



# Planning and implementation of regulatory framework for Bioenergy in Brazil

**Expert Workshop for the *How2Guide for Bioenergy***  
Biomass Resources and Bioenergy Potential in South America

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**Piracicaba, November 28<sup>th</sup>, 2014**



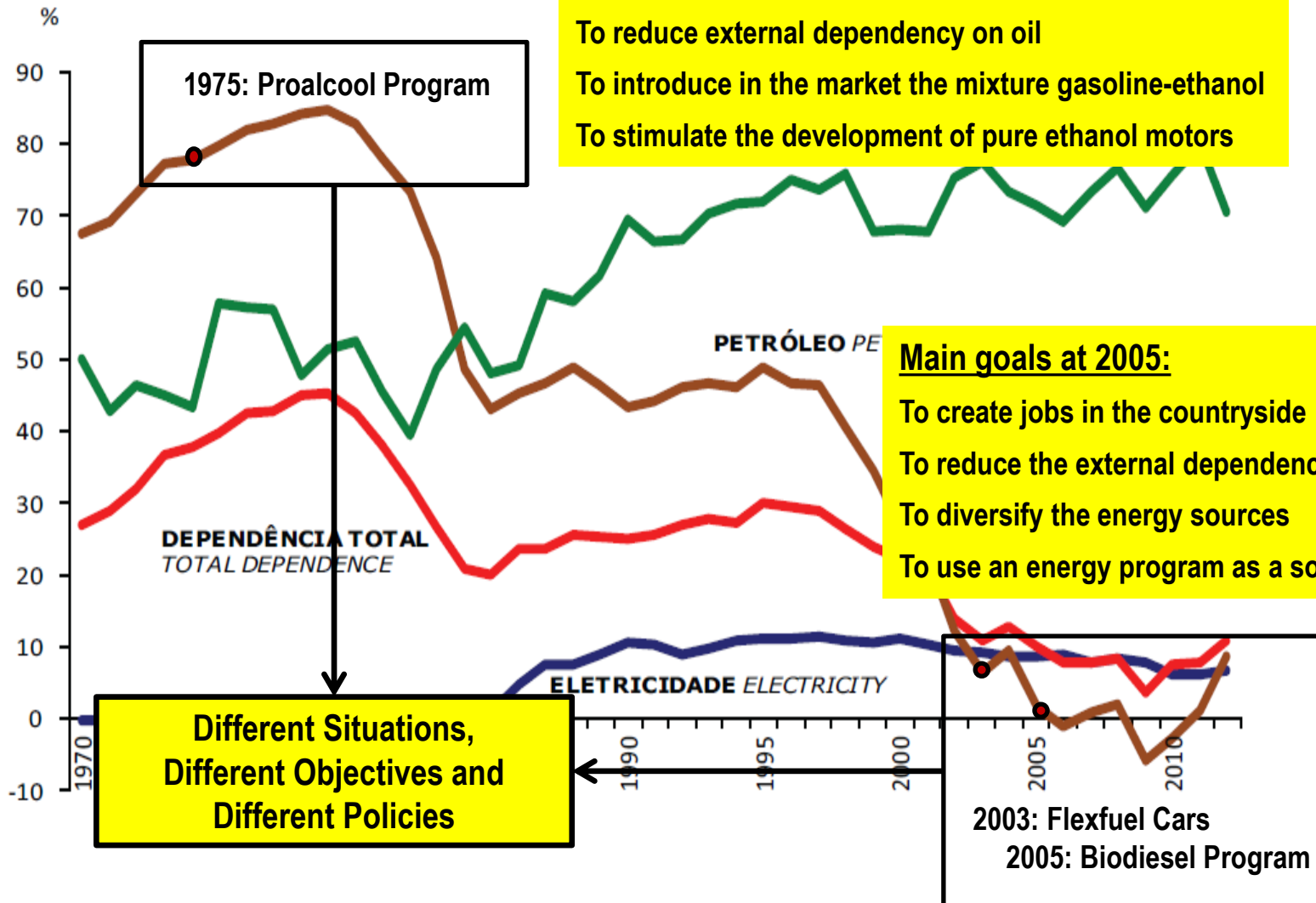
# External Dependence on Energy in Brazil

