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August, 2007

Petrobras and the Biofuels

A photograph of a field of sunflowers and cotton plants. The sunflowers are in the foreground, with their bright yellow petals and dark brown centers. The cotton plants are in the background, with their white, fluffy bolls. The sky is a clear, bright blue.

PETROBRAS

Cautionary Statement

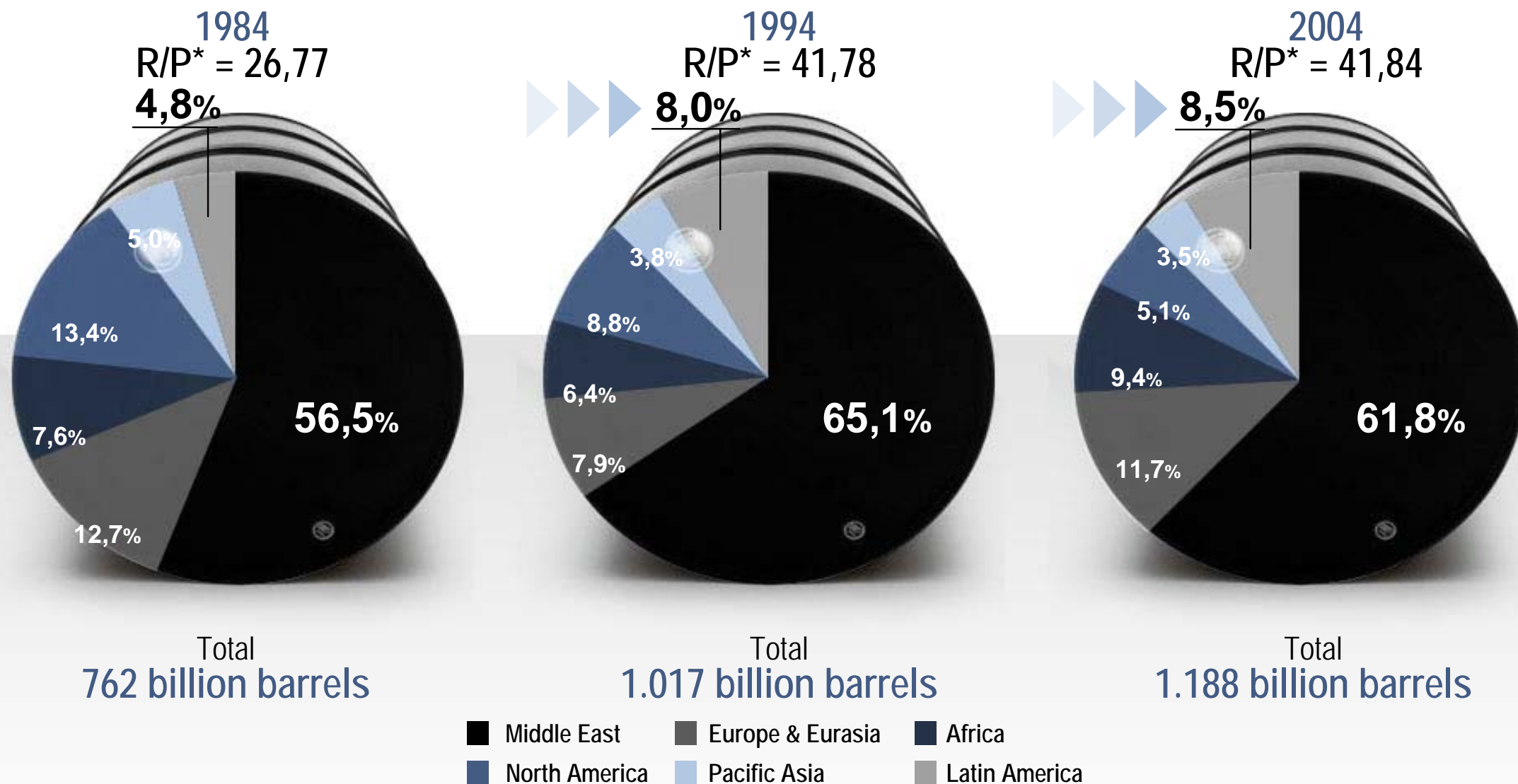
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Cautionary Statement for US investors

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Latin American Share of Oil World Reserves

Latin American oil reserves are becoming increasingly important



In 20 years, Latin America proven reserves increased from 36.6 billion barrels (1984) to 101 billion.

Net Oil Availability

-  Latin America
-  Russia
-  Asia
-  United States
-  OECD(- Mexico)

Mbpd

12
6
-6
-12
-18
-24
-30
-36

1980

2005

2010

2015

2030

Projected growth in oil production and demand suggests balance and independence of supply from politically unstable regions

Gas Rich Region with limited infrastructure

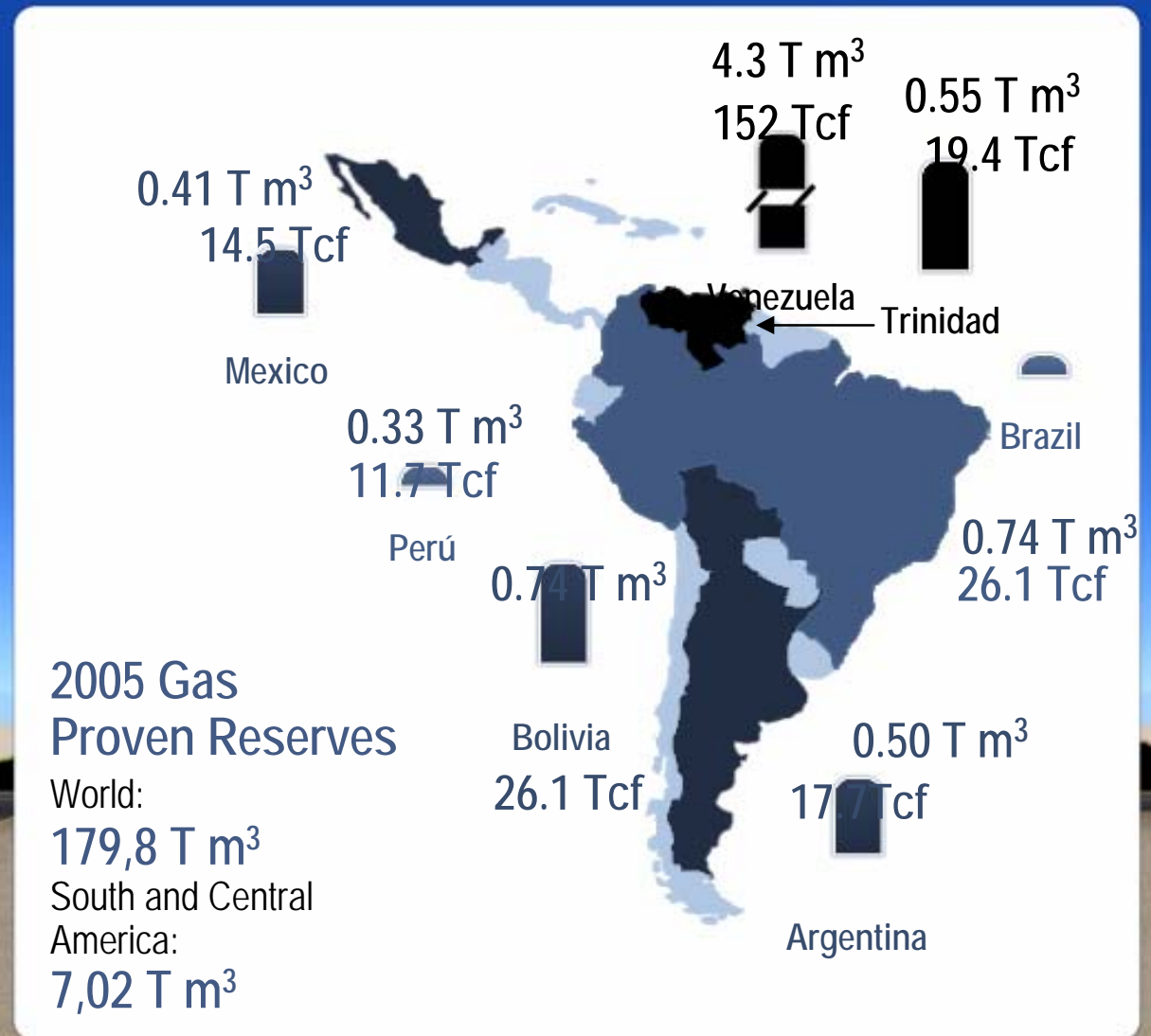
Proven Reserves as of January 1, 2005

Ample gas reserves will allow for:

- ::: Regional growth in consumption substituting some demand for oil
- ::: Higher exports of liquids

But:

