

Chapter Eight

Reform in the Mexican Hydrocarbon Industry: An Overview of Required Principles

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The 2008 energy reform represented the first change in legislation on hydrocarbons in more than 70 years in Mexico, with the exception of the partial opening of the gas transportation market and the failed reform in petrochemicals legislation.

One of the greatest benefits of this 2008 reform was that it made society—specifically, political stakeholders—aware that the problem in the hydrocarbon industry was much more complex than the mere regulatory and budgetary limitations imposed on *Petróleos Mexicanos* (the Mexican state hydrocarbons company, also popularly known as PEMEX). From this perspective, an important outcome of the reform was the breaking of the widespread assumption that hydrocarbons constituted a closed topic, one not subject to discussion.

Other benefits included progress in making a distinction between the functions of PEMEX as an operator, on the one hand, and the State and the regulators, on the other. Accordingly, Pemex was assigned the fundamental role of generating value. In addition, PEMEX was given the power to use results-based remuneration contracts, making it possible for third parties to participate in hydrocarbon production, rather than only providing services to PEMEX. The constitutionality of this measure was upheld by the Supreme Court of Justice of the Nation.

PEMEX was also given powers which had previously been imposed by external legislation or regulation. The company was excluded from the Public Works Law and the Procurement Law and therefore allowed to design its own procurement system. PEMEX was allowed to establish performance-based compensation systems for its staff; it was also given the authority to define the company's organization and structure without the need of Congressional approval.

However, the practical results of the 2008 reform were much more limited than expected. Despite the heightened regulatory powers of the State in relation to the company as a result of the reform, certain decisions were left in the hands of PEMEX (e.g., sourcing for the areas subject to the new contractual system, the speed with which such areas would be put to tender, and the contractual terms of these agreements). This would prove to hinder its ability to make a significant change in the dynamics of the country's production. Furthermore, although the new contractual system generated greater efficiency as a result of its production-based remuneration, it is still characterized by limitations typical of so-called service contracts. Such limitations make it difficult to attract the best available technology and generate interest among private companies in assuming the immense geological and financial risks associated with highly complex deposits (such as the deep water offshore, for example).

The principal limitation of the 2008 reform which undermined its potential to increase production, efficiency and, ultimately, oil revenue in the interests of the country, was the impossibility of creating conditions conducive to innovation, cost savings and the exploitation of reservoirs with lower relative profitability. This limitation was the result of the restriction against modifying the Constitution, and therefore, the impossibility of creating competitiveness in the hydrocarbon industry. In other countries with oil-producing potential—such as Brazil, Norway, Colombia and Peru, among others—this competitive environment has proven to be the main underlying strength of those national systems when it comes to converting the hydrocarbon industry into a driver for economic development and social progress.

Areas of Debate to be Resolved with the 2014 Hydrocarbon Reform

The premise underlying the restriction against altering the Constitution has been shaped by a number of factors, chief among them the balance of forces among the interests associated with a company of such size and weight in the national economy.

But putting aside these political economy issues (which nevertheless must be fully taken into account when negotiating any new

reform), the constitutional restriction has also been built upon false premises which, if not discussed openly, threaten to once again eliminate the great opportunity for Mexico to create progress and wellbeing for this and future generations, an opportunity whose magnitude no other identified reform is capable of generating.

There have been at least two false premises which have limited deep changes in the industrial organization of the hydrocarbon industry in Mexico.

The first is related to the intergenerational balance of exploitation. Based on this principle, some claim that accelerated exploitation of hydrocarbon resources in the subsoil brings a negative impact on future generations for the benefit of the present. It is clear that this premise is fundamentally false, for at least three reasons, each presented below.

The Shale Gas and Shale Oil Revolutions and Their Effect on Price

Technological changes in the exploitation of hydrocarbon resources in shale over the last five or six years alone have substantially altered the geopolitics of petroleum and gas, as well as future expectations regarding the price for these resources. The idea of a steady rise in hydrocarbon prices has been increasingly called into significant question.

