

# Changing Mexico: Multidimensional analysis of the current situation of Mexico

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# REFORMED INSTITUTIONAL STRUCTURE OF NATURAL GAS IN MEXICO

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## Abstract

The present investigation intends to identify and analyze the regulatory dispositions of the different integrating stages of the natural gas supply regime in Mexico, at the same time to reveal the functions, attributions and obligations of the various entities that act as regulatory authorities and to study the value chain of the natural gas product, in order to point out the reality of the natural gas market in our country.

## INTRODUCTION

The use of natural gas has increased gradually and considerably in the world, and México, cannot be the exception (mainly for electric power generation purposes), this is primarily due to the strategy of replacing high-cost exploration and fuel extraction, as well as polluting effects by less expensive and even environmentally friendly sources, so that natural gas has achieved a respectable share in the hydrocarbon market<sup>3)</sup>.

This trend is the result of the adoption of the Energy Reform implemented in

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3) For more information about the problem, reserves, production and alternatives of consume of the natural gas, consult: Gershenson (2003).

Mexico in 2013, and it has been promoting an irreversible process of modernization of the energy sector in order to promote the development of the country because the challenge is to provide reliable, continuous and competitive access to natural gas at the national level through the adoption called *Comprehensive Natural Gas Supply Strategy* (Estrategia Integral de Suministro de Gas Natural), in the framework of the Energy Sector Program 2013-2018, to ensuring the supply and benefit of the operation of the national transport network, thus promoting free competition, transparency and expansion of infrastructure, guaranteeing the participation of both the private initiative companies and the *Empresas Productivas del Estado* (State Owned Productive Enterprises) in balance of conditions.

In México, a solid normative framework that formed the bases what hold up the coordination instruments between the Secretariat of Energy (Secretaría de Energía) and the various regulatory bodies in energy matters were created, such as National Hydrocarbons Commission (Comisión Nacional de Hidrocarburos) and Energy Regulatory Commission (Comisión Reguladora de Energía) as well as the National Center for the Control of Natural Gas (Centro Nacional de Control del Gas Natural), entities whose coordination has resulted: (i) the publication in June of 2015 made by Secretariat of Energy in relation of the first version of the Five-Year Plan for the Exploration and Extraction of Hydrocarbons 2015-2019 (Secretaría de Energía, 2017a) in responding to a proposal of the National Hydrocarbons Commission to give certainty and boost activity in the hydrocarbons sector; (ii) the publication in October of 2015 made by the Secretariat of Energy regarding the Five-Year Plan for the Expansion of Transportation and Storage System 2015-2019 (Plan Quinquenal de Expansión del Sistema de Transporte y Almacenamiento 2015-2019) whose text was prepared by the National Center for the Control of Natural Gas, which received the favorable opinion of the Energy Regulatory Commission, and the text contains indicative planning instruments that facilitate the work of evaluating the availability and demand for this hydrocarbon in the medium term, contributing to the viability of natural gas transport infrastructure projects in the country, using as a reference in the adoption of investment determinations that allow to corroborate its validity in the face of the constant evolution of the natural gas market, and to implement accordingly the corrective measures that ensure the effective and

efficient development of the System; (iii) the adoption on July 25, 2016 by the Secretariat of Energy, regarding the Public Policy for the implementation of the natural gas market to promote the development of the use of natural gas, which seeks to promote an efficient and competitive natural gas market that encourages investment and alternative of involving new stakeholders, the Public Policy has the aim to give coherence to the National Plan of Development 2013-2018 (Plan Nacional de Desarrollo 2013-2018) with the intention of providing satisfaction to two fundamental objectives that consist in guaranteeing the supply of energy in the country at highly competitive prices, without compromising the quality and efficiency of the productive chain, as well as guaranteeing the implementation of transparent guidelines that stimulate the progress of a truly competitive internal market where the only favored consumer is the public, a situation that can be noticed in the 2016-2017 Open Season aimed at reserving transportation capacity in the Integrated National Natural Gas Transportation and Storage System (Sistema de Transporte y Almacenamiento Nacional Integrado de Gas Natural); promote real and effective free access in the System described above, and the consequent impetus of true competition in the commercialization activity, which allows access to new participants in this market; (iv) the implementation in December of 2017, by the Secretariat of Energy of the Public Policy on energy matters applicable to the constitution of Natural Gas Storage, with which not only the gas industry, but also the general public and the final consumer are supported, since its reason consists of México's enjoyment of strategic and functional inventories that contribute in the constitution of sufficient guarantee of natural gas supply, because an adequate liquidity propitiates the safeguard of the investor's interest, as well as the national energy security and consequently the sustainability, the continuity of the supply, and mainly the diversification of the participating market, which allows the expansion of the potential of the country's energy sector, a fundamental element for the economic development of Mexico.