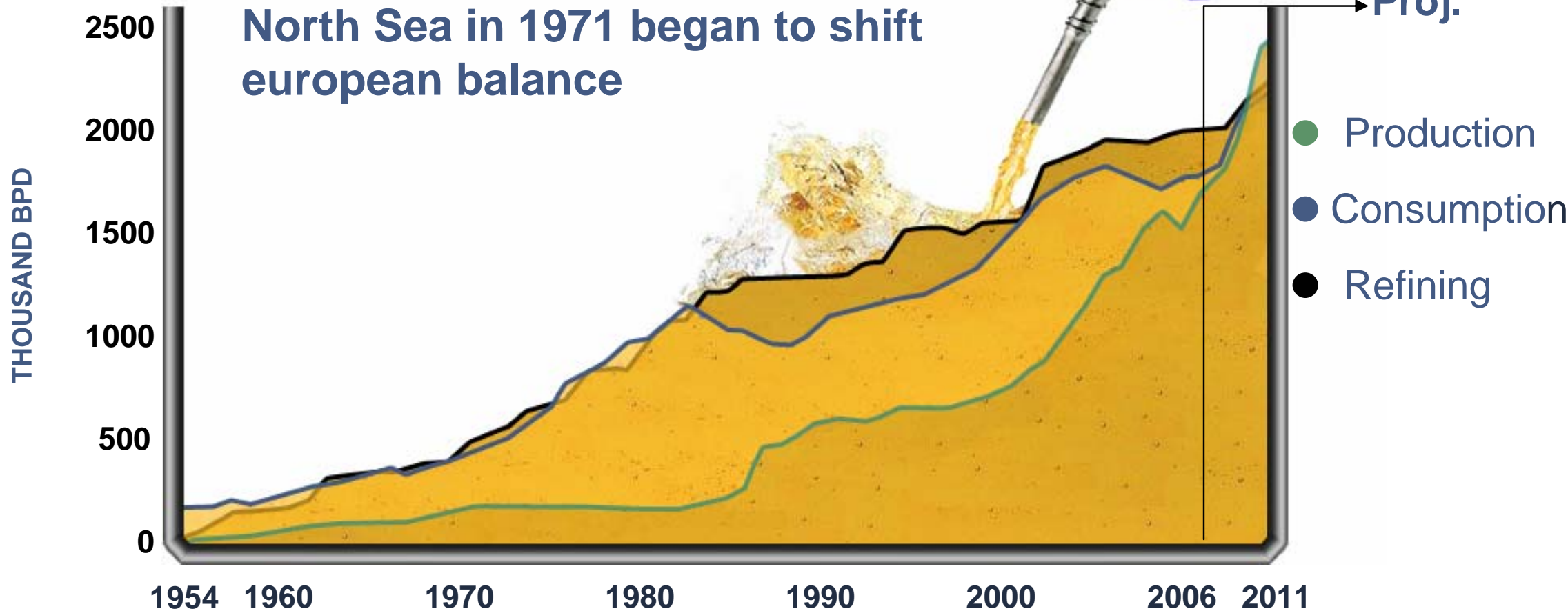
- ::: Will require increasing energy integration and
- ::: Substantial investments in infrastructure covering great distances and environmentally sensitive regions



Production X Demand X Refining Capacity: Reaching Self-Sufficiency

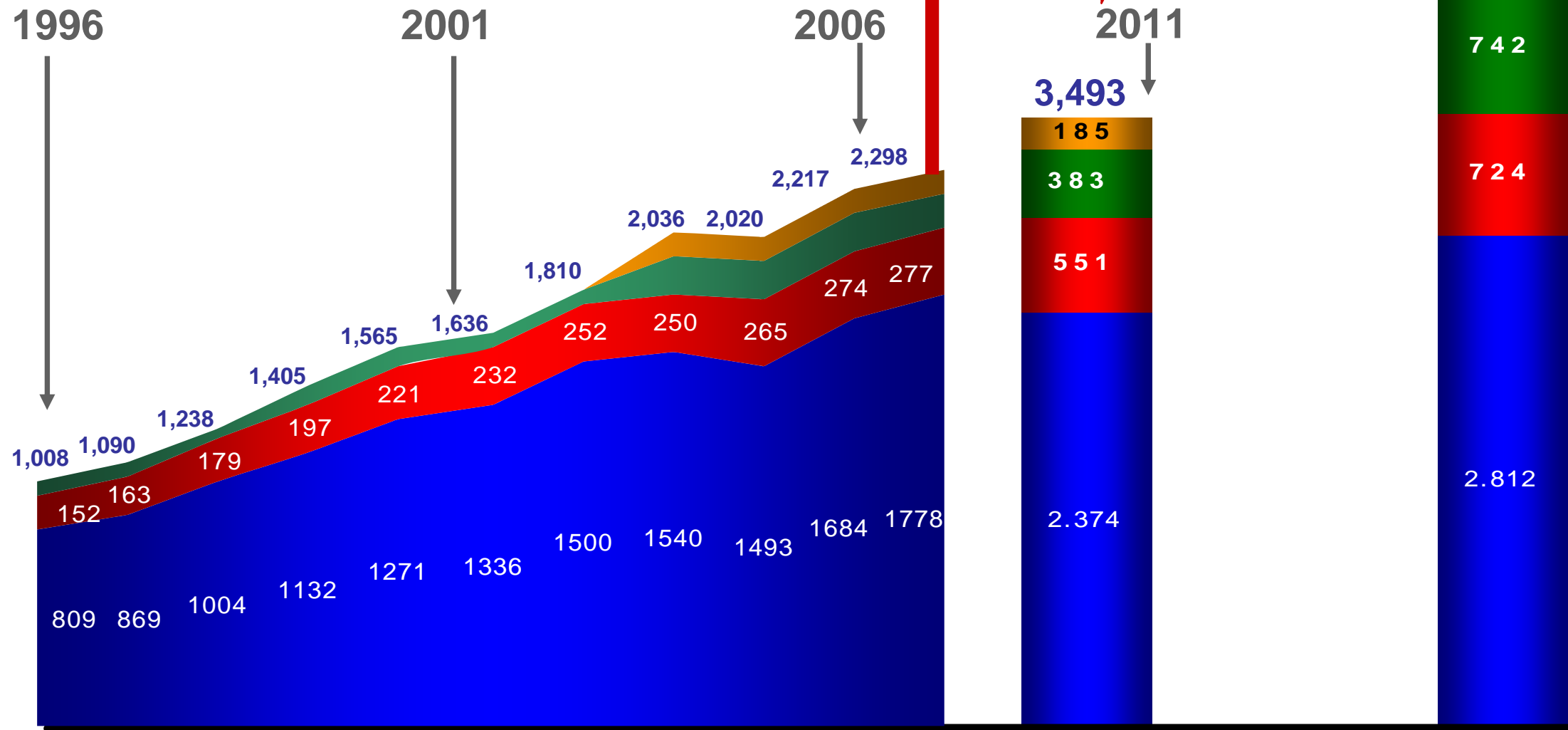
| Production/ Consumption (%) | 1955 | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 | 1990 | 1995 | 2000 | 2006 | 2011F |
|-----------------------------------|------|------|------|------|------|------|------|------|------|------|------|-------|
| | 3,0 | 30,5 | 28,4 | 32,2 | 19,5 | 16,7 | 56,2 | 55,3 | 49,3 | 70,4 | 97,6 | 112,1 |

Brazil: first major market to shift from import dependency to self sufficiency since first oil from North Sea in 1971 began to shift european balance



