



Mexico's Energy Revolution Series:

Oil and Gas Exploration
and Production

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ManattJones' "Mexico Energy Revolution Series" provides an overview of the country's 2013–14 energy reform, one segment at a time. While every installment offers a general synopsis of the overall process and the significance of the transformation, the division allows the reader to gain specialized insights on policy and business opportunities tailored to a particular sector, without the distraction of other parts of the complex reform process.

The three-part series begins with the emblematic changes to oil and gas exploration and production (E&P) activities, aimed at significantly increasing Mexico's oil revenues by opening up opportunities for the private sector.

It is followed by an analysis of the liberalization of the electricity sector, which is intended to lower electricity rates, increase productivity and serve as the linchpin of the government's economic growth strategy. Special attention is given to the development of power generation from renewable sources, an area we consider to have tremendous potential.

The series concludes with an overview of the changes introduced to the midstream sector, particularly the ambitious expansion plans for the country's natural gas pipeline system—a cornerstone for achieving the electricity reform's objectives.

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A Note Regarding Sources:

Unless otherwise cited, this paper is based on a direct analysis of the relevant legislation and of public documents from the Ministry of Energy and Pemex.

“It is not an exaggeration to call Mexico’s energy reform revolutionary. It will break the monopoly of Pemex, the state-owned petroleum company, and for the first time in over half a century, allow foreign private investment in almost every corner of the Mexican energy market.”¹

—Michael C. Camuñez, President and CEO,
and Pamela K. Starr, Senior Advisor,
ManattJones Global Strategies

Introduction

The scope of Mexico’s 2013–14 energy reform is unprecedented. It touches legal, financial and operational aspects of upstream, midstream and downstream activities for the oil and gas sector. Likewise, it significantly overhauls the institutional scaffolding surrounding the operation and regulation of electricity generation, distribution, transmission and retail. As a result, the Mexican energy industry will move from being vertically integrated, commanded through state entities and rather closed to foreign investment to being an industry that will be governed by principles of competition, and where foreign capital will not only be welcomed but encouraged—even if the state, and the state-owned enterprises, will continue to play a leading role.

The reform is the culmination of a long and complex legislative process to dramatically modify the policy framework in which the country’s state-owned energy sector has operated for decades. The process began in 2013 with the presentation, discussion and eventual passage of a constitutional

amendment to lift most of the restrictions on private investment, as well as introduce new institutions and legal definitions to create an improved regulatory and operational framework for the sector. The amendment was signed into law on Dec. 20, 2013. Subsequently came the implementing (secondary) legislation, a massive set of legislative changes to 21 laws (nine of them new) spelling out the details of the institutional overhaul. These legislative packages were signed into law by President Enrique Peña Nieto on Aug. 11, 2014.

The reform represents an energy rebirth for Mexico; yet, it is only the first step. As with all ambitious policy changes, setbacks should be expected throughout the implementation process, so adjustments will be necessary. Moreover, Mexico is notorious for having superb, world-class laws whose effective application does not always materialize. Therefore, success will depend ultimately on the ability of all players—the regulatory agencies, public system operators, state-owned enterprises and private parties—to provide timely feedback to correct any regulatory or market deficiencies that become apparent only over time.

One thing is certain, though: Energy reform has opened up enormous potential for investment and economic development in Mexico and, with it, an opportunity for a stronger North American integration that would make the region more competitive and prosperous.

As part of ManattJones' "Mexico Energy Revolution Series," this first paper focuses on oil and gas exploration and production, given the emblematic changes introduced to the sector. It is structured along four parts, starting with a policy overview that places in a historical context the introduction of risk contracts to allow for private investment. It then goes on to describe the economic contours of these different contracts, bearing in mind that the Ministry of Finance (SHCP) will determine some key variables on a contract-by-contract basis. Afterwards, the paper helps the reader understand the web of government entities that make up the policy and regulatory environment for the sector. Finally, it ends by providing a profile of the different oil fields that will be open to private investment through the award of public tenders within the next year.

A Monumental Constitutional Amendment

The opening of the E&P sector to unrestricted private investment through risk contracts was inconceivable just a few years ago. Resource nationalism, especially when it comes to oil, has played a key role in Mexico's political psyche for decades; so much so that up until now it had been enshrined in article 27 of the Constitution. Considering that constitutional amendments require a two-thirds majority in Congress, as well as a majority of state legislatures, and that touching the article had become taboo, a groundbreaking change seemed unlikely. Yet, that is exactly what happened with this latest reform. To understand the magnitude of the change, it is useful to review the history of this constitutional restriction.

The modern framework establishing Mexico's state ownership of its hydrocarbons dates back to the 1917 Constitution, whose article 27 formally gave all subsoil riches to the nation. Nevertheless, the provision remained largely unenforced until President Lázaro Cárdenas expropriated and nationalized the industry in 1938. Even then, the regulatory law still allowed the state to enter into upstream partnerships, issue service contracts and even grant contracts to private parties (payable in cash or as a percentage of production), while for midstream and downstream activities it allowed the use of concessions.²

The tide began to turn in 1958, with an amendment to the regulatory law explicitly reserving the development of hydrocarbons to the state through the state-owned company Pemex. However, the continued ability of foreign companies to find a legal loophole, which allowed them to obtain rights to exploration and production through risk contracts, prompted the Mexican government to further amend article 27 two years later to unambiguously prohibit all concessions and contracts, and abolish all existing ones.³ The nationalization process was thus finalized, and the exclusive Pemex monopoly took hold.

