



# SUSTAINABILITY REPORT

# 2016

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# Message from the General Director

2016 has been a year of great complexity in which Petróleos Mexicanos faced important challenges, but also brought opportunities to keep strengthening Pemex and consolidate it as a major player in the global oil and gas industry.

We are taking advantage of all the new tools provided by the Energy Reform with a focus on profitability, without forgetting that, as a state-owned company, we have the mandate to maximize the resources for the development of the country.

In 2016, we achieved the first of many partnerships that will consolidate Pemex as one of the major oil companies. Together with the Australian company BHP Billiton, we won the first farm out contract of Pemex's history, the Trion block, which will be explored and developed in the "Cinturón Plegado de Perdido", located in ultra-deep waters of the Gulf of Mexico. Furthermore, with the American company Chevron and the Japanese company Inpex, we jointly won the tender of the National Hydrocarbons Commission to explore the Block 3 North in deepwaters.

In terms of industrial safety, we obtained the lowest accident frequency rate in the history of the company, registering 0.36 injuries per million man hours. This rate represents a 64% decrease in the incidence of disabling accidents and fatalities since Pemex-SSPA System was implanted as a best practice. The operational discipline and effective operation of our systems enabled us to reduce personal accidents by 29% during 2016 and to achieve a significant improvement in occupational health, reducing by 69% the descent due to diseases of workers at drilling offshore platforms.

To reach our goal of Zero Accidents we keep on working on the continuous improvement of our Safety, Health, and Environmental Protection Policy, as well as on the training of our colleagues, with the aim of moving towards cleaner and safer operations.



**We are taking advantage of all the new tools provided by the Energy Reform with a focus on profitability, without forgetting that, as a state-owned company, we have the mandate to maximize the resources for the development of the country.**

Regarding the promotion of social development in regions where we have a strong presence, during 2016 we invested 187 million pesos in our Support to the Community and the Environment Programs (PACMA), through which we promote actions with a direct impact on the quality of life of families. Some examples are the Mobile Medical Unit, the rehabilitation of schools and the development of infrastructure works for the benefit of oil communities.

For almost 20 years, Pemex has supported, promoted and developed high impact environmental conservation projects. We do so because we are convinced that companies in the energy sector have an ethical and moral commitment to the conservation of our ecosystems. In 2016, we wanted to go a step further, thus we started working on the creation of the JATUSA Ecological Corridor, a project that will make us the first company in devoting such a large area for conservation purposes, which will enable the advancement of the interconnection of natural or modified spaces, ecosystems and habitats in order to facilitate conservation of biological diversity and the continuity of ecological processes. To further strengthen this project, we included it within our new Business Plan, ensuring thus the vision of perdurability that we want to print on it.

Regarding our environmental liability, and despite the company's efforts to clean up impacted areas contaminated with hydrocarbons, fuel theft continued to have a significant impact on ecosystems and affected the assets of Pemex and the country, jeopardizing the safety of communities living close to our pipelines. To fight this crime, a new strategy is already being implemented as part of an inter-institutional effort involving Petróleos Mexicanos, the Ministry of National Defense, the Ministry of Finance and Public Credit (SHCP, by its acronym in Spanish), the Attorney General of the Republic (PGR, by its acronym in Spanish), the Federal Police, the Federal Attorney's Office of Consumer (Profeco, by its acronym in Spanish), as well as state and municipal police departments.

Finally, in financial matters, our total sales revenue amounted to \$ 1'079,546 million pesos and we contributed to the public finances with the payment of taxes, rights and exploitations for \$264,521 million pesos.

Towards the end of the year, we made the presentation of our 2017-2021 Business Plan, an instrument that promotes the creation of partnerships throughout Pemex's value chain, as a mechanism to increase the profitability of our investments. The Plan contains the actions to be taken in order to replace the natural decline of our most important fields, as well as to efficiently operate the refineries and eliminate losses in the National Refining System by 2021.

The future imposes a scenario of important challenges but also opportunities for the modernization and transformation of the company.

Our confidence in the talent and work of our employees allows us to look towards the future with optimism. Based upon basic principles of a clean, safe and sustainable operation, Pemex will continue occupying one of the most relevant positions in the international scope and will continue being the most emblematic company of Mexico.

**José Antonio González Anaya**

Pemex General Director





# Guiding principles of the report

## ABOUT THIS REPORT

The Sustainability Report of Petróleos Mexicanos 2016 presents the most significant economic, social and environmental results of the fiscal year 2016 and the results of Pemex Corporativo (Pemex Corporate) and its Subsidiary Productive Companies (EPS, by its acronym in Spanish), being these: Pemex Exploración y Producción (Pemex Exploration and Production), Pemex Perforación y Servicios (Pemex Drilling and Services), Pemex Transformación Industrial (Pemex Industrial Transformation), Pemex Logística (Pemex Logistics), Pemex Etileno (Pemex Ethylene) and Pemex Fertilizantes (Pemex Fertilizers).

The Report highlights the guidelines of our 2017-2021 Business Plan and was developed under quality assurance standards, the 10 Principles of the Global Compact ([www.unglobalcompact.org](http://www.unglobalcompact.org)) and the IPIECA Sustainability Reporting Guidance, which is the global oil and gas industry association specializing in sustainable practices.

## MATERIALITY ANALYSIS

We understand by material matters all those aspects of relevance to our stakeholders and to the sector at an international level, which may represent a risk for the continuity of our business. The methodology for the analysis of materiality consists of:

**Identification:** Relevant issues through interviews with key areas, analysis of public opinion and perception of relationship groups were visualized.

**Prioritization:** Issues were weighted and prioritized according to the relevance to the sustainability of the business in the long term.

**Validation:** The contents were subject of evaluation by different areas to select the approaches and indicators to be included in the report.

## MAIN IMPACTS

The activities of the oil and gas industry impact on social, economic and environmental spheres of our environment; this is why Pemex develops preventive actions in order to mitigate negative impacts and maximize the benefits that its operation entails for society.

In economic matters, we have the obligation to generate value and contribute to guarantee the availability of energy that the country requires for its development.

With regard to our environmental management, we focus our performance on: (i) reducing the emissions we generate to the atmosphere, (ii) using water efficiently, (iii) minimizing waste generation, (iv) ensuring adequate treatment and final disposal, as well as (v) taking care of our ecosystems by implementing biodiversity conservation measures and improving the energy performance of our facilities.

Finally, in social matters, we aim to mitigate the impacts of our operations in the communities located near our facilities and generate social management plans, inclusive social development programs, productive projects, as well as to establish a continuous communication to maintain harmonious and lasting relationships with communities.

## SUSTAINABILITY AT PETRÓLEOS MEXICANOS

The 2017-2021 Business Plan is the guiding document of our operations and it includes the following sustainability goals:

- Reduction of carbon dioxide equivalent ( $\text{CO}_{2\text{-eq}}$ ) emissions by 25% by 2021. This is based on several actions such as:
  - Boost cogeneration projects in various process centers.
  - Reduction of gas burning in assets located in shallow water by rehabilitating compression modules.
  - Energy consumption optimization in refineries.
- Increase water reuse by more than 60% by 2021.
- Integration of the Ecological Corridor "JATUSA" (around 2,500 hectares): Jaguaroundi and Tuzandepetl parks, as well as the Swamp of Santa Alejandrina.
- Strengthening of our ecosystem restoration, management and conservation programs in the Centla swamps and critical areas of Tabasco.

Furthermore, our company has implemented transversal strategies in the areas of environmental protection, social investment and industrial safety and health, which are fundamental tools for moving towards an increasingly sustainable operation.

## STAKEHOLDERS

We identify *stakeholders* as individuals or groups of individuals that have a direct relationship with the company in the economic, social and/or environmental spheres. They are players with whom we build relationships that can influence or be influenced by our operations or activities.

In order to strengthen the link with our communities and social and political actors, under a decentralized scheme, the needs of stakeholders are met on four representative areas:

- Northern Region.
- Gulf Region.
- Central Region.
- South Eastern Region.

This areas group the federal states in which Pemex is present, allowing direct promotion of programs of linkage with some of the stakeholders.

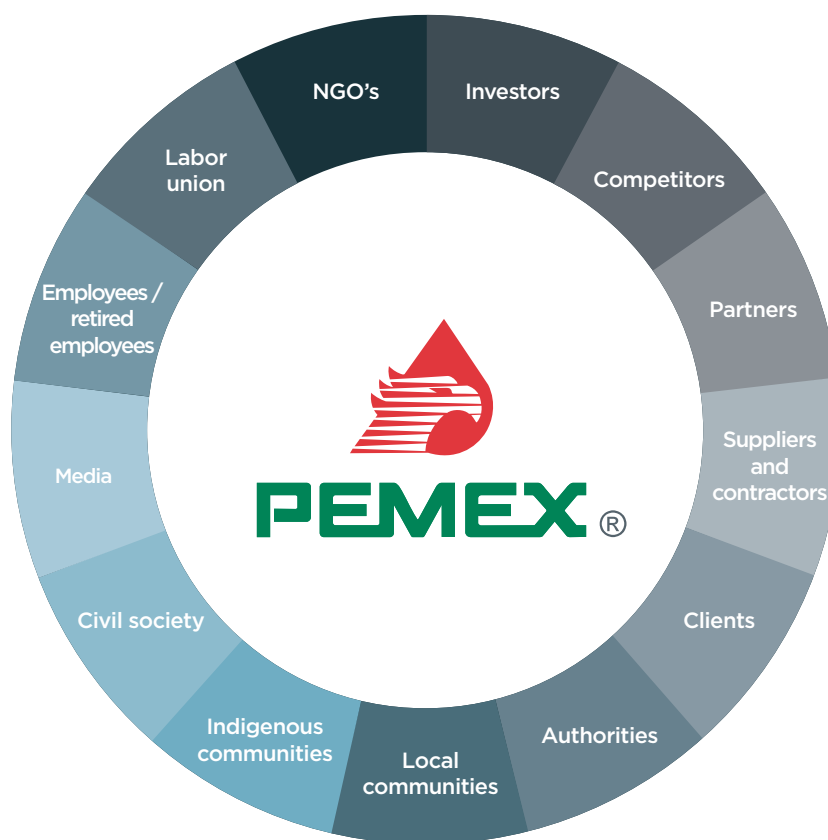
The main stakeholders of the company are located in 12 states which, due to the intensive oil activity, represent a priority for Petróleos Mexicanos, these are Campeche, Coahuila, Chiapas, Guanajuato, Hidalgo, Nuevo Leon, Oaxaca, Puebla, San Luis Potosi, Tabasco, Tamaulipas and Veracruz.

Pemex encourages supplier and contractor outreach through a section of our web portal exclusive for them. This includes information on procurement procedures, supplier relationships and procurement strategies ([http://www.pemex.com/en/procurement/supplier\\_relationships/Paginas/default.aspx](http://www.pemex.com/en/procurement/supplier_relationships/Paginas/default.aspx)).

The company also maintains communication with its employees through institutional instruments such as the intranet, the Orgullo Petrolero magazine, Pemex TV, emails and posters, among other communication channels. Similarly, the periodic review of the collective labor agreement is another opportunity to strengthen communication between workers and senior management positions.

In order to maintain a fluid communication with public opinion, Pemex constantly issues news bulletins about topics of interest of our company, and our officials participate in public events and media to disseminate information of interest to our stakeholders.

Finally, the company interacts with authorities and regulators by means of various institutional mechanisms through which it informs about its operation.



## CITIZEN PARTICIPATION GROUP (GPC)

Ten years ago, the Citizen Participation Group (GPC, by its acronym in Spanish) was integrated to collaborate with Pemex in evaluating its performance on sustainability, a pioneering practice in the oil and gas industry. The GPC's comments to the various company reports can be found on our website ([www.pemex.com](http://www.pemex.com)).

The members of the Citizen Participation Group are the following:

Nombre	Organización
Ana Luisa Guzmán	CONABIO
Pablo Mulás del Pozo	IIE/WBCSD
Cristina Cortinas	Red Queretana de Manejo de Residuos A.C.
Vanessa Silveyra	Transparencia Mexicana
Gabriela Alarcón	IMCO
Gustavo Alanís	CEMDA
Mireya Imaz	UNAM

Please visit the following link to know the opinions of the GPC on our Sustainability Report 2015 <http://www.pemex.com/etica-e-integridad/sustentable/Documents/Observaciones%20del%20GPC%20al%20IS%202015.pdf>

## ORGANIZATIONS AND ASSOCIATIONS

We belong to organizations related to sustainability issues, including:

- CESPEDS / World Business Council for Sustainable Development CHAPTER Mexico
- UN Global Compact
- Regional Association of Oil, Gas and Biofuels Sector Companies in Latin America and the Caribbean (ARPEL).
- AMEXHI National Oil and Gas Industry Association
- International Petroleum Industry Environmental Conservation Association (IPIECA).

## CONTACT

Your point of view is important for us. If you have any questions about the information published please contact us:

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Social networks:



**[@pemex](https://twitter.com/pemex)**



**[/company/pemex](https://company/pemex)**



**[/pemex](https://facebook.com/pemex)**



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**[/pemex](https://instagram.com/pemex)**



**[/pemex](https://soundcloud.com/pemex)**



**[/photos  
/petroleosmexicanos](https://www.flickr.com/photos/petroleosmexicanos)**

## REMUNERATION AND COMPENSATION

The Institute of Management and Valuation of National Assets (INDAABIN, by its acronym in Spanish) determines the means of compensation to land or good owners that suffer any kind of alienation as a result of the activity of the company.

This agency of the Federal Public Administration has the mission of "Managing federal and state real estate assets by optimizing their use, as well as by providing control services to the Federal Public Administration, supporting the rationalization of public spending."

On the other hand, when the compensation to an individual originates from damages directly linked to the operation of the company, compensation negotiations are carried out through the Office of Responsibility and Social Development, in direct contact with the affected person or people, and representatives from the social and/or legal departments.

## PRECAUTIONARY PRINCIPLE

Pemex applies the precautionary principle as a result of being a risk-intensive and capital-intensive industry, with a significant influence on the country's economy and a close relationship with various social and environmental actors.

Compliance with this principle is supported by the legal and fiscal regulation that provides guidance on the company's operations about the various provisions and regulations issued by the regulatory agents of the sector; but also, by multiple actions and mechanisms implemented by the company itself, such as managing the various risks it faces (financial, environmental and safety risks, among others matters).

## CONTEXT OF PETRÓLEOS MEXICANOS

Petróleos Mexicanos is a State Productive Company, owned exclusively by the Federal Government, with legal personality, own equity, and technical, operative and management autonomy, so it does not have social capital and therefore has no shareholders.

Pemex is the largest company in the country, one of the largest in Latin America and the largest contributor to federal public finances.

Pemex is a company that develops the entire production chain of the oil and gas industry (exploration, production, industrial transformation, logistics and commercialization).

Pemex produces daily around two million barrels of oil and more than 5.7 billion cubic feet of natural gas.

In terms of industrial transformation, it accounts for six refineries, five petrochemical complexes and nine gas processing complexes, which produce petroleum products for different economic and industrial sectors.

The company has 89 land and sea terminals, as well as pipelines, ships, and ground transportation vehicles.

## DIRECTORS

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**José Antonio González Anaya**  
General Director

**Rodolfo Figueroa Alonso**  
Corporate Director of Planning, Coordination  
and Performance

**Rodrigo Becerra Mizuno**  
Corporate Director of Business Processes and  
Information Technology

**José Manuel Carrera Panizzo**  
Corporate Director of Alliances and New Businesses

**Juan Pablo Newman Aguilar**  
Corporate Finance Director

**Carlos Alberto Treviño Medina**  
Corporate Director of Administration and Services

**Miguel Ángel Servín Diago**  
Supply and Procurement Operations Manager

**Jorge Eduardo Kim Villatoro**  
Legal Director

**Luis Bartolini Esparza**  
Internal Auditor

**Juan Javier Hinojosa Puebla**  
Director General of Pemex Exploration and Production

**Carlos Murrieta Cummings**  
Director General of Pemex Industrial Transformation

**Eleazar Gómez Zapata**  
Director General of Pemex Cogeneration and Services

**José Serrano Lozano**  
Director General of Pemex Drilling and Services

**Juan Lozano Tovar**  
General Manager of Pemex Fertilizers

**Luis Rafael Montanaro Sánchez**  
General Manager of Pemex Ethylene

**José Ignacio Aguilar Álvarez Greaves**  
General Manager of Pemex Logistics



## BOARD OF DIRECTORS

### DIRECTORS

**Pedro Joaquín Coldwell, Presidente**  
Secretary of Energy

**José Antonio Meade Kuribreña**  
Secretary of Finance and Public Credit

### ALTERNATE DIRECTORS

**César Emiliano Hernández Ochoa**  
Undersecretary of Electricity of the Ministry of Energy

**Miguel Messmacher Linartas**  
Undersecretary of Revenue of the Ministry of Finance and Public Credit

## STATE COUNCILORS

**Ildefonso Guajardo Villarreal**  
Secretary of Economy

**Rafael Pacchiano Alamán**  
Secretary of Environment and Natural Resources

**Aldo Flores Quiroga**  
Undersecretary of Hydrocarbons of the Ministry of Energy

### ALTERNATE COUNCILORS

**José Rogelio Garza Garza**  
Undersecretary of Industry and Commerce of the Ministry of Economy

**Rodolfo Lacy Tamayo**  
Undersecretary of Planning and Environmental Policy of the Ministry of Environment and Natural Resources

## INDEPENDENT COUNCILORS

Felipe Duarte Olvera  
Octavio Francisco Pastrana Pastrana  
Jorge José Borja Navarrete  
Carlos Elizondo Mayer-Serra  
María Teresa Fernández Labardini

## CONFLICTS OF INTEREST

Conflicts of interest prevention is ruled by the provisions of article 8 of the Federal Law on Administrative Responsibilities of Public Servants and by the Law of Petróleos Mexicanos.

## PHILOSOPHY

### Our reason for being

Maximize oil value for Mexico.

### Our mission

To be the most competitive company of the Mexican oil Industry and international reference.

### Our values

1. Decisions based on the value created to Petróleos Mexicanos.
2. Operational excellence and administrative simplicity.
3. Innovation and agility.
4. Client satisfaction.
5. Honesty and accountability.
6. Teamwork to achieve the goals of Petróleos Mexicanos.
7. Pride in belonging to Petróleos Mexicanos.



# Climate Change

At Pemex, we recognize the importance of an active and coordinated cooperation and participation of the oil and gas sector, with the purpose of meeting the goal of limiting the global average temperature increase by 2° C, agreed at the Conference of the Parties (COP21) in December, 2015.

We join the multilateral agreements to which Mexico adheres and collaborate with the Federal Government to update, strengthen and standardize the sector's greenhouse gas (GHG) emissions inventory, as well as to define the industry's role in the fulfillment of climate change national commitments.

## STRATEGY

The increase in the share of renewable sources in the country's energy mix plays a fundamental role in the transition towards lower carbon footprint schemes. However, hydrocarbons will continue to be the main source of energy in the coming decades, thus it is a priority to favor the transition towards cleaner fuels such as natural gas, more efficient use of natural resources and the use of new technologies that meet the growing demand for energy and, at the same time, address the challenges of climate change.

In 2016, Pemex concluded its 2016-2020 Environmental Strategy, consolidating in a single instrument the identification of the main guidelines and action lines to be developed for the achievement of strategic objectives and environmental goals. This strategy proposes to advance in fighting climate change through the identification of projects, technologies and use of financial instruments.

The strategy considers the following aspects:

- Recognizing the need for cooperation and coordinated response to achieve Mexico's goals and commitments.
- Consolidating Pemex's participation in alliances and initiatives at a global and industry level to boost mitigation of climate change.

- Management of regulatory instruments.
- Mitigation measures focused on energy efficiency, gas flaring reduction, transition to lower carbon footprint fuels, and carbon capture and storage associated with enhanced oil recovery (CCS/EOR).

## MITIGATION GOAL

Adding up to the inherent demands of climate change, Pemex established –for the first time– a GHG reduction goal in its 2017-2021 Business Plan. This reduction target was set at 25% of the CO<sub>2-eq</sub> emissions that were generated during 2016, to be accomplished by 2021. This corresponds to a reduction of around 15 million tons of CO<sub>2-eq</sub>.

## PERFORMANCE

Pemex's main GHG emissions are generated by carbon dioxide from thermal systems (between 70% and 75%); in which, by burning fossil fuels, heat energy is generated to provide current heating, production of steam or motive power to roll mechanical equipment and generate electricity. GHG emissions are also generated from flaring and venting of gas and CO<sub>2</sub>.

In 2016, the company achieved a 3% decrease in GHG emissions, as compared to 2010. This consolidates the downward trend initiated in 2008, despite the levels recorded in recent years.

According to the GHG direct emission inventory, 43.3 million tons of CO<sub>2</sub> or about 58 million tons of CO<sub>2-eq</sub> were emitted in 2016.

While Pemex Industrial Transformation, Pemex Ethylene, Pemex Logistics, Pemex Fertilizers and Pemex Corporate emissions decreased, Pemex Exploration and Production emissions increased by 23.15%. This was largely due to an operational contingency at the Abkatun-A platform and the subsequent changes in the shallow water gas management strategy, which led to increase by 11% the company's CO<sub>2-eq</sub> emissions from 2015 to 2016. It is expected that actions aimed at reversing this situation will start presenting a favorable impact on PEP's emissions in the first half of 2017.

## COORDINATED COOPERATION AND RESPONSE TO THE COUNTRY'S GOALS

The Special Climate Change Program (PECC, by its acronym in Spanish) is the climate policy instrument that tracks the country's mitigation and adaptation measures. In the context of this program, Pemex develops the following actions:

- Implementing operational GHG emission reduction projects through energy efficiency, operational efficiency, flare reduction and gas use.

Goal included in  
the Business Plan

**2017-2021**

**↓ 15**  
MMtCO<sub>2-eq</sub>

**-3%**

**GHG emissions**

as compared to 2010

- Designing a pilot project for enhanced oil recovery with CO<sub>2</sub> injection at the Cinco Presidentes field.
- Estimating, monitoring and mitigating the emissions of short-lived climate pollutants (mainly black carbon).
- Encouraging the implementation of GHG Nationally Appropriate Mitigation Actions (NAMAs) to reduce gas flaring, fugitive emissions and gas venting in transportation and production processes.
- Developing climate change adaptation plans and actions for strategic infrastructure.

The emission reduction goal established by 2018 in the PECC, accounts for 5 million tons of CO<sub>2-eq</sub>, as long as the investments portfolio to reduce GHG emissions and energy savings does not present significant changes in their investment amounts.

In support to the actions led by the Federal Government and in coordination with the Ministry of Energy, Pemex updates on a semiannual basis the mitigation and adaptation goals agreed in the PECC 2015-2018 for the oil and gas sector in Mexico.

## GLOBAL AND SECTOR ALLIANCES AND INITIATIVES TO BOOST CLIMATE CHANGE MITIGATION

### *Global Methane Initiative, GMI*

The GMI is a public-private initiative that promotes cost-effective methane reduction and recovery projects, as well as their use as a clean energy source. Since 2005, Pemex has co-chaired the GMI Sub-Committee on Oil and Gas.



The collaboration with GMI has provided valuable information for the identification, measurement, technical-economic analysis and proposal of solutions for the reduction of methane emissions in Pemex facilities.

The transfer of experiences and collective effort revitalize actions with the purpose of identifying cost-effective mitigation opportunities, increasing energy security, and improving air quality and worker safety.

### ***Climate and Clean Air Coalition, CCAC***

Recognizing the benefits of coordinated collaboration, Pemex is also a member of the Climate and Clean Air Coalition and participates in the work group of the Oil and Gas Initiative. The Coalition is a complementary effort to the GMI coordinated by the United Nations Environment Program (UNEP).

This global effort aims to improve air quality and protect climate by focusing on reducing emissions of short-lived climate pollutants (methane and black carbon).

The Coalition acts as a catalyst to create, implement, and share immediate and short-term solutions to combat climate change and improve the quality of life for societies.

