GOING GLOBAL
PHASE 3

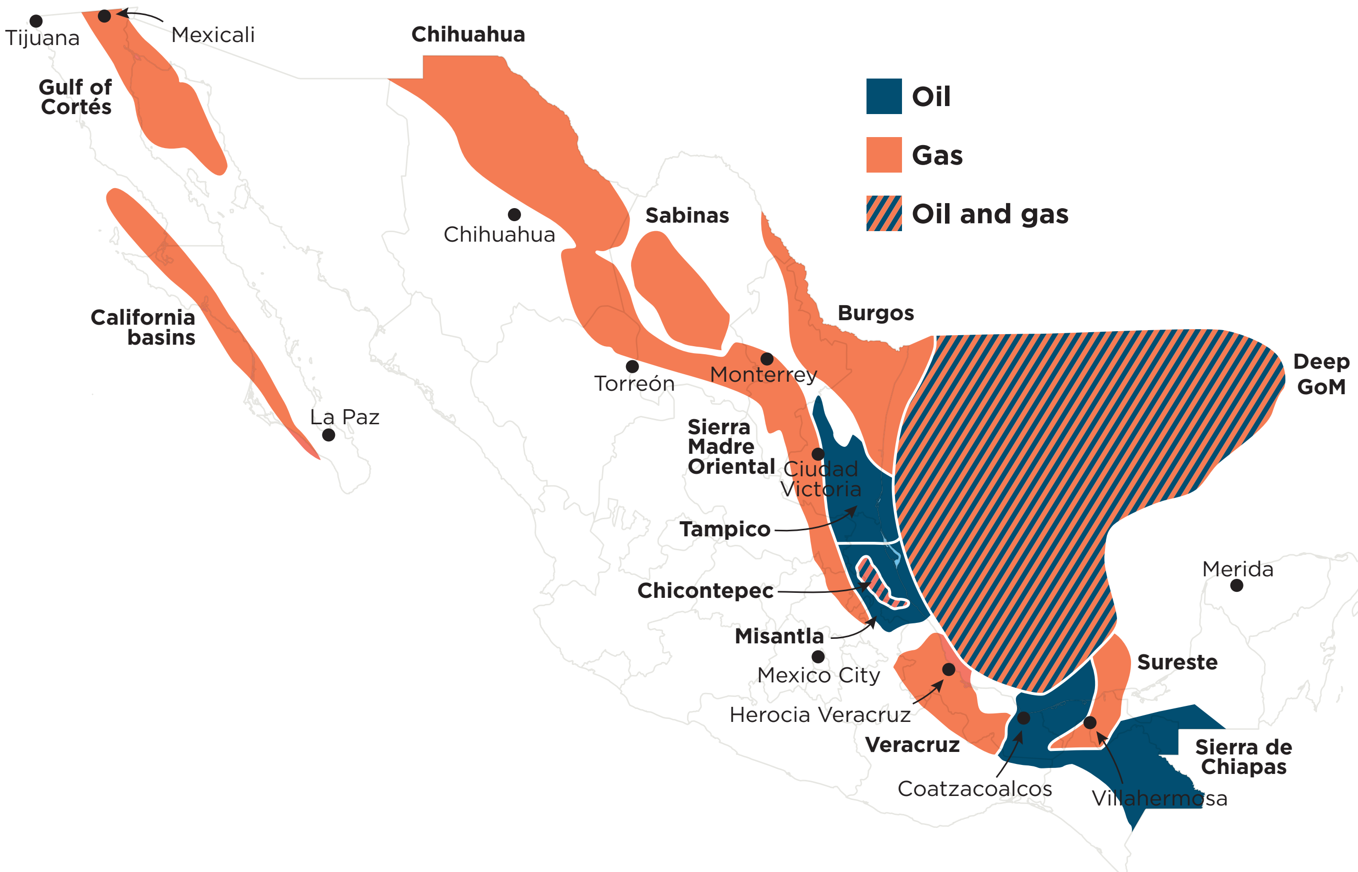
EDC

jwn Trusted energy intelligence.

Alberta

PSAC working energy

Mexico



OVERVIEW

Mexico produced 3.2 million boe/d in 2016, weighted 76 per cent to oil production.

However, Mexico's oil production has been on the decline since 2004, when it produced 3.4 million bbls/d. In 2015, that number declined to 2.2 million bbls/d despite significant investments in the upstream industry.