In fact, it is enough to observe the effect which the accelerated increase in shale gas production in the United States and Canada has had on gas prices in North America. The tremendous amount of technically recoverable shale gas resources (which represent three times the proven reserves of conventional wet gas in the United States) suggests that the price of this hydrocarbon will remain relatively low for long periods and that committing to expectations of steadily rising prices is a mistake. Although the future of shale gas exploitation in Europe is uncertain, development of these resources in Asia, particularly China, only points in the same direction in terms of the effect on prices.

The shale oil phenomenon is even more recent. Recent studies have demonstrated the global potential of this resource and exploitation is already underway in the United States. Based on the experience with shale gas and recent shale oil production, in combination with

current efforts being made around the world in the area of energy efficiency, which is affecting demand, it is reasonable to anticipate lower prices for crude oil in upcoming years. Indeed, the dramatic price drop from August 2014 to the present has underlined the inherent uncertainties involved when projected the short and long-term future of the oil price.

Technological Progress in Alternative Energies and the Future of Fossil Fuels

The growing awareness of the negative effects of climate change has led a great many countries to establish public policies which encourage research and development of technological advances in exploiting alternative energies (non-fossil). Many countries have set up programs providing significant subsidies, based on the principle of the existence of positive externalities associated with replacing certain fuels with others.

Even if such subsidies are now being reduced, the result has been a substantial reduction in the cost of electricity generation based on renewable sources such as wind and photovoltaic power. There have also been significant advances in transport technology associated with hybrid mechanisms and production of biofuels.

It is clear that the current low price of gas and oil pose challenges in the development of these technologies. Nevertheless it is highly unlikely that progress on renewable sources will halt. Therefore, it is crucial to think about the value fossil-based energy sources will have in the long term.

Availability of Instruments to Make Temporary Wealth Permanent

If the previous two arguments were not enough to call into doubt the imperative for intergenerational management of hydrocarbons resources, there is no question that the ability to use public policy instruments to channel temporary revenue from petroleum and gas into boosting the potential growth rate of the economy will necessarily make it possible to move beyond this position.

In fact, insofar as resources deriving from the exploitation of hydrocarbons are used to generate permanent wealth, the argument that there is an intergenerational imbalance in the exploitation of these resources disappears.

As long as oil revenue deriving from crude oil and gas extraction is allocated for physical and human investment, the potential for generating wealth for the country increases permanently, making it possible to transform this finite wealth into permanent benefits, for this and future generations in the country. The experience of Norway, which transformed its petroleum industry, generating substantial increases in production, demonstrate the potential of public resources used to increase the country's public infrastructure and human capital, and therefore its growth rate.

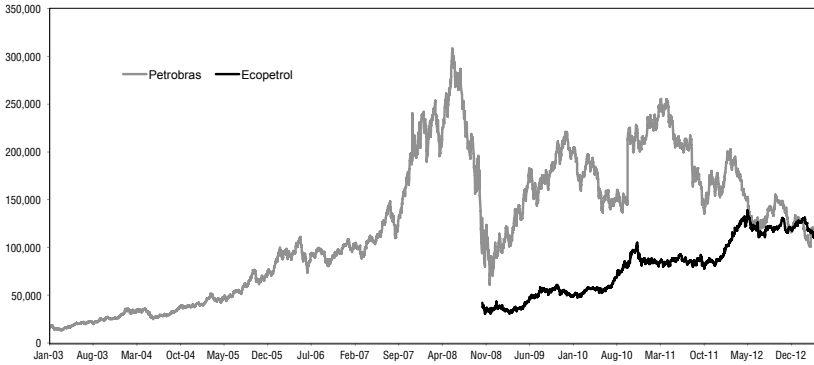
Weakening the Company

The second false premise regarding an aggressive hydrocarbon exploration and exploitation policy is that it inevitably would weaken the state-owned company.