NAFTA and the 1990s brought a privatizing and liberalizing spirit to many sectors of the economy, but oil and gas exploration and production remained untouched. It was not until 2008, during the administration of President Felipe Calderón, when a new push for energy reform took place. The result was the introduction of what became known as "integrated service contracts." Awarded through public tenders and paid

in cash by Pemex, the winning contractor was given a percentage of cost recovery as well as a predetermined fee per barrel. The lack of constitutional reform modifying the legal framework from the roots, however, led to legal uncertainty, which kept serious investors at bay and undermined the effectiveness of the reform. Likewise, from Pemex's perspective, these contracts amounted to nothing more than service contracts with little risk-sharing.⁴

The energy reform of 2013–14 is monumental precisely because it finally modified article 27 of the Constitution (along with articles 25 and 28), eliminating Pemex's monopoly. While the reform did not change the fact that hydrocarbons remain the property of the state, nor did it modify the designation of E&P as a strategic sector under the state's direction, it empowered the government to determine how to perform exploration and extraction activities. In essence, by replacing the 1958 regulatory law with a new Hydrocarbons Law, the reform created a modern framework to increase private sector investment in E&P through the use of three new contract options: profit-sharing, production-sharing and licenses, all of which will be awarded through public tenders.

However, the state, through the Ministry of Energy (SENER), also preserved its authority to grant direct adjudications to Pemex whenever it so chooses. Likewise, it reserved the right to establish direct participation, up to 30 percent, either via Pemex or through direct financing, for cases where it wants to spur special projects or to seek know-how and technology transfers. Similarly, for areas with a likelihood of finding a trans-boundary

field, the law dictates that the state will have, at a minimum, 20 percent participation.

In other words, the energy reform is as much an effort to open the E&P sector to private investment as it is an attempt to strengthen Pemex as the country's national oil company. The firm, now designated as a State Productive Enterprise, will enjoy complete autonomy from the government, which will remain Pemex's sole owner but will cede management control. The company will also benefit from a less onerous fiscal regime than the one to which it had been subjected, as well as from an effective government bailout through the financial restructuring of its pension obligations, with the government absorbing the debt. On the other hand, it will have to institute corporate governance structures following international best practices, becoming more accountable from a business and competition perspective. The law gives it two years to complete this transition.

In sum, the constitutional amendment, in which Mexico's energy reform is anchored, will give the private sector the long-sought legal certainty it required to engage in oil and gas development projects, while also creating the conditions for a stronger and more modern Pemex. If things go according to plan, everyone should benefit.

Understanding the New Risk Contracts

Mexico's latest energy reform introduced new types of contracts to attract private sector investment in oil and gas exploration and production. Seen from an investor's

perspective, these constitute the core of the reform for the hydrocarbon sector.

The three types of contracts—profit-sharing, production-sharing and licenses—will be awarded through public tenders. The main difference among these contracts lies in the way that investors will be compensated. As their names suggest, profit-sharing contracts are those where the bid winner is paid a percentage of the profits in cash, whereas in production-sharing contracts it is paid in kind (oil, gas or condensates). In the case of licenses, the company receives the property of the hydrocarbons once they are extracted from the subsoil. While similar to what are known internationally as concessions, maintaining pre-extraction ownership of the resources in the state's hands allowed the reform backers to circumvent the constitutional prohibition of concessions.

Internationally, it is customary for governments to predefine the terms of these contracts by asset class; i.e., to assign different financial conditions to the various types of oil and gas fields (deepwater, shallow water, shale, etc.), reflecting the varying complexities and costs of developing each resource. Likewise, another habitual practice is to previously match each asset class with the type of contract that best serves the development of the resource in question; e.g., deepwater might be more compatible with licenses, whereas the development of fields located inland could be equally attractive under the other contracts. As a result of this predefined application, investors know well in advance which contractual conditions will apply for different projects and do not have to

rely on the publishing of public tenders to do internal projections.

Mexico's risk contracts will be different, since they will not be tied to asset classes and will not be applied uniformly. Rather, SENER, on a project-by-project basis, will determine which type of contract to use for each bid. Similarly, SHCP will define within each contract what would be the "compensation to the state"ⁱ—the most significant cost variable for the public tenders—along with investment commitments. For licenses only, it will also determine a signing bonus to be paid when a bid is awarded. This contractual flexibility is envisioned as a way to "ensure that the investment and tax regimes match the specific characteristics of each field," thus maximizing the benefits to the state.⁵

However, aside from these specific variables, which are surely crucial in determining the attractiveness of a potential contract, the reform provides detailed parameters covering three other payments applicable to all contracts. Two of these outlays are an exploratory phase fee and a basic royalty, which will be payable to the Mexican Petroleum Fund for Stabilization and Development, a newly created trust fund to administer oil revenues for the state.ⁱⁱ

The third one is a contribution to the Fund for Hydrocarbon-Producing States and Municipalities, a monthly flat tax for performing E&P activities based on a set fee per square kilometer.ⁱⁱⁱ

Finally, to complete our understanding of these new risk contracts for E&P, it is important to highlight that companies in this sector will receive a different treatment with

respect to other taxes.^{iv} On the one hand, any deductions claimed for the *Impuesto Sobre la Renta* (ISR), Mexico's traditional corporate income tax, will be subject to different rates from those applied in other sectors of the economy.^v On the other hand, an advantage for E&P companies is that all royalties, fees and compensations directly derived from these contracts will be exempt from the 16 percent value-added tax, known as *Impuesto al Valor Agregado* (IVA).