A Track Record of Growth

In Thousand boed



■ Oil and NGL - Brazil

■ Natural Gas - Brazil

■ Oil and NGL - Internacional

■ Natural Gas - Internacional

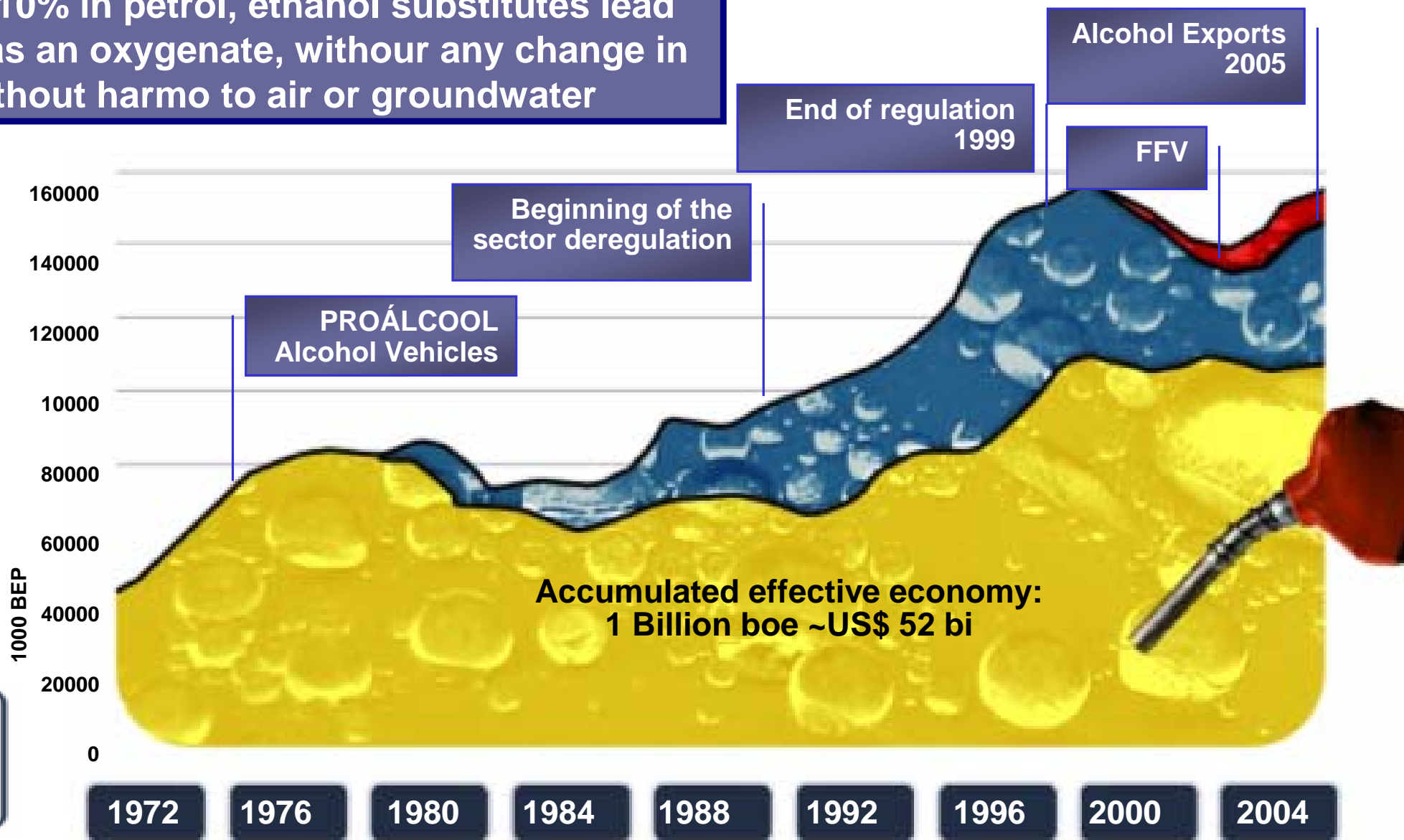
2015
Forecast

Brazil is the 1st country to reap benefits from Ethanol

Because program is government regulated there are no benefits from KT but benefits of reduction in CO₂ emissions have already materialized;

Used up to 10% in petrol, ethanol substitutes lead and MTBE as an oxygenate, without any change in engines, without harm to air or groundwater

During this period, ethanol utilization saved 644 million ton. of CO₂ emission



Ethanol

Ethanol can be introduced also as a partial or full substitute for petrol: up to 25% (Brazil) partial motor adjustments require participation of automobile industry; up to/over 85% requires flex-fuel vehicles, consumer preference (price/performance).

(Otto Cycle Engines)

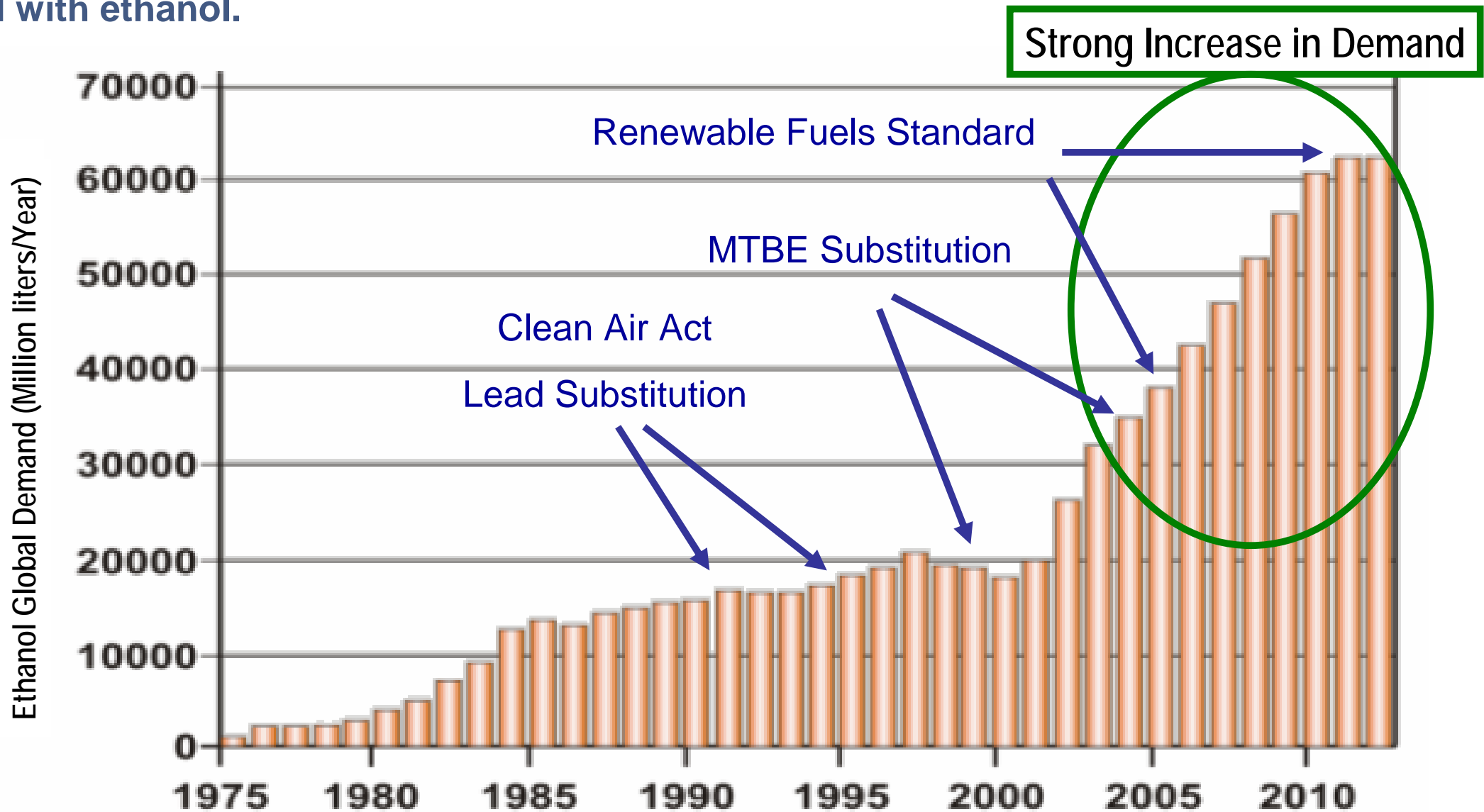
| Ethanol Blend | Carburetor | Fuel Injection | Fuel Pump | Fuel Pressure Device | Fuel Filter | Ignition System | Evaporative System | Fuel Tank | Catalytic Converter | Basic Engine | Motor Oil | Intake Manifold | Exhaust System | Cold Start System |
|---------------|--|--------------------|--------------------|----------------------|--------------------|--------------------|--------------------|--------------------|---------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| ≤ 5% | ----- For any vehicle ----- | | | | | | | | | | | | | |
| 5 ~ 10% | ----- For vehicles up to 15 ~ 20 years old ----- | | | | | | | | | | | | | |
| 10 ~ 25% | Not Necessary | Probably Necessary | Probably Necessary | Probably Necessary | Probably Necessary | Probably Necessary | Probably Necessary | Probably Necessary | Probably Necessary | Probably Necessary | Probably Necessary | Probably Necessary | Probably Necessary | Probably Necessary |
| 25 ~ 85% | Probably Necessary | Probably Necessary | Probably Necessary | Probably Necessary | Probably Necessary | Probably Necessary | Probably Necessary | Probably Necessary | Probably Necessary | Probably Necessary | Probably Necessary | Probably Necessary | Probably Necessary | Probably Necessary |
| ≥ 85% | Probably Necessary | Probably Necessary | Probably Necessary | Probably Necessary | Probably Necessary | Probably Necessary | Probably Necessary | Probably Necessary | Probably Necessary | Probably Necessary | Probably Necessary | Probably Necessary | Probably Necessary | Probably Necessary |

Not Necessary

Probably Necessary

Demand Overview

- A strong increase in the demand for ethanol is expected;
- Ethanol as a substitute to Lead and MTBE
- This amount of future consume may be levered if new countries adhere the compulsive blend with ethanol.