Recent experiences in two Latin American countries—the 1997 energy reform in Brazil and the more recent reform in Colombia (which allowed their state-owned companies to compete in the local petroleum market alongside other private companies, both domestic and foreign)—have clearly demonstrated that a properly opened hydrocarbons sector leads to growth for the state-owned company in both the domestic and foreign markets.

The other lesson to be learned from these experiences is that competition and a competitive market encourages the development of a very important local industry with the potential to become a service export industry.

Resistance to opening up the industry often comes from a weakness in the State's power to exercise control over the state-owned monopoly, the weakness of regulatory institutions and the time required for these to attain the capabilities necessary to tackle the challenge. The fact is that insofar as this challenge can be faced efficiently, there would be no reason to let an opportunity pass which would mean tak-

Figure 1. Market Capitalization, Petrobras and Ecopetrol (US\$ mn)

Source: Author-compiled.

ing advantage of the potential for economic growth and the strengthening of the state-owned company.

The evidence is that countries similar to Mexico—such as Brazil, Colombia and, more recently, Peru—have been able to overcome the institutional challenge, successfully attracting investment and growth, while at the same time managing to strengthen their state-owned company, at least in terms of market capitalization (see Figure 1). This would suggest that the premise against opening up the industry—that it would endanger the survival of the state-owned company—is false, and that using these reasons to reject a reform that would make competition in the sector possible deprives the country of opportunities for development and progress.

Principles Of Petroleum Reform

In this chapter, the appropriate principles for a comprehensive hydrocarbons reform are analyzed in light of relevant international experiences.

The most recent reform finally approved in Mexico ascribes to most of these principles. As such, the 2013-2014 Mexican energy reform has the potential to be deep and transformative. An analysis of

this recent reform in light of these principles will be undertaken in the section that follows. Here we deepen the analysis of these principles further.

As has been implied above, optimal reform of the hydrocarbon industry would be based on at least three fundamental principles:

- Openness to competition, with the state-owned company participating;
- Strengthening the state-owned company so that it is in a position to compete within the new industrial organization;
- Strengthening the State as an energy policy designer, along with the effectiveness of its regulatory bodies.

Exploration and Production

Openness to Competition, with the State-Owned Company Competing

The most powerful force for generating efficiency and innovation in any sector of the economy—and the hydrocarbon industry is no exception—is competition. And the key to ensuring that an industry open to competition generates benefits for the broad society is adequate and appropriate regulation.

The idea that a single company (public or private) can tap by itself all of the potential of an industry in the interests of society challenges not only the principle of optimum company size, but also the prospect for a proper balance between the regulator and the sole company. This imbalance prevents an alignment of interests between the company and society. This expresses itself in the quality of products and services, discriminatory practices, lack of transparency and inefficiency, among other disadvantages.

In this regard, extreme care must be taken in choosing the type of industrial organization. It is one thing for PEMEX to be free to join forces with other companies, domestic or foreign, and in this way share the risks and financial costs. But it is quite another to only allow third parties to participate in hydrocarbon exploration and exploitation activities through partnerships with PEMEX. A reform of this type would have a limited scope and would represent a waste, not only

of political capital, but also of the capacity to develop the great potential of hydrocarbons in Mexico.

Like any other company, PEMEX faces limitations on its management capacity, apparent in the company's implementation capabilities and financial limitations. If the reform was to require PEMEX to be a partner, whether as an operator or not, in every exploration and exploitation project, the financial and management limitations typical of any company would restrict the potential expansion of production and generation of oil revenue.

In addition, decisions regarding what areas to exploit under partnership schemes, how fast and under what terms to do so, would inevitably be filtered through PEMEX (if they are not decided entirely by that company), leading to a situation similar to the 2008 reform.

Furthermore, under this institutional arrangement, there would be no incentives for PEMEX to exploit to full potential those lines of low relative profitability for the company. As a result, Mexico could fall behind other countries in a key resource like shale gas.

