Main goals at 1975:
To reduce external dependency on oil
To introduce in the market the mixture gasoline-ethanol
To stimulate the development of pure ethanol motors

Main goals at 2005:
To create jobs in the countryside
To reduce the external dependency on diesel
To diversify the energy sources
To use an energy program as a social program

Different Situations, Different Objectives and Different Policies

1975: Proalcool Program
2003: Flexfuel Cars
2005: Biodiesel Program
Bioenergy* Share in Renewable Energy in Brazil

Different Phases with Different Governance and Different Challenges...

Bioenergy – Biofuels History in Brazil

1937 – 1975

- Local mandates
- Government price control on fuels
- Ethanol blended accordingly to product offer
- Crescent external dependence on oil and fuels
- 1969-1975: higher economic growth period in Brazil
- 1973-1974: 1st Oil Shock
Bioenergy* Share in Renewable Energy in Brazil

Different Phases with Different Governance and Different Challenges...

Bioenergy – Biofuels History in Brazil

1975 – 1985

- National mandate for ethanol (E15-E20)
- Government price control on fuels
- Government subsidies for ethanol production
- Government incentives for development of a new vehicle platform
- External dependence on oil and fuels reach its peak
- 1975: Brazil launches Proalcool Program
- 1979: Industry launches E100 Vehicles
Bioenergy* Share in Renewable Energy in Brazil

Different Phases with Different Governance and Different Challenges...

Bioenergy – Biofuels History in Brazil

1986 – 1996

- National mandate for ethanol (E22)
- Government price control on fuels
- Government subsidies for ethanol production remain
- E100 vehicles sales: 94% of all vehicles sold (1986)
- External dependence on oil cut by half and stabilized
- 1986: Supply reduction (1st ethanol crisis)
- 1990: Harvest problems (2nd ethanol crisis)
Bioenergy* Share in Renewable Energy in Brazil

Different Phases with Different Governance and Different Challenges...

Bioenergy – Biofuels History in Brazil

1997 – 2002

- National mandate for ethanol (E20-25)
- Government price control on fuels remains until 2001
- Phase out of Government subsidies for ethanol production
- E100 vehicles sales declines due to ethanol crisis of 86 and 89
- External dependence on oil declines rapidly
- Last attempt to incentive E100 vehicles
- Gasoline increases share on fuel mix
- Proinfa is launched (2002) – Electricity: new product
Bioenergy* Share in Renewable Energy in Brazil

Different Phases with Different Governance and Different Challenges...

Bioenergy – Biofuels History in Brazil

2003 – 2005

- National mandate for ethanol (E20-25)
- End of government price control on fuels
- Flex-Fuel vehicles are launched with record sales in a few years
- External dependence on oil is reduced to its lower level
- Biodiesel program is launched
  - Different priorities
E100 Waves...

- E25 + (E100) Ethanol Vehicles
- E25 + (E100) Flex Fuel

Source: MME (2014)
Different Phases with Different Governance and Different Challenges...

*Bioenergy considered:* ethanol, sugarcane products and biodiesel – Source: Energy Balance – MME (2014)
Bioenergy – Biofuels History in Brazil

2006 – 2010

• National mandate for ethanol (E20-E25)
• Flex-Fuel vehicles sales: 90% of all vehicles sold (1986)
• External dependence on oil ends
• 100 new Sugarcane Mills were built (strong government support)
• Brazil reaches B5 in 2010 (3 years before date)
Bioenergy* Share in Renewable Energy in Brazil

Different Phases with Different Governance and Different Challenges...

Bioenergy – Biofuels History in Brazil

2011 – 2014

- National mandate for ethanol (E18-E25)
- 2011: Harvest problems (3\textsuperscript{rd} ethanol crisis)
- New policy instruments to give ethanol incentives
- Revision of ANP role (new instruments)
- International financial crisis restricted private sector intentions to expand ethanol production, following a strong demand
- Federal Tax Policy (2013): ethanol aliquots were down to R$ 0.00
- New lines of credit: Sugarcane fields renewal
Policy and Regulatory Framework

The law of Brazilian energy policy includes as one of the objectives: to increase the share of biofuels in the national energy mix.

