The importance of national/regional stakeholder engagement - Petrobras experience

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Agenda

1. Petrobras Biocombustível

2. Petrobras roles in PNPB and Proalcool

3. MOU - Petrobras, Petrobras Biocombustível, Guarani and Petromoc

4. Closing remarks
Petrobras Biocombustível

Corporate strategy
Markets
Future
Petrobras Biocombustível

We are an integral subsidiary of Petrobras

We produce ethanol and biodiesel:

- Renewable biofuels produced from organic feedstock
- Emitting less Greenhouse Gases
- Contributing to diversify our domestic energy matrix
Petrobras Position on Biofuels Sector

Why Petrobras joined the business?
- (Great) opportunity to export due to mandates
- Counterbalance future losses in the domestic market
- Integrate the supply chain
- Ethanol had strong growth expectations and competitive costs

How are we today?
- Ethanol domestic production growth failed and costs rocketed
- Fleet and consumption growth above GDP leading to external dependence on gasoline
- Ethanol prices capped
- Biodiesel industry facing overcapacity and low prices

So what’s Petrobras current strategy for the segment?
- Keep the growth in ethanol and biodiesel output, aligned to domestic market
- Foster competitiveness improvement in our own units and partnerships through innovation and cost reduction
- Aggregate new ethanol to the national output
- Produce biodiesel from palm oil with competitive cost
World Mandates

* Individual mandate by state or province
** individual mandate by country to meet the target of 10% emissions reduction in transport sector by 2020.
*** many countries that adopt blends of ethanol between 3% and 10% in volume.
**** voluntary blend

Source: Strategy board of Petrobras, UNICA
Mission, Vision 2030 and Corporate Drivers

MISSION

Produce biofuels in a safe and profitable manner, structuring the agriculture supply chain, with social and environmental sustainability, in Brazil and abroad, accessorizing the reduction of greenhouse gases emissions and promoting development in the countries where we are established.

GREAT CHOICE AND STRATEGY FOR 2030

To keep the growth in biofuels, ethanol and biodiesel, alongside the domestic market for gasoline and diesel.

CORPORATE DRIVERS

- Environmental Responsibility
- Profitability
- Social Responsibility
We lead the Brazilian biodiesel production

Our biodiesel production capacity is 821 million litres/yr

We own 3 units and participate in two other from partnership with BSBIOS.

We produce biodiesel from oilseeds (soya, palm oil), animal fats and residual cooking oils.

We also sell biodiesel byproducts, such as glycerine, fatty acid and starch
We are supported by Brazilian Biodiesel National Program

PNPB (National Program for Production and Use of Biodiesel)

- Sustainable program created by Law (11.097/2005)
- Production and use of biodiesel, focused on social inclusion and regional development
- Guarantees competitive prices, quality and supply while diversifying feedstocks and farm regions

Selo Combustível Social (Social Combustible Stamp)

- Created to guarantee social inclusion through introducing family farmers into biodiesel supply chain
- In order to obtain the stamp, the mill has to buy part of its feedstock from family farmers (30% in the Northeast region, 15% in the others)
- Contracts are negotiated directly with farmers and they receive technical assistance

Who owns the stamp can:
- Dispute 100% of Brazilian biodiesel market
- Have tax benefits (PIS/COFINS)
- Have access to better funding conditions
- Promote its social responsibility image to the market
We introduce family farming in our production chain —

Our biodiesel mills own the “Selo Combustível Social”.