In 2016, with the support of a CCAC advisor, a survey was conducted at three of the Pemex Implementation Plan's strategic facilities, considering the following nine key sources established by the coalition: (i) centrifugal compressors with "wet" (oil) seals, (ii) reciprocating compressors rod seal/packing vents, (iii) natural gas-driven pneumatic controller and pumps, (iv) glycol dehydrators, (v) unstabilized hydrocarbon liquid storage tanks, (vi) fugitive component and equipment leaks, (vii) well venting for liquids unloading, (viii) casinghead gas venting, and (ix) well venting/flaring during well completion for hydraulically fractured gas. Results from the survey demonstrate that assessed facilities are managed under high quality standards.

According to the coalition criteria, the key sources located at the Dos Bocas maritime terminal, which handles offshore production, were considered as mitigated when complying with international best practices. At the Atasta gas processing and transport center, the results were similar. In the Cactus CPG, which processes around half of the company's sour wet gas, all centrifugal and reciprocating compressors comply with international best practices on GHG emissions control.

### ***Environmental and Climate Change, Canada (ECCC) Assistance***

The Government of Canada, through the Environment and Climate Change Canada (ECCC) assistance program, has been a strategic ally of Pemex. Through this cooperation, it has been possible to develop a program to drive verifiable methane reductions at oil and gas facilities by transferring technical expertise and providing technical support with the





purpose of identifying cost-effective reduction opportunities, evaluating control options, and implementing solutions.

During 2016, the work that began with the ECCC assistance program consisted on the development of the 2017-2021 work plan, with the purpose of promoting, financing and large-scale co-investing considering the following priorities:

- Reducing flaring, venting and fugitive emissions from oil and gas operations
- Promoting the development of clean technologies
- Supporting finance for emissions mitigation
- Supporting and piloting an innovative and robust program to monitor, report and verify emissions.

These actions will be promoted from the resources that the ECCC will provide for the period 2017-2021, an amount of about 7 million Canadian dollars.

Thanks to the collaboration between Pemex, ECCC and the CCAC, Mexico is the most advanced country in the jurisdiction of the coalition by having identified potentially cost-effective opportunities to reduce black carbon emissions. The development of at least one business case per year is expected to be presented to potential investors for its execution.

### ***Oil and Gas Climate Initiative (OGCI)***

OGCI represents the effort and commitment of ten international oil companies, which account for 20% of the world's oil and gas production, committed to reduce their emissions in 20% in the following 10 years.

The initiative focuses on four priority areas:

- 1) Reducing methane emissions.
- 2) Accelerating the development of carbon capture, use and storage.
- 3) Improving energy efficiency.
- 4) Contributing to transportation efficiency.

## **MITIGACIÓN**

Key achievements in climate change mitigation include the following:

- Starting external cogeneration in the Salamanca refinery under a pilot contract that will enable the reduction of up to 250,000 tones CO<sub>2-eq</sub> per year.
- Finalizing infrastructure improvements to supply natural gas to the Antonio Dovali Jaime refinery in Salina Cruz. This will enable fuel switching from fuel oil to natural gas



with a potential mitigation of 350,000 tones CO<sub>2-eq</sub> per year, in addition to significant reductions in SO<sub>x</sub> and soot emissions.

- The “Heat Recovery at the Terminal Maritima Dos Bocas”, project registered as a Clean Development Mechanism (CDM) to the United Nations Framework Convention on Climate Change (UNFCCC). In 2016, a new project registered as CDM (“Destruction of Nitrous Oxide in Lazaro Cardenas”) was added to the company's portfolio with the purchase of the Fertinal's Nitric Acid facility, which, in despite of being at the end of its crediting period, is still mitigating its emissions.

### ***Roadmap for Gas Use***

In 2016, a roadmap was designed to achieve a 98% ratio of gas use in the following three years, thanks to different projects that will be implemented in shallow waters.

During this period, based on various actions considered in the Strategic Gas Use Plan 2016-2019 presented to the National Hydrocarbons Commission, Pemex will meet the established target.

To this end, an investment of \$ 3,600 million USD will be allocated, mainly in the Ku Ma-loob Zaap field, for the operation of a gas pipeline, two compression platforms and associated pipelines. The goal is to incorporate about 160 million cubic feet per day of gas and its byproducts to the petrochemical plants in the southeast region of the country.

### ***Carbon Capture and Storage (CCS) Roadmap related to Enhanced Oil Recovery***

Carbon storage related to enhanced oil recovery enables us to return to the underground the extracted carbon, mitigating climate change, as well as improving the recovery rates of oil in mature or declining fields. One of the main constraints for carbon capture and storage has been the lack of cost-effective projects that allow a greater use of this technology. Pemex is aiming to generate the capacities and synergies to implement projects of this type and collaborates with the Federal Government in the implementation of the CCUS Technological Roadmap.

To date, we have performed the design and laboratory tests of a demonstrative pilot project in the Activo de Produccion Cinco Presidentes, using the CO<sub>2</sub> emitted by the Cosoleacaque ammonia plants.

With the support of the Ministry of Economy, Trade and Industry (METI) of Japan, two feasibility studies on CCUS were developed and a third was started. The feasibility studies developed enabled (i) the analysis of the carbon capture potential in the facilities located at the Minatitlan and Coatzacoalcos area, (ii) the carbon capture at the Cosoleacaque ammonia reformer plants, (iii) the estimation of CO<sub>2</sub> capture potential of Brillante field, (iv) the monitoring, reporting and accounting of emission reductions for eventual verification, (v) the abandonment and shutdown procedures of wells and the corrosion management.

**3,600**  
million dollars

to meet the goal  
of 98% gas use

## ADAPTATION

Petróleos Mexicanos incorporated climate change adaptation criteria into the Institutional Project Development System and continues to promote environmental conservation projects. The last, with the aim of establishing natural barriers against meteorological phenomena and strengthening the resilience of the areas surrounding our facilities.

Example of this is the basin management strategy we have adopted over the last few years, and in which we can highlight the support to conservation projects in The Lacandon Jungle, Los Tuxtlas and Centla's Swamps, as well as the promotion of the JATUSA Ecological Corridor in Coatzacoalcas.

These projects enable us, among other aspects, to increase the areas of carbon sinks, increase rainwater harvesting, preserve environmental services, maintain water table levels, reduce the sediment in rivers and regulate flood.





# Environmental Performance Indicators

Nowadays, setting strategies and action plans for environmental protection is not only an ethical imperative for oil and gas companies, but also a matter of business. If more solid plans and programs to minimize the impacts of our operations in the environment are available, we will ensure legislation compliance, avoid fines and sanctions, and build better relationships with the communities.

A responsible environmental operation enables the preservation of the environmental services required in our processes, as well as the mitigation of negative impacts caused by climate change on our facilities.

Thus, Petróleos Mexicanos has an environmental protection plan comprising action lines on air emissions, efficient use of water, wastewater discharges, waste management, petroleum-impacted sites remediation, biodiversity conservation and ecological management of the territory.

For many years, Pemex has been committed to the protection and conservation of our country's natural wealth. Over time, we have supported various social initiatives in the Centla Swamps, the Lacandon Jungle, and the Natural Protected Areas in the Gulf of Mexico, as well as in the mangroves and lowland rainforests in the state of Veracruz.

We have also offered our ecological park Jaguaroundi in Coatzacoalcos to serve environmental research and education purposes. This park holds 960 hectares of jungle, grassland, and holm-oak wood, as well as 57 hectares of water bodies, in the middle of the Cangrejera, Pajaritos and Morelos petrochemical complexes. The park holds more than 548 species of plants, 205 species of birds, 65 species of mammals, 214 species of butterflies, 29 species of amphibians, 45 species of reptiles, 22 species of fish and 655 species of invertebrates.

Now we want to take a step forward in the conservation of our ecosystems through the development of the JATUSA Ecological Corridor. This project aims to establish a corridor for the rainforest and wetlands environmental conservation that will help control floods in the region, serving as containment area around industrial facilities with the purpose of ensuring the safety of the communities in case of contingency, preserving environmental services and mitigating the adverse effects of climate change on industry and surrounding communities. To do so, we will use lands owned by Pemex in the Jaguaroundi and Tuzandepetl parks, as well as in Santa Alejandrina swamps, recently restored by the company.

We know this is an ambitious project, but we are strongly confident that the experience, the high level of commitment and the knowledge of our workers will enable us to turn this project into a reality for the enjoyment of generations to come.

During 2016, the environmental performance at Petróleos Mexicanos showed favorable results in two fundamental aspects: the reduction of the inventory of hazardous waste by 3.8% and a slight reduction in the use of raw water of 0.3%, as compared to 2015.

However, several challenges have been identified in terms of emissions and the inventory of sites affected by hydrocarbons. Regarding the latter, it is important to observe that this increase is, to a large extent, result of a greater number of illegal tapping registered in the National Pipeline System.

Among the highlights of the 2016 performance are the following:

- Participation with the Ministry of Environment and Natural Resources (SEMARNAT, by its acronym in Spanish), the National Agency of Industrial Security and Environmental Protection for the Hydrocarbon Sector (ASEA, by its acronym in Spanish), and the Energy Regulatory Commission (CRE, by its acronym in Spanish) in the review and update of several environmental policies and standards for the industry.
- In December 2016, we received 101 Clean Industry certificates from ASEA, the first ones that the agency granted to the EPS.
- At the beginning of November 2016, the Madero refinery reduced its raw water consumption by using municipal treated water; this initiative will generate important reductions in the use of water for the upcoming years.
- We reduced the inventory of hazardous waste through the disposal of spent caustic at the Salamanca refinery during October and November, 2016.



at the service of research  
and environmental education

**Jaguaroundi**  
ecological park  
in Coatzacoalcos





**- 3.8%**  
hazardous  
waste

## AIR EMISSIONS

### Direct emissions

CO <sub>2</sub>						
Emissions	2010	2011	2012	2013	2014	2015
Corporate	555	1,645	633	419	4,487	4,028
PEP	17,885,210	14,070,554	12,583,248	14,142,666	19,156,584	18,773,798
PPQ	6,596,850	6,354,019	6,156,555	6,281,856	6,232,371	5,353,186
PGPB	7,055,718	6,759,262	6,553,556	5,296,650	5,103,780	4,667,277
PR	13,898,727	14,270,298	14,395,295	14,921,931	14,486,232	13,781,067
<b>Total</b>	<b>45,437,060</b>	<b>41,455,778</b>	<b>39,689,287</b>	<b>40,643,522</b>	<b>44,983,454</b>	<b>42,579,356</b>

CO <sub>2</sub>	
Emissions	2016
Corporate	4,034
PEP	19,920,701
Ethylene	1,550,326
Fertilizers	1,156,486
PPS	324,358
TRI	19,370,386
Logistics	1,064,347
<b>Total</b>	<b>43,390,638</b>

METHANE						
Emissions	2010	2011	2012	2013	2014	2015
Corporate	-	-	-	-	-	-
PEP	668,648	337,080	141,622	274,486	465,956	409,741
PPQ	144	173	143	141	128	228
PGPB	5,208	9,659	15,476	8,561	9,495	12,840
PR	15,079	23,662	17,670	23,438	30,806	30,197
<b>Total</b>	<b>689,078</b>	<b>370,574</b>	<b>174,911</b>	<b>306,627</b>	<b>506,386</b>	<b>453,006</b>

CO <sub>2</sub> -eq						
Emissions	2010	2011	2012	2013	2014	2015
Corporate	555	1,645	633	419	4,487	4,029
PEP	31,926,822	21,149,230	15,557,316	19,906,880	28,941,666	27,378,358
PPQ	6,599,872	6,357,648	6,159,550	6,284,825	6,235,063	5,357,976
PGPB	7,165,082	6,962,105	6,878,554	5,476,429	5,303,183	4,936,924
PR	14,215,376	14,767,208	14,766,363	15,414,137	15,133,158	14,415,195
<b>Total</b>	<b>59,907,706</b>	<b>49,237,836</b>	<b>43,362,416</b>	<b>47,082,691</b>	<b>55,617,558</b>	<b>52,092,482</b>

SUBSIDIARY PRODUCTIVE COMPANIES (2016)		
Emissions	Methane	CO <sub>2</sub> -eq
Corporate	0	4,035
PEP	641,517	33,392,564
Ethylene	36	1,551,075
Fertilizers	11	1,156,708
PPS	6	324,482
TRI	45,909	20,334,472
Logistics	2,682	1,120,673
<b>Total</b>	<b>690,161</b>	<b>57,884,009</b>

## EMISSION INTENSITY

	Total BOE (millions)	Emissions CO <sub>2</sub> -eq (MMt)	CO <sub>2</sub> -eq (MMt)/ BOE (millions)
Pemex Exploration & Production	1,111.55	33.39	0.03
	Crude oil barrels processed (millions)	Emissions CO <sub>2</sub> -eq (MMt)	CO <sub>2</sub> -eq (MMt)/ Crude oil barrels processed (millions)
Pemex Industrial Transformation (oil refineries)	340.57	13.60	0.04

## CRITERIA AIR POLLUTANTS EMISSIONS

In 2016, sulfur oxide emissions (SO<sub>x</sub>) increased by 22.8%, mainly due to higher volume of sour gas sent to the burners in Kumaza, Abkatun, Pol-Chuc and Litoral de Tabasco. Likewise, the Gas Processing Complexes (GPC) of Poza Rica, Cd. Pemex and Nuevo Pemex sent sour gas to burners due to maintenance activities at the sulfur plants. We also registered an increase in volume of gas flared at Minatitlan and Salina Cruz refineries. In order to reverse this trend, progress is being made through projects focused on improving associated gas use and completion of maintenance programs at the sulfur recovery facilities in GPC Nuevo Pemex and Cactus. A reduction in SO<sub>x</sub> emissions during the first months of 2017 is expected as a result of the start-up of operations at sulfur facilities in GPC Nuevo Pemex and Cactus, as well as the reduction in gas vented in PEP.

	2010	2011	2012	2013	2014	2015	2016
SO <sub>x</sub> (t)	632,207	471,024	413,286	481,545	606,893	732,984	900,192
NO <sub>x</sub> (t)	97,830	112,827	108,131	112,620	110,214	116,116	99,891
VOC's (t)	44,426	42,811	39,872	38,403	37,311	44,778	48,322
TSP	20,519	21,316	16,994	18,171	17,326	16,861	14,645





## INDIRECT EMISSIONS

Indirect emissions from the importation of electric energy were estimated at 880,000 tons of carbon dioxide for this year, considering an emission factor of 0.458 tons of CO<sub>2</sub> per MW/h.\*

## RAW WATER USE

The use of raw water slightly decreased by 0.3%, as compared to 2015, continuing with a reduction trend started in 2014. Water reuse decreased by 10.9%; nevertheless, from the beginning of November, 2016, the Madero refinery reduced its raw water consumption by leveraging treated water coming from the Public Commission of Water Supply and Sewage of the Metropolitan Area of the mouth of the Panuco River.

Year	Raw Water (Mm <sup>3</sup> )	Water Reuse (Mm <sup>3</sup> )	Other sources (Mm <sup>3</sup> )
2010	179.8	38.9	9.6
2011	177.1	38.6	9.8
2012	180.3	41.6	9.6
2013	188.5	38.5	12.3
2014	195.6	34.5	8.9
2015	193.1	32.6	5.9
2016	192.6	29.0	2.9

## SOURCES OF WATER SUPPLY

From the total water consumption of 2016, raw water from surface water bodies and groundwater, accounted for 85.8% (192.6 MMm<sup>3</sup>), while 81.5% (184.5 MMm<sup>3</sup>) of the total water consumption was used in Pemex Industrial Transformation's activities, mainly at oil refineries.

Use of water distribution according to the EPS:

EPS	Raw Water (%)	Water Reuse (%)	Other Source (%)
PEP	63.5%	19.2%	17.3%
TRI	85.1%	14.8%	0.1%
Logistics	46.7%	10.0%	43.3%
Ethylene	100.0%	0.0%	0.0%
Fertilizers	98.6%	0.0%	1.4%
PPS	20.0%	60.0%	20.0%
Corporate	69.2%	0.0%	30.8%

\*In facilities using wheeling of electricity, only 90% of records are contemplated, while we work in its inclusion.

**- 0.3%**  
**raw water**  
**use reduction**

as compared to 2015

## LEAKS AND SPILLS

During 2016 there were 192 leaks and spill events, decreasing by 8%, as compared to 2015. However, the total volume spilled increased by 6,956 barrels, as compared to the previous year.

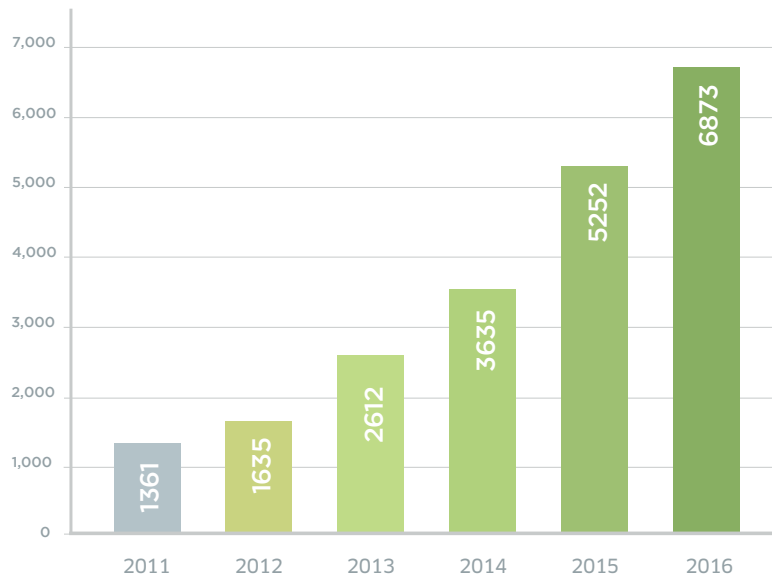
	2010	2011	2012	2013	2014	2015	2016
<b>Number of events</b>	154	131	264	153	159	209	192
<b>Volume released (b)</b>	25,824	2,690	39	24,629	5,110	1,164	8,120
<b>Volume released (mmcft)</b>	6	13	9	50	83	24	18
<b>Volume released (t)</b>	0	0	0	1,121	3	1	0.4
<b>Volume released (m³)</b>	0	0	0	0	0	1	0

Furthermore, illegal tapping had a remarkable upward behavior. Pemex continues working with local and federal authorities with the purpose of reducing this crime that threatens the safety of communities and ecosystems, and which implies an unacceptable damage to national property.

Among the most relevant actions to fight this crime are the following:

- Deployment of ground-based electro-optical surveillance systems (EOS) in pipeline systems, in coordination with military personnel.
- Day and night flights with unmanned aerial vehicle systems with the purpose of guiding land patrolling efforts, in coordination with military personnel.
- Strategic air and ground surveillance with the purpose of coordinating patrolling efforts and dissuading delinquents, in coordination with military personnel.
- Establishment of command posts and advanced operational centers to coordinate inter-agency actions and obtain information from incidence areas.
- Constant monitoring of pipeline transportation systems to determine and detect actual time changes in flow, pressure and temperature at one specific point.

## Illegal Tapping 2011-2016



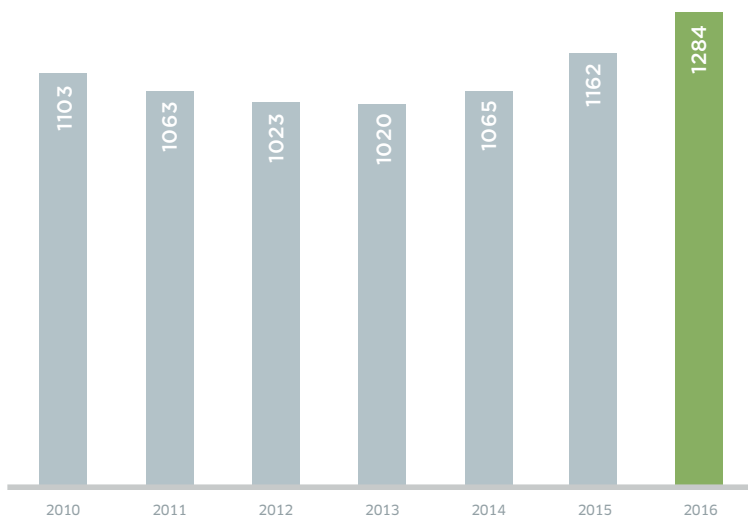
During 2016, 6,873 illegal taps (ITs) were identified; increasing by 30.68%, as compared to those detected in 2015. The most affected states by this crime were: Puebla (1,533 ITs), Guanajuato (1,309 ITs), Tamaulipas (942 ITs), Veracruz (668 ITs) and Estado de Mexico (483 ITs).



## ENVIRONMENTAL LIABILITY

In 2016, 197 hectares were incorporated to the contaminated sites inventory: 108 hectares from Pemex Exploration and Production sites, and 89 hectares from Pemex Logistics sites. On the other hand, we remediated 30 hectares and adjusted 45 PEP hectares, adding up a total inventory of 1,284 hectares at the end of 2016, increasing by 10%, as compared to 2015. The hydrocarbon-impacted sites inventory has increased due to the raising on illegal oil tapping and the negative impact on the environment that this entails.

Contaminated sites inventory (ha)

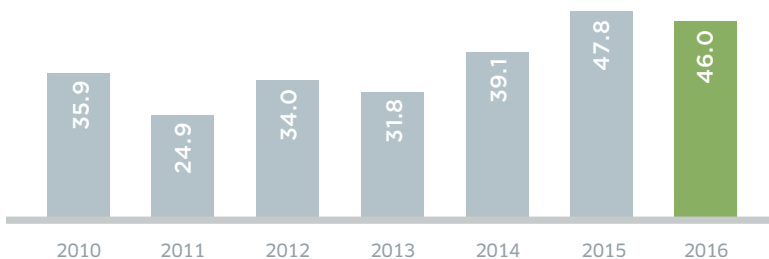


## HAZARDOUS WASTE INVENTORY

By the end of December 2016, the final hazardous waste inventory accounted for 45,995 tons\*, decreasing by 3.8%, as compared to 2015. 95% of this final inventory is related to Pemex Industrial Transformation, 60% of which are spent caustics.

In 2016, the policies and guidelines for Integrated Waste Management were published with the objective of establishing responsibilities and criteria for the proper waste management in Pemex.

Final waste inventory (kt)



\*The total amount of hazardous waste does not consider ICRT waste from hospitals

## RESERVOIRS RESTORATION

Regarding the reservoirs inventory (areas where well drilling waste is concentrated), Pemex Exploration and Production accounted for 86 dams at the end of 2015, 12 in the Southern Region and 74 in the Northern Region. During 2016, no new reservoirs were added to the inventory and two were remediated. In addition, the inventory had an adjustment of four PEP reservoirs, resulting in a total inventory of 80 reservoirs at the end of 2016, decreasing by 7%, as compared to 2015.

## CLEAN INDUSTRY CERTIFICATES

Pemex and its Subsidiary Productive Companies receive and maintain Clean Industry certificates granted by the ASEA. Continuing with the work carried out before by the Federal Attorney for Environmental Protection (PROFEPA, by its acronym in Spanish). In December we were awarded with 101 certificates from this Agency, distributed as follows:

### ***Pemex Drilling and Services***

16 Clean Industry Certificates granted to the Drilling and Land Wells Maintenance team.

### ***Pemex Exploration and Production***

During 2016, 25 facilities received Clean Industry certificates, among which are the following: compression stations, separation batteries, gas collection stations, gas pipelines and platforms, as well as the Cayo Arcas operative complex.

### ***Pemex Logistics***

59 certificates were granted to different facilities such as pipeline systems, polyducts, oil storage and dispatch terminals, and gas distribution terminals, as well as maritime terminals.

### ***Pemex Industrial Transformation***

Additionally, the Agency awarded a certificate to the Nuevo Pemex Gas Processing Complex.



# Energy Management

## INTRODUCTION

Petróleos Mexicanos aims to develop business, economic, industrial and commercial activities in the hydrocarbons sector, which involves production processes that are highly energy demanding and requires great responsibility to use resources in the most efficient way and with a sense of social and environmental responsibility.

