



# The New Mexican Upstream Legal Regime

A change of paradigm towards private venture

2nd Edition

**GOODRICH**



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# 1. MEXICO'S UPSTREAM: AN INDUSTRY'S OVERVIEW.

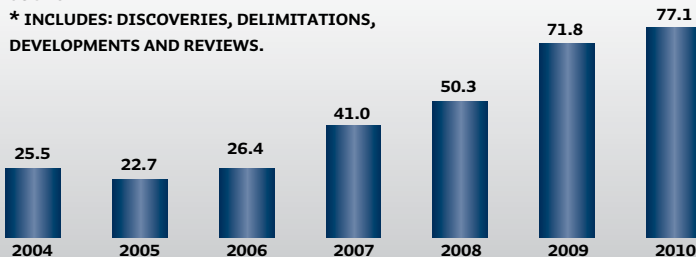
## **Trends: From an oil export oriented-country to an oil import-oriented country?**

It is widely agreed that Mexico's current situation in the production of oil derives from the declination of its oil reservoirs, the production of which was carried out

**1P\* RECOVERY RATE (PER CENT)**

SOURCE: PEMEX

\* INCLUDES: DISCOVERIES, DELIMITATIONS, DEVELOPMENTS AND REVIEWS.



As a result of the above, Mexico's oil production has noticeably fallen and it currently equals to approximately 2.6M b/d (see table 3. below), approximately 22% less than in 2004, the year in which the production reached its peak. Moreover, PEMEX expects the production to continue slightly falling during the following two years and eventually return to 2.6 to 2.8M b/d in 2013.



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Considering these facts along with the growth in the domestic demand of oil derivatives, PEMEX's exports of crude oil have been affected in the last few years. In fact, exportations of crude oil have proportionally decreased since 2005 at the same level of the national production. For instance, during 2009 PEMEX exported 1.25M b/d, approximately 35% less than the maximum amount reported in 2004 which equaled to 1.81M b/d.

Undoubtedly, the declination of Mexico's oil production along with the subsequent reduction in its exportations will not only affect Mexico's public revenues but it will also have an impact on Mexico's energy security and the satisfaction of the domestic demand of hydrocarbons with Mexico's own resources. Should Mexico fails to implement appropriate measures to revert this trend, then it could eventually face the risk of becoming an import-oriented country of hydrocarbons.

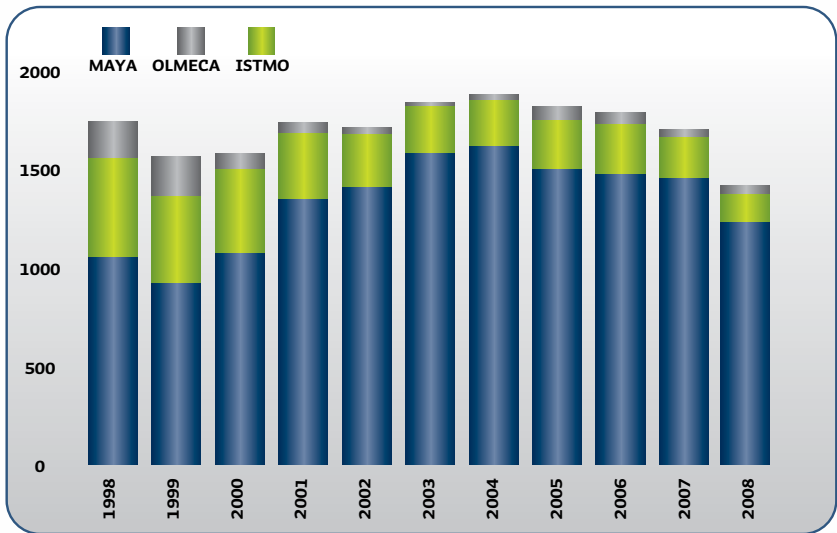


Table 4. Exportation of crude oil (thousands of b/d)

## 2. TOWARDS A CHANGE IN THE CONCEPTION OF MEXICO'S OIL & GAS INDUSTRY.

According to PEMEX, as of January 1st, 2010, proven hydrocarbon reserves (1P) totaled about 14.0 billion barrels of crude oil equivalent (MMMboe), out of which approximately 74% consisted of crude oil (10.4B). Therefore, Mexico's potential is substantially higher if we consider 3P crude oil reserves which PEMEX estimates in about 43.1 MMMboe located in both, onshore and offshore basins (see areas shown in table 5. below).

