

The Transportation System

BRAZIL

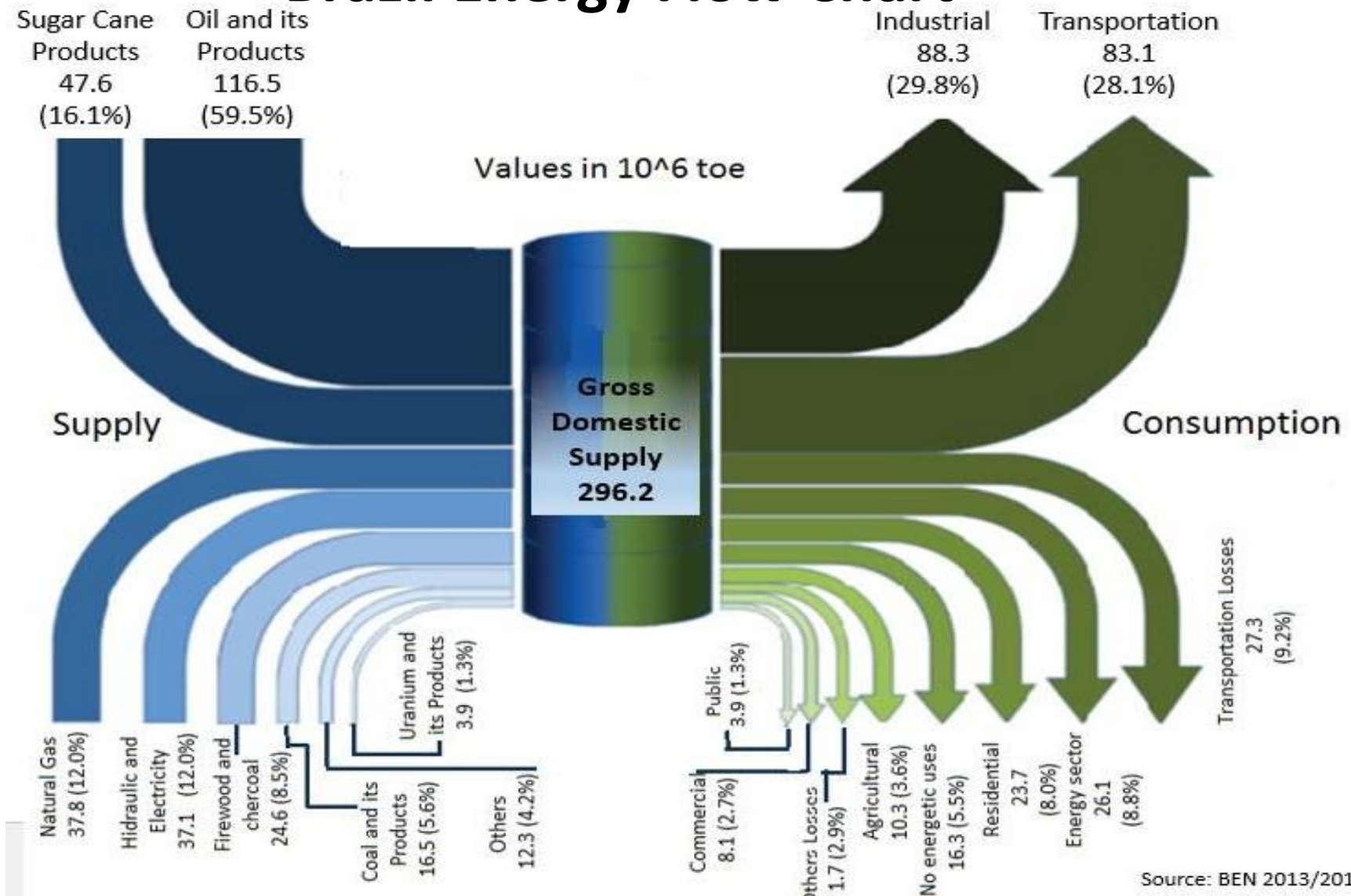


PRESENTER: RENAN NEVES MICHA
renanmicha@gmail.com

Understanding the Brazilian way and paving the roads to prosperity



Brazil Energy Flow Chart



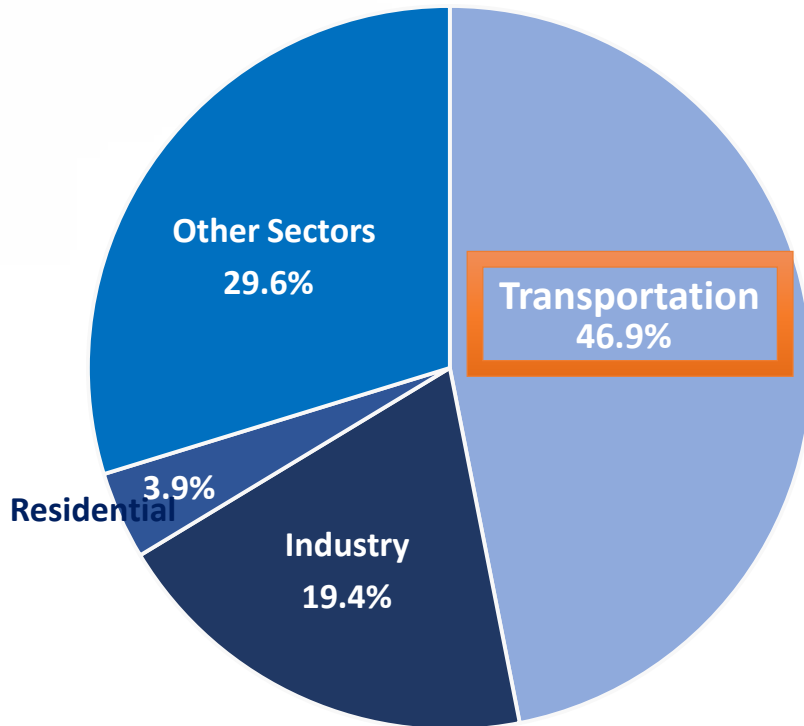
Drives the Economy

Uses too much Oil

BIG EMITTER OF CO₂!

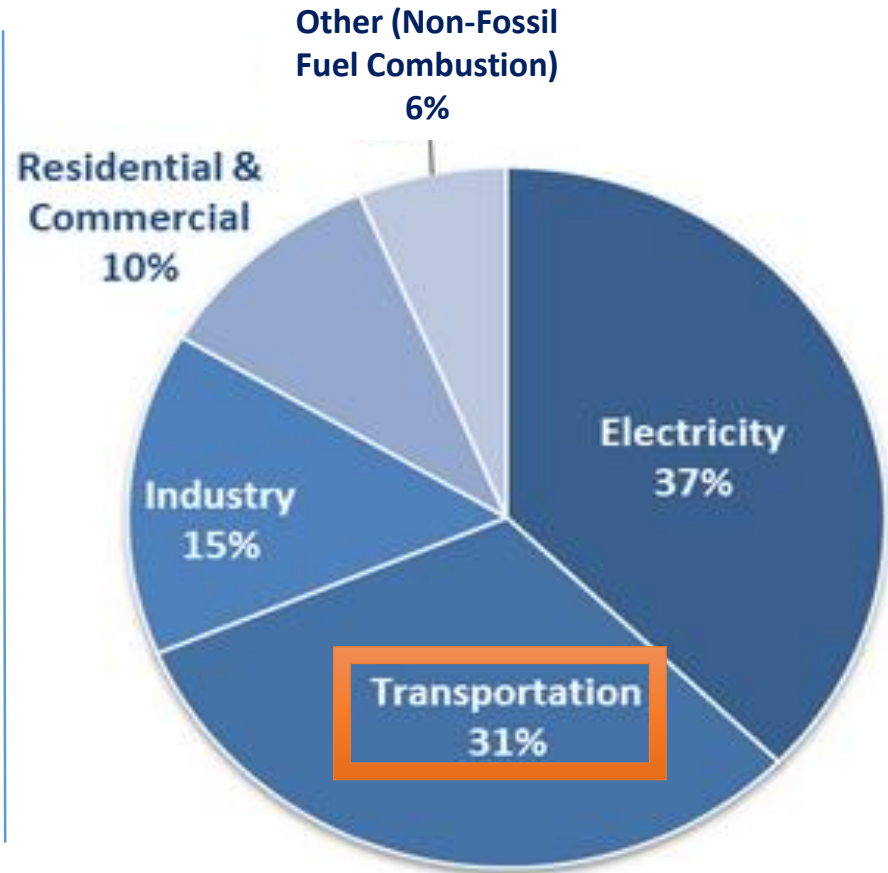
- CO₂ emissions by sector

BRAZIL



Source: Brazilian Energy Balance - 2014

UNITED STATES



Source: EPA, 2013

One of the worst infrastructure in the world



Infrastructure Top 10

The Global Competitiveness Index 2014-2015

Global rank*

| | |
|----------------------|----|
| Hong Kong SAR | 1 |
| Singapore | 2 |
| United Arab Emirates | 3 |
| Netherlands | 4 |
| Switzerland | 5 |
| Japan | 6 |
| Germany | 7 |
| France | 8 |
| Spain | 9 |
| United Kingdom | 10 |