Therefore, the Energy Management Policy was issued in 2015, through which Petróleos Mexicanos assumes a commitment to the efficient and rational use of energy, while contributing to the country's energy security and maximizing the economic value of the hydrocarbons it extracts, transforms and delivers to the market.

The Energy Management System aims to improve energy performance, in other words, to reduce energy consumption in order to achieve the production processes without changing the quantity and quality of the products. In that sense, the following action lines are included:

- Producing products that meet customer requirements, while optimizing the energy use and consumption in their elaboration.
- Carrying out actions to improve energy performance through good practices, maintenance, incorporation of new technologies, as well as to promote an energy saving culture and awareness throughout the organization.
- Complying with legal requirements related to energy efficient use and rational consumption.







One of the main strategies at international level to improve an organization's energy performance is the establishment of Energy Management Systems (EMS) under the ISO 50001 standard, which provides insight into the current state of energy consumption and defines saving goals and performance improvements.

In the period 2014-2016, several tasks were conducted towards to the establishment of Energy Management Systems in Petróleos Mexicanos. From the beginning of 2014, Gas Processing Complexes were certified under the ISO 50001 standard, while in 2015 and 2016 a program was carried out with the assistance of the Danish Energy Agency with the purpose of implementing this system in a pilot facility for each refinery.

## PEMEX INDUSTRIAL TRANSFORMATION

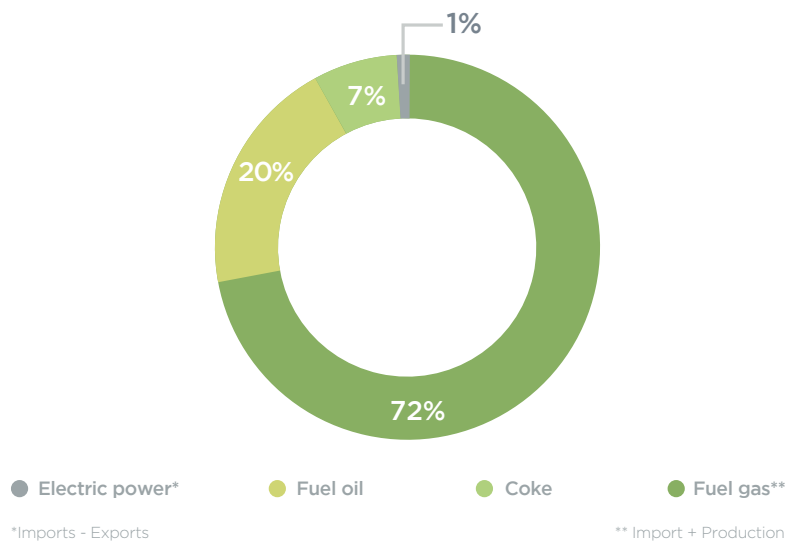
### *Refineries*

During 2016, the National Refining System consumed 35,927 thousand barrels of oil equivalent (MBOE) to produce various products such as: Pemex Diesel, Pemex Diesel UBA, Pemex Premium Gasoline, Pemex Magna Gasoline, LPG, propylene, isobutene, jet fuel, fuel oil and coke. This energy consumption is distributed as follows.



## Energy consumption in the National Refining System

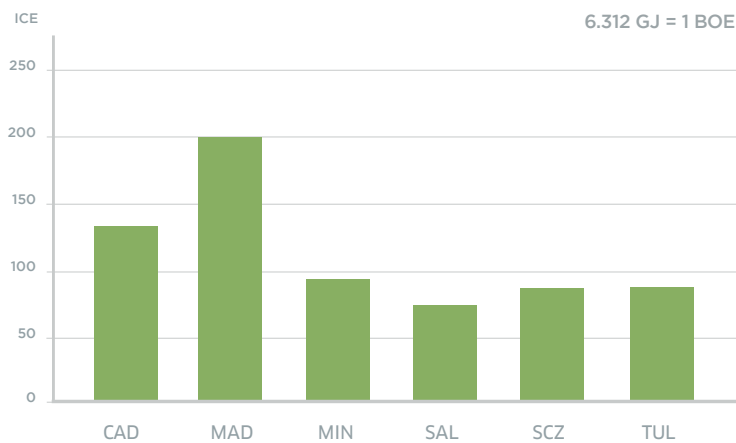
(35,927 MBOE total in 2016)



Fuel gas is the main energy source, accounting for 72% of the total energy consumption; part of this energy is transformed and consumed as steam and electric energy.

The Energy Consumption Index (ICE, by its acronym in Spanish) shows the amount of energy consumed (BOE) per unit of processed crude (Mbbbl). This indicator is shown for each refinery in 2016.

## Annual Energy Consumption Index by Refinery



Cadereyta, Madero and Minatitlan refineries are comparable to each other since they have a 'Coker' type configuration, while Salamanca, Salina Cruz and Tula are similar since they present a 'FCC' configuration.

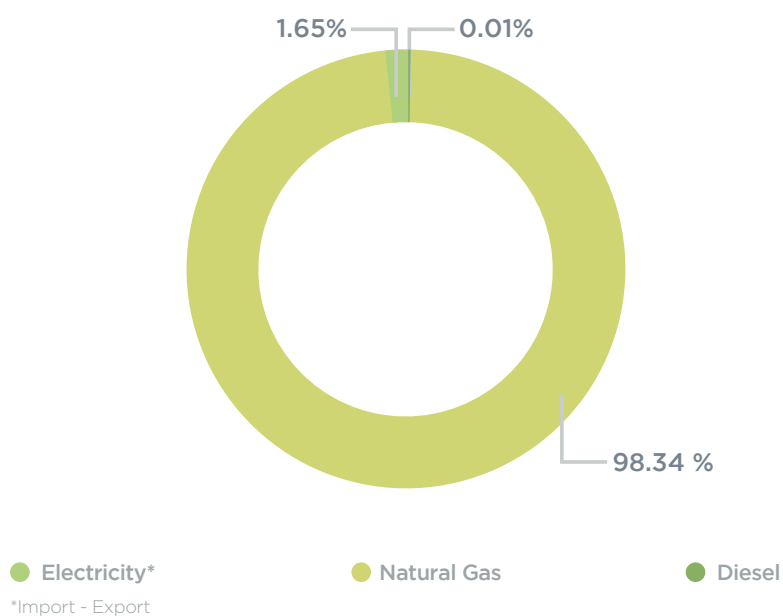


### Gas Processing Complexes

In 2016, the total energy consumption accounted for 8,700 MBOE in the nine Gas Processing Complexes (CPG) for the processes of gas sweetening, liquid sweetening, cryogenic separation and sulfur recovery. This consumption is distributed as follows.

### Energy consumption in CPG

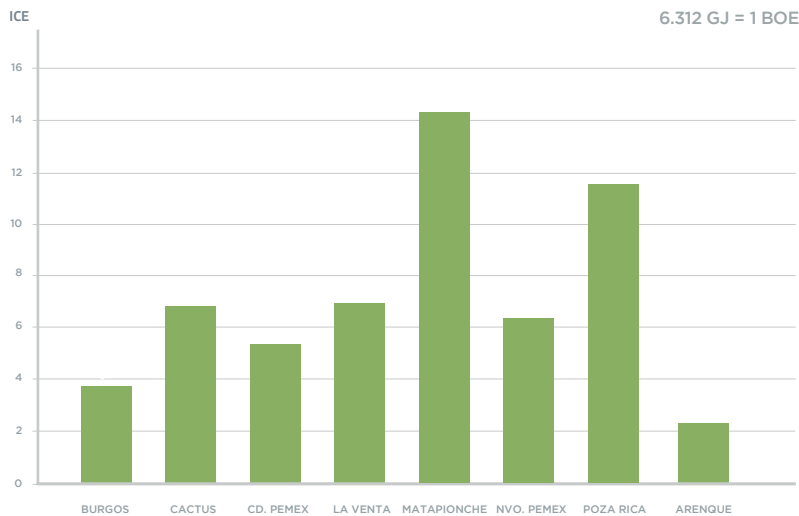
(8,700 MBOE total in 2016)



Natural gas accounts for 98.34% of the total consumed energy, while electric energy accounts for 1.65% and diesel consumption in industrial engines accounts for 0.01% of energy consumption.

In this case, the ICE shows the amount of energy consumed (BOE) per unit of sweetened gas (MMcf).

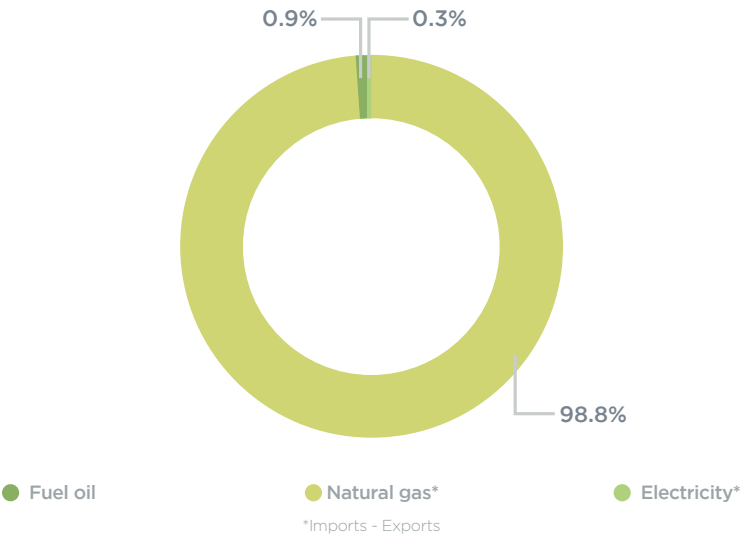
Annual Energy Consumption Indicator by CPG



*Petrochemical Complexes*

During 2016, petrochemical facilities consumed 12,091 MBOE to produce petrochemical products such as: ethylene, high and low density polyethylene, acrylonitrile, ethylene oxide, BTX liquids, ammonia, methanol and petrochemical specialties. This consumption is distributed as follows.

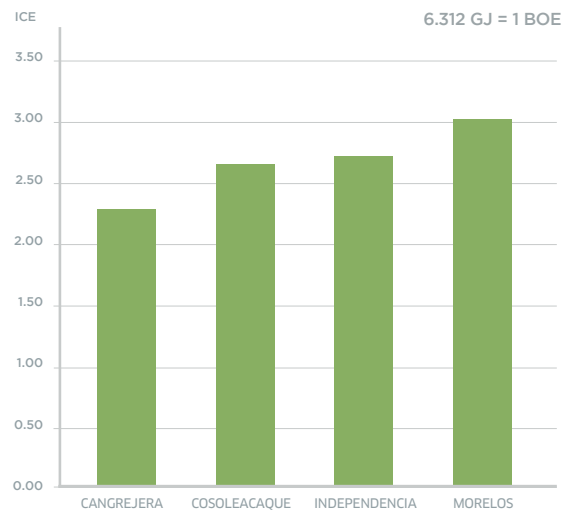
**Energy consumption in the Petrochemical Complex**  
(12,091 MBOE total in 2016)



Natural gas is the main energy source of energy, accounting for 98.8% of total consumption.

The ICE reflects the amount of energy consumed (BOE) per unit of petrochemicals produced (t). Given that the processes are not the same in each petrochemical complex (CPQ, by its acronym in Spanish), these ICEs are not comparable to each other.

Annual energy consumption by Complex

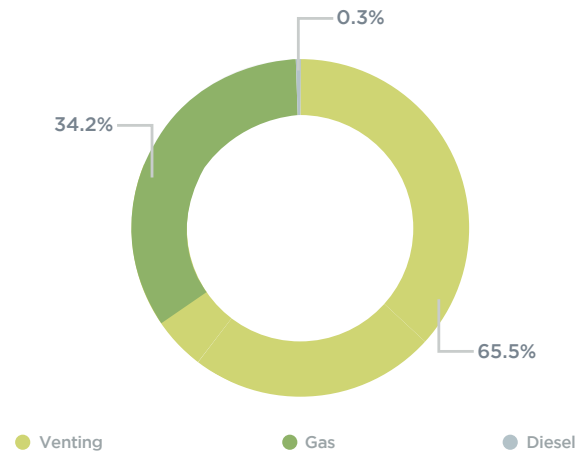


PEMEX EXPLORATION AND PRODUCTION

Oil Production Assets

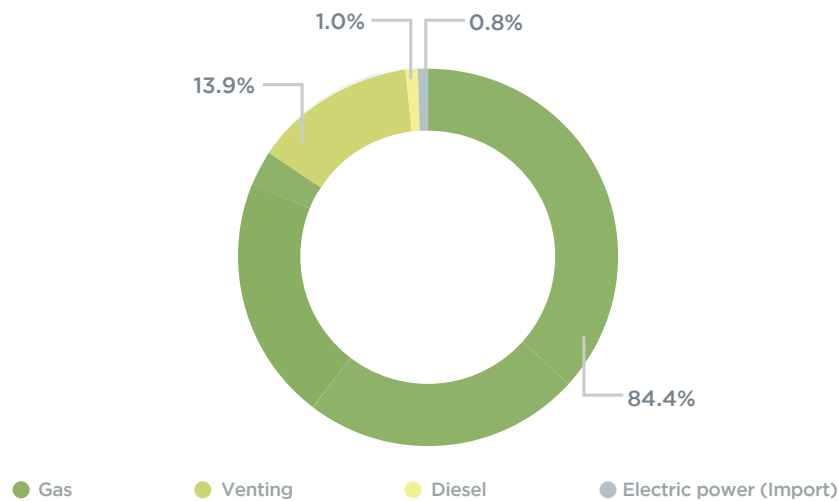
During 2016, the Oil Production Assets consumed 41,023 MBOE for the production of crude oil, gas and condensate. In the Shallow Water Production Division, which includes the Oil Production Assets Abkatun-Pol-Chuc, Tabasco-Tsimin-Xux Coast, Cantarell and Ku-Maloob-Zaap, energy consumption is distributed as follows.

Energy consumption in the Shallow Water Production Division  
(41,023 MBOE total in 2016)



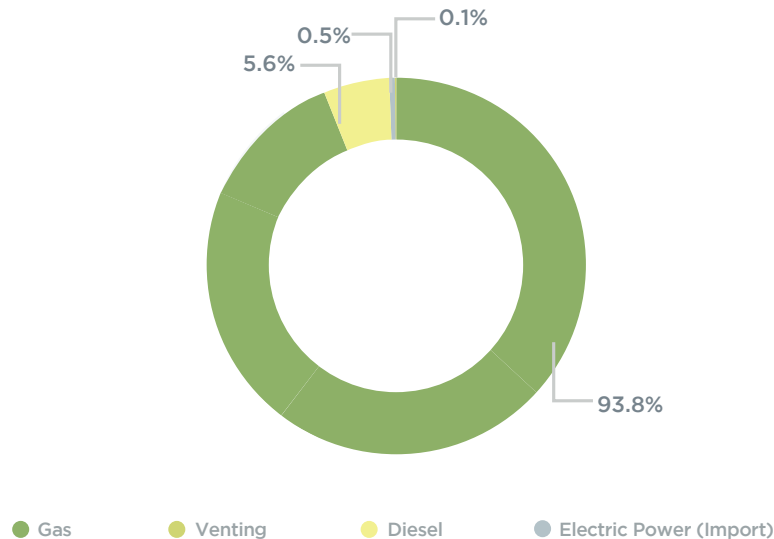
In the Onshore Fields Production Division, which includes Oil Production Assets of Bellota-Jujo, Cinco Presidentes, Macuspana-Muspac, Poza Rica-Altamira, Samaria-Luna, and Aceite Veracruz, the energy consumption was distributed as follows.

**Energy consumption in the Onshore Fields Production Division**  
(9,846 MBOE total in 2016)



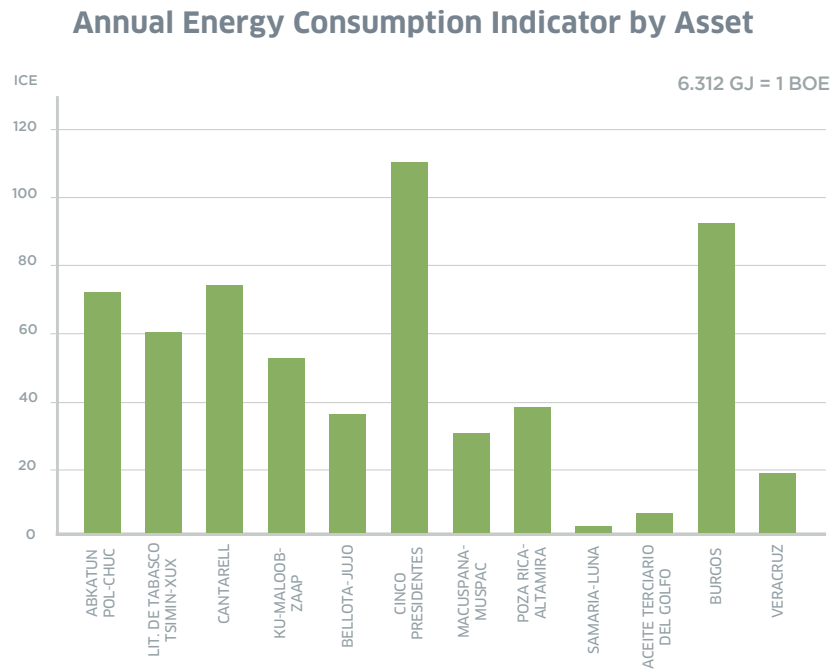
In the Non-Conventional and Non-Associated Gas Production Fields Division, which includes the Oil Production Assets of Aceite Terciario del Golfo, Burgos and Gas Veracruz, energy consumption is distributed as follows.

**Energy consumption in the Non-Conventional and Non-Associated Gas Production Fields Division**  
(1,957 MBOE total in 2016)





In the case of Oil Production Assets, the ICE shows the amount of energy consumed (BOE) per unit produced, including crude oil, gas and condensate (MBOE). For each Asset, this index is shown for 2016.



The characteristics of the oil fields are not similar among the Oil Production Assets; therefore, these ICEs are not comparable.



## PEMEX DRILLING AND SERVICES

### *Operations in Well Interventions*

During 2016, the Operations in Well Interventions Division consumed 726 MBOE for well drilling and repair services. Diesel accounts for most of the total energy consumption for equipment operation and electricity generation.

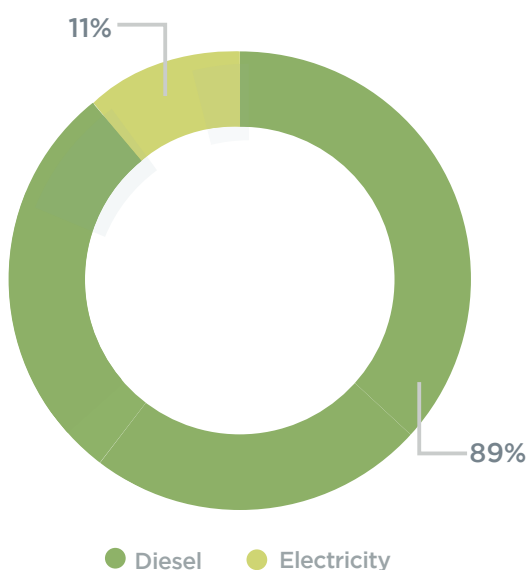
## PEMEX LOGISTICS

### *Storage and Dispatch Division*

During 2016, the Storage and Dispatch Division consumed 292 MBOE for the distribution and storage of oil and petrochemical products. This consumption is distributed as follows.

### Storage and Dispatch Division power consumption

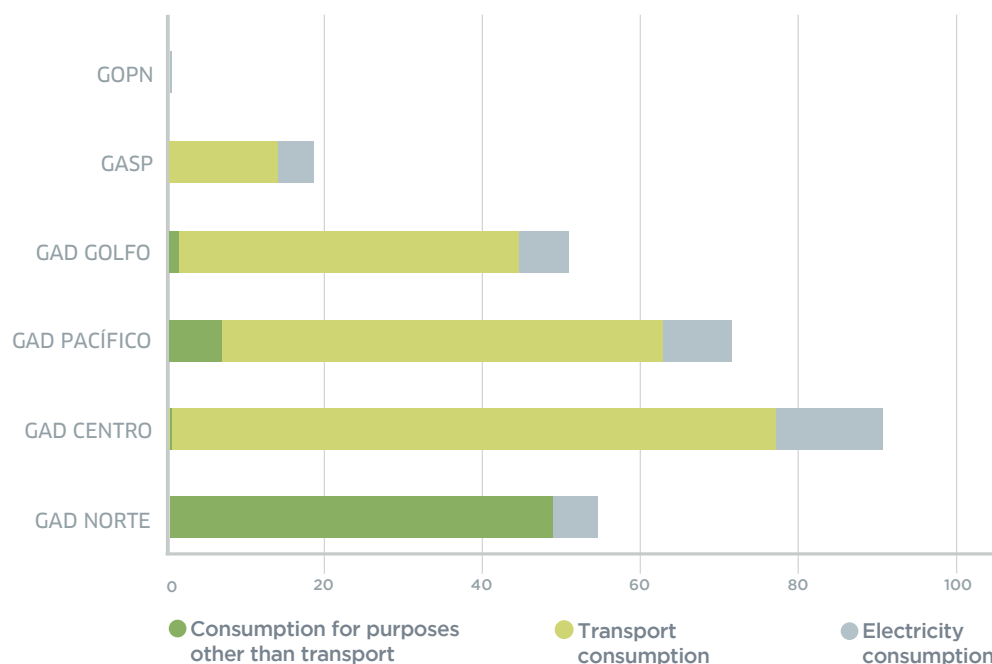
(292 MBOE total in 2016)



The energy consumption in this division is distributed among six departments: Operations Department (GOPN, by its acronym in Spanish), Storage and Port Services Department (GASP, by its acronym in Spanish), Gulf Storage and Distribution Department (GAD GOLFO, by its acronym in Spanish), Pacific (GAD PACIFICO, by its acronym in Spanish), Center (GAD CENTRO, by its acronym in Spanish) and North (GAD NORTE, by its acronym in Spanish), as shown in the chart below.



## Annual energy consumption per Department (MBOE)

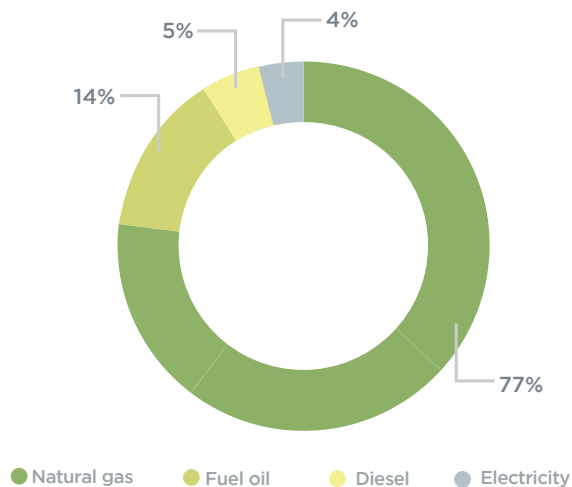


### Transport Division

In 2016, the Transport Division accounted for a total energy consumption of 2,656 MBOE for maritime, land and pipeline transport of crude oil, oil and petrochemical products. This consumption is distributed as follows.

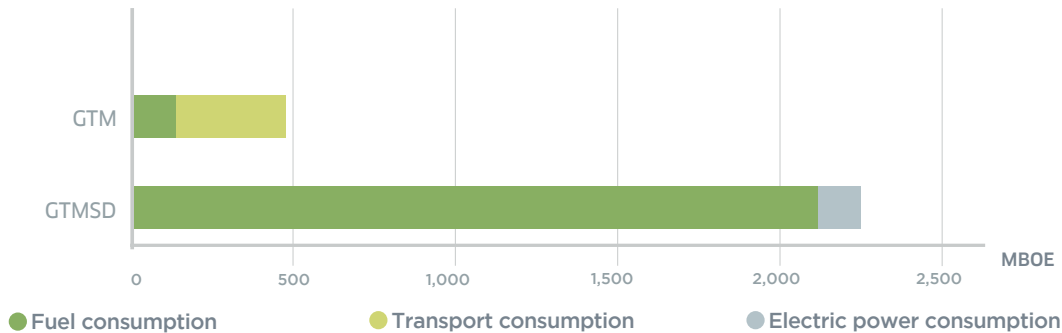
### Energy Consumption in the Transport Division

(2,656 MBOE total in 2016)



The energy consumption of this Division is distributed between the Maritime Transport Department (GTM, by its acronym in Spanish) and the Department of Transport, Maintenance and Duct Services (GTMSD, by its acronym in Spanish).

