Objectives:

– Energy savings target of 2% for 2012 and 18% for 2030

### Overview

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2000-2009 (% / year)</th>
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</thead>
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<tr>
<td>Primary intensity (EU=100)</td>
<td>109</td>
<td>- 0.9%</td>
</tr>
<tr>
<td>CO₂ intensity (EU=100)</td>
<td>117</td>
<td>- 0.6%</td>
</tr>
<tr>
<td>CO₂ emissions per capita (in tCO₂ / cap)</td>
<td>3.8 ++</td>
<td>0.9%</td>
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<tr>
<td><strong>Power generation</strong></td>
<td>2009</td>
<td>2000-2009 (% / year)</td>
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<td>Efficiency of thermal power plants (in %)</td>
<td>42 +</td>
<td>1.8%</td>
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<td>Rate of electricity T&amp;D losses (in %)</td>
<td>19 ++</td>
<td>2.3%</td>
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<tr>
<td>CO₂ emissions per kWh generated (in gCO₂ / kWh)</td>
<td>477 -</td>
<td>-1.8%</td>
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<tr>
<td><strong>Industry</strong></td>
<td>2009*</td>
<td>2000-2009* (% / year)</td>
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<td>Energy intensity (EU=100)</td>
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<td>-0.2%</td>
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<td>Share of industrial CHP in industry consumption (in %)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Unit consumption of steel (in toe/t)</td>
<td>0.36 -</td>
<td>-1.0%</td>
</tr>
<tr>
<td>*2008 and 2000-2008 for steel</td>
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++ Among best countries  + Better than the EU average  - Below the EU average  -- Among countries with lowest performances

Latest update: January 2011

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1 The European Union, as the best-performing region, is used as the benchmark.
1. Overview

1.1. Policies: 2% energy savings for 2012

In November 2009 the government adopted an energy savings program (PRONASE) for the period 2009-2012. It estimates the energy savings potential at 2 percent in 2012 and 18 percent in 2030, compared with a reference scenario. The plan identifies seven priorities: road transport vehicles, lighting, household appliances, cogeneration, electric motors, energy efficiency standards for new buildings and water distribution.

The Electric Power Savings Trust Fund (FIDE) launched the Program for Financing of Electric Energy Saving (PFAEE). The Program finances the substitution of old, inefficient refrigerators and air-conditioners by modern and more efficient equipment. It also provides financial support for the thermal insulation of homes. The cost of more efficient lighting is also financed through a credit paid on electricity bills, which is largely recovered due to reduced electricity costs.

The FIDE label is a voluntary label that identifies energy-efficient products on the Mexican market; it certifies that the product has met specified standards. By 2012, FIDE aims to cover 7,700 products across 85 companies.

1.2. Energy consumption trends: rapid increase up to 2008

Mexico’s primary energy consumption per capita is 1.6 toe, i.e., 9 percent lower than the world average.

Total energy consumption grew at the steady pace of 1.5 percent per year between 1990 and 2002, and by 3.5 percent per year during 2002-2008. However, it fell by 2.5 percent in 2009 as a result of the global recession.

The share of oil in the country’s total consumption is 56 percent (2009); it has fallen to the benefit of gas (28 percent in 2009 compared with 19 percent in 1990). Coal, primary electricity (nuclear, hydro and wind) and biomass supply the rest of the market (approximately 5 percent each).

In 2009 electricity consumption per capita reached 1,900 kWh, which is 31 percent higher than non-OECD per capita consumption but 33 percent lower than the world average.

Electricity accounts for 15 percent of the country’s final consumption. Electricity consumption has been rising strongly since 1990 (+4.5 percent/year on average). Industry saw its share increase from 53 percent to 57 percent. About 96 percent of the population (88 percent in rural areas and 99 percent in urban areas) is connected to the grid.
1.3. Energy efficiency and CO₂ trends: increasing energy and CO₂ intensities since 2000

Primary energy intensity decreased slowly, and less rapidly (0.5 percent) than final energy intensity (more than 0.6 percent) over the period 1990-2009.

