



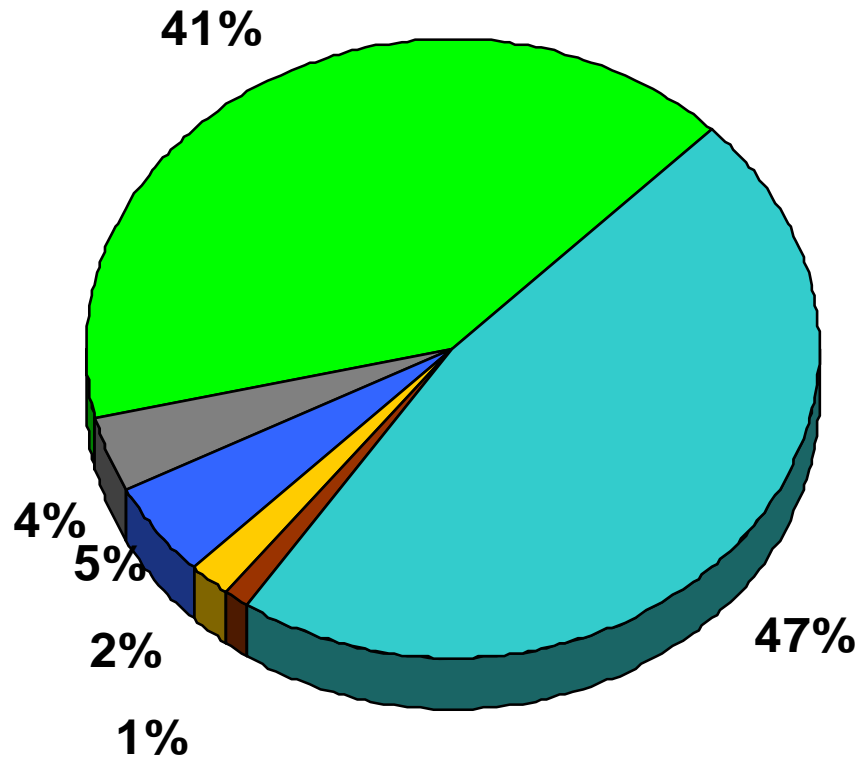
# Gaseous fuels in the context of Argentinean economic growth