In this respect, the total 1P reserves are geographically distributed as follows: 29% in onshore fields and the rest in offshore fields. With respect to 3P reserves PEMEX estimates that 51% are located in onshore fields while the remaining 49% are found in offshore fields.

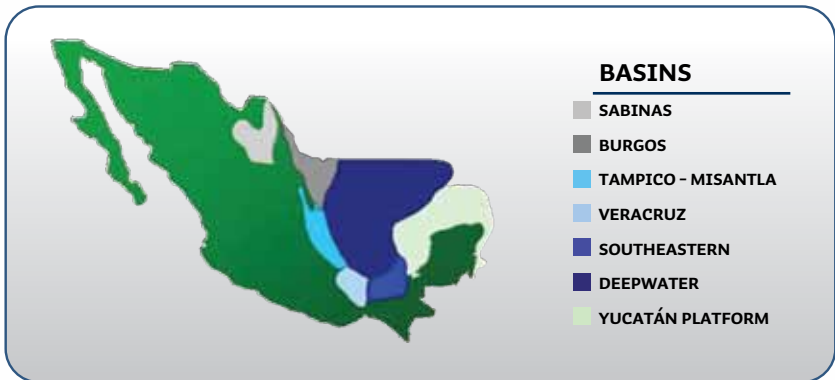


Table 5. Geographical Distribution of Reserves

PEMEX acknowledges the fact that the future of Mexico as an oil exporter no longer will depend on super giant oil fields but instead on a mixed portfolio which among other includes:

- Deep waters projects;
- Complex giant onshore fields such as Chicontepec;
- Existing mature fields; and

- A broad variety of large and medium-sized projects in both shallow waters and medium shallow waters.

As a result of this, PEMEX's strategy is focused on (1) the diversification and minimization of th

In this respect, the Federal Government made public that the first contractual models derived from Mexico's 2008 Upstream Reform to be implemented by PEMEX will be those related to mature fields. In fact, PEP's Director has affirmed that the first incentive-based agreements will be tendered during 2010 in order to develop 50 mature fields. The first of these fields to be tendered are expected to be located in the Northern and Southern region of the country such as Cinco Presidentes, Carrizo, San Andrés, Poza Rica, Constituciones and Faja de Oro.

Although, it is estimated that there are, at least, 1,000 mature fields in Mexico, PEMEX is still working on conceptual categories so as to define which other fields will actually fall within the category of mature fields for the purpose of the Mexico's 2008 Upstream Reform. Nevertheless, what seems to be clear is that Cantarell will not be considered a mature field because of its stand-alone characteristics.

Preliminary estimations regarding volumes on mature fields affirm that they may represent approximately 0.7 – 1.0 MMMboe of the total Mexican 3P reserves.

### **(ii) Chicontepec field**

Although originally found by the Mexican Government during the exploration period running from 1926 to 1931, the exploitation works started at a later stage (1952), due to its characteristics: complex geological features and low permeability (during the extraction of crude, an important amount of dissolved gas is released and it partially blocks the running of oil to the well). Additionally, Chicontepec implies high production costs and technological challenges. As a result of the above, this field is on an initial stage of production, incipient vis-à-vis the potential of productivity thereof. It is worth mentioning that Chicontepec is considered as one of the largest field in the Americas and the Government estimates that it holds about 39% of 3P hydrocarbons reserves in Mexico.

Since the commencement of the works in Chicontepec back in 2006, the Mexican government has allocated funds in approximately US \$4.5 billion while the production has only reached about 30,000 b/d at the end of 2009, an amount substantially less to PEMEX's initial expectations.



Therefore, PEMEX has recently implemented an strategy by means of awarding 5 public performance contracts to an equal number of oil services companies (Baker Hughes, Halliburton, Weatherford, Schlumberger and Argentinean based Tecpetrol) in order for them to establish field laboratories in the surface areas assigned to each of them. The objective will test new technologies and massive exploitation techniques so as to boost recovery and lower costs for the development of Chicontepec. It will also assess the performance of each company in order to select one or two companies for further exploitation and production in such field. Companies with better expertise in subsurface interpretation, drilling as well as completion are expected to continue working with PEMEX.

In spite of the poor results that PEMEX has achieved in Chicontepec vis-à-vis its expectations, PEMEX has forecasted that Chicontepec's production would reach 550,000 to 700,000 b/d by the end of 2017. In this regard, PEMEX currently estimates to acquire 717 km<sup>2</sup> of 3D seismic data so as to have more precise information regarding the field.