Demand Overview

A PROMISING MARKET

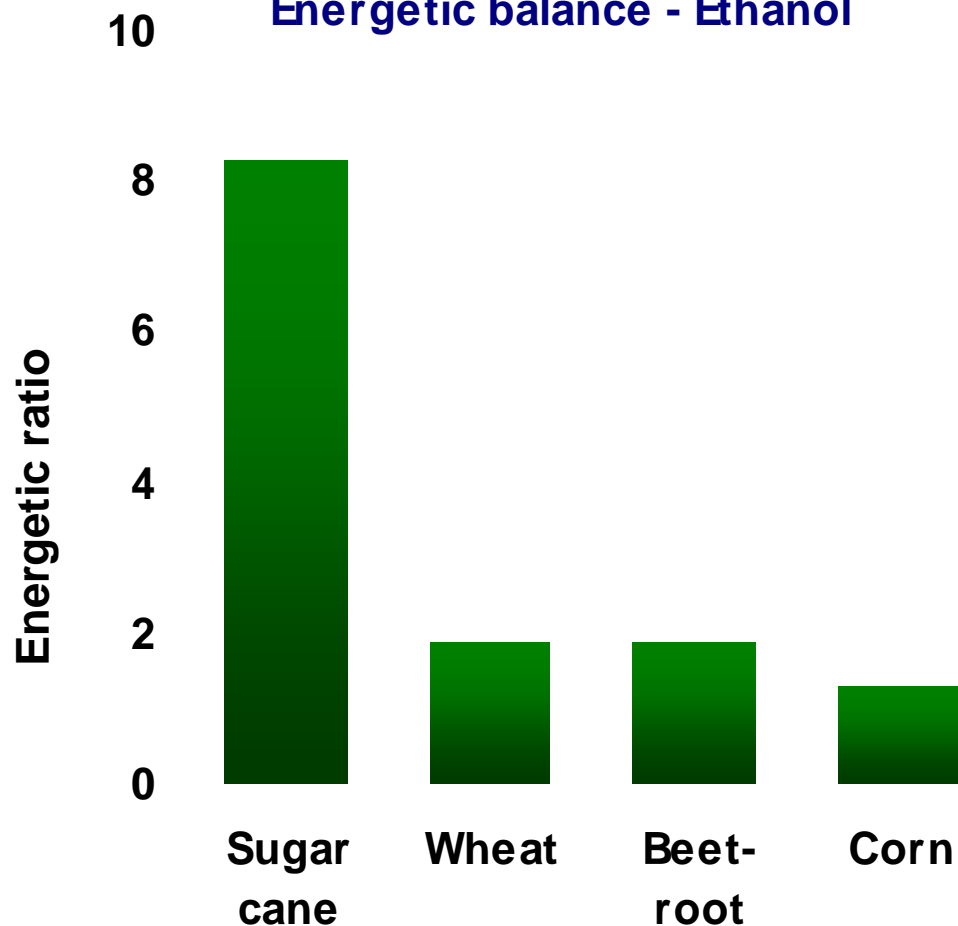
| Country | Potential demand (Billion liters) | Ethanol addition | Comment |
|-----------------------------------|-----------------------------------|------------------|--|
| Japan | 1.7 | 3% | Potential demand considering 3% ethanol addition to the gasoline formula |
| US | 16.8 | - | Expected demand in 2012, according with the <i>Renewables Fuels Law</i> |
| China | 4.5 | 10% | Potential demand considering 10% ethanol addition to the gasoline formula |
| EU | 7.4 | 5% | Potential demand considering 5% ethanol addition to the gasoline formula in 2011 |
| India | ? | 5% | Percentage approved only in some regions |
| Thailand | 0.7 | 5% | Potential demand considering 5% ethanol addition to the gasoline formula |
| Total: 31.1 billion liters | | | |

•Only in the US, a 5.7% addition of ethanol the gasoline would translate into a consumption of 30 billion liters of ethanol per year.

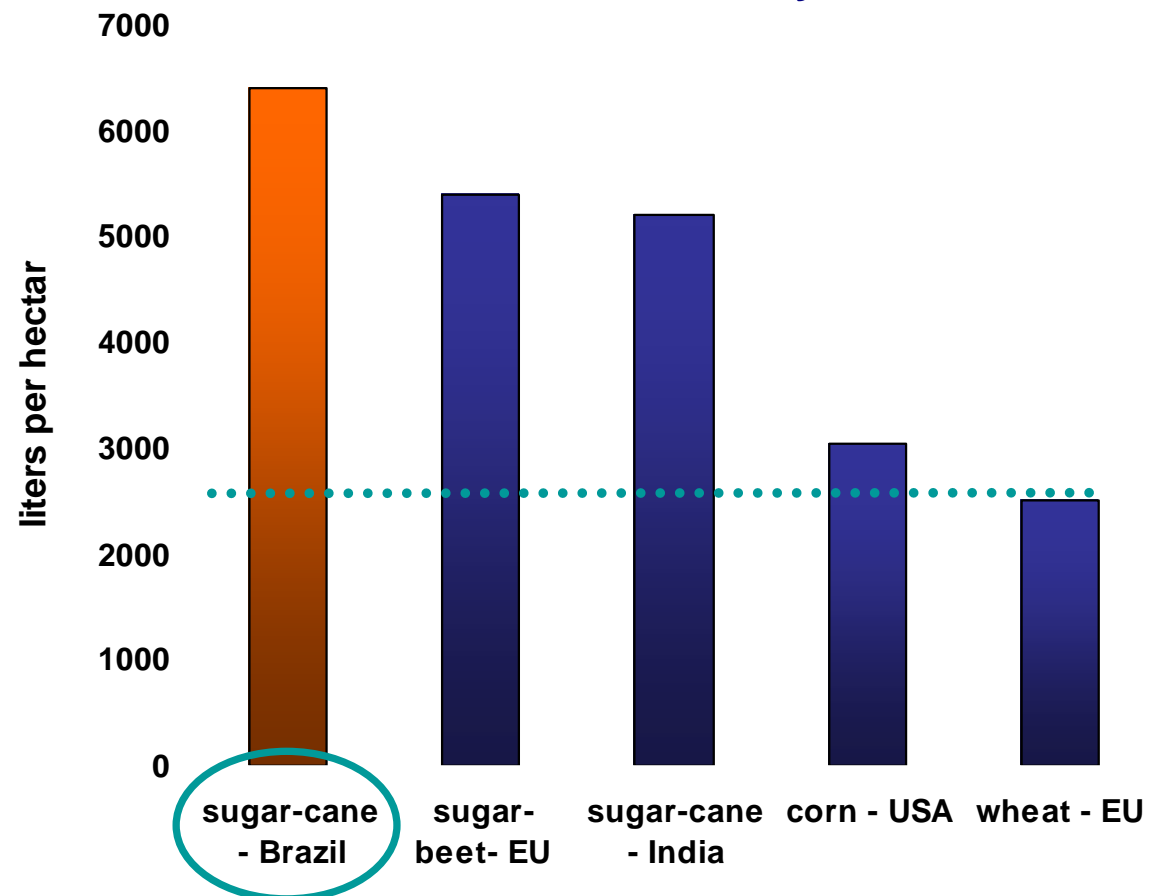
Demand Overview

- Biofuels usage can reduce CO₂ emissions at a 5:1 rate;
- Besides being a cleaner source of energy, sugar cane ethanol produces 8,3 more energy than the fossil energy used in its production process. Ethanol usage in Brazil has decreased the emission of Greenhouse Effect Gases at 13% (1994 data);
- Sugar-cane is the most productive among ethanol raw materials and the production of ethanol has limited affect on food supply.