The main general instruments include:

✓ Mandatory mix: ethanol (E18-25) and biodiesel (B5).
✓ Tax differentiation regime in federal level.
✓ Line of credit for ethanol strategic buffer stocks (off-season supply) and for implementing or renewing sugarcane plantations.
✓ Public auctions for biodiesel market supply.
✓ Research funding (CT-Petro, created in 1999 and CT-Energ, in 2000).
✓ Agro-ecological zoning that orients and guarantees that raw-material production will take place only in suitable areas. Government concluded zoning of sugarcane (2009) and palm oil (2010).
Light Vehicles Fuel Demand in Brazil

Three different moments:
1. Ethanol growth/surplus
2. Ethanol shortage
3. Ethanol recovery

Source: MME (2014)
Brazilian Ethanol Market Characteristics

- Flex Fuel cars counts today 60% of the fleet
- Recent modifications of commercialization rules for Anhydrous Ethanol (E25) with contracts for season, and the establishment of minimum fuel stocks are changing this dynamics.
- E100 is functioning as a buffer of all anhydrous demand.

E100 + Flex Fuel + E25 contracts + Stocks = Minor government intervention on market dynamics

Source: MME (2014)
Anhydrous Contract Regime

Until April 1st. (Year Y)

Retailer gathers contracts with sugar mills that is correspondent to at least 90% of its commercialization of gasoline C in the previous year (Y-1)

Retailer gathers contracts with sugar mills that is correspondent to at least 70% of its commercialization of gasoline C in the previous year (Y-1)

Retailer gathers contracts with sugar mills that is correspondent to less than 70% of its commercialization of gasoline C in the previous year (Y-1)

Until Junel 1st. (Year Y)

Retailer gathers contracts with sugar mills that is correspondent to at least 90% of its commercialization of gasoline C in the previous year (Y-1)

ANP will communicate Gasoline A producers (Refineries) the retailers that attended the Contract Regime

Complimentary volumes may be purchased either by contracts or by spot market

Complimentary volumes may be purchased either by contracts or by spot market

The retailer may only be allowed to purchase volumes in the spot market and must prove this purchase in order to acquire Gasoline Volumes

ANP will communicate Gasoline A producers (Refineries) the retailers that attended the Contract Regime

Retailer gathers contracts with sugar mills that is correspondent to at least 70% of its commercialization of gasoline C in the previous year (Y-1)
Ministério de Minas e Energia

Policy and Regulatory Framework

BIODIESEL
BIODIESEL GOVERNANCE

CEIB
INTERMINISTERIAL COUNCIL

CNPE
ENERGY

PR
STRATEGY

IMPLEMENTING GROUP
POLICY IMPLEMENTATION

MME
FUEL SUPPLY

MF
PRICE DYNAMICS

MDA
SOCIAL FUEL SEAL

MAPA
AGRICULTURE POLICY

MDIC
INDUSTRIAL ASPECTS

ANP
REGULATION AND AUCTIONS

IG
COORDINATION

CONAB
HARVEST MONITORING

EMBRAPA
AGRICULTURAL RESEARCH

BNDES
FINANCING
Brazilian Biodiesel Market Characteristics

- Commercialization is done in public auctions, every two months.
- Preferential allocation of 80% of the market for producers with the Social Fuel Certificate
  - Since 2005 ANP is responsible for biodiesel auctions.
  - The initial goal was to develop the biodiesel market and stimulate the production in order to guarantee sufficient amounts for the refineries and distributors to carry on the mixture (BX) determined by law.
  - The auctions are still happening, but now the focus is to ensure that all diesel commercialized in Brazil contains the proper percentage of biodiesel required by law.
  - It’s also important to establish the preferential market for producers with the Social Fuel Certificate

Source: MME (2014)
Oil & natural gas trade dependence in selected regions

Energy trade increases for all fossil fuels & biofuels, with differing, but profound, energy security & competitiveness implications

... three different scenarios for 2035

Share of Renewables in Primary Energy

- **2011**: 13%
- **Current Policies Scenario**: 15%
- **New Policies Scenario**: 18%
- **450 Scenario**: Takes account only of policies already enacted as of mid-2013

This is not even the half-way!


*This is what is necessary to set the energy system on track to have a 50% chance of keeping to 2°C the long-term increase in the average temperature.*
Final Remarks

• Public polices it’s key instrument to develop bioenergy industry, and government support plays an important role in this scenario.

• The regulatory framework for biofuels in Brazil focus on the character of the energy aspect of biofuels. Regulatory Agency operate in the entire chain of production and market. Government role was (and still is) fundamental (for ex. ethanol contracts).

• The global environment for biofuels has a strong influence on local and regional policies, and It is worth to mention that some instruments may distort the performance of renewables such as 1st gen cap, multiply factors etc.

• Brazilian Government supports biofuels commoditization. In our view, biofuel trade must be stimulated, not restricted. It must have no trade barriers – or, in other words, it has to be treated the same way as oil, gas and oil derivatives.

• It will be strategic for any company (everywhere in planet) to get ready as soon as possible for a strong demand that will come in the near future!