## Main goals at 1975:

To reduce external dependency on oil

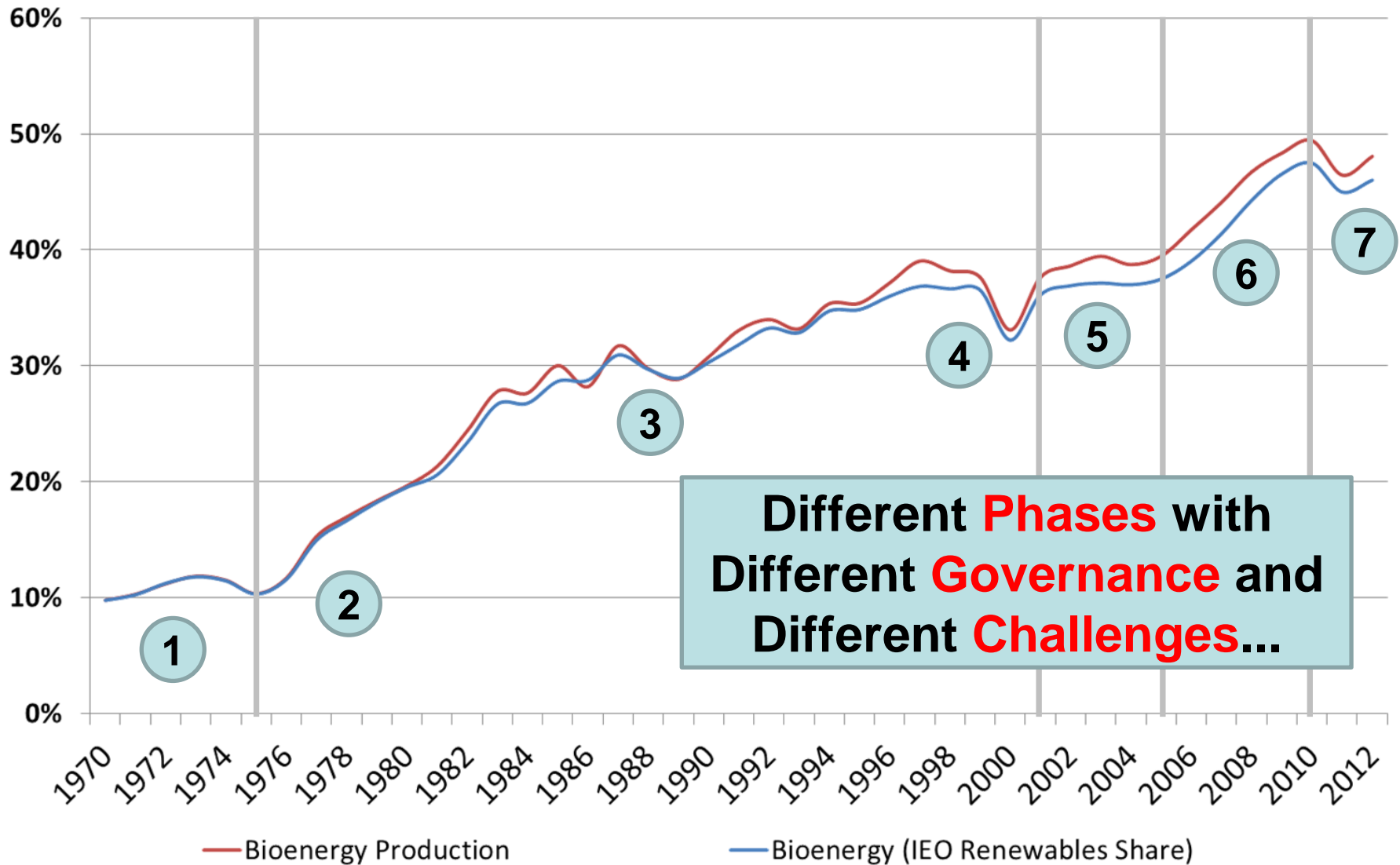
To introduce in the market the mixture gasoline-ethanol

To stimulate the development of pure ethanol motors





# Bioenergy\* Share in Renewable Energy in Brazil



\* Bioenergy considered: ethanol, sugarcane products and biodiesel – Source: Energy Balance – MME (2014)



# Bioenergy – Biofuels History in Brazil

## 1

## 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: 1<sup>st</sup> Oil Shock



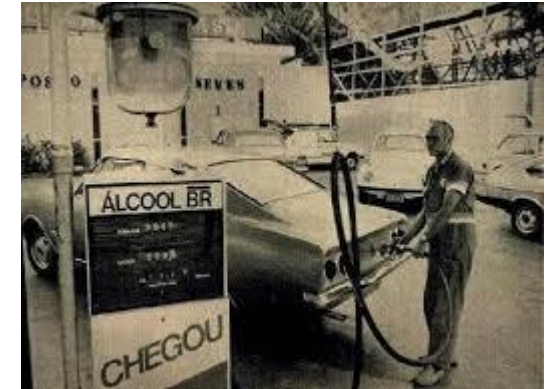


# Bioenergy – Biofuels History in Brazil

2

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 – Biofuels History in Brazil