CO₂ emissions per unit of GDP (CO₂ intensity) decreased slowly, and much less rapidly than total energy intensity, because of the growing share of coal in the total energy mix (from 19 percent in 1990 to 28 percent in 2009).

In 2009 energy intensities were above their 2000 levels, mainly as a result of the deep recession in 2009, when energy consumption decreased much less rapidly than GDP (primary energy consumption decreased by 2 percent whereas GDP dropped by 7 percent). Moreover, coal consumption increased by 13 percent in 2009, explaining the increase in CO₂ intensity.

2. Power generation

2.1. Policies: 26% of renewable power capacity in 2012
The Programa Sectorial de Energía 2007-2012 sets the target for renewable sources in the power capacity at 26 percent in 2012. Mexico aims to reach 3,000 MW of wind capacity by 2014, mainly in the region of Oaxaca (2,000 MW).

2.2. Power generation trends by source: natural gas is the main source of power generation
Since 2002 natural gas has been the main source of energy used for the production of electricity (from 12 percent of the total electricity production in 1990 to 51 percent in 2009). The market share of oil fell to 20 percent, losing 34 points between 1990 and 2009. In 2009 the market share of coal reached 11 percent, followed by hydroelectricity with 10 percent and nuclear power with 4 percent.

2.3. Efficiency of the power sector: strong improvement
The efficiency of thermal power generation and of the power sector as a whole has been increasing rapidly since 2002 (from 36 percent to 42 percent in 2009 in the case of thermal power generation). The recent improvement is due to a switch in the power generation mix to natural gas, and to the spread of gas combined cycle plants: in 2009, the gas combined cycle power capacity accounted for 43 percent of the total thermal capacity.
The rate of T&D losses in the Mexican grid is just below 19 percent of the distributed volumes, which is much higher than the world average (9 percent). Those losses have increased slightly over time (14 percent in 1990).

The average CO₂ emission factor for power generation has fallen by about 19 percent since 2002, from 560 gCO₂ to 480 gCO₂ per kWh produced. The decline in the 2000s is linked to the sharp drop in electricity production from oil-fired power plants and their replacement by high-efficiency gas combined cycle facilities. The increase in the CO₂ emission factor seen in 2009 was caused by the rise in coal-fired power generation.
3. Industry

3.1. Policies: standards on electric motors
The Programa Nacional para el Aprovechamiento Sustentable de la Energía 2009-2012 promotes the development of cogeneration and expects potential energy savings of 2.1 TWh by 2012. The actual cogeneration capacity of 3,300 MW (2,000 MW of which in facilities owned by the national oil company, Pemex, and 1,300 MW in the manufacturing industry) is expected to increase to 3,600 MW in 2012.

The program also plans the implementation of standards for electric motors and subsidies to substitute inefficient electric motors. The energy consumption reduction potential of electric motors is estimated at 3.5 TWh by 2012.

3.2. Energy consumption trends: smaller contribution from energy-intensive industries
After a deep recession in 1992, which saw industrial energy consumption decrease by 14 percent in one year, consumption then increased by 1.8 percent per year until 2008. In 2009 industrial energy consumption dropped by 5.3 percent as a result of the economic crisis.

The share of electricity in industrial energy consumption has increased very rapidly, reaching 35 percent in 2009 compared with 13 percent in 1990. The market share of natural gas fell from 46 percent in 1990 to 31 percent in 2009. The shares of coal and oil declined slightly.

The contribution of energy-intensive industries has decreased since 1990, from around 60 percent of industrial consumption to 49 percent in 2008. The chemical industry is the most affected sector, since its energy consumption dropped to 10 percent in 2008 (from 25 percent in 1990).
**Figure 13: Trends in the energy intensity of industrial branches**

*Including construction and mining  
**1994-2008 for chemical  ***Non metallic minerals

Source: Enerdata

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