of significant constitutional reforms through the fractious Mexican Congress that had eluded the past two PAN Administrations. The most important of those reforms may be the energy reforms promulgated on December 20, 2013, that allow for private participation in Mexico's oil and gas sector in ways not possible since the sector was nationalized in 1938. The recently-enacted energy reforms have the potential to boost energy production and improve economic competitiveness in Mexico, but implementing them in a meaningful way may prove difficult.

Amidst strong opposition from the political left, the Mexican government will have to manage popular expectations about the benefits of the reforms, many of which may not be felt immediately. In the next few months, the Mexican Congress will need to pass secondary legislation to implement the reforms. At the same time, the executive will need to create strong regulators to oversee the hydrocarbons sector and Pemex will need to restructure its workforce and investment priorities as it seeks to become a productive state enterprise that can compete with other companies.

This report will be updated periodically to inform the U.S. Congress on the implementation of oil and gas reforms in Mexico and to analyze how the reforms may impact the U.S. oil and natural

⁴⁵ J. P. Morgan, "Mexico: Positive Surprises in Mexico Energy Reform and Implications for Fixed Income Markets," December 16, 2013.

⁴⁶ "Richard Fausset, "Tons of Thousands Protest Mexican Oil Reforms," *Los Angeles Times*, September 8, 2013.

⁴⁷ Enrique Krauze, "Mexico's Theology of Oil," *New York Times*, November 1, 2013.

gas sector, U.S. investment in Mexico's hydrocarbons industry, and Mexico's economic performance.

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