By

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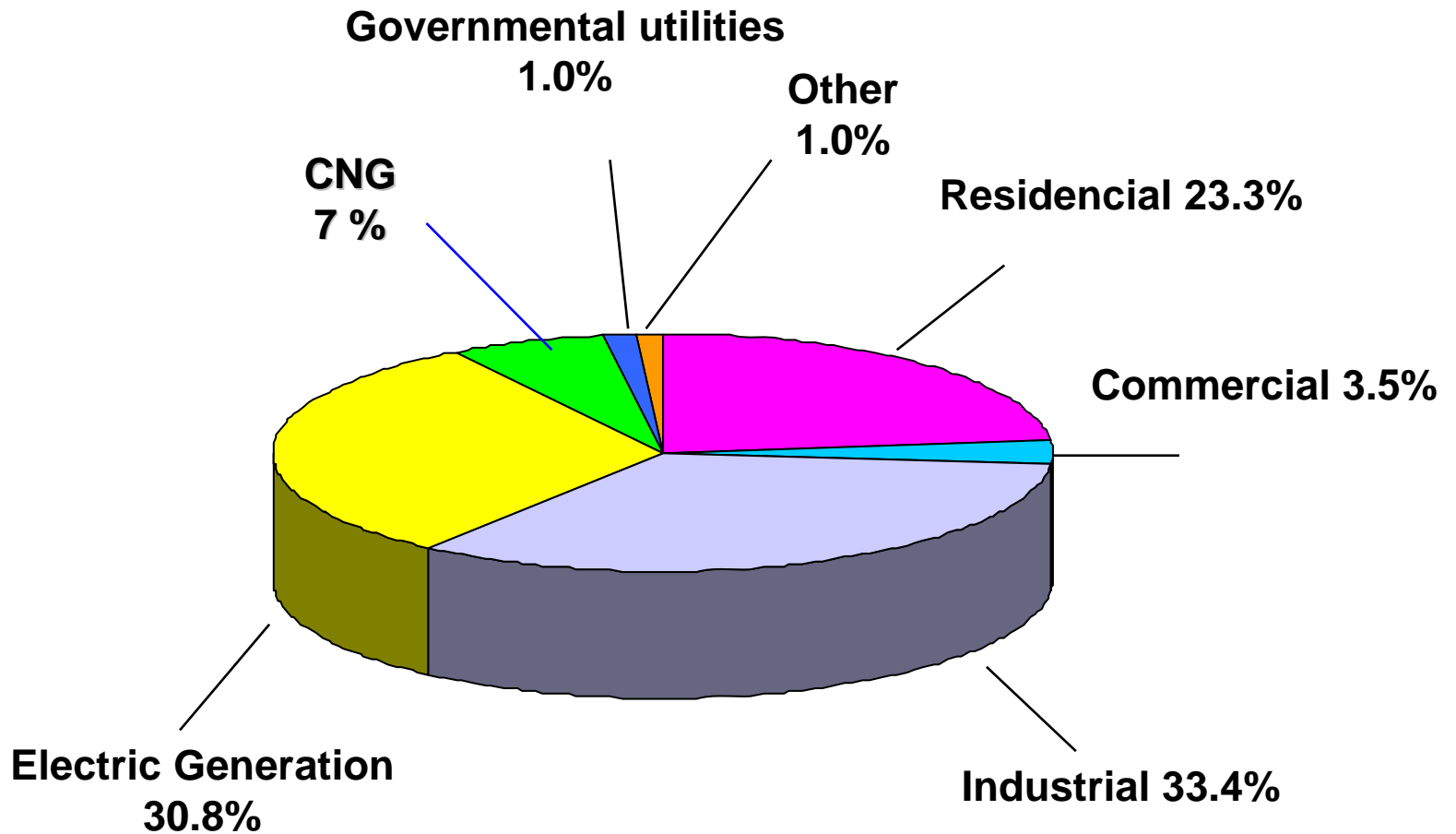
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# Argentinean energy market share



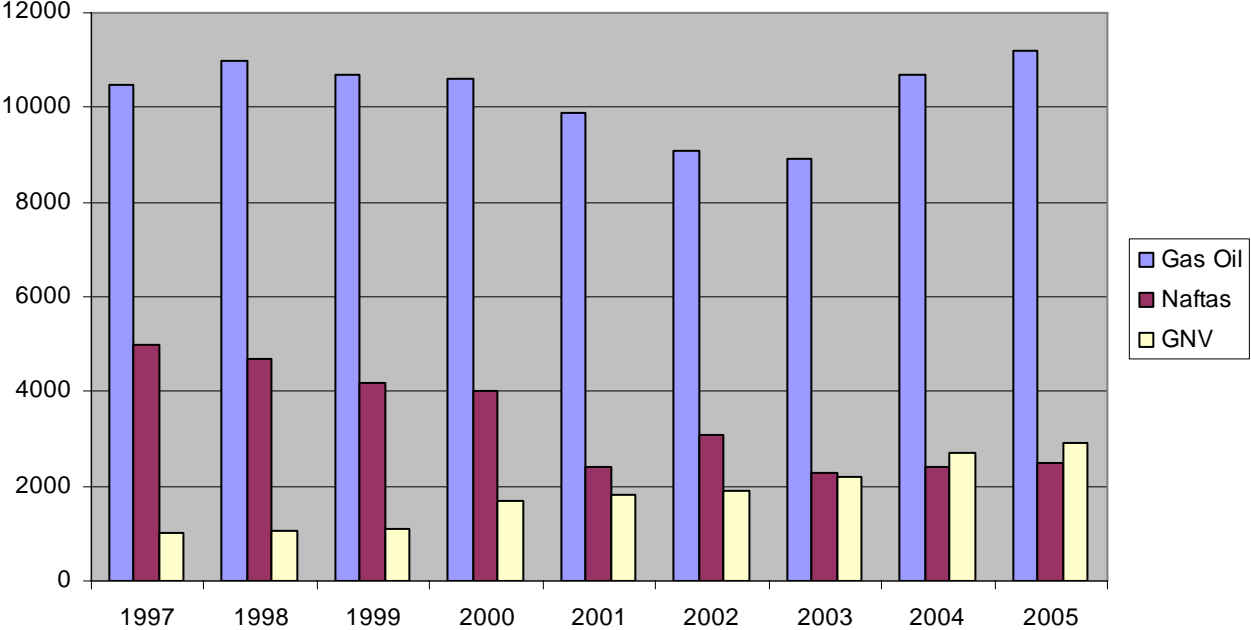
■ natural gas ■ coal ■ nuclear ■ other ■ hydraulic ■ oil

