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# The Energy Reform in Mexico

Challenges and implications  
for its implementation

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# Background

- Since 1938, Petr6leos Mexicanos or Pemex, the national oil company has kept **monopoly over petroleum sector**.
- National power company Comision Federal de Electricidad or CFE was established in 1937 and in **1960, the sector was nationalized**.
- In **December 2013**, Mexican congress passed **Constitutional amendments** and the President signed it into the law.
- Now, **almost all activities in oil, gas, electricity sector became open** for foreign companies.

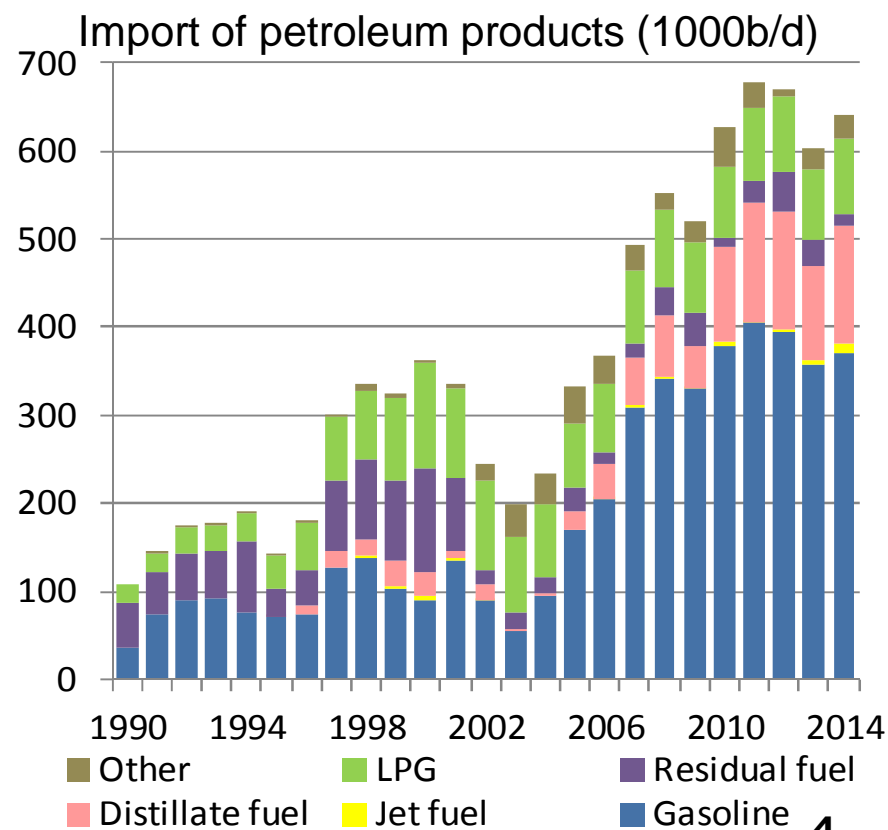
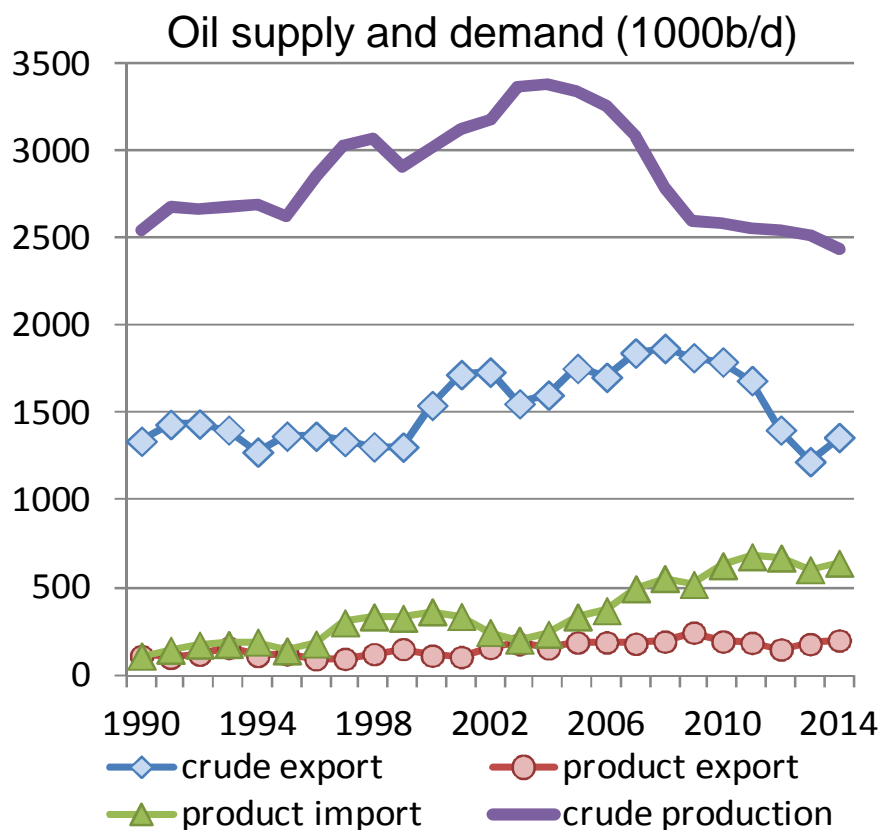


