Oil products outlook
2007-2016

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Secretaría de Energía

Georgina Kessel Martínez

Ministry of Energy

Jordy Herrera Flores

Undersecretary of Energy Planning and Technological Development

Mario Gabriel Budebo

Undersecretary of Hydrocarbons

Benjamín Contreras Astiazarán

Undersecretary of Electricity

María de la Luz Ruiz Mariscal

General Administrator

Verónica Irastorza Trejo

General Director of Energy Planning

Héctor Escalante Lona

Press Unit General Director

Participants:

Verónica Irastorza Trejo

Energy Planning General Director

Virginia Doniz González

National Energy Politics Integrating Director

Luis Gerardo Guerrero Gutiérrez

Energy Politics Head of Department

Edition:

María Inés De Valle Castilla

Dissemination Director

Rosa María Noriega Morales

Graphic Desing Head of Department

Presentation

Mexico's refining industry is facing many challenges, including the increasing demand of oil-derived products related to the country's economic development; the commitment made for environmental preservation through the production of cleaner fuels to reduce emissions; and the maximization of the value of processed oil by improving efficiencies and profitability. At the same time, there is uncertainty regarding the availability of increasingly heavier crude oils that demand more complex processes to obtain the products required by the country.

In this sense, efforts made so far to modernize and upgrade the Cadereyta and Madero refineries have proven that an adequate planning results into benefits for the country, as these refineries have increased the production of two high-demand oil-derived products (gasoline and diesel). At the same time, they have achieved better performance of processed crude oils and higher added value in their processes. Within this long-term planning process, upgrading other refineries of the National Refining System's (SNR – Sistema Nacional de Refinación) remains a priority, becoming a decisive factor in the solution of the challenges listed above.

Moreover, more complex refining processes result in the production of lighter oil-derived products, decreasing thereby pollutants. The expansion of processes, such as desulfurizing plants, has lead to an increased capacity of low-sulfur fuel production with lower environmental impact.

Another relevant factor is the increase in SNR's variable margin in the last five years, associated to distillate price increases regarding residue price increases, and due to the start of the upgrading works at Cadereyta and Madero. These refineries have achieved better margins than those with simpler configurations.

Another important challenge for Mexico's refining industry in the near future will be expanding oil-derived product distribution and storage capacity. Storage terminals will be expanded and relocated, loading and unloading systems will be expanded, tanks and safety systems will undergo rehabilitation, and the local distribution fleet will be also renovated. This is the case of Tuxpan, where a strategic infrastructure project will be carried out to increase the capacity of the Tuxpan-México Storage and Distribution System.

This planning document includes new capacity by 2015, increasing domestic oil-derivative production. Additionally, crude oil processed at this new facility will be 100% heavy crude, considering the higher availability of this crude quality in the future. The new facility will make oil-derived product supply flexible and dynamic at a

time when, on a global scale, refineries will be reaching their utilization limits, raising their profitability levels. This situation is not expected to change in the near future, leading to high profit margins and shorter investment recovery times. It will also lead to reductions in imports and risks related to price volatility on the international oil-derivative market.

These actions respond to one of the priorities on the domestic energy policy, to supply the fuels that the country demands, with high quality and at competitive prices, at top-level facilities. It is therefore necessary to carry on every project proposed in this document and to demand the commitment of all parties involved in order to achieve continuous improvement in the satisfaction of Mexico's needs.

Georgina Kessel Martínez

Minister of Energy

Evolution of the domestic supply and demand of oil-derived products, 2007-2016

To continue fostering Mexico's development, the country's energy supply sources will have to undergo some changes between 2007 and 2016. With this in mind, Pemex Refinación (PR) will increase the infrastructure of its production system and incorporate new technologies to improve product quality and satisfy their increasing demand.

One of the strategies to follow is to enhance residue conversion to optimize fuel production, decreasing thereby residue generation and increasing gasoline and intermediate distillate production.

Domestic oil-derived product supply is based on a scenario that considers diverse strategic projects[1]. The main events during the period in question shall be the following:

- Total crude oil processing in the National Refining System (SNR) will increase at an annual average rate of 4.6 %.

- Larger supply of light and heavy crude oil to SNR.

- Strategic projects will achieve gasoline production performances of 43.0% in 2016, against 35.6% in 2006.

- Increases in gasoline production will be observed as of 2008; afterwards it will show a positive growth tendency throughout the rest of the period.

- Intermediate distillate production will increase at an annual average rate of 5.0%, diesel production prevailing.

- Domestic fuel-oil supply will decrease at an annual average growth rate (aagr) of 9.9%, while petroleum coke will increase at an annual average growth rate of 20.6% throughout the period.

[1] This scenario is between the base and the outstanding scenarios of the National Infrastructure Plan

Compliance with these scenarios requires investments and financing schemes leading to an increase of current production margins, improved fuel quality, fostering a more efficient, profitable and competitive refining industry.

The following is a list of strategic projects to be executed:

2008: Minatitlán Refinery upgrading;

2012: Residue conversion in Salamanca Refinery;

2013: Residue conversion in Tula Refinery;

2014: Salina Cruz Refinery upgrading; and,

2015: Additional refining capacity, considering that there are sufficient investment resources to execute it.

It is worth mentioning that the scheduled dates of these projects may vary depending on energy demand and, therefore, they may differ from the dates established above.

4.1 SNR perspective and its impact upon the production of oil-derived products, 2007-2016

4.1.1 Processing plant development within the SNR

Expected fuel demand increase and environmental policies imply the planning of investment strategies and schemes by PR, so to expand energy supply. This in turn requires the infrastructure development that allows provides resource supply to refineries, raw material transformation and product distribution.

At work center level, installed capacity increases between 2007 and 2016 will result from planned strategic projects, thus the upgradings of Minatitlán and Salina Cruz, the residue conversion of Salamanca and Tula, and the incorporation of new capacity will grant greater availability of installed capacity in the different processes (see chart 24).

Chart 24

Nominal capacity increase in refining processes, 2007-2016

(thousand barrels per day)

Processing Plants	Minatitlán	Salamanca	Salina Cruz	Tula	New Capacity[1]	**Total**
Atmospheric distillation	150.0	-	-	-	330.0	**480.0**
Catalytic cracking	42.0	20.0	-	-	144.0	**206.0**
Catalytic reforming	-	-	10.0	35.0	54.0	**99.0**
Alkylation and isomerization*	26.0	7.0	35.0	10.3	46.0	**124.3**
Hydro-desulfuring	101.0	105.0	185.0	103.0	370.0	**864.0**
Coking	56.0	50.0	60.0	80.0	171.0	**417.0** [1]

Considered depending on resource availability.

* Production capacity.

Source: IMP, based on data from Pemex Refinación.

The upgrading of Minatitlán considers a coking unit to increase Maya crude oil processing. The configuration scheme of the Salina Cruz refinery will be high conversion with coking unit, reducing fuel-oil production and increasing distillate production. The residue conversion projects in Salamanca and Tula consider an addition of a coking unit, decreasing fuel-oil supply in Mexico's central region. New capacity will add infrastructure dedicated to atmospheric distillation, and includes a coking unit addition, increasing gasoline and distillate production (see chart 38).

By the end of the period, Minatitlán will be the refinery with the highest primary distillation capacity, followed by Salina Cruz and the New Capacity (if such project is carried on), with 330.0 thousand barrels per day (tbd) each; while Madero will have the lowest capacity. By the end of the period, atmospheric distillation capacity increase in SNR will be 480 tbd and, due to the type of configuring projects at the refineries, available domestic heavy crude oil processing will increase (see chart 25).

4.1.2 Crude oil processing in the SNR

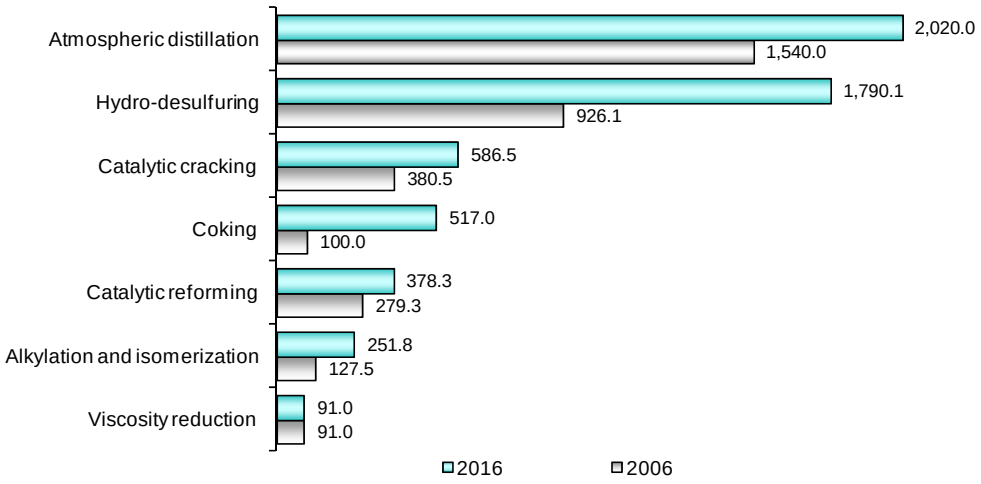
Between 2006 and 2016, processed crude oil volume[2] will increase by 44.2%, meaning that expected growth by the end of the period will be 549.1 tbd compared with the first year. Nonetheless, total processed volume[3] will increase by 538.9 tbd. Until 2013, the largest share will account to light crude oil (an average of 56.4%). As of 2014, heavy crude oil will have an average share of 56.8% (see graph 39).

[2] Without considering other inputs, only light and heavy.
[3] Considering light, heavy and other inputs.

Graph 38

SNR's installed capacity by process type, 2006 and 2016

(thousand barrels per day)



Source: IMP, based on data from Pemex Refinación.

Chart 25

Installed processing capacity by refinery, 2016

(thousand barrels per day)

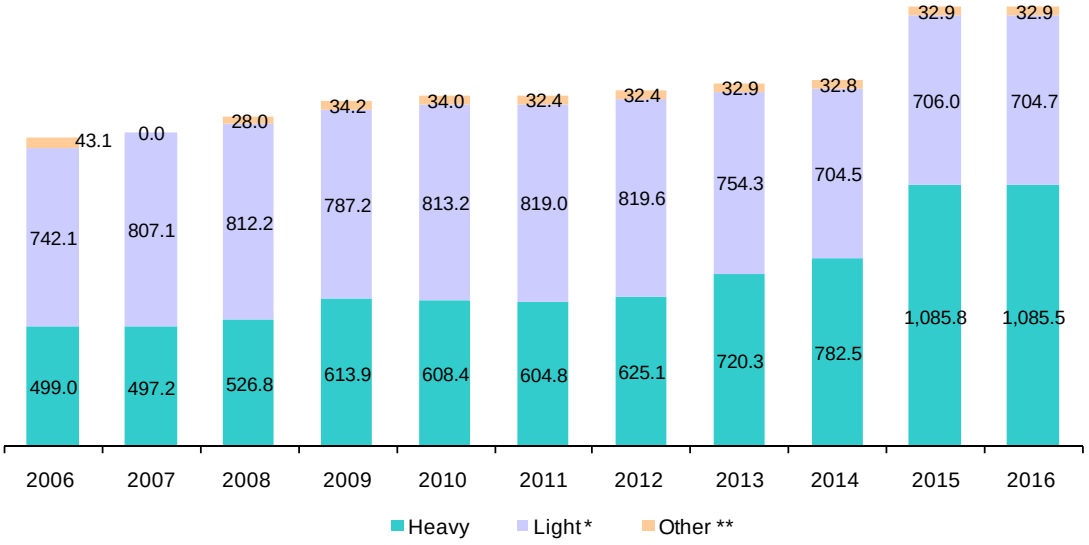
Process	Cadereyta	Madero	Minatitlán	Salamanca	Salina Cruz	Tula	New Capacity	SNR
Atmospheric distillation	275.0	190.0	335.0	245.0	330.0	315.0	330.0	2,020.0
Catalytic cracking	90.0	60.5	72.0	60.0	80.0	80.0	144.0	586.5
Viscosity reduction	0.0	0.0	0.0	0.0	50.0	41.0	0.0	91.0
Catalytic reforming	46.0	30.0	49.0	39.3	60.0	100.0	54.0	378.3
Alkylation and isomerization *	23.0	22.1	41.0	24.4	62.7	32.5	46.0	251.8
Hydro-desulfuration	186.5	141.7	198.0	221.5	350.0	322.4	370.0	1,790.1
Coking	50.0	50.0	56.0	50.0	60.0	80.0	171.0	517.0
Sulfur plants (ton/day)	600.0	600.0	80.0	240.0	240.0	1,000.0	0.0	2,760.0

* Production capacity.
Source: IMP, based on data from Pemex Refinación.