Energetic balance - Ethanol

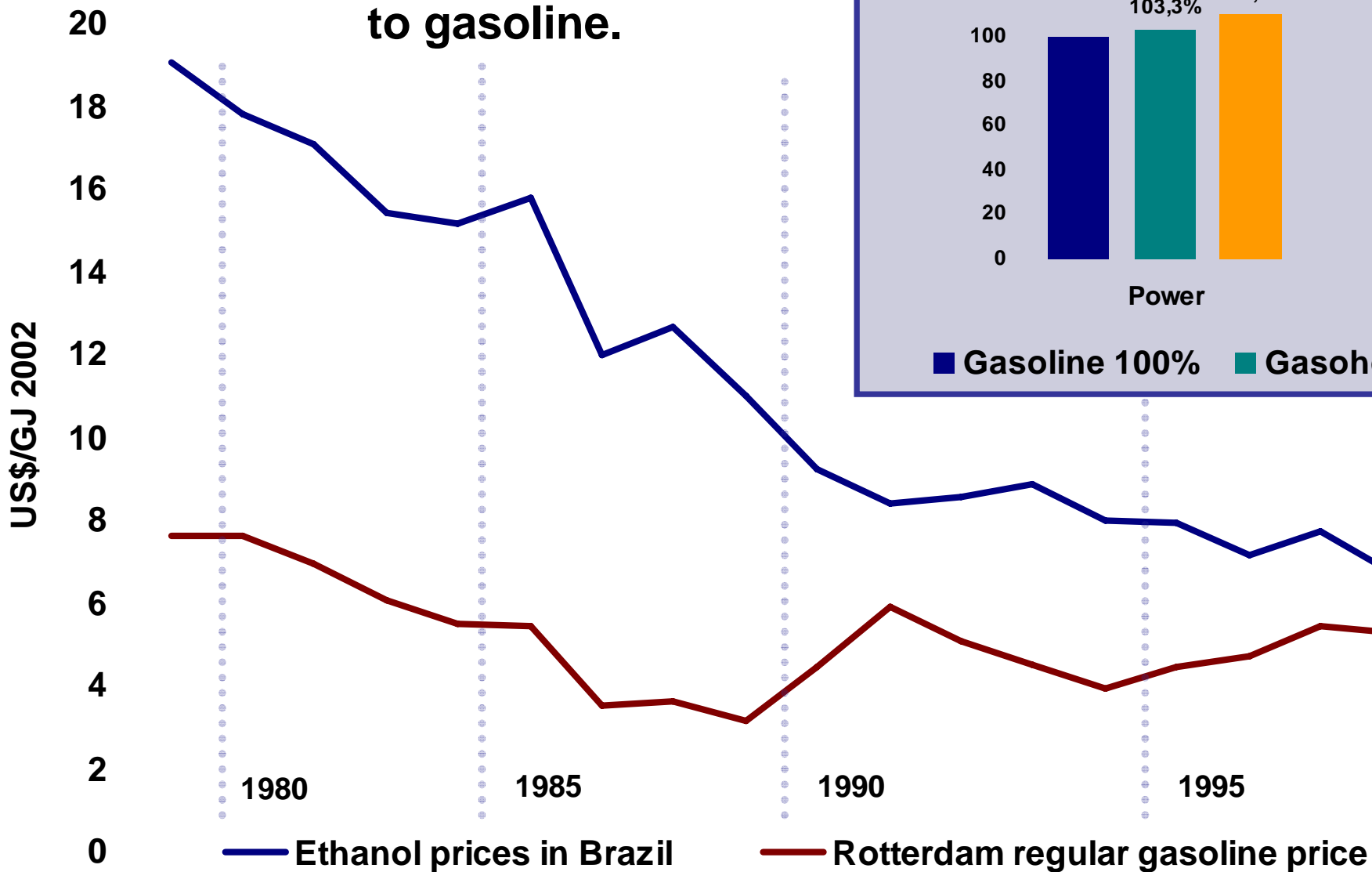


Ethanol Productivity

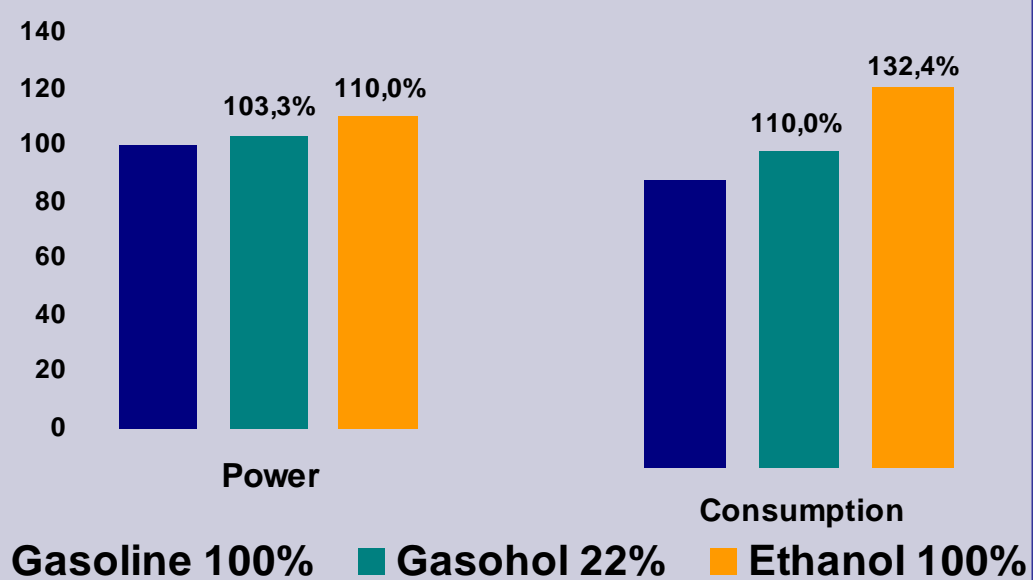


Price Reduction

Greater production cost reduction when compared to gasoline.



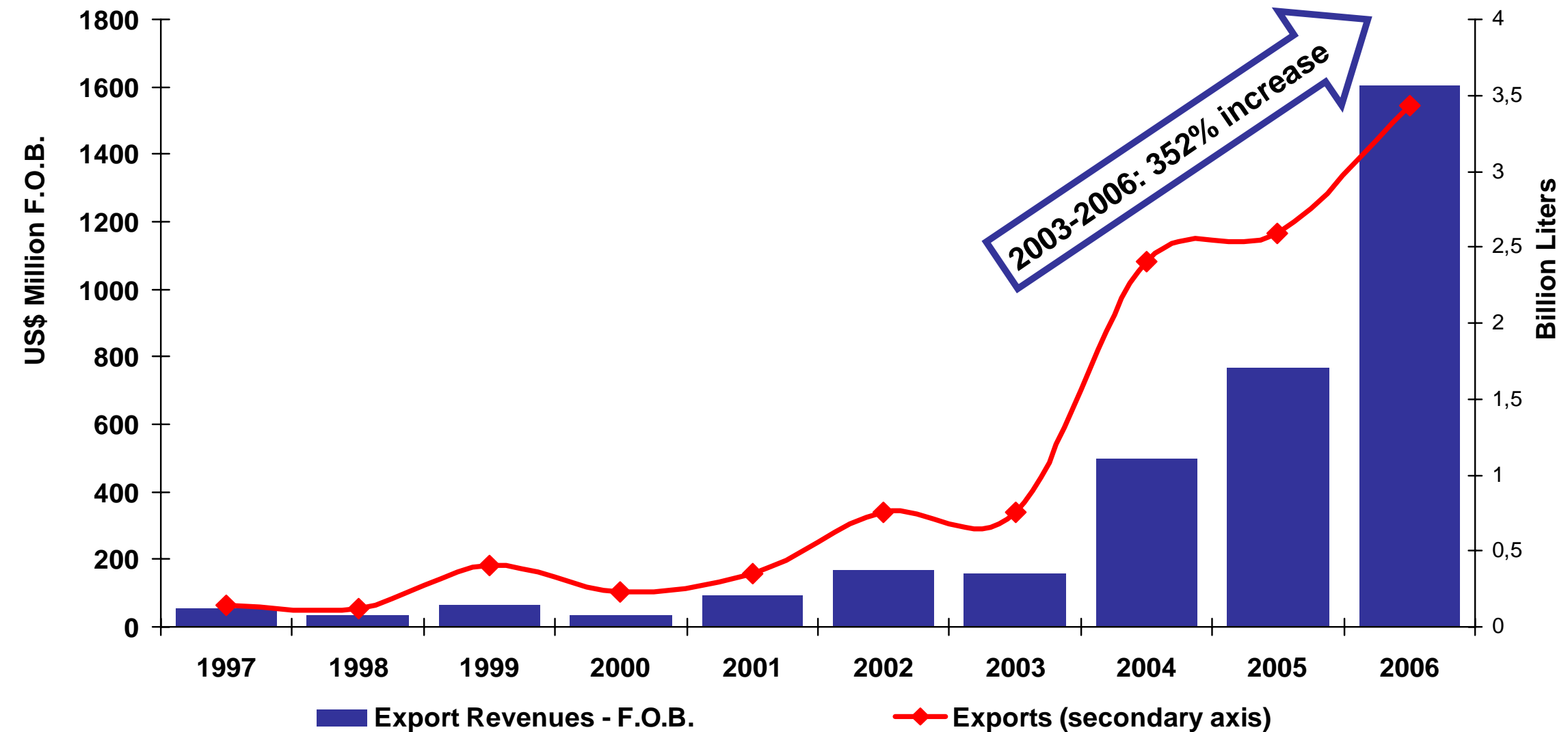
Ethanol Engine Relative Performance*



Source: Goldemberg 2004

Supply Overview – Brazilian Ethanol Exports

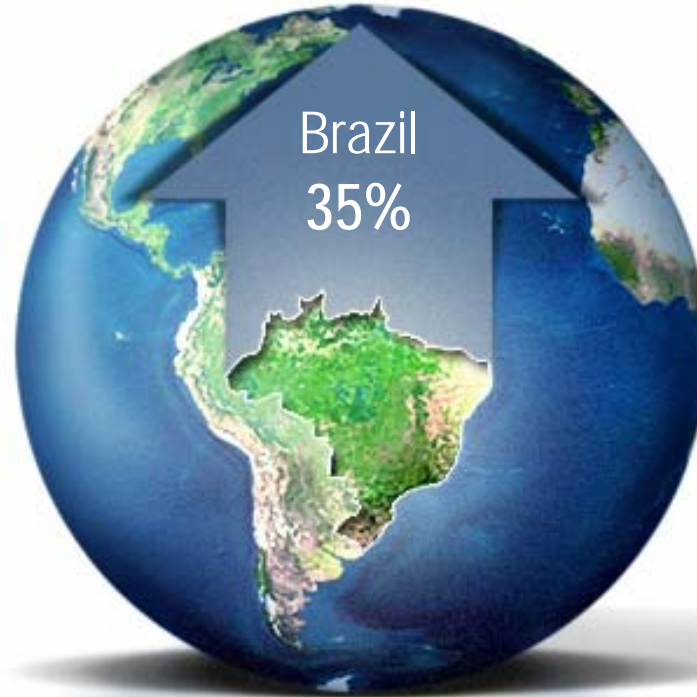
Brazilian ethanol exports increased sharply in the last three years, resulting in US\$ 1.6 billion export revenues in 2006.



