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BIOENERGY IN BRAZIL
Final Remarks / Conclusion

Uses in other sectors (P&G - Bioplastics / Bioclimatic)

International cooperation in bioenergy

Forecasts of biofuels market expansion in Brazil

Benefits from bioenergy – The Ethanol Example

(Agro-ecological Zoning and Social Fuel Certificate)

Regulatory Framework and Public Policies for Ethanol and Biodiesel

Biodiesel, Ethanol and Biomass for co-Generation

Brazilian Energy Mix and Bioenergy Role
Brazilian Energy Mix (1940 – 2011)
Different Policies
Different Objectives and
Different Situations,
Main goals at 2005:
To use an energy program as a social program
To diversify the energy sources
To reduce the external dependency on diesel
To create jobs in the country side
2003: Flexfuel Cars
2005: Biofuel Program
1975: Proacothermal Program
Main goals at 1975:
To stimulate the development of pure ethanolic motors
To introduce in the market the mixture gasoline-ethanol
To reduce external dependency on oil
Extrnal Dependency on Energy (1970 - 2011)
Bioenergy Share on Renewables (1970 - 2011)

- Renewable
- Reduction of external dependence
- Diversification of sources
- Main Bioenergy Aspects:

2003: Flexfuel Cars

2005: Biodiesel Program

1975: Proalcohol Program
Biomass and other non-renewable sources = 40% (without hydro)

As a tropical country, even if we do not need to depend entirely on non-renewable consider water resources, there is no need.

Domestic Electricity Supply (2011)

- Improvement of conditions and opportunities in the rural areas
- Energy access and country development

Electricity Supply is related to:
managed to conclude the sugarcane (2009) and palm oil (2010).

Agro-ecological zoning that orients and guarantees that raw-material production will take place only in suitable areas. The Brazilian government created in 2000. Research funding (CT-Petro, created in 1999 and CT-Energ, created in Public auctions for biodiesel market supply.

Season supply conditions.

Line of credit for ethanol strategic buffer stocks (conceived to improve off-

Tax differentiaation regime in federal level.

Mandatory mix: Ethanol (E18-25) and biodiesel (B5).

Instruments include:

increase the share of biofuels in the national energy mix. The main general

The Law of Brazilian energy policy includes as one of the objectives: To

Policy and Regulatory Framework
already has for all oil derivatives such as gasoline, diesel and jet fuel.

Establishing the directions for the Brazilian energy policy, the National Energy Policy Council (CNPE) has, in a new way that it eventually will be produced in commercial scale in the future, that includes both ethanol and biodiesel, as well as any other new biofuel that Biofuels have an extraordinary role and potential of biofuels. that demonstrates the utilization of ethanol and biodiesel, both in Brazil and abroad, that demonstrates in the Brazilian energy mix. This understanding is boosted by the growing ethanol Biofuels are now treated as fuels and not only as an agricultural product inserted.

Recent Modifications on Biofuels Regulations

Ministério de Minas e Energia
The government is trying to design policies to induce the diversification of raw materials for biodiesel production (palm oil, jatropha etc.).

To biodiesel producers that do not have the SFC Cotação, 80% of the volume. The remaining 20% is opened also auctioning competitors. The biodiesel producer that owns a SFC is allowed to take part in biodiesel production in biodiesel chain.

The Social Fuel Certificate (SFC) is the mechanism that aims to stimulate the development of small agriculture and tries to include their raw material.

The tax policy regime that differentiates the region of the country in which biodiesel is produced and also the type of agriculture that provides all or part of raw material. North or Northeast: 15% discount.

The mandatory policy of B5 is the most important incentive and it is guaranteed through public auctions.
Agricultural zoning as a guarantee for public and private investments and a recommendation of suitable areas for harvest.

Agroecological Requirements

Sugarcane Expansion with or 7.5% (green areas)

Maximum allowed: 65 million ha

Focus = Coastal areas

Northwest Region

Palm. Cotton. Seed etc.

THE EMISSIONS OF 1 BILLION TONS OF CO₂ IN THIS PERIOD, DUE TO ETHANOL USAGE, IT WAS AVOIDED
DERIVATIVES NOT CONSUMED BECAUSE OF ETHANOL
ESTIMATED SAVINGS OF US$ 67 BILLIONS* DUE TO OIL AND

Effective Economy of 1.6 Billion boe or 18 months

OTTO-CYCLE FUEL DEMAND IN BRAZIL

Ethanol Use Benefits in Brazil
Sugarcane and ethanol and 4% in sugar.

Average growth of 12% in production of sugarcane for season of 2013/2014 shows an

 uninterrupted increase and the situation is being reversed and the

 renewal. Situation is being reversed and the

 recent reduction of sugarcane crop

 climate restrictions and from reduction of yield

 all its derivatives due to harvest broke from

 Recent Sugarcane Seasons
45 billion liters in 2022

Ethanol Fuel Internal Market Forecast

- Gasoline
- Ethanol - Anhydrous

[Year] [Gasoline] [Ethanol - Anhydrous]
2013 30.8 12.7
2014 30.4 17.0
2015 30.3 21.1
2016 32.3 21.3
2017 33.8 22.7
2018 35.2 24.5
2019 36.6 26.5
2020 38.1 28.5
2021 39.7 30.5
2022 42.4 30.9
Biodiesel Fuel Internal Market Forecast

4 Billion Liters in 2022
New Uses in Other Sectors (R&D)
This growth will be due to the expansion of the ethanol industry. A 14% growth rate is estimated that demand for non-ethanol fuel (other uses) will reach 3.5 billion liters in 2020 (PDE 2020). In 2011, the demand for non-fuel ethanol (other uses) has reached 1.1 billion liters.
Map of international agreements on bioenergy signed by Brazilian Representatives.

Includes MoUs, partnerships, and other agreements signed directly by any Federal Government Department or Agency or Public Enterprises. It is considered bilateral agreements, cooperation in third countries and agreements signed with economic or regional blocks.
Successful cooperation is of great importance to Brazil because the new plants and infrastructure.

As well as most of tropical country areas, there are investment developments.

Brazil through energy security, job creation, oil savings and social benefits.

It is beyond doubt that bioenergy has played a extremely important role in production and marketing. Government role was (and still is) fundamental.

Regulatory Agency powers which shall operate in the entire chain of the regulatory framework for biofuels have been implemented.

**Final Conclusions**
THANK YOU!