In conclusion, the introduction of risk contracts for the development of oil and gas resources in Mexico constitutes the beginning of a new chapter in the country's management of a natural resource with significant budgetary implications. The way these contracts are envisioned seeks to carefully balance the need for private sector investment, while retaining as much oil rent as possible in the hands of the state. Whether these contracts, and the reform in general, achieve their aim will be seen in the following years, as subsequent public tenders will test the appetites of potential investors.

Navigating the Regulatory Environment

Understanding the regulatory environment is crucial for any E&P business, but it is especially the case whenever public tenders are involved. With the reform, the legislators did a good job of keeping the regulatory structures and bidding mechanisms as simple and clear as possible. Yet by virtue of being a completely new process, interested companies need to be extra careful and have a robust understanding of the entities

and players involved throughout the course of events, which can be divided into three stages: 1) public tender design, 2) public tender announcement and adjudication, and 3) contract operation.

Before turning to these phases, it is essential first to highlight one of the main regulatory changes produced by the reform: a revamped National Hydrocarbons Commission (CNH). This regulatory agency for upstream activities will now have technical, legal, operational and budgetary autonomy, even though it will remain part of the executive branch and will coordinate its activities with SENER. This added autonomy is intended to provide impartiality, transparency and sound regulation for the upstream sector. Yet for many critics, especially on the left, the independence granted to the commission fell short of what was needed and stands in contrast to the constitutional autonomy given to the regulatory agencies for telecommunications and economic competition.⁶ This is simply a matter of degree, which is hard to quantify for the average observer; however, it has to do with how shielded the institution is from influence by the Executive.

The difference is basically a reflection of the Constitution: By not treating hydrocarbons like telecommunications or a traditional issue of economic competition, the government is simply reaffirming the constitutional language that designates E&P activities as strategic, placing them ultimately under the control and direction of the Executive. Yet the criticism is valid to a certain extent: Mexican experience shows that opening up sectors to private investment without first having

strong and independent regulators leads to a lack of competition and predatory practices in detriment of the public interest. Only time will tell if the right balance was struck with this legislation, and if CNH truly has the independence to serve as an effective regulator.

Another challenge facing CNH is that the agency is certain to start with an overload from the beginning, if one considers the lack of human capital it currently possesses. Created in 2008, the commission has 81 employees and is expected to grow to 250 in the next two years. Nonetheless, even with the projected increase, the Mexican agency will still be severely understaffed when compared to the Californian (600), Brazilian (700) and Texan (900) regulators. Only Norway (200), a much smaller country with government authorities known for their efficiency, has fewer employees than CNH.⁷

Considering all of its responsibilities, asserting that CNH will be the most important agency for the sector is not an overstatement. The commission will be in charge of the following:

- Provide technical assistance to SENER in the selection of contractual areas.
- Manage all bidding processes.
- Administer and supervise all contracts from a technical perspective.
- Approve, modify and/or terminate contracts.
- Issue rulings on the exploration and extraction plans (seeking to maximize the productivity of the fields) and supervise their compliance.

- Authorize reconnaissance studies and the surface exploration of potential fields.
- Provide technical support to SHCP in the auditing of costs reflected in contracts.
- Approve, when applicable, the contracts' annual investment and operation plans.
- Administer and safeguard all relevant geologic and seismic data obtained through the National Hydrocarbons Information Center and industry libraries. (By law, all exploration and production information shall be the property of the state.)

Another government entity created by the reform—and touching on the E&P sector—is the National Agency for Industrial Safety and Environmental Protection for the Hydrocarbons Sector (ANSIPA), a government agency that will report to the Ministry of the Environment (SEMARNAT). This agency is intended to create a one-stop shop for environmental matters related to hydrocarbons, and in the process streamline resource development by cutting red tape. However, critics are concerned that the creation of another environmental agency will lead to a duplication of the work already done by the ministry, diminishing its effectiveness.

With this understanding of the revamped CNH and its responsibilities, as well as of the newly created ANSIPA, we can turn to a description of the three stages involving the development of E&P projects: 1) public tender design, 2) public tender announcement and adjudication, and 3) contract operation.

- 1) In the public tender design phase, SENER, with the technical input of CNH, will be in charge of selecting the oil fields and areas to be put out for bidding. SENER will also

decide on the type of contract to be applied to each field and will draft the technical requirements for each contract, including specifications for complying with national content requirements; for the latter task, it will be assisted by the Ministry of Economy. In turn, SHCP will be in charge of drafting the financial contractual terms, thus completing the design of the contracts. In parallel, the Federal Economic Competition Commission, relying on international best practices, will provide guidance on both prequalification and adjudication criteria to guarantee a competitive public tender.