# Research objectives

- The purposes of the reform are;
  - Promoting **exploration and production** to expand domestic **oil & gas production**
  - Inviting investors into **refining and distribution** sector to expand **domestic fuel supply**
  - Decreasing domestic **energy cost** through fuel switch
- Oil and gas production is expected to grow in long term and there are **the ideas of oil / gas export to APEC region.**
- **Mexican Economic growth**, supported by **stable energy supply** at reasonable price, is also beneficial for APEC region.
- This study examines the Mexican energy market, the recent reform, and analyzes some challenges ahead.

# Historical Trends in Oil Supply/Demand

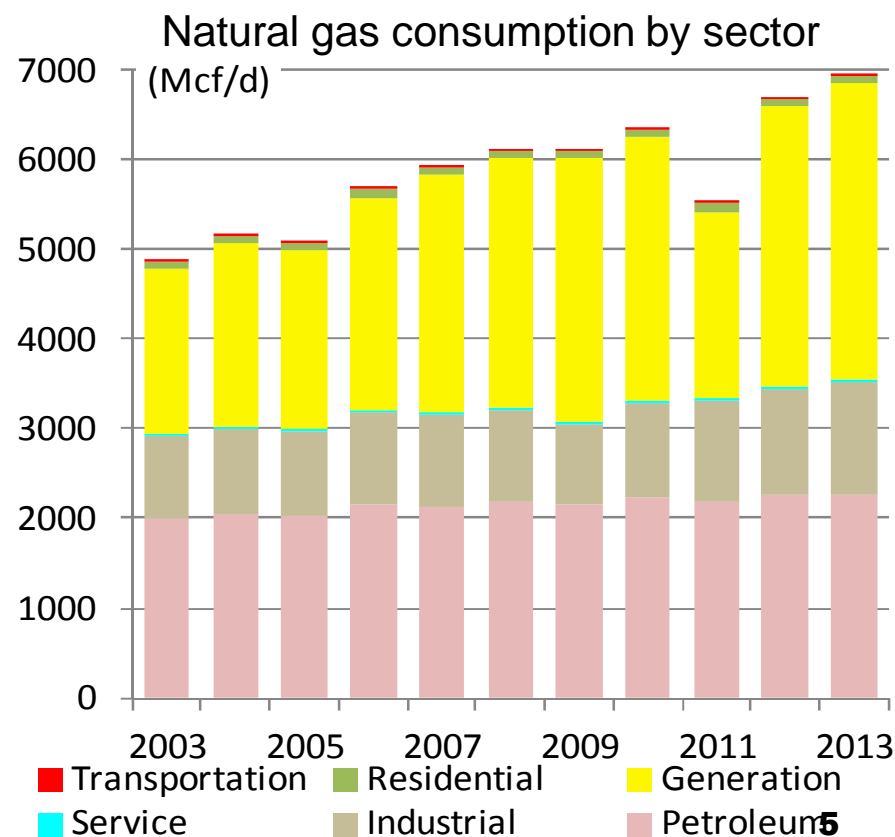
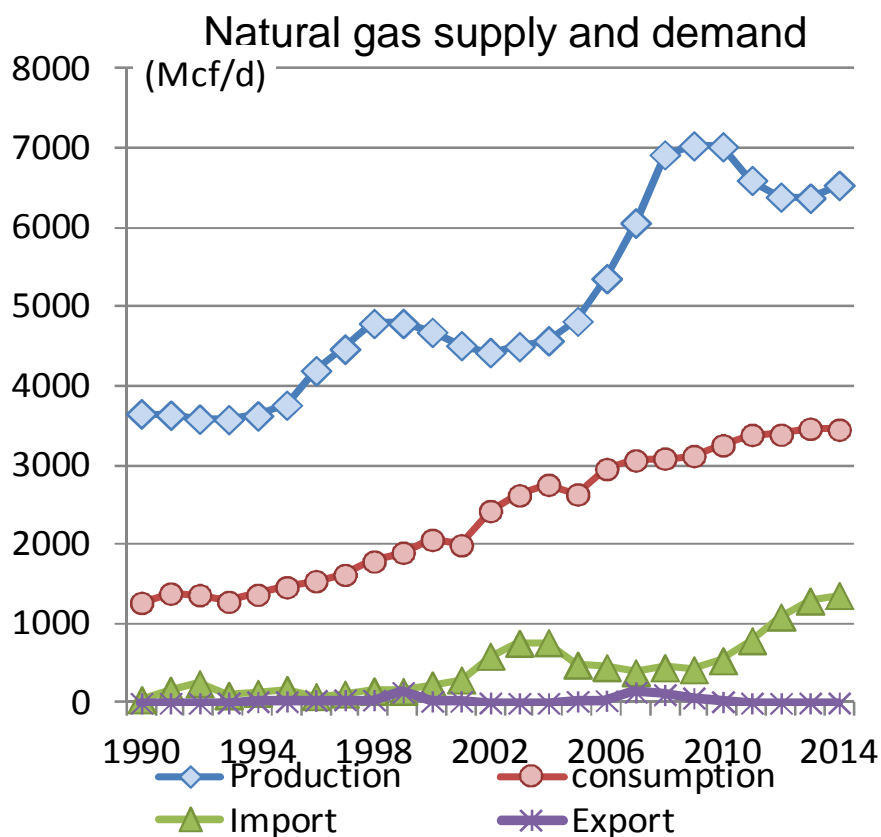
- Oil production has dropped in 2000's; declines in Cantarell field; **lack of capital investment and technical expertise.**
- Refining capacity has not kept pace with domestic demand.



