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THE ENERGY SECTOR OF MEXICO IN THE FACE OF CHANGE

Julieta Evangelina Sánchez Cano*

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Resumen

La industria energética en México es un factor que incide estratégicamente en el desarrollo del país y por lo tanto es transcendental para la economía mexicana. La economía mexicana es altamente dependiente de la producción de energía proveniente del petróleo, ya que PEMEX aporta casi el 10% del PIB del país y el 40% de los ingresos presupuestarios. No obstante, México, es un país con un estancamiento en el ratio reservas/producción de petróleo, debido a que desde hace varios años, México ha incrementado su producción sin tener más descubrimientos de nuevos pozos petroleros. Ante ello el gobierno mexicano ha propuesto estrategias y una reforma integral para el sector energético, este artículo analiza dichas estrategias y la situación actual del sector.

Palabras clave: sector energético, reforma, petróleo.
Clasificación JEL: L52, Q43.

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* Research Professor at the Faculty of Economics, Management and Accounting in Juaréz University of Durango State. Ph.D. in International Economics and Development at the University Complutense of Madrid. She is member of the National Researchers System level I. She Belongs to the Society of World Economics since 2005 and is Member of Honour and Justice of the National Association of Economists. Its Research Interests: *Trade, International Organizations and Public Policy. *Energy and agricultural sector. <julieta.san2009@hotmail.com>.
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Abstract

The energy industry in Mexico is a strategic factor that affects the development of the country and therefore is transcendental to the Mexican economy. The Mexican economy is highly dependent on the production of energy from oil, since PEMEX accounts for almost 10% of the country's GDP and 40% of budget revenues. However, Mexico is a country with a slowdown in the reserves/production ratio for oil, because for several years, Mexico has increased its production without more discoveries of new oil wells. In response, the Mexican government has proposed a comprehensive reform strategies for the energy sector, this article analyzes the strategies and the current status of the sector.

Keywords: energy sector reform, oil.
JEL Classification: L52, Q43.

1. Introduction

The Mexican economy is highly dependent on the resources from its energy industry. However, the annual report of Petróleos Mexicanos (PEMEX) shows that oil extraction continues to decrease (standing at 2.5 million barrels per day) and faces great difficulties for stabilization. The Cantarell field[1] is the most productive with a contribution of more than 50% of domestic crude oil production, but for a couple of years, this well has begun its decline stage.

With respect to natural gas production, although the trend shows growth in recent years, this increase has not helped to reduce imports of energy. Given these dilemmas, the Mexican government has proposed strategies and a comprehensive reform in the energy sector. The first strategy considers that it is possible to exploit the 58 percent of prospective resources which are concentrated in the deepwater of the Gulf of Mexico, and these can become reserves through a successful exploration activity, for it involves increasing the probability of commercial success, focusing the exploration on priority areas.

[1] The Cantarell Complex is an oil field, is located in Campeche Mexico. It is considered one of the most important worldwide, ranking second, only surpassed by the complex Ghawar in Saudi Arabia.

The energy industry in Mexico is a key factor that affects strategically in the productive and social development of the country and therefore it is transcendental to the Mexican economy. The relationship between reserves and production (R/P) indicate the relative measure of the resources available in the various oil producing countries. Mexico has an R/P of 37 years.

Despite the stagnation of hydrocarbon reserves in Mexico, Mexican energy industry ranked sixth as the world´s largest producer of crude oil in 2006, and PEMEX became the most important oil industry in Latin America in terms of sales, reaching 1.062 billion pesos by that year, and achieved an average production of 3.3 million barrels of crude oil and about 5 400 million cubic feet of natural gas per day. Although, it is important to mention that for the Mexican energy industry, the rate of decline of its hydrocarbon reserves is a problem, due to the relantionship between proven reserves and production, they had a fall of 20.6 years to 9.6 years between 2001 and 2006.

Currently, the Mexican government has proposed a comprehensive energy reform to face a future energy crisis. Among the major challenges of this sector is to restore the continuing decline of oil production in recent years. So Mexico is setting changes and strategies to strengthen its energy sector both in the field of oil exploration in deep water as in diversifying its energy through other forms of energy production.

Since most of its proven reserves are in deep water and the extraction and exploitation involves the use of more technology and higher risk than those faced in shallow water or on land. Besides, the costs of deepwater drilling are higher to shallow water and terrestrial deposits. This situation puts in a dilemma both economic and productive Mexican energy sector. This paper will analyze the changes to be expected from energy reform and socio-economic and environmental impact.