- 2) Once the specific contracts are designed, the public tender will be announced, and CNH will publish the preliminary bidding rules. Interested parties will then have access to the data room, in order to obtain relevant geologic information, make their assessments and put together their proposals. Concurrently there will be a period for public comments and feedback by interested parties, which will allow CNH to update the terms and conditions if necessary. Once the final bidding rules are published, the commission will run the tender process, determine the winners and sign the contracts.
- 3) The operational phase of each contract starts with the approval by CNH of all development plans, including surface (seismic) exploration and drilling. Throughout the process, CNH will serve as the technical administrator of the contract, approving all exploration and production plans, while ANSIPA will serve as the regulator for safety and environmental matters.

Investment Opportunities

On Aug. 13, 2014, the government of Mexico announced the areas for exploration and production that will be open to private investment within the next year through public tenders. These opportunities, known as Round One, are broadly divided into two categories: One of them is known as “farm outs,” which are joint venture opportunities for areas granted to Pemex through Round Zero, but in which the company has decided to enter into partnerships in order to better exploit those fields; the other entails new fields and reservoirs not assigned to Pemex. The latter were chosen based on their potential to increase oil and gas production in the short term, incorporate new reserves and increase the country’s prospective resources. It is expected that licenses and production-sharing agreements, as opposed to profit-sharing ones, will be the chosen forms of contracts to develop these fields.⁸

The next few months will also see the migration of existing Exploration and Production Integrated Contracts and Financed Public Works Contracts to the types introduced by the reforms. These contracts, having already been bid, involve a transition to the new legal regimes in order to align the interests of the government, Pemex and the contractors, and to grant better conditions for a more efficient and profitable exploration and production. Twenty-two fields are envisioned to undergo this transition within the next year, divided into two packages of 11 every six months. Since they do not represent new business opportunities, they are not covered in this paper.

Understanding Round Zero

An objective of the reform is to strengthen Pemex and turn it into a dominant company for the E&P sector, while still generating the conditions to attract foreign investors and spur competition. In this regard, Round Zero granted Pemex this dominance for the short and medium terms, while setting the stage for collaboration with the private sector through farm outs.

This process began on Mar. 21, 2014, with Pemex submitting to SENER a formal request to keep certain fields and geographic areas under its portfolio. These amounted to 83 percent of the country's 2P reserves, and 31 percent of its prospective resources. Proven and probable (or 2P) reserves, are known oil and gas accumulations that have more than 50 percent probability of being technically and financially recoverable. Similarly, 3P (i.e., proven + probable + possible) reserves have a combined probability of 10 percent or more. In contrast, prospective resources are quantities of petroleum estimated to be potentially recoverable from undiscovered accumulations.

During the August announcement, SENER confirmed that Pemex would be granted the full request in terms of the 2P reserves, but only 21 percent of the prospective resources, which represents 20.6 billion barrels of crude oil equivalent (BBCOE) and 22.1 BBCOE, respectively. The prospectives further break down into 18.2 BBCOE in conventionals and 3.9 BBCOE in unconventionals. Altogether, the allotted areas cover an extension close to 34,750 square miles. (For a map and additional details, see Appendix A.)

These allocations establish a minimum floor so that Pemex can continue producing around 2.5 million barrels per day for the next 20.5 years. Moreover, the certified proven reserves put Pemex in fifth place worldwide, behind ExxonMobil, PetroChina, Shell and Petrobras, but ahead of Total, BP, Chevron and ConocoPhillips. However, the ranking only encompasses companies that report their reserves in financial markets using similar methodologies, which excludes OPEC countries.

Farm Outs

Pemex has identified 10 farm out projects for joint ventures with private enterprises, in order to accelerate development, increase production, have access to best practices and technologies, and/or to free operational capacity and reduce capital requirements. These fields have been selected because they have the conditions to significantly increase production for Mexico as well as the conditions to attract strong interest from prospective partners.

The farm outs will be carried out through public bids, conducted by the CNH, within a period of 13 months. From a legal perspective, these projects will migrate from Pemex "assignments" to one of the contracts introduced by the reforms and described in previous sections. They represent the development of 1.56 BBCOE of 2P reserves, and 2.66 BBCOE of 3P reserves, in an area of 236 square miles and an estimated investment of \$32 billion USD with horizons of five to 10 years. The fields are organized along four broad categories (for further details, see Appendix B):

- **Mature fields:** There are six fields under this category, three in land and three in sea. The land ones, combined, have 248 million barrels of crude oil equivalent (MBCOE) in 2P reserves, and require a minimum investment of \$1.7 billion USD under five-year contracts; the sea ones are estimated at 350 MBCOE in 2P reserves, and will require an investment of \$6.3 billion USD under six-year contracts. The objective of these farm outs is to optimize the recovery factor and profitability of the fields by utilizing advanced technologies.
- **Extra-heavy crude oil fields:** Although constituting a single bloc, the area encompasses three fields totaling 747 MBCOE of 2P reserves, and requiring an estimated investment of \$6.2 billion USD under a 10-year contract.
- **Gas development:** There are two giant fields located in the deepwater gas basin around the *Lakach* field; as a result, this project would benefit from the infrastructure already developed by Pemex in that area. The combined fields, bid as a single bloc, contain 212 MBCOE in 2P reserves; an investment of \$6.8 billion USD under a 10-year contract is estimated.
- **Deepwater:** The recently discovered fields of *Trión* and *Exploratus* in the *Perdido* region boast over 500 MBCOE in 3P reserves. The former has 305 MBCOE, and will require a minimum investment of \$8.1 billion USD, while the latter has 234 MBCOE, and will require \$3.2 billion USD in investment. Both contracts will extend for a period of eight years.