In 2013, the Mexican government instituted historic constitutional reforms aimed at reversing oil and gas production declines by opening up the market to competition. In 2014, secondary laws to implement those reforms officially opened Mexico's oil, natural gas and power sectors to private investment. As a result, state oil company PEMEX can now partner with international companies that have the experience and capital required for exploring Mexico's vast deepwater and shale resources. Private investors can also enter production sharing agreements, buy royalty licenses or enter farm-out agreements with PEMEX.

The country has held a number of offshore and onshore licensing rounds in an effort to spur exploration and development. There are currently 60 exploration and development companies operating in the country, including two Canadian companies.

OIL & GAS RESERVES
8,380 (million boe)

RESERVE LIFE
8 years

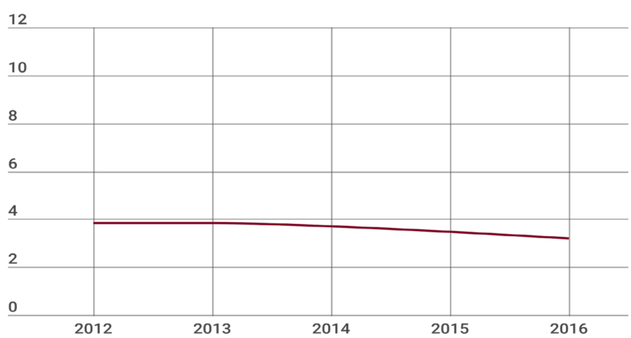
OIL & GAS PRODUCTION
3,604 (thousand boe/d)

PRODUCTION FIVE-YEAR CAGR
-3.45%

ACTIVE E&P COMPANIES/ACTIVE CANADIAN E&P COMPANIES
60/2

OIL PRODUCTION **76%**
GAS PRODUCTION **24%**

FIVE YEAR PRODUCTION (MILLION BOE/D)



Mexico is also in need of more natural gas exploration and development. Between 1997 and April 2015, imports of natural gas increased from three per cent to 29 per cent of domestic consumption. This trend has deepened since 2008 due to the reduction in the price of natural gas in North America.

OPPORTUNITIES

Mexico ranks as a low-risk/high-reward export market in our analysis. It has opportunities in enhanced recovery, heavy oil and unconventional resource development.

Since the opening of the market, more than 60 companies, from all sizes and nationalities, including more than 30 from Mexico, have entered the upstream sector. Licenses, production sharing contracts, royalty licenses and Pemex farmouts have been awarded.

The licensees have committed to drilling more than 100 wells at of cost more than $1.5 billion with 25 per cent of the wells offshore and 75 per cent onshore.

The U.S. ITA estimates Mexico will import around $9.4 billion in oilfield equipment annually by 2020.

Enhanced oil recovery

There are 533 active oil fields in Mexico, with 389 considered mature fields. Only 39 fields have improved or enhanced oil recovery (EOR) systems in place, 27 through water flooding, five through nitrogen injection, five through gas injection and two were receiving CO_2.

Under current oil prices, EOR technologies are being increasingly considered versus unconventional and deepwater production.

Mexico has the potential to increase its expected recovery factors from 35 to 45 per cent using EOR.

Opportunities for EOR technologies are expected to multiply in the coming years as private participation in the sector is expected to boost investment.

Unconventional resources

Mexico has potential for developing its shale gas and oil resources distributed along the onshore Gulf of Mexico region. Technically recoverable shale resources, estimated at 545 trillion cubic feet of natural gas and 13.1 billion barrels of oil and condensate, are potentially larger than the country's proven conventional reserves.

The Eagle Ford Shale of the Burgos Basin, where oil- and gas-prone windows extend south from Texas into northern Mexico, is an early exploration target. It is estimated to have 343 trillion cubic feet of gas and 6.3 billion barrels of oil in place.

Further to the south and east, the shale geology of the onshore Gulf of Mexico Basin becomes structurally more complex and the shale development potential is less certain. The Sabinas Basin has an estimated 124 trillion cubic feet of risked, technically recoverable shale gas resources within the Eagle Ford and La Casita shales, but the basin is faulted and folded. The structurally more favourable Tampico, Tuxpan and Veracruz basins add another 28 trillion cubic feet and 6.8 billion barrels of risked, technically recoverable shale gas and shale oil potential from Cretaceous and Jurassic marine shales. These shales are prolific source rocks for Mexico's conventional onshore and offshore fields in this area. Shale drilling has not yet occurred in these southern basins.