The objective of this research is to analyze the Mexican energy sector against the strong challenges of this sector and the decline in oil production and low productivity of its industry, and the ways and strategies that are being implemented to overcome. The methods and procedures of this research develops a predicative diagnosis type research, not causal, of the situation of the Mexican energy system and the strategies that are being carried out to shovel the problems that is facing the sector, the literature and updated statistics of major organizations involved in both the energy sector and in public policymaking on energy in Mexico are reviewed.

2. The importance of the energy sector in México

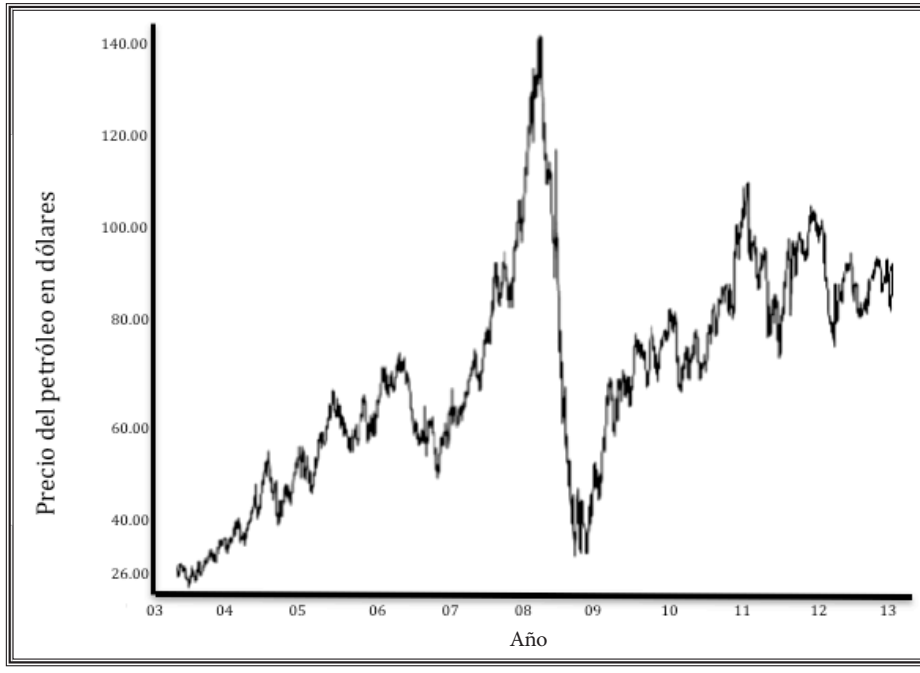
The availability of energy is of great importance for the growth and development of society. As a country is progressing in its development, their needs increase. Given this scenario, the energy supply is considered a national security strategy for many countries, including Mexico. In international markets we have a scenario of high oil prices, with growing energy demand where about 90% of the energy consumed in the world comes from nonrenewable fossil resources.

Increasing energy demand exerts pressure is increasing the supply of energy from hydrocarbons, however, the oil production rate is declining in several producing countries. This motivates the establishment of two global strategies, on the one hand exploratory activities are undertaken to find new oil wells, and other measures are implemented to replace some of the oil with the use of renewable energy. All this, in order to rely less on energy from hydrocarbons and to reduce CO_2 emissions and its effects on global warming.

Mexico is known for being a producer with high dependence on resources obtained from energy production from oil, to the extent that almost 40% of budget revenues are contributed by PEMEX. This makes evident the strong energy sector involvement in public finance, as well as in the development of infrastructure and human capital in the country (Sánchez, J., 2012: 138). Thus, it is of great importance to have successful goals for this sector in the medium and long term. For this reason, this paper analyzes the challenges facing the energy sector in Mexico, and the initiative of the new energy reform and expected outcomes from this reform.

Mexico as a producer, it benefits itself from high oil prices in the international markets. In recent years, international oil prices have shown high volatility and unprecedented growth that has exceeded $ 100 a barrel, in 2003 when high oil prices set off a warning about the impact that the global economy would generate and from which showed an upward trend, achieving in August 2005 to break the record of $ 60 per barrel (Sánchez, F., 2005: 9). Later, the trend continued to rise, generating in June 2008, the price of oil peaked at $ 147 (see figure 1).

Figure 1
International oil price (dollars per barrel)



Source: consulted online at "The price of oil today, 2013", accessed on april 19, 2013 in http://www.preciopetroleo.net/cotizacion-petroleo.html.