Pemex is also studying the possibility of entering into joint ventures for other fields

assigned to it under Round Zero, and throughout 2015 the company will assess the prospect of a second round of partnerships. The envisioned projects would be for mature fields, where new technologies would lead to better recovery factors, shale oil and gas fields, and the Maximino deepwater field, which is still being demarcated, among others.

New Fields and Reservoirs

By nature, this component of the round will be much more ambitious, with 169 blocs being put out for bidding. One hundred and nine of them consist of exploration projects, covering a surface of 10,000 square miles with 14.6 BBCOE in prospective resources, and requiring investments of approximately \$19 billion USD in a four-year span. The other 60 blocs, ready for production, cover a surface of 1,000 square miles, boast 3.8 BBCOE in 2P reserves, and will require investments of \$15.1 billion USD throughout four years. It is important to note that Pemex will be able to participate in this and subsequent bidding rounds. (For a map and additional details, see Appendix C.)

Timeline

The schedule of public tenders has been designed to release fields by type, with new areas and farm outs being announced almost concurrently. The official, although tentative, calendar (see graph below) projected that the announcement of fields and exploratory areas located in shallow waters would take place in Nov. 2014, with the subsequent announcements following in a staggered progression month by month. As such, the announcement and publication of the preliminary tender specifications for extra-

heavy crudes would take place in December, followed by *Chicontepec* and unconventional in January, onshore in February, and finishing in March with fields and exploratory areas located in deepwaters.

However, the announcement for shallow waters did not take place until Dec. 11. This slight delay, in the context of a dramatic drop in oil prices, had led to speculation that the government would postpone the implementation of Round One, arguing that many of these opportunities were becoming unattractive to foreign investors. Initially,

the administration pushed forward, and kicked off the first phase of Round One by announcing 14 new blocs in shallow waters to be developed under production-sharing contracts.⁹ However, as oil prices have remained low, the government is seriously considering the possibility of delaying the public tenders for unconventional and deepwater reservoirs.

Despite all the possible changes to the public tender calendar, below is an illustrative timeline of Round One, which includes farm outs, as well as new fields and reservoirs:¹⁰

Round 1 – Timeline (tentative)

Terms and Conditions, Contract Model and Prequalification Requirements	Participants' Registration Data Room Opening	New Areas and Fields	Farm Outs
November ▶	January ▶	Shallow Water	
December ▶	February ▶	Extra-heavy Crude Oil	SW: Bolontikú, Sinan and Ek EHO: Ayatsil-Tekel-Utsil
January ▶	March ▶	Chicontepec and Unconventionals	
February ▶	April ▶	Onshore	Rodador, Ogarrio, Cárdenas-Mora
March ▶	May ▶	Deepwater	Kunah-Piklis, Trión, Exploratus