In the 2013-2014 harvest, we worked with 15,700 family farmers in six states of the Brazilian semi-arid region: Piauí, Pernambuco, Sergipe, Bahia, Ceará and Minas Gerais. For the next crop we will also work in Rio Grande do Sul state, adding 2,500 soybean small producers to the program.
We are one of the biggest ethanol producers in Brazil

Our ethanol production capacity is 1.5 billion litres/yr

We produce ethanol and sugar from sugarcane, selling also power from bagasse cogeneration to the grid

We have 3 partnerships comprising 10 mills
Ethanol - Scenario on leading markets

- Proposed rules to reduce 1G mandates from 10% to 6% of the demand from transportation sector
- Enphasis on 2G will rule the market’s future after 2020

- Tight oil and gas threaten 1G biofuels
- Mandate reduction on corn/advanced ethanol in 2014
- 2G incentives go on, first commercial mills starting in 2014
- California seems to be a good alternative via carbon credits

- High costs and limited internal prices
- Incentives to renovate crop and new technologies (BNDES)
- First 2G projects start to arise
Our future: To keep the growth in biofuels, ethanol and biodiesel, alongside the domestic market for gasoline and diesel, in a sustainable manner.
We will invest USD 2.3 billion until 2018 in biofuels production.

In 2030, our goal is to have a market share of 24% for biodiesel and 15% for ethanol.

**Scenario:**

Perspective to increase mandates for biodiesel in Brazil from current B5 to B10 till 2030.

Strong domestic ethanol demand growth till 2030, that will be answered till 2016 by overcapacity fulfillment and yield recovering. Thus, new ethanol in national output is necessary after then to avoid gasoline external dependence.
We study about the future of biofuels

**Ethanol**
- Development of Petrobras technology for 2nd generation ethanol
- Feedstock and processes development

**Biodiesel**
- Petrobras production process optimization
- Feedstock development (e.g. jatropha, macauba)
- Increase the use of renewables in diesel mix
- Engine tests
- Increased production and productivity of oilseeds
- Microalgae
Cellulosic Ethanol

- R&D since 2004
- Bagasse / straw as feedstock
- Demonstration accomplished in 2012
- Experimental use during Rio + 20
- 80,000 L available for fleet test
- Commercial Plant project on-going

Thermochemical Pre-treatment → Enzymatic Hydrolysis → C5 and C6 Co-fermentation → Destillation → Ethanol

Cellusic Ethanol loading (2012)
Future: Vertical Growth and Sustainability

- Average distillery: 6.800 L/ha
- Efficient distillery: 8.100 L/ha
- Technology improvement: +1.000 L/ha
- Cellulosic ethanol: +2.000 L/ha
- Total: 11.100 L/ha

*25% de bagasse and 50% straw
Petrobras Role in Proalcool and PNPB
Proalcool

1975 - Proalcool

Petrobras responsibilities

• Ethanol transport
• Ethanol storage
• Ethanol distribution
• Mixture of ethanol to gasoline

Petrobras also did tests with different gasoline / ethanol blend ratios and its impacts on engines and vehicles
Ethanol today

Petrobras transport, storage and distribute only “its” ethanol

Petrobras Biocombustível produces ethanol (JVs)

Petrobras is also carrying on long term tests with 2G ethanol and its impacts on engines and vehicles
Biodiesel

Petrobras carried on several tests with different diesel / biodiesel blend ratios

Petrobras plays a main role on ANP biodiesel auctions

Petrobras Biocombustível invests on biodiesel production and social development of rural areas
Memorandum of Understanding

Petrobras
Petrobras Biocombustível
Guarani
Petromoc
MOU

2011

1. World demand for biofuels

2. Mozambique interest to develop a biofuels use program

3. Companies experiences and goals
MOU - Feasibility studies

1. Mandate to add ethanol to gasoline in Mozambique
   1. Product quality
   2. Gasoline type
   3. Etahol handling and operation
   4. Distribution
   5. Sales
   6. Regulation

2. Ethanol mill in Mozambique
   1. Using only residual syrup from sugar production

3. Mechanisms to export ethanol surplus
MOU - Today

1. The Parties extended the MOU

2. To finish the feasibility study to build a distillery in Cia de Sena are need more accurate information about Ethanol prices in Mozambique

   Mechanisms to export ethanol surplus
Closing remarks
Closing remarks

- Brazil has a mature program of biofuels blendings in fossil fuels
- Biofuels production is an important driver for regional development
- Biofuels projects feasibility studies must consider long term operation and market instabilities, but also have to consider social and environmental development as upsides
- Implementation of public policies is the first step to develop a biofuel program
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