Among the causes that explain such volatility in international oil prices is ment and growth that results in higher demand and energy consumption. Although some countries in Europe, the US and Japan are in recession periods, other countries, including emerging countries like China and India have had greater economic growth and development.

Mexico is a major oil producer in the world, which can be seen in table 1, and it shows the privileged situation that Mexico has as an oil producer for 2011, ranking ninth globally, the United States ranks place number three, and Canada sixth.

Table 1
Major producers of crude oil in the World, 2011

Producers of crude oil*	Millions of tons	% of the world total
Saudi Arabia	517	12.9
Russian Federation	510	12.7
United States	346	8.6
Islamic Republic of Iran	215	5.4
Republic of China	203	5.1
Canada	169	4.2
United Arab Emirates	149	3.7
Venezuela	148	3.7
Mexico	144	3.6
Nigeria	139	3.5
Rest of the World	1 471	3.6
Worldwide	4 011	100

Source: Sánchez, J., 2012. Using data from the IEA Key energy statistics world. *Includes crude oil, liquefied natural gas, raw materials, etcetera.

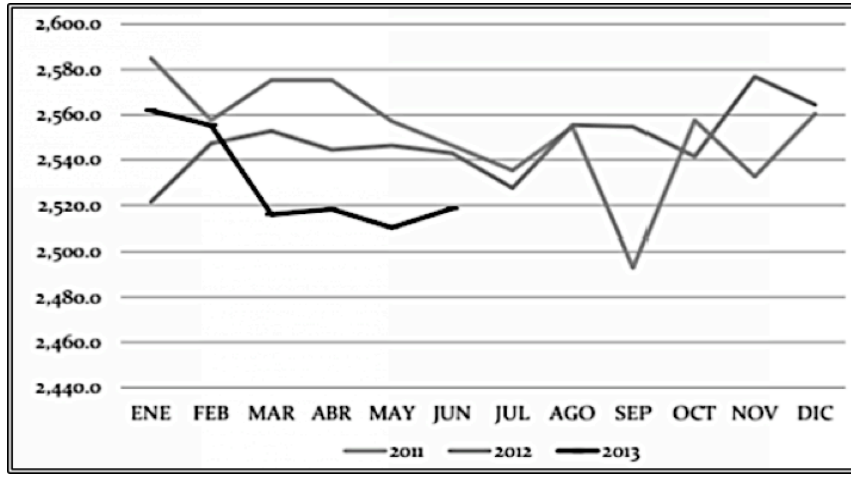
A study by the World Trade Organization (WTO) shows that Mexican energy industry is among the largest producers in the world, placing PEMEX as the most important oil industry in Latin America in terms of sales, achieving in 2006, sales of 1 thousand 62 milion dollars, with an average production of 3.3 million barrels per day of crude oil and was positioned in sixth place as a producer of global crude (Sánchez, J., 2012: 147). However, Mexico faces a big problem, which is the strong dependence of public revenues on oil revenues. In addition to the strong dependence on oil revenues is the fact that oil production nationwide is declining, a topic addressed in more detail below.

Importantly, even though Mexico has a special place as an oil producer is also a net importer of oil, occupying fourth place worldwide as a net importer of petroleum p roducts. In the past 15 years, natural gas imports have grown considerably, as during the period of 1997/2012, such imports increased from 3% to 33% of national consumption. For Mexico to reduce its tendency to import it requires greater investment in PEMEX refinery.

However, it is also necessary to mention that Mexico currently is facing a scenario where the current crude oil production has been declining.

In june 2013 crude production fell averaging 2 518.5 million barrels per day (mbd), which represented a 1.0% lower than in June of 2012 (see figure 2). This showed a decrease in the heavy oil type of 0.5%, in the superlight 8.4%, however, light crude rose by 1.1% compared with the previous year. It must be emphasized that the percentage structure of oil production was composed of 55% of heavy oil, 33% of light oil and 11.7% of superlight (SENER, 2013). The Ku-Maloob-Zaap located in Campeche, contributed 34.6% to the total national production, equivalent to 870.2 Mbd, representing 1.0% increase on the previous year's production.

Figure 2
Oil production in Mexico (thousand barrels per day)



Source: SENER (2013), Energy Information System (EIS), with information from PEMEX.

Cantarell, which is one of the most important oil resource spot nationally, is another site located in Campeche and which meant 17.8%, equivalent to 449.4 thousand barrels per day in june 2013, representing about 0.8% less than the production observed in june 2012. This shows that the major Mexico oil resort is running out. Since 2004, oil production has experienced a downward trend, which is mainly caused by the decline of Cantarell production (see table 2). Domestic production of oil at the end of 2009, showed a decline of 6.8% over the previous year, reaching 2 601.5 mbd, showing a reduction of 23.1% compared to its peak in 2004 (SENER, 2011).