Graph 39

Processed crude oil by type, 2006-2016

(thousand barrels per day)



* Includes crude free of light products from the Isthmus.
** Includes: transfers to refineries, gas-oils, sour diesel and fuel-oil base.
Source: IMP, based on data from Pemex Refinación.

By 2016, strategic projects will lead to an increase of heavy crude oil by 586.5 tbd and a decrease of light crude oil by 37.4 tbd. Within this context, new capacity will be designed to process 100% of the heavy crude oil, thus in 2016 its share within the total heavy crude oil processed in the system will account for 27.9% (see graph 40).

The Minatitlán facility upgrading is expected to conclude in the second half of 2008, leading in 2009 to an increase of 116.2 tbd in heavy crude oil processing, compared to 2007. On the other hand, the residue conversion

project in Salamanca will increase this crude oil's demand by 20.0 tbd between 2007 and 2012. In the case of Tula, there will be an increase of 66.3 tbd throughout the period between 2006 and 2013. The upgrading works of Salina Cruz, in 2014, will increase the processing of this quality of crude oil by 42.7 tbd at this work center, compared to 2006 (see graph 41).

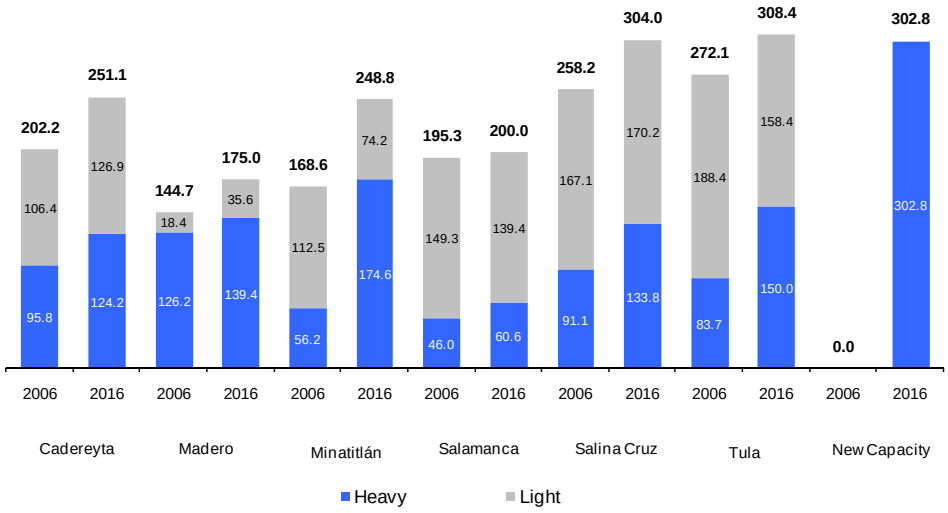
Other inputs will decrease by 10.2 tbd during the period analyzed. The share of processed crude oil in SNR, by type, is shown in graph 42.

The execution of strategic projects during the analyzed period requires investments to be made by PR for an estimated amount of 224.2 billion dollars[4]. 42.5% thereof will be destined to the new capacity; 14.2% to the Salina Cruz upgrading; 14.1% to the "Fuel quality" project; 11.0% and 6.0%, respectively, to residue conversion at Tula and Salamanca; 8.2% to Minatitlán upgrading and 3.9% to the expansion of storage capacity, replacement of the main fleet and to SO_2 emission reduction in SNR (see graph 43).

Graph 40

Crude oil processing by type* and by refinery, 2006 and 2016

(thousand barrels per day)



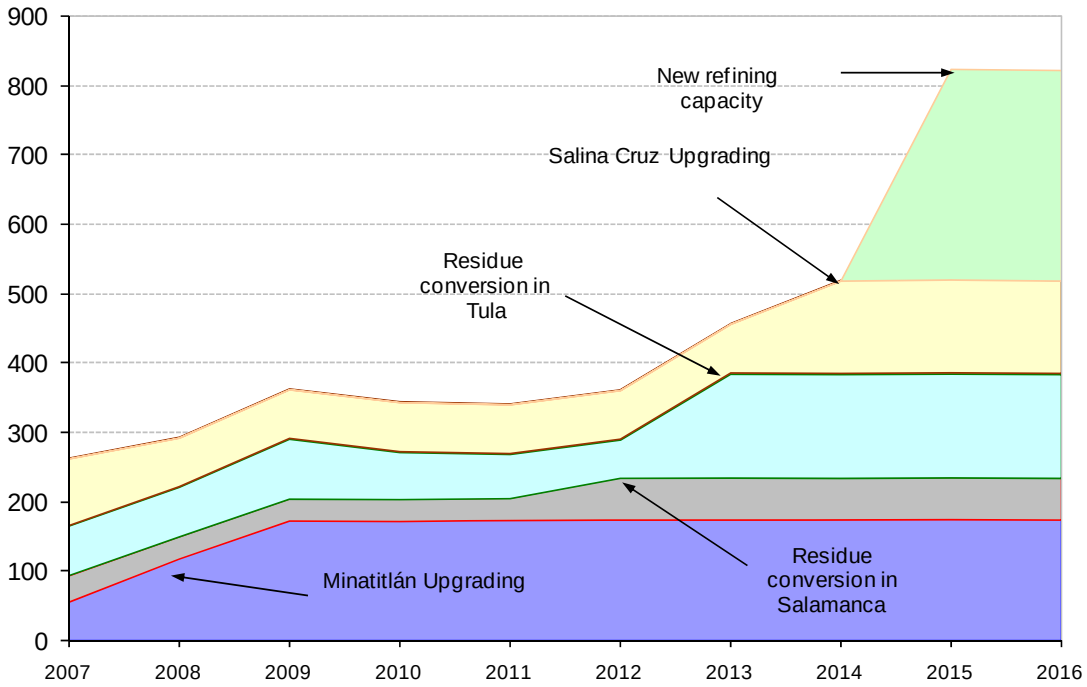
[4] Under a high investment scenario that considers new capacity, the exchange rate considered in is 10.9282 MXP for 1 USD.

* Does not include other feedstock.
Source: IMP, based on data from Pemex Refinación.

Graph 41

Heavy crude oil process increases, 2007-2016

(thousand barrels per day)

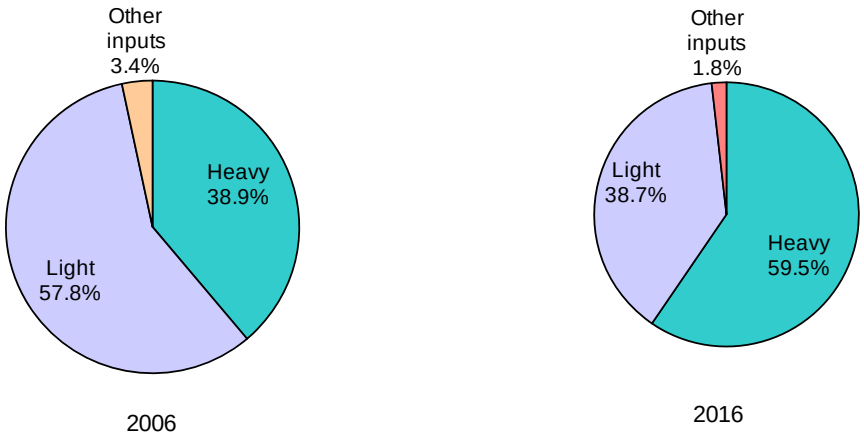


Source: IMP, based on data from Pemex Refinación.

Graph 42

Processed crude oil by type, 2006 and 2016

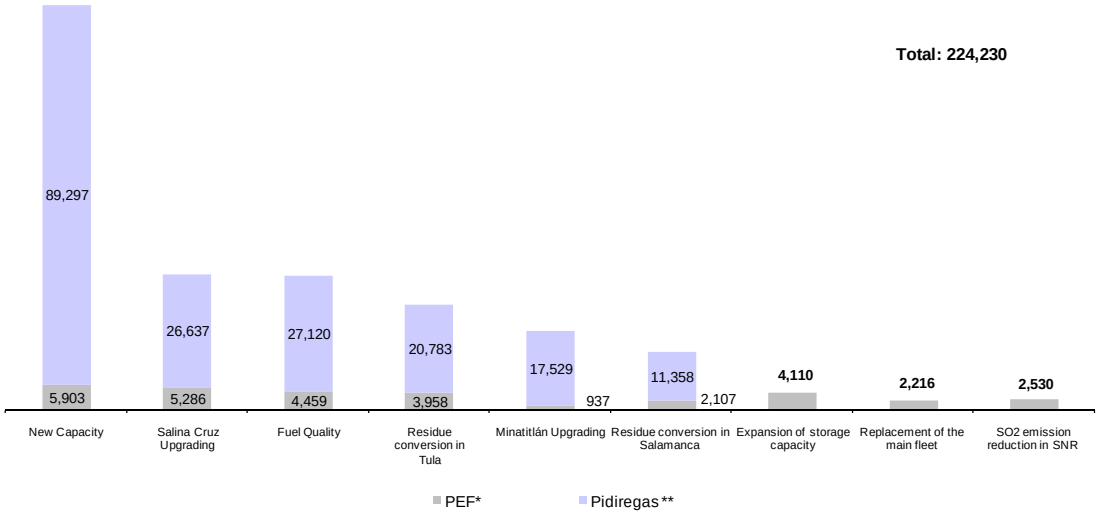
(percentage structure)



Source: IMP, based on data from Pemex Refinación.

Graph 43

Strategic project investment program, 2007-2016
(million pesos)



* PEF: Federal Expenditure Budget.

** Pidiregas: Infrastructure Projects with Differed Impact upon Expenditure Registration.
Source: IMP, based on data from Pemex Refinación.

4.1.3 Domestic production of oil-derived products

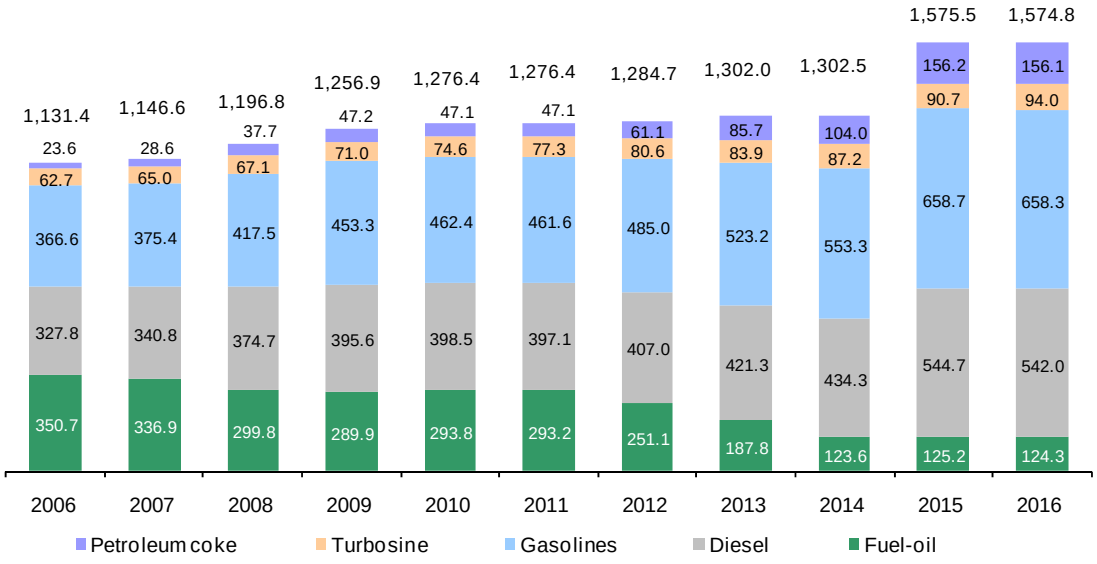
The expected increase of the vehicle fleet and its impact upon the growing demand of high-quality fuels require greater availability of energy sources to timely satisfy domestic demand. In the case of the airport system, the infrastructure incorporation and the strategies of low-cost airlines will translate into greater turbosine consumption. In the industrial sector, the consumption of oil-derived products will register a moderate increase.

Faced with a growing energy demand, PR has planned action schemes that will allow the increase of both fuel production and quality. The domestic oil-derived product supply perspective forecasts an aagr of 3.4%, resulting in an increase of 443.4 thousand barrels of equivalent crude oil per day (tbecod) between 2006 and 2016. Within this context, gasoline will continue to have the highest share in supply, followed by diesel. Turbosine will have a lower share, while fuel-oil production will decrease (see graphs 44 and 45).

