



Sustainable Alternative Fuels

The Brazilian experience



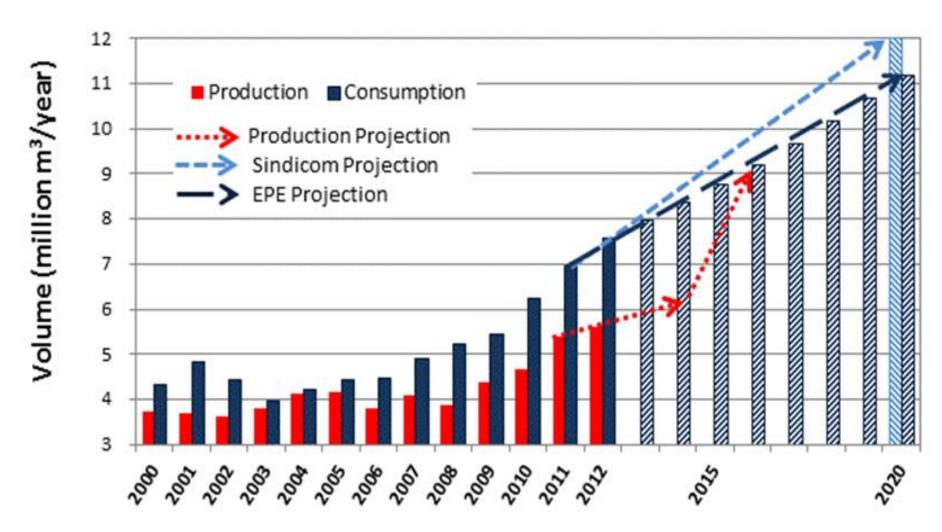


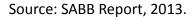






FUEL BURN FORECAST











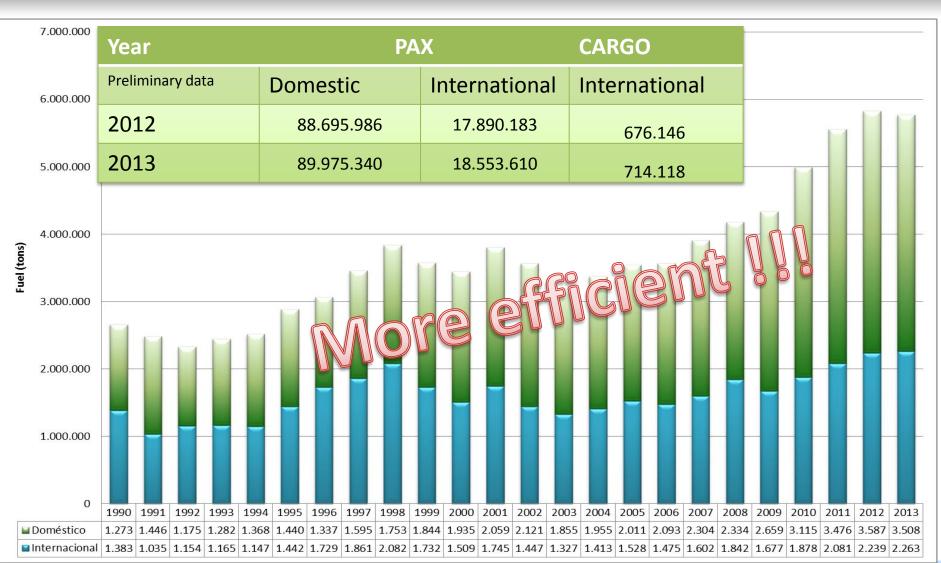






ICAO ENVIRONMENT

FUEL BURN EVOLUTION



Source: ANAC modeling system

MIATA











PRIVATE SECTOR INITIATIVES

SABB Sustainable Aviation Biofuel Brazil Workshops

- Initiative Boeing, Embraer, UNICAMP University of Campinas and FAPESP Research Support Foundation of the State of Sao Paulo
- Eight workshops across Brazil, including São Paulo, Rio and Brasilia, with active participation of over 30 Stakeholders

Results:

- Report Flightpath to Aviation Biofuels in Brazil Action
 Plan
- Foundation of the Brazilian Biojetfuel Platform BBP













PRIVATE SECTOR INITIATIVES



R, D & I

Feedstock

Process

Logistics

End Users

Aviation Technology

- *Boeing
- GE
- Biomass:
- CTC
- · Embrapa Agroenergia
- *IAPAR
- *IAC
- *IICA
- *5G8
- UFMG
- UFRI

Camelina:

- Bioeca
- bluece
- Planapec
- Jatropha:
- Curcas
- SGB
- Sugarcane:
- · Tonon
- Bunge*UCO:
- Curcas

ATI:

- Byogy
- DSHC:
- Amyris
- HEFA:
- Curcas
- Solazyme

Operators:

- Air BP
- BR Aviation
- Raizen-Shell

Airports:

- GIG
- GRU

ABEAR:

- Avianca
- Azul
- · GOL

*Suppliers

CURCAS - Integration

RSB Services - Sustainability

Source: BBP Presentation, 2013.















GOVERNMENT INITIATIVES



Memorandum of Understanding Brazil – US (2011)

Cooperation on biofuels for aviation development

Technology and information sharing

Regulatory Framework (June 2013)

ANP
Resolution 20

Approves the usage of alternative fuels in country; (ASTM 7566, HEFA and F&T).

Brazilian Action Plan (October 2013) Presented to ICAO during the 38th Assembly;

Description of several initiatives from the private sector.











NATIONAL CIVIL AVIATION AGENCY BRAZIL - ANAC INITIATIVE

Improvement of local modeling capabilities in order to take in consideration emissions reductions by the usage of biojet fuel. Development of a LCA for sugarcane feedstock

 Objective: Foster the development and adoption of locally produced biofuel, based on existing feedstock sugarcane by providing precise information regarding the environment benefits of this particular type of renewable biofuel.













THANK YOU!

GRACIAS!

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