3

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 (1<sup>st</sup> ethanol crisis)**
- **1990: Harvest problems (2<sup>nd</sup> ethanol crisis)**





# Bioenergy – Biofuels History in Brazil

4

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) – Bio-electricity: new product







# Bioenergy – Biofuels History in Brazil

5

2003 – 2005

- National mandate for ethanol (E20-25)
- End of government price control on fuels
- End of Government subsidies for ethanol
- 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
- Brazilian Energy Research Enterprise (EPE) is created
  - PDE (Ten Years' Plan for energy)
  - PNE (Long Term Plan for energy)
  - BEN (National Energy Balance)





# Bioenergy – Biofuels History in Brazil

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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 (special lines of credit)**
- **Brazil reaches B5 in 2010 (3 years before date)**





# Bioenergy – Biofuels History in Brazil

7

2011 – 2014



- National mandate for ethanol (E18-E27.5)
- 2011: Harvest problems (3<sup>rd</sup> 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
- Range of Ethanol blend was extended to 27,5% (volume mixture)



# 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 (E18-27.5) and biodiesel (B7).**
- ✓ **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).**



# Biofuel Business Responsibilities...

## WHAT ENERGY POLICY MAKERS SEEK?

**Energy Security = Price + Quality + Regular Supply**



**NON-NEGOTIABLE ASPECTS!**

**BIOFUELS PRODUCERS CANNOT IGNORE  
THAT IN PUBLIC POLICIES...**

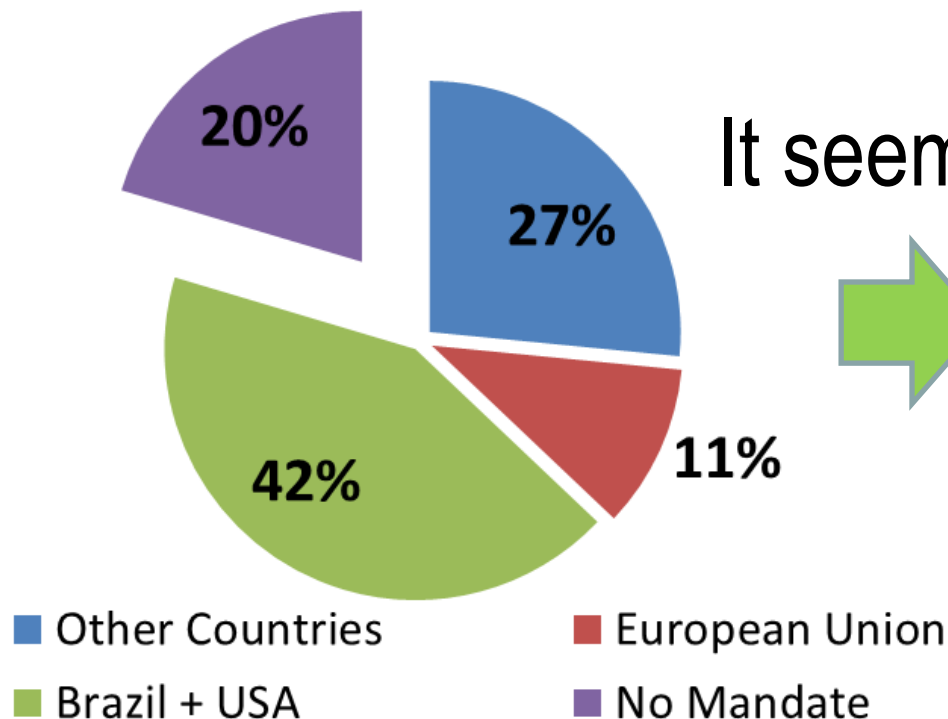
- **Subsidies have value + time limitations**
- **Mandates depend on regular supply**





# What's happening today?

- 62 countries have different biofuels mandates (biodiesel and ethanol)
- Of the global fuel market (in volume):



It seems a lot, but...