Graph 44

Production of oil-derived products in SNR, 2006-2016

(thousand barrels of equivalent crude oil)

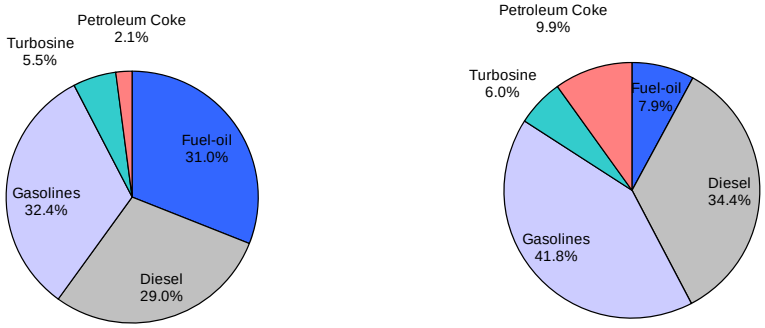


Source: IMP, based on data from Pemex Refinación.

Graph 45

Share of oil-derived products in domestic production, 2006 and 2016

(percentage structure)



Source: IMP, based on data from Pemex Refinación.

The strategies taken by SNR will lead to increased fuel production in 2016 versus 2006, optimizing the light products separation, thus producing with the highest value. Gasoline stands out with results above 40% (see graph 46).

The expected gasoline supply growth is related to a constantly evolving and growing vehicle market with increasingly stricter fuel specifications. The following years will mark changes in the specifications of vehicle fuels with the improvement of the Magna gasoline, both in metropolitan zones and in the rest of the country, while diesel will also be produced with low sulfur content.

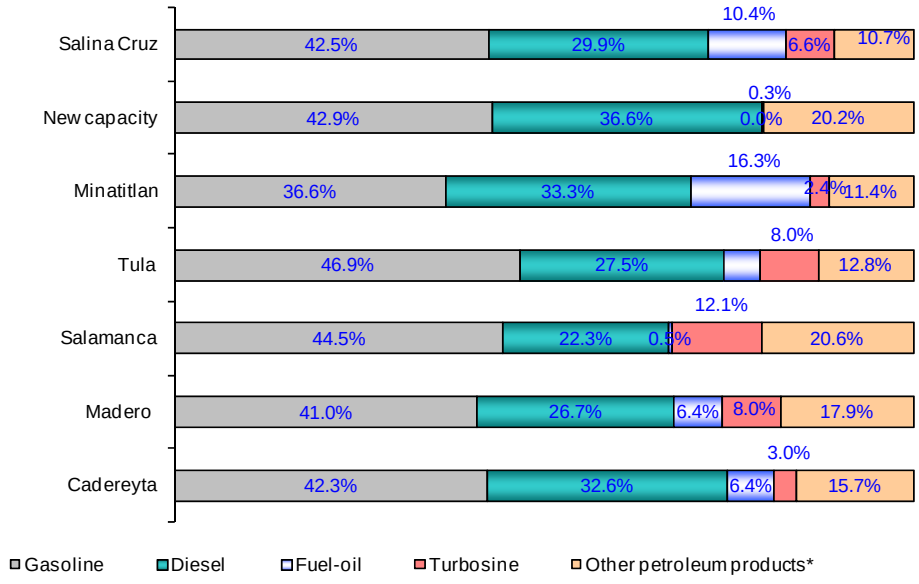
Gasoline production will increase at an annual average growth rate of 6.0%, equivalent to an increase of 352.1 tbd between 2006 and 2016. By the end of the period the Tula refinery will have the highest share in the production of this oil-derived product (18.2%), followed by the new capacity and the Salina Cruz refinery (16.4% and 16.2%, respectively), while Madero will have the lowest share with 9.0%.

In the case of Minatitlán, the conclusion of its upgrade is expected to allow it to increase gasoline production by 53.3 tbd in 2008 compared to that in 2006, and by 82.0 tbd by the end of the period. Residue conversion at Salamanca will contribute 22.8 tbd more in 2016 compared with the reference year. The Tula refinery will add 50.1 tbd to its 2006 production. The upgrading project at Salina Cruz will lead to a 33.2% gasoline production increase. Its volume in 2016 will be 32.2 tbd higher than in 2006. New capacity will contribute to domestic production with 16.4% by the end of the period (see graph 47).

Graph 46

Refinery performances by product, 2016

(percentage structure)

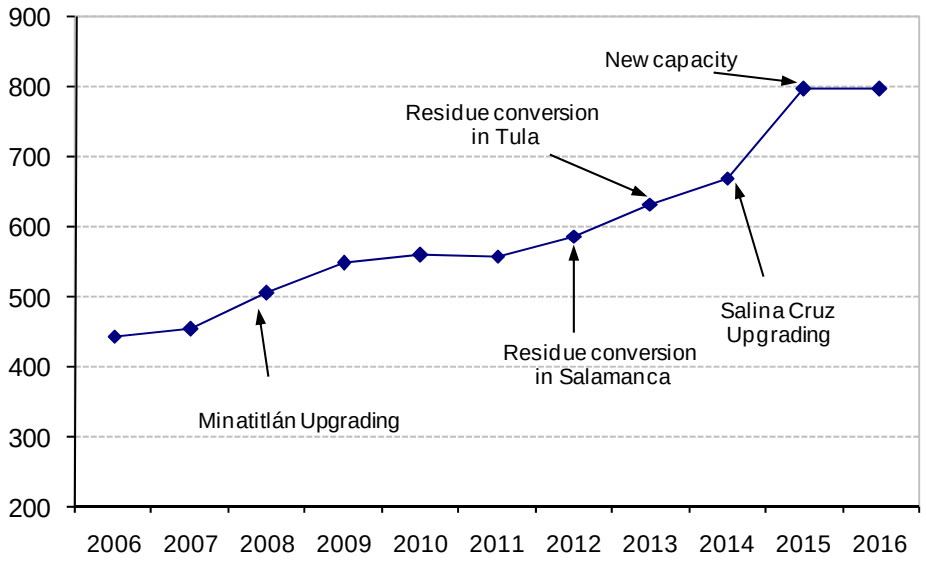


* Includes petroleum coke, asphalts, lubricants, paraffines and other products.
Source: IMP, based on data from Pemex Refinación.

Graph 47

Impact of strategic projects upon gasoline production, 2006-2016

(thousand barrels per day)



Note: Production includes imported components, transfers from other organisms and among refineries.
Source: IMP, based on data from Pemex Refinación.

The results of strategic projects upon domestic gasoline supply and the fostering of operational efficiency will help SNR to exceed 2006 production by 79.6%. Nonetheless, this significant growth will not close the entire gap between supply and demand (see graph 48).

Intermediate distillates are expected to increase at an annual average growth rate of 5.0%, reaching 639.7 tbd by the end of the period, that is, 246.7 tbd more production than in 2006. The greatest goals in the increase in middle destilates will focus on diesel production, with an increase of 214.4 tbd. Turbosine will increase by 32.3 tbd, thus domestic supply will have an aagr of 4.1% during the period analyzed.

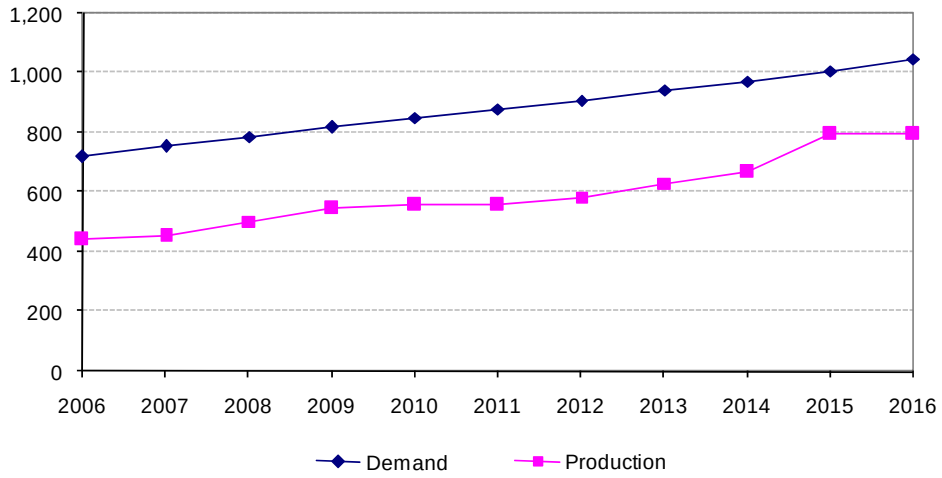
Fuel-oil will decrease by 209.9 tbd as a result of a production strategy to obtain fuels with the highest added value and displacement of this energy source by natural gas. Refineries with the highest production share will be Minatitlán and Salina Cruz, while new capacity will have a practically marginal share. Domestic supply by SNR will decrease from 325.2 tbd to 115.3 tbd.

The total oil-derived products in SNR will increase at an aagr of 3.4% from 2006 until 2016. This production increase represents 444.1 tbecod more than that in 2006. Upgrading projects of existing refineries will account for 172.6 tbecod of this additional production, while the remaining volume is obtained from the possible entry of new capacity (see graph 49).

Graph 48

Gasoline supply and demand evolution, 2006-2016

(thousand barrels per day)

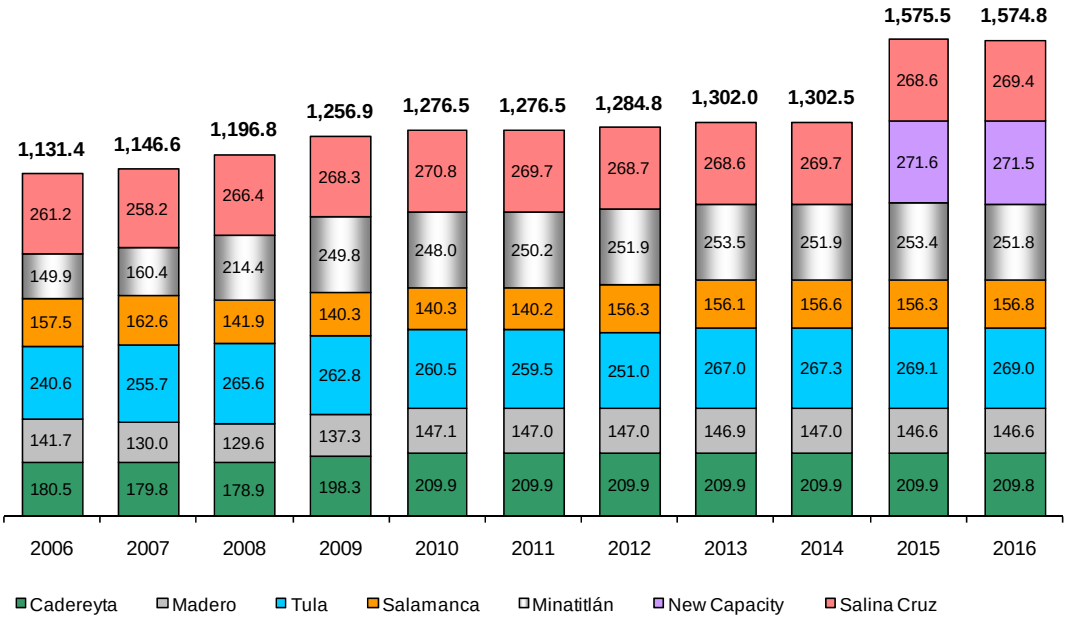


Source: IMP, based on data from AIE, AMDA, AMIA, ANPACT, CRE, INEGI, EPA, Pemex, Sener and private companies.

Graph 49

Production of oil-derived products by refinery, 2006-2016

(thousand barrels of equivalent crude oil per day)



Source: IMP, based on data from Pemex Refinación.

Petroleum coke supply by SNR will increase by 9.2 billion tons per year (bty), as a result of a larger coking units infrastructure, facilitating larger processed volumes of oil vacuum residue, which thermal cracking will lead to the simultaneous formation of distilled products and petroleum coke. By the end of the period, the new capacity and the Tula refinery will be the largest producers of this energy source (see graph 50).

4.2 Domestic oil-derived product demand, 2007-2016

4.2.1 Transportation sector

Vehicle fleet in the transportation sector is expected to increase at an annual average growth rate of 6.3% between 2006 and 2016. The greatest increase will be in gasoline vehicles with more than 15 million units. Regarding diesel vehicles, an important growth is expected (almost doubling the current number), compressed natural gas (CNG) vehicles will increase by 25 thousand units, while the LPG vehicle fleet will decrease (see chart 26).

Broadly speaking, the vehicle fleet's vigorous growth implies an important increase of *per capita* possession of vehicles, that is, the 18 vehicles per 100 inhabitants in 2006 are expected to increase to 31 vehicles in 2016 (see graph 51). To consider these figures from an international perspective: in 2002, the US had 81 vehicles per 100 inhabitants and Spain 56[5].