# Natural Gas Users



# CNG Consumption Evolution

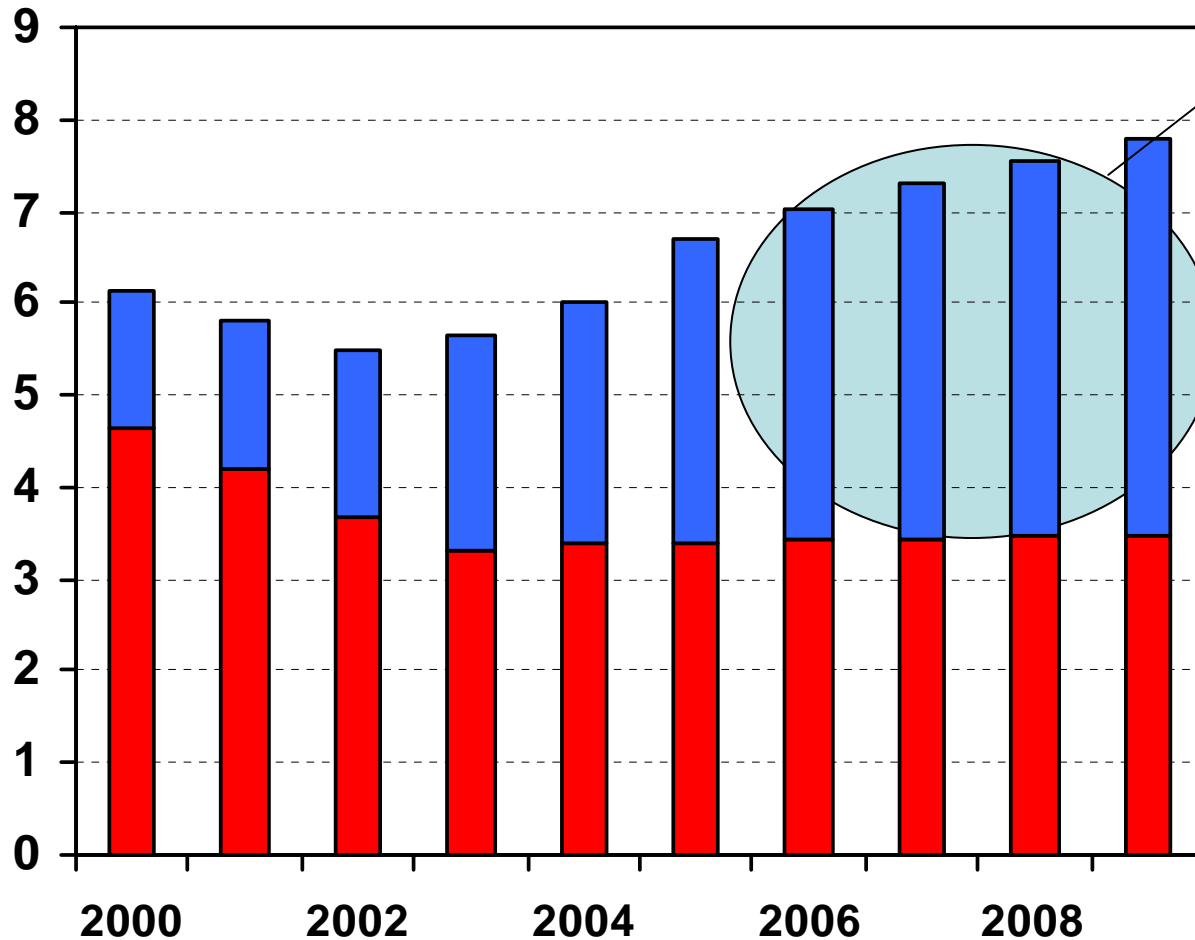
Millions TOE



# CONSUMPTION TREND

## Gasoline vs. CNG

### Actual figures until 2005



Million m3  