Consequently, this article intends to describe under an exploratory methodology: (i) on the one hand the normative regulation, as well as the regulatory authorities, and (ii) on the other hand, the participants in the natural gas value chain. This analysis allows to identify finally the current situation and areas of opportunity of the sector.

## I. NORMATIVE FRAMEWORK OF NATURAL GAS IN MEXICO

In México, the National Plan of Development 2013-2018 (Secretaría de Gobernación, 2013) foresees as a fourth national goal a prosperous Mexico that promotes the sustained growth of productivity in a climate of economic stability and through the generation of equal opportunities. The above mentioned is necessary to adequate infrastructure and access to strategic inputs that foster competition and allow greater flows of capital and knowledge to individuals and companies with the greatest potential to take advantage of it. Likewise, this goal seeks to provide favorable conditions for economic development, through a regulation that allows a healthy competition between companies and the design of a modern policy of economic promotion focused on generating innovation and growth in strategic sectors. In this sense, the first of the Transversal Strategies for national development is to democratize the productivity that implies carrying out public policies to reduce obstacles that prevent their maximum potential for broad sectors of national life. It also means generating the right incentives to integrate all Mexicans into the formal economy; analyzing in a comprehensive manner the income and expenditure policy so that government strategies and programs induce formality; and encouraging, among all the actors of economic activity, the efficient use of productive resources. Considering the above mentioned, it is concluded that democratizing productivity means, in short, that opportunities and development reach all regions, all sectors and all groups of the population. Thus, one of the principles that must be followed by the design and implementation of public policies in all the dependencies of the Federal Public Administration must be its ability to expand the economy's productivity. Each government program should be designed to respond to how the productivity of a sector, a region or a group of the population can be raised. To achieve this national goal consisting of a *prosperous Mexico*, an Action Plan IV.2 is foreseen, which translates into eliminating the obstacles that limit the productive potential of the country, for which reason it is proposed to supply energy to the country with competitive prices, quality and efficiency throughout the productive chain. This implies increasing the

capacity of the State to ensure the supply of crude oil, natural gas and gasoline that the country demands; strengthen the rational supply of electricity; promote the efficient use of energy, as well as the use of renewable sources, through the adoption of new technologies and the implementation of best practices; in addition to strengthen the development of science and technology on priority issues for the energy sector. The document in analysis also states that the productivity of an economy depends not only on the availability and quality of production inputs, but also on the way in which they interact. In this sense, it is essential to guarantee clear rules that encourage the development of a competitive internal market, where the main source of differentiation among companies lies in the quality and price of their products and services. A regulation that inhibits monopolistic practices and encourages companies to produce better products and services in a more efficient manner will be privileged.

Consistent with the provisions of the National Plan of Development 2013-2018, we proceed to analyze the regulatory provisions that represent the central axis of the Energy Reform in Mexico.

1. Political Constitution of United Mexican States (Constitución Política de los Estados Unidos Mexicanos).- The main regulatory adjustments that triggered the so-called Energy Reform in Mexico were published in the Official Gazette of the Federation on the 20th of December of 2013, by means of the disclosure of the Decree by which various provisions of the Political Constitution of the United Mexican States are reformed and added in matters of Energy, and which consist specifically of: (i) the reform of the fourth, sixth and eighth paragraphs of Article 25; the sixth paragraph of article 27; the fourth and sixth paragraphs of article 28, and (ii) the addition of a seventh paragraph, with the subsequent ones in its order, to article 27; an eighth paragraph, going through the subsequent ones in their order, to article 28 of the Political Constitution of the United Mexican States.