Source: SENER(Energy Ministry), SIE (Energy Information System)

# Historical Trends in Gas Supply/Demand

- Domestic gas demand showed steady growth driven by increases in the electricity generation and industrial sectors.
- Mexico relies 21% of its domestic gas supply on import.



Source: SENER(Energy Ministry), SIE (Energy Information System)

## Key element of the reform

- Allowing companies to take **ownership of oil&gas extracted** and to **book reserves** for accounting purposes.
- **Four types of contract** models for resource development.
- Permitting for private companies to invest in Mexico's **mid- and downstream** energy sectors will be available.
- Prices of refined products will be **liberalized in or after 2020**.
- Pemex and CFE will be transformed into a “State Productive Enterprise” with greater autonomy, and will **compete or partner with private companies**.
- Establishing wholesale gas and electricity market, which will be overseen by downstream regulator (CRE).

# Upstream: Round Zero & Round One

- Pemex retained 83% of its hydrocarbon reserves and 21% of prospective resources through 'Round 0'. The **remaining areas** will be **offered through bid rounds** to foreign companies.
- In December 2014, the government began bidding processes for the contracts for 14 areas in shallow waters (Round 1).
- Industry people point out the **limited attractiveness**; all blocks are in the outskirts of the areas retained by Pemex; **poor fiscal terms** of the contract; and **recent drop in oil price**.

Reserves retained by Pemex (Billion barrels oil equivalent )

	Requested by Pemex	Assigned to Pemex
<b>2P Reserves</b>	20.6 (83% of total)	20.6 (83%)
<b>Prospective Resources</b>	34.5 (31%)	23.4 (21%)
	-Conventional: 25.6(49%)	
	-Deep waters: 4.7(29%)	
	-Shallow waters: 3.6(63%)	
	-Onshore: 6.5(82%)	
	-Unconventional: 8.9(15%)	