Table 2
Crude Oil Production 2000-2009 in Mexico
(thousands of barrels per day)

	2000	**2001**	**2002**	**2003**	**2004**
Total	3012.0	3127.1	3177.2	3370.9	3382.9
Heavy Crude Oil	1774.3	1997.0	2173.7	2425.4	2458.0
Light Crude Oil	733.1	658.7	846.6	810.7	789.6
Superlight Crude Oil	504.6	471.4	156.9	134.8	135.3
	2005	**2006**	**2007**	**2008**	**2009**
Total	3333.4	3255.7	3075.7	2791.5	2601.5
Heavy Oil	2387.0	2243.8	2039.4	1765.6	1520.0
Ligh Oil	802.3	831.5	837.7	815.5	811.8
Superlight Crude Oil	144.1	180.4	198.6	210.4	269.7

Source: SENER (2011), with data of SIE statistical handbook of the sector 2010.

The decrease in the volume of production of Cantarell has been the main cause of the decline in domestic production, however, discoveries and improvements developed for oil recovery, reflected in the production of assests such as Ku-Maloob- Zaap and the terciary Oil of the Gulf have partly stopped the decline in production volume. Nevertheless, the increased recovery in these assets has not been enough to compensate the loss of production volume of Cantarell.

Table 2 shows that heavy oil contributed 58.4% of the total production of 2009, the contribution of light oil to domestic production was 31.2%. While light crude oil production was 10.4%. The production of light and heavy crude oil showed decreases in 2009 of 13.9% and 0.4% respectively compared with the year 2008. Regarding the light crude oil presented an increase of 28.2% over the same period. It is important to note that the most important change was made in the heavy oil, failing to produce 245.7 mbd in the aforementioned period.

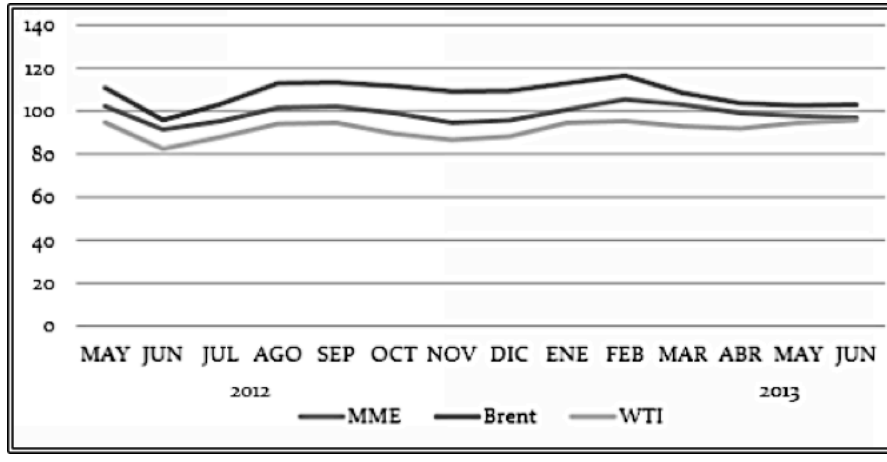
PEMEX's trade balance in 2009 reported a surplus of 16.509 million dollars, however, this surplus was 36.7% lower than the surplus achieved in 2008. This was due to the behavior of the price of the Mexican crude exports, and the decrease in the volume of crude oil exports in 178 mdb average, which meant 12.7% less than what was exported in 2008. PEMEX entered dividends from exports of crude oil with the amount of 25 thousand 693.2 million of dollars, ie 40.7%

less than in 2008 and 32.3% less than in 2007. This was the result of the fall in the price of the Mexican crude oil in the international oil market, averaging US $84.38 per barrel for the year 2008 and falling to 57.44 dollars a barrel on average in 2009 (SENER, 2011: 118).

It is also necessary to underline that by June 2013, oil exports continued to be lower than those obtained in 2008, for in June 2013 oil exports averaged 1089.8 mbd which meant 9.2% less than that observed in June the same year. In relation to the distribution of Mexican exports during June 2013, it was 71 percent to the US, 8.3% to Eastern Asia and 15.2% to Europe. Compared with the same month in 2012, exports to the US fell by 15%, Europe fell by 0.9% and those sent to the Eastern Asia increased 35%, showing that Mexico is able to diversify oil export destination (SENER, 2013).