2. Consequently, the constitutional energy reform generated the need to harmonize various regulatory provisions and even structure a new legal framework in this area, a situation that can be reviewed in the Decree published in the Official Journal of the Federation on 20<sup>th</sup> December, 2013<sup>4)</sup>

3. In summary, and derived from the Energy Reform operated in Mexico, a

variety of regulatory provisions that integrate the legal framework of the gas sector has been deployed. We will see it to have an overview below: (i) organic laws of the secretariats and other entities participating in this sector; (ii) regulatory professional service statutes of the regulatory commissions; (iii) laws and internal regulations of the regulatory bodies coordinated on energy matters; (iv) general administrative and technical provisions; (v) official Mexican standards (mainly in terms of quality specifications, declaration of validity of standards, and distribution plants); (vi) decrees of the Secretariat of Energy on gas to regulate mainly maximum selling prices; (vii) general rules to define the methods of adjusting the value of hydrocarbons of the rights on hydrocarbons, (viii) agreements of the National Hydrocarbons Commission: (ix) agreements of the Energy Regulatory Commission; (x) declarations of entry into force of the agreements for the creation of State Owned Productive Enterprises and its subsidiaries in energy matters; (xi) methodologies of the Secretariat of Energy regarding the maximum price of gas subject to first-hand sale (xii) guidelines of the Secretariat of Finance and Public Credit (Secretaría de Hacienda y Crédito Público) for the preparation and presentation of costs, expenses and investments; the procurement of goods and services in contracts and assignments; the accounting and financial verification of contracts, and the updating of royalties in contracts and the right to extract hydrocarbons; (xiii) guidelines of the National Hydrocarbons Commission that regulate the procedure for the presentation, approval and supervision of compliance with exploration and development plans for the extraction of hydrocarbons, as well as their modifications; (xiv) general terms and conditions of the Energy Regulatory Commission for the first-hand sales of natural gas; (xv) guidelines of the Secretariat of Agrarian, Territorial and Urban Development (Secretaría de Desarrollo Agrario, Territorial y Urbano) that regulate the process of mediation on the use and superficial occupation in the matter of hydrocarbons; (xvi) guidelines of the Secretariat of Finance and Public Credit referred to the article 62 of the Hydrocarbons Revenue Law (Ley de Ingresos de Hidrocarburos), and (xvii) general guidelines of the Bank of Mexico to be observed by assignees for the registration of exploration assignments and extraction of hydrocarbons in the fiduciary registry.

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4) Decreto por el que se reforman y adicionan diversas disposiciones de la Constitución Política de los Estados Unidos Mexicanos, en materia de energía: Available at: [http://dof.gob.mx/nota\\_detalle.php?codigo=5327463&fecha=20/12/2013](http://dof.gob.mx/nota_detalle.php?codigo=5327463&fecha=20/12/2013)

## II. REGULATORY AUTHORITIES OF NATURAL GAS IN MEXICO.

For compliance with the aforementioned Action Plan IV.2. that consists in eliminating the obstacles that limit the productive potential of the country, based on the information published on the official website of the Secretariat of Energy, and with information provided by the Energy Regulatory Commission, the authorities participating in the regulation of the gas market in Mexico that operate within the regulatory framework applicable to the subject matter are set in the Table 1 (Secretaría de Energía, 2017b).

As a consequence of such Energy Reform, the Mexican gas sector is operated mainly with the participation of the following entities, funds, programs, strategies, plans, public policies, and systems: (1) Secretariat of Energy; (2) Mexican Petroleum Fund for Stabilization and Development (Public Trust whose trustee is Bank of México and

**Table 1** Regulatory authorities in the field of hydrocarbons

Political Constitution of the United Mexican States Articles 25, 27 and 28	
Hydrocarbons Law ( <b>Ley de Hidrocarburos</b> )	
Law	Regulation
<b>Energy Regulatory Commission</b>	<b>National Hydrocarbons Commission</b>
Statute of the Regulatory Professional Service of the Energy Regulatory Commission	Internal Regulations of the National Hydrocarbons Commission.
<b>Secretariat of Energy</b>	<b>PEMEX (Petróleos Mexicanos)</b>
1.- Law of the Coordinated Regulatory Bodies on Energy Matters (Energy Regulatory Commission and National Hydrocarbons Commission) 2.- Law of the National Agency of Industrial Safety and Protection of the Environment.	Regulation of the Law of PEMEX
<b>Secretariat of Interior Affairs (Secretaría de Gobernación)</b>	<b>Secretariat of Energy</b>
1.- Federal Law to Prevent and Punish the Crimes Committed in the Field of Hydrocarbons 2.- Federal Law on Transparency and Access to Public Information	1.- Internal Regulation of the Secretariat of Energy 2.- Regulation of the Hydrocarbons Law 3.- Regulation of the Activities referred to the Title III of the Hydrocarbons Law
<b>Secretaría de Hacienda y Crédito Público.</b>	<b>Secretariat of Finance and Public Credit</b>
1.- Hydrocarbons Revenue Law 2.- Law of the Mexican Petroleum Fund for Stabilization and Development.	Regulation of the Law of Income on Hydrocarbons
<b>National Commission for the Efficient Use of Energy (Comisión Nacional para el Uso Eficiente de la energía)</b>	<b>Secretariat of Environment and Natural Resources (Secretaría de Medio Ambiente y Recursos Naturales)</b>
Law of Energy Transition	Internal Regulation of the National Agency for Industrial Safety and Environmental Protection of the Hydrocarbons Sector
<b>Secretariat of Environment and Natural Resources</b>	
Law of the National Agency of Industrial Safety and Protection of the Environment of the Hydrocarbons Sector	