### **(iii) Deep waters projects**

PEMEX's estimates that approximately 56% of the prospective hydrocarbons' resources are located in deep waters of the Gulf of Mexico while an additional 32% of such prospective resources is located in the Southeastern of Mexico, where PEMEX at the moment develops a large number of its operations.

Mexican deep waters encompass an area of more than 500,000 km<sup>2</sup> below 500m water depth (see table 6.) which represents a technological and operational challenge for PEMEX.

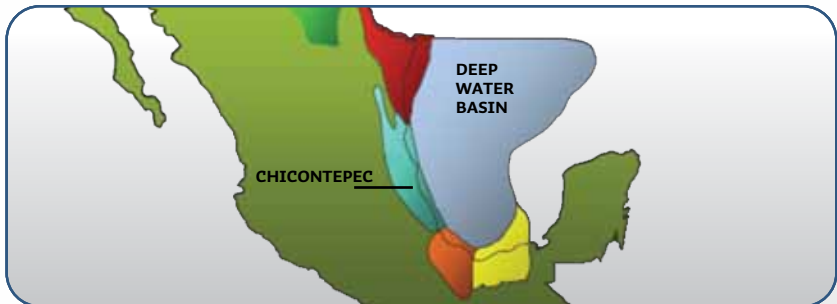


Table 6. Chicontepec's and Deep waters' geographical area

Besides strengthening the skills, abilities and expertise of its personnel –which is general goal–, PEMEX has included in its mid-term strategy towards deep waters projects, among other activities, the following:

- Carrying out an aggressive use of 3D seismic for improving the existing images on complex geologies and sub-salt plays on deep waters to increase the possibilities of success in exploration which in turn helps it to discover and develop new reserves;
- Design and construct new infrastructure for production below 500m water depth which allows PEMEX to start production activities on 2012 or 2013; and
- The rapid integration of new technologies.

Shortly PEMEX will receive drilling equipment for deep waters in order to carry out exploratory works in Tamil field in Campeche. Later in 2010, it will receive additional equipment that will be used in the Perdido area, close to the US side of the Gulf of Mexico.

Other deep water projects are expected to be tendered by PEMEX at a later stage, most likely during the first semester of 2011.

## **Other projects:**

### ***(i) Large and medium-sized projects in both shallow waters and medium shallow waters***

Although it has not been defined if some large and medium-sized projects found in shallow waters and medium shallow waters will be considered strategic and as such the agreements related to the same will be subject to the 2008 Upstream Reform, these projects are mainly located in the Southern region of Campeche and Tabasco.

These projects along with other onshore projects were originally estimated to produce approximately 700,000 b/d by 2021. However, these numbers may increase as a result of a number of discoveries during 2008 including fields known as Kambesah, Tecoalli-1, Xanab-DL1 and Yaxché-1DL.

**(ii) Ayatsil and Tsimin Fields: The new discoveries**

Ayatsil was originally discovered back in 2006 and is located in shallow waters in Northwestern Marine Region, close to the Ku-Maloob-Zaap asset at about 114 meters depth. According to PEMEX, this reservoir is estimated to have 3P reserves equivalent to 590 mmbpc out of which 90.4 have been recognized as proven reserves.

On the other hand, Tsimin is located in the Southern Marine Region in Tabasco's shore and it is estimated to have 3P reserves equivalent to 306.7 mmbpc, out of which 117.7 mmbpc are considered as proven reserves. PEMEX has stated that it plans to call for a bid shortly for the construction of a oil rig in Tsimin which is expected to initiate production by mid 2012.

These two reservoirs are the largest discoveries in Mexico during the last 10 years and they have a production potential equivalent to 150,000 b/d each, an estimation which is larger than Brazil's ultra deep water reservoir Tupi (100,000 b/d) or US' reservoir Great White (130,000 b/d) located in the US portion of the Gulf of Mexico.

## 3. THE UPSTREAM NEW LEGAL REGIME AND ITS IMPLEMENTATION.

### An unprecedented challenge

Not only as a result of the declination in its level of production but also due to the opportunities and projects above described, Mexico is at a historic moment which may constitute a milestone which, if correctly embraced, it may enhance Mexico's role as a key player in the international community. In order to successfully face these challenges, it will be undoubtedly necessary to coordinate a number of actors under one single vision to achieve energy security along with economic and productive efficiency while treating the environment responsibly.

Nevertheless, PEMEX is facing an array of challenges which are particularly important in E&P activities that will definitely test its operative and managerial capacity. PEMEX requires new technologies and techniques along with new forms of logistics that it has barely experienced before plus unprecedented investments to successfully pursue deep waters projects and highly specialized and qualified human resources to embark upon the above referred projects.