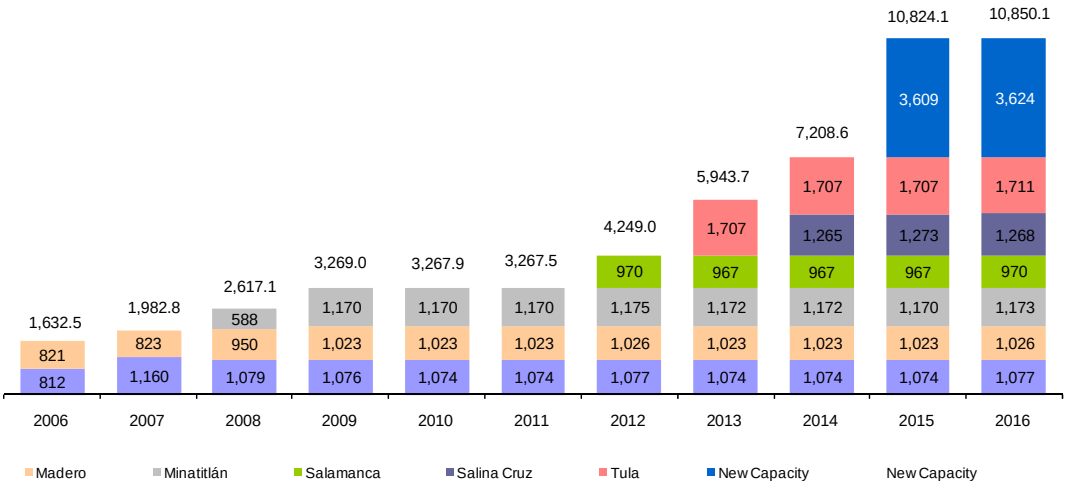
Fuel demand will experience a considerably lower annual average growth than vehicle fleet: 3.8% in the case of gasoline and 4.0% for diesel. As a consequence, demand per vehicle will decrease, and in 2016 it will represent 28.8% less than in 2006 (see graph 52). Two factors explain this phenomenon: a reduction in the intensity of vehicle usage as *per capita* fleet increases; and, higher vehicle efficiency due to the gradual modernization of the fleet.

[5] Joyce Dargay, Dermot Gately and Martin Sommer. Vehicle Ownership and Income Growth, Worldwide: 1960-2030, 2007.

Graph 50

Petroleum coke production by work center, 2006-2016

(thousand tons per year)



Source: IMP, based on data from Pemex Refinación.

Chart 26

Vehicle fleet by fuel type, 2006-2016

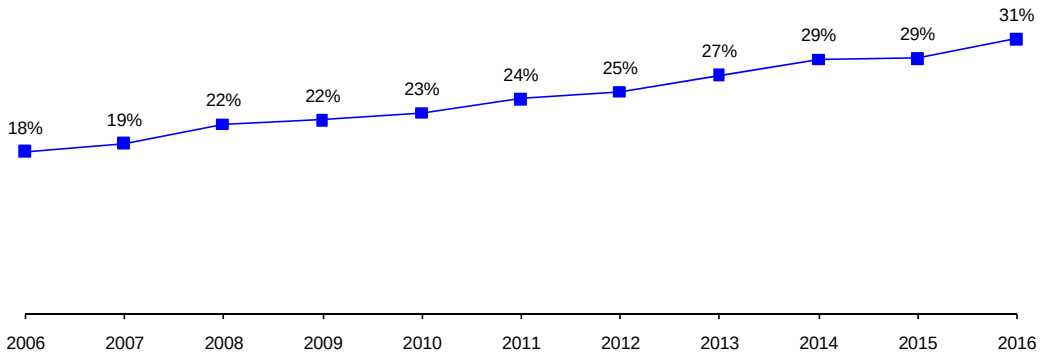
(thousand vehicles)

Fuel	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	aagr
Total	**19,389**	**20,589**	**23,083**	**23,803**	**24,878**	**26,773**	**27,921**	**30,200**	**32,442**	**32,828**	**35,559**	**6.3**
Gasoline	18,322	19,456	21,907	22,578	23,600	25,436	26,526	28,726	30,887	31,153	33,765	6.3
Diesel	767	834	873	925	979	1,037	1,098	1,174	1,255	1,381	1,499	6.9
LPG	298	294	296	291	287	285	280	280	277	269	266	-1.1
CNG	3	5	8	10	13	15	17	20	22	25	28	26.2

Source: IMP, based on data from AIE, AMDA, AMIA, ANPACT, CRE, INEGI, EPA, Pemex, Sener and private companies.

Graph 51

Per capita possession of vehicles in the vehicle transportation sector, 2006-2016

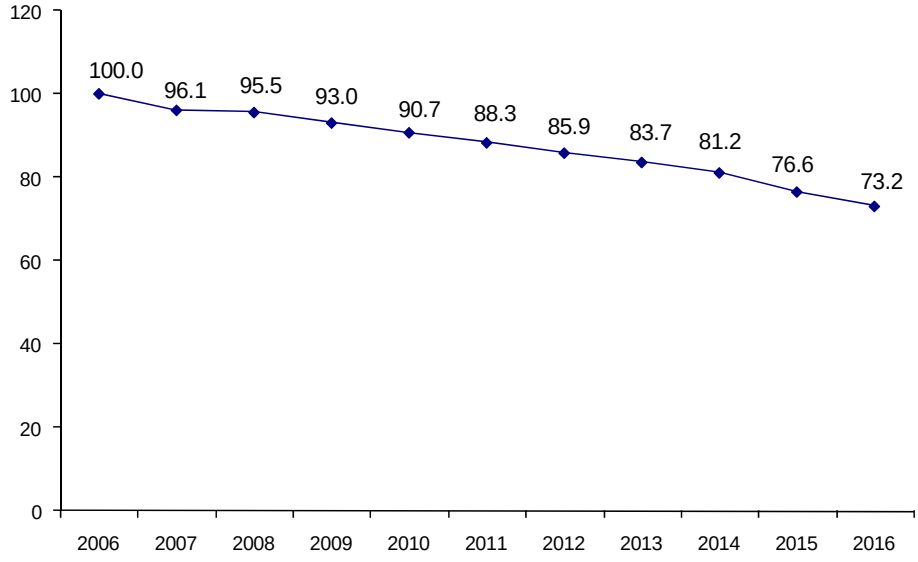


Source: IMP, based on data from AIE, AMDA, AMIA, ANPACT, CONAPO, CRE, INEGI, EPA, Pemex, Sener and private companies.

Graph 52

Fuel consumption by vehicle in the vehicle transportation sector, 2006-2016

(indexes, 2006=100)



Source: IMP, based on data from AIE, AMDA, AMIA, ANPACT, CRE, INEGI, EPA, Pemex, Sener and private companies.

In the next years, gasoline demand will be influenced by the introduction of direct gasoline injection systems (DGI), improving power and gasoline savings through the control of fuel amounts and injection times. With this innovation, the efficiency gap between diesel and gasoline engines is expected to become smaller. This type of technology has been used for some time in the US, and is to be introduced in Mexico in a few years.

Regarding demand by gasoline type, Pemex Magna is expected to represent an average 85.7% of the total, while the rest will correspond to Pemex Premium. This situation will mainly depend on two factors: economic aspects in new vehicles, resulting from an end consumer preference for low-cost fuels; and the dominance of vehicles running on low octane gasoline (see chart 27).

Premium gasoline demand is expected to increase at a lower rate than Magna, due mainly to a moderate growth of vehicles using technologies that demand high octane gasoline (see chart 27).

The fleet's efficiency increase is a gradual process that results from the incorporation of new vehicles with generally, more efficient gasoline use, and the withdrawal of units that have reached the end of their service life, thus elevating average efficiency (see graphs 53 and 54).

In terms of performance, light vehicles, both diesel and gasoline, will reach similar efficiencies by the end of the prospective period. Therefore, diesel vehicles will enjoy a higher degree of acceptance in the vehicle fleet.

In the case of compact diesel vehicles, average efficiency will be higher than gasoline vehicles´, so these will show greater performance expectations. By the end of the prospective period, a compact diesel vehicle will run an average of 6.9 kilometers more than a similar gasoline vehicle. This advantage is mainly the result of a greater energy efficiency of diesel compared to gasoline[6]. In economic terms, its use seems more attractive in the case of vehicles that run around 180 km per day, leading to savings of approx. 2,745 USD by the end of the first three years.

[6] The calorific value of diesel is 20% higher than that of gasoline

Chart 27

Fuel demand in the vehicle transportation sector, 2006-2016

(thousand barrels per day)

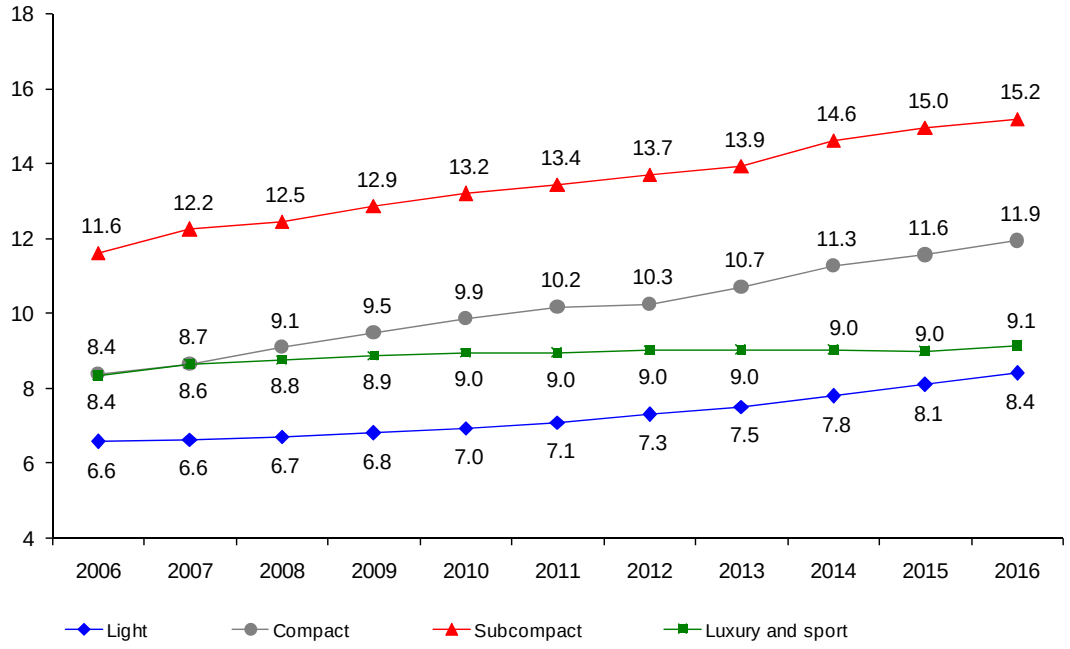
Fuel	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	aagr
Magna gasoline	601.8	646.7	675.7	702.0	729.5	755.4	779.3	810.4	834.1	864.5	898.7	4.1
Premium gasoline	116.5	107.0	110.8	115.2	119.7	123.9	127.8	133.2	137.0	141.9	147.5	2.4
Total gasoline	**718.3**	**753.7**	**786.6**	**817.2**	**849.2**	**879.3**	**907.2**	**943.6**	**971.1**	**1,006.4**	**1,046.2**	**3.8**
Diesel	285.2	298.9	312.2	323.3	335.1	346.7	358.1	374.2	389.5	405.9	422.8	4.0
LPG	34.3	32.5	32.3	31.8	31.4	31.0	30.6	30.3	29.7	29.1	28.5	-1.8
Natural gas (MMcfd)	2.0	4.5	6.4	8.1	9.6	11.0	12.3	13.6	15.0	16.1	17.6	24.1

Source: IMP, based on data from AIE, AMDA, AMIA, ANPACT, CRE, INEGI, EPA, Pemex, Sener and private companies.

Graph 53

Gasoline vehicle efficiency by category, 2006-2016

(kilometers per liter)

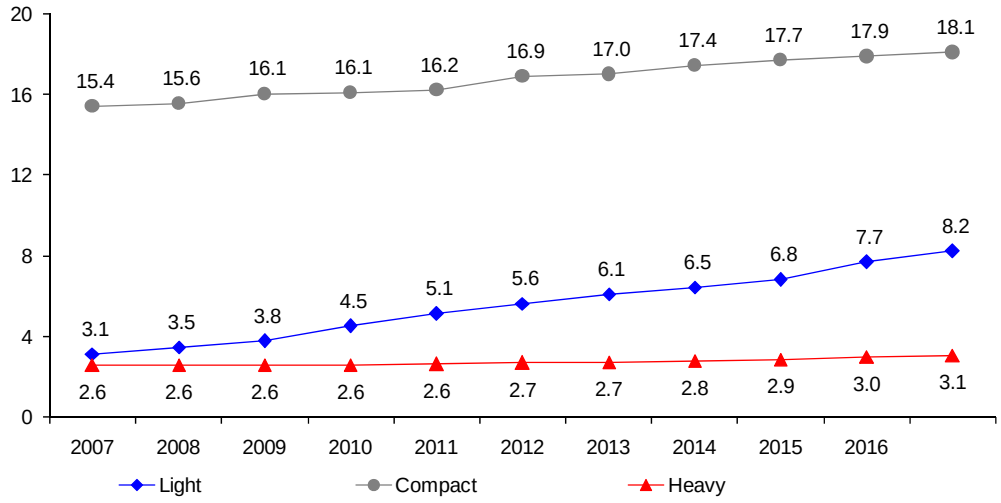


Source: IMP, based on data from AIE, AMDA, AMIA, ANPACT, CRE, INEGI, EPA, Pemex, Sener and private companies.