Annual Energy Consumption by Department





# Biodiversity Protection

## JATUSA ECOLOGICAL CORRIDOR

For many years, Petróleos Mexicanos has been committed to the protection and conservation of our country's natural wealth. Over time, we have supported a wide variety of initiatives focused on promoting and encouraging biodiversity conservation, especially in the areas where we are located. Some of the projects we have supported are: (i) the only swamp interpretation center in Mexico, "Casa del Agua", in the Biosphere Reserve Pantanos de Centla, in Tabasco; (ii) the Conservation, Management and Restoration project in the Lacandon Jungle; and (iii) the Education and Reforestation project in the Protected Natural Areas of the Gulf of Mexico.

In 2002, after promoting public policies with the National Commission on Natural Protected Areas, we obtained the registration of the first Area Voluntarily Dedicated to Conservation (ADVC, by its acronym in Spanish) with the Jaguaroundi Ecological Park in Coatzacoalcos, Veracruz. This park was the precedent for more than 300 ADVC that today exist in the country, and it is considered a state and national reference in conservation and environmental education while holding 960 hectares of forest, grassland and tropical holm oak.

Additionally, in 2011, the Tuzandepetl Ecological Park was certified as an ADVC in Ixhuatlan del Sureste, Veracruz, for the next 50 years. This park holds more than 1,000 hectares of wetlands and rich mangrove areas, as well as some of the last relicts of high jungle in the region.

Now, we want to take a step forward in the conservation of the ecosystems of our country, through the development of the JATUSA Ecological Corridor. This project aims to establish a biological corridor in an initial area of more than 2,400 hectares of jungle and wetlands, which will enable flooding control in the region, preservation of environmental services and mitigation of the adverse effects of climate change on communities around a region that is highly impacted by urban and industrial development. For this project, we will use lands owned by Petróleos Mexicanos, such as the ecological parks of Jaguaroundi and Tuzandepetl, as well as the Pantano de Santa Alejandrina area, which was recently restored by the company.

In 2002 we  
registered our first

**ADVC**



**Jaguaroundi  
Ecological  
Park**

## **Background**

In 1998, various intermediate safeguarding zones of Petróleos Mexicanos were evaluated with a double purpose: on the one hand, with the aim of preserving their function of risk mitigation for the protection of communities and facilities; on the other, to take advantage of the ecological characteristics of these territories to promote conservation, restoration and environmental education projects.

This approach enabled us to consolidate environmental protection actions in two key areas.

In 2002, the protection area in Pemex's petrochemical facilities in Coatzacoalcos was declared an ADVC by the National Commission of Natural Protected Areas from SEMARNAT, which led to the creation of the Jaguaroundi Ecological Park.

Later, Tuzandepetl was recognized as the company's second ADVC in 2011. In this property, there are salt domes used by Pemex to store crude oil.

Following the same path, Pemex is the land owner of the wetland area of Santa Alejandrina, an area close to the Lazaro Cardenas refinery in Minatitlan, which holds a high ecological value, mainly because of the presence of migratory birds.

The corridor aims to connect these three areas (Jaguaroundi, Tuzandepetl and Santa Alejandrina) through patches of vegetation in good conditions to preserve areas of environmental value under the voluntary certification scheme. This implies an effort on ecological territory planning, while integrating communities to tasks of conservation and improvement of productive processes in such communities.

The consolidation of the project will make it possible to connect and evaluate the existence of vegetation islands that provide irreplaceable environmental services for the population and industry, such as water capture, sediment, erosion and silting of water bodies control, carbon capture, flood control, and pollinators' conservation, among others.

## **JATUSA's environment**

Veracruz's climatic, orographic, and geological conditions have provided the region with an extraordinary biological richness. It is the only state in Mexico where the transition from temperate forests to the tropical zone is presented, converging the characteristics of both ecosystems.

However, this natural wealth has been accompanied by an accelerated process of ecosystems decline. According to the report "The environment in Mexico" of Semarnat (2005), Veracruz presented a loss of 19% of its natural wealth between 1993 and 2000.

The accelerated and aggressive development process that has taken place in this state has caused an impact on the fragmentation of the landscape, the formation of patches of vegetation, and changes in land use; factors that influence the loss of environmental services.

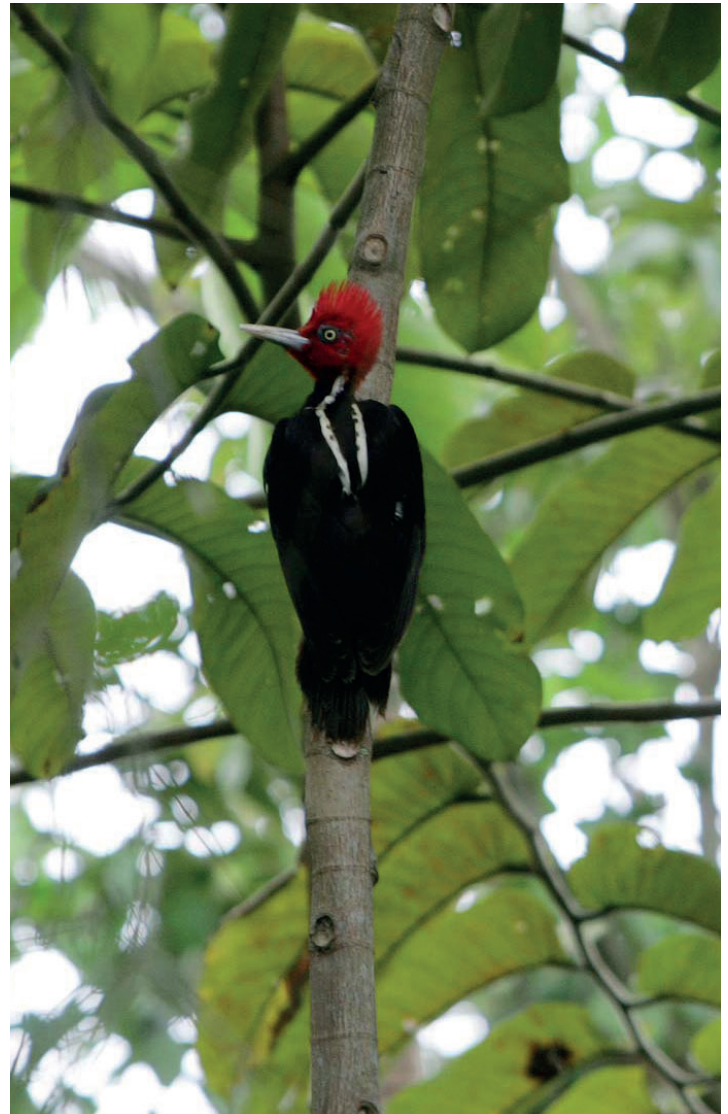
### ***The JATUSA Ecological Corridor***

The Central American Commission on Environment and Development defines a biological corridor as “a defined geographical space that provides connectivity between landscapes, ecosystems and habitats, natural or modified, ensuring the preservation of biological diversity and ecological and evolutionary processes.”

The JATUSA Ecological Corridor project aims not only to preserve the region's biodiversity, but also to integrate communities to its development, ensuring an optimal management of environmental resources while enabling compatibility between economic activities in the region and environmental conservation and restoration.

With the purpose of achieving the aforementioned, it is necessary to collect on-site biological information and to develop maps, as well as to initiate dialogue processes with our communities in order to identify their demographic characteristics, to address their concerns and interests, to agree on a collaborative agenda, and to define issues related to land use.

For Petróleos Mexicanos, carrying out this project means demonstrating consistency with its environmental and social standards and policies, as well as opening a space for building good relationships and improving the living conditions of our neighbors through environmental conservation actions, ensuring the integrity of our intermediate safeguard zones.



The concept of corridor aims to connect these three areas (Jaguarundi, Tuzandepetl and Santa Alejandrina) through patches of vegetation in good condition to preserve areas of environmental value

## CONSERVATION AND SUSTAINABLE DEVELOPMENT PROJECT IN THE USUMACINTA RIVER MIDDLE BASIN

This project, operated by Natura Mexicana, is carried out in one of the most important regions of Mexico, mainly because it contains the largest tropical rainforest spot, and the country's most diverse terrestrial ecosystem; also, because of the environmental services it generates for the local population, the Tabasco's plains, the Gulf of Mexico and for the national population.

The Lacandon Jungle is located in the Usumacinta river middle basin, in the state of Chiapas, which is the main recharge zone of the Usumacinta and Grijalva rivers. More than half of the flow of the Usumacinta River comes from the Lacandon Jungle.

The objective of the project is to promote and implement the necessary actions for the conservation and management of the natural ecosystems in the Lacandon Jungle region, both in the protected natural areas and in the surroundings. The project aims that ecosystems remain healthy, while their natural resources are preserved, and environmental services, new income and jobs are generated, all of which are necessary for the development and social welfare of the population.

The conservation of the forest area and the environmental services of the Usumacinta river middle basin enable water supply to remain within its natural cycle and stop the erosion and sediment movements.

During 2016, the program continued preserving the ecosystems of the protected natural areas and surroundings of the Lacandon Jungle through surveillance and monitoring activities, as well as persisted on promoting the implementation of public programs for the benefit of the local population and the preservation of the jungle.

Among the most important actions promoted in 2016 are the following:

- Operation of three on-site stations for biodiversity conservation along the Lacantun river, from which activities of monitoring, research, environmental education, ecological restoration and support of the sustainable management of resources are being carried out.
- Trap cameras continuous monitoring, indicating the ecosystem quality for species such as: jaguar, tapir, white-lipped peccary, temazate deer and swamp crocodile, in the Montes Azules Biosphere Reserve, the Chan-Kin Flora and Fauna Protection Area, the Yaxchilan Natural Monument, as well as in remaining areas of four ejidos of the municipality Marques de Comillas.
- Rescue and protection of scarlet macaw in the Lacandon Jungle, through river monitoring and ground observations performed by technical personnel and community monitors.
- Monitoring of amphibians and reptiles in the Natural Protected Areas of the Lacandon Jungle.



- Monitoring of the physicochemical characteristics of aquatic environments to evaluate ecosystem health.
- Collaborative work with eleven ejidos (communal land used for agriculture) with the purpose of managing, advising and following up their participation in the program Payment for Environmental Services (PES) of the National Forestry Commission (CONAFOR, by its acronym in Spanish), supporting as a result, the conservation of more than 10,000 hectares of forest in these communities.
- Counseling and support to four social companies created –from its origin– by members of the Marques de Comillas community. These are now at different stages of development, earning revenues and generating employment through management and conservation of their forest: Canto de la Selva eco-tourism hotel, Casa del Morpho butterfly Environmental Management Unit (UMA), Tamandua eco-tourism camp, and Selvaje eco-tourism center.
- The combined aquaculture and aquaponic modules maintain a steady production. They have experienced improvements in their operation while they remain under hydrological and productive evaluation.
- 1.5 tonnes of meat in the aquaculture production units and more than 350 kg of habanero chili pepper in the aquaponics component have been produced in each unit.



The conservation of the forest area and the environmental services of the Usumacinta river middle basin enables water supply to remain within its natural cycle, and to prevent the erosion and sediment movements.

- Development of a pilot study to determine the forest potential in the Ejido Emiliano Zapata -one of the ejidos with the largest forest extension in the region-, and to define a critical route with the objective of developing a sustainable forest management plan based on the pilot study.
- 700 children and young people from the *ejidos* and communities surrounding the Protected Natural Areas participated in environmental education activities and talks.
- 300 children received self-managed courses in which they become familiar with information technologies and cultural topics. They had access to 90 functional computers equipped with self-taught educational software.
- Training of workers and partners of five eco-tourism companies for the operation and administration of their centers and the exchange of experiences with other community-based nature tourism projects.
- Support to fifteen local youths to continue their education and acquisition of technical skills, three of them were awarded with a scholarship to study at the university in Tuxtla Gutierrez and San Cristobal de las Casas.
- Training for 46 professionals from the region (Chiapas and Tabasco) on natural protected areas management, through talks and workshops in their institutions.

Please visit the following link to know more about the work of Natura Mexicana <http://naturamexicana.org.mx/>

## CASA DEL AGUA

Casa del Agua is located within the Pantanos de Centla Biosphere Reserve in the state of Tabasco. It is an Environmental Interpretation Center operated and managed by the civil organization Natural Spaces and Sustainable Development (ENDESU, by its acronym in Spanish), whose mission is “the conservation and sustainable management of the natural resources of Mexico, considering wealth in terms of environmental services and biodiversity as a heritage for present and future generations”.

The mission of Casa del Agua is to “introduce values in society for the conservation, protection and sustainable use of the natural heritage of the Pantanos de Centla, as well as to strengthen values of human development for the conservation of the planet, through its facilities, didactic tools and interactive workshops focused on different groups: school, family and business”.

With the general objective of “promoting in society a culture for the conservation of the Pantanos de Centla Biosphere Reserve”, in 1998 Petroleos Mexicanos agreed with ENDESU, A.C. the development of the Casa del Agua project, an Environmental Interpretation Center, for which the association acquired a property in the Pantanos de Centla Biosphere Reserve (RBPC).



Since 2000, several donations have been made to ENDESU, A.C. with the aim of supporting conservation actions in the RBPC.



Pemex's contributions amounted to \$ 33'420,000.00 pesos from 2000 to 2015, equivalent to an average of \$2'088,750.00 pesos per year. These donations represent more than 90% of Casa del Agua's budget.

To date, over 100,000 people have visited Casa del Agua since its inauguration. In addition, more than 180 workshops for Pemex workers and contractors have been developed, covering topics about Protected Natural Areas value and legal framework, reaching approximately 3,500 people.

This project has enabled us to communicate the reality of the oil and gas activity within the reserve, through a didactic room addressing oil as the main topic, showcasing from the origin and storage of hydrocarbons in the subsoil, to the actions of seismic prospecting, exploration, and transport and transformation of oil derivatives; teaching also about the actions Pemex has implemented in terms of ecosystem prevention, restoration and conservation.

In addition, this project has become a space for coordination, organization and training, acting as a venue for specialized courses, community meetings and work between different levels of government. The National Commission of Natural Protected Areas (CONANP, by its acronym in Spanish), perceives the Environmental Interpretation Center as the basis for developing the policy of Culture Centers for Conservation in Mexico. Near the Center, six tourist services organizations have been organized, trained and registered with the participation of more than 50 families from the community.

It is worth mentioning that the plant nursery center from Casa del Agua, with a production capacity of 100 thousand plants per year, has continuously fed with native plants the restoration of sites and banks of several rivers in the reserve, in alignment with the projects of ENDESU and the RBPC.

Among the most relevant results achieved through this project are the following:

- More than 100 thousand visitors and more than 900 environment awareness courses provided.
- 30 social services and five specific theses have been supported, in addition to other research projects.
- Universities such as Universidad Michoacana and Universidad de Campeche, as well as several technological institutes from the country, perform annual visits to the Center as part of their ecotourism and biology academic programs.
- Pre-school, primary, secondary and high school institutions throughout the state of Campeche -particularly those located in the Reserve- visit Casa del Agua, where they participate in environmental culture workshops as part of their academic programs.
- Teaching materials for different school levels have been generated and distributed, including support for teachers with the aim of strengthening knowledge of wetlands and the reserve.
- Four itinerant exhibitions have been displayed at points of large influx of visitors (airports, museums, schools) on topics such as oil goods, values and ecosystems services; a climate change exhibition; swamp themed oil paintings; and an exhibition resulting from a state level school drawing contest.

Please visit the following link to know more about this project <http://endesu.org.mx/sensibilizacion-ambiental/casa-del-agua/#>



# Our People

The Human Resources Department (SRH, by its acronym in Spanish) aims to attract and retain the best talent within our organization, managing the personal and professional development of our employees in order to enable Pemex to become an efficient, competitive and high-performance company.

To achieve this, the SRH coordinates the design and implementation of policies and strategies, as well as advises and serves the requirements of the business lines, considering the following aspects:

- Human capital planning.
- Recruitment and selection.
- Employee training and development.
- Knowledge management.
- Performance and compensation management.
- Culture and work environment.

The SHR works under the following operational premises:

- Sustaining the increase of productivity of Pemex and its EPS.
- Focusing on value creation.
- Increasing customer satisfaction.
- Contributing to the improvement of the SSPA indicators.

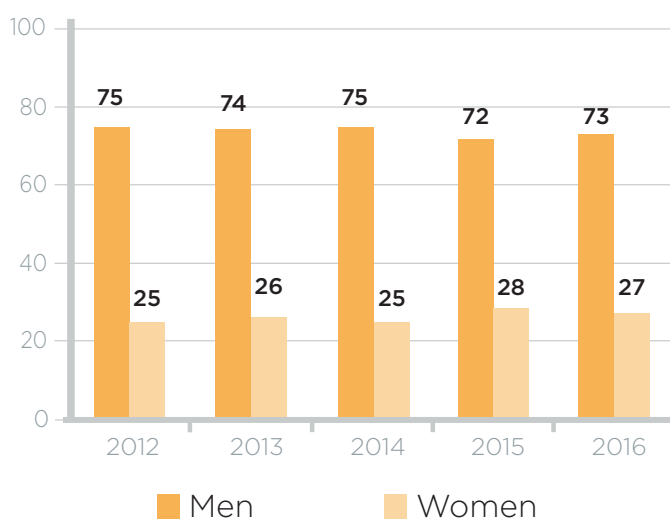


## HUMAN RESOURCES

At the end of 2016, Pemex's workforce was integrated by 126,940 employees, decreasing by 8.27%, as compared to 2015.

DISTRIBUTION OF PERSONNEL BY AGE GROUP 2012 - 2016 (%)											
Year	< 20	20/24	25/29	30/34	35/39	40/44	45/49	50/54	55/59	60/64	64>
2012	0.6	1.99	5.99	10.38	13.25	17.32	19.17	18.14	8.54	3.11	1.51
2013	0.25	2.06	6.1	10.94	13.32	17.41	18.94	18.2	8.18	3.07	1.48
2014	0.26	2.08	6.71	11.69	13.56	16.9	18.42	17.91	7.93	3.08	1.46
2015	0.63	4.07	9.01	13.33	14.72	16.57	18.07	14.01	5.99	2.38	1.22
2016	0.13	1.43	5.12	11.24	15.18	17.78	21.14	16.66	7.23	2.76	1.33

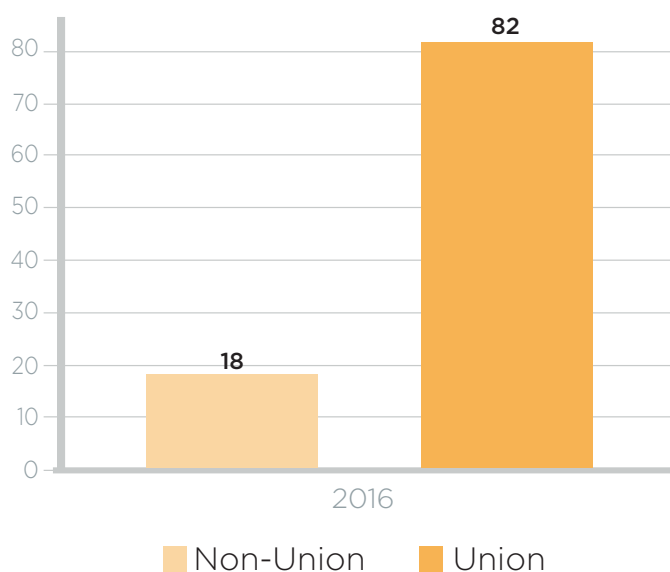
### Workforce Distribution by gender (%)



198 women hold senior positions at Petróleos Mexicanos.

PERSONNEL BY HIERARCHICAL LEVEL (%)					
Level	2012	2013	2014	2015	2016
08 - 12	21.4	21.3	21.5	23.6	18.2
13 - 17	20.6	20.4	20.1	22.1	21.2
18 - 22	13.6	13.6	13.3	14.4	14.6
23 - 29	23.5	23.5	22.3	20.0	25.2
30 - 34	8.7	9	10	7.2	9.1
35 - 39	10.9	11	11.7	9.9	10.5
40 - 44	1.2	1.2	1.1	2.4	1.1
45 - 48	0.1	0.1	0.1	0.3	0.1

## Distribution by contractual arrangement



	RETIRED WORKERS				
	2012	2013	2014	2015	2016
Pemex-Exploration and Production	26,334	24,995	25,528	28,305	30,080
Pemex-Refining	29,446	29,451	30,240	32,770	35,845
Pemex-Gas and Basic Petrochemicals	5,552	5,262	5,632	6,818	6,598
Pemex-Petrochemicals	7,365	8,019	8,432	9,745	9,344
Corporate	10,130	15,327	17,183	19,836	21,220
<b>Total</b>	<b>78,827</b>	<b>83,054</b>	<b>87,015</b>	<b>97,474</b>	<b>103,087</b>

## HOUSING FINANCING SYSTEM

Since the Housing Financing System (SIFIVI, by its acronym in Spanish) was created in 1994, Pemex has granted to permanent workers a total of 58,575 mortgage loans through various banking institutions. In terms of financial contributions for the same period, an amount of 69,906 contributions have been granted to the company's employees.

## DEVELOPMENT AND TRAINING

Due to budget constraints applied in the company during 2016, several decisions were taken in order to optimize the allocation of budgetary resources, nevertheless, we are committed to continue delivering training in accordance with the core needs of the business.



The main actions undertaken in 2016 are the following:

- Training program optimization, by focusing on courses that have an impact on substantive activities of the company such as operation, maintenance and safety; 66% of the courses are related to technical subjects, 30% to safety issues, and the remaining 4% to behavioral, administrative and computer related matters.
- For the implementation of the program, priority was given to courses that enable compliance with federal regulatory obligations and strategic topics included in our Business Plan.
- The training program was restructured to strengthen it with internal trainers. The number of courses under this modality increased from 62% to 77%, with the participation of 2,200 instructors.



## 2012-2016 INSTITUTIONAL TRAINING PROGRAM

	2012	2013	2014	2015	2016
Number of courses	13,533	15,137	12,278	8,611	5,855
Number of hours	858,561	912,699	803,375	595,898	395,765
Number of participants	180,226	177,840	209,764	153,601	61,280

2016 INSTITUTIONAL TRAINING PROGRAM DETAIL				
	Courses	Hours	Participants	Investment
Exploration and Production	941	30,720	15,228	117,572,900
Industrial Transformation	2,564	270,266	23,939	29,838,045
Logistics	293	39,184	8,148	6,878,497
Drilling and Services	941	8,633	5,130	0
Fertilizers	63	11,280	573	171,601
Ethylene	0	0	0	0
Cogeneration and Services	0	0	0	0
Corporate	1,053	35,682	8,262	14,421,374
<b>Total</b>	<b>5,855</b>	<b>395,765</b>	<b>61,280</b>	<b>168,882,417</b>

## ESPECIALIZED DEVELOPMENT PROGRAMS

Based on the priorities of the company's business lines, talent has been strengthened through continuous skills development and training, which are summarized as follows:

- 596 individual development plans were established for professional staff and 3,205 for technical personnel.
- Collaboration with research centers to carry out specialized human resources training programs such as "On-site Diploma in Static Mechanical Maintenance" and "Preparation, Training and Skills Training for Welder Certification" by the AWS.
- Coordination and delivery of specialized events in technical issues, registering the participation of 5,373 workers.
- Allocation of workers from different EPS to training programs sponsored by the Japan Cooperation Center Petroleum (JCCP).

