

# INTEGRATION WITH THE OIL SECTOR

**Marcio Felix**

Deputy Minister of Oil, Gas and Biofuels  
Brazil, 2016 to 2019



Harmonious coexistence  
between **biofuels**  
and **traditional fuels**  
is field-proven in **Brazil**  
and brings **continuity** to  
the oil industry in the  
**energy transition**





# BRAZIL'S ETHANOL JOURNEY 1975-2020

1975

Beginning of tetraethyl lead  
replacement (E12)

1979

E100 first  
vehicle

2003

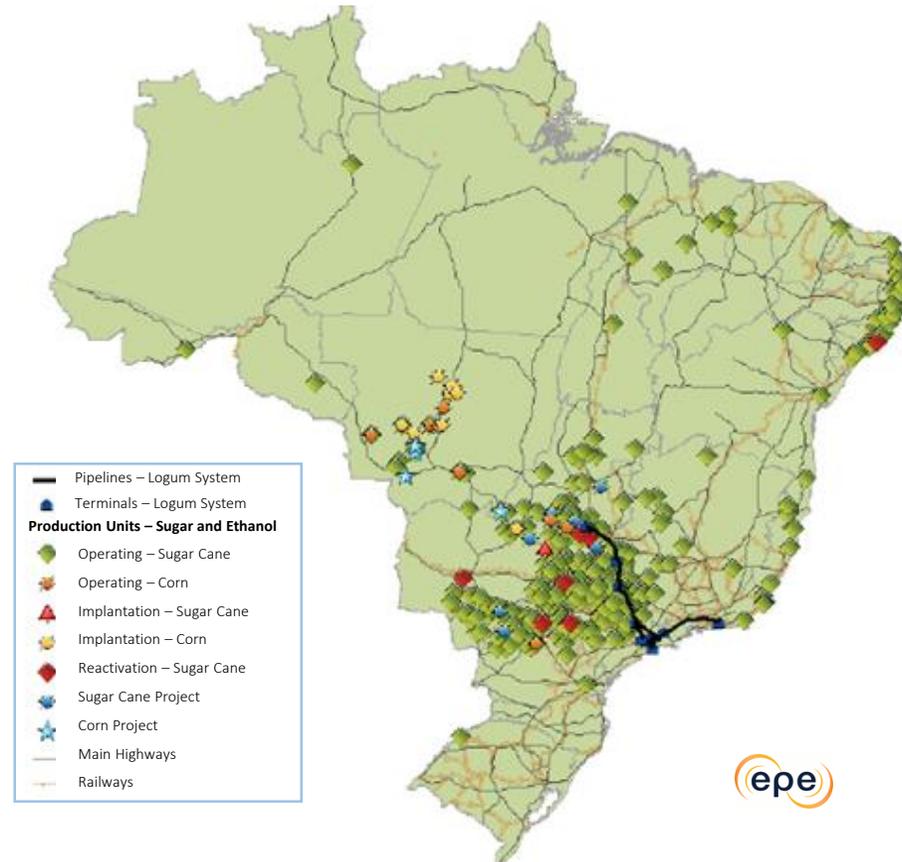
Flexible Fuel Vehicle  
E100 or E27

2019

Hybrid Flex Vehicle  
E100, E27 or electric

**Large-scale introduction** of biofuels in the  
Brazilian transportation system, with the use of  
E100 or ethanol mixed with gasoline

# ETHANOL AND GASOLINE SHARE THE DISTRIBUTION INFRASTRUCTURE, INCLUDING PIPELINES



E27 and E100 are distributed over **8.5 million km<sup>2</sup>** of the Brazilian territory in more than **40,000 service stations**

# FUELS DISTRIBUTION MAP



Oil Refineries  
(15)



Ethanol Producers  
(Cane + Corn)  
(321)



Pipelines



Distribution  
bases  
(261)



Highway



Railway



Retail Stations  
+ 40,000.



- Cane mills (312 units)
- Corn mills (9 units)
- ▲ Oil Refineries (15 units)
- Fuel Distribution Base (261 units)
- Pipeline
- Highways
- Railroads

**ETHANOL AND OIL  
DERIVATIVES HAVE BEEN  
TRANSPORTED IN SEQUENCING  
BATCH THROUGH PIPELINES  
FOR OVER 30 YEARS IN BRAZIL**