Based on the successful experiences of countries such as Colombia, the need for third parties to be allowed to enter the sector—without necessarily being obligated to do so together with the state company (while leaving that possibility open). In this regard, the two relevant alternatives have been and remain:

- production sharing agreements between the State and private companies,
- a concession scheme.

For either of these options—in order to maximize the value of the national resources over time, rather than just short-term revenue collection for the State—it is critical that the mechanisms used to assign areas of operation derive from a competition-based scheme in which the payment to the State (by the private companies, or PEMEX) and the minimum investment commitment are both taken into consideration.

Regardless of which method the State decides to employ to exploit the nation's public resources, this method must apply equally to

PEMEX and to third parties (with a suitable transition scheme for areas which are already under exploration/exploitation). For either of these two alternatives (and in fact, for partnerships as well), the Constitution had to be modified. Any reform not revising this legal code would have found its scope completely limited.

Another change considered essential in order for this new industrial organization to function properly would be the opening of the seismic survey market. Allowing private companies to invest in obtaining geological information which makes it possible to identify the country's oil-producing potential leads to an acceleration in knowledge of our oil wealth. This, in turn, provides more and better resources with which to manage the country's energy policy. Naturally, as in other Latin American countries that have reformed their petroleum industry, the State must always be entitled to this information, just as the private company should be able to use it under a regulated regime in order to recover its investment, thus encouraging development of this activity.

Strengthening PEMEX

In accordance with the described new industrial organization for the exploration and production sector, PEMEX should be given various tools to enable it to deal with competition and emerge stronger, following the experience in several of the Latin American countries mentioned above.

Round Zero. It has been proposed that the State should establish a period during which PEMEX could select a number of areas in which it has a strategic interest and proven implementation capacity within a reasonable period of time.

Open access to participating in any area of operation. Like any other company that wants to participate in the Mexican market, PEMEX should not face any restrictions with regard to areas where it would be allowed to operate, whether it competes alone, or as part of any consortium it might consider advisable to join or to which it is invited by other companies.

PEMEX's decision to participate in a given area should be made exclusively by its corporate administration.

Deregulation. It was essential to undertake a comprehensive review of the regulation PEMEX is subject to in order to give the company the necessary tools to deal with competition. The aspects to be changed should include: budget and indebtedness control processes; regulation on salaries and performance-based compensation; internal control; and a revision of the Law on the Responsibilities of Civil Servants applicable to PEMEX personnel.

Corporate governance. It was critical to reconsider how the State is represented within PEMEX. Although it must oversee its assets, this should not be done by civil servants who have a potential conflict of interest between government control or regulatory decisions and defending the interests of shareholders—interests which are sometimes opposed.

In addition, it is crucial that we redefine the independence of professional directors. As in any other company, the main value of including these professionals in the PEMEX board lies in their independence. The limitations imposed on these board members (eg, the requirement that they be government officials or full-time civil servants confirmed by the Senate) undermine this principle of independence.

Solution to the pension problem. The debt faced by PEMEX for the pensions of retired workers and current employees with pension rights imposes a burden which will severely limit the company's growth and borrowing capacity in the future, particularly under the new industrial organization.

It is essential to move to a system which makes it possible to fund pensions over the course of the employee's working life and which limits the actuarial cost of current contingencies. Due to the magnitude of the problem, the State must be involved in the solution. However, this should be made dependent on achieving certain reform goals in time, in order to prevent delays by stakeholders.

Capacity to obtain capital in financial markets. One of the most important aspects of strengthening the state-owned company is its capacity to obtain resources in capital markets in a healthy, sustainable fashion. As in the case of changes which create competition in the sector, the opportunity for PEMEX to grow faster based on capital

obtained from institutional investors and the public requires constitutional reform.

It is believed that—as in the case of Colombia—a share issue prior to placing securities on the market could result in significant support for the reform among the general population.

Certain assumptions must be considered with regard to such a securities issue: control of the company being retained by the State and financial rights being granted to third parties, but not necessarily corporate rights.