## ORGANIZATATIONAL CULTURE

As a part of the implementation of the first stage of the cultural transformation project, the development of internal facilitators was initiated. They share their cultural change knowledge through practical sessions implemented within the company.

In this context, Pemex is currently working on developing this project to an enterprise-wide scale, as part of an ongoing exercise that enables us to consolidate a result oriented culture.



## PERFORMANCE EVALUATION

The performance management process in Pemex and its EPS is carried out under the Institutional System for Individual Performance Management (SIADI, by its acronym in Spanish). Based on this system, objectives are planned and tracked to its fulfilment while results are measured, always focusing on those projects and initiatives that create value.

The SIADI is evolving to become a simple, agile, objective, and transparent process that suits the needs of the company. Hence, during 2016, the SMART methodology for the individual performance goals definition was implemented, as well as the seven organizational competencies that every worker must have. The latter are aligned to the cultural transformation initiative, and include the following competencies: (i) innovation, (ii) teamwork, (iii) continuous improvement, (iv) customer-focus, (v) productivity, (vi) alignment, and (vii) result-oriented.

During the performance cycle of 2016, nearly 25,000 non-union workers used the system, an amount equivalent to 97% of participation. This amount accounted for an input for the final review, registering a 96% participation. Below is a comparison of the participation in recent years.

Individual performance evaluation				
Year	Level	Universe	Number of evaluations	Total participation (%)
2012	30-46	23,069	22,113	96
2013	30-46	23,625	22,207	94
2014	30-46	23,849	23,064	97
2015	30-46	31,104	28,128	90
2016	30-46	24,862	23,838	96

### ***Collective Bargaining Agreement (CCT)***

Negotiations to agree on wages increases and other employee benefits were carried out with the General Executive Committee of the Petroleum Worker's Union (STPRM, by its acronym in Spanish). The main modifications agreed, effective from August 1st, 2016, to July 31st, 2017, are the following:

- **Salary:** Increase of 3.17% in ordinary wages
- **Medical services:** Increased quotas for the following medical specialties:
  - Dental prostheses.
  - Orthodontics.
  - Eyeglasses frames.
  - Hearing orthotics.

- **Scholarships for unionized workers and children:** It was agreed to increase the amounts of scholarships at all educational levels.
- **Housing:** the maximum amounts for mortgage loans and deed expenses were increased.
- **Benefits:** various benefits were increased, among others, those referring to travel expenses quotas, transportation, vacations-related payments, meals, funeral expenses, life insurance, basic food basket purchase, book purchase aid, scholarships for nurses, and aid for children requiring special education care in specialized institutions.

Below, a comparative table of scholarships granted from 2012 to 2016 is included.

Year	2011-2012		2012-2013		2013-2014		2014-2015		2015-2016	
	Number	Amount	Number	Amount	Number	Amount	Number	Amount	Number	Amount
Clause 171 Workers	1,337	38.2	1,425	46.2	1,489	54.7	1,500	59.6	1,800	76.5
Clause 172 Nurses	53	-	55	-	11	-	54	-	40	63.9
Clause 175 Children of workers	7,685	74.8	7,647	79.8	8,403	91.1	8,417	100.7	8,406	106.8
Clause 175 Children of workers (special needs)	253	2.2	241	2.3	252	2.5	265	2.9	261	3.0
<b>Total</b>	<b>9,328</b>	<b>115.2</b>	<b>10,034</b>	<b>128.3</b>	<b>10,155</b>	<b>93.6</b>	<b>10,236</b>	<b>163.2</b>	<b>10,507</b>	<b>250.2</b>

## MEDICAL SERVICES

With the aim of effectively and efficiently managing preventive, curative, and maternity care services, and providing physical and mental rehabilitation in the three levels of attention, Petróleos Mexicanos holds a body of specialists, doctors, nurses and technicians professionally trained and updated in key areas of health. In addition, the company holds supporting staff that also provide medical care.

They are located in two central hospitals, six regional hospitals, thirteen general hospitals, three clinics-hospital, ten clinics and twenty medical offices.

HEALTH CARE					
Subject	Year				
	2012	2013	2014	2015	2016
Medical consultations performed	4'673,089	4'863,807	5'307,273	5'135,705	4'985,893
Surgical interventions	35,748	36,742	36,318	35,084	32,374
Hospital discharges	79,439	78,843	67,016	64,298	60,815
Total medical examinations performed on workers	106,143	109,252	110,997	115,763	109,727
Laboratory studies	4'460,193	4'602,915	4'613,928	4'547,089	4'264,745
Live births	4,152	4,306	4,238	4,076	3,443
Transplants performed	36	56	58	86	62

## HEALTH BONUS

With the purpose of motivating and encouraging our workers to take care of their health, on January 1st, 2016, a health bonus was introduced contractually to all workers who during the medical examination presented normal values in four parameters: (i) Body Mass Index, ii) blood pressure, iii) glycosylated hemoglobin, and iv) High-density Lipoprotein (HDL) Cholesterol. In 2016, 97,870 periodic medical examinations were performed and 7,060 workers were awarded with the health bonus.



## EQUALITY AND INCLUSION

In alliance with the United Nations Development Program (UNDP-Mexico), the Social Inclusion Institutional Strategy (EISI, by its acronym in Spanish) in Matters of Gender Equality, Non-Discrimination and Labor Inclusion of Women, People with Disabilities and LGBTTTI (lesbian, gay, bisexual, transsexual, transgender, transvestite, intersexual) Population is committed to the creation of inclusive and free from discrimination labor spaces, based on awareness-raising and staff training. Moreover, it is dedicated to create and strengthen labor inclusion policies for highly vulnerable groups.

In 2016, the strategy was implemented with the following outstanding actions:

- a) Performance of face-to-face training and two online courses on inclusion: “Women and men equality in the workplace” and “Step by step we build inclusion in Pemex”, with more than 26,000 trained people nationwide.
- b) Awards on Inclusive Company and Family Responsible Company, both granted by the STPS.
- c) Release of the document “Policies and procedures for dealing with possible acts of discrimination, mobbing, and/or sexual harassment in Pemex” at the Institutional Library on Regulation, which is aligned to the codes of ethics and conduct, as well as to national and international standards.
- d) Social inclusion diagnosis. In March 2016, a survey was conducted throughout a representative sample of Pemex personnel, with the purpose of drawing attention to the culture of inclusion.
- e) Implementation of physical accessibility. After the diagnosis performed, the recommendations were applied and reasonable adjustments made, which will be replicated to other facilities nationwide.
- f) Development of the theoretical-methodological design and logistics process to identify population in vulnerable situations or traditionally excluded (people with disabilities, LGBTTTI and women).

In addition, we continue to operate the Table on Inclusion, Equality and Non-Discrimination (MIIND, for its acronym in Spanish) to implement transversely the inclusion, equality and non-discrimination strategies and programs within the company. In 2016, three MIIND ordinary sessions were held and agreements were reached to outline transversal inclusion strategies and programs in Pemex.

During 2016, we were also awarded with the NMX-R-025-SCFI-2015 certification on labor equality and non-discrimination. The company obtained the bronze level for the entire institution (20 directions, 314 offices and 146,802 people) nationwide. This standard acknowledges Pemex’s progress on issues of decent employment, architecture accessibility, access to institutional resources, equality of opportunities for all staff and training.





**PEMEX**  
**DIVERSIDAD**

The Network for Diversity was also consolidated to create working environments where LGBTTTI staff can feel safe, valued and respected, allowing them to reach their full potential. In addition, Pemex joined Pride Connection Mexico, a group of multinational companies (Google, IBM, JPMorgan, Pfizer, DOW, Pepsi, SAP, Cinopolis, among others) that meet monthly to share best practices for full labor inclusion of people in the LGBTTTI community. Likewise, five Fairs for Inclusion were held in different working centers (the Miguel Hidalgo refinery, Nuevo Pemex CPG, Cactus CPG, Edificio Piramide and the Centro Tecnico Administrativo in the southern region) to raise awareness in employees through playful and didactic materials on different types of disability, sexual diversity, family co-responsibility and inclusive language, among other topics.

Permanent awareness and information campaigns are carried out through internal electronic and printed media, as well as messages alluding to equality and non-discrimination have been published in Pemex social networks.

The company also participated in the Third National Forum on Corporate Social Responsibility in Mexico and delivered the presentation "Pemex commitment to gender equality" at the 3rd Global Forum "Companies for Gender Equality: Promoting the Sustainable Development Goals", encouraged jointly by the Government of Panama and the United Nations Development Program (UNDP). Moreover, the company participated in the National Council to Prevent Discrimination (CONAPRED, by its acronym in Spanish) and the UN Working Group on Businesses and Human Rights coordinated by the Secretariat of Government.



In addition, the Family Integration Centers (CIFAs, for its acronym in Spanish) and the Social and Integral Center for Senior Adults (CESIPAM, for its acronym in Spanish) continued to work with the aim of improving the quality of life of active and retired employees, entitled holders and people from the communities located close to our facilities.



A program was developed with the purpose of reinforcing the collaboration between Pemex and public institutions, foundations and educational institutions. A training program was integrated for beneficiaries, which covered the topics of equality, inclusion and non-discrimination. Also, 22 conferences and various awareness talks were delivered in 10 CIFAs and one CESIPAM.

The 3rd Expo Fair of Foundations and Non-profit Associations, organized by Petróleos Mexicanos, took place in 2016. More than 25 foundations and associations participated in this event. Similarly, the Fair of Women Producers and Artisans INMUJERES CDMX was held with the aim of promoting the economic empowerment of women in Mexico City, with the participation of 20 artisanal producers from four delegations.





# Occupational health and industrial safety

## OCCUPATIONAL HEALTH

In 2016, we implemented the “Raise the voice, all safe, all on board” campaign in Pemex Drilling and Services, which reduced by 69% the absenteeism of workers due to diseases in the last quarter, as compared to the rest of the quarters of the year.

The Person-Position Compatibility Procedure (PCPP, by its acronym in Spanish) was initiated in Pemex Drilling and Services (PPS, by its acronym in Spanish), Pemex Exploration and Production (PEP, by its acronym in Spanish), PEMEX Industrial Transformation (TRI, by its acronym in Spanish) and Pemex Logistics (PLOG, by its acronym in Spanish). The Person Position Compatibility Procedure includes activities that enable the evaluation of the proposed personnel according to physical, functional and psychological performance requirements for the job and its characteristics, thus ensuring that the staff has the necessary skills to perform their activities in the position to be occupied.

Moreover, the first four profiles for critical positions in Pemex Drilling and Services were developed, and the profiles to be created in the rest of the EPS were determined.





In addition, the foundations between the company and the STPRM were established with the aim of integrating job profiles to our labor regulations.

Similarly, the strategy and the profiles of the personnel that will participate in the development of the Psychosocial Risk Factors standard were developed.

In 2016, the report on the preventive indicators of the Occupational Health Administration Subsystem (SAST, for its acronym in Spanish) was consolidated, as well as its analysis for decision-making in this area.

## INDUSTRIAL SAFETY

### *Frequency rate*

During 2016, the initiatives promoted by the company in terms of Safety, Occupational Health, Environmental Protection and Sustainable Development enabled to surpass the frequency rate target of 0.38 injuries per million man hours, reaching a historical minimum for the company of 0.36 injuries per million man hour, decreasing by 23%, as compared to 2015.

### *Accident severity rate*

At the end of 2016, the cumulative accident severity rate amounted to 23, decreasing by 25%, as compared to 2015.



The lowest  
**accident severity rate**  
in the company history

**0.36 injuries**  
per million man hour

The outstanding performance recorded during 2016 was largely due to the implementation of the ZERO TOLERANCE twelve safety directives issued by our Director General, which were supported alongside to other different initiatives.

One of these initiatives is the application of an audit and technical support program in critical workplaces of all business lines, with the aim of detecting risks and establishing the necessary actions for their immediate mitigation.

Moreover, the role of SSPA professionals has been strengthened through a simple mandate focused on applying the best international auditing, regulatory, supporting and training practices.

Furthermore, communication and diffusion campaigns were launched in all EPS to address the main causes of accidents, to ensure that technical and manual workers can identify and manage their labor risks. As a result, we decreased personal accidents by 29% during 2016.

Contextualizing the above, it is worth remembering that Pemex began operations in 1938 with a three-digit accident rate; nowadays, indicators have been significantly reduced, contributing to the safety and confidence of oil workers, their families and communities near our facilities.

### ***Contractor safety rate***

For contractors, the safety rate amounted to 0.26 injuries per million man hours, decreasing by 41%, as compared to 2015.

This was also possible by involving contractor personnel in the ZERO TOLERANCE guidelines unrestricted application, and by conducting permanent compliance audits with the SSPA Appendix during risk activities.



# Ethics and **corporate integrity**

In a competitive environment, ethics and corporate integrity acquire a renewed value to the company, as they are elements that enable workers to inhibit irregular behavior while strengthening the image and reputation of the company.

Demonstrating high standards of ethics and integrity reinforces the trust of customers, investors, suppliers and communities in the company and its workers.

Therefore, in February 2016, the Ethics and Corporate Integrity Program was launched to promote integrity and ethical values in the company, with the purpose of aligning all activities conducted by Pemex employees. This program incorporates international standards and best practices in ethics, integrity, anti-corruption strategies, and aims at the following:

- Improving public perception regarding Pemex's ethical and integrity culture and principles.
- Minimizing the probability of occurrence of identified corruption risks in business activities.
- Improving business partners' confidence in the company's ethical and integrity behavior.
- Improving the response to acts of non-compliance in ethics or integrity related matters.

Among the main action lines of the Program are the following:

- Adapting ethics and conduct codes to meet new needs while incorporating better practices.
- Developing training and adherence mechanisms on ethics and integrity for the company's employees.
- Implementing ethical profile assessments for new entry staff and including their development in staff evaluation mechanisms.
- Establishing new mechanisms for assessing the ethical and integrity environment of the company.

## CODE OF ETHICS

As part of the implementation of the Ethics and Integrity Program, in November 2016, the Board of Directors of Petróleos Mexicanos issued the new Code of Ethics for Petróleos Mexicanos, its Subsidiary Productive Companies and Affiliate Companies, with the purpose of aligning ethical values with the new challenges of Pemex as a State Productive Company. The new Code includes a simpler and easier-to-understand language to provide examples and present tools that enable employees strengthen their ethical judgment.

Please visit the following link to consult our Code of Ethics: <http://www.pemex.com/etica-e-integridad/etica/Documents/C%C3%B3digo%20de%20Etica%202016%20carta%20DG.PDF>

## CODE OF CONDUCT

Another strategy of the Program is the update of the Petróleos Mexicanos Code of Conduct, its Subsidiary Productive Companies and, if applicable, Affiliate Companies that will clearly establish the expected behaviors of Pemex's employees in their daily functions in order to promote transparency and strengthen the ethical culture of all company's employees. The new code has already been reviewed by the Ethics Committee and it will be issued by the General Director in the first half of 2017. Our current code is available at the following address: [http://www.pemex.com/acerca/marco\\_normativo/Documents/codigos/codigo-conducta\\_20170830.pdf](http://www.pemex.com/acerca/marco_normativo/Documents/codigos/codigo-conducta_20170830.pdf)

## ETHICS COMMITTEE

As a result of the introduction of the new Code of Ethics, and as part of the Ethics and Corporate Integrity Program activities, a new Ethics Committee of Petróleos Mexicanos, its Subsidiary Productive Companies and, if applicable, Affiliate Companies, was set up in December to regulate and promote the implementation and compliance with the provisions of the Codes of Ethics and Conduct.

The Committee is a collective body integrated as follows:

POSITION	HOLDER
President	Head of the Institutional Internal Control Unit.
Substitute President	Appointed by the person holding the Chair of the Committee.
Permanent Member	Person appointed by the Head of the Corporate Management and Services Department.
Four Rotary Members	Representatives of corporate offices, EPS and Subsidiary Companies.
Permanent guests	<ul style="list-style-type: none"><li>● Person appointed by the Head of the Legal Department of Petróleos Mexicanos.</li><li>● Person appointed by the Head of the Responsibility Unit in Petróleos Mexicanos.</li><li>● Person appointed by the Head of Internal Audit.</li></ul>
Secretary	Appointed by the person holding the Chair of the Committee.

Among the main functions of the committee are the following:

- Promoting corporate strategies with the aim of generating an ethical environment that leads to the compliance of Pemex objectives.
- Promoting the knowledge and practice of the codes of Ethics and Conduct with the purpose of improving the level of ethical culture in Pemex's employees.
- Knowing, communicating, analyzing and instructing to the corresponding areas about possible infringements reported to the codes of Ethics and Conduct.
- Verifying the implementation and compliance with dictated sanctions for the relevant cases.

With the purpose of offering permanent and specialized means for the reception of reports and consultancies on ethics and integrity issues, an Ethics Helpline (LAE, for its acronym in Spanish) has been made available to employees.

## **ANTI-CORRUPTION AND RISK MANAGEMENT ACTIONS**

Additionally, in compliance with section I of Article 56 of the Pemex Law, the company's corporate risk management model is based on international standards. The model is established by the Board of Directors and carried out by the General Director with the support of the Risk Committee, as well as by the different administrative units of Pemex and its EPS.

Through the business risk management process, the identification, measurement, analysis, treatment, control, surveillance and communication of risks is performed in order to provide reasonable certainty regarding compliance with the objectives set, as well as to preserve the performance, efficiency and effectiveness of the resources management, operational capacity and safeguarding.

Accordingly, and regarding to corruption risks, the company continues to establish the mechanisms required for its attention and control. For this, different sources, both internal (e.g., processes diagnoses or internal audits results) and external (e.g., in the case of Procurement and Supply, a study was conducted by the Organization for Economic Co-operation and Development (OECD) are managed.

It is important to highlight that the corruption risks inventory is managed by the first line of defense, consisting on the areas responsible for the processes, with the support and advice of the Institutional Internal Control Unit (UCII, by its acronym in Spanish). Moreover, periodic reports are delivered to the Risk, Audit and Ethics Committees.

## TRANSPARENCY AND ACCOUNTABILITY

From January 1<sup>st</sup> to December 31, 2016, Pemex and its former Subsidiary Entities (OS, for its acronym in Spanish), now Subsidiary Productive Companies (EPS, by its acronym in Spanish) received 7,355 requests for information access under the established legislation. For the same period 6,112 applications were attended, including those received in 2016 and those collected from previous periods, which were attended within the deadlines set by the Law. It should be mentioned that, given that the INFOMEX systems started operating for the obliged entities (EPS), the report includes Subsidiary Entities.

OBLIGED ENTITIES	APPLICATIONS RECEIVED	APPLICATIONS ATTENDED/ <sup>1</sup>
<b>Total</b>	<b>7,355</b>	<b>6,112</b>
Petróleos Mexicanos	3,625	2,852
Pemex Refining *	55	131
Pemex Gas and Basic Petrochemicals *	26	49
Pemex Petrochemicals *	6	17
Pemex Exploration and Production	1,877	1,539
Pemex Industrial Transformation **	1,044	879
Pemex Drilling and Services ***	179	165
Pemex Cogeneration and Services ***	131	119
Pemex Fertilizers ***	71	67
Pemex Logistics ***	228	197
Pemex Ethylene ***	113	97

Source: National Institute of Transparency, Access to Information and Protection of Personal Data (INAI, by its acronym in Spanish) consulted on February 27, 2017.

<sup>1</sup>/Responses to information requests from the previous year are included.

(\*) In January 2016, these applications were no longer received by these organisms.

(\*\*) The receipt window of Pemex Industrial Transformation began operations in January 2016.

(\*\*\*) Obligated entities of the LGTAIP, as of May 5th, 2016.

In the period from January 1<sup>st</sup> to December 31<sup>st</sup>, 2016, the number of information requests received increased by 16.3% as compared to 2015, from 6,324 to 7,355 applications.

## ADOPTION OF BEST INTERNATIONAL PRACTICES AND STANDARDS

### *Extractive Industries Transparency Initiative (EITI)*

The Extractive Industries Transparency Initiative (EITI) standard derives from a global initiative to promote the transparent, public and accountable management of financial transactions in the extractive industries (gas, oil and mining).



The implementation of the standard requires the participation of the government, companies and civil society. Countries that are included in the standard make public information on the payment of taxes, services, licenses, contracts and production related to the extraction of resources in the country. The information is communicated in an open and transparent way, which allows the public to know how the natural resources of the countries are managed and the amount of income generated by their exploitation.

Mexico is in the process of promoting its candidacy to join the EITI initiative. As part of this process, on November 22nd, 2016, the Multiparty National Group for Mexico's Adherence was created. The group is integrated by representatives of the Federal Government (Ministry of Finance and Public Credit, Ministry of Energy, and the Ministry of Economy), the Industrial Sector (Mexican Association of Hydrocarbons Companies, Pemex and the Mining Chamber of Mexico) and Civil Society (various organizations, including Transparencia Mexicana, and the Economic Research Institute of UNAM). At that meeting, the three sectors subscribed to the declaration of principles of EITI Mexico.

The responsibility of this working group is the design of an action plan for the submission of the candidature of Mexico. Currently, this effort is in the process of being drawn up.

### ***Open Government Alliance***

The Open Government Alliance (AGA, for its acronym in Spanish) aims to consistently ensure that governments become more transparent and accountable, while improving responsiveness to their citizens by providing quality services.

Pemex has participated in this effort under the leadership of the Ministry of Energy; therefore, on October 26<sup>th</sup>, the Ministry stated that the 2013-2015 Action Plan had been implemented, presenting significant results regarding the transparent and periodic publication of the following information:

- Contributions and donations granted by Pemex to each state and municipality.
- Information related on Pemex's contracting processes.
- Information related to studies contracted by Pemex with third parties.



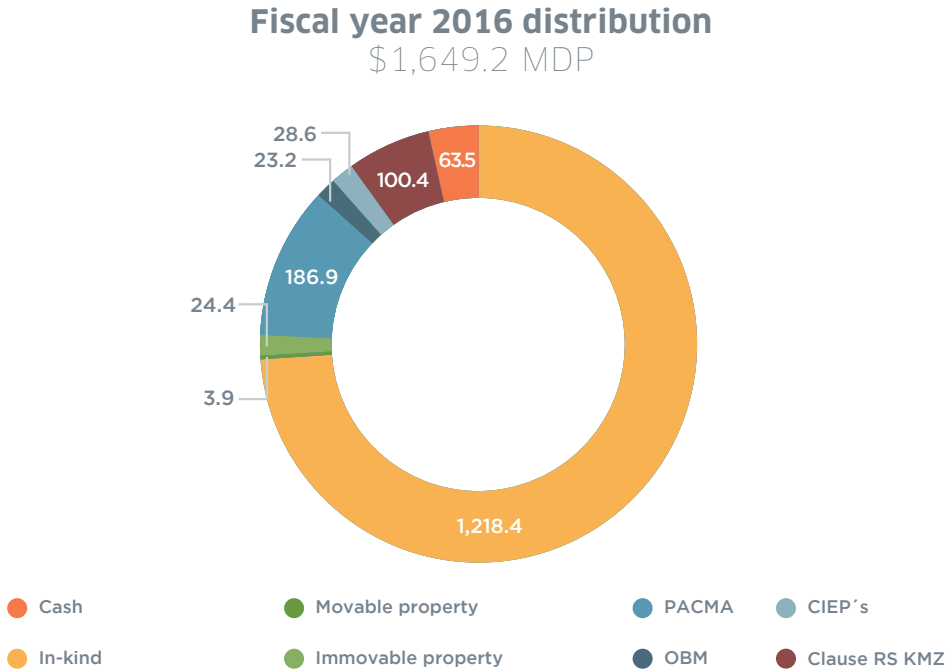
# Social investment

With the purpose of actively contributing to the improvement of the quality of life of families in oil regions, Pemex has taken a proactive role in generating favorable conditions for growth and well-being through the Office of Responsibility and Social Development. We know that investing in these communities enables us not only to strengthen Pemex's role in the development of the region, but it also enables the communities to enjoy the benefits that the oil industry entails.