### The 2008 legal reform: Understanding the new contractual arrangements

November 28, 2008 may be considered as a date in which a major step for Mexico's upstream industry was accomplished. After more than 60 years of industry's history, a set of reforms was enacted by the Federal Congress aiming to provide PEMEX with an E&P legal regime closer to international best practices.

The package of reforms went beyond E&P, as it involved the suppression, amendment and enactment of numerous statutes in different matters such as: (i) incorporating an upstream regulatory agency; (ii) fostering various sources of sustainable energy; (iii) developing public policy in terms of energy transition and its financing; (iv) strengthening the role of the PEMEX's Board of Directors.

When originally submitted to Congress, the presidential bill went further beyond, aiming to liberalize the midstream and downstream markets. However, during the negotiations of the package, several politically oriented tradeoffs took place, including those related to the said mid/down industries.

Although the 2008 energy reform is not as promising as the private sector expected, it should not be underestimated. Strengthening corporate governance, institutional design and best industry practices are intrinsically positive goals. The real acid test of the reform will be passed once the bid rounds regarding all relevant projects are successful and the performance of all players –including IOCs- results in a substantial increase of the national production.

## **Understanding a complex NOC: PEMEX as a Contractual Operator vs. as a Technical Operator**

When originally discussed the likelihood of a potential upstream legal reform back in the spring of 2008, there were some constitutional taboos that were simply put aside of the congressional negotiations. Being the State's ownership on hydrocarbons an absolute, alternatives that amounted to concessions, joint ventures or production sharing agreements were disregarded all together.

Despite the restrictions, the team that took the lead on implementing the legal reform reviewed a cluster of jurisdictions (and their respective NOCs) with certain similarities to those of Mexico. Amongst them Iran, Kuwait, Saudi Arabia, Angola and –more recently- Iraq were considered as potential references in the context of an oil-service environment. As a paramount aspect, the driver through the implementation path has clearly been the economic value creation, as opposed to political, ideological or even social motives that might influence the rather complex process.

When considering comparable markets as points of reference, the drafters –and their respective consultants- were fairly sensitive on balancing: (i) the usage of internationally-based terms and technical standards; (ii) the simplification of the contractual structures, scopes and liabilities, as compared to the previous Mexican regime; and (iii) the need of creating an economic incentive for new players by means of developing a remuneration formula, that may be financially comparable to that of alternative schemes (i.e. royalties or production sharing) but all times within the constitutional limits as per Mexican law.

As a result of the applicable upstream contracting rules, PEMEX has acknowledged that each new project requires a different incentive-based agreement and it has

identified three different types of agreements, the use of which will depend, at all times, on PEMEX's needs and technological resources considering the complexities and interests of the corresponding project, as follows: (i) conventional (Services), (ii) transactional (acquisition of technology and, perhaps, contractor's know how), or (iii) integral (including all the project itself, that is from the engineering cost study to the execution of it). At least, integral incentive-based agreements or Exploration, Development and Production (ED&P) are expected to be used, at least, in mature fields, Chicontepec and deep waters' projects.

In the light of the ED&P model, a bold line must be drawn to understand the role that PEMEX will have in the reinforced Mexican upstream industry:

### PEMEX as Contractual Operator

PEMEX will award ED&P agreements related to vast reservoirs. The deliverable will be oil and gas, as opposed to mere service arrangements. The potential bidders will be either IOCs or robust consortiums of independent oil companies and/or multinational oil service companies. Along with other government agencies, PEMEX will mainly have a supervision role.

**Contractual Operator - ED&P agreements: Deliverable: Oil**

**For strategic projects, such as Chicontepec (on shore): Mature fields; and Deep Waters**

As announced by PEMEX, the projects that will be governed under this scope will be the strategic ones, including mature fields (both onshore and offshore); Chicontepec (once the field laboratories are finally assessed); and Deep Waters (the most challenging projects). Shallow waters projects may fall within the ED&P agreements once PEMEX decides on the basket to be designed based on its own technical capabilities to tackle these projects by itself.

### PEMEX as Technical Operator

PEMEX will award service agreements in accordance with its current contractual practice; that is, to the best technical and economic proposal. As opposed to ED&P agreements, the deliverables will be services depending on the type of bid. The

potential bidders will continue to be oil service companies, drilling corporations, rig operators, specialized shipping companies and other related upstream entities.

Although PEMEX will be assisted by the contractor, the main upstream activities will continue to be performed directly by PEMEX’s personnel. The agreements to be covered under this second category are all those which are not included in the previous category.