Source: Elaboration by authors

has a Technical Committee); (3) PEMEX and Federal Electricity Commission as State Productive Enterprises; (4) National Hydrocarbons Commission; (5) Energy Regulatory Commission; (6) Secretariat of Finance and Public Credit; (7) National Hydrocarbons Information Center; (8) National Agency for Industrial Safety and Environmental Protection of the Hydrocarbons Sector; (9) Stabilization Funds for Oil Revenues and Stabilization of Income of the Federal Entities; (10) Hydrocarbons Extraction Fund; (11) Treasury of the Federation; (12) Research funds in the field of hydrocarbons and energy sustainability and in matters of oil control; (13) National Center for the Control of Natural Gas; (14) National Program for the Sustainable Use of Energy; (15) Secretariat of the Environment and Natural Resources; (16) National Industrial Safety and Environmental Protection of the Hydrocarbons Sector; (17) Comprehensive Natural Gas Supply Strategy; (18) Five-Year Plan for the Exploration and Extraction of Hydrocarbons 2015-2019 at the proposal of the National Hydrocarbons Commission, (19) Five-Year Plan for the Expansion of the Transportation and Storage System 2015-2019 developed by the National Center for Natural Gas Control; (20) Public Policy for the implementation of the natural gas market adopted on July 25, 2016 by the Secretariat of Energy; (21) Public Policy on energy matters applicable to the constitution of Natural Gas Storage, and (22) the Integrated Natural Gas Transportation and Storage System.

### **III. PARTICIPANTS IN THE VALUE CHAIN OF NATURAL GAS IN MÉXICO<sup>5)</sup>.**

The natural gas market in Mexico aims to satisfy the demand of the following consumers: (i) electricity sector; (ii) industrial sector; (iii) oil sector; (iv) residential sector; (v) services sector, and (vi) motor transport sector.

There are three origins or sources of natural gas supply in Mexico: (i) through

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5) A joint study on the business scheme of the hydrocarbon sector in México is carried out by Escamilla (2015). To know the scope of natural gas commercialization in the world, it is suggested to consult: Valdez (2011). Regarding the industrial development of natural gas in Mexico, it is pertinent to consult: Marquéz (1988).

importation from the northern border and Liquefied Natural Gas, producer of the North Region consisting essentially of dry gas (taking into consideration the concept of interchangeability or fungibility that is a determining condition in the commercialization of natural gas in the whole world, since it allows the miscibility of diverse sources of natural gas without altering its characteristics and performance as energy); (ii) production of the Marine Regions, and (iii) production of the Southern Region which is processed by PEMEX prior to its injection into the National Gas Pipeline System (consisting mainly of bitter wet gas) respecting the Technical Guidelines on Measurement of Hydrocarbons of the National Hydrocarbons Commission, emitted in September 29<sup>th</sup>, 2015 (Comisión Reguladora de Energía, 2015: pp. 15 et seq.)

According to the *Mexican Association of Natural Gas* (Asociación Mexicana de Gas Natural: which is made up of natural or legal persons that own and / or operate infrastructure and / or commercialize natural gas that provide consulting, goods or services to the natural gas industry and are dedicated to teaching, research and education in general that has important alliances with, such as the World Energy Council-*Capítulo México*, the Employers' Confederation of the Mexican Republic and the International Gas Union), the affiliated participants are classified in (i) permit holders (those companies that have obtained permits from the federal government to distribute, transport and / or store natural gas as a social interest service and public order) (ii) vehicular natural gas stations (natural gas service stations for its use in motor vehicles; (iii) permit holders for own uses (those companies that have obtained permits from the federal government stecerse of natural gas including transportation to its consumption centers; (iv) product suppliers (are the manufacturers and importers of materials, supplies, equipment and components related to the natural gas industry), and (v) service providers (institutions that serve the natural gas industry, such as engineering, construction, marketing, legal advice, management, consulting and verification units) (Asociación Mexicanas de Gas Natural, 2018).