Similarly, the price of Mexican crude oil export averaged 96.9 dollars in May 2013, 0.8 less than the previous month. On the other hand, West Texas Intermediate (WTI) and Brent averaged 95.7 and 102.9 per barrel respectively, if compared with the previous month that increased 1.1 and 0.4 dollars per barrel respectively (see figure 3).

Figure 3
Crude oil price (dollars per barrel)

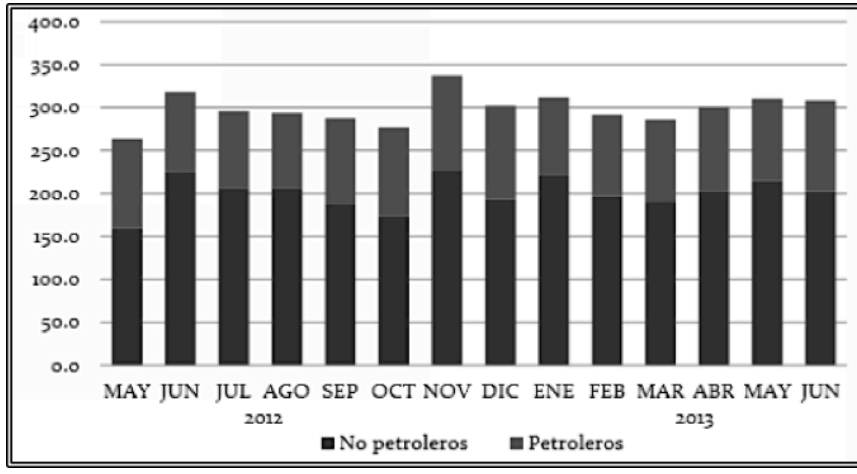


Source: SENER, 2013. With information of the Energy Information System SIE and PEMEX.

Mexico faces serious problems due to declining oil production and the high dependence on imported petroleum products, in addition to the

country's public finances remain dependent on strong participation in the energy sector. Sample of this is that during the month of June 2013 public sector revenues from petroleum activities increased 14.4% over the previous year, generating revenues equivalent to 106.1 billion pesos, which meant a contribution of 34.4% of total public sector revenues (see figure 4).

Figure 4
Public sector revenues (in billions of pesos)



Source: SE NER (2013), Economic Planning Departmentt of the Ministry of Finance and Pulic Credit (SHCP).

3. The major challenges Mexico is facing with the energy reform

We focus on the analysis of the great challenges that the country is facing and the new proposals on energy matters raised in the constitutional reform initiative in this sector, after setting out the main problems of the Mexican energy sector, as well as the major industry characteristics. In addition, the benefits expected from this reform in terms of economic impact on Mexico will be presented. We must recognize that investment in PEMEX has increased, however, this investment is still insufficient to make better use of oil resources (see figure 5), since oil continues to become more difficult and more expensive to extract.

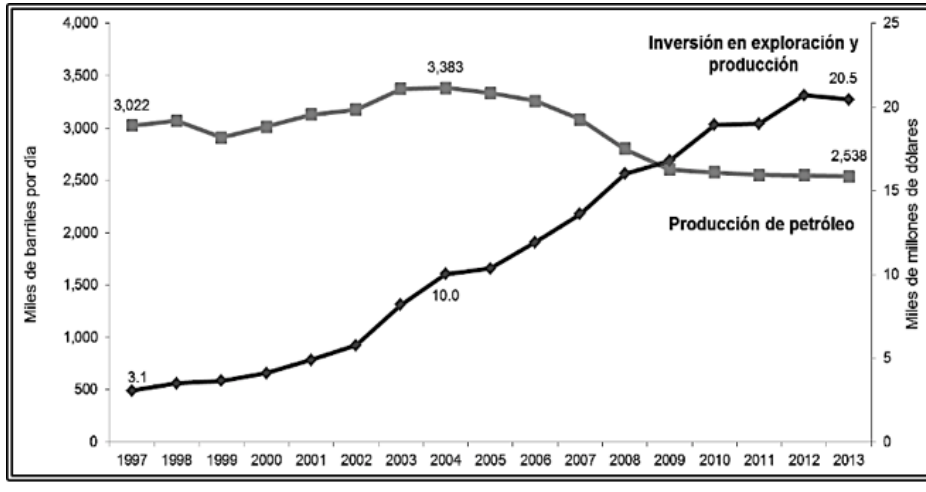
PEMEX is an expert in oil extraction located in shallow sea, however, oil production in this area is decreasing, which leads to the challenge of

exploring new and deeper areas where it requires more and better technology and therefore more investment. What it is put into the question, is to make a Mexican energy sector reform towards a productive and improving national security strategy in the energy field.