Strengthening the State

To handle the new institutional arrangement, the State will require specific powers allowing it to ensure the proper functioning of the sector and the capacity to manage the country's energy policy. This issue is analyzed in light of the positive experiences of various countries which have carried out adequate reforms of their hydrocarbon industry.

Centralization of geological information and Periodic Area Plan.

The 2008 reform allowed the State access to certain information from PEMEX, as well as use of certain systems, through the Secretariat of Energy (SENER) and the National Hydrocarbons Commission. However, this is completely insufficient for the proposed institutional arrangement. In addition, insofar as PEMEX holds information for areas other than those in which it operates, this would create a clear barrier to access for the sector.

In this regard, the architects of this necessary institutional arrangement should consider it essential to establish an appropriate transfer scheme for this information including some of the (including some of the key information processing systems) to the State. This geological information would provide the State with the tools required to accurately assess the country's oil-producing potential; to define the areas to be opened to concessions (or production sharing agreements, as applicable); and to determine the speed which which this process should be carried out, the materiality of the areas and the contractual terms to be used. With such information, the State would also need to issue a periodic plan (a five-year plan, for example) to facilitate corpo-

rate planning and to offer a degree of certainty with respect to the areas that will be put up for tender.

On the other hand, PEMEX should be able to hold on to the information (and associated systems) pertaining to the areas in which the company continues to operate, as well as those which are defined as part of Round Zero (as discussed above).

Capacity to contract for seismic surveying. One of the key changes provoked by what would be a more open and decentralized exploration and production system would be the positive effects on the generation and interpretation of seismic information. The importance of opening up this sector to competition in this regard has already been discussed above. However, it is imperative that the State also have and retain the technical and financial capacity to contract for seismic surveying and interpretation in those areas believed to have potential—or which might have particular strategic import for the country—even if private companies have expressed no interest. This seismic surveying contracting tool becomes an essential guide for energy policy.

Technical and safety regulation. This area has been the responsibility of the National Hydrocarbons Commission since 2008. This realm should be reinforced, in accordance with the new industrial organization, so that it encompasses both PEMEX and private companies.

Powers to regulate aspects of new areas of operation. It will be imperative to grant the State and its regulatory bodies the necessary powers and the human capital required to competently open the defined areas of operation to tender, establish payment schemes for any concessions, determine the minimum investments required, and authorize in the case of withdrawal of concessions, among others.

State financial vehicle. Another instrument which the State (in other hydrocarbon producer countries) has reserved for itself—to better manage the country's energy sector—is the possibility of holding a financial interest in the various consortia. This instrument can also serve as an alternative mechanism for capturing economic rent on behalf of the State, particularly when specific characteristics of certain projects prevent the tax system from capturing rents efficiently. Under such a mechanism, the State could set up a financial vehicle for the sole purpose of managing shareholding positions in the consortia

selected. This would require only a small staff which should not be granted authority to engage in oil-related operations.

Industrial Processing, Transport and Distribution

In the following section, we distinguish between two sectors:

- Refining, and transport associated with the resulting products, and
- Gas processing and the petrochemicals industry, as well as transport of these products.

Refining

In theory, opening up crude oil extraction to third parties would indicate that the downstream processes will also be open for competition. However, in this area the system for managing the retail price of gasoline and diesel fuel are considerations that should taken into account.

The optimal solution for refining (opening or no, and how much) is closely linked to the same decision with respect to managing the retail prices of gasoline and diesel fuel. If a policy decision is taken to deregulate gasoline and diesel fuel prices (or to establish a target subsidy), then it would also be ideal to open the refining market to third parties, and to establish a free market for retail sales to the public.

With regard to the transportation of gasoline and diesel fuel between the refinery, storage terminals and service stations, the 2008 reform made some progress in granting the Secretariat of Energy powers to define the point at which first-hand sales take place, and therefore, the moment when the exclusive rights of the State petroleum industry end. However, as a transition scheme, SENER's regulation still grants certain powers to PEMEX which in practice limit a complete opening. This, however, can be resolved through executive action.