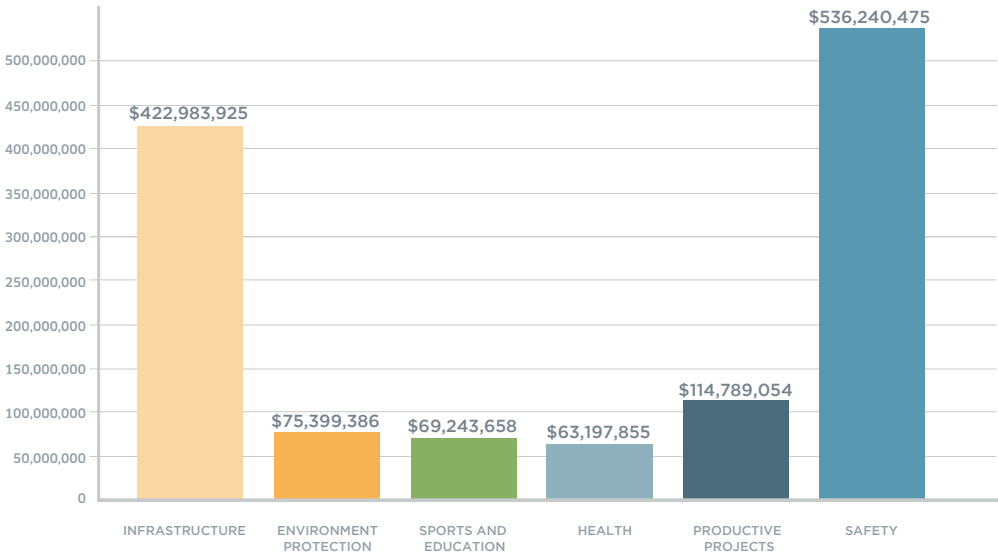
To achieve the above, the company develops various instruments aimed at improving the quality of life in oil regions in order to reconcile the industry's growth with the legitimate welfare aspirations of the communities. The main instruments developed are:

- Cash donations.
- In-kind donations (fuels and asphalt).
- Movable and immovable property donations.
- Mutual Benefit Works (OBM, by its acronym in Spanish).
- The Community and Environment Support Program (PACMA, by its acronym in Spanish) that supports and implements social programs, actions and civil works. It is designed to promote the economic and social development of the communities in which we operate, as well as to protect the environment.
- Other social responsibility contractual mechanisms such as the Integrated Extractions and Production Contracts (CIEPs, by its acronym in Spanish) and the appendixes and clauses of sustainable development included in contracts with suppliers or contractors, through which they commit to improve the communities' quality of life.

In 2016, the company's social investment amounted to \$1,649.2 million pesos, distributed as follows.



**Cash and In-kind donations by social development area**  
Total \$1,281,854,353.00 pesos



With the aim of ensuring that the support provided is positively impacting the communities' quality of life, a deliberative group was created to determine the allocation of social development investment. The Donations Granting Group (GOA, by its acronym in Spanish), which brings together Corporate and EPS representatives, met nine times during 2016 and approved 114 cash and in-kind donations, adding up a total of \$1,281,854,353.00 pesos.

## CASH AND IN-KIND DONATIONS BY STATE

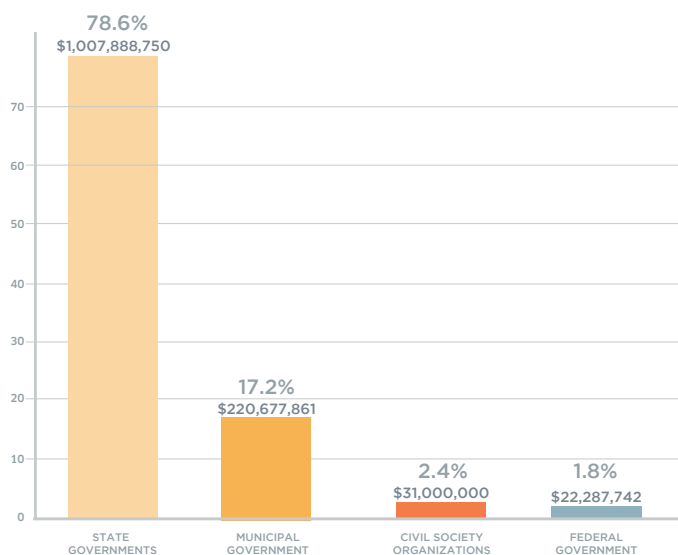
State	Cash	Asphalt		Fuels		Sub-total	Total
		Tones	Pesos	Liters	Pesos		
States with the highest level of oil industry activity							
Campeche	30,000,000	12,920	86,567,673	15,400,000	193,043,864	279,611,537	309,611,537
Tabasco	-	13,400	89,691,011	14,420,000	183,006,905	272,697,916	272,697,916
Tamaulipas	-	4,880	32,614,399	8,060,000	104,324,296	136,938,695	136,938,695
Veracruz	9,000,000	7,340	49,323,750	6,480,000	84,967,898	134,291,648	143,291,648
Subtotal	351,000,000	55,080	526,466,488	84,703,972	1,084,630,692	1,611,097,180	1,962,097,180
States with an intermediate level of oil industry activity							
Coahuila	-	1,000	6,630,421	760,000	9,782,283	16,412,704	16,412,704
Guanajuato	-	5,740	38,525,889	1,000,000	12,949,426	51,475,315	51,475,315
Hidalgo	2,500,000	3,400	22,871,282	1,500,000	19,420,613	42,291,895	44,791,895
Nuevo León	-	1,840	12,409,677	1,580,000	20,826,861	33,236,538	33,236,538
Oaxaca	-	1,920	12,934,318	3,440,000	45,823,887	58,758,205	58,758,205
Puebla	-	2,980	20,008,816	1,360,000	17,969,029	37,977,845	37,977,845
San Luis Potosí	-	2,280	15,004,431	870,000	11,501,302	26,505,733	26,505,733
Subtotal	2,500,000	19,160	128,384,834	10,510,000	138,273,401	266,658,235	269,158,235
Priority states	41,500,000	57,700	386,581,667	54,870,000	703,616,364	1,090,198,031	1,131,698,031
States in the rest of the country							
Baja California Sur	-	600	4,046,634	160,000	2,109,479	6,156,113	6,156,113
Ciudad de México	15,000,000	-	-	1,200,000	15,657,321	15,657,321	30,657,321
Colima	-	-	-	380,000	4,988,785	4,988,785	4,988,785
Chiapas	3,000,000	2,040	13,751,100	2,140,000	27,326,602	41,077,702	44,077,702
Chihuahua	-	-	-	740,000	10,036,610	10,036,610	10,036,610
Estado de México	4,000,000	-	-	1,600,000	19,985,194	19,985,194	23,985,194
Jalisco	-	600	4,046,634	-	-	4,046,634	4,046,634
Michoacán	-	360	2,427,980	160,000	2,109,480	4,537,460	4,537,460
Nayarit	-	-	-	180,000	2,394,057	2,394,057	2,394,057
Querétaro	-	1,000	6,744,390	620,000	8,042,618	14,787,008	14,787,008
Zacatecas	-	440	2,885,520	120,000	1,603,918	4,489,438	4,489,438
Subtotal	22,000,000	5,040	33,902,258	7,300,000	94,254,064	128,156,322	150,156,322
Total	63,500,000	62,740	420,483,925	62,170,000	797,870,428	1,218,354,353	1,281,854,353

**\$1,649.2**

**million  
pesos**

total social  
investment

### Cash and In-kind donations by type of beneficiary



### IMMOVABLE PROPERTY DONATIONS

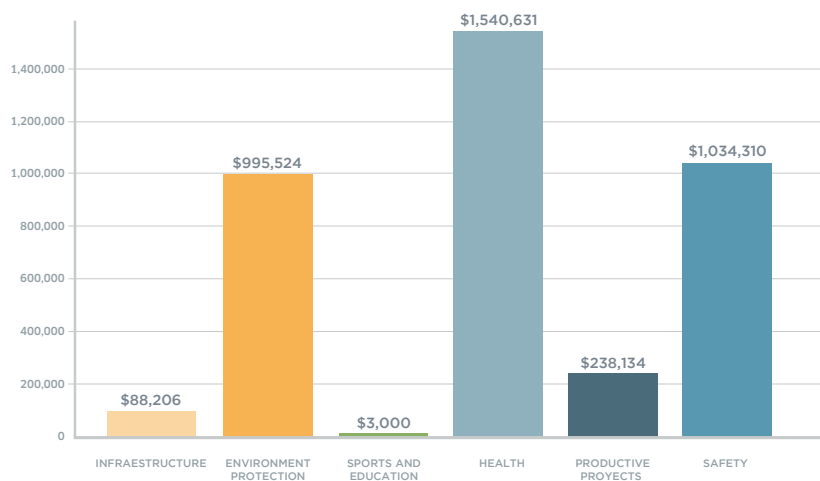
Along with cash and in-kind donations, the following property donations were granted in 2016:

- Property occupied by the primary school Artículo 123 "Eduardo Soto Ines", located in Salamanca, Guanajuato, and donated to the Government of the State of Guanajuato.
- Property occupied by the primary school Artículo 123 "Lic. Benito Juarez", located in Salamanca, Guanajuato, donated to the Government of the State of Guanajuato.
- Property occupied by the primary school Artículo 123 "Ignacio Zaragoza", located in Alamo, San Luis Potosi, donated to the Government of the State of San Luis Potosi.

### MOVABLE PROPERTY DONATIONS

#### Movable property donations by social development area

Total \$3,899,805 pesos



## COMMUNITY AND ENVIRONMENT SUPPORT PROGRAM (PACMA)

The Community and Environment Support Program (PACMA, by its acronym in Spanish) is one of the instruments supporting Pemex's Responsibility and Social Development strategy. The program aims to promote human development, generate productive capacities, deal with social backwardness and promote the sustainable development of communities located within areas of high level oil industry activity.

During 2016 the program executed 97 projects with Programs, Works and/or Actions (PROAs, by its acronym in Spanish), adding up \$186,787,363 pesos and benefiting eight state and 43 municipal governments.

Among the main PROAs developed in 2016 are the following:

### Infrastructure

- 5 classrooms.
- 1 fence.
- 1 school refurbishment.
- 8,072 safe ceilings.
- 471 firm floors.
- 19 community kitchens.
- 11 domes for schools and community centers.
- 5 community buildings/plazas.
- 2 dining rooms-classrooms.
- 1 ecological park.
- 3 sports units.
- 1 water well.
- 20 kilometers of roads.

### Health

- 51,495 Mobile Medical Unit beneficiaries.
- 472 ecological stoves



Medical Mobile Unit  
benefiting  
**51,495**  
**people**  
in most vulnerable oil regions



## PROAS INVESTMENT BY STATE

States	PROAs	Pesos
Campeche	2	\$1,419,975
Chiapas	1	\$5,563,500
Nuevo León	2	\$120,000
Oaxaca	11	\$28,308,254
Puebla	1	\$715,500
Tabasco	22	\$49,673,282
Tamaulipas	2	\$4,305,034
Veracruz	56	\$96,681,818
<b>Total</b>	<b>97</b>	<b>\$186,787,363</b>

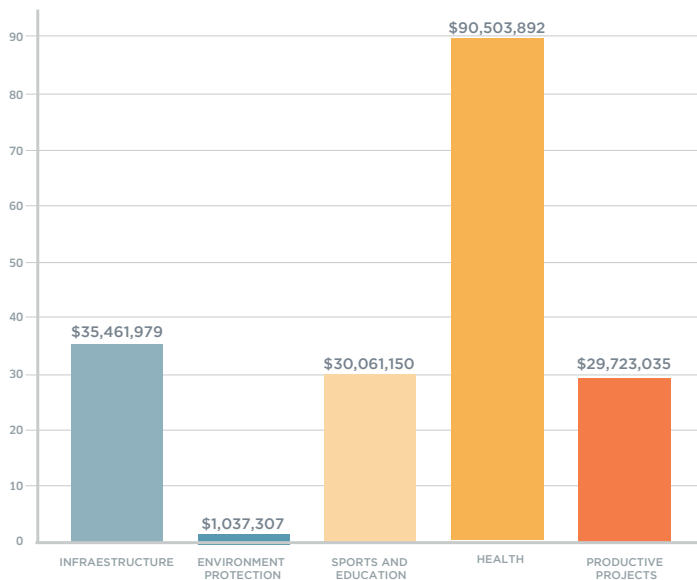
**97 PROAs**

with an investment of

**\$186.79**  
million pesos

## PROAs investment by social development area

Total \$186,787,363



## OTHER SOCIAL DEVELOPMENT MECHANISMS

In order to address the impact that the industry may have on communities and the environment, Petróleos Mexicanos carries out OBM and CIEPs; Public Works Financed Contracts; sustainable development appendixes and clauses); through which it develops construction, maintenance and road and hydraulic infrastructure transformation, among other actions.

During 2016, 215 PROAS were developed and distributed in six states and 15 municipalities with an investment of \$152.3 million pesos.

The most relevant actions include the following.

- Acquisition of a school bus.
- Construction and rehabilitation of 11 domes for schools and community centers.
- Construction of a classroom.
- Construction of two dining rooms in collaboration with the National Commission for the Development of Indigenous Peoples (CDI, by its acronym in Spanish).
- Construction of a gymnasium.
- Equipment of 57 schools.
- Rehabilitation of 88 schools.
- Construction of a community plaza.
- Improvement of nine roads.
- Inputs acquisition for equipment for the fishing sector.
- Two technical training workshops for productive projects.
- Inputs acquisition for equipment for productive projects.
- Acquisition of five ambulances.
- Rehabilitation of a health center.
- Inputs acquisition for equipment for safety programs.



STATE	OBM	CIEPs	CLAUSE RS KMZ
Campeche			\$28,643,730
Puebla		\$26,255,901	
Tabasco	\$23,216,727		
Tamaulipas		\$7,528,034	
Veracruz		\$53,254,967	
San Luis Potosí		\$13,374,268	
<b>Total</b>	<b>\$23,216,727</b>	<b>\$100,413,170</b>	<b>\$28,643,730</b>

## INVESTMENT BY STRATEGIC AXIS

AREA	OBM	CIEPs	CLAUSE RS KMZ	TOTAL
Infrastructure	\$21,620,564	\$17,543,434	0.0	\$39,163,998
Environment protection	0	0	\$7,865,896	\$7,865,896
Sports and education	\$1,596,163	\$74,605,216	\$2,983,457	\$79,184,836
Health	0	\$4,119,009	\$3,709,251	\$7,828,260
Productive projects	0	\$4,145,511	\$6,474,268	\$10,619,779
Safety	0	0	\$7,610,858	\$7,610,858

## PROGRAM OF ECONOMIC REACTIVATION AND PRODUCTIVE DEVELOPMENT OF CAMPECHE AND TABASCO

On May 4<sup>th</sup>, 2016, the Federal Government announced the creation of the Program of Economic Reactivation and Productive Development of Campeche and Tabasco. The program consists on a set of strategic actions to stimulate the economic activity of this country's important region by supporting the families and businesses economy.

In this context, Pemex received from the Presidency of the Republic the following four instructions to move forward in the implementation of this program.

1. Immediately address the lack of liquidity faced by businesses in these states, prioritizing and expediting payments to local suppliers.

As of December 2016, the following progress was made.

State	Initial debt May 2016 (millions of pesos)	New debt Jun-Dec 2016 (millions of pesos)	Payments made as of Dec 30 2016 (millions of pesos)	Number of suppliers
Campeche	\$ 25,226	\$ 11,564	\$ 36,790	202
Tabasco	\$ 21,202	\$ 12,595	\$ 33,797	549
<b>Total</b>	<b>\$ 46,428</b>	<b>\$ 24,159</b>	<b>\$ 70,587</b>	<b>751</b>

2. Pemex and National Financial Entity (NAFINSA, by its acronym in Spanish) will work with large contractors to build an invoicing program, impacting through this way the entire supply chain.

Meetings were carried out between Pemex, NAFINSA, and major contractor companies working in the states of Campeche and Tabasco. NAFINSA presented the productive chains outlines that provide improvements in the development of suppliers. It was agreed that NAFINSA will address each major contractor company individually, with the purpose of helping them to participate in the invoicing program and reactivate the entire supply chain of these states, solving as a result, their liquidity problems.

3. Use of non-consolidated bidding schemes for goods and services in which a local supplier is considered.

As of December 30<sup>th</sup>, 2016, 12 procurement processes adding up \$ 58,129,299 pesos have been carried out under the scheme of non-consolidated bidding schemes to companies in Campeche and Ciudad del Carmen. Also, 26 processes adding up \$107,155,260 pesos were carried out under the scheme of non-consolidated bidding schemes to companies of La Venta, Macuspana and Villahermosa, Tabasco.

## INTER-INSTITUTIONAL ALLIANCES

### *Ministry of Social Development*

On September 30<sup>th</sup>, 2014, Petróleos Mexicanos and the Ministry of Social Development (SEDESOL, for its acronym in Spanish) signed a collaboration agreement to carry out actions focused on the welfare of the communities under the influence of the oil industry, through the promotion of nutrition activities within the framework of the National Crusade against Hunger.

In support of SEDESOL's actions, community kitchens were set up, and firm floors and safe roofs were delivered to families from oil communities, mainly in Veracruz and Tabasco.

### *Social conflicts*

The dynamics of the oil industry generate diverse impacts on social groups that must be prevented, corrected and, where appropriate, attended, in order to guarantee the communities' social welfare and, at the same time, to strengthen the social license to operate.

Bearing this in mind, the Office of Responsibility and Social Development has been identifying recurrent conflicts, with the purpose of informing them and taking actions to address them appropriately.

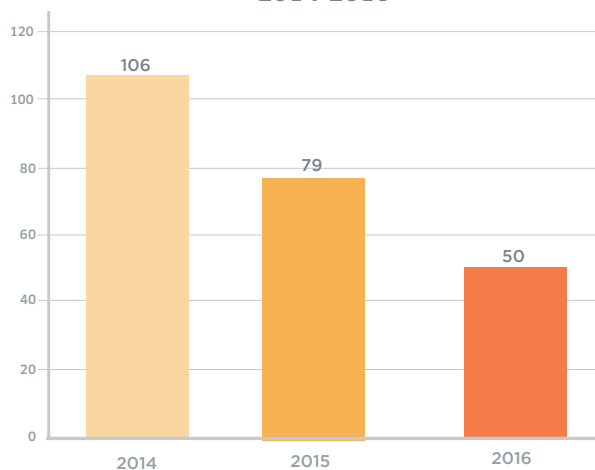
The topics generating major conflicts in the communities where we operate are the following:

- Illegal tapping.
- Fuel price increase.
- Heavy traffic and road damage complaints.
- Pollution.
- Damages to the fishing industry.
- Damages to the agricultural sector.
- Compensation payment claims.
- Unfulfilled minutes.

With the purpose of solving these issues, relevant information about the social environment is collected, classifying the risk of social conflict. Based on this analysis, an ad-hoc assessment strategy is developed, beginning with the implementation of necessary efforts and negotiations for the conflict deactivation.

During 2016, 50 social conflicts related to the company's operations were registered, most of them in the states of Oaxaca, Veracruz and Tabasco, decreasing by 37%, as compared to 2015.

**Social Conflicts related to the company's operations,  
2014-2016**



A decrease of 37%, as compared to 2015

## HIGHLIGHTS

***Terraces and road asphalt pavement restoration: from KM-6 + 000 to KM-22 + 600 Villahermosa - Corregidora Ortiz - San Joaquín, "section: Villahermosa-Corregidora Ortiz"; Ranchería Buena Vista Río Nuevo 4th Section.***

Through the donation of more than 12.5 million pesos, which benefited almost 5,700 inhabitants, maintenance and enhancement of the hydraulic basement were carried out, as well as the construction, rehabilitation and maintenance of asphalt pavement.

These works provided the inhabitants of 78 communities in the municipality of Centro with better communication routes, while continuing the operations of 197 producer wells in the Samaria, Cunduacan and Iride fields. This effort also granted access to various rights of way through which nearly 68% of PEP's production is transported.

***Operation and management of the Jaguaroundi - Tuzandepetl – Santa Alejandrina ecological corridor (JATUSA), in the Southern region of Veracruz***

In Petróleos Mexicanos we have a solid commitment to the protection and conservation of our country's natural wealth. Over time, we have supported various social initiatives in the Centla wetlands, the Lacandon Jungle, the Protected Natural Areas of the Gulf of Mexico, and the Veracruz's mangroves and low jungles. While supporting these projects we recognize the historical process of natural capital deterioration and loss suffered by the coastal plain. Therefore, we have developed various initiatives such as reforestation campaigns and natural resources sustainable management, by taking advantage of the installed capacity in the Protected Natural Areas and incorporating a component of environmental education, social organization and technological development for sustainable development.

A new step in this commitment is the consolidation of the JATUSA project, which aims to establish a biodiversity corridor on a surface of more than two thousand hectares of forest and wetlands, with the purpose of contributing to flooding control in the region, having an area of contention around industrial facilities to ensure the communities' safety in case of contingency, preserving environmental services, and mitigating the adverse effects of climate change on the industry and the surrounding communities.

To do this, we will use land owned by Petróleos Mexicanos in Jaguaroundi and Tuzandepetl, as well as the Pantanos de Santa Alejandrina, recently restored by the company.



Pemex is working on the consolidation of the JATUSA corridor, an environmental conservation effort on a surface of more than two thousand hectares of forest and wetlands



### *Rehabilitation of the Federal Rural School Ignacio Zaragoza*

In 2016, we allocated more than 8.6 million pesos to improve the physical infrastructure of Las Balsas community in the state of Puebla. These works included the construction of a dome, bathrooms (biodigester installation), civic square, pedestrian area, perimeter fence, dining rooms and classrooms rehabilitation, as well as the supply of school furniture (desks, tables and chairs).



### *Schools from eight communities of the Carmen municipality in the state of Campeche were equipped with school furniture*

An amount of around three million pesos was allocated to solve the school's lack of furniture in the communities of the Municipality of Carmen. The support included the provision of 100% of the furniture required by the principals, in agreement with the state's Secretariat of Public Education.

In total, 15 kindergartens, ten primary schools and two secondary schools were equipped, granting 3,129 chairs and 1,533 tables to students, 109 chairs and 117 tables to teachers, as well as 78 blackboards.



### ***Mobile Medical Clinic***

We continued operating the Mobile Medical Clinic to bring vulnerable communities closer to essential medical services, with the purpose of improving the health and quality of life of families who do not have the resources to reach a medical center for their care or to obtain medication.

35,729 people were attended in the communities of Santa Maria Petapa, Matias Romero and Asuncion Ixtaltepec.

At the same time, 15,766 beneficiaries were attended in the municipalities of Coatzacoalcos, Nanchital, Ixhuatlan del Sureste, Cosoleacaque, Juan Rodriguez Clara, Molotitlan, Las Choapas, Agua Dulce, Acayucan and Chinameca.

### ***Supply of ice factories to the coastal fishing sector of the Municipality of Carmen***

Seven ice factories were built for the coastal fishing industry in the state of Campeche with the aim of strengthening productive infrastructure in the region. The project enabled the activities of fishery products self-consumption and conservation through an investment of more than four million pesos.

### ***Indigenous people***

Within the collaboration agreement framework with the National Commission for the Development of Indigenous Peoples, Petróleos Mexicanos rebuilt two Casas del Niño Indígena in the Istmo de Tehuantepec, which will serve 28 children at primary level and 70 at secondary level. In these facilities, the permanence of indigenous children and young people in the school is assured, while lodging, food services and complementary activities are provided to them in adequate infrastructure conditions.

Based on the above, Petróleos Mexicanos contributes to the development of the communities where the oil industry is present, favoring the integration of indigenous children and young people from scarce resources communities into better academic, cultural, health and food development stages.



# Human rights and legal affairs

## NATIONAL COMMISSION ON HUMAN RIGHTS

In January 1<sup>st</sup>, 2016, the Advisory Legal Department had 94 pending complaints, to which 75 were added during the year.