Source: SENER(Energy Ministry), Mexico's Energy Reform,+November 2014

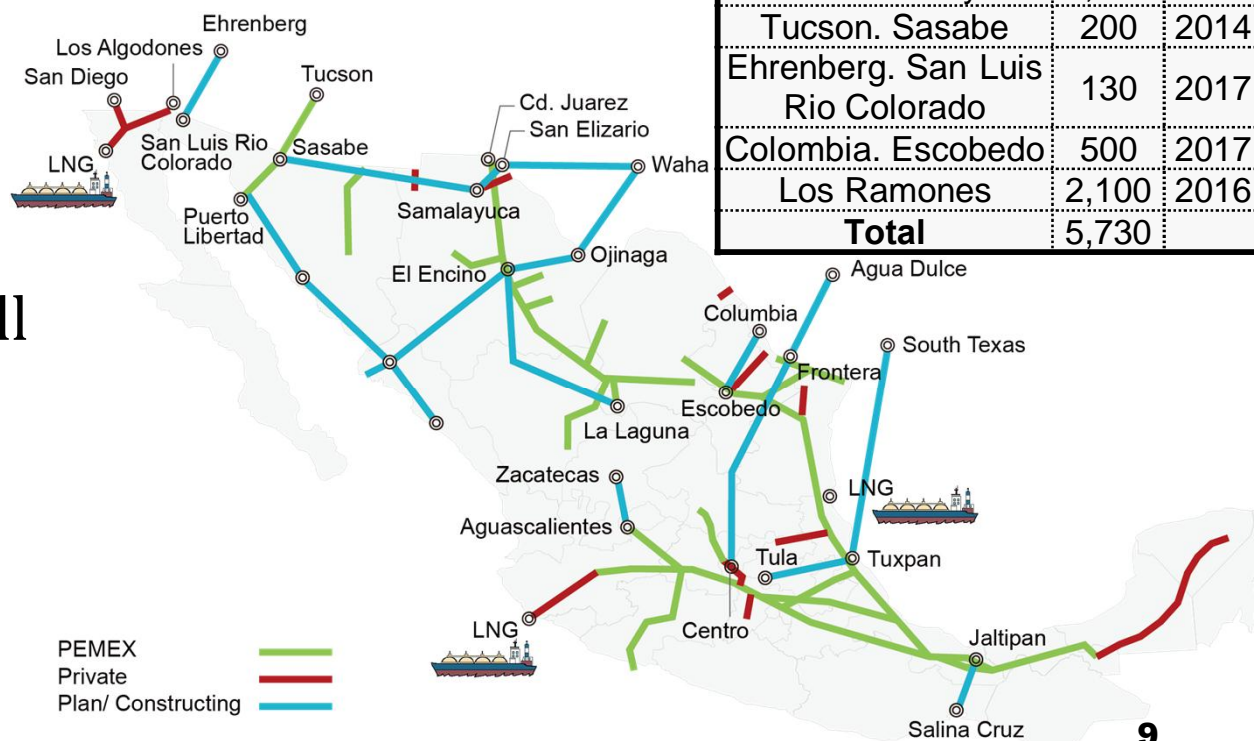
# Refining sector

- Hard to expect a new refinery;
  - retail price control,
  - heavy Mexican crude requires huge capital cost,
  - competition with refineries in the U.S. Gulf coast.
- Configuration projects at existing 6 refineries;
  - increase profitability by producing more distillate,
  - receive more heavy oil with increased process capacity,
  - reduce output of residual fuel oil.
- Delay in configurations; falling oil price and budget cut.
- Crude oil export to Asia;
  - 1 million barrel cargo Isthmus sold to Japan in 2014,
  - 3 million bbls sold to Japan, South Korea in 2015, and
  - 0.5 million bbls of Olmeca to India in 2014.