This leads us to analyze the constitutional reform initiative on energy proposed by the Mexican government, which is supported by six strategic axes presented below:

- Strengthening the role of the state as rector of the oil industry
- Economic growth
- Inclusive development
- Energy security
- Transparency
- Sustainability and environmental protection

Figure 5
PEMEX Investment *vs* oil production



Source: Presidency of Mexico (2013), data average from january to april oil production.

These strategic axes seek to provide the state of new tools for driving the country's energy policy that allows proper management and detonate a better production and use of national oil wealth. It also attempts to exploit energy resources for greater investment and job creation, as well as to enable the democratization

of productivity and quality of life of the population in the regions with access to energy, which in turn contributes to the country's energy security. In addition, it tries to mitigate the negative effects that the production and consumption of fossil fuels have on health and the environment, although there are no published strategies for this purpose.

The major challenges that the country faces are an increase in proven reserves. Furthermore, in the case of gas and crude oil of lutitas (stones that require fracture), Mexico meets technical and capacity challenges that are greater than those faced in conventional reservoirs, because the productivity per well is much lower and costs are higher, requiring more capacity of efficiency. Mexico is not taking advantage of its potential for natural gas due to lack of investment to exploit, especially in the case of lutitas stones. It should be mentioned that in 2013 while in the United States an energy revolution is brewing and about 9 100 wells to produce oil and gas from lutitas were authorized, in Mexico only three wells were permitted.

Other major challenge in Mexico is the extraction and exploitation of hydrocarbons in deep water, as it implies a greater risk faced in shallow water or on land. Moreover, the costs of deepwater drilling for Mexico are about 10 times greater than the shallow waters and 100 times higher than onshore, with low chances of success according to the energy reform initiative in 2012, in US, 137 wells were drilled to depths greater than 500 meters, while in Mexico the figure was only 6 wells. Nevertheless, it is necessary to mention that in the US more than 70 companies are involved in such activities, while in Mexico only one company takes part.

This allows us to reflect on the technological challenge Mexico faces, the large investments required, the high risk that production is not commercially attractive and the need to develop highly specialized technology. Thus, the new Mexico's energy reform proposes to allow other companies to make deepwater operations and risk-sharing efforts, providing an opportunity for PEMEX to act on equal terms with other operators in the world.

4. Expected results

One of the central themes of this constitutional reform is energy security, this issue is at present one of the central topics worldwide, given its importance in the economies and security policy states. The international environment is constantly changing, therefore, the oil and gas prices are not

going to be easy to predict. In addition, increased emissions of greenhouse gases from the production and use of this type of energy are added as a fundamental factor. Thus, it seeks to find a balance between security of supply and environmental impact.

Oil is a resource whose production and use generates negative externalities on the natural environment mainly includes emissions of greenhouse gases from the production and use of this type of energy. So to shovel the high price of oil and the impact to the environment, a renewable energy generation is being encouraged.

Since oil as a commodity is subject to the volatility of the growth potential of the global economy as well as to various geopolitical events that relate to geographic location and level of existing reserves. Besides, the characteristics of the countries who own or have increased demand for this type of energy, or the cost and access to sources of exploitation and the characteristics of the routes and international traffic type are demands to meet to extract this resource. Thus, variations in the price of this product impact significantly the performance of the economy, so it is always important energy security for it contributes to the economic stability of a nation.

Most countries of the world have opted for the pursuit of energy security. Developing countries try to secure their supply as a medium and long term strategy, as we have a scenario where there is a growing energy demand and limited supply, and a high concentration of production in a few countries and areas. The balance between supply and demand for oil is important as energy consumption levels in the world and the need for hydrocarbons for the development and growth of economies.

Mexico has triggered the alert as the oil production has been decreasing considerably, besides being a country highly dependent on the production and marketing of this type of energy, and moreover Mexico is a net importer of oil. So, both issues are impacting its economy, and this reaffirms Mexico's struggle to gain the safety of energy supply and the reduction of dependence (J. Sanchez, 2012: 143).

Insufficient production of oil and natural gas, with increased imports of natural gas, gasoline, diesel and petrochemicals, has eroded the country's energy security. In response, the energy reform model proposed contains two schemes on the one hand, efficient contracts for exploration and extraction agreements with the Federal executive, and secondly, the

minority participation in the entire value chain of hydrocarbons through the authorization of the federal government.