79 complaints were concluded, of which one was solved through conciliation and another one by the recommendation with number 21/2016 and dated on May 12<sup>th</sup>, 2016, against Pemex; as a result of violations to the right of health protection and the right to life to the detriment of the victim, in the Pemex's Agua Dulce General Hospital, Veracruz.

As of December 31<sup>st</sup>, 2016, the Advisory Legal Department accounted 90 complaints in process.

## NATIONAL COUNCIL FOR THE PREVENTION OF DISCRIMINATION

In January 1<sup>st</sup>, 2016, the Advisory Legal Department had eight complaints in process and received eight more during the year.

During 2016, 11 complaints were concluded and, as of December 31<sup>st</sup>, the Legal Advisory Department had five complaints in process.

No recommendation was made by the CONAPRED against Pemex.

## CONTENTIOUS TRIALS

During fiscal year 2016, the Legal Department concluded 12,739 trials related to administrative, agrarian, environmental, arbitration, civil, "amparo", labor, mercantile, and criminal issues.

CONTENTIOUS ISSUES REGISTERED IN 2016		
Matter	Number	Amount demanded in pesos
Administrative	151	3,472,570,302.00
Agrarian	246	233,915,348.00
Environmental	169	15,566,731.00
Arbitration	2	241,107,880.00
Civil	113	5,014,076,261.00
Fiscal	12	62,938,640.00
Amparo	452	4,241,381.00
Labor	8,166	3,524,322,713.00
Trade	36	68,912,115.00
Criminal	7,088	8,192,878.00
<b>Total</b>	<b>16,435</b>	<b>12,645,844,249.00</b>

ENVIRONMENTAL ISSUES REGISTERED IN 2016			
Issue	Type of judgment		Total
	Administrative litigation trials	Administrative Procedures	
Environmental	38	131	169

ENVIRONMENTAL ISSUES DERIVED FROM ILLEGAL TAPPING REGISTERED IN 2016			
Class	Derived from ilegal tapping	Other	Total
Administrative litigation trials	11	27	38
Administrative procedures	59	72	131
<b>Total</b>	<b>70</b>	<b>99</b>	<b>169</b>



# Economic Performance

The year 2016 was a historic one for Petróleos Mexicanos, in which it was possible to materialize very promising partnerships in the context of the new legal regime for the sector's activities in the country.

In December, BHP Billiton Petróleo Operaciones de México, S. de R.L. de C.V. was awarded with the 60% of the tender for the development of the Trión Block, a process that was led by the National Hydrocarbons Commission. It was a historic event that marked the beginning of a new stage for the company and that demonstrates that Pemex is an attractive and reliable partner to invest.

Similarly, the consortium formed by Pemex Exploration and Production, Chevron and Inpex Corporation, won the deep waters block 3 North in Round 1.4. This was the first block awarded to Pemex in partnership with other companies in a competitive process. As a result, the company consolidated its strategic position in the Perdido Fold Belt area.

Also, during 2016, Pemex presented its 2017-2021 Business Plan ([http://www.Pemex.com/acerca/plan-de-negocios/Documents/plannegocios-pmx\\_2017-2021.pdf](http://www.Pemex.com/acerca/plan-de-negocios/Documents/plannegocios-pmx_2017-2021.pdf)). The Plan promotes the integration of alliances throughout Pemex's value chain as a mechanism to increase its investments and efficiency, while taking advantage of the opportunities offered by the new legal framework of the industry that springs from the Energy Reform.

The Plan has been designed to take advantage of short-term opportunities such as (i) cost structure and business strategy adjustments for a low price international scenario, (ii) implementation of an adjustment program and austerity measures, (iii) fiscal discipline and (iv) budget control. The Plan also enables us to take advantage of the Energy Reform in order to focus our efforts on the most profitable strategic activities to carry out alliances and partnerships and to improve our operative efficiency and effectiveness.

## 2017-2021 business plan

Promotes the formation of alliances through Pemex's value chain

In terms of performance, during 2016 the company concentrated on recovering financial stability by taking firm steps to exploit the opportunities offered by the Energy Reform, as well as deepen and strengthen the relationship with financial markets and different players in the energy sector. The results of this strategy allowed us to:

- Comply with the Adjustment Plan proposed for the year.
- Regularize payments to suppliers and contractors.
- Improve in our financial balance.
- Implement the Business Plan.
- Take advantage of the opportunities offered by the Energy Reform.

## FINANCIAL INFORMATION

During 2016, the company implemented a budget adjustment program of \$100 billion pesos based on three lines of action: (i) generate efficiencies and reduce costs in operating expenses and personal services, renegotiate fees with suppliers and contractors, and optimize maintenance of equipment; (ii) defer and reformulate investments by compromising as little as possible future production; and (iii) suspend unprofitable projects under a price scenario for the Mexican Export Crude Oil Blend of USD 25/bbl.

At the close of fiscal year 2015, we experienced adverse situations such as a negative working capital of \$176,207 million pesos, a loss of equity of \$563,955 million pesos and a net loss of \$712,567 million pesos, due to the recognition of fixed assets deterioration.

However, the actions implemented in 2016 allowed the company to improve by \$105,416 million pesos its working capital; reduce losses compared to those reported in fiscal year 2015 at \$521,423 million pesos; and to break the negative trend that had emerged in the last years with the Pemex' equity, which in the 2016 fiscal year resulted in a positive variation as compared to 2015, with an increase of \$98,668 million pesos (7.4%).

In terms of total sales, the drop in hydrocarbon prices had a significant impact on revenues. This was the main cause of a reduction of \$86,817 million pesos (7.4%) in total sales, as compared to 2015.

In regards to contributions to public finances, the payment of taxes and duties decreased by \$66,979 million pesos (20.2%). The duties on extraction of hydrocarbons and other fees made in this year were lower, by \$72,274 million pesos (19.2%), than what was paid during 2015, mainly due to the decrease in the price of crude oil and hydrocarbon production.

Income Tax increased by \$5,295 million pesos (11.6%) due to the decrease in deferred taxes recognized in 2016, as compared to those recorded in 2015, which recognized the favorable effect of labor liabilities.





At the end of 2016, Pemex registered a net loss of **\$191,144** million pesos

which represented a decrease of **521,423 million pesos (73.2%)**, as compared to 2015

### PAYMENTS OF TAXES AND DUTIES (millions of pesos)

Concept	2015	2016	Variation	
			Absolute	Relative (%)
Indirect taxes	378,943.7	467,957.1	89,013.4	23.5
Value added tax	147,110.0	157,148.0	10,038.0	6.8
Special tax on production and services	231,833.8	310,809.2	78,975.4	34.1
Direct taxes	428,406.5	321,186.9	-107,219.5	-25.0
Ordinary duty on hydrocarbon	-10,484.9	-	n.a.	n.a.
On hydrocarbon extraction	437.6	-	n.a.	n.a.
Special on hydrocarbons	10.8	-	n.a.	n.a.
On hydrocarbons for the Stabilization Fund	23,478.7	-	n.a.	n.a.
To the Petroleum Fiscalization	6.6	-	n.a.	n.a.
To scientific and technology research on energy	1,440.6	-	n.a.	n.a.
Extraordinary on Exploitation of Crude Oil	-4,580.9	-	n.a.	n.a.
Additional on hydrocarbons	19.7	-	n.a.	n.a.
To regulate and supervise hydrocarbons	19.5	-	n.a.	n.a.
Due to Shared Profit (DUC Advances)	266,136.0	0.0	n.a.	n.a.
Due to Shared Profit (DUC Declarations)	85,234.0	264,938.0	179,704.0	210.8
Due to Hydrocarbon Extraction	46,119.8	41,652.3	-4,467.5	-9.7
Due to Hydrocarbon Exploration	906.6	950.6	44.0	4.9
Other taxes	19,662.3	13,646.1	-6,016.2	-30.6

Numbers may not add due to rounding.

N/A. Not applicable

For more details on our financial indicators, please visit [http://www.pemex.com/en/investors/Paginas/default.aspx#WgEfrl\\_WyM8](http://www.pemex.com/en/investors/Paginas/default.aspx#WgEfrl_WyM8)

**PETROLÉOS MEXICANOS, SUBSIDIARY PRODUCTIVE COMPANIES AND SUSIDIARY COMPANIES**  
as of January 1 to December 31, 2016, in accordance with International Financial Reporting Standards  
(figures stated in millions of pesos, except as noted)

Item	2016	2015	Variation	
			Amount	%
Net Sales:				
Domestic	670,000	746,236	-76,235	-10.2
Exports	395,118	407,214	-12,096	-3.0
Service income	14,427	12,912	1,515	11.7
<b>Total of sales</b>	<b>1,079,546</b>	<b>1,166,362</b>	<b>-86,817</b>	<b>-7.4</b>
(Reversal) Impairment of wells, pipelines, properties, plant and equipment	-331,314	477,945	-809,259	-169.3
Benefit from change in pension plan	0	-92,177	92,177	-100.0
Cost of sales	867,581	895,069	-27,488	-3.1
<b>Gross income (loss)</b>	<b>543,279</b>	<b>-114,474</b>	<b>657,753</b>	<b>-574.6</b>
Other revenues (expenses), net	18,956	-2,373	21,329	-898.7
General expenses:				
Distribution, transportation and sale expenses	25,231	28,929	-3,697	-12.8
Administrative expenses	112,654	112,472	181	0.2
Benefit from change in pension plan	0	-103,861	103,861	-100.0
<b>Operating income (loss)</b>	<b>424,350</b>	<b>-154,387</b>	<b>578,737</b>	<b>-374.9</b>
Financing Income	13,749	14,991	-1,242	-8.3
Financing cost	-98,844	-67,774	-31,071	45.8
Derivative financial instruments cost, net	-14,001	-21,450	7,449	-34.7
Foreign exchange loss, net	-254,013	-154,766	-99,247	64.1
	-353,109	-228,998	-124,111	54.2
Profit sharing in associates and other, net	2,136	2,318	-182	-7.9
<b>Income(loss) before duties, taxes and other</b>	<b>73,377</b>	<b>-381,067</b>	<b>454,444</b>	<b>-119.3</b>
Hydrocarbon extraction duties and others	304,813	377,088	-72,274	-19.2
Income tax	-40,292	-45,587	5,295	-11.6
<b>Total duties, taxes and other</b>	<b>264,521</b>	<b>331,500</b>	<b>-66,979</b>	<b>-20.2</b>
<b>Net loss</b>	<b>-191,144</b>	<b>-712,567</b>	<b>521,423</b>	<b>-73.2</b>
Other comprehensive results:				
Items that will be reclassified subsequently to profit or loss:				
Available-for-sale financial assets	208	-3,206	3,414	-106.5
Currency translation effect	21,387	13,262	8,125	61.3
Items that will not be reclassified subsequently to profit or loss:				
Actuarial gains (losses) — employee benefits	106,278	78,557	27,721	35.3
<b>Total other comprehensive results</b>	<b>127,872</b>	<b>88,612</b>	<b>39,260</b>	<b>44.3</b>
<b>Total comprehensive loss</b>	<b>-63,272</b>	<b>-623,955</b>	<b>560,683</b>	<b>-89.9</b>
Net loss attributable to:				
Controlling interest	-191,646	-712,435	520,789	-73.1
Non-controlling interest	501	-132	634	-478.6
<b>Net loss</b>	<b>-191,144</b>	<b>-712,567</b>	<b>521,423</b>	<b>-73.2</b>
Other comprehensive results attributable to:				
Controlling interest	127,650	88,571	39,079	44.1
Non-controlling interest	222	41	181	443.7
<b>Total other comprehensive results</b>	<b>127,872</b>	<b>88,612</b>	<b>39,260</b>	<b>44.3</b>
Comprehensive (loss) income:				
Controlling interest	-63,995	-623,864	559,868	-89.7
Non-controlling interest	723	-92	815	-890.3
<b>Total comprehensive loss</b>	<b>-63,272</b>	<b>-623,955</b>	<b>560,683</b>	<b>-89.9</b>

## INVESTMENTS

During 2016, \$299.1 billion pesos were invested, representing 146% of the planned investment for the year (\$204.6 billion). This was a result from adjustments to the budget between February and September 2016, which derived from the capitalization of the Federal Government to Petróleos Mexicanos, as well as from the financial lease contracting by Exploration and Production and Industrial Transformation.

Based on the above, the estimated investment expenditure for 2016 was adjusted to \$304.4 billion. The distribution of investment during the period mentioned above was as follows:

- \$241.2 billion pesos to Pemex Exploration and Production, of which \$37.2 billion were allocated to exploration;
- \$45.2 billion to Pemex Industrial Transformation;
- \$7 billion to Pemex Logistics;
- \$3.6 billion to Pemex Drilling and Services;
- \$1 billion to Pemex Corporate;
- \$0.7 billion to Pemex Ethylene; and
- \$0.4 billion to Pemex Fertilizers;

## CRUDE OIL EXPLORATION AND PRODUCTION

In 2016, crude oil production reached 2,154 Mbd, which exceeded the production target for the first time in the last five years. However, as compared to 2015, it decreased by 113 Mbd, equivalent to 5%. The main causes of this reduction were the following:

- A 6.3% decrease in production of light crude oil, primarily as a result of a natural decline in production of fields located in the Litoral de Tabasco and Abkatún-Pol-Chuc business units. This reduction was partially offset by a 70.6% increase in production at the Xanab field of the Southwestern Marine region, which contributed with an average of 127 Mbd during 2016, as compared to 74.4 Mbd in 2015.
- Less production of heavy crude oil as a result of a natural decline in production and an increase in the fractional water flow of wells in highly fractured deposits of the Cantarell business unit in the Northeastern Marine region.
- A slight decrease in the production of extra-light crude oil by 11 Mbd, primarily due to a natural decline in production and an increase in the fractional water flow of wells of fields in the Bellota-Jujo, Samaria-Luna and Macuspana-Muspac projects of the South region, as well as in the Litoral de Tabasco business unit of the Southwestern Marine region.

we invested  
**299.1** billion pesos,

**representing 146%**  
of the planned investment  
for the year

## HYDROCARBON PRODUCTION

	2015	2016	Var. (%)
<b>Crude oil (Mbd)</b>	2,266.8	2,153.5	-5.0
Heavy	1,152.3	1,102.6	-4.3
Light and extra-light	1,114.5	1,050.9	-5.7

During 2016, the average number of operating wells was 8,750; this is 6.6% lower than those available in 2015. The completion of wells decreased by 52.2% during 2016, from 312 to 149 wells, mainly due to a decrease in the completion of development wells. This was largely because of a scheduled reduction of activities at the Aceite Terciario del Golfo and Burgos business units in the Northern region, and a decrease of activities at the Samaria-Luna, Macuspana-Muspac and Cinco Presidentes business units of the Southern region: as a result of the budget adjustments approved at the beginning of the year.



During 2016, Pemex focused its exploration activity in the search for hydrocarbons in shallow waters and land areas of the Southeastern Basins, as well as in deep waters in the Perdido Area project. The company prioritized the drilling of exploratory wells and the processing of 3D seismic data, in order to increase the geological knowledge of the basins and to identify possible deposits of hydrocarbons.

As a result of these works, important discoveries were made in the Southeastern Sea Basins with the Pokche-1, Teca-1 and Uchbal-1 wells, which resulted in oil and gas producers, adding 383 million barrels of crude oil equivalent (MMboe) to 3P reserves. In the province of the Perdido Fold Belt, two new fields were discovered with the exploratory wells Nobilis-1 and Doctus-1, which also resulted in oil and gas producers, contributing together 301 MMboe.

Regarding our reserves, the exploration activities carried out in 2016 have enabled to soften the rhythm to which the 1P reserve was decreasing. As of January 1, 2017, from the total of the nation's 1P reserves, 7,219 million barrels of crude oil, condensates and liquids from plants, as well as 6,984 billion cubic feet (MMMcf) of dry gas, were assigned to Petróleos Mexicanos. The reserve-production ratio for proven reserves is 7.7 years. 3P reserves are in the process of opinion and approval by the National Hydrocarbons Commission (CNH, by its acronym in Spanish).

PROVEN RESERVES AS OF JANUARY 1 2017							
	Remaining hydrocarbon reserve				Remaining gas reserve		
	Total MMboe	Crude oil MMb	Condensates MMb	Liquids from plants <sup>1/</sup> MMb	Dry gas <sup>2/</sup> MMboe	Natural gas MMMcf	Dry gas MMMcf
<b>Proven</b>	8,561.8	6,537.3	92.4	589.2	1,342.9	9,883.0	6,984.2
Deep water	63.5	0.0	1.4	0.0	62.2	361.7	323.3
Shallow water	5,747.0	4,897.2	59.3	284.2	506.2	4,267.9	2,632.5
Onshore fields	2,751.3	1,640.1	31.7	305.0	774.6	5,253.3	4,028.4

Numbers may not add due to rounding.

1/ Gas liquids obtained in process plants.

2/ The liquid obtained considers an equivalent heating value to the Mayan crude and an average dry gas mixture obtained in Cactus, Ciudad Pemex and Nuevo Pemex.

Note: All units are expressed at atmospheric conditions, and assume 15.6 ° C and 14.7 pounds of pressure per square inch.

crude oil production was

**2,154 Mbd**

which exceeded the production target for the first time in the last five years.

In 2016, the integrated restitution rate of proven 1P reserves was 4%. This value represents a favorable result as compared to that obtained in 2015. The positive value results from the incorporation of 57 MMboe of proven reserves in new fields, and the decrease by 17 MMboe due to a reclassification of reserves by developments, behavioral reviews and delimitation. The increases in proven reserves were in the fields of Ayatsil, Tekel, Utsil and Maloob; and the reductions are related to the Jujo-Tecominoacán fields, the fields of the Antonio J. Bermudez complex, as well as to the marine fields (Tsimin, Ixtal, Kuil and Xux).

## NATURAL GAS EXPLORATION AND PRODUCTION

Natural gas production was 5,792.5 MMcfd, of which 4,851.4 MMcfd corresponded to hydrocarbon gas (it does not include 15 MMcfd of CO<sub>2</sub> and 926 MMcfd of nitrogen).

NATURAL GAS PRODUCTION			
	2015	2016	Var (%)
Hydrocarbon gas (MMcfd)	5,504.4	4,851.4	-11.6
Associated	3,929.1	3,614.8	-8.0
Non associated	1,575.3	1,251.6	-20.5
Natural gas (MMcfd)	6,401.0	5,792.5	-9.5
Condensate (Mbd)	39.3	35.3	-10.2



The shipment of gas to processing complexes presented a remarkable decrease due to the decline in production of dry gas in Veracruz asset, and fresh sweet wet gas in Burgos asset, as well as by the reduced availability of marine gas.

On the other hand, the hydrocarbon gas released into the atmosphere amounted to 511.4 MMcfd, 17.3% more than last year. This increase was due to the incident on the Abkatún-A platform in February and to operational problems in compression systems. Thus, the use of natural gas was 91.2%. The efforts to increase the use of gas resulted in a decrease in the levels of gas released into the atmosphere, amounting to 392.7 MMcfd during the last month of the year. Moving forward, additional actions committed with the CNH are to be implemented in order to increase the use of gas and reduce emissions to the atmosphere, with the purpose of reaching the value of 98% indicated in the regulation.

## MIGRATIONS AND PARTNERSHIPS

### *Migration of Assignments at Trion Block*

On December 5<sup>th</sup> 2016, BHP Billiton Petróleo Operaciones de México, S. de R.L. DE C.V., was the winner of the bidding for the 60% stake in the Trion block, after offering an additional 4% royalty, above the base royalty of 7.5%. As a tiebreaker criterion, BHP Billiton Mexico offered a USD 624 million contribution to the partnership, of which 10% will be paid in cash to the State after conclusion of the contract and the remaining 90% will be used for carryover investment in benefit of Pemex. The sum of the minimum USD 570 million investment and the additional contribution offered, will enable Pemex not to allocate any additional budgetary resources to this specific project for the next four years.

Total estimated investment throughout the project's life is USD 11 billion. Investment will commence as early as 2017 to carry out exploration activities that provide a better understanding of the subsoil. Initial production is expected for 2023, and is projected to reach a production plateau of 120 Mboed by 2025.



total estimated investment  
during the life of the project is

billions



TRION	
Pemex Exploration and Production	40%
BHP Billiton Petróleo Operaciones de México	60%
Base royalty	7.5%
Additional royalty	4.0%
Tiebreaker criterion	USD 624 millions
Signing bonus payable to the Mexican Oil Fund	USD 62.4 millions
Additional contribution to Pemex	USD 561.1 millions
Minimum investment	USD 570 millions
Total carry on behalf of Pemex	USD 1,974 millions

On December 5, 2016, a consortium consisting of Pemex Exploration and Production, Chevron and INPEX Corporation was awarded with an exploration contract for a field located in the Perdido Fold Belt in the round 1.4, by offering an additional royalty of 7.44%. This represents the first block granted to Pemex in partnership in a competitive process.

BLOCK 3 CINTURÓN PLEGADO PERDIDO	
Pemex Exploration and Production	33.33%
Chevron Energía de México	33.34%
Inpex Corporation	33.33%
Base royalty	7.5%
Additional royalty	7.44%
Minimum work program	3,374 work units (USD 3.47 million)

Pemex Exploration and Production, Chevron and INPEX Corporation were awarded with the

**1<sup>st</sup> block**

granted in partnership

### *Migrations with partner (Farm-outs)*

In line with the company's business plan, on November, 2016, the Board of Directors of Petróleos Mexicanos authorized the company to provide to the Ministry of Energy with the request for the farm-outs related to the exploration and extraction of Cárdenas-Mora and Ogarrio onshore fields.

The Cárdenas-Mora fields are located 62 km away from Villahermosa, Tabasco. The first field covers approximately 104 km<sup>2</sup> and the second one 64 km<sup>2</sup>. Altogether, they contribute with around 94 MMboe in 3P reserves as of January 1st, 2016, and are currently producers of extra-light crude oil.

The Ogarrio field is located in Huimanguillo, Tabasco, 65 km away from Coatzacoalcos, Veracruz; and covers approximately 153 km<sup>2</sup>, accounting for 54 MMboe in 3P reserves as of January 1st, 2016. A significant amount of infrastructure and communications lines have been developed on this project, which currently produces light crude oil.

## INDUSTRIAL TRANSFORMATION

### Operational information

During 2016, total crude oil processing amounted to 933 Mbd, decreasing by 12.3%, as compared to 2015, primarily due to non-scheduled shutdowns at the Madero and Minatitlán refineries, as well as to failures in auxiliary services and high inventories of intermediate products (distillates).

PEMEX INDUSTRIAL TRANSFORMATION CRUDE OIL PROCESS (thousand barrels per day)			
	2015	2016	Var (%)
Crude oil	1,064.5	933.1	-12.3
Heavy	483.3	400.3	-17.2
Light, superlight and others	581.2	532.8	-8.3

The primary distillation capacity decreased by 8.0 percentage points, as compared to 2015 (933 Mbd), reducing to 56.9% its total capacity, due to the maintenance activities aforementioned.

The total petroleum products output decreased by 12.6%, as compared to 2015, as a result of lower crude oil processing and distillate yields. The Cadereyta, Madero and Minatitlán refineries accounted for the majority of the decrease, due to non-scheduled shutdowns and maintenance activities.

Petroleum products production at the refineries accounted for 945.1 Mbd; the volume of gasoline was 310.4 Mbd, and diesel was 216.2 Mbd, decreasing by 59.9 Mbd and 58.5 Mbd, respectively, as compared to 2015. The production of jet fuel registered a decrease of 5 Mbd. Fuel oil production averaged 228.1 Mbd, 3.9% less than the previous year, mainly due to a lower crude oil process and the reduction of heavy crude oil in the mix of the SNR.