From the point of view of the genealogy of the permits<sup>6)</sup> granted by the authority,

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6) For purposes of granting and monitoring compliance, it is useful to remember the existence of Regulatory System of Energetic Sector (Sistema de Reguladores del Sector Energético) that is available at: <https://www.gob.mx/cre/documentos/sistema-de-reguladores-del-sector-energetico>, that the *Strategic Plan 2018-2022* (Plan Estratégico 2018-2022) foresee, and the National Hydrocarbons Commission, Energy Regulatory Commission and Agency of Security, Energy and Environment (Agencia de Seguridad, Energía y Ambiente) participate in its execution.

these can be classified into: (i) distribution of natural gas; (ii) distribution through natural gas pipelines; (iii) decompression of natural gas; (iv) transportation by other means than pipelines; (v) natural gas service station; (vi) compression of natural gas; (vii) open access transportation of natural gas by pipeline; (viii) open access natural gas transportation; and (ix) transportation of natural gas for its own use.

The activities of exploration and extraction of natural gas represent a considerable source of natural gas supply. In effect, and in accordance with the 2016-2030 Natural Gas Prospective issued by the Secretariat of Energy (Secretaría de Energía, 2016: pp.16-18) and the Five-Year Plan for the Exploration and Extraction of Hydrocarbons 2015-2019 (Secretaría de Energía, 2017a), this activity undoubtedly reveals tangible benefits of the Energy Reform, which translates into the materialization of the so-called : (i) Round Zero; (ii) Round One, and (iii) Round Two, put into practice with the purpose of obtaining income for Mexico that contribute to achieve its development and long-term progress.

Thus, with the execution of Round Zero, the Secretariat of Energy granted PEMEX 489 assignments, of which, authorize 108 to conduct exploration activities, 286 of extraction and 95 that correspond to fields in production assigned for a period of two years or until the State tenders them.

For its part, Round One is integrated by four international public tenders:

- a) The first tender concerning Contracts of Production Sharing for the Exploration and Extraction of Hydrocarbons, which was announced on December 11, 2014, and which is integrated by 14 areas located in shallow waters of the Gulf of Mexico, within the oil province *Cuencacas del Sureste*, this province has been the most explored one with the highest percentage of accumulated production in the country. On July 15, 2015, two of the 14 areas were awarded, and finally, on September 4<sup>th</sup>, 2015, the National Hydrocarbons Commission announced the official decision with the winning bidders: (i) Sierra Oil & Gas in consortium with Talos Energy, LLC, and (ii) Premier Oil, PLC.
- b) The second bidding took place on February 27<sup>th</sup>, 2015, comprised of 5 areas located in shallow waters of the Gulf of Mexico, within the oil province of *Cuencas del Sureste*. Its result was published on September 30<sup>th</sup>, 2015, awarding three areas with Production Sharing Contracts for the Extraction of Hydrocarbons. The signing of the first contract for the *Amoca*, *Tecoalli* and *Miztón* fields took place on November 30<sup>th</sup>, 2015, while the contracts for the *Hokchi*, *Pokoch* and *Ichalkil* fields were signed on January 7<sup>th</sup>, 2016. The beneficiary companies of the second tenders were: (i) Eni International BV; (ii) Pan American Energy LLC, in consortium with E & P Hydrocarbons and Servicios S.A. to C.V., and (iii) Fieldwood Energy LLC, in consortium with

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Petrobal S.A.P.I. of C.V.

- c) On May 12<sup>th</sup>, 2015, the third call for bids corresponding to Round One is published, which included 25 contractual land extraction areas under the modality of license contract. All areas were incorporated in three geographical zones identified as *Campos Burgos*, *Campos Norte* and *Campos Sur*. On December 15<sup>th</sup>, 2015, 100% of the fields were awarded. It is essential to specify that, for the fulfillment of the assigned contracts, an associated investment of approximately 1,100 million dollars was required during the next 25 years. Lastly, on May 10<sup>th</sup>, 2016, the National Hydrocarbons Commission signed, on behalf of the United Mexican States, 19 of the 25 hydrocarbon extraction contracts under the License modality, which will be in charge of 12 new contractors; the remaining 6 contracts were signed on August 25<sup>th</sup>, 2016.
- d) The fourth and final tender for Round One was published on December 17<sup>th</sup>, 2015, and refers to 10 areas located in the deep waters of the Gulf of Mexico within the oil provinces *Cinturón Plegado Perdido* and *Cuenca Salina*. According to the bidding rules, published on August 31<sup>st</sup>, 2016, the presentation, opening of proposals and declaration of winning bidders took place on December 5<sup>th</sup>, 2016.