The reform proposal submitted for consideration the following points:

- To keep the property of the Nation on hydrocarbons in the subsurface, solids, liquids and gases.
- To maintain the ban on granting concessions, to be based on determined leading and inalienable sector activities by the state, on the understanding that it may have only subsoil resources.
- To plan the incorporation of contracts held by the Federal Government, organisms and enterprises of the State and/or third parties to enable efficiency in exploration and extraction activities.
- To authorize the minority interest in refining, transportation, storage and distribution of hydrocarbons, without compromising the ownership of the resources of the Nation.

The reforms proposed in the hydrocarbons are:

- To eliminate the ban on state contracts for the exploitation of hydrocarbons. It is proposed to delete Article 27 of the Constitution that prevents the state the use of contracts in its hydrocarbon exploitation activities, and retain the prohibition on granting concessions that confer rights on natural resources of Mexico to individuals.
- To subtract from the strategic areas of the State to basic petrochemicals and provide certainty in the constitution so that the activities of the oil industry, such as natural gas processing and oil refining as well as transportation, storage, distribution and marketing of these products and their derivatives, may be made by both State institutions, such as social and private sectors, through permissions that are granted by the federal government.
- Currently, the tax regime for PEMEX is supported on a scheme of rigid rigths which are determined without recognizing the investment needs of the company. So, the proposed tax reform will be aligned for the need of PEMEX, involving lower rigths payment than the currently paid and and the remaining of the payment of rigths will be reinvested in the company or a part may be transferred to the public budget.

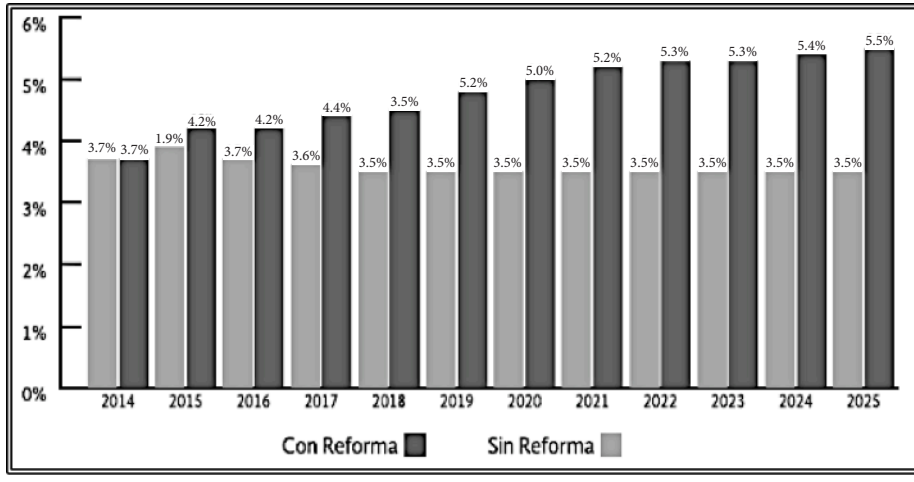
The expected benefits in hydrocarbons which this reform aims to achieve are based on achieving return rates of proven reserves of oil and gas over 100%. This means that the increase in production would be accompanied by the discovery of equal or greater volume of reserves. It aims to increase oil production from 2.5 million barrels per day to three million by 2018 and to 3.5 million in 2025. Regarding natural gas, it is intended to increase production from 5 thousand 700 million cubic feet per day to 8 billion by 2018, and to 10 thousand 400 million in 2025 (Presidency of Mexico, 2013).

In addition, the reform aims to achieve a sufficient supply of gasoline, methane gas and liquefied petroleum gas at competitive prices. Moreover, the increase in investment and production will encourage the growth of GDP and employment generation, and this will allow additional fiscal resources to be obtained, which will be used to improve the quality of life of the population and increase the country's competitiveness In terms of jobs, it is expected to generate about one million of additional jobs by 2018 and 2.5 million more jobs by 2025. Furthermore, by applying energy reform Mexico is expected to have an economic growth of 1 more percentage point in 2018, and about 2 more percentage points by 2015 (see figure 6).

It is expected that the greatest benefits of the energy reform, together with those of the tax reform consist of additional fiscal resources which are intended primarily to activities aimed at improving the quality of life of the population and increase the competitiveness of Mexico Generating greater access to fuel and energy at competitive prices.