Mexico hopes to hold its first shale oil and gas auction by the end of 2018, potentially opening up one of the world's top reserves of unconventional energy to foreign investors.

The Burgos basin in northeastern Mexico would be one of the areas on offer. Burgos is part of a large geological formation rich in oil and gas reserves that includes the massive U.S. Eagle Ford shale region. Pemex has drilled some 20 exploratory wells in the areas for auction.

The other area up for grabs in Mexico is the Tampico-Misantla basin in the Gulf Coast states of Veracruz and Tamaulipas.

Pemex has signed a contract with U.S. firm Lewis Energy for the exploration and extraction of a shale gas deposit in the north of the country, in the Eagle Ford formation.

Pemex said it expected the contract, in the Olmos field in the northern border state of Coahuila, to yield investment of $617 million, with the aim to reach production of around 117 mmcf/d of gas by 2021.

Lewis Energy is a privately owned oil and gas operator based in south Texas. It has already drilled on behalf of Pemex in the Olmos field.

Offshore heavy oil

In 2011, 55.6 per cent of Mexico's total production was considered heavy oil, while 77.4 per cent of the country's oil for export was considered heavy oil. Mexico's Marine region produces mostly heavy oil, while the South region produces mainly light and extra-light oil. The North region produces both heavy oil and light and extra-light oil.

Mexico's heavy oil reserves comprise around 50 per cent of the country's total oil reserves, with the largest concentration currently found in the Ku-Maloob-Zaap (KMZ) Field in the Marine region offshore. Additionally, smaller concentrations of heavy oil reserves are found in the South and North regions and in Mexico's Cantarell Field, which at one time was the country's largest heavy oil field, in terms of reserves as well as production.

PEMEX recently announced another heavy oil discovery located at the Ayatsil-Tekel and Pit-Kayab complexes, situated north of the KMZ field. The giant complex contains an estimated 1.623 billion barrels equivalent of total proved, probable and possible, or 3P, reserves, of which proved reserves are 544 million barrels.

The head of the Mexican agency overseeing the auction for oil and gas blocks in the country said he wants to focus on prospective heavy oil deposits to compete with surging

Canadian heavy oil production.

Juan Carlos Zepeda, commissioner of the National Hydrocarbon Commission (CNH), said his agency wants to attract investment in the extra heavy oil deposits in the Cantarell block, located in the shallow Gulf of Mexico.

Zepeda said he would like to see the country reverse the decline in heavy oil production.

He said the fields CNH would like to make available, which are near Cantarell, hold the equivalent of 3.2 billion bbls of heavy crude. Extra heavy crude would be mixed with Mexico's light crude to produce Maya, the country's flagship crude.

Infrastructure

PEMEX operates an extensive pipeline network in Mexico that connects major production centres with domestic refineries and export terminals.

Mexico has no international oil pipeline connections. Most of its exports are shipped by tanker from three export terminals on the Gulf Coast in the southern part of the country. There is also an export terminal on the Pacific Coast.

In 2012, TransCanada was awarded two gas pipeline projects in the Northwest region of the country. By 2016, TransCanada's total investment in Mexico tallied approximately US$2.6 billion.

With energy reform in Mexico under way, one of the biggest opportunities is the need for investors to develop midstream capacity to support new exploration and production.

Oilfield services market

Many large oil service companies had extensive operations in Mexico prior to the regulatory changes opening up the market.

There is, however, growing domestic competition. Mexican service companies like Petrofac have already successfully won contracts that give them first mover advantage.

Going forward, the service companies will be able to seek partners for more than what their current cash service contracts allow.

A likely scenario would imply service companies partnering with local companies to form new Mexican independents—a marriage of technical expertise and local content.

Unconventional resource development will likely begin in the Eagle Ford crossing the border from the U.S., giving service and technology companies in that region a geographical advantage.

As offshore concessions are granted to independent exploration and development companies, opportunities could open up.

Local content

Mexico has local content rules to help establish a domestic oilfield services sector.

For the first round of shallow-water blocks leased, model production-sharing contracts included requirements for 13 per cent local content during the exploration period and 25 per cent during the first year of development, increasing one per cent per year up to 35 per cent.

Current tenders require a Mexican local content of 25 per cent starting in 2015 when there is local production, and this requirement will reach 35 per cent by the end of 2025. When there is no local production, the local content requirement may be waived.