Graph 54

Diesel vehicle efficiency by category, 2006-2016

(kilometers per liter of equivalent gasoline)



Source: IMP, based on data from AIE, AMDA, AMIA, ANPACT, CRE, INEGI, EPA, Pemex, Sener and private companies.

Heavy vehicles will show the lowest efficiency increases compared with other diesel categories during the prospective period. This is because a large number of the current vehicle fleet has exceeded its service life, and no relevant replacement activities are expected in the medium term due to the slow fleet renewal process observed in this vehicle category (see graph 54).

On the other hand, diesel demand in railway transportation is expected to reach 17.6 tbd in 2016, while sea transportation will reach 19.1 tbd for the same year. Both will be in accordance with the country's economic activities, mainly by the products trade at national and international levels. In general terms, total diesel demand in the transportation sector will increase at an annual average rate of 3.5% between 2006 and 2016.

Diesel demand in the sea transportation sector will show an annual average growth rate of 2.2%, and will account for 4.4% of the total share of diesel demand in the transportation sector during the prospective period. The most important regions, by magnitude, will be the Northwestern and the South-Southeastern regions, demanding 9.1 and 6.1 tbd, respectively, by the end of the period.

The maritime sector demand will grow as a result of the capacity increase of the port of Manzanillo on the Pacific coast, Veracruz in the Gulf of Mexico and Puerto Morelos on the Caribbean, 22 ports will also undergo modernization and expansion, thus improving the installed capacity for container handling, leading to an increase from four to more than seven million units, strengthening thereby the multimodal transportation system to reduce the costs of companies. Ports with tourism potential will also be fostered through the construction of 13 new cruise docks, for instance in Guaymas, Manzanillo and Punta Brava, in Quintana Roo state[7].

As of 2012, turbosine demand in the transportation sector is expected to become slightly higher than supply by Pemex Refinación, so that in 2016 imports will reach 3.6 tbd (see graph 55). This situation arises from the increase of airport operations and the resulting demand.

In this sense, the Federal Government is considering the construction of new airports on the Mayan Riviera, the Cortés Sea and in Ensenada, and the expansion of the Toluca and Cancún airports, with an estimated

[7] National Infrastructure Program for 2007-2012, President's Office, July 2007.

investment of 38 billion dollars in the next five years. Regional airports will also be developed in order to drive the expansion of tourist corridors.

Turbosine demand in the Central region will be the most relevant by the end of the prospective period. Its share regarding domestic demand will reach 35.0%, since it also considers main expansion plans for international airports (see chart 28).

4.2.2 Electricity sector

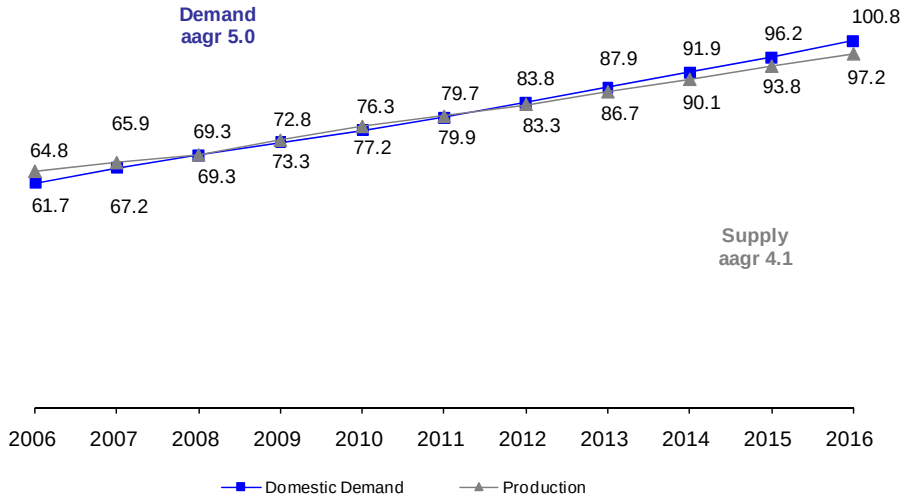
4.2.2.1 Public electricity sector

Fossil fuel demand in the public electricity sector will grow at an annual average rate of 2.9% in the next 10 years, mainly from independent power production.

Graph 55

Domestic turbosine demand and production, 2006-2016

(thousand barrels per day)



Source: IMP, based on data from ASA, BANXICO, INEGI, Pemex, SCT and Sener.

Chart 28

Regional turbosine demand, 2006-2016

(thousand barrels per day)

Region	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	aagr
Total	**61.7**	**65.9**	**69.3**	**72.8**	**76.3**	**79.7**	**83.8**	**87.9**	**91.9**	**96.2**	**100.8**	**5.0**
Northwest	7.6	9.3	9.7	10.3	10.8	11.3	12.0	12.6	13.3	13.9	14.6	6.8
Northeast	5.0	5.7	6.0	6.2	6.5	6.8	7.1	7.5	7.8	8.2	8.5	5.4
Central-West	13.1	13.1	13.7	14.4	15.1	15.8	16.7	17.5	18.4	19.3	20.3	4.5
Central	22.5	24.0	25.2	26.4	27.6	28.6	30.0	31.3	32.5	33.9	35.3	4.6
South-Southeast	13.5	13.9	14.7	15.5	16.3	17.1	18.0	19.0	19.9	20.9	22.0	5.0

Source: IMP, based on data from ASA, BANXICO, INEGI, Pemex, SCT and Sener.

Fuel-oil will show a temporary comeback in 2008 and 2009, and it will continue its decline afterwards. In these years, fuel-oil demand growth will be caused by the increased use of thermoelectric plants running on this fuel, to respond to the expected increase of electricity demand in the country and due to the fact that there are no plans for additional capacity in 2008, and rather insignificant additions in 2009. As of 2010, demand will start decreasing due to the withdrawal of generating plants using this type of technology.

Coal will increase its share with the construction of new carboelectric plants, consuming 60.0 tbecod of coal in 2016 a (see chart 29).

Chart 29

Fuel demand in the public electricity sector, 2006-2016 (thousand barrels of equivalent crude oil per day)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	aagr
Total	**706.4**	**759.3**	**797.2**	**807.2**	**797.8**	**837.6**	**874.6**	**901.7**	**922.4**	**923.0**	**935.7**	**2.9**
Comisión Federal de Electricidad	497.3	497.6	543.3	524.7	505.3	524.2	548.1	569.1	572.2	568.6	576.0	1.5
Luz y Fuerza del Centro	5.2	5.1	11.2	1.0	1.0	1.0	1.6	1.0	1.2	1.0	1.0	-15.0
Independent Power Production	203.9	256.5	242.7	281.5	291.5	312.3	325.0	331.6	349.0	353.4	358.6	5.8
Coal	**127.1**	**132.7**	**131.9**	**131.4**	**140.7**	**147.5**	**146.4**	**144.6**	**152.0**	**169.1**	**193.0**	**4.3**
Comisión Federal de Electricidad	127.1	132.7	131.9	131.4	140.7	147.5	146.4	144.6	152.0	169.1	193.0	4.3
Fuel-oil	**221.3**	**218.2**	**265.3**	**265.1**	**235.4**	**228.9**	**213.1**	**200.0**	**175.5**	**148.8**	**131.9**	**-5.0**
Comisión Federal de Electricidad	221.3	218.2	265.3	265.1	235.4	228.9	213.1	200.0	175.5	148.8	131.9	-5.0
Diesel	**6.9**	**1.2**	**1.6**	**1.8**	**1.5**	**1.4**	**1.9**	**2.3**	**1.7**	**1.9**	**1.4**	**-15.0**
Comisión Federal de Electricidad	6.8	1.2	1.6	1.8	1.4	1.4	1.9	2.3	1.7	1.9	1.3	-15.0
Luz y Fuerza del Centro	-	-	-	-	-	-	-	-	-	-	-	n.a.
Independent Power Production	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-16.6
Natural gas	**351.1**	**407.2**	**398.4**	**409.0**	**420.2**	**459.7**	**513.3**	**554.8**	**593.3**	**603.2**	**609.4**	**5.7**
Comisión Federal de Electricidad	142.1	145.6	144.5	126.5	127.7	146.4	186.8	222.1	243.2	248.8	249.7	5.8
Luz y Fuerza del Centro	5.2	5.1	11.2	1.0	1.0	1.0	1.6	1.0	1.2	1.0	1.0	-15.0
Independent Power Production	203.9	256.5	242.7	281.5	291.5	312.3	325.0	331.6	349.0	353.4	358.6	5.8

n.a.: means "does not apply".

Source: IMP, based on data from CFE, Sener, Pemex and private companies.

Natural gas will continue dominating the sector's expansion with an increasingly efficient combined cycle technology, and the public electricity sector will reach a share of 65% in fossil fuel demand in 2016, compared to 50% in 2006.

4.2.2.2 Private electricity sector

There are no relevant and probable projects for the use of natural gas or oil-derived products in self-generation projects for the next 10 years. Projects currently in planning or construction phase are based on wind energy (Tehuantepec Isthmus, Oaxaca) or mineral coal (Coahuila). The natural gas demand increase of 8.3 tbecod in 2007 would take place through a recovery from a relatively low activity level in 2006 at existing self-supply plants.

4.2.3 Industrial sector

Energy intensity in the industrial sector is the energy consumed per production unit; this is why technological progress increases efficiency and hence decreases energy intensity. In this sense, energy intensity in the next 10 years is expected to decrease by an average of 1.6%. (see graph 56).

Chart 30

Fuel demand in the private electricity sector, 2006-2016

(thousand barrels of equivalent crude oil per day)

Sector	Product	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	aagr
Electricity self-generation	**Total**	**58.2**	**67.1**	**68.5**	**68.6**	**69.1**	**69.5**	**69.4**	**69.5**	**69.5**	**69.5**	**69.4**	**1.8**
	Fuel-oil	9.6	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	-0.3
	Petroleum coke	14.8	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	-0.2
	Diesel	1.0	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	8.8
	Natural gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	n.a.
Electricity export	**Natural gas**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**n.a.**

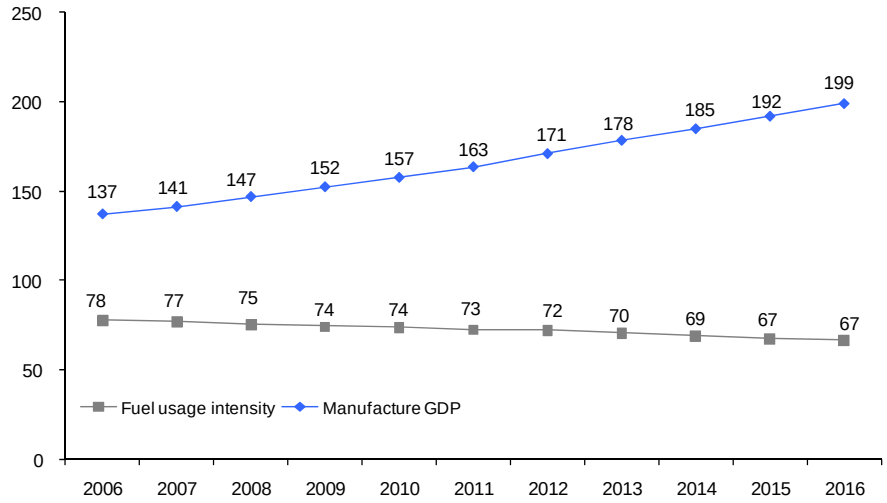
n.a.: means "does not apply".

Source: IMP, based on data from CFE, Sener, Pemex and private companies.