Gas Processing and the Petrochemicals Industry

Within the gas market, we should distinguish between liquefied petroleum gas (LPG) and natural gas. The LPG situation is similar to

that of gasoline: due to the subsidy applied to the final price (which must currently be absorbed by PEMEX Gas and Petroquímica Básica), the options facing both LPG and gasoline are the same.

Likewise, if the natural gas exploration and production sector is opened to competition, then it would be appropriate to open up the entire gas chain, including downstream activities like natural gas processing and the petrochemicals industry. In fact, it would make little sense to force gas producers to deliver all of their production to PEMEX (under a regulated scheme), as this would imply that PEMEX could ultimately come to represent a bottleneck for natural gas processing and petrochemical production. In addition, the benefits of downstream competition obviously would be lost by limiting this part of the market to a single producer.

A reform of natural gas regulations to bring about a genuine opening of the gas transport market (midstream), together with a change allowing third parties to compete with PEMEX in the processing of gas, would give Mexico an extraordinary boost in competitiveness, making possible accelerated industrial development.

Furthermore, the possibility of private companies vertically integrating the entire petrochemicals chain, competing with PEMEX in this market (and eliminating the distinction between basic and secondary petrochemicals), would lead Mexico to become a global leader in petrochemical production. This is due to the considerable availability of raw materials—crude oil and, particularly, gas—which would be augmented still further with upstream reform, and the relative advantage of low gas prices in North America.

Reform of the gas and petrochemical processing industries would make it necessary to revise the provisions covering the transportation of natural gas and (basic)petrochemicals. This second issue is resolved as soon as the distinction between the two types of petrochemicals is eliminated and the industry is opened up to free participation.

In order to enable greater supplies of natural gas to be transported efficiently to points of demand, the natural gas regulations need to be modified to open the distribution market to third parties; to create the position of system manager, separate from that of carriers; and to establish a new capacity purchasing system.

Complementary Measures

Any reform of the hydrocarbons framework would require both taxation and budgetary changes.

Tax Measures

Adapting public finances to remove PEMEX as a residual adjustment instrument. Regardless of the tax rates that PEMEX might be subject to, in order to be suitably prepared to compete from a position on par with that of other players, the company must stop serving as a residual adjustment instrument for public finances. Rather, this issue is that drawing profits above those captured through taxes and fees is done by means of dividends. This will require adjustments to the country's tax system if the State is to achieve the greater flexibility it will need in order to do without this adjustment instrument for public finances.

Allocation of core exploitation areas to PEMEX (Round Zero) to ensure minimum domestic production at start-up. This will require developing a plan for PEMEX production (see the mention above of the Round Zero) capable of maintaining current revenue levels as new production is incorporated into the market from private companies entering the Mexican industry.

Extending the tax system to the entire industry and adapting rates and tax bases. The tax system (which includes fees and royalties) must be extended to apply equally to all players in the industry, including PEMEX. To the extent that a transition begins towards a competitive industry under concession schemes or production sharing agreements with the State, there will be adequate incentive to achieve cost efficiency. This will make it possible to gradually eliminate the cost cap system (which distorts investment decisions), without the risk of weakening the tax base, as currently occurs under the current industrial organization.

Along with revising and expanding the tax base, tax rates for fees must be modified under the new open market to ensure that all oil revenue is obtained for the benefit of the nation, while at the same time guaranteeing an internationally competitive tax system which attracts the required international investment.

Tax system for unconventional resources. Since 2005, the tax system applicable to petroleum-related activity has been updated, distinguishing rates and tax bases, and depending on the type of deposits and nature of the hydrocarbon. This has been appropriate, as the oil revenue to be obtained is different in each of these situations.

However, given that production of unconventional resources (shale gas and shale oil) has not yet begun in Mexico, by the time of the most recent 2014 reform (see the next section), the tax system had not yet considered the specific characteristics of these type of deposits. Such a change will be essential in order to determine and obtain the associated oil revenue and to make the sector competitive.