Now, with regard to Round Two, on July 19<sup>th</sup>, 2016, the first tender was submitted for 15 contract areas located in shallow waters of the Gulf of Mexico, within the oil provinces of *Tampico-Misantla*, *Veracruz* and *Cuencas del Sureste*. According to the bidding rules, the act of presentation and opening of proposals and declaration of winning bidders will be on March 22, 2017. Round 2.3, is composed of 14 contractual areas under the modality of license contract. These contractual areas are located in the oil provinces of *Burgos*, *Tampico-Misantla*, *Veracruz* and *Cuencas del Sureste*.

Finally, on August 23<sup>rd</sup>, 2016, the bidding rules for the second round of Round Two, consisting of 12 contract areas under the license contractual modality, were announced, 9 of these areas are located in the *Cuenca de Burgos*, 2 in the *Cinturón Plegado de Chiapas* and one in the *Cuencas del Sureste*. The act of presentation and opening of proposals and declaration of winning bidders took place on April 5<sup>th</sup>, 2017, according to the schedule of bidding rules.

Regarding the natural gas transportation in Mexico, it is carried out: (i) through the National Gas Pipeline System; (ii) private pipelines and the Federal Electricity Commission (when is used in the electric power generation); (iii) Los Ramones pipeline; (iv) and other pipeline projects. This, in reference to the progress made in the natural gas infrastructure regime and in accordance with figures provided by the Secretariat of Energy in its *Prospectiva de Gas Natural 2017-2031*: (i) from December 1<sup>st</sup>, 2012 to

August 2017, 3,392 kilometers have been added to the national network of gas pipelines with an increase of 21% compared to November 2012 and 14 new gas pipelines have been completed; (ii) from June 7<sup>th</sup>, 2016 to June 6<sup>th</sup>, 2017, the Los Ramones Phase II Sur gas pipeline was completed. The National Center for the Control of Natural Gas led the project that consisted in the construction of a natural gas transportation system that goes from *Villa Hidalgo, San Luis Potosí* to *Apaseo El Alto, Guanajuato* with a length of 291 kilometers, a maximum capacity of 1,430 mmcf/d and an investment of 945 million dollars; (iii) between July 2016 and March 2017, two new gas pipelines were closed, *Waha-Presidio* and *Waha-San Elizario*; (iv) in July 2016, the Federal Electricity Commission tendered a natural gas transportation service contract for gas pipelines: *Sur de Texas-Tuxpan*. This project will extend the gas pipeline network by 742 kilometers and will require an estimated investment of 2,111 million dollars; (v) 9 projects are under construction: 1) *El Encino-Topolobampo*., 2) *El Encino- La Laguna*., 3) *Nueva Era*, 4) *Tuxpan-Tula*, 5) *La Laguna-Aguascalientes*, 6) *Tula- Villa de Reyes*, 7) *Villa de Reyes-Aguascalientes-Guadalajara*, 8) *Samalayuca-Sásabe*, and 9) *Matamoros-Tuxpan*, which entail an investment of 6,706 million dollars and represent an increase of 4,129 kilometers to the network, and (vi) at the end of 2016, the Energy Regulatory Commission had 57 open access permits for natural gas through pipelines, of which 34 are in operation and 23 are under construction, these permits represent a total length of 18,994.4 kilometers (Secretaría de Energía, 2017b: pp.55 et seq.)

In terms of consumption, it will be necessary to distinguish between different strata of them, highlighting by their relevance: (i) the sale of first hand (which is understood as the first alienation, in national territory, carried out by PEMEX, its subsidiary bodies or divisions, and any other State Owned Productive Enterprise, or a legal person, on behalf of the State, to a third party or between them, which must be done at the exit of the processing plants, refineries, points of injection of imported product, interment pipelines, or injection points of hydrocarbons from production fields directly, and (ii) final users of low-consumption (person acquiring natural gas whose maximum annual consumption of energy is of 5,000 GJ.).