Graph 56

Fuel usage intensity in the industrial sector, 2006-2016

(indexes, 1996=100)



Source: IMP, based on data from AIE, BANXICO, CFE, CRE, EIA, EPA, INEGI, Pemex, Sener and private companies

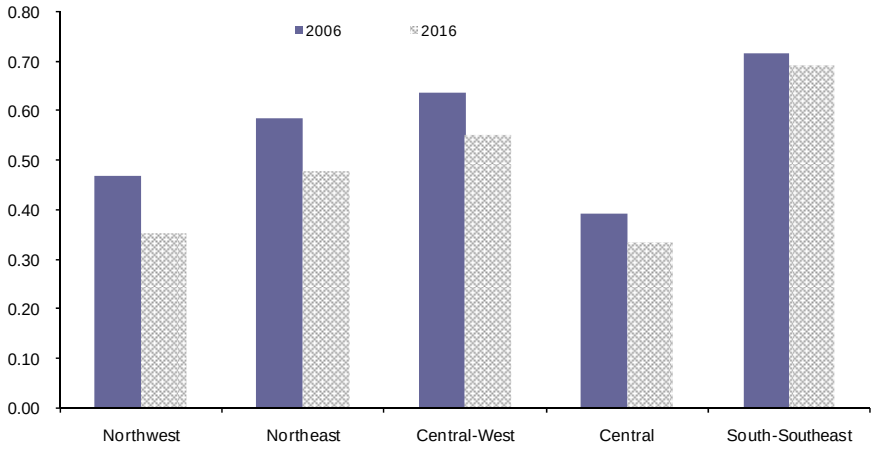
One of the most relevant changes regarding the decrease of energy intensity is expected in the Northwestern region as a result of technological improvement, representing an average of 2.8% throughout the period of study, considering a 3.9% Gross Domestic Product (GDP) growth on the manufacture sector.

On the other hand, the South-Southeastern region will experience the lowest decrease (0.4%), with a manufacture sector GDP growth of 3.8%, due to the lack of technological changes forecasted for this region, which will show even less changes in the oil sector.

Graph 57

Regional fuel usage intensity in the industrial sector, 2006-2016

(gigacalories per thousand pesos of product at 1993 prices)



Source: IMP, based on data from AIE, BANXICO, CFE, CRE, EIA, EPA, INEGI, Pemex, Sener and private companies.

Fuel substitution in the industrial sector will result mainly from technological changes and the application of environmental regulations.

Regarding fuel consumption percentage structure in the industrial sector, important changes are expected in fuel-oil demand, which will increase from 16.4% of the total fuel demand in 2006 to 10.6% in 2016, mainly due to the substitution of fuel-oil by natural gas. On the other hand, during the same period petroleum coke demand will increase its share from 16.4% of the total of fuels to 19.1%.

As to the remaining energy sources, shares will be similar to the values observed in 2006 (see graph 58).

4.2.4 Oil sector

The oil sector's demand is mostly focused on fuel-oil, diesel and gasoline consumption, and is influenced by the following:

- Energy consumption reduction per production unit, resulting from the reduction of outlets and associated gas flaring, and the increase of energy efficiency in operations.

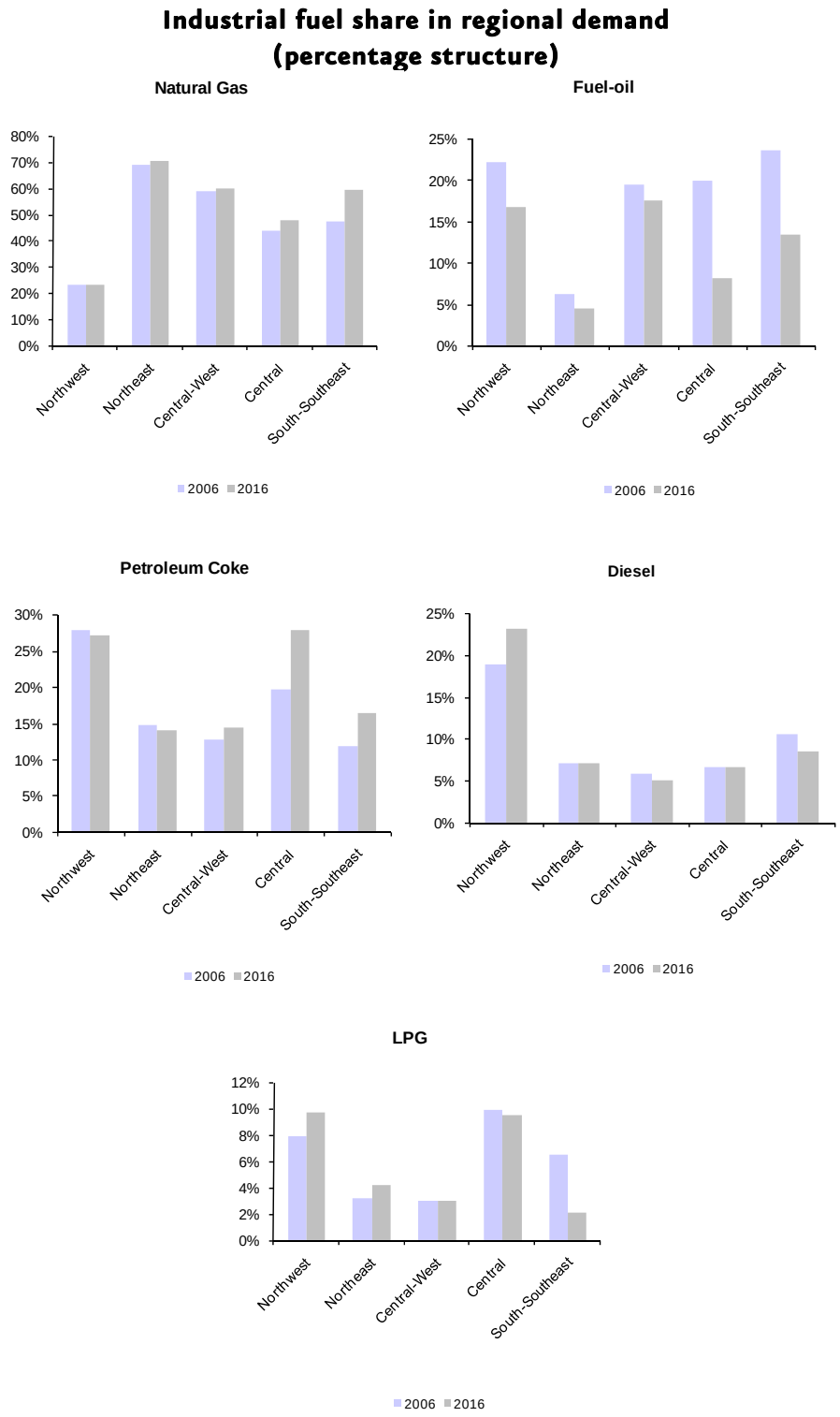
- The upgrading projects of the Salina Cruz and Minatitlán refineries, as well as residue conversion at Tula and Salamanca.

Based on the above, fuel-oil demand will grow at an annual average rate of 3.8% between 2006 and 2016, gasoline demand, at 6.6%; and diesel, at -1.1%. The relevant fuel-oil demand growth is caused by the increased use of this material as fuel in refining processes (see graph 59).

On the other hand, diesel demand will remain stable throughout the prospective period. Pemex Exploración y Producción (PEP) will consume an average of 93.9% of the oil sector's demand, followed by Pemex Petroquímica (PPQ), Pemex Gas y Petroquímica Básica (PGPB) and Headquarters.

As to gasoline demand, PEP will consume an average of 71.0% of the sector's total demand; PGPB will consume 12.6%, Headquarters, 11.3% and PPQ, 5.1%.

Graph 58

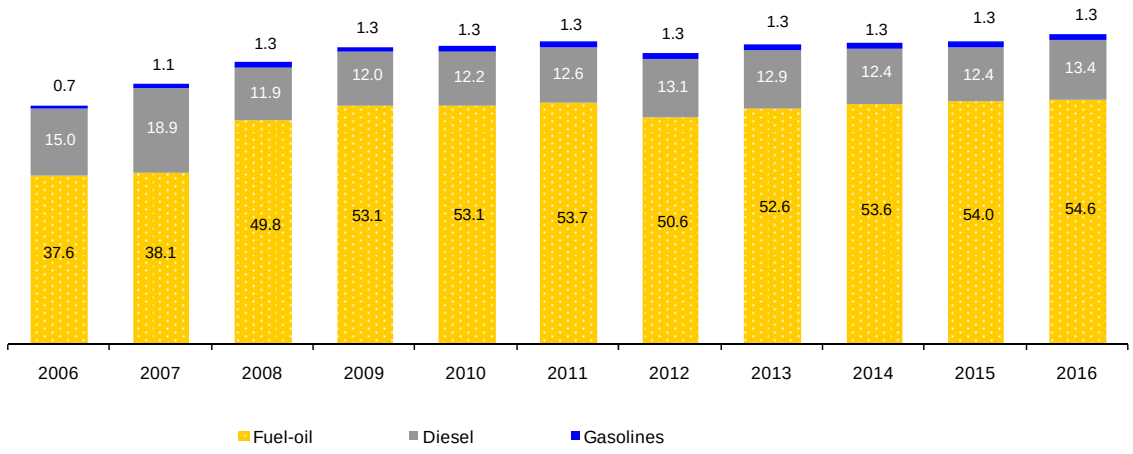


Source: IMP, based on data from BANXICO, CFE, CRE, EIA, INEGI, Pemex, SE, Sener and private companies.

Graph 59

Oil-derived products' domestic demand in the oil sector, 2006-2016

(thousand barrels per day)



Source: IMP, with Pemex data.

4.2.5 Oil-derived products' foreign trade, 2006-2016

The purpose of strategic projects scheduled by PR is to increase the production of fuels such as gasoline and intermediate distillates and to satisfy the country's growing oil-derived energy source demand. Nonetheless, according to the fast growth of demand, PR will have to turn to the foreign trade market to satisfy the different sectors' energy source needs.

The estimated evolution of imports between 2006 and 2016 shows that gasoline will continue to be the most frequently acquired energy source, followed by fuel-oil, petroleum coke and diesel (see graph 60). Within this context, gasoline will represent an average of 66.7% of the total oil-derived product imports. By 2016, domestic supply will satisfy 75.8% of the domestic demand, and the remaining percentage (24.2%) will be obtained from the

foreign trade market. In the case of exports, no commercial activities will be registered for this fuel during the prospective period (see graph 61).

Fuel-oil will have a deficit in 2008 as a result of the strategy aimed to reduce its production; required imports will be destined principally to the electricity sector (see graph 62). As of 2013, fuel-oil imports will significantly increase as a consequence of the supply reduction in the Tula refinery, and, in the year after, Salina Cruz. During the period analyzed, imports will increase by 96.0 tbd; after 2008, no exports of this fuel will be registered.

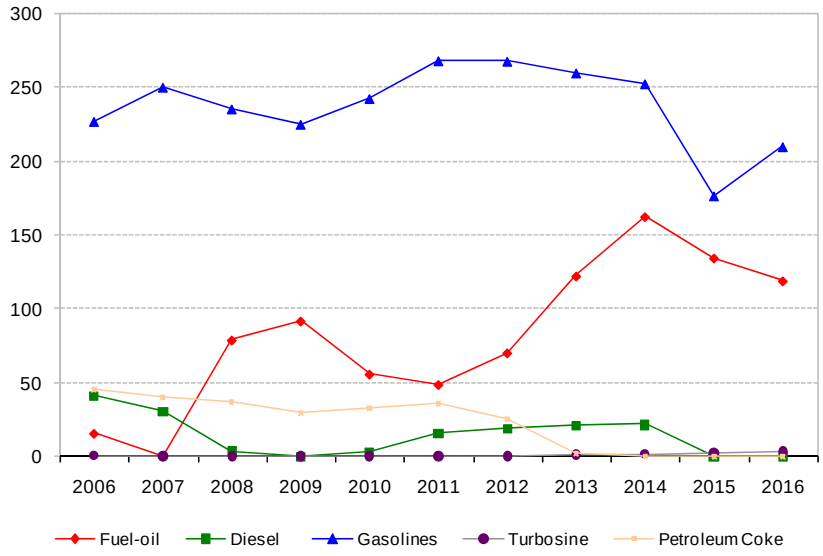
Mexico will import diesel during most of the years throughout the period analyzed, and until the incorporation of new refining capacity (2015); therefore, as of this year and for the rest of the period, this fuel will be self-supplied. Large part of this supply will be destined to the transportation sector (see graph 63).

Turbosine will show low foreign trade volumes, reducing its exports from 6.3 tbd in 2006 to 0.3 tbd in 2011; after that year, no export activity will be registered. Regarding imports, acquisitions equal to 0.5 tbd will be made as of 2012, increasing to 3.6 tbd in 2016 (see graph 64).