The potential to expand world production is enormous

North and
Central America
37%

South America
38%



Europe
9.8%

Asia
16.2%

Current Market Distribution of World Consumption

Ethanol global market is 46.5 Billions Liters

Ethanol as a Fuel is 30.6 Billions Liters, or 67% of total ethanol production

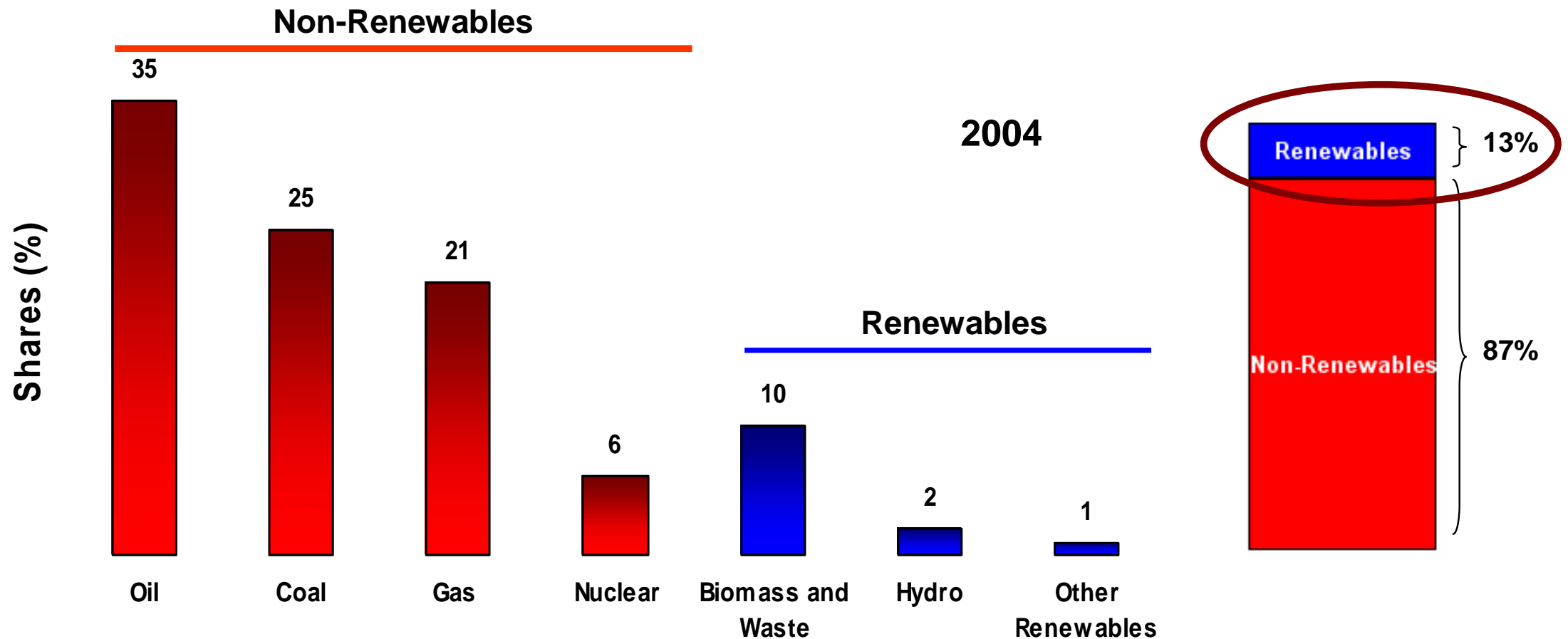
Today the ethanol consumption is 2,6% of gasoline MKT

Increasing ethanol to 10% of gasoline will represent 118 Billions Lt



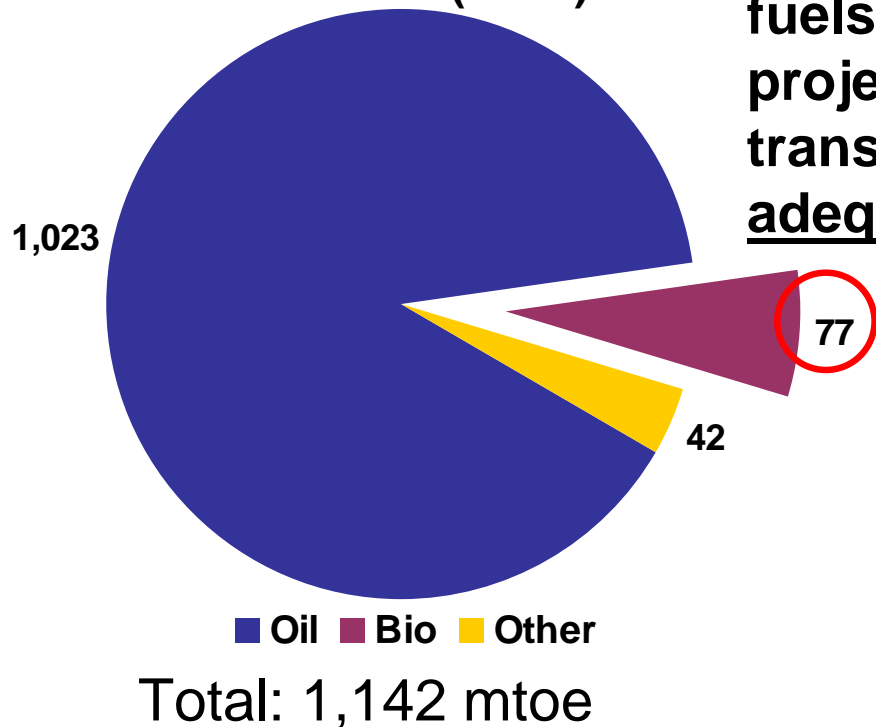
Supply Overview - Increase in the supply of Biofuels

- World Supply of Biomass and Waste reached 1,176 Mtoe in 2004 (10% of total supply);
- According to the International Energy Agency Reference Scenario, it will reach 1,645 Mtoe in 2030, an increase of 1.3% p.a., still representing 10% of total supply.



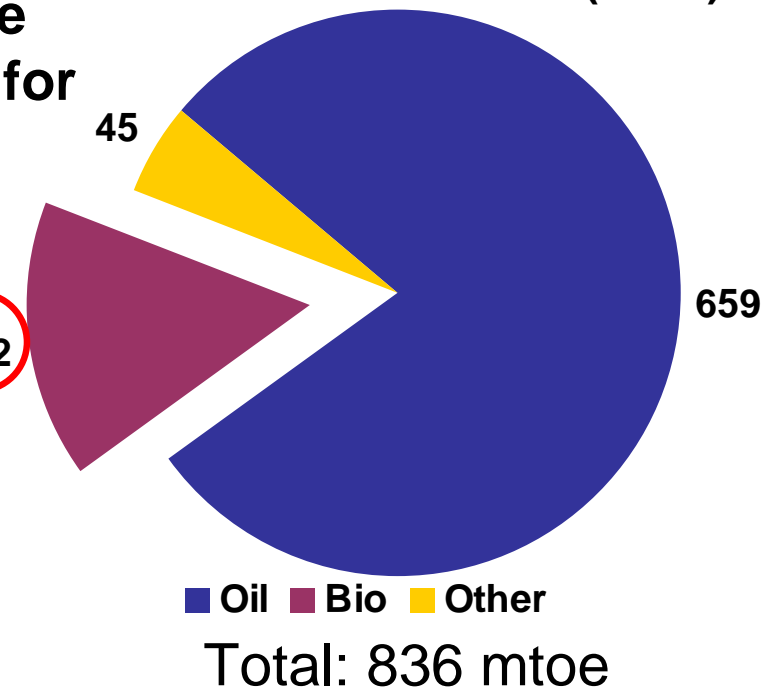
But transport sector can still contribute to emission reductions (IEA alternative scenario)

Reference Increase in Demand 2004-2030 (mtoe)

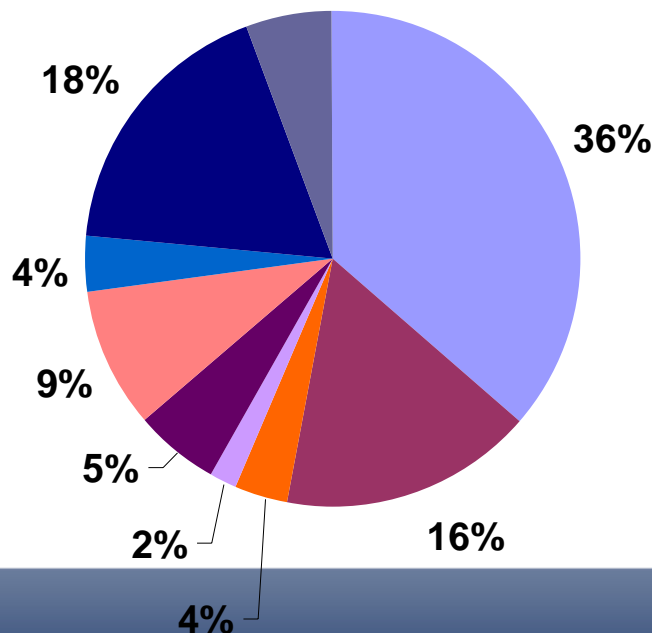


Increased use of renewable fuels can contribute to reduce projected increase in energy for transport by 7%, to 15% if adequate policies followed.

