Argentina energy efficiency report

Latest update: March 2012

Objectives:
- 5.4% energy savings in industry by 2016
- 6% energy savings in electricity consumption by 2016

<table>
<thead>
<tr>
<th>OVERVIEW</th>
<th>2010</th>
<th>2000-2010 (%/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary intensity (EU=100)¹</td>
<td>106</td>
<td>-2.1% +</td>
</tr>
<tr>
<td>CO₂ intensity (EU=100)</td>
<td>114</td>
<td>-2.2% +</td>
</tr>
<tr>
<td>CO₂ emissions per capita (in tCO₂/cap)</td>
<td>4.2 ++</td>
<td>1.1% --</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>POWER GENERATION</th>
<th>2010</th>
<th>2000-2010 (%/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Efficiency of thermal power plants (in %)</td>
<td>40 +</td>
<td>0.5% +</td>
</tr>
<tr>
<td>Rate of electricity T&amp;D losses (in %)</td>
<td>14 --</td>
<td>-0.7% -</td>
</tr>
<tr>
<td>CO₂ emissions per kWh generated (in gCO₂/kWh)</td>
<td>372 -</td>
<td>0.9% --</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>INDUSTRY</th>
<th>2010</th>
<th>2000-2010 (%/year)</th>
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</thead>
<tbody>
<tr>
<td>Energy intensity (EU=100)</td>
<td>128</td>
<td>-3.2% +</td>
</tr>
</tbody>
</table>

++ Among the best performing countries
+ Above the EU average¹
- Below the EU average¹
-- Among the worst performing countries

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

1.1. Policies: energy savings targets by sector

In December 2007 the Government launched the National Program for Rational and Efficient Use of Energy (PRONUREE). The PRONUREE includes short- and long-term objectives to improve energy efficiency in industry, transport, the residential sector (10 percent energy savings target for 2016) and the services sector (12 percent energy savings target for 2016), as well as in public buildings (10 percent energy savings target for 2016). PRONUREE aims to decrease electricity consumption by 6 percent compared with a reference projection and to save 1,500 MW by 2016.

It also supports educational programs on energy efficiency, regulations to expand cogeneration activities, labeling of appliances, energy efficiency regulations, and broader utilization of the Clean Development Mechanism (CDM) to support the development of energy efficiency projects.

1.2. Energy consumption trends: rising per capita consumption

Total energy consumption per capita increased on a regular basis until 2000 when it reached 1.7 toe/cap, and then fell following the economic crisis of 2001 (1.5 toe/cap). It started to increase again in 2002 and reached 1.9 toe in 2010, ie, the same level as the world average. That per capita consumption is among the highest in Latin America, after Venezuela.

Primary energy consumption has been increasing since 2002 (3.9 percent/year). Prior to that, the national crisis in 2001 had a significant negative impact: primary consumption decreased by 5 percent per year over 2000/2002. The pace was again affected over 2008-2009, this time by the global economic downturn of 2009, which led to a 2.8 percent decline. Final energy consumption followed the same trend as primary energy consumption.

Industry (including non-energy uses) accounts for about 30 percent of total energy consumption, whereas the power sector accounts for 24 percent (up from 16 percent in 1990).
Electricity demand per capita is approximately 2,800 kWh, which is close to the world average. Electricity consumption is growing strongly (5.4 percent/year since 2002). Industry is the largest electricity consumer (43 percent).

1.3. Energy efficiency trends: introduction of new technologies

Primary energy intensity (total energy consumption per unit of GDP), measured at purchasing power parity, is 32 percent lower than the world average.

Between 1990 and 2010 primary energy intensity decreased by 1.9 percent/year. Final energy intensity (final energy consumption per unit of GDP) decreased at a slower pace than primary energy intensity (1.6 percent/year). That gap is explained by the deployment of gas combined cycle plants, which led to energy savings in power generation. Between 2000 and 2010 primary energy intensity decreased at a faster pace (2.1 percent/year); industry contributed to about 40 percent of that drop.
2. Power generation: improvement in the efficiency of power plants

The efficiency of the thermal sector has increased by 10 percentage points since 1990, reaching 40 percent in 2010. That improvement was achieved through a switch in the power generation mix to natural gas and through the rise in gas combined cycle plants since 1995. In 2010, combined cycle plants accounted for more than 40 percent of the country’s thermal capacity.

The rate of transmission and distribution losses (T&D) in the Argentinian grid has fallen from above 18 percent in 1990 to 14 percent in 2010, which is still above the world average (8.5 percent).
3. Industry

3.1. Policies: an energy savings target of 5.4% by 2016

The objective of the PRONUREE is to reach 5.4 percent energy savings in industry by 2016. To date, no specific measures have been implemented.

3.2. Energy consumption trends: a twofold increase between 1990 and 2009

Industrial energy consumption doubled between 1990 and 2010, reaching 3.4 percent/year, which is faster than the growth in the country’s total energy consumption (2.9 percent/year). Industrial energy consumption did not decline in 2001 despite the national economic recession. Likewise, the global crisis appears not to have affected industry’s consumption in 2009.

![Figure 7: Trends in industrial energy consumption](image)

The dominant fuel in industry is gas. Nevertheless, its consumption has decreased by 10 percent, reaching 37 percent in 2010. On the contrary, the use of oil increased from 13 percent in 1990 to 24 percent in 2010. The share of electricity is rather large and stable (24 percent), whereas coal accounts for just 7 percent of energy consumption.

The share of energy-intensive industries in the overall energy consumption of industry is quite low and has remained stable since 1995 (around 20 percent). The steel industry’s share of energy consumption has increased slightly and now stands at 15 percent. The share of the paper industry is stable, and the share of the non-metallic minerals sector (cement, ceramics, etc.) has decreased slightly, accounting for 7 percent of total energy consumption in 2009.
Figure 8: Energy consumption of industry, by source

Figure 9: Energy consumption of industry, by branch

Source: Enerdata