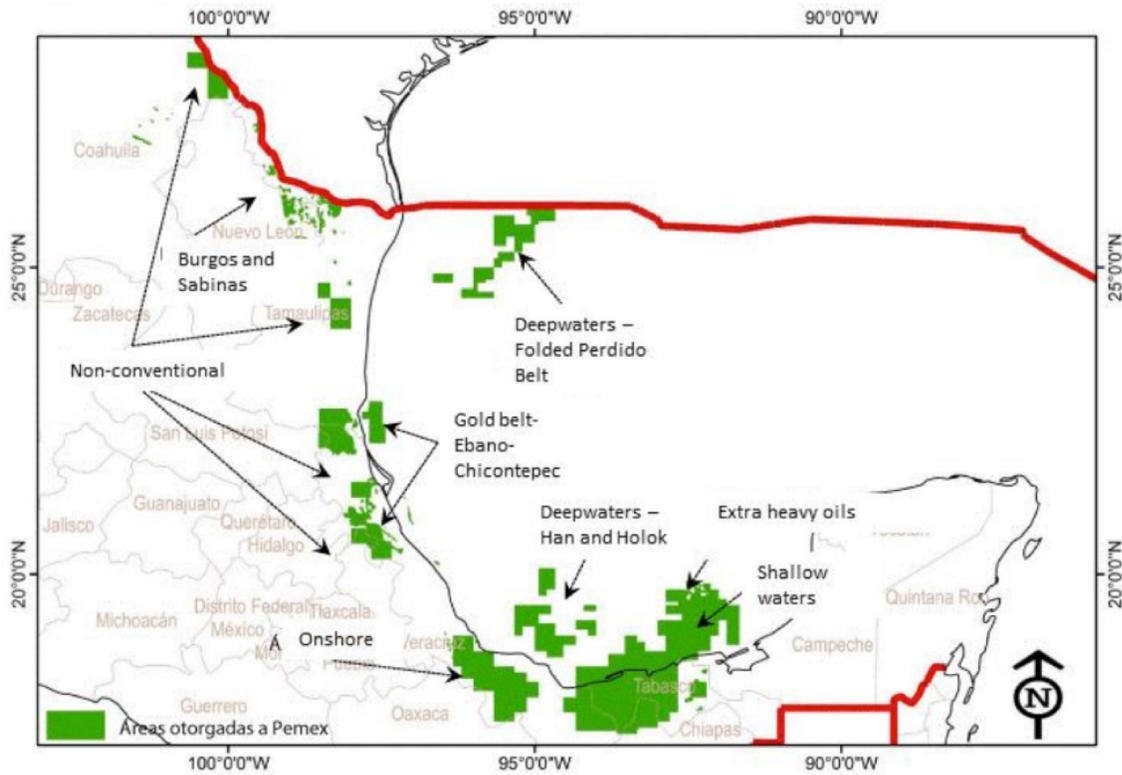
Conclusion

Enormous opportunities are opening up for E&P in Mexico, starting with the upcoming Round One. In contrast to previous reform efforts, the revamped regulatory framework, anchored in strong constitutional changes, provides the necessary legal certainty for investors to take a leap and enter the country. Likewise, the processes for engaging in the sector are well-defined, and the relevant players are clearly identified.

Yet, it is important to highlight that given the scope of Mexico's energy revolution, and the fact that a new regulatory framework is being put into place, setbacks should still be expected. Paradoxically, Mexico's government bureaucracy is at the same time very hierarchical, as well as diffused and "undisciplined." As illustrated in the government mapping section of this document, the country's system is notorious for its large number of agencies and commissions of different sizes, composition and responsibilities; some being "constitutionally autonomous," others "ministerial," and yet others "coordinated."

In practical terms, this significantly complicates the task of navigating the operational context for new investors, placing a premium on effective government relations. Nevertheless, with appropriate due diligence and strategic planning, newcomers to the Mexican market should be able to experience significant returns.

Appendix A: Geographic Area and Breakdown of Resources for Round Zero¹¹



Resource Type / Field Area	2P Reserves (MBCOE)	Prospective Resources (MBCOE)
Conventional	20,589	18,222
<i>Shallow Waters</i>	<i>11,374</i>	<i>7,472</i>
Southeast	11,238	7,472
North	136	-
Land	8,818	5,913
South	4,379	5,371
Chicontepec	3,556	-
Burgos	425	-
North	459	542
Deep Water	397	4,837
Perdido	-	3,013
Holok-Han	397	1,824
Unconventional	-	3,904
Total	20,589	22,126

Source: Mexico's Ministry of Energy's Round Zero website.

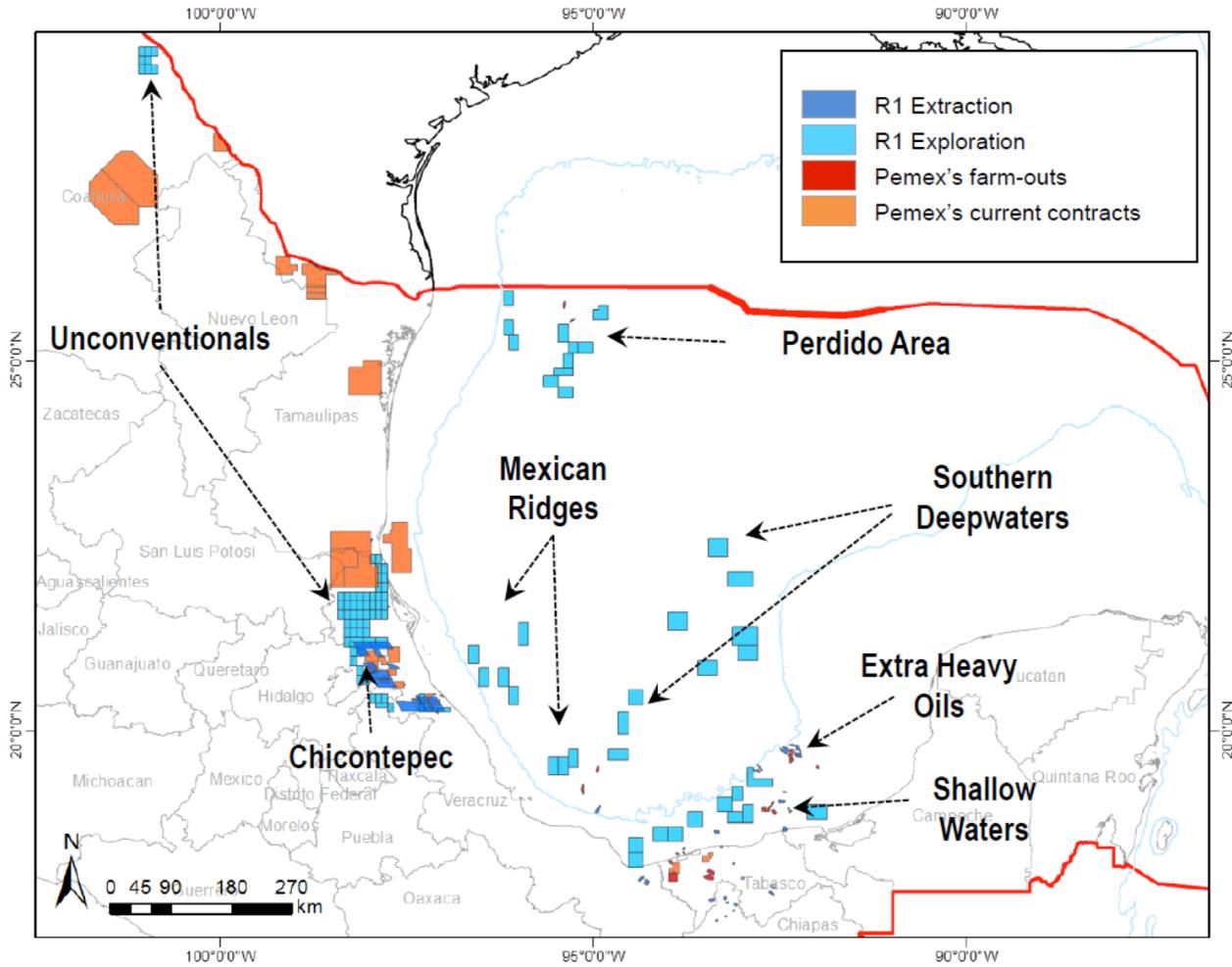
Appendix B: Description of Farm Out Fields¹²