Alternative Increase in Demand 2004-2030 (mtoe)



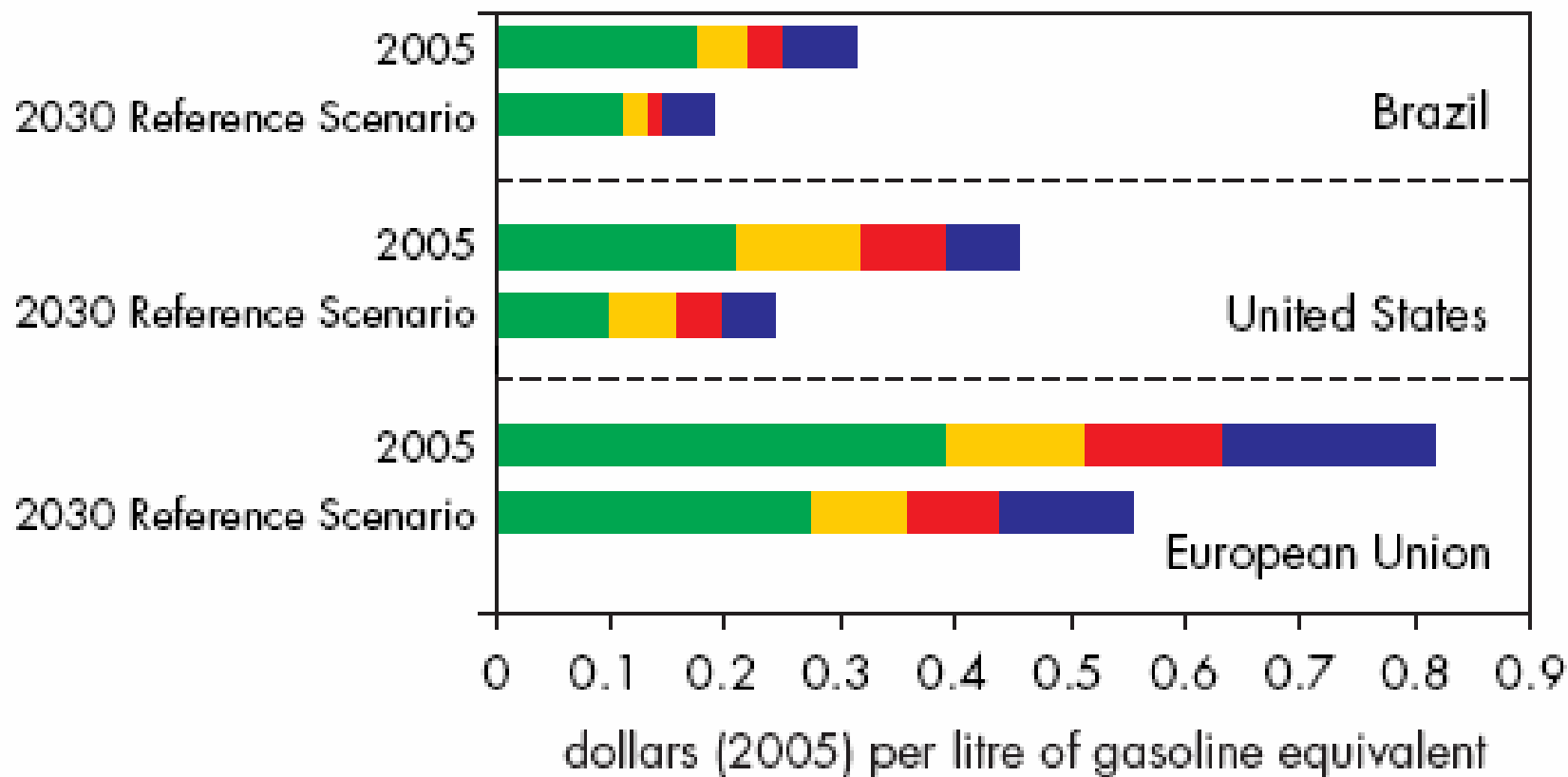
Bio 2004-2030 Reference - Alternative 5%



The direct benefits in emission reductions would be equally distributed between US, Europe OECD and the rest of the world

Brazil's Advantages

Average production costs are projected to drop by around a third between 2005 and 2030.



■ Feedstock (net)
 ■ Chemicals and energy
 ■ Operating and maintenance
 ■ Capital

- Ethanol production costs vary widely across countries, mainly due to climatic factors: crop production costs are much lower in tropical countries.
- According to the IEA, costs in Europe and the United States would be significantly higher without crop and ethanol subsidies.

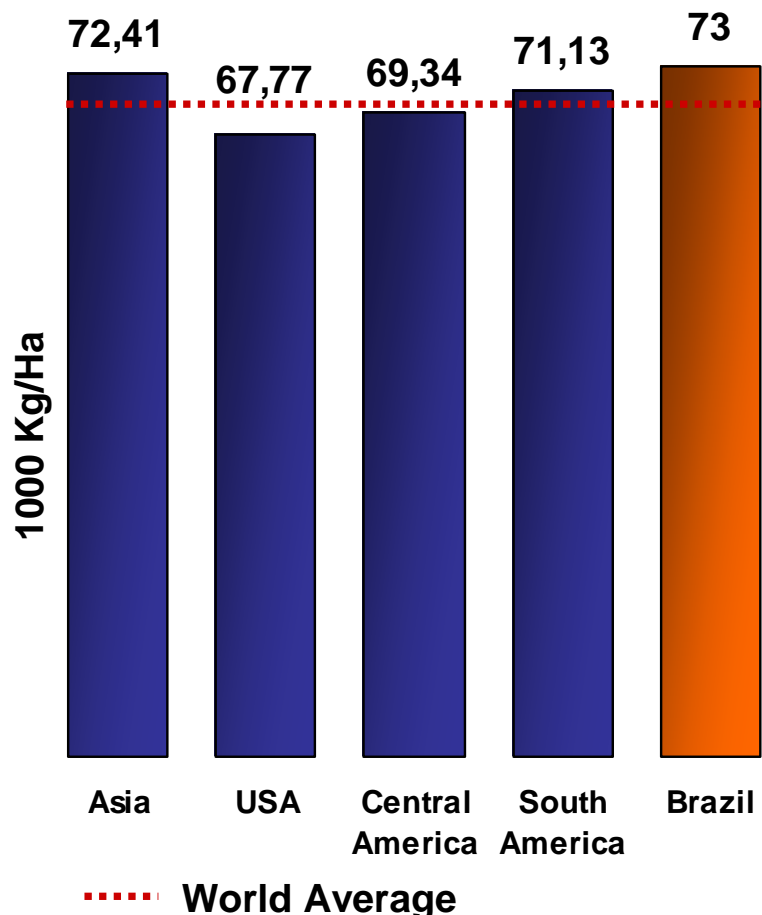
Latin America offers excellent potential to increase ethanol production

- Availability of lands, water and low labor cost also benefit production in Central and South America.

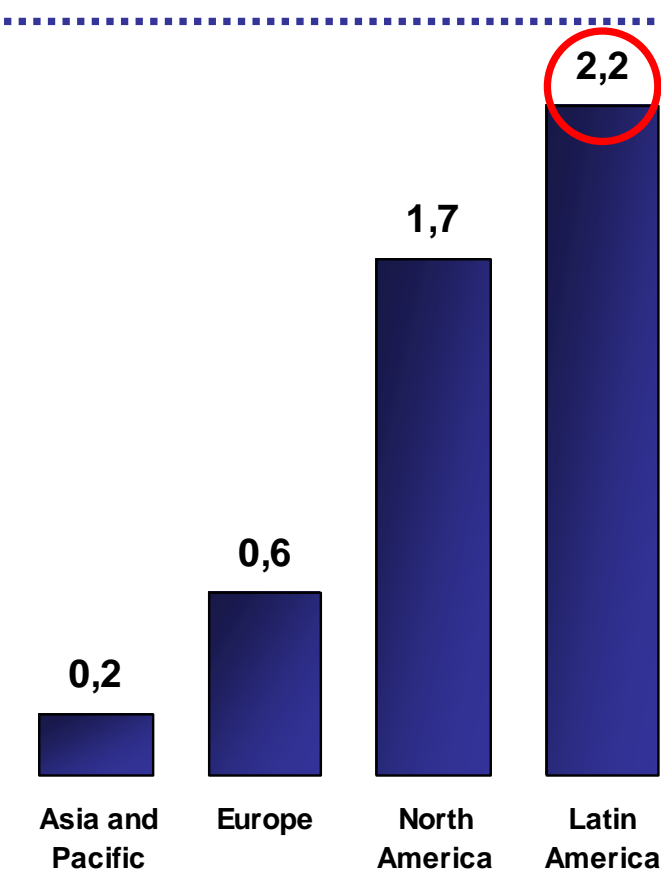
Latin America has the largest potential arable land per capita and only uses 13,9% of it.

Sugar-Cane Productivity

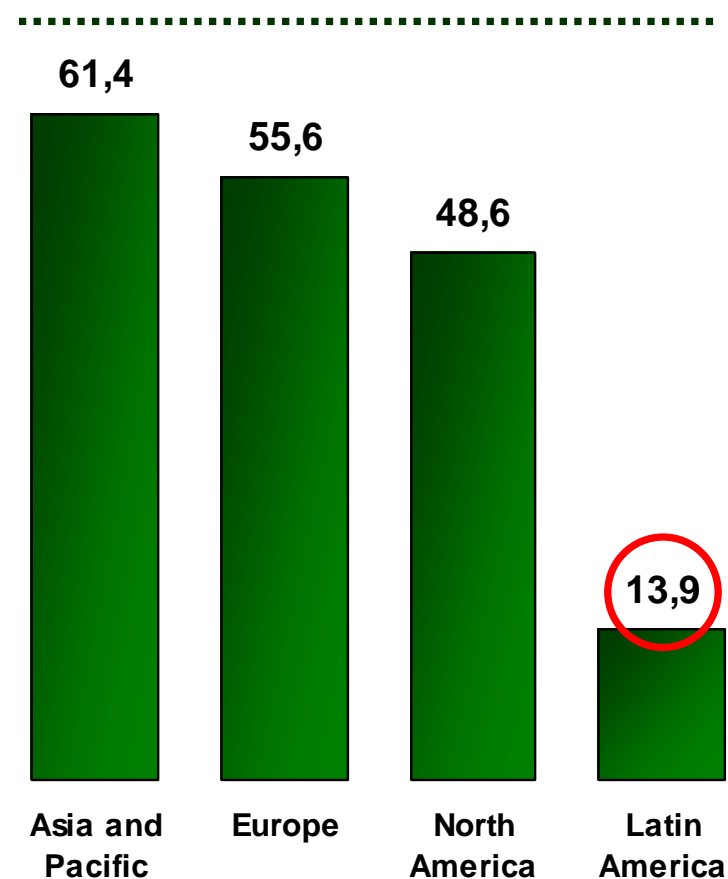
Yield per Hectare



Potential Arable Land (1.000 ha per capita)