Source: The Global Competitiveness Report 2014-2015

Note: * 2014-2015 rank out of 144 economies

**BRAZIL: RANKS 114 IN OVERALL
INFRASTRUCTURE**



Big traffic jams in major cities: São Paulo and Rio de Janeiro



Rio de Janeiro (47 minutes to get work)



Sao Paulo (40 minutes to get work)

Poor, fast and unplanned urbanization process led to an non-efficient system.

Lack of Investment for the Overall Infrastructure

**“R\$1 (\$1 = R\$3) TRILLION IS
DEMANDED IN INVESTMENTS. R\$92
BILLION WAS SPENT BY THE
GOVERNMENT IN THE LAST
10 YEARS”**

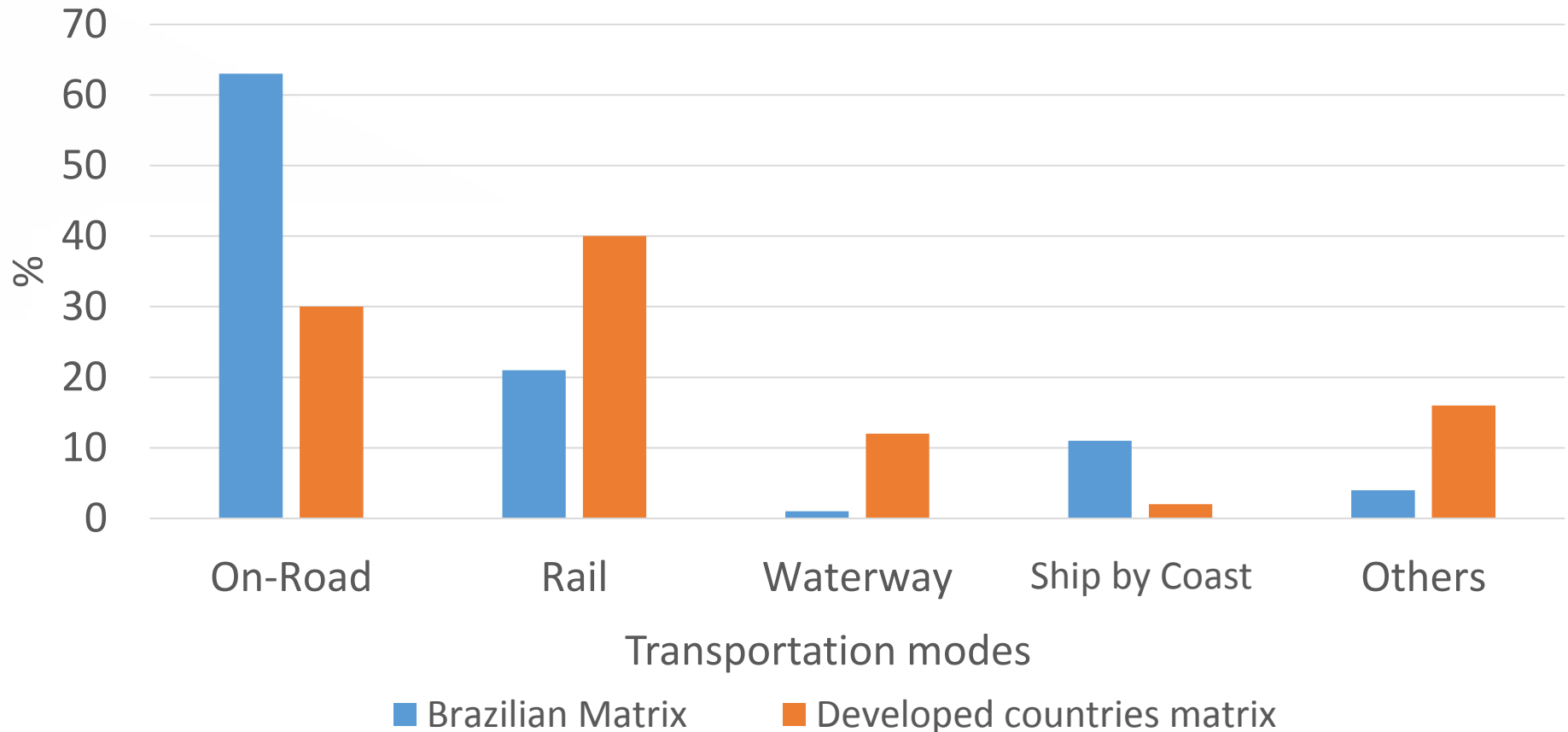
Clesio Andrade

President of the Brazilian Confederation of Transportation to “Istoe” Magazine



WE ARE OVERLY DEPENDENT ON ROADS...