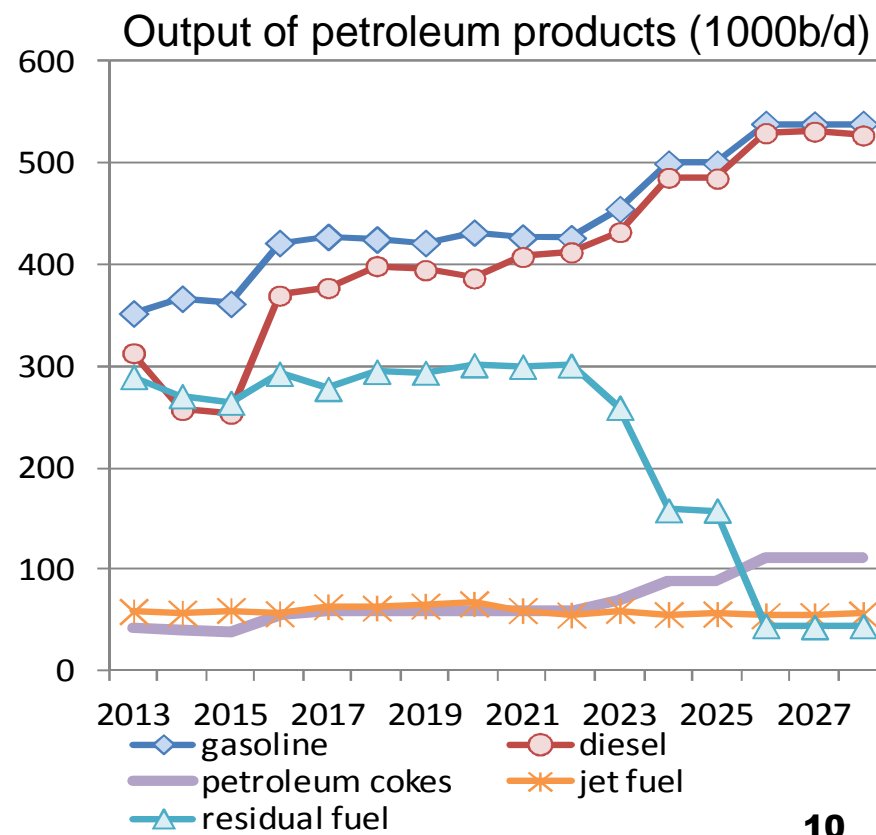
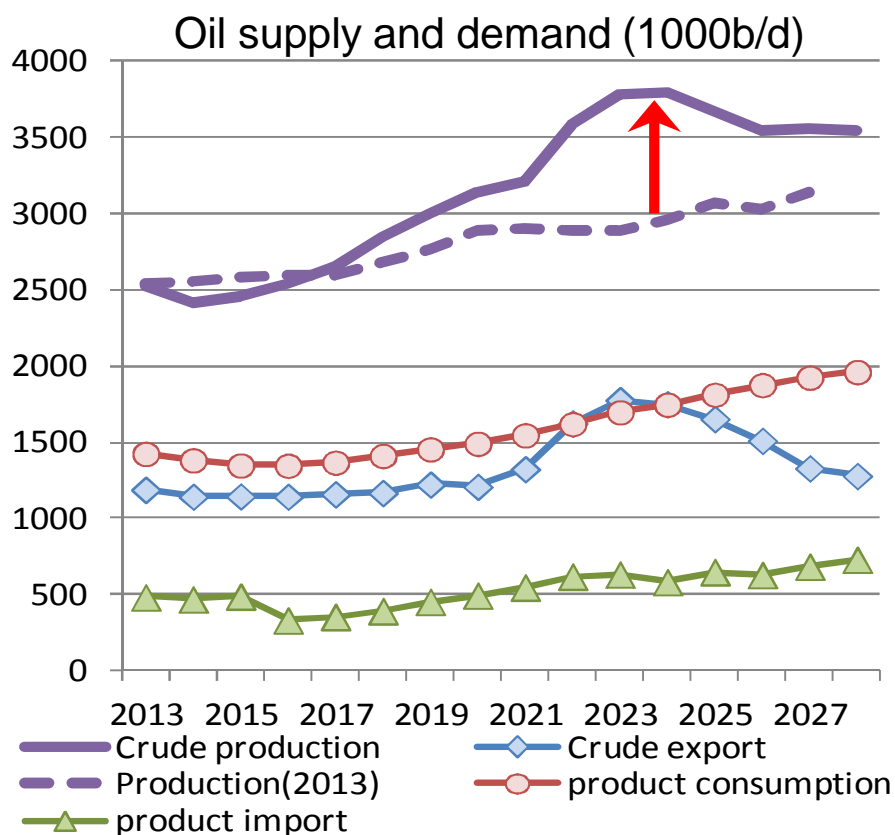
# Gas and Power market

- CFE is proceeding modernization of its generation capacity; retirement of oil-fired, coal-fired power plant, and **construction of natural gas combined cycle** or renewable.
- CFE is also **building natural gas pipeline.**
- In next 3 years, additional 5.7Bcf/d capacity between the U.S.-Mexico
- Import capacity will exceed 8 Bcf/d. (80% of domestic demand)