Mexico presents great challenges in electrical energy because, according to the energy reform initiative, the populations of more than 100 thousand inhabitants record the need of electrification over 99%, however, in the smaller and marginalized towns (number of inhabitants less than 2 500) record this figure of 93.5%. Among the major challenges is to provide electricity to over 43 000 villages, benefiting a total of more than 2 million 200 thousand Mexicans. Therefore, the eradication of energy poverty is a high impact element in order to achieve an improvement in the human development of many Mexicans. Therefore, the eradication of energy poverty is a high impact element in order to achieve an improvement in the human development of many Mexicans.

Figure 6
Impact of energy reform in GDP



Source: Government of Mexico (2013), estimates of the Ministry of Finance and Public Credit (SHCP).

The Federal Electricity Commission (CFE) has a coverage of 98%, which approaches the company to fulfill its original mission. However, the demands of society by high electricity prices have increased significantly. CFE rates are not competitive internationally and when compared with Mexico's main trading partner, it is shown that even with subsidies, Mexico presents rates of 25% higher than those of the United States.The greatest differences in rates of Mexico compared to the US are found in the key segments of industry and trade, which means that prices are a restraint in the Mexican economy.

In 2012, CFE filed a financial deficit of 77 billion pesos, and in the first six months of 2013, the assets of the company decreased by 35 billion pesos. Since CFE's financial results are not sustainable and that higher rates is not an option to improve the financial health of the company, it is necessary to reduce production costs. Also, the reform aims to advance the energy transition, so it is expected that the electricity industry promotes that at least 35% of the country's electricity generation comes from renewable energy sources in 2024. A diversified and cleaner energy matrix is a condition to meet the goals of climate change mitigation, for greater flexibility in power generation and reduce costs.

The reform aims to address the limitations of the current model in order to add capacity of large-scale renewable energy through the creation of a competitive market of generation, which will be administered by the State through an independent operator, and the establishment of clean energy certificates. Thus, the proposed reform of the electricity sector is based on the following:

- Reduction of electricity costs is aimed.
- The foundation for the organization of a national electricity system based on technical and economic principles are established.
- Sector development based on the joint participation of the CFE and individual is arised.
- The powers of the State to regulate the sector development and impose interconnection obligations, fees, universal service and electrification to the participants are strengthened.

Electricity is not considered a natural resource, therefore, the State's interest is not the ownership of energy, but that energy reaches more competitive prices for Mexican families and boost the country's competitiveness. Thus, the reform proposes to open a generation market to reduce costs without losing the rectory state in the national power system control and the exclusivity to transmit and distribute power as a public service, essential to national productivity and social welfare. On the other hand, the fact of allowing electricity generation by individuals will facilitate the Mexicans and the public, private and social sectors to have more economical energy.

The reforms proposed in electrical energy support the following basic elements:

- National electrical system control is kept by the State.
- Transmission and electrical distribution sevices, and reiterating its public service character are maintained by the ownwership of the State.

It is expected with the reform that energy will be more efficient, clean and economical. Accelerating the replacement of fuel oil and diesel by generating clean energy sources and natural gas, enabling the reduction of costs. Reforms are intended to allow the development of new investment projects in the Mexican electricity sector, particularly clean energy projects.

5. Conclusions

In recent years, some big projects and public policies have been developed and they seek to consolidate strategies to strengthen the national energy sector that is in a period of great challenges, changes and transformations. Due to the stagnation of oil production characterized in the *ratio* reserves/production of oil from more than a decade, and because for several years, there has been increased production, and fewer discoveries. Although high prices and technological improvements are favoring the discovery of new reserves, policies of re-nationalization of the resource, environmental restrictions and foreign investment are still considered as a disadvantage.

The expected benefits in hydrocarbons which aims to achieve this reform is the increased production that would be accompanied by the discovery of equal or greater volume of reserves, replacement rates of proved reserves of oil and gas over 100% are to be achieved.

Mexico also has 58 percent of prospective resources that are concentrated in the deepwater Gulf of Mexico, and these can become reserves through a successful exploration activity, if focusing on priority areas. These explorations will operate at depths ranging from 450 to 2 500 meters. A statistical estimate of the success rate in these drillings would be about 33 percent.

In addition, the reform aims to reverse the import of oil and to achieve a sufficient supply of gasoline, methane gas and liquefied petroleum gas at competitive prices. Morover, the increase in investment and production of the energy sector promotes GDP growth and job creation, allowing to obtain additional financial resources which will be used to improve the quality of life of the population and increase the country's competitiveness.

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