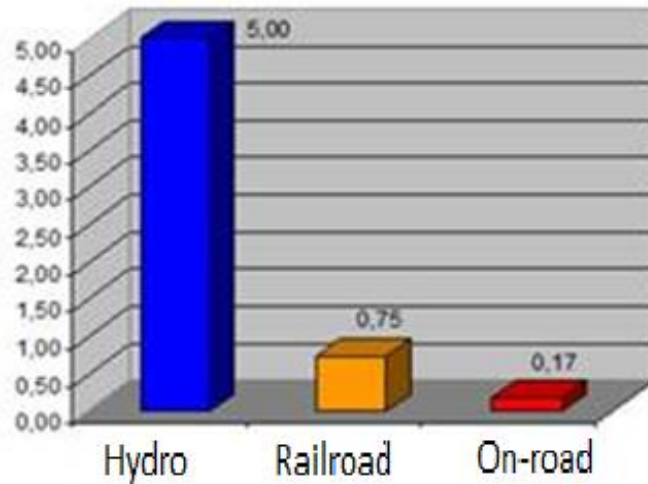
Transportation system by sector



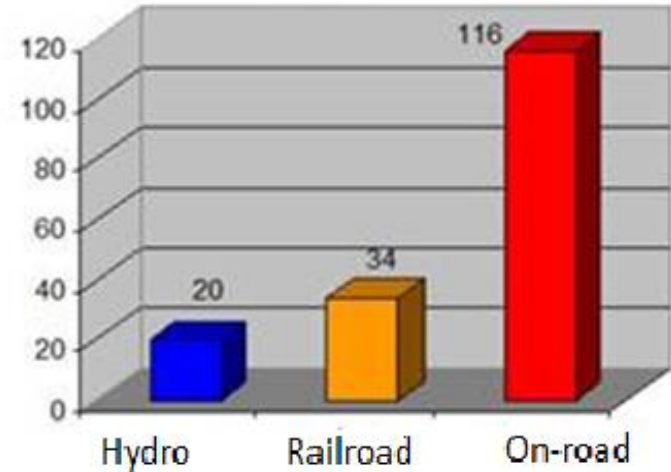
Source: Gepo/Pancrama Rural Magazine (2000).

Environmental aspects: comparison between transportation modes

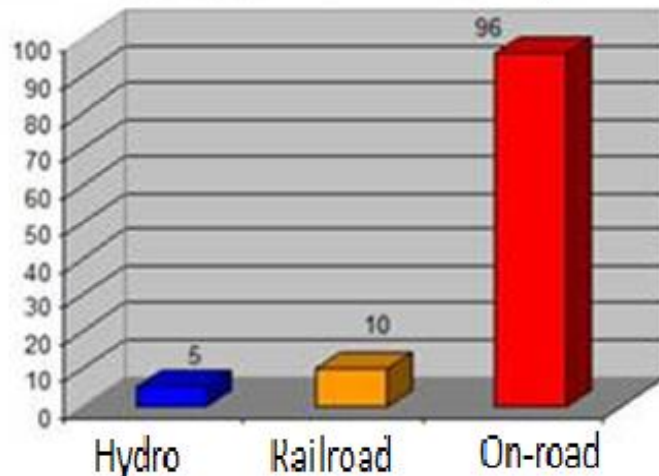
ENERGY EFFICIENCY: Load/Power (t/HP)