# Long-term forecast for Mexican energy (1)

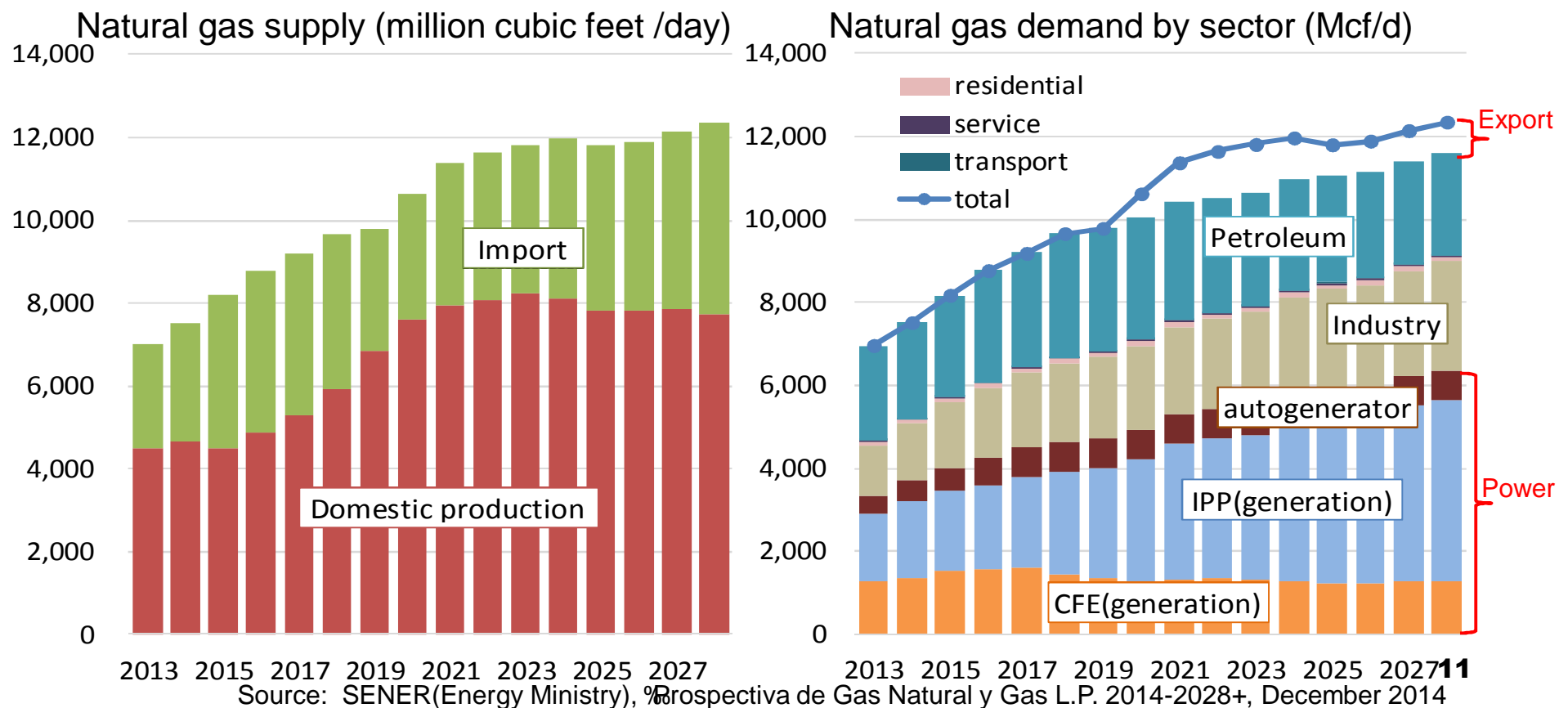
- Energy ministry expects increase in crude oil production.
- Output of gasoline and diesel will increase, but still it will be not enough to cover domestic demand.



Source: SENER(Energy Ministry), %Prospectiva de Petroleo Crude y Petroliferos 2014-2028+, December 2014

# Long-term forecast for Mexican energy (2)

- Rapid growth in natural gas demand led by electricity sector.
- Domestic production will also increase but Mexico will become more dependent on import.



# Implications

- To win the upstream investment, **favorable contract terms**, transparent and reasonable **regulatory policy**, and public **safety** will be essential.
- Upgrading programs at refineries are consistent with overall direction of switching from oil to natural gas. To attract downstream investments, **retail price reform** will be the key.
- Pipeline projects will double Mexico's import capacity of cheap U.S. gas. However, cheap gas supply from the U.S. may diminish investment in **domestic gas** production.
- Power generation is already highly dependent on natural gas. Investment in **renewable power** will help diversification.
- Energy **efficiency** is the most important area of cooperation. Currently, retail electricity price is regulated. APEC members have rich experiences in **phase-out of subsidy**.