PEMEX INDUSTRIAL TRANSFORMATION PETROLEUM PROCESING (thousand barrels per day)			
Products	2015	2016	Var (%)
Petroleum products, SNR <sup>1/</sup>	1,081.8	945.1	-12.6
Gasoline <sup>2/</sup>	370.3	310.4	-16.2
Diesel	274.7	216.2	-21.3
Jet fuel	47.8	42.8	-10.5
Fuel oil	237.4	228.1	-3.9
Others <sup>3/</sup>	151.6	147.6	-2.6

1 / Excludes gasoline from petrochemical facilities, and liquefied gas from the SNR.

2 / Refers only to gasoline derived from crude oil.

3 / Includes dry gas from refineries, gas oils, light cyclic oil, aeroflex, asphalt, coke, furfural extract, grease, lubricants and paraffin wax.



By the end of 2016, the SNR recorded a variable refining margin of USD 4.48 per barrel, increasing by USD 1.13 the margin per barrel, as compared to 2015.

During the year of this report, 3,671.5 MMcfd of wet gas were processed, decreasing by 9.9%, as compared to 2015. The last, was a result of a lower offer of wet sour gas supply from the Mesozoic (208 MMcfd), marine (67 MMcfd), and wet sweet gas from Burgos 167 MMcfd). The condensate process decreased by 8.8%, as compared to 2015, due to the lower supply of condensates from PEP.

**PEMEX INDUSTRIAL TRANSFORMATION  
WET GAS AND CONDENSATES PROCESS  
(million cubic feet per day)**

Products	2015	2016	Var (%)
Total wet gas	4,072.8	3,671.5	-9.9
Wet sour gas	3,225.3	2,996.9	-7.1
Wet sweet gas	847.5	674.6	-20.4
Condensates (Mbd)	45.1	41.1	-8.9

**PEMEX INDUSTRIAL TRANSFORMATION  
PRODUCTS AT GAS PROCESSING COMPLEXES  
(thousand barrels per day)**

Products	2015	2016	Var (%)
Natural gas (MMcfd) <sup>1/</sup>	3,454.4	3,074.2	-11.0
Liquefied petroleum gas <sup>2/</sup>	174.4	159.2	-8.7
Gas processing complexes	149.7	138.9	-7.2
National Refining System	21.4	17.2	-19.6
Pemex Exploration and Production	3.3	3.1	-6.1
Ethane <sup>3/</sup>	107.3	106.4	-0.8
Natural gasoline	69.1	61.9	-10.4

1 / Includes the production of facilities and ethane injected into dry gas pipelines, the latter 56.8 MMcfd in 2015 and 27.4 MMcfd in 2016.

2 / Includes the production of gas processing complexes, SNR and PEP.

3 / Equivalent to 2,230.4 Mt in 2015 and 2,215.9 Mt in 2016.

**PEMEX INDUSTRIAL TRANSFORMATION  
PRODUCTION OF PETROCHEMICAL PRODUCTS  
(thousand tons)**

Products	2015	2016	Var (%)
Petrochemicals <sup>1/</sup>	8,209.8	7,444.0	-9.3
Aromatics and derivatives <sup>2/</sup>	1,021.7	940.2	-8.0
Propane-propylene <sup>3/</sup>	440.9	333.4	-24.4
Raw material used for the production of carbon black <sup>3/</sup>	297.6	288.0	-3.2
Methanol <sup>4/</sup>	160.9	145.1	-9.8
Sulfur <sup>5/</sup>	858.6	673.3	-21.5
Ethane and natural gasoline <sup>6/</sup>	4,906.2	4,618.4	-5.9
Others	554.6	526.0	-5.1
Petrochemicals <sup>7/</sup>	523.9	445.6	-14.9
Gasolines <sup>8/</sup>	30.7	80.4	161.7

1 / Gross production. The net production corresponds to the product destined to sales.

2 / Cangrejera Facilities (Gas Processing Complex and Petrochemicals Area in Coatzacoalcos). Includes aromatic, benzene, styrene, toluene, ethylbenzene, fluxoil, high octane hydrocarbon, toluene and xylenes.

3 / National Refining System.

4 / Petrochemical Complex Independencia (San Martín Texmelucan).

5 / Coming from the SNR, gas processing complexes and PEP.

6 / Ethane and natural gasoline from gas processing complexes.

7 / Butanes, petrochemical specialties, hexane, hydrogen, pentanes, BTX liquids, isopropanol and carbon dioxide.

8 / Naphtha gas, petrol base octane and heavy naphtha of CPG Area Coatzacoalcos. Because they are oil, they are not counted with petrochemicals. They were sent to refineries 11.2 Mbd in 2015 and 14.9 Mbd in 2016.

The total production of petrochemicals decreased by 9.0% compared to 2015, reaching 4,100 Mt. This reduction was primarily caused by:

- A 148 Mt decrease in production in the ethane's derivatives chain, mainly due to a reduction in the supply of ethane in response to the startup of operations of the Braskem-Idesa (Etileno XXI) ethylene cracker, lower storage availability at the Pajaritos Ethylene Refrigerated Terminal and Port (TREEP, by its acronym in Spanish), and non-scheduled shutdowns at the Cangrejera petrochemical complex.
- A 126 Mt decrease in production in the chain of propylene and derivatives, due to decreased availability of propylene, non-scheduled shutdowns, and an extended maintenance shutdown of the acrylonitrile facility at the Morelos complex.
- A 42 Mt decrease in production in the methane derivatives chain, due to a lower output of ammonia and methanol as a result of operating problems, and a reduction in the supply of natural gas during the first half of the year.
- A 139 Mt decrease in production of other petrochemicals, primarily due to a decrease in production of sulfur, hexane and raw material used for the production of carbon black, due to lower crude oil processing and sour wet gas.

The SNR recorded a variable refining margin of

**USD 4.48**  
per barrel



## PROCUREMENT AND SUPPLY

In a new competitive economic environment characterized by low hydrocarbons prices, the roles of procurement and supply are key elements to satisfy in a timely and competitive manner the requirements of the user areas, as well as to achieve the objectives of our Business Plan. The Procurement tasks must be efficient and specialized in order to acquire the goods and services in the right quantity and quality, at the required price and time, with the best suppliers, aiming to optimize the profitability of the company and the long term relationship with its suppliers, within a framework of transparency and certainty. The transformation of procurement in Pemex has focused on the following strategies: the centralization of the role; the strategic sourcing and category management; the innovation and simplification of the contracting schemes; and the integrated management of suppliers.

### *Centralization of the role of procurement: strengthening the governance of procurement process*

With the creation of the Corporate Office of Procurement and Supply (DOPA, by its acronym in Spanish), the procurement role has been centralized to ensure a better governance and management of the procurement process, as well as to efficiently and timely meet the needs of Pemex in an open market and competition. Since its inception, the structure of the purchasing team has been optimized to increase its productivity, the rules and processes of contracting have been reviewed and approved, and the digitization of the procurement process has been promoted.

During 2016, significant progress was made in the homologation and standardization of contracting models, as well as in the implementation of electronic procurement. From the beginning of November 2016, all contracting processes are carried out electronically through the Pemex Electronic Contracting System (SISCeP, by its acronym in Spanish), guaranteeing greater transparency, certainty and efficiency in the procurement process. In order to facilitate the adoption of the system, online and face-to-face training schemes have been implemented. Since its implementation, more than 376 Pemex buyers (excluding user and support area training) and more than 761 representatives from 427 companies have been trained.



### ***Strategic sourcing and category management: towards a competitive and sustainable purchase***

In order to improve the purchasing conditions of the products and services required by the business areas, DOPA has adopted the methodology of strategic sourcing and category management for 80% of expenditure with the aim of maximizing the economic value creation. In order to evaluate the market offer and to identify the best ways to achieve short and long term savings, the methodology sets out the steps to be taken with the purpose of having a robust analysis of what to buy, to whom, when to buy and how to buy. On the other hand, the category management enables us to strengthen the strategic approach of procurement by moving from a traditional approach of purely transactional and administrative purchases towards a value management approach, evaluating the total cost of ownership, and establishing the most adequate strategies for contracting and supply chain risk management.

To date, 40 categories have been identified, representing more than 80% of Pemex's strategic purchases based on expenditure. By the end of 2016, there were 30 categories approved by the Strategic Supply Group (GAE, by its acronym in Spanish), made up of officials from the Operative Direction of Procurement and Supply, the Corporate Finance Department and the Legal Department, as well as from the Institutional Unit of Internal Control and Internal Audit, whose purpose is to guarantee certainty and transparency in the decision making of the contracting strategies that are defined for these categories.

### ***Innovation in procurement schemes: simplify and expedite procurement***

Alternatively, the use of contracting schemes such as preparatory contracts and referential agreements has been promoted with the aim of accelerating and simplifying contracting processes and obtaining better purchasing conditions.

The preparatory contracts are legal instruments that establish a unilateral commitment on the part of those suppliers that have commercial exclusivity or an exclusive right of sale, in order to supply Pemex with goods and services without compromising the budget. Those are granted directly and imply a justified exception for open tender procedures.

Referential agreements are legal instruments that are held with two or more suppliers of goods and services that are recurrently contracted to establish approved terms and conditions, which simplify the procurement process without compromising the budget.

### ***Integrated management of suppliers: link value solutions and manage risk***

The selection of the best suppliers that respond in a competitive and sustainable manner to the current and future needs of the Company requires the adoption of an integrated management of suppliers that enables the improvement of our knowledge about them and their value offer. This has the purpose of linking them effectively with the areas of business; establishing mechanisms to strengthen risk and compliance assessment of suppliers from the early stages of the procurement process; and during the execution of contracts, systematically monitoring their performance.



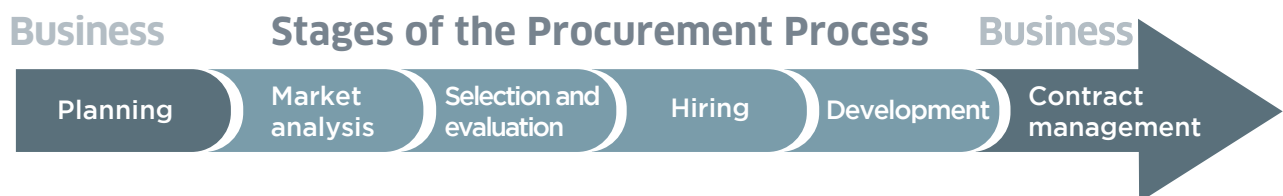
## Knowing and bonding with our suppliers

In 2016, the supplier registration and evaluation scheme was consolidated. The registry is divided into two levels: a basic registry, in which legal and commercial general information of the company is requested; and an extended registry, in which more financial information, certifications and commercial experience are required.

Two years after the implementation of the supplier registration and evaluation scheme, there is a database of more than 5,530 registered suppliers whose information is visible to buyers and user areas in the Comprehensive Supplier Information Tool (HIIP, by its acronym in Spanish). Nowadays, it is required for any company that wants to establish a business relationship with Pemex, to be registered so that we can know and evaluate its value offer. Moreover, the attention to suppliers was strengthened through the Pemex Access Point to the Supply System (PASS, by its acronym in Spanish) initiative, which has served and provided advice to more than 1,500 suppliers.

## Strengthening the compliance and risk management of our suppliers

During 2016, we also strengthened the supplier risk management by the implementation of a comprehensive approach to assess their business situation. This comprehensive assessment includes the following aspects, depending on the criticality of the supplier's business: verification of the information and documentation provided in the registry; business qualification taking into consideration legal, commercial, financial and certification aspects; risk reports prepared by an independent specialist; and, if necessary, audits at the facilities of the suppliers. Verification of supplier compliance was also strengthened with the formalization of collaboration agreements with the Mexican Social Security Institute (IMSS, by its acronym in Spanish), Institute of the National Fund for Workers' Housing (INFONAVIT, by its acronym in Spanish), the Tax Administration Service (SAT, by its acronym in Spanish), and the Ministry of Labor and Social Welfare (STPS, by its acronym in Spanish), in order to exchange information regarding compliance with suppliers' fiscal and labor obligations. In addition, there is an alert service to verify that companies are not sanctioned by national or international authorities for financial matters, money laundering, financing of terrorism and arms trafficking, among others. Verification is performed daily on more than 540 lists of published sanctions.



Through the integrated management of:



### ***Evaluate the performance of our suppliers***

Supplier performance directly influences Pemex's competitiveness and sustainability; for this reason, it is necessary to maintain a systematic and institutional process to evaluate the performance of our suppliers in the execution of their contracts. Since 2015, the Corporate Office of Procurement and Supply has promoted internal campaigns with contract managers to evaluate the performance of relevant suppliers of Pemex through a questionnaire that incorporates additional aspects to the management of contracts such as their understanding of business and customer service, innovation and human resources management, among others.

By the end of 2016, there was a performance evaluation of 176 contracts from 66 relevant suppliers. The medium-term objective is to progressively expand the universe of evaluated suppliers and strengthen the systematization of performance evaluation. The implementation of a solid supplier performance management system is essential to improve risk management and long-term competitiveness, as it provides the necessary elements to privilege long-term relationships with suppliers that demonstrate good performance, as well as to discard those with negative historic performance.

### ***Strengthening a sustainable procurement***

The company has made significant progress to strengthen the sustainability of its supply chain. On the one hand, the Supplier Evaluation and Accountability Program (PERP, by its acronym in Spanish) was implemented. It consists on conducting audits at the facilities of suppliers that are strategic to Pemex because of their criticality for business, recurrence and contracting amounts. This program aims to improve risk management and promote the sustainable development of our supply chain while strengthening long-term business relationship and enhancing industry standards through a transparent framework.

Audits are conducted annually at the supplier's facilities by an independent third party to ensure impartiality and transparency. The distinctiveness of the audit protocol is that it is comprehensive since it includes the review of five key aspects: Corporate Social Responsibility, Business Quality and Management, Environmental Management, Health and Safety, and Human Resources Management. Each of the evaluated aspects has a specific weight according to its importance for the oil and gas sector.

During 2016, 47 audits were conducted and involved more than 547 executives from our suppliers. There were identified 176 areas for improvement for which correction plans were requested. This is the first time an exercise of this nature has been implemented. The purpose is to strengthen the buyer-supplier relationship and trust in a transparency framework that provides greater certainty that suppliers systematically comply with current regulations and industry standards. In the future, other suppliers will be incorporated to this program.

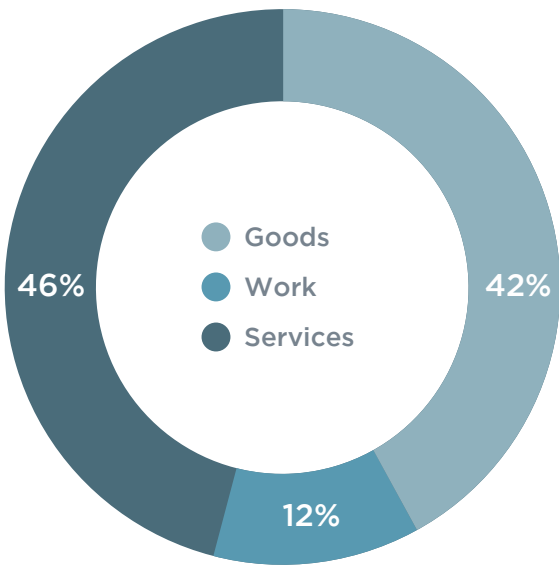
Likewise, in order to promote a supply chain that is committed to Corporate Social Responsibility (CSR), a program was launched in collaboration with the Mexican Center for Philanthropy (CEMEFI, by its acronym in Spanish), which aims to recognize the CSR as an additional component of the cost-benefit assessment for decision-making in the field of contracting, as the big oil operators do, assuming a strategic attitude of relationship and development of our suppliers.

The program was divided in two stages; a first stage of diagnosis to know the supplier's maturity level of Social Responsibility, and a second stage of implementation to drive a strategy of improvement, adoption and acknowledgement of CSR. In phase one of this program, 44 companies participated, 28 of which were SMEs. This program enabled Pemex to be recognized as an Entity Promoting Social Responsibility. Based on this commitment, we will continue working on promoting every year this aspect in our supply chain.

**Commitment to Micro, Small, Medium Enterprises (MSMEs)**

Given the contribution to the national GDP and its relevance as a source of job creation, Pemex is committed to continue promoting procurement strategies that enable the development of micro, small and medium enterprises (MSMEs) that are competitive and committed to the development of their region. Pemex accounts for nearly 1,000 suppliers classified as MSMEs. In 2016, 2,911 million pesos were contracted to these MSMEs, mainly in services of installation, repair and maintenance of machinery, other equipment and tools. The main Federal States purchasing to MSMEs are Mexico City, Tabasco, Nuevo Leon, Veracruz, Estado de Mexico, Campeche, Tamaulipas, among others.

**Contracts by type of procurement from MSMEs**



Pemex participates in the Government Purchasing Program to MSMEs, implemented by the Ministry of Economy, by being part of the ten main purchasers. By 2017, the goal established for purchases to MSMEs is 2,933 million pesos.

In this area, it is important to emphasize the participation of Pemex in the Program for Economic Reactivation and Productive Development for the states of Campeche and Tabasco promoted by the Federal Government, emphasizing the regularization of accounts payable to suppliers and schemes of non-consolidated open competitions for those goods and services in which there is local supply. Thus, in spite of the complicated situation of liquidity, we were able to regularize debts from year 2015 with suppliers and contractors at the end of 2016.

# Acronyms and abbreviations

<b>1P</b> Proven reserves	<b>IPIECA</b> International Petroleum Industry Environmental Conservation Association
<b>3P</b> Proven, probable and possible reserves	<b>ITs</b> Illegal taps
<b>ADVC</b> Area Voluntarily Dedicated to Conservation	<b>JCCP</b> Japan Cooperation Center Petroleum
<b>AGA</b> Open Government Alliance	<b>LAE</b> Ethics Helpline
<b>ARPEL</b> Regional Association of Oil, Gas and Biofuels Sector Companies in Latin America and the Caribbean	<b>LGBTITI</b> People with disabilities, lesbian, gay, bisexual, transsexual, transgender, transvestite, intersexual
<b>ASEA</b> National Agency of Industrial Security and Environmental Protection for the Hydrocarbon Sector	<b>LGTAIP</b> General Law of Transparency and Access to Public Information
<b>AWS</b> American Welding Society	<b>METI</b> Japan's Ministry of Economy, Trade and Industry
<b>CCAC</b> Climate and Clean Air Coalition	<b>MIIND</b> Table on Inclusion, Equality and Non-Discrimination
<b>CCS</b> Carbon Capture and Storage	<b>MSMEs</b> Micro, Small and Medium Enterprises
<b>CCT</b> Collective Labor Agreement	<b>NAFINSA</b> National Financial
<b>CCUS</b> Carbon Capture Use and Storage	<b>NOx</b> Nitrogen oxides
<b>CDI</b> National Commission for the Development of Indigenous Peoples	<b>OGCI</b> Oil and Gas Climate Initiative
<b>CDM</b> Clean Development Mechanism	<b>OECD</b> Organization for Economic Co-operation and Development
<b>CEMDA</b> Mexican Center of Environmental Law	<b>OBM</b> Mutual Benefit Works
<b>CEMEFI</b> Mexican Center for Philanthropy	<b>OS</b> Subsidiary Entities
<b>CEspeDES</b> Private Sector Study Commission for Sustainable Development	<b>PACMA</b> Community and Environment Support Program
<b>CIEP</b> Integral Extractions and Production Contracts	<b>PASS</b> Pemex Access Point to the Supply System
<b>CIFA</b> Centers for Family Integration	<b>PCPP</b> Person-Position Compatibility Procedure
<b>CNH</b> National Hydrocarbons Commission	<b>PECC</b> Special Climate Change Program
<b>CO<sub>2</sub></b> Carbon dioxide	<b>PEMEX</b> Petróleos Mexicanos
<b>CONABIO</b> National Commission for the Knowledge and Use of Biodiversity	<b>PEP</b> Pemex Exploration and Production
<b>CONANP</b> National Commission of Natural Protected Areas	<b>PERP</b> Supplier Evaluation and Accountability Program
<b>CONAPRED</b> National Council to Prevent Discrimination	<b>PES</b> Payment for Environmental Services
<b>CPQ</b> Petrochemical Complex	<b>PPQ</b> Pemex Petrochemicals
<b>CPG</b> Gas Processing Complex	<b>PROAs</b> Programs, Works and/or Actions
<b>CRE</b> Energy Regulatory Commission	<b>PROFEPA</b> Federal Attorney for Environmental Protection
<b>DOPA</b> Corporate Office of Procurement and Supply	<b>RBPC</b> Pantanos de Centla Biosphere Reserve
<b>ECCC</b> Environment and Climate Change Canada	<b>SAST</b> Occupational Health Administration Subsystem
<b>EISI</b> Social Inclusion Institutional Strategy	<b>SAT</b> Tax Administration Service
<b>EITI</b> Extractive Industries Transparency Initiative	<b>SEMARNAT</b> Ministry of Environment and Natural Resources
<b>EMS</b> Energy Management Systems	<b>SHCP</b> Ministry of Finance and Public Credit
<b>ENDESU</b> Espacios Naturales y Desarrollo Sustentable	<b>SIADI</b> Institutional System for Individual Performance Management
<b>EOR</b> Enhanced Oil Recovery	<b>SIFIVI</b> Housing Financing System
<b>EOS</b> Electro-optical surveillance systems	<b>SISCeP</b> Pemex Electronic Contracting System
<b>EPS</b> Subsidiary Productive Company	<b>SNR</b> National Refining System
<b>FCC</b> Fluid Catalytic Cracking	<b>SO<sub>2</sub></b> Sulfur Dioxide
<b>GAE</b> Strategic Supply Group	<b>SOx</b> Sulfur Oxides
<b>GHG</b> Green House Gases	<b>SRH</b> Human Resources Department
<b>GRDS</b> Office of Responsibility and Social Development	<b>SSPA</b> Safety, Health and Environment Protection
<b>GPC</b> Citizen Participation Group	<b>STPRM</b> Union of Petroleum Workers of Mexico
<b>HDL</b> High-density lipoprotein	<b>STPS</b> Ministry of Labor and Social Welfare
<b>ICE</b> Energy Consumption Index	<b>TSP</b> Total Suspended Particles
<b>IEA</b> International Energy Agency	<b>UBA</b> Ultra Low Sulfur
<b>IIE</b> National Institute of Electricity and Clean Energy	<b>UCII</b> Institutional Internal Control Unit
<b>IMSS</b> Mexican Social Security Institute	<b>UMA</b> Environmental Management Unit
<b>IMCO</b> Mexican Institute for Competitiveness	<b>UNFCCC</b> Clean Development Mechanism
<b>INAI</b> National Institute of Transparency, Access to Information and Protection of Personal Data	<b>UNAM</b> National Autonomous University of Mexico
<b>INDAABIN</b> Institute of Management and Valuation of National Assets	<b>UNDP</b> United Nations for Development Program
<b>INFONAVIT</b> Institute of the National Fund for Workers' Housing	<b>UNEP</b> United Nations Environment Program
	<b>VOCs</b> Volatile Organic Compounds
	<b>WBCSD</b> World Business Council for Sustainable Development

# Units

**MMMMscf** Billion standard cubic feet  
**MMMscf** Thousand million standard cubic feet  
**MMcfd** Million cubic feet per day  
**Boe** Barrels of crude oil equivalent  
**MMMboe** Thousand million barrels of crude oil equivalent  
**MMboe** Million barrels of crude oil equivalent  
**Mboed** Thousand barrels of crude oil equivalent per day  
**MMt** Million tons  
**Mt** Thousand tons  
**Mt/year** Thousand tons per year  
**t** Ton  
**tons/day** Tons per day  
**MMMb** Thousand million barrels  
**Mbd** Thousand barrels per day  
**Km<sup>2</sup>** Squared kilometers  
**Km** Kilometers  
**GJ** Giga Joule  
**MW** Megawatt  
**hp** Horse Power  
**%** Per cent  
**MM\$** Million pesos  
**MMUS\$** Million dollars  
**MMMUS\$** Thousand million dollars  
**MMM\$** Thousand million pesos  
**US\$/boe** Dollars per barrels of crude oil equivalent  
**US\$/b** Dollars per barrel  
**US\$/MMBtu** Dollars per million British thermal units



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