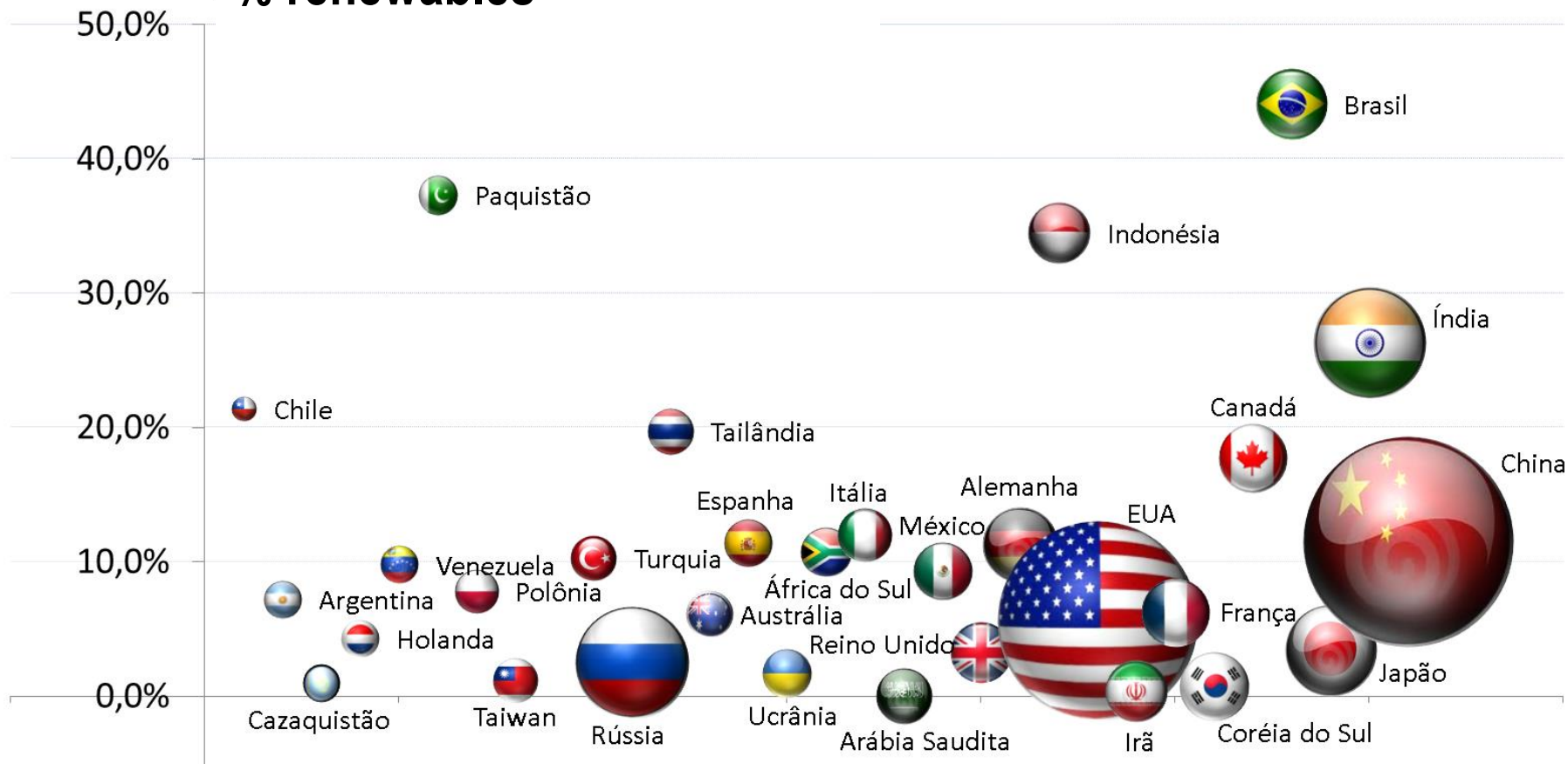


	2013
Global Ethanol Share	6,9%
Ethanol Share (Mandates' Average)	8,7%
Global Biodiesel Share	1,4%



# Targets x Results

## % renewables



**Brazil: 2011** (Source: MME)

**Other countries: 2010** (Different sources)

Obs: Size of the country is proportional to its energy demand



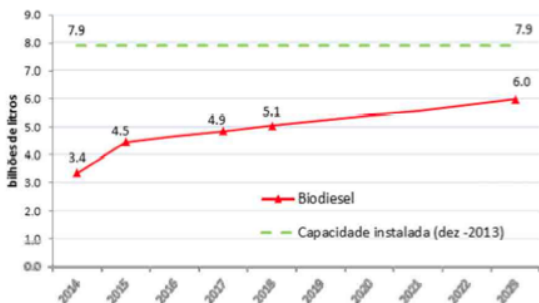
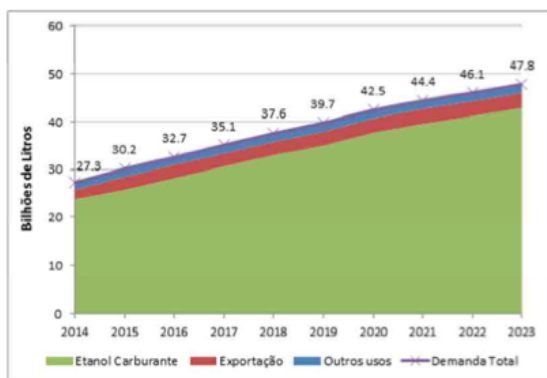


### PLANO DECENTAL DE EXPANSÃO DE ENERGIA 2023



# Energy Planning / Revising Scenarios

- PDE (Ten Years Plan): revised every year, after open public consultancy (PDE 2023)
- It is not a mandatory energy plan but it helps stakeholders to visualize the demand and supply tendencies in a specific scenario regarded as viable
- PNE (Long Term Energy Planning): revised after 5 years.