At the current time, and specifically referring to the growing sector that is the marketer, a list of the companies that have this type of authorization in Mexico is noted below, according to the Register of Marketers (See Table 2) issued by the Energy

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**Table 2** Authorized marketers 2017

(1) JM and Ral Energy México, S. de R. L. de C.V. <sup>7)</sup>	(32) Gazprom Marketing & Trading México, S. de R. L. de C.V.
(2) Accesgas S. A. P. I. de C.V.	(33) Petrovim, S. A. de C.V.
(3) World Fuel Services México, S. de R. L. de C.V.	(34) Windstar Energy Resources, S. de R.L. de C.V.
(4) Gas del Litoral, S. de R. L. de C.V.	(35) Petroland, S. A. de C.V.
(5) Shell Trading México, S. de R. L. de C.V.	(36) P. M. I. Comercio Internacional, S. A. DE C.V.
(6) CFenergía, S.A. DE C.V.	(37) PEMEX Exploración y Producción
(7) Igasamex Bajío, S. de R. L. de C.V.	(38) José Gómez Camacho, S. A.
(8) MGC México, S. A. de C.V. (HC)	(39) Strata Bps, S.A. P. I. de C.V.
(9) IEnova LNG, S. de R. L. de C.V. now IEnova Marketing, S. de R. L. de C.V.	(40) Goldman Sachs Global Commodities, México, S. de R. L. de C.V.
(10) Gas Natural Servicios, S. A. de C.V.	(41) Súper Gas de Ciudad Juárez, S. A. de C.V.
(11) CH4 Energía, S. A. de C.V.	(42) BP Energía México, S. de R. L. de C.V.
(12) GDF Suez México Comercializadora, S. de R. L. de C.V.	(43) Cargill de México, S. A. de C.V.
(13) Energas de México, S. A. de C.V.	(44) Gigo Transport México, S. A. de C.V.
(14) Iberdrola Energía Altamira de Servicios, S. A. de C.V.	(45) Tenaska Gas de México, S. de R. L. de C.V.
(15) Servicios Industriales de Energía, S. de R. L. de C.V.	(46) Neomexicana de GNC, S. A. P. I. de C.V.
(16) Abastecedora de Combustibles del Pacífico, S. A. de C.V.	(47) Enersi, S. A. de C.V.
(17) Petro Smart Combustibles, S. A. de C.V.	(48) Almacenadora de Gas Windstar, S. de R. L. de C.V.
(18) KNG Ultra, S. A. de C.V.	(49) Novum México Trading S. de R. L. de C.V.
(19) Enerpiq, S. de R. L. de C.V.	(50) Súper Gas de Piedras Negras, S. A. de C.V.
(20) Cía. Comercializadora de Hidrocarburos y Gas Natural, S. de R. L. de C.V.	(51) Blue Energy and Electricity, S. A. P. I. de C.V.
(21) Shell México Gas Natural, S. de R. L. de C.V.	(52) Castleton Commodities Mexico, S. de R. L. de C.V.
(22) Comercializadora KNG Ultra, S. A. de C.V.	(53) Petroleum Services Internacional S. A. de C.V.
(23) Comercializadora Energía de la Reforma, S. de R. L. de C.V.	(54) BioUrja México Gas, S. de R. L. de C.V.
(24) Macquarie Energy Mexico, S. de R. L. de C.V.	(55) Opemaxport, Operadora Marítima Portuaria, S. A. de C.V.
(25) El Paso Energy Marketing de México, S. de R. L. de C.V.	(56) ExGen Energy, S. de R. L. de C.V.
(26) Autoabastecedora Castro del Río, S. A. de C.V.	(57) Consorcio Petrolero 5M del Golfo S. A. P. I. de C.V.
(27) Eneroil, S. A. de C.V.	(58) Amerigas Propane LP, S. A. de C.V.
(28) Diavaz Gas Com, S.A. P. I. de C.V.	(59) Quimica Logistics, S. A. de C.V.
(29) Trafigura México, S. A. de C.V.	(60) Intergen Soluciones Energéticas, S. de R. L. de C.V.
(30) We Gas México, S. A. P. I. de C.V.	(61) Energy Greenhouse Park, S. A. P. I. de C.V.
(31) Gas Natural Uruapan, S. A. de C.V.	(62) Comercial y Transporte GNC, S. A. P. I. de C.V.

Source: Elaboration by authors with data of (Comisión Reguladora de Energía, 2018)

Regulatory Commission (Comisión Reguladora de Energía, 2018):

On January 24<sup>th</sup>, 2018, Agreement No. A/070/2017 was published in the First Section of the Official Gazette of the Federation<sup>8)</sup> by which the Governing Body of the Energy Regulatory Commission will repeal the Directive for the Determination of Geographic Distribution Areas, and determines the entire national territory as a unique geographical area for the purpose of distributing natural gas, which implies that the

7) S. de R. L. de C.V., S. A. de C.V. and S. A. P. I. de C.V. mean Sociedad de Responsabilidad Limitada de Capital Variable, Sociedad Anónima de Capital Variable and Sociedad Anónima Promotora de Inversión de Capital Variable respectively.