% of Potential Arable Land actually in use

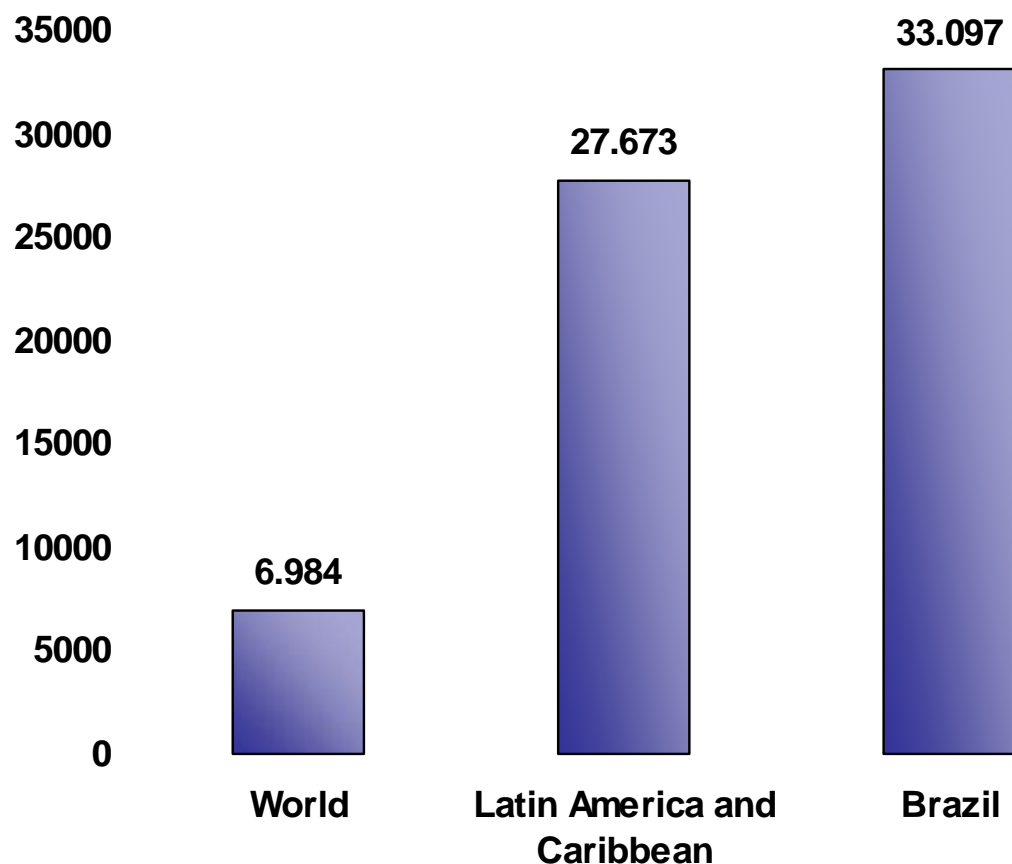


Latin America's Advantages

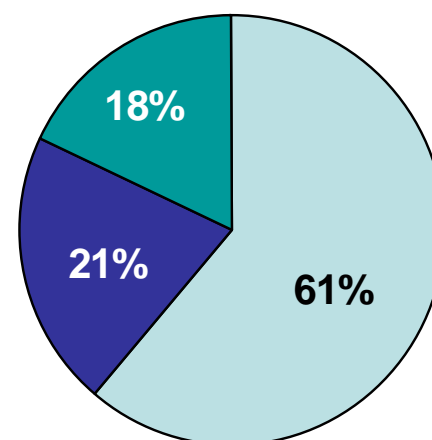
- 33% of the world's internal renewable water resources are concentrated in Latin America;

Annual water use by sector

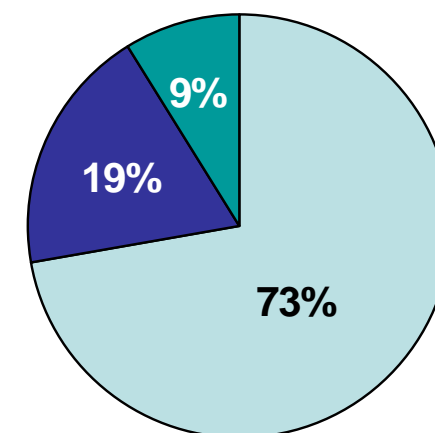
Internal renewable water resources
(m³ per capita – 1997)



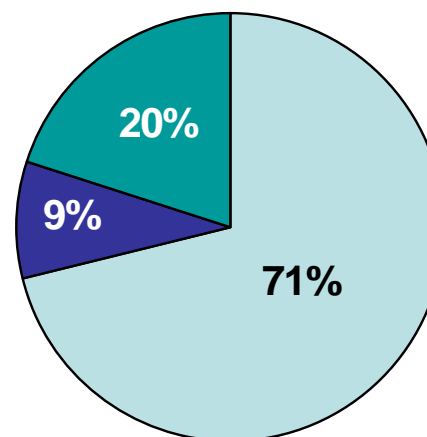
Brazil



Latin America and Caribbean

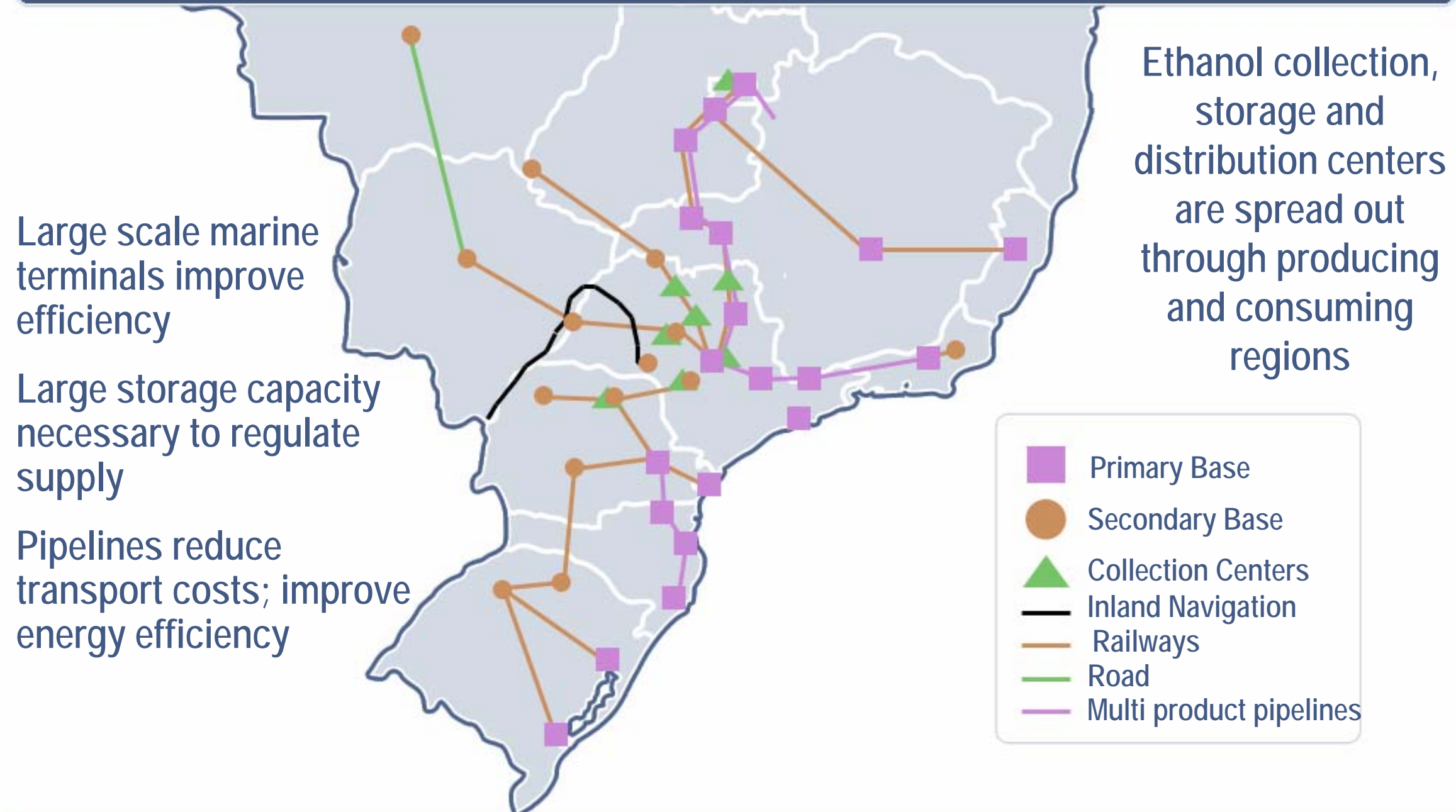


World



□ Agriculture ■ Domestic ■ Industrial

Ethanol Logistics System in Brazil



José Sergio Gabrielli de Azevedo
CEO and President
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