Gasoline  
Equivalent

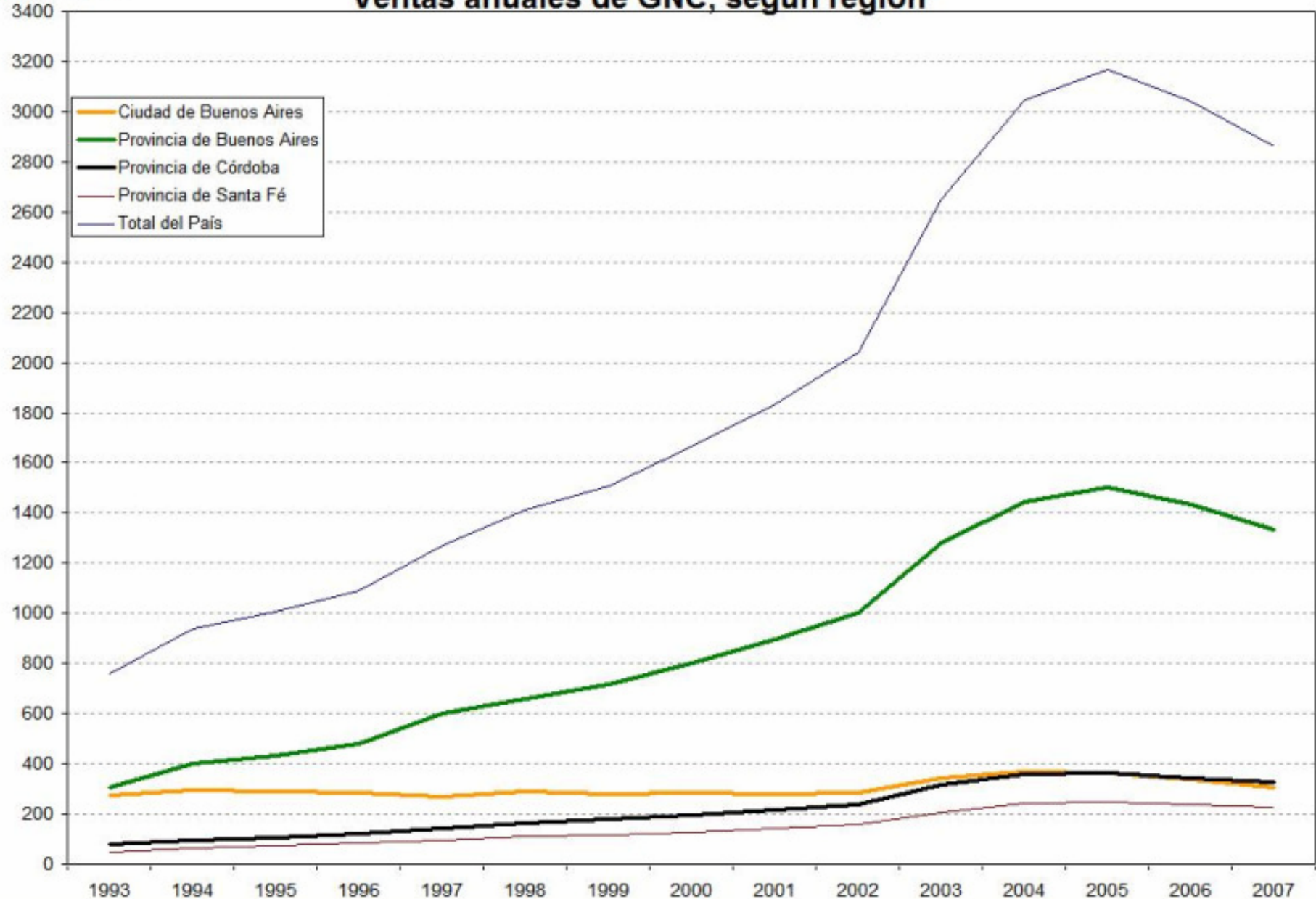
CNG WAS FORESEEN BY THE OIL INDUSTRY AS BEING BETWEEN 3 AND 4 MILLION CUBIC METERS GASOLINE EQUIVALENT