8) Acuerdo por el que la Comisión Reguladora de Energía determina a todo el territorio nacional como zona geográfica única para fines de distribución de gas natural: Available at: [http://www.dof.gob.mx/nota\\_detalle.php?codigo=5511261&fecha=24/01/2018](http://www.dof.gob.mx/nota_detalle.php?codigo=5511261&fecha=24/01/2018)

entire national territory is cataloged as a uniform geographical area for the purposes of gas distribution natural gas by pipeline, which has the consequence that *no exclusivity* is attributed to the holders of the permits that carry out the natural gas pipeline distribution activity, as it represents a common space in which the natural gas distributors are in possibilities to install and even extend their distribution networks to provide the service to users, based on the terms and conditions of the e their respective permissive authorization.

This determination represents an appreciable change of paradigm regarding the regulation of the distribution spaces, since it implies greater elasticity in the development of activity, favoring the increase in the coverage of the service in the geographic zones of demand and a benefit in the agility of the proceedings tending to the granting or modification of the corresponding permits.

It is punctual to remember that prior to the so-called Energy Reform, the conferral of a permit to distribute natural gas attributed to its owner an exclusivity period of up to 12 years for the execution of this activity, susceptible to extend for half of the original term, and during such period, the licensee was authorized, exclusively, to extend its coverage system within the limits of the granted geographical area, in which any person could operate under that practically monopolistic regime, so that he did not face any kind of competitive threat. The recent adaptation eliminates the concept of exclusivity in the distribution of natural gas by pipeline, representing an advance towards the creation of an open and truly competitive market in the concept of natural gas distribution.

## CONCLUSION

**First.-** The Energy Reform carried out in Mexico in 2013 is the product of reform processes that were developed during the last 30 years (specifically in 1992, 1996, 2008, and 2013), whose implication has been the liberalization of the energy sector to favor free competition and consumer protection, as a form of harmonization of what happens in the international context in order to privilege both domestic and foreign large private investors, thereby facilitating the opening of the network industry as an instrument of

execution of the production and supply chain of hydrocarbons in Mexico, which involved the segmentation of the industrial activities of PEMEX in order to make its subsequent transfer to the private initiative. It remains to be seen if, despite the adoption of the new productive paradigm plans the participation of multiple private investors, the risk of control being submerged in the strategic points of the hydrocarbon production system in Mexico is not compromised, since much has been questioned if in fact, the hydrocarbon industry could suffer a new stage of competitive market concentration, in which the vigorous participants of always reestablish their hegemony and consolidate even more dominant.

**Second.-** It is urgent to adopt measures tending to guarantee the interchangeability or *fungibility* of natural gas in Mexico, as the specifications have been determined to maintain such hydrocarbon, to maintain its quality unchanged and thus preserve integrity in its transportation and end use, which makes difficult the compliance of the Mexican official standard that defines the characteristics and specifications of natural gas that is injected into transportation, storage and distribution systems, and has been adapted in recent decades to adapt to the national context. Recognizing that it is currently questioned whether the natural gas injected in the Southern Zone meets the specifications established in the reference standard<sup>9)</sup>.

**Third.-** The participation of both national and international companies in the energy market in general and natural gas in particular in Mexico may be exercised under three types of modalities: (i) directly; (ii) in association, or (iii) through the provision of, in each of the integrating stages of the industry value chain, namely: a) exploration; b) exploitation; c) transportation; d) transportation; e) distribution; f) transformation, and g) marketing.

However, energy development in Mexico should not be considered as the final objective of the reform, since it would aspire to achieve the social and economic development of the country that in turn facilitates the progress of other strategic sectors

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9) Regarding the quality of natural gas, (specifications of natural gas in Mexico; variety of the quality of gas in Mexico; international practice on administration of the quality of gas; measurement needs in injection and extraction points and alternative solutions to the problem of quality of natural gas), consult: Comisión Reguladora de Energía y Hartree Consultores (2015)

with requirements to increase capabilities in science and technology, which would be achieved by strengthening intellectual capital through the transfer of knowledge, strengthening the human capital of the participating entities, this in order to achieve the prosperity of its inhabitants.

**Fourth.-** The active management, systematization and optimization of logistics therefore present significant economic opportunities in the natural gas industry in Mexico where there are undoubtedly several success stories<sup>10)</sup>.

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10) For the success examples in the gas sector, consult: Flores and Robles (2015)

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