República Federativa do Brasil  
Ministério de Minas e Energia

## Plano Nacional de Energia 2050

Apresentação e Debates dos Cenários socioeconômico e de demanda de energia

**MME** **epe**

Horário: Dia 13 de Novembro  
Local: Auditório Térreo do Ministério de Minas e Energia, Brasília, DF.

**14:00 – 14:30 Abertura**

**14:00 - 14:15** Secretário de Planejamento e Desenvolvimento Energético do MME  
**Altino Ventura Filho**

**14:15 - 14:30** Empresa de Pesquisas Energéticas  
**Amilcar Guerreiro**

**14:30 – 17:30 Apresentação e Debate**

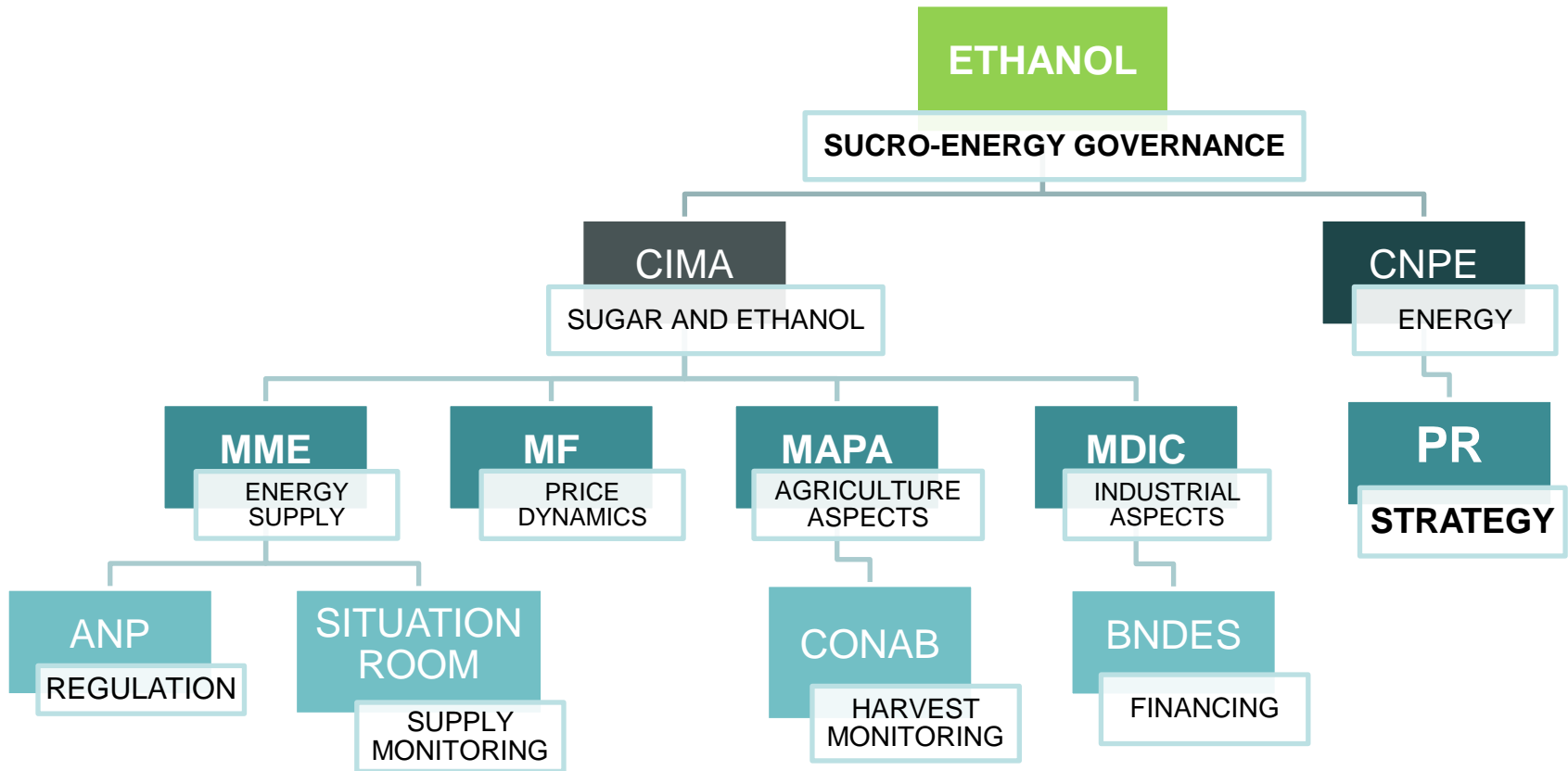
**14:30 – 15:20** Empresa de Pesquisa Energética