In order to participate as a supplier to Pemex, companies must first complete the registration process at the Pemex Procurement International (PPI) website. Companies who wish to become registered suppliers are required to submit copies of their articles of incorporation, audited financial statements, and commercial and financial references. PPI states that they currently have more than 10,000 registered suppliers, and over 70 per cent of these are U.S. firms. Since January 2016, PPI has been migrating all registered supplier information into a new proprietary procurement system called Achilles.

DOING BUSINESS IN MEXICO

The North American Free Trade Act (NAFTA) governs trade between Mexico and Canada.

The oil and gas industry in Mexico is regulated by three organizations: Secretaría de Energía; Comisión Nacional de Hidrocarburos (CNH); and the Comisión Reguladora de Energería (CRE).

The CNH is responsible for organizing and awarding contracts for exploration and production, and managing and supervising contracts that have already been awarded.

It also regulates health, safety and environmental protection through the ASEA.

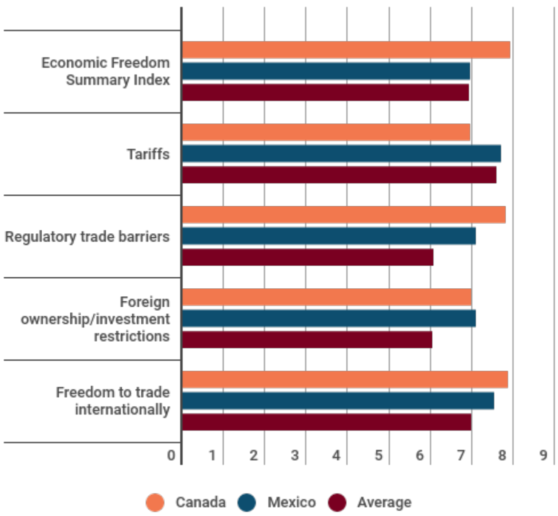
Natural gas activities are regulated by the CRE and the Centro Nacional de Control del Gas Natural.

CRE is the regulatory government body that issues all permits related to gas activities. Additionally, it supervises and inspects compliance with laws, regulations and Mexican official standards.

Mexico has recently introduced major reforms with the ultimate goal of increasing competitiveness and economic growth. The government expects these reforms, most notably on energy, to have a positive impact on trade and investment in the country.

Mexico currently ranks 76th on the Fraser Institute's economic freedom index, in the second quartile of countries. It scores an impressive 7.5 out of 10 on freedom to trade.

FRASER INSTITUTE FREEDOM TO TRADE SCORES COMPARED TO CANADA AND GROUP AVERAGE (SCORE OUT OF 10)

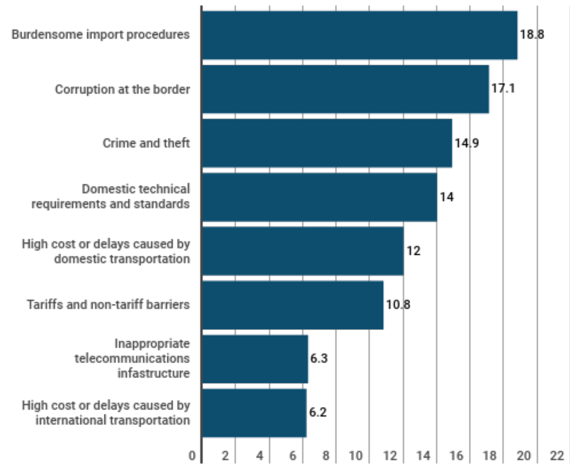


SOURCE: FRASER INSTITUTE

Mexico ranks 51st out of 136 countries on the World Economic Forum Enabling Trade Index. Its domestic market has become one of the world's most open and ranks 10th globally on this pillar, with significant decreases in tariffs on both agricultural and industrial goods. Ninety-three per cent of goods enter Mexico duty-free. The regulatory environment for foreign investment is also favourable, as is the ease of hiring foreign skills. On trade facilitation, Mexico performs only moderately, with the cost of compliance with border procedures on the export side remaining high. Its infrastructure is rated relatively high, especially in terms of the connectivity of its sea and air ports. The share of active mobile broadband users has shot from less than 10 per cent to just over 50 per cent, and the government ranks well in terms of the availability of online services. Security is a lingering issue, along with the efficiency and accountability of its institutions.