Field Type	Field Name	Area (sq. miles)	2P Reserves (MBCOE)	3P Reserves (MBCOE)	Expected Investment (billion USD)	Contract Years
Mature fields (land)	Rodador, Ogarrio, and Cárdenas-Mora	120.8	247.9	263.6	1.7	5
Mature fields (water)	Bolontikú, Sinán and Ek	46.1	350.1	497.3	6.3	6
Extra-heavy oil (water)	Ayatsil-Tekel-Utsil	34.3	746.6	862.5	6.2	10
Deepwater gas	Kunah-Piklis	21.3	211.9	501.6	6.8	10
Deepwater oil (Perdido area)	Trión	8.7	-	304.6	8.1	8
Deepwater oil (Perdido area)	Exploratus*	5	-	234.4	3.2	
TOTAL		236.2	1,556.5	2,664.0	32.3	

Source: Pemex Presentation, "Migración de asignaciones a contratos y esquema de asociaciones (farm outs)."

* Reserves will increase as a result of further demarcation efforts.

Appendix C: Geographic Area and Breakdown of Resources for Round One¹³



Region	Resource Classification	# of Blocs/ Fields	Volume (MBCOE)	Area Range (sq. miles per bloc)
Perdido area (deepwater)	Prospective resources	11	1,591	86–158
South (deepwater)	Prospective resources	17	3,222	151–371
Chicontepec / Tampico-Misantla Basin (conventionals and unconventionals)	2P reserves	28	2,678	N/A
	Prospective resources	62	8,927	46
Southeast Basin (land, shallow waters and extra-heavy oil)	2P reserves	32	1,104	N/A
	Prospective resources	11	724	121–243
Sabinas Basin (unconventionals)	Prospective resources	8	142	43

Source: Mexico's Ministry of Energy's Round Zero website.

Another way of looking at it is by field type, instead of by region:

Resource Type/ Field	Production	Exploration
	2P Reserves (MBCOE)	Prospective Resources (MBCOE)
<i>Conventional</i>	3,782*	5,537
Land	61	-
Chicontepec	2,671	-
Shallow waters	293	724
Extra-heavy oils	757	-
Deepwater	-	4,813
<i>Unconventional</i>	-	9,069
Total	3,782	14,606

* There is a discrepancy in the distribution of these reserves when compared to other tables. The 2P reserves for Chicontepec are consistently listed elsewhere as 2,678 MBCOE, whereas here they reach only 2,671. Likewise, the total for land, shallow waters and extra-heavy oils is 1,104 MBCOE throughout the rest of the document, whereas here they total 1,111. Unfortunately, the source does not provide the data elsewhere, so we are unable to corroborate the exact distribution. Yet, the totals still coincide, since it is simply a redistribution of 7 MBCOE.

Notes

ⁱ In the case of licenses, the compensation to the state will be paid in cash, and determined by applying a rate to the contractual value of the hydrocarbons of the volume produced. Similarly, for profit- and production-sharing contracts, it consists of a percentage of operational profits, paid in cash or in kind, respectively. The compensation is subject to an adjustment mechanism to control for windfall profits, to be applied when these are higher due to increased productivity (lower costs), higher market prices or bigger discoveries than previously expected.

ⁱⁱ **Exploratory phase fee:** Monthly payment per square kilometer applied from the signing of the contract and until production begins. This is intended to provide a cash flow to the government during this period, and to prevent idling and incentivize the development of a field. The fee is set at \$1,150 MXN during the first 60 months, going up to \$2,750 MXN afterwards. The fees will be adjusted every January according to the CPI of the previous year.

Basic royalty: A percentage of the gross revenue derived from hydrocarbon production, the rate of which is raised if the market price of the hydrocarbon in question increases. There are different rates for oil, associated natural gas, nonassociated gas and condensates.