**15:20 - 17:30** Perguntas, Comentários e Debates



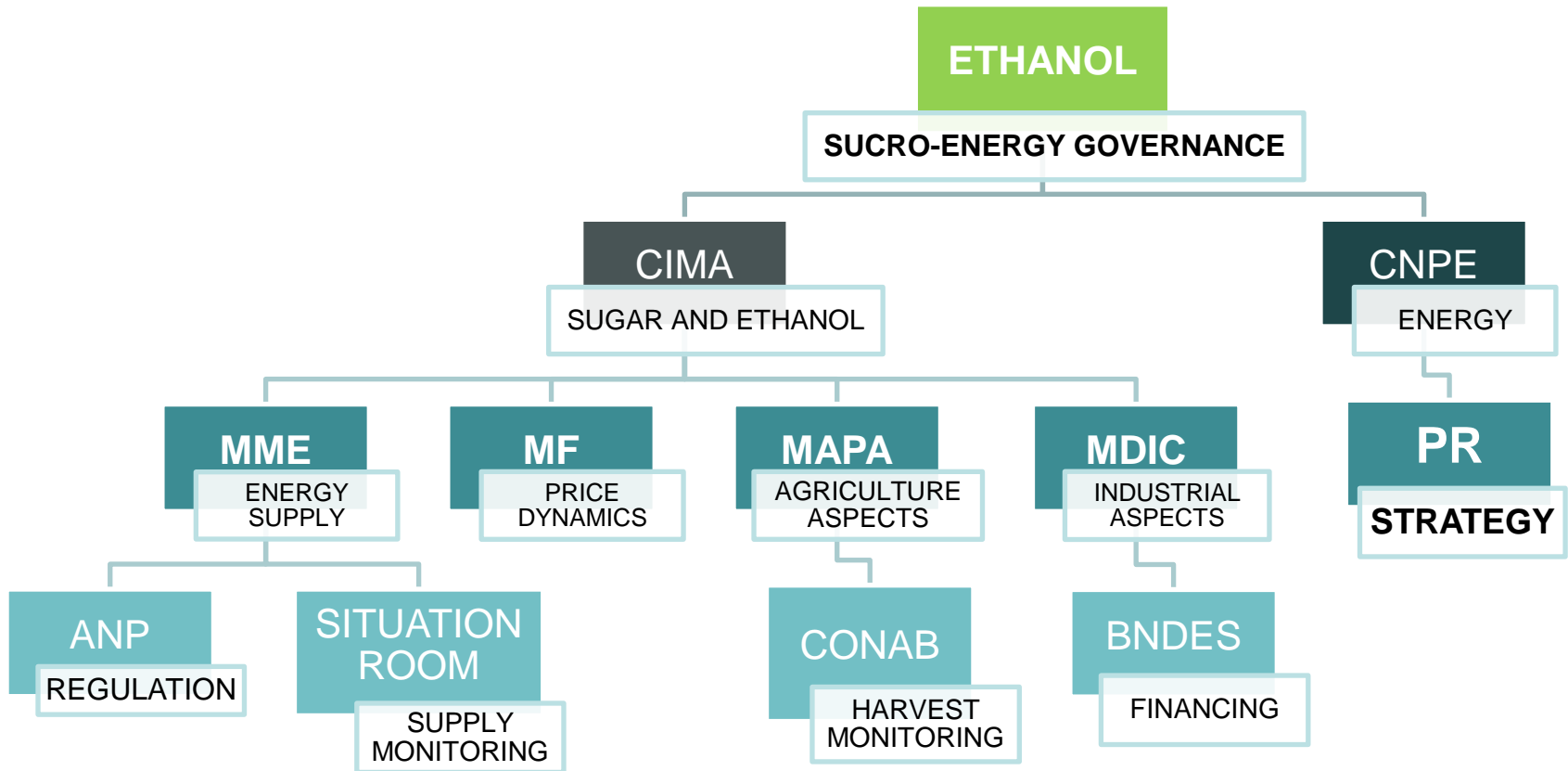


# Policy and Regulatory Framework



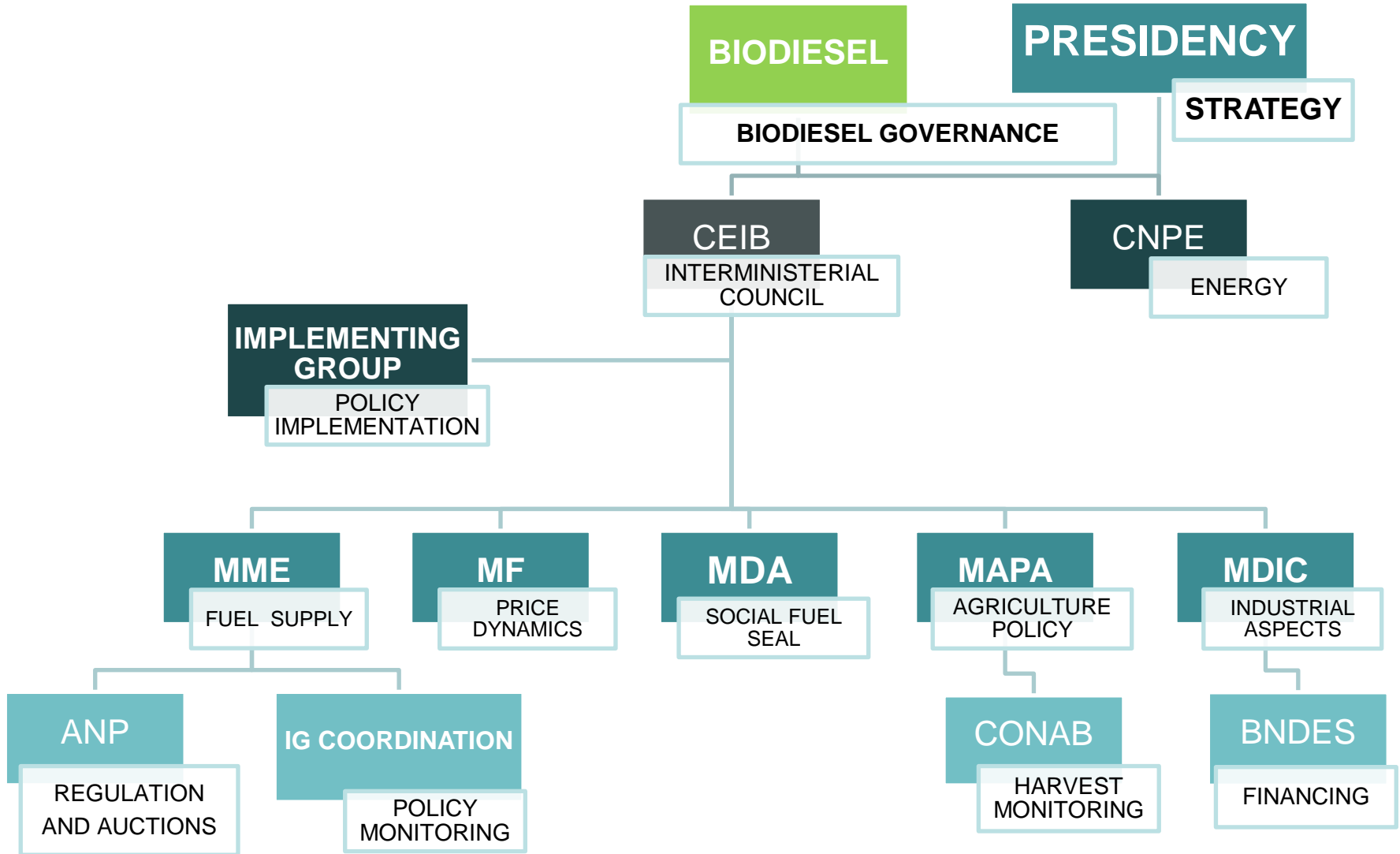


# Policy and Regulatory Framework



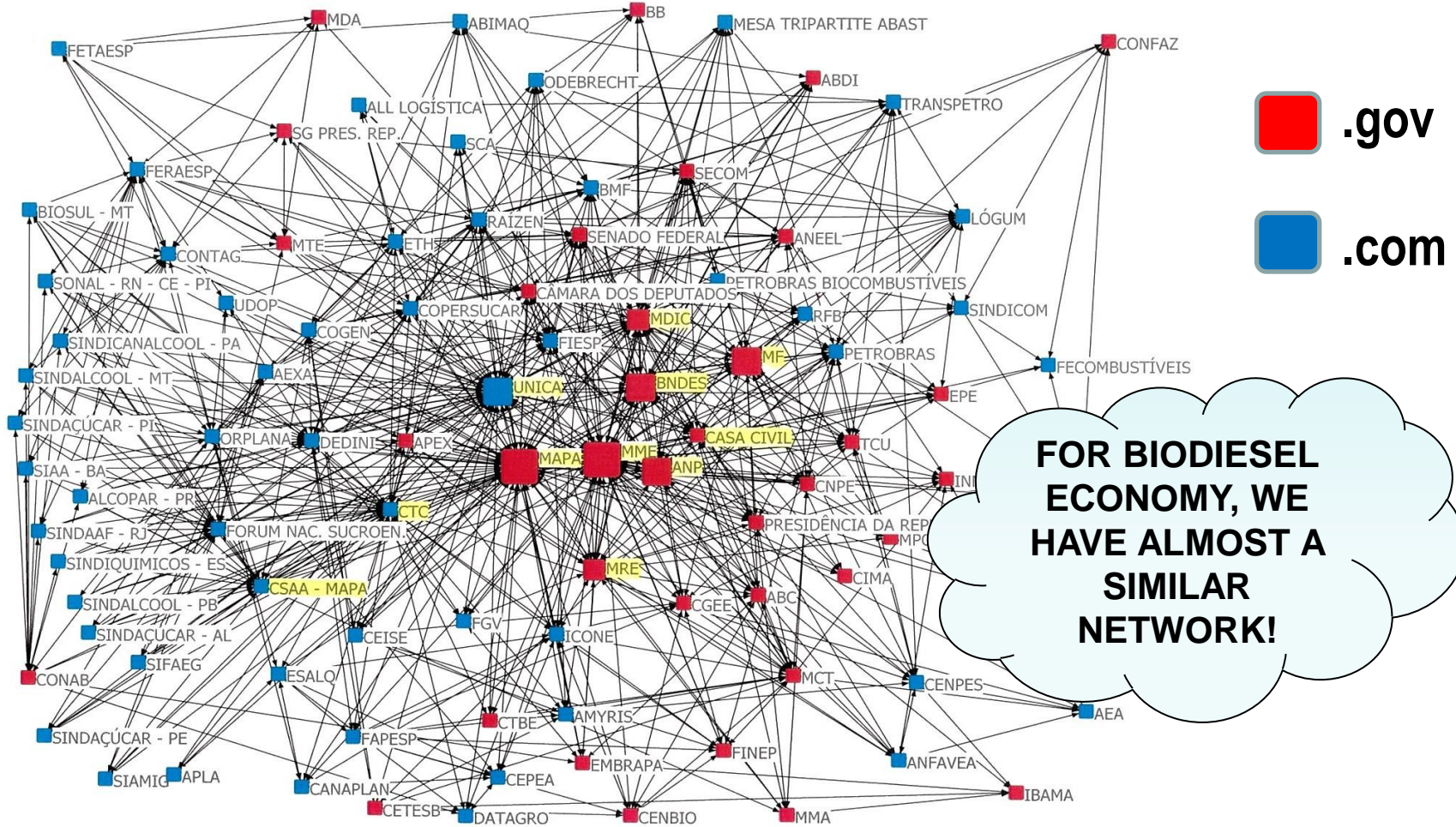


# Policy and Regulatory Framework





# Ethanol Public Policy Network Nowadays



*Do you think it is easy (or even possible) to reach consensus?*



# Regulation Pendulum



**LACK OR EXCESS OF MARKET  
REGULATION BY STATE  
AGENCIES LEADS TO CRITICAL  
SITUATIONS FOR BOTH  
CONSUMERS AND PRODUCERS**

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**UNBALANCED  
REGULATION**



**UNBALANCED  
REGULATION**