Graph 60

Oil-derived product imports, 2006-2016

(thousand barrels of equivalent crude oil per day)

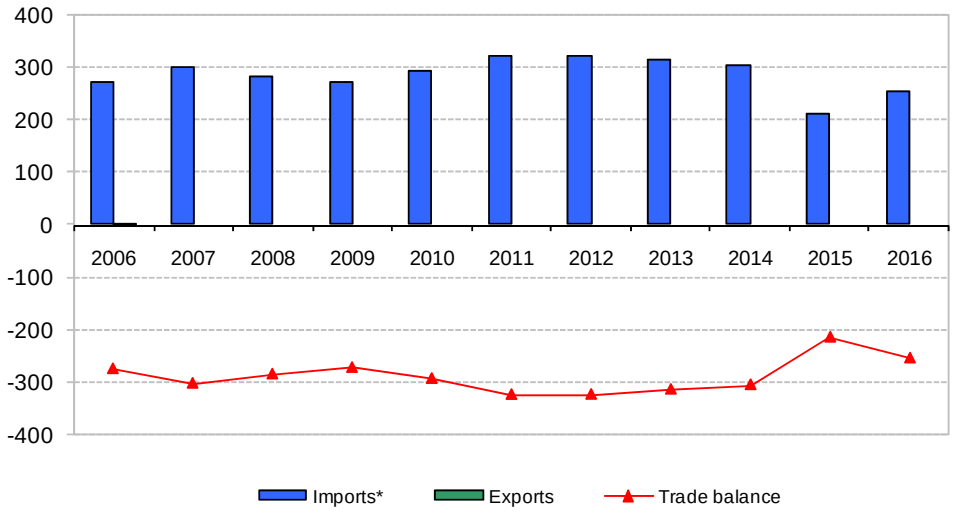


Source: IMP, based on data from AIE, AMDA, AMIA, ANPACT, BANXICO, CFE, CRE, EIA, EPA, INEGI, Pemex, Sener and private companies.

Graph 61

Gasoline foreign trade, 2006-2016

(thousand barrels per day)

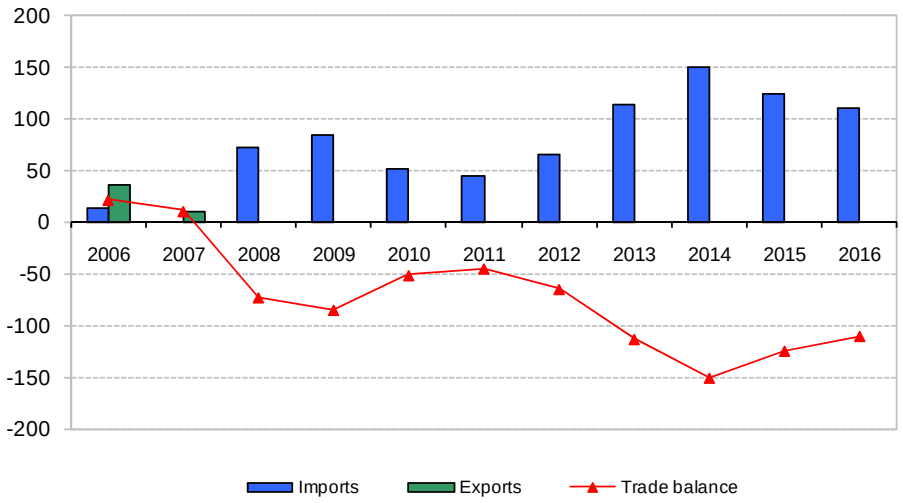


* Includes maquila[1] (in-bond).
1 Refers to an activity in which Pemex does the crude refining outside the country and brings the oil products back.
Source: IMP, based on data from AIE, AMDA, AMIA, ANPACT, CRE, INEGI, EPA, Pemex, Sener and private companies.

Graph 62

Fuel-oil foreign trade, 2006-2016

(thousand barrels per day)

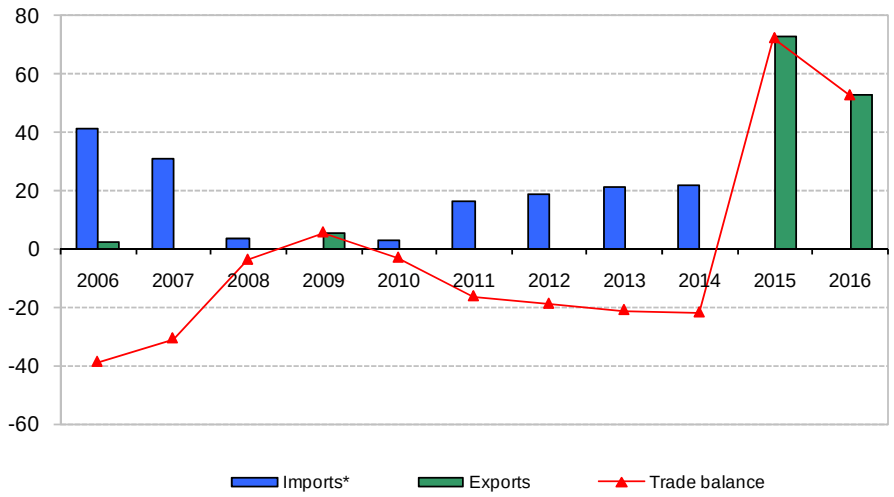


Source: IMP, based on data from BANXICO, CFE, CRE, EIA, IEA, INEGI, Pemex, SE, Sener and private companies.

Graph 63

Diesel foreign trade, 2006-2016

(thousand barrels per day)

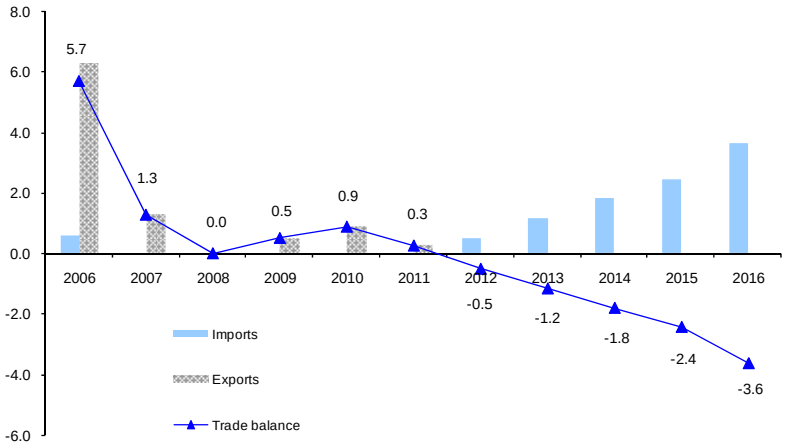


* Includes maquila (in-bond).
Source: IMP, based on data from AIE, AMDA, AMIA, ANPACT, BANXICO, CFE, CRE, EIA, EPA, INEGI, Pemex, Sener and private companies.

Graph 64

Turbosine foreign trade, 2006-2016

(thousand barrels per day)



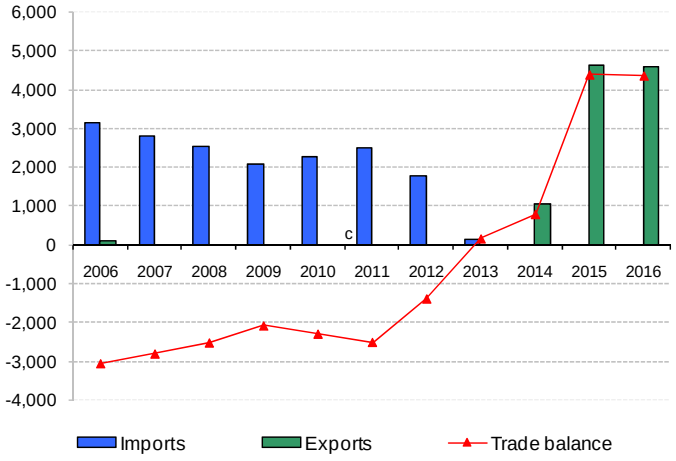
Source: IMP, based on data from ASA, BANXICO, INEGI, Pemex, SCT and Sener.

Petroleum coke in turn will show a deficit balance between 2006 and 2013, since its industrial use is intensifying. As of 2014, self-sufficiency and even exports of this material are expected (see graph 65).

Graph 65

Petroleum coke foreign trade, 2006-2016

(thousand tons per year)



Source: IMP, based on data from CRE, INEGI, Pemex, SE, Sener and private companies.

4.3 Domestic oil-derived product balance 2006-2016

Chart 31

Domestic oil-derived product balance, 2006-2016

(thousand barrels of equivalent crude oil per day)

Concept	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	aagr
Origin	**1,461.2**	**1,467.7**	**1,551.3**	**1,603.4**	**1,610.4**	**1,645.4**	**1,667.2**	**1,708.3**	**1,740.9**	**1,888.5**	**1,906.9**	**2.7**
Production	1,131.4	1,146.6	1,196.8	1,256.9	1,276.4	1,276.4	1,284.7	1,302.0	1,302.5	1,575.5	1,574.8	3.4
Cadereyta	180.5	179.8	178.9	198.3	209.9	209.9	209.9	209.9	209.9	209.9	209.8	1.5
Madero	141.7	130.0	129.6	137.3	147.1	147.0	147.0	146.9	147.0	146.6	146.6	0.3
Tula	240.6	255.7	265.5	262.8	260.5	259.5	250.9	267.0	267.3	269.1	269.0	1.1
Salamanca	157.5	162.6	141.9	140.2	140.3	140.2	156.3	156.1	156.6	156.3	156.8	0.0
Minatitlán	149.9	160.4	214.4	249.8	248.0	250.2	251.9	253.5	251.9	253.4	251.8	5.3
New capacity	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	271.6	271.5	n.a.
Salina Cruz	261.2	258.2	266.4	268.3	270.8	269.7	268.7	268.6	269.7	268.6	269.4	0.3
Import	329.7	321.0	354.5	346.5	334.0	368.9	382.5	406.4	438.4	313.0	332.1	0.1
Destination	**1,455.5**	**1,467.7**	**1,551.3**	**1,603.4**	**1,610.4**	**1,645.4**	**1,667.2**	**1,708.3**	**1,740.9**	**1,888.5**	**1,906.9**	**2.7**
Domestic demand	1,406.6	1,455.3	1,551.3	1,597.2	1,609.6	1,645.1	1,667.2	1,708.3	1,725.6	1,749.3	1,788.0	2.4
Transportation sector	968.6	1,014.4	1,057.8	1,097.3	1,138.4	1,177.7	1,215.6	1,265.3	1,306.5	1,355.3	1,408.5	3.8
Electricity sector	253.5	245.3	293.0	292.9	263.0	256.4	241.0	228.4	203.2	176.8	159.3	-4.5
Public electricity generation	228.1	219.3	267.0	266.9	236.9	230.3	214.9	202.3	177.1	150.7	133.2	-5.2
Private electricity generation	25.4	26.0	26.0	26.1	26.1	26.1	26.0	26.1	26.1	26.1	26.0	0.3
Independent Power Producers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-16.6
Electricity self-generation	25.4	26.0	26.0	26.1	26.1	26.1	26.0	26.1	26.1	26.1	26.0	0.3
Industrial sector	128.5	134.6	133.9	136.6	137.7	139.5	142.0	144.0	144.6	145.6	146.8	1.3
Oil sector	56.0	60.9	66.6	70.4	70.6	71.6	68.7	70.7	71.2	71.7	73.3	2.7
Export	48.9	12.4	0.0	6.2	0.9	0.3	0.0	0.0	15.3	139.2	119.0	9.3
Inventory variation	**5.7**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**n.a.**

Source: IMP, based on data from ASA, CFE, CRE, DGAC, Pemex, SE, Sener and private companies.