Budgetary Measures

A reform of the magnitude proposed is unprecedented in the country's history. As in the cases of Norway, Brazil and Colombia, among others, transforming the petroleum industry into one which allows competition will translate into significant production increases, as well as a substantial increase in public revenue.

As indicated earlier in this chapter, employing these additional resources for current expenditures as opposed to investment represents a drawback in terms of intergenerational imbalance and a wasting of the opportunity to transform the finite wealth associated with hydrocarbons into permanent wealth, thereby increasing the country's potential economic growth. Therefore, a key element of the proposed petroleum reform is the creation of principles and institutions with which this and upcoming generations will enjoy the wealth generated.

Using the oil revenue. After the type of industrial organization to be chosen, how the increased public resources will be used is the most important issue regarding reform. Mechanisms and institutions must be created to guarantee the rational use of resources, allocating them to items which increase the country's growth potential on a permanent basis. Rules should be established which precisely set out the items to which these resources will be allocated. A special fund should be established in order to manage resources over time, avoiding the consequences of the so-called "Dutch disease."

Central to this design will be the issue of the institutions responsible for overseeing compliance with these principles and rules, ensuring that determinations are not vulnerable to electoral (or other forms of domestic) politics.

Evaluation of the Recent 2014 Energy Reform in Mexico

In July and August of 2013, three different initiatives proposing energy amendments to the Mexican Constitution were presented to Congress. The Executive Branch, on the one hand, and the PRD and PAN opposition parties, on the other, each presented their respective initiatives after a long period of public discussion on the matter. An additional and intense discussion took place afterward, resulting in the approval of a Constitutional Reform on December 12, 2013. Following that, nine new Laws and twelve amendments to existing legislation were presented by the Executive Branch for approval by the Mexican Congress. Such Laws, modified in Congress, had been approved by August 11th 2014.

Finally, by October 2014, 25 pieces of Executive Branch Secondary Legislation were published in order to establish the detailed legislation required for a proper understanding and implementation of the new rules.

All this has been done in a record time, a positive development that lends a clear signal to markets as to the commitment of the Mexican Government to the transformation of the hydrocarbons sector. On the other hand, the rapidity of the passage of constitutional amendment and the related reform legislation raises certain doubts as to the ability of the relatively new regulators to successfully implement such reforms.

Failure to properly implement the reforms could easily undermine these positive results at the legislative level. However, leaving aside issues of implementation (just now under way), the aim of this section is to evaluate the approved changes in the light of the premises discussed previously in this chapter. In general terms, the 2014 reform reflects such principles, at least to a very large degree.

Exploration and Production, with the State-Owned Company Competing

The opening of the market for third parties to compete along with Pemex was clearly achieved by the 2014. A major point of discussion that resulted in a very positive outcome is related to the regulatory process that was established in order for Pemex to farm out its initially assigned areas (under the so called Ronda Cero). Such new rules avoid the possibility by Pemex of capturing its potential competitors by freely offering joint ventures in relevant areas of exploitation to the big international players in the market.

On the other hand, the menu of contract types now available for the State to employ for the exploitation of hydrocarbon resources is broad enough to give sufficient flexibility to the Government. At the same time, the inclusion of profit sharing contracts (along with production sharing and licenses) provides future Mexican government, less inclined to an open hydrocarbons market, with a tool to limit private participation. Nevertheless, excepting the Round Zero, PEMEX and private companies are to be treated equally—a dispensation of key importance to a well operating market.

Finally, the seismic survey market was widely opened by the 2014 reforms. The relevant geological information was also required to be transferred by Pemex to the State. At least on paper this requirement gives a significant guarantee for fair competition.

Strengthening PEMEX

In this terrain, the results of the most recent reforms were not as impressive or as thorough. On the one hand, PEMEX was given some additional autonomy and a better corporate governance structure. At the same time, no restrictions have been applied to the state company's ability to participate in future bidding processes, or to join forces with other oil companies for Round 1 and future rounds—a development which could potential undermine the competitive advantages of an open market.