- Oil:

- If the U.S. price per oil barrel is less than \$48 USD, a rate of 7.5% applies.
- If the U.S. price per oil barrel is equal or greater than \$48 USD, the rate shall be:

$$\text{Rate} = [(0.125 \times \text{Contractual Price of Oil}) + 1.5] \%$$

- Associated Natural Gas:

$$\text{Rate} = \frac{\text{Contractual Price of Natural Gas}}{100}$$

- Nonassociated Natural Gas:

- If the contractual price of natural gas is equal to or lower than \$5 USD per million BTU, the rate shall be 0%.
- If the contractual price of natural gas is greater than \$5 USD but lower than \$5.50 USD per million BTU, the rate shall be:

$$\text{Rate} = [\frac{(\text{Contractual Price of Natural Gas} - 5) \times 60.5}{\text{Contractual Price of Natural Gas}}] \%$$

- If the contractual price of natural gas is equal to or greater than \$5.50 USD per million BTU, the rate shall be:

$$\text{Rate} = \frac{\text{Contractual Price of Natural Gas}}{100}$$

- Condensates:

- If the contractual price of condensates is lower than \$60 USD per barrel, the rate shall be 5%.
- If the contractual price of condensates is equal to or greater than \$60 USD per barrel, the rate shall be:

$$\text{Rate} = [(0.125 \times \text{Contractual Price of Condensates}) - 2.5] \%$$

ⁱⁱⁱ \$1,500 MXN per square kilometer per month during the exploratory phase, and \$6,000 MXN per square kilometer per month during the production phase.

^{iv} This information is provided solely for informational purposes, and in no way should be construed as tax advice.

^v The following deductions will apply, instead of those codified in the ISR Law:

- 100% of the original investment amount destined to exploration, secondary recovery and enhanced recovery activities, as well as to noncapitalized maintenance
- 25% of the original investment amount destined to oil and natural gas development and production activities
- 10% of the original investment amount destined to storage and transportation infrastructure required for the execution of the contract

¹ Pamela K. Starr, Michael C. Camuñez, "A Second Mexican Revolution?" *Foreign Affairs*, Aug. 17, 2014, Accessed Sep. 1, 2014. <http://www.foreignaffairs.com/articles/141887/pamela-k-starr-and-michael-c-camunez/a-second-mexican-revolution>.

² Jorge Armando Mora Beltrán, "El largo y sinuoso camino de los contratos sobre hidrocarburos en México," *Puntos Finos*, Thomson Reuters, Apr. 2014, p. 110-111. Accessed Sep. 1, 2014. http://www.dofiscal.net/pdf/doctrina/D_DPF_RV_2014_22516.pdf.

³ *Ibid.* p. 111-113.

⁴ *Ibid.* p. 115.

⁵ Pamela K. Starr, Michael C. Camuñez, "A Second Mexican Revolution?" *Foreign Affairs*, Aug. 17, 2014, Accessed Sep. 1, 2014. <http://www.foreignaffairs.com/articles/141887/pamela-k-starr-and-michael-c-camunez/a-second-mexican-revolution>.

⁶ Mauricio Torres, "Diputados avalan la ley de los órganos reguladores del sector energético," *CNN México*, Jul. 31, 2014, Accessed Sep. 5, 2014. <http://mexico.cnn.com/nacional/2014/07/31/diputados-pleno-organos-reguladores-agencia>.

⁷ Javier Arreola, "¿Está lista la Comisión de Hidrocarburos para la reforma energética?" *Forbes*, Jun. 10, 2014, Accessed Sep. 5, 2014. <http://www.forbes.com.mx/esta-lista-la-comision-de-hidrocarburos-para-la-reforma-energetica/>.

⁸ "Reforma Energética: Ronda 1." Documents Section, Mexico's Ministry of Energy's Round One Website. Accessed Nov. 12, 2014. <http://www.energia.gob.mx/webSener/rondauno/9500.html>.

⁹ For more information on Round One, visit <http://www.ronda1.gob.mx/index.html>.

¹⁰ "Reforma Energética: Ronda 1." Documents Section, Mexico's Ministry of Energy's Round One Website. Accessed Nov. 12, 2014. <http://www.energia.gob.mx/webSener/rondauno/9500.html>.

¹¹ "National Entitlements Awarded to Pemex." Mexico's Ministry of Energy's Round Zero website. Accessed Aug. 28, 2014. http://www.energia.gob.mx/webSener/rondacero_Ingles/9701.html.

¹² Pemex Presentation, "Migración de asignaciones a contratos y esquema de asociaciones (farm outs)," Pemex, Aug. 13, 2014, Accessed on Aug. 19, 2014. http://www.pemex.com/prensa/presentaciones/Documents/migracion-pemex_140813.pdf.

¹³ Information taken from Mexico's Ministry of Energy's Round One website. Accessed Aug. 28, 2014. <http://www.energia.gob.mx/webSener/rondauno/index.html>.

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ManattJones provides strategic business advice and advocacy to companies operating in, investing in or exporting to Mexico and Latin America. The firm helps clients identify and take advantage of opportunities and address strategic, political and market access challenges. With many years of experience, we offer unmatched market knowledge, extensive regional experience, and a deep network of relationships with senior business, government and civic leaders. The firm has assisted both large and midsized companies with doing business in and with Mexico across a wide range of sectors.

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