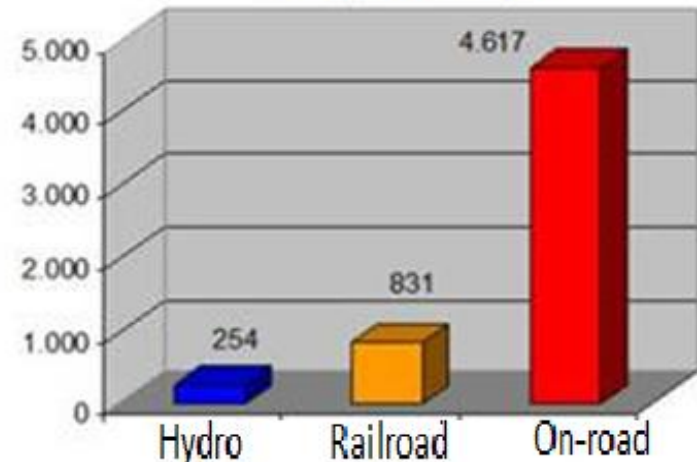
POLLUTANTS EMISSIONS (CO2 (kg/1000tku))



ENERGY CONSUMPTION: LITERS/1.000 tku



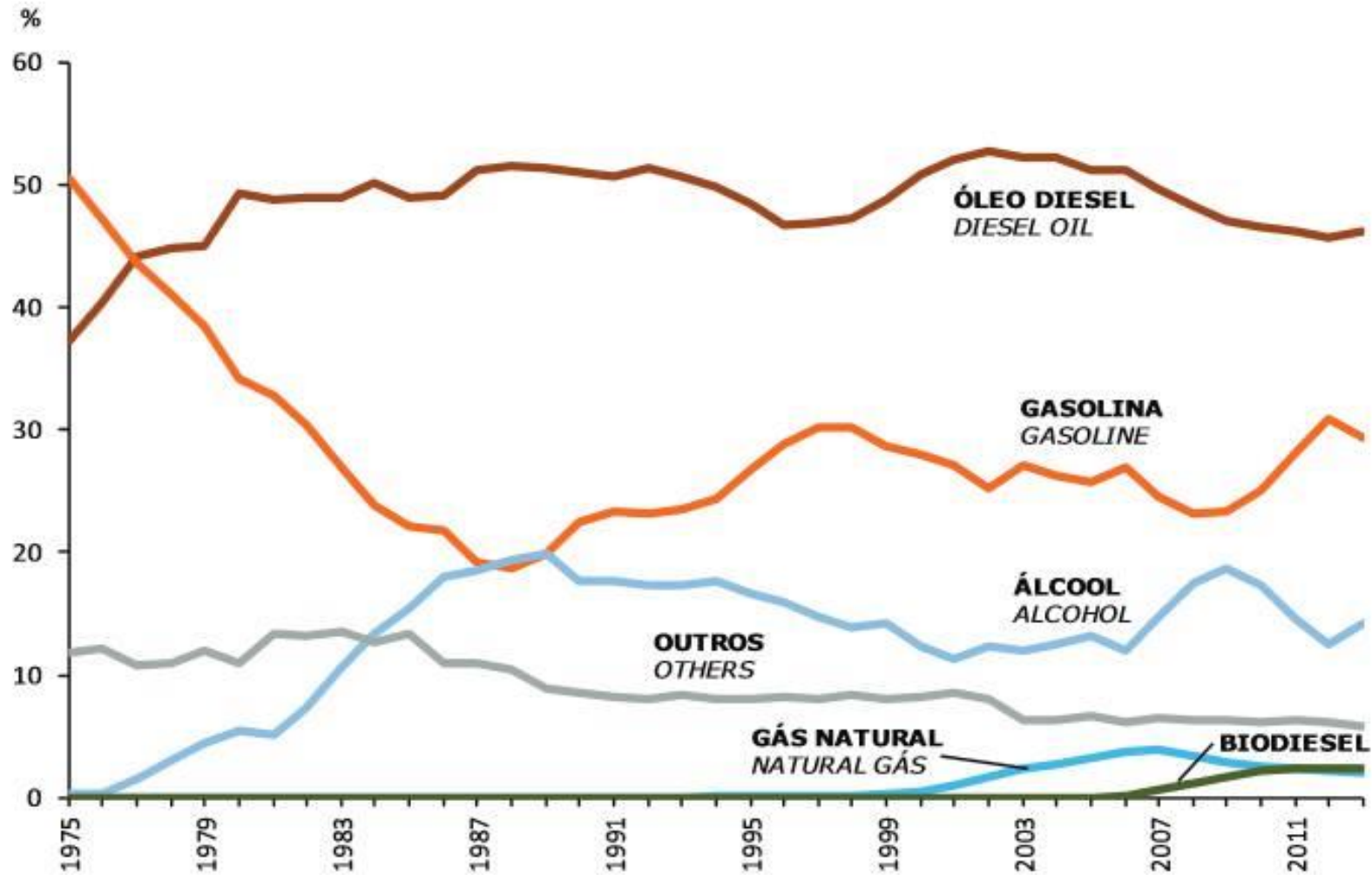
NOx (g/1000tku)



Source: European Comission and ANTAC ("Agencia Nacional de Transporte Aquaviario").