- THE TUNING OF STATE INTERVENTIONS THROUGH REGULATION IS DYNAMIC AND DEPENDS ON THE ANSWER OBTAINED FROM REGULATORY DECISIONS.
- THIS IS A PROCESS, NOT SOMETHING STATIC OR AUTOMATIC!



# Lessons Learned... Drivers for Bioenergy Policies

- **Energy security;**
- **Energy access;**
- **Availability or potential Bioenergy necessary resources;**
- **Availability of financing and technical assistance;**
- **Government support.**







# Dimensions of Bioenergy Policy Planning

- **Target is a MUST!**
- **A clear vision on National Energy Mix is absolutely necessary!**
- **Specific policy on bioenergy is KEY!**
- **National roadmap (medium term) is an valuable asset;**
- **Long term contracts (to bring energy market logic to bio economy)**
- **Specific support schemes**

**But... of course...**

**Someone has to make the final decision!**

**(in Portuguese... “bater o martelo”)**







# Challenges

- **Clear role of agents (private and public) and commitments:**
  - **Commitment to regular supply (private agents)**
  - **Commitment to stability of the policy (public agents)**
- **Balanced regulatory framework design**
  - **Synergies and complementarity**
- **Social aspects:**
  - **Access to energy**
  - **Reduction of inequalities**
  - **Consumer interests**



***All at the same time... and also sustainable and competitive!***



Ministério de  
Minas e Energia

**THANK YOU!**