REPRESENTS BETWEEN 7 AND 8 % OF THE NATURAL GAS PRODUCED

# Annual NGV Sales per Region

millones de m3

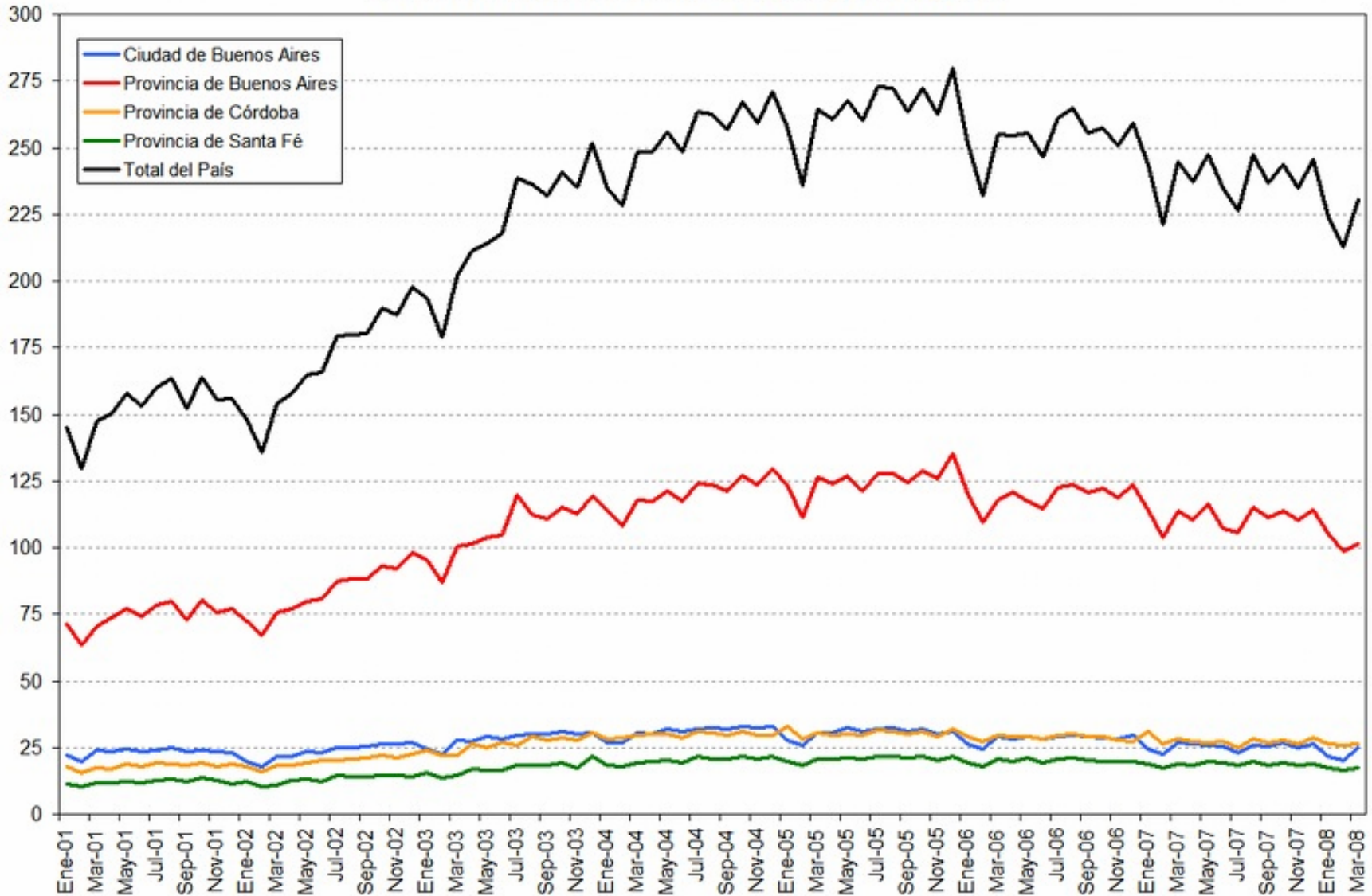
Ventas anuales de GNC, según región



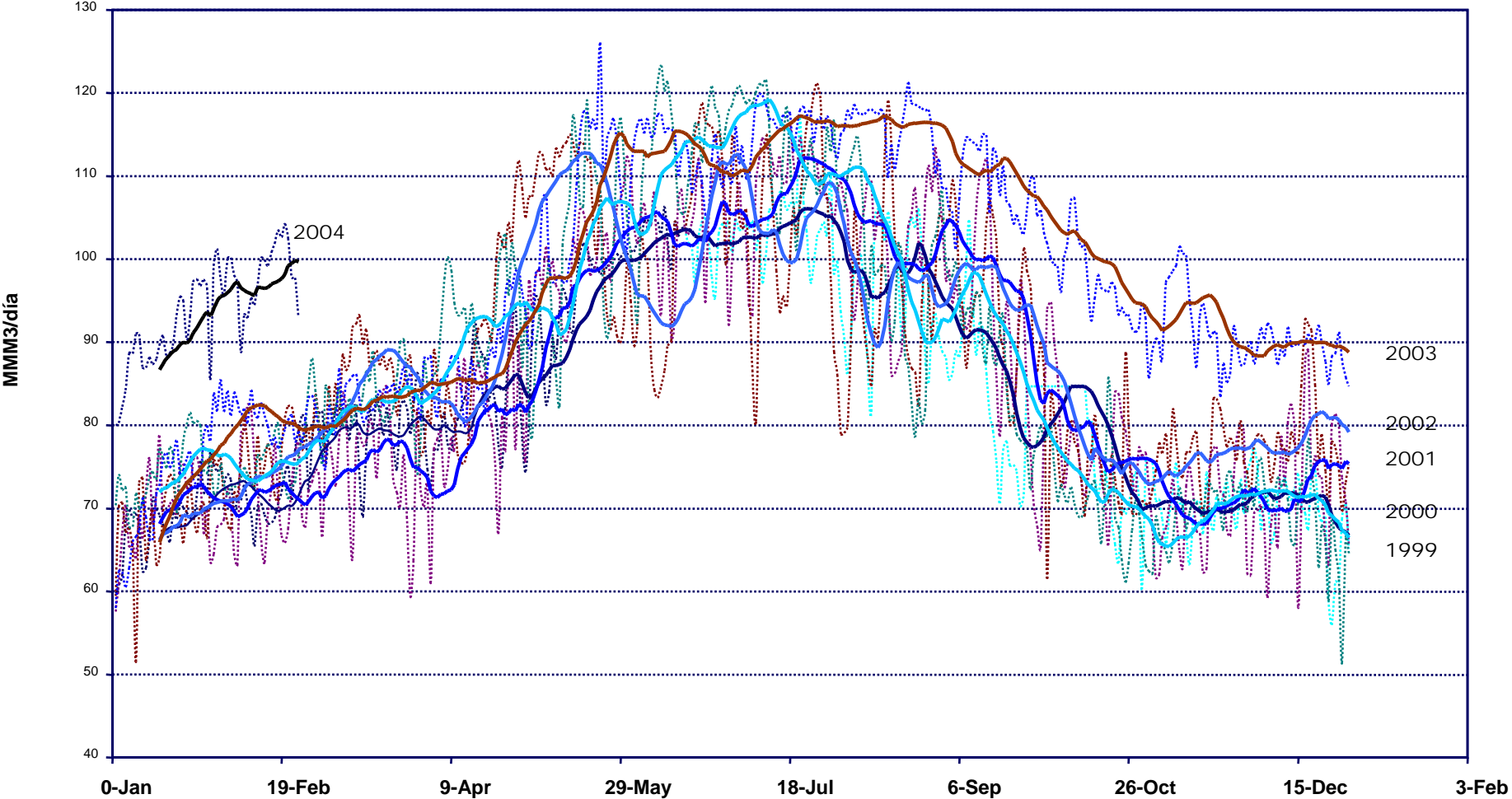
# NGV Monthly Sales per Region

millones de m3

## Ventas mensuales de GNC, según región



# Natural Gas Seasonal Behavior



# Panorama

- Argentina has structural problems due to last 18 years lacking intensive exploration aimed to increase oil and gas reserves
- Situation should change and efforts are done in order to comply with the present and future needs of energy
- Argentina continues to be more or less self-sufficient in domestic oil and gas resources, but import of diesel oil and natural gas will increase in a short future as a consequence of the explosive demand.
- Gaseous fuels may be developed backed by Governmental Policy.