WEF EXECUTIVES' RANKING OF THE MOST PROBLEMATIC FACTORS FOR IMPORTING TO MEXICO

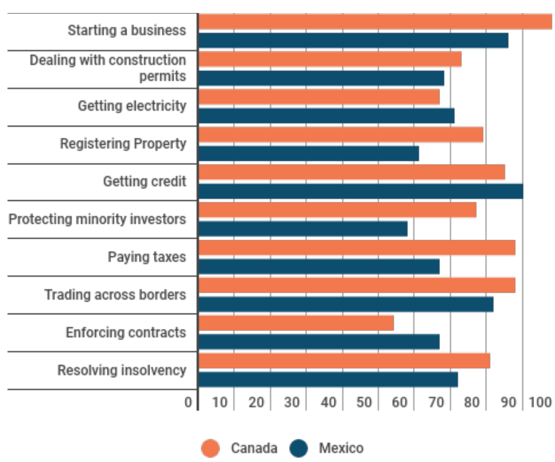
% OF RESPONDERS RANKING AS # 1 ISSUE



Note: From a list of factors, respondents were asked to select the five most problematic factors in their country and rank them. The scores correspond to the responses weighted according to their rankings

The World Bank Group's Doing Business series currently ranks Mexico 49th in the world and first in the Latin America and Caribbean region.

WORLD BANK *DOING BUSINESS* RANKING COMPARED TO CANADA



This distance to frontier score helps assess the absolute level of regulatory performance over time. An economy's distance to frontier is reflected on a scale from 0 to 100, where 0 represents the lowest performance and 100 represents the best performance across all economies and across time.

SOURCE: 2018 WORLD BANK *DOING BUSINESS* REPORT

PESTEL ANALYSIS

Category	Analysis
POLITICAL	The 2013 constitutional amendment opening up the Mexican oil and gas industry to foreign investment is a game changer for the resource sector. However, there are concerns upcoming elections could reverse this progress.
ECONOMIC	The government has a stated economic goal of growing hydrocarbon production. Offshore licensing has been strong. Unconventional resource auctions are to take place from now to 2020.
SOCIAL	Social licence to operate is not a major issue in Mexico. However, drug cartels and corruption remain challenges.
TECHNOLOGICAL	Production has been declining offshore as PEMEX failed to keep pace with advances in offshore technologies. There is a significant opportunity now through partnerships with local companies to fill this gap.
ENVIRONMENT	Major opposition to fracture stimulation technologies is taking root in Mexico, imported from U.S.-based NGOs.
LEGAL	As a member of NAFTA, there are strong legal protections in place. However, local corruption continues to be an issue, along with organized crime.

RECOMMENDATIONS

- In the near term, the mature-fields market currently represents the best opportunity for Canadian supply and service companies willing to do business in the oil and gas sector in Mexico.

- Over the long term, Mexico has similar potential to Canada to become the next great shale-drilling jurisdiction, and to do so, Mexico will need the expertise of the Canadian supply and service providers.

WORKING IN MEXICO

In order to work in Mexico, an employee needs a Mexican work permit from the Instituto Nacional de Migración. With the work permit, they can apply for a residence visa.

Temporary resident visas are intended for people who wish to live in Mexico for more than six months and no longer than four years. The Temporary Resident Card is a renewable, long-term permit that gives non-immigrant temporary residency status to the holder. The visa is issued for one year, and can then be renewed annually for up to four years. TThis visa allows you to work and an unlimited number of entries into Mexico.

Taxes

Resident individuals are subject to Mexican income tax on their worldwide income, regardless of their nationality. Non-residents are taxed only on their Mexican-source income.

If the employee is considered a non-resident for Mexican tax purposes, the tax rate applicable to non-residents is subject to a tax withholding on Mexican-source interest income at rates varying from zero per cent to 30 per cent, depending on several factors.

Since 2005, Mexican states are permitted to assess an income tax on individuals for certain income items such as professional fees, rental income, real estate sales, etc. Very few states have passed laws to tax this income.

INSIGHTS

- Focus on mature fields
- NAFTA gives you legal protection and you can drive all the way down there
- There is a concern with how easy it is to ship equipment and workers into remote areas. Usually, there is only one way in and out
- There is a concern with theft and payment of all services. As well, companies were concerned with political risks and having their assets expropriated. Concerns with doing business with PEMEX. The companies found it to be positive that they could work with new private companies entering the market, and avoid dealing with PEMEX
- The opportunities in Mexico are based on the abandoned onshore fields. In many cases, PEMEX walked away from fields that could still produce.
- Horizontal drilling, fracking and EOR were identified as key areas of business opportunities
- Regulatory and operational issues are not fully smoothed out
- Good margins