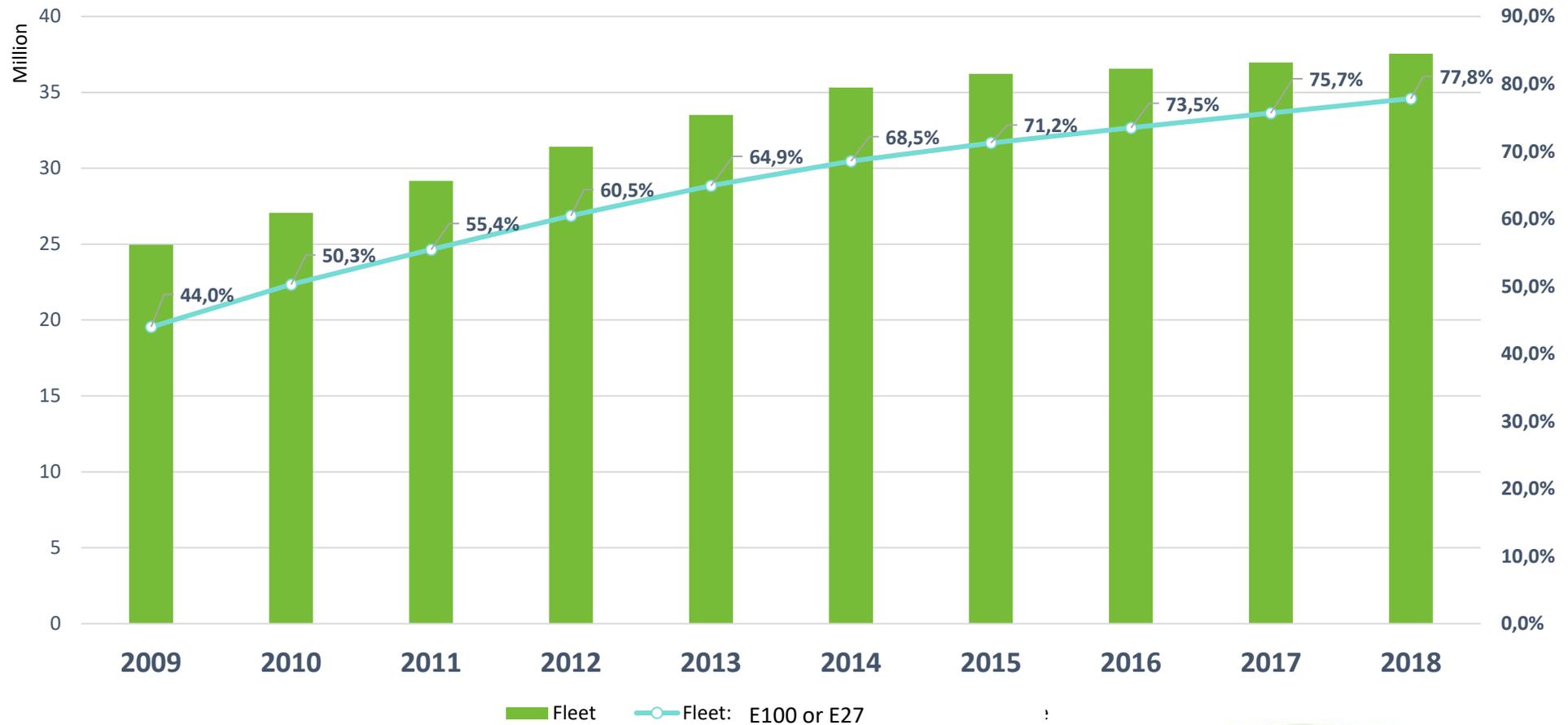
**ETHANOL  
TRANSPORTATION**

SOURCE: TRANSPETRO

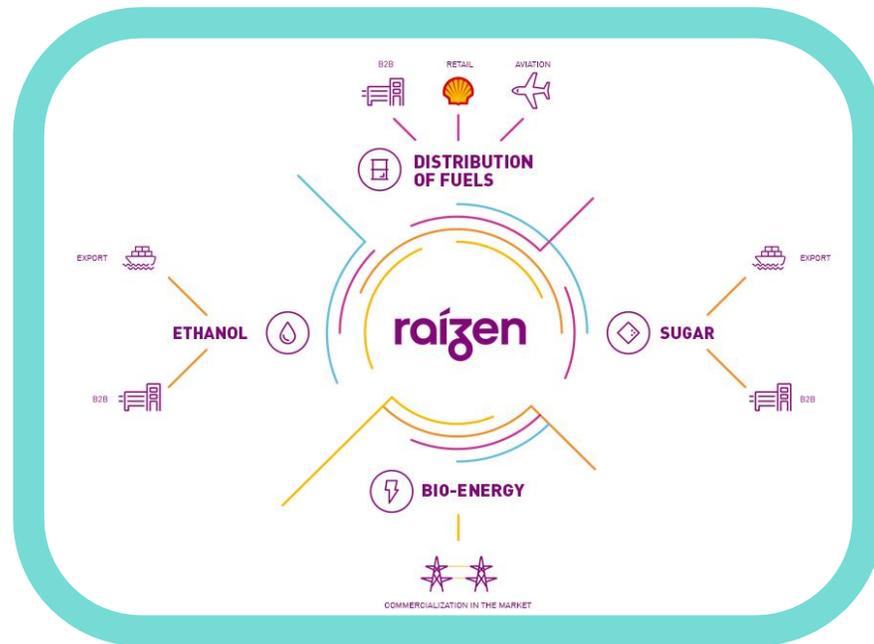


**— Ethanol transportation — Oil transportation — Gas transportation**

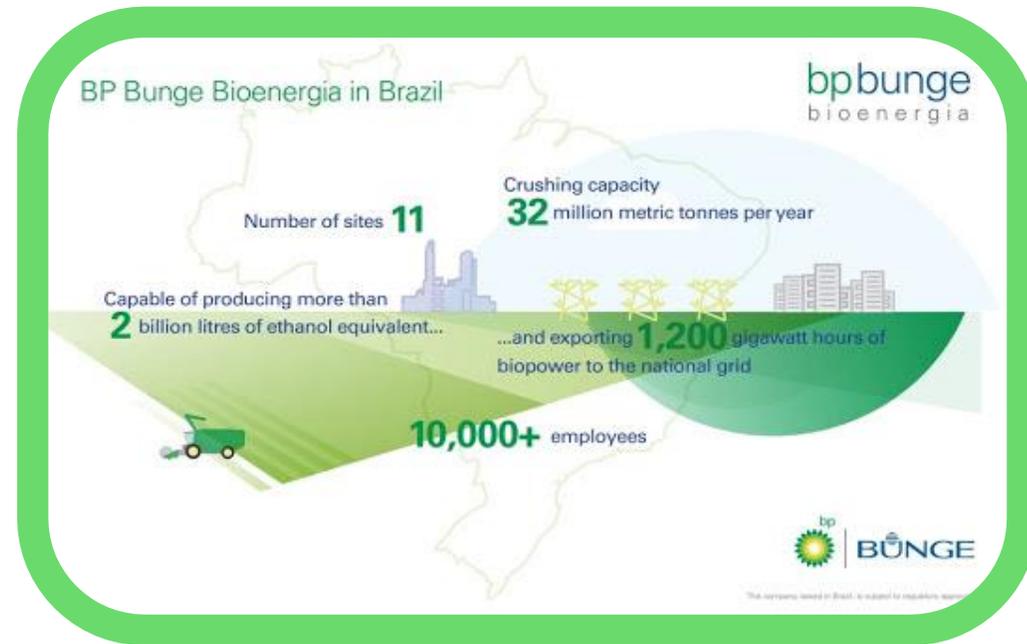
# BRAZILIAN FLEET (OTTO CYCLE)



# BRAZIL HAS BEEN A FIELD FOR GLOBAL MAJOR OIL COMPANIES ETHANOL PRODUCTION INVESTMENTS



2010



2019

## ETHANOL IS VERY IMPORTANT FOR TRADE BALANCE SAVINGS IN BRAZIL

The country is an important oil exporter (**more than 1 million barrels per day**), but it is not self-sufficient in refining and therefore imports gasoline and diesel

The use of ethanol plays a fundamental role in balancing the need for imported products. It also avoids overloading port and road infrastructure, leaving room for the export of the Brazilian agricultural harvest

In **2019**, the country avoided importing **450 thousand barrels of oil per day**, equivalent to **US\$ 13 billion dollars**

Foreign exchange savings with oil imports: **US\$ 540 billion dollars from 1975 to 2019**

# THE BRAZILIAN OIL AND ETHANOL SUSTAINABLE ENERGY TRANSITION



**Shell** and **BP** have joint ventures with **ethanol producers** in Brazil

Integrated systems distribution of **biofuels** and **oil derivatives** are **possible** and **advantageous**

Hybrid cars reinforce the **energy transition in Brazil** being an example of successful **synergy** among **oil, ethanol** and **automotive industries**

**Ethanol** is very important for **trade balance** savings  
**US\$ 540 billion** dollars from 1975 to 2019

The integration between **ethanol and fossil fuels** is field-proven in Brazil and brings **sustainability** and **longevity** to the oil industry in the energy transition



# SUSTAINABLE MOBILITY: ETHANOL TALKS INDIA

REALIZATION:



**BRAZIL**  
Sugarcane Bioenergy Solution



PROMOTION:



**ApexBrasil**

MINISTRY OF  
FOREIGN AFFAIRS



TECHNICAL SUPPORT

**DATAGRO**