# Economic Growth Paradox

- Economic growth with relevant indicators at “Chinese rates”, during the past five years have been the highest in Argentinean history.
- There were very positive achievements with trends towards the financial stabilization of the country, past the default crisis of the year 2002.
- Negotiations took place to settle differences with the public utilities and oil and gas producers about frozen prices, not always coming to a happy end in due time
- Now since a couple of months, national and foreign investment with tariff incentives favoring exploration and more expensive production is in the way

# Why is the supply side of the natural gas market limited?

- Strong industrial and agricultural impulses are invaluable assets, but measures were taken to curb inflation in order to boost better way of life for certain layers of population
- A policy of quasi frozen prices of gas and fuel at pump was applied
- So, low price of oil and gas did not help to promote investment in oil and gas exploration
- However, comparative import prices of diesel oil and natural gas should favor the second one due to its regional status versus the oil international price.
- Natural gas is a fair technical alternative to diesel oil in heavy duty transport of goods and passengers, being natural gas a regional resource as a timely advantage

# The Argentine Natural Gas Program

- Import of 7,7 MM Nm<sup>3</sup> per day was foreseen for the present through a contract, but only 2,5 MM Nm<sup>3</sup> is complied with and the deficit is temporarily solved with the equivalent of 8 MM Nm<sup>3</sup>/ day of LNG from Venezuela and Trinidad-Tobago.
- A 1500 Km Northeast Pipeline transporting 20 MM Cubic Meters per day extensive to 27 from Bolivia to Argentina in almost three years is in the stage of bidding
- A 38 Km pipeline connecting the Tierra del Fuego Island to the continent is imminent to supply additional 5 MM Nm<sup>3</sup>/day.
- And finally a recent government initiative improving incentives for new gas exploration and production through the Gas plus Program, is raising the possibility of better prices for gas producers.
- Increased trunk pipeline transport capacity has been carried out in the past three years through loops.

# CNG is seen as the Bridge towards the era for Hydrogen Fuel

- Advances are taking place in the academic and technological echelon for hydrogen as an alternative for some uses of oil, following the experience given by compressed natural gas propelling buses and trucks and automobiles.
- CNG is seen as the Bridge towards the era for Hydrogen Fuel in 10 to 30 years.
- Blends of H<sub>2</sub> and CNG for heavy duty transport are in trials by the CNEA (Atomic Energy Agency) and members of the Argentinean Chamber for NGV

# The springboard for CNG heavy duty application

Basically

- Argentina has a well developed CNG Industry.
- Complies with the national and international standards
- CNG domestic 1,600 service station net and 1.75 million NGVs is the window open for prospective foreign customers
- Mobile Pipeline for residential, commercial, mining and vehicle CNG loading includes high tech concepts and feasibility for small, medium and heavy applications.
- 5 Argentine vehicle OEMs developed bi fuel automobiles and other commercial vehicles

Then,

A leap forward for heavy duty applications is in the making

# Pending challenges

- Argentine CNG products are exported to all CNG markets of Latin America, Europe and Asia
- There are pending challenges for the Argentinean CNG Industry like:
  1. Regulations about CNG as a social asset needed for environmental grounds besides the economic background
  2. Export of CNG vehicles by the traditional terminals
  3. Launching of heavy duty transport applications in the domestic market with converted or transformed engines CNG propelled at a first stage

# CNG Triennial Program feasibility for heavy duty transport

## Objectives

1000 trucks and buses for cargo and passengers transport Pilot Program involves:

- Coordination between the Secretary of Industry and Trade with the Secretary of Energy,
- The Pilot Program needs the assured fueling of near 60.000 Nm<sup>3</sup> / day in the first year, 85.000 in the second and 240.000 in the third versus the winter peak of 120 MM Nm<sup>3</sup>/día
- Possibility to end gradually diesel oil subsidy per bus unit given so far

# Conclusions

- A complex economy needs ENERGY DIVERSITY...
- So, triennial pilot plan for 1000 CNG heavy duty trucks and buses may be in the making in Argentina with updated technology...