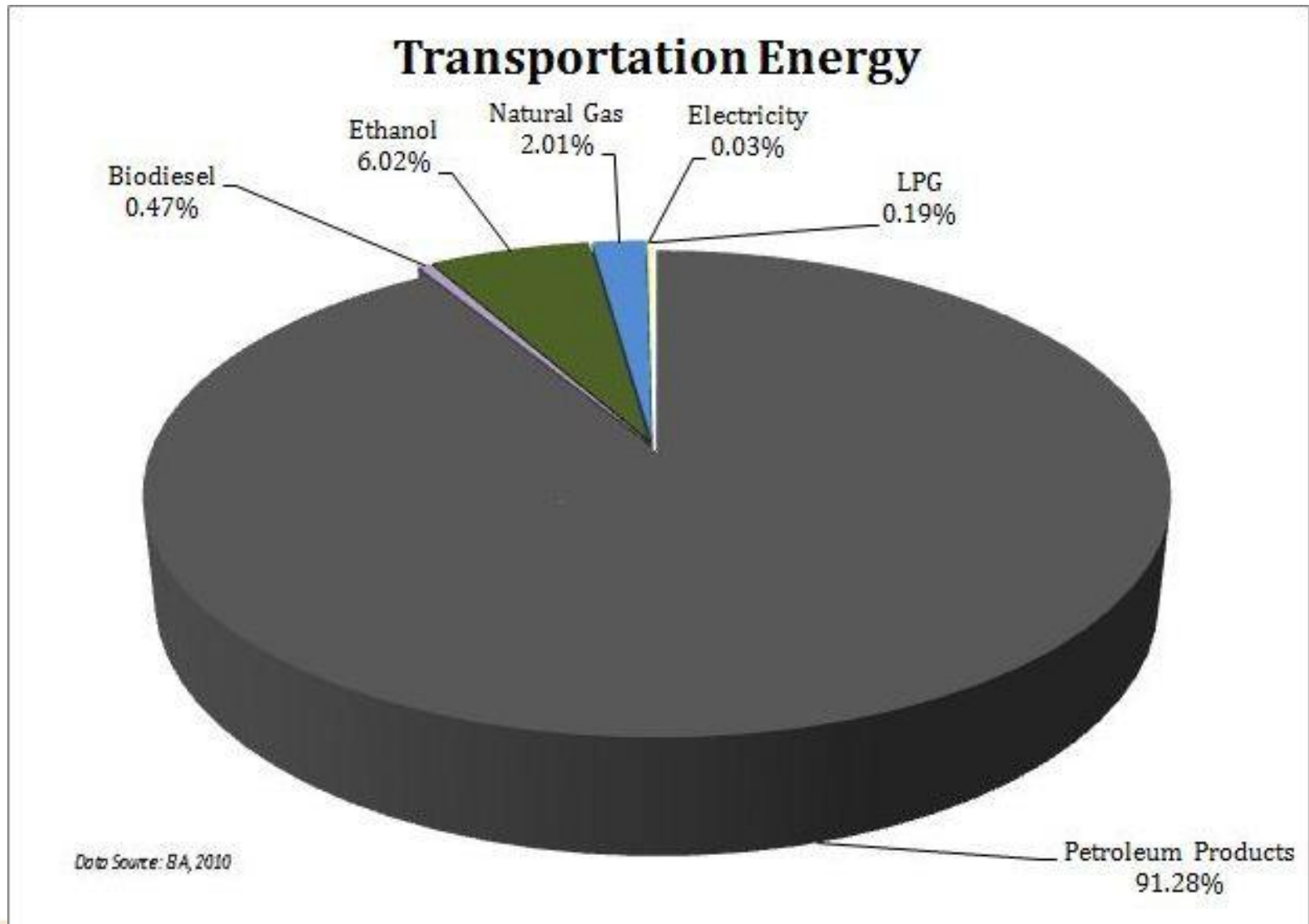
Estrutura do Consumo no Setor Transportes

Transportation Sector Energy Consumption



Source: Brazilian Energy Balance, Ministry of Mines and Energy

US Transportation Energy Mix



Thank you!