Regardless the operator hat to be worn by PEMEX depending on its role, the corporate governance, institutional design and relatively flexible remuneration formulas are applicable notwithstanding the specific role of the NOC. Accordingly, even stand-alone services to be rendered to PEMEX will be substantially benefited by the new regime.

**Technical Operator Services Agreements:  
Deliverable: Services**

For all other projects, for instance, integrated services (field development) or isolated services (equipment hiring)

**ED&P Modeling: PEMEX –as the new contractual operator– and the route towards crystallizing the strategic projects**

Some of the most relevant elements in the model to be equally used for Matured Fields as well as for Chicontepec (once the field laboratories show initial results) are the following:

- (i) there will be a pilot phase of two to three years in which the field will be commercially assessed before development and production are initiated (voluntary relinquishment is permitted);
- (ii) although no time-limit is statutorily prescribed, the duration will be 20 years subject to unlimited extensions, depending on the characteristics of the field and the performance of the contractor;
- (iii) although the extension is also free to be determined by PEMEX, each block may be of over 75 square kilometers, that can be further amplified;

- (iv) practically all risks (including geological and operational) are on the side of the contractor;
- (v) the deliverable is oil and gas production as opposed to services;
- (vi) the compensation structure (see table 8. below) covers: a fee per barrel; a 75% reimbursement of the contractor's cost; and a compensation cap that will be determined according to the size of the field and the creation of economic value for PEMEX. Capital and operational cost will be fully paid during the pilot phase only;

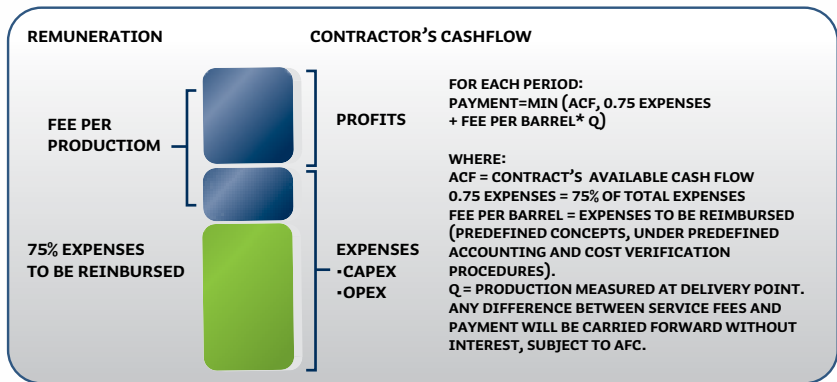


Table 7. Compensation formula

- (vii) the bid will be directed to pre-qualified relevant companies;
- (viii) in any event, payment depends on the project's available cash flow;
- (ix) not even the booking of reserves for contractual purposes (as opposed to property booking) is allowed to the winning bidder;
- (x) the financing of the project will be the sole obligation of the contractor (credit ratings will be required among the bid requirements);



- (xi) although restricted invitations and direct awarding may be decided by the PEMEX's Board, public bids will continue to be the general rule;
- (xii) among other relevant requirements, substantial operative experience of over 40M b/d (aggregated figure) and over \$100M USD of annual investment within the previous year;
- (xiii) in addition to technological requirements, the winner bidder will be the one offering the largest fee discount for the service;
- (xiv) all non-movable assets will be owned by PEMEX (i.e. pipelines);
- (xv) contracts may be subject to arbitration abroad (i.e. ICC rules).
- (xvi) minimum work obligations and investments in both phases, even if there are reductions or extensions and the works will be carried out according to development plans to be approved by PEMEX;
- (xvii) the performance indicator will include: productivity, budgetary efficiencies, safety and national content; and
- (xviii) subcontracting operations to be authorized by PEMEX. Direction and management are not possible to subcontract.

Although there might be some significant differences both, deep waters projects and, if that is the case, large and medium shallow waters projects will include a great deal of the contents already in place for the other two upstream strategic projects. We will be delighted to keep you informed as to the contractual implementation of all projects.

With a solid experience, our firm is duly prepared to assist its clients interested in the oil and gas sectors. The firm's Energy Practice Group is focused on providing comprehensive assistance to PEMEX's contractors and sub-contractors with respect to public biddings, corporate structuring, and transnational commercial arrangements, among other services related to upstream and downstream operations. Likewise, Goodrich's finance, banking and venture capital experts help clients to structure their businesses in the most efficient way by focusing on minimizing regulatory obstacles while at the same time complying with the applicable regulations.

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