Chart 32

Domestic fuel-oil balance, 2006-2016

(thousand barrels per day)

Concept	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	aagr
Origin	**339.5**	**312.3**	**351.0**	**353.8**	**324.0**	**317.0**	**297.8**	**287.5**	**265.3**	**240.8**	**225.6**	**-4.0**
Production	325.2	312.3	278.0	268.8	272.4	271.9	232.8	174.1	114.6	116.1	115.3	-9.9
Cadereyta	19.6	8.9	7.5	12.0	15.5	15.5	16.0	16.0	16.0	16.0	16.0	-2.0
Madero	24.6	18.5	12.2	6.8	11.4	11.2	11.2	11.2	11.2	10.9	11.3	-7.5
Tula	77.5	78.9	80.6	83.9	78.7	77.5	73.7	14.4	14.4	15.0	15.0	-15.1
Salamanca	42.0	46.0	37.0	37.0	37.0	37.0	1.0	1.0	1.0	1.0	1.0	-31.2
Minatitlán*	66.6	65.3	53.7	38.9	38.3	39.7	40.5	41.1	40.4	41.3	40.5	-4.8
New capacity	-	-	-	-	-	-	-	-	-	0.4	0.0	n.a.
Salina Cruz	95.0	94.7	86.9	90.1	91.4	90.9	90.3	90.3	31.5	31.5	31.5	-10.5
Import	14.3	-	73.0	85.0	51.6	45.1	65.0	113.4	150.7	124.7	110.3	22.7
Destination	**336.9**	**312.3**	**351.0**	**353.8**	**324.0**	**317.0**	**297.8**	**287.5**	**265.3**	**240.8**	**225.6**	**-3.9**
Domestic demand	301.3	302.0	351.0	353.8	324.0	317.0	297.8	287.5	265.3	240.8	225.6	-2.9
Transportation sector	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0.0
Electricity sector	214.1	210.9	254.6	254.4	226.9	220.9	206.2	194.0	171.3	146.6	130.9	-4.8
Public electricity generation	205.2	202.3	246.0	245.8	218.3	212.3	197.6	185.4	162.7	138.0	122.3	-5.0
Electricity self-generation	8.9	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	8.6	-0.3
Industrial sector	48.5	51.8	45.4	45.0	42.8	41.2	39.8	39.6	39.2	38.9	38.9	-2.2
Oil sector	37.6	38.1	49.8	53.1	53.1	53.7	50.6	52.6	53.6	54.0	54.6	3.8
Export	35.6	10.3	-	-	-	-	-	-	-	-	-	n.a.
Inventory variation	**2.6**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	

* Includes transfers of crude free of light products from Cangrejera.

Source: IMP, based on data from BANXICO, CFE, CRE, EIA, IEA, INEGI, Pemex, SE, Sener and private companies.

Chart 33

Domestic petroleum coke balance, 2006-2016

(thousand tons per year)

Concept	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	aagr
Origin	**4,795.4**	**4,779.1**	**5,177.5**	**5,346.8**	**5,555.9**	**5,767.9**	**6,016.2**	**6,106.5**	**7,208.6**	**10,824.1**	**10,850.1**	**8.5**
Production	1,632.5	1,982.8	2,617.1	3,269.0	3,267.9	3,267.5	4,249.0	5,943.7	7,208.6	10,824.1	10,850.1	20.9
Cadereyta	811.8	1,160.2	1,079.0	1,076.1	1,074.2	1,074.2	1,077.2	1,074.2	1,074.2	1,074.2	1,077.2	2.9
Madero	820.7	822.7	949.6	1,022.7	1,023.4	1,023.3	1,026.1	1,023.3	1,023.3	1,023.1	1,026.2	2.3
Tula	-	-	-	-	-	-	-	1,706.8	1,706.8	1,706.8	1,711.5	n.a.
Salamanca	-	-	-	-	-	-	970.3	967.1	967.3	967.4	969.7	n.a.
Minatitlán	-	-	588.5	1,170.2	1,170.2	1,170.0	1,175.4	1,172.2	1,172.2	1,170.2	1,173.4	n.a.
New Capacity	-	-	-	-	-	-	-	-	-	3,609.5	3,624.0	n.a.
Salina Cruz	-	-	-	-	-	-	-	-	1,264.8	1,272.9	1,268.2	n.a.
Import	3,162.9	2,796.2	2,560.4	2,077.8	2,288.1	2,500.3	1,767.2	162.9	-	-	-	n.a.
Destination	**4,740.6**	**4,779.1**	**5,177.5**	**5,346.8**	**5,555.9**	**5,767.9**	**6,016.2**	**6,106.5**	**7,208.6**	**10,824.1**	**10,850.1**	**8.6**
Domestic demand	4,623.1	4,779.1	5,177.5	5,346.8	5,555.9	5,767.9	6,016.2	6,106.5	6,146.6	6,194.2	6,252.3	3.1
Electricity sector	1,024.2	1,007.2	1,007.2	1,007.2	1,007.2	1,007.2	1,007.2	1,007.2	1,007.2	1,007.2	1,007.2	-0.2
Public electricity generation	-	-	-	-	-	-	-	-	-	-	-	n.a.
Electricity self-generation	1,024.2	1,007.2	1,007.2	1,007.2	1,007.2	1,007.2	1,007.2	1,007.2	1,007.2	1,007.2	1,007.2	-0.2
Industrial sector	3,598.9	3,771.8	4,170.3	4,339.6	4,548.7	4,760.7	5,008.9	5,099.3	5,139.3	5,187.0	5,245.0	3.8
Hydraulic cement	2,998.5	3,257.6	3,641.6	3,797.3	3,992.1	4,180.9	4,405.2	4,474.3	4,495.3	4,521.7	4,556.0	4.3
Basic metal industry	189.5	109.7	111.5	114.3	118.9	125.0	131.4	138.2	142.6	147.7	153.3	-2.1
Chemistry, rubber and plastics	310.8	363.5	374.7	384.1	392.3	407.6	423.1	435.8	448.8	463.2	479.4	4.4
Machinery and electric appliances	67.0	11.1	11.4	11.7	12.0	12.4	12.9	13.3	13.7	14.1	14.6	-14.1
Glass	14.8	14.2	14.6	15.1	15.7	16.3	17.1	17.7	18.2	18.7	19.3	2.7
Rest of the industry	18.3	15.7	16.3	17.1	17.7	18.4	19.2	20.0	20.8	21.5	22.4	2.1
Export	117.5	-	-	-	-	-	-	-	1,062.0	4,629.8	4,597.9	44.3
Inventory variation*	**54.8**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	

* Includes Pemex and private companies.

Source: IMP, based on data from CRE, INEGI, Pemex, SE, Sener and private companies.

Chart 34

Domestic diesel balance, 2006-2016

(thousand barrels per day)

Concept	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	aagr
Origin	**369.4**	**371.7**	**378.6**	**395.9**	**401.8**	**413.7**	**426.1**	**442.6**	**456.5**	**545.2**	**542.5**	**3.9**
Production	328.1	341.1	375.0	395.9	398.9	397.4	407.4	421.7	434.7	545.2	542.5	5.2
Cadereyta	75.2	79.8	77.6	81.9	83.6	83.0	82.9	82.7	82.4	82.1	81.8	0.9
Madero	45.9	43.3	43.3	48.2	46.9	46.7	46.7	46.7	46.7	46.7	46.7	0.2
Tula	56.7	62.0	66.1	62.3	65.2	65.8	65.1	82.6	82.6	85.4	84.8	4.1
Salamanca	44.5	44.3	44.1	42.5	42.6	41.5	52.5	49.8	47.8	52.0	44.7	0.0
Minatitlán	42.2	44.7	63.3	81.6	81.1	82.1	82.6	83.1	82.6	83.3	82.8	7.0
New capacity	-	-	-	-	-	-	-	-	-	110.8	110.9	n.a.
Salina Cruz	63.7	67.0	80.6	79.4	79.4	78.4	77.5	76.9	92.7	85.0	90.9	3.6
Import *	41.3	30.7	3.7	-	3.0	16.2	18.8	20.9	21.8	-	-	n.a.
Destination	**362.4**	**371.7**	**378.6**	**395.9**	**401.8**	**413.7**	**426.1**	**442.6**	**456.5**	**545.2**	**542.5**	**4.1**
Domestic demand	359.8	371.7	378.6	390.2	401.8	413.7	426.1	442.6	456.5	472.7	489.6	3.1
Industrial sector	24.3	24.4	24.9	25.4	25.9	26.4	27.0	27.7	28.2	28.8	29.5	1.9
Oil sector	15.0	18.9	11.9	12.0	12.2	12.6	13.1	12.9	12.4	12.4	13.4	-1.1
Transportation sector	312.7	325.1	338.0	348.7	359.9	371.0	381.9	397.5	412.0	427.4	443.2	3.5
Electricity sector	7.8	3.4	3.9	4.1	3.7	3.6	4.1	4.6	3.9	4.2	3.6	-7.4
Public electricity generation (CFE and LyFC)	6.8	1.2	1.6	1.8	1.4	1.4	1.9	2.3	1.7	1.9	1.3	-15.0
Private electricity generation	1.0	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	8.4
Independent Power Producers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-16.6
Electricity self-generation	1.0	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	8.8
Export	2.5	-	-	5.7	-	-	-	-	-	72.5	52.9	35.4
Inventory variation	**7.0**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	

* Includes maquila (in-bond).

Source: IMP, based on data from AIE, AMDA, AMIA, ANPACT, BANXICO, CFE, CRE, EIA, EPA, INEGI, Pemex, Sener and private companies.

Chart 35

Domestic gasoline balance, 2006-2016

(thousand barrels per day)

Concept	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	aagr
Origin	**716.2**	**754.8**	**787.8**	**818.5**	**850.5**	**880.6**	**908.4**	**944.9**	**972.4**	**1,007.6**	**1,047.5**	**3.9**
Production	442.4	453.0	503.9	547.1	558.0	557.1	585.3	631.4	667.8	794.9	794.5	6.0
Cadereyta	81.9	81.6	88.0	99.6	106.5	106.5	106.2	106.2	106.2	106.3	106.2	2.6
Madero	60.9	57.5	64.2	68.5	72.3	72.3	72.3	72.2	72.3	72.2	71.7	1.7
Tula	94.4	103.0	105.7	104.0	104.4	104.0	99.6	145.7	146.0	143.9	144.5	4.3
Salamanca	66.3	69.3	57.1	56.6	56.7	56.6	89.5	89.2	89.4	88.6	89.1	3.0
Minatitlán	42.0	52.4	95.3	125.1	124.2	123.9	124.3	124.7	124.3	124.3	124.0	11.4
New capacity	-	-	-	-	-	-	-	-	-	129.8	129.9	n.a.
Salina Cruz	96.9	89.2	93.6	93.2	94.0	93.7	93.5	93.4	129.4	129.9	129.1	2.9
Import *	273.8	301.8	283.9	271.3	292.5	323.5	323.1	313.4	304.6	212.7	253.0	-0.8
Destination	**719.1**	**754.8**	**787.8**	**818.5**	**850.5**	**880.6**	**908.4**	**944.9**	**972.4**	**1,007.6**	**1,047.5**	**3.8**
Domestic demand	718.9	754.8	787.8	818.5	850.5	880.6	908.4	944.9	972.4	1,007.6	1,047.5	3.8
Transportation sector	718.3	753.7	786.6	817.2	849.2	879.3	907.2	943.6	971.1	1,006.4	1,046.2	3.8
Oil sector	0.7	1.1	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	6.6
Export	0.2	-	-	-	-	-	-	-	-	-	-	n.a.
Inventory variation	**-** **3.0**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	

* Includes maquila (in-bond).

Source: IMP, based on data from AIE, AMDA, AMIA, ANPACT, CRE, INEGI, EPA, Pemex, Sener and private companies.

Chart 36

Domestic turbosine* balance, 2006-2016

(thousand barrels per day)

Concept	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	aagr
Origin	**65.4**	**67.2**	**69.3**	**73.3**	**77.2**	**79.9**	**83.8**	**87.9**	**91.9**	**96.2**	**100.8**	**4.4**
Production	64.8	67.2	69.3	73.3	77.2	79.9	83.3	86.7	90.1	93.8	97.2	4.1
Cadereyta	4.8	6.3	5.0	5.7	6.0	6.7	6.5	6.8	7.0	7.3	7.6	4.6
Madero	7.3	7.5	6.5	10.6	13.7	14.0	14.0	14.0	14.0	14.0	14.1	6.8
Tula	22.9	24.2	25.8	24.7	24.7	24.7	24.7	24.4	24.4	24.6	24.5	0.7
Salamanca	13.3	11.7	11.0	11.3	11.2	12.3	15.2	17.9	20.4	16.4	24.1	6.2
Minatitlán	1.2	1.9	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	17.1
New capacity	-	-	-	-	-	-	-	-	-	0.9	0.9	n.a.
Salina Cruz	15.3	15.7	15.0	15.0	15.4	16.2	16.9	17.6	18.3	24.5	20.0	2.7
Import	0.6	-	-	-	-	-	0.5	1.2	1.8	2.4	3.6	20.0
Destination	**68.0**	**67.2**	**69.3**	**73.3**	**77.2**	**79.9**	**83.8**	**87.9**	**91.9**	**96.2**	**100.8**	**4.0**
Domestic demand	61.7	65.9	69.3	72.8	76.3	79.7	83.8	87.9	91.9	96.2	100.8	5.0
Transportation sector	61.7	65.9	69.3	72.8	76.3	79.7	83.8	87.9	91.9	96.2	100.8	5.0
Oil sector	-	-	-	-	-	-	-	-	-	-	-	n.a.
Export	6.3	1.3	0.0	0.5	0.9	0.3	-	-	-	-	-	n.a.
Inventory variation	**-** **2.5**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	

* Includes jet fuel.

Source: IMP, based on data from ASA, BANXICO, INEGI, Pemex, SCT and Sener.