The 2014 reforms also granted PEMEX was also granted a generous scheme by which the Federal Government absorbs a significant part of

the pension liabilities of the company, provided there is an internal PEMEX effort to reduce the present value of such commitments.

Nevertheless it is fair to say that dependence of PEMEX on the General Budget is still significant. Furthermore, deregulation resulting from the reforms is only partial, while the total limitation on the company capacity to raise capital in the stock market (Mexican or international) was maintained. These issues must be addressed in the near future, if PEMEX is to be able to compete on equal terms with its peers, and to finance its growth on competitive and flexible terms.

Strengthening the State

The 2014 reform did reflect this principle in a very significant way. The reform not only strengthened the Ministry of Energy's ability to design and execute energy policy, it also gave it new attributions to impose sanctions on sector players (particularly Pemex) using practices designed to limit competitive conditions.

As mentioned earlier, the reforms provided a very strong mandate to the State to obtain not only all the geological information in the possession of PEMEX, but also to gain access to all PEMEX contracts for the management of geological and statistical information in general.

The reform also established a State obligation to publish a five year plan for bidding rounds, strengthening its ability to resist forces opposing the reform which, as can be imagined, are not at all minor.

Regulators were also significantly strengthened. On the one hand, a new constitutional figure was created for energy regulatory bodies. Such a move would significantly improve the regulator's technical autonomy from the Administrative Branch of Government, and from PEMEX. On the other hand, changes in budgetary sufficiency were incorporated so that no Ministry can reduce its budget without the proper justification and approval by Congress. A new regulator was also created for oil related environmental issues, so as to avoid conflicts of interest and competing objectives in regulation.

Industrial Processing, Transport and Distribution

Changes in this front were far more reaching than expected. Not only did the 2014 reform achieve a full opening of the refining and gas processing industries; it also established a very specific calendar for allowing imports and for deregulating public energy prices. However, a mandate to design focalized subsidies in certain products was determined, potentially undermining the credibility of the price liberalization.

Nevertheless, it is fair to say that—in a crude oil price environment such as the current one, and viewing gasoline prices as a way to compensate for diminished oil revenues—this particularly legal mandate (focalized subsidies) might have to be adjusted in the future. However, a legislative change approved by Congress would be, in principle, required.

Opening of the transportation, storage and distribution markets in all fuel segments was incorporated by the reforms. This change will certainly bring private investment in to the industry and generate much higher efficiency.

Finally, vertical disintegration in the natural gas market was secured by the 2014 reforms, a very important change. The transfer of natural gas pipelines from PEMEX to another state company was mandated by the reform. However, despite this clearly positive outcome, the manager of the transport system can still be owner of the pipelines, a possibility which runs against the principles of competition in such markets.

Finally vertical separation of other pipelines (oil, etc) was not included in the reform. This lack of reform will continue to limit the efficiency of these markets.

Tax and Budgetary Measures

Important changes were approved on this front. Taxation on the upstream (the most relevant market segment in this regard) was set by the 2014 reforms in a flexible way, one that is framed by the newly accepted the bidding processes. Although this reduces, to some

degree, the capacity of the State to secure oil revenues, it achieves a much more important objective: the flexibility to attract more competitors to the bidding rounds so as to improve the chances of success in the first tenders.

But better or worse, the 2014 hydrocarbons reforms did not usher in a comprehensive tax reform capable of reducing the State's dependency on PEMEX's revenues while also granted the State company more autonomy. The political obstacles to such a liberal reform apparently remain too formidable.

One of the most significant changes wrought by the reforms relates to the use of future additional revenues. On this front, a Special Fund was created in the Central Bank were independent members outweigh government representatives. The objective of this Fund is to define how excess revenues would be used in the coming years, in order to avoid political pressures to divert such resources to current expenditures.

