



BIOMASS 2014: Growing the Future Bioeconomy

Washington DC, July 29-30, 2014



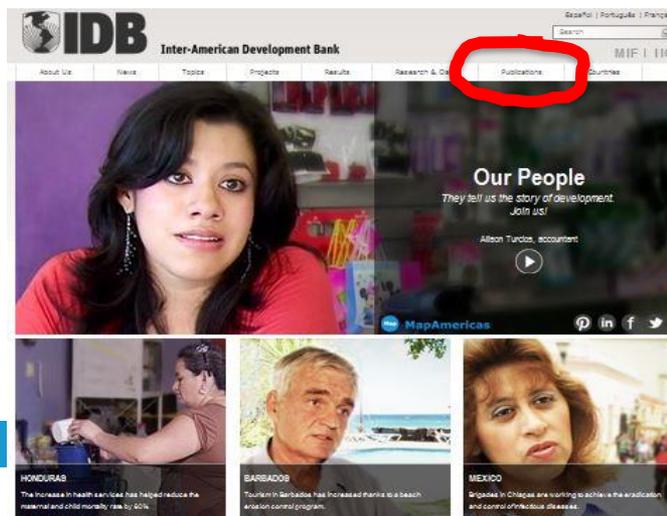
Support to Biofuels in Latin America and the Caribbean



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Inter-American Development Bank - IDB

- **Oldest regional development bank (1959):** 48 member countries - 26 borrowers (with >50% votes in the Board); HQs in Washington, DC, offices in all borrowing countries; finances both private and public sector projects, with or without sovereign guarantees. The IDB Group encompasses 3 institutions: the Inter-American Development Bank, the Inter-American Investment Corporation – IIC and the Multilateral Investment Fund - MIF.
- **Main source for LAC* regional financing**
 - ✓ Approved loans/guarantees: US\$ 230 billion
 - ✓ Overall leveraged investments: US\$ 500+ billion
 - ✓ Non-reimbursable technical cooperation: US\$ 6 billion
- **25%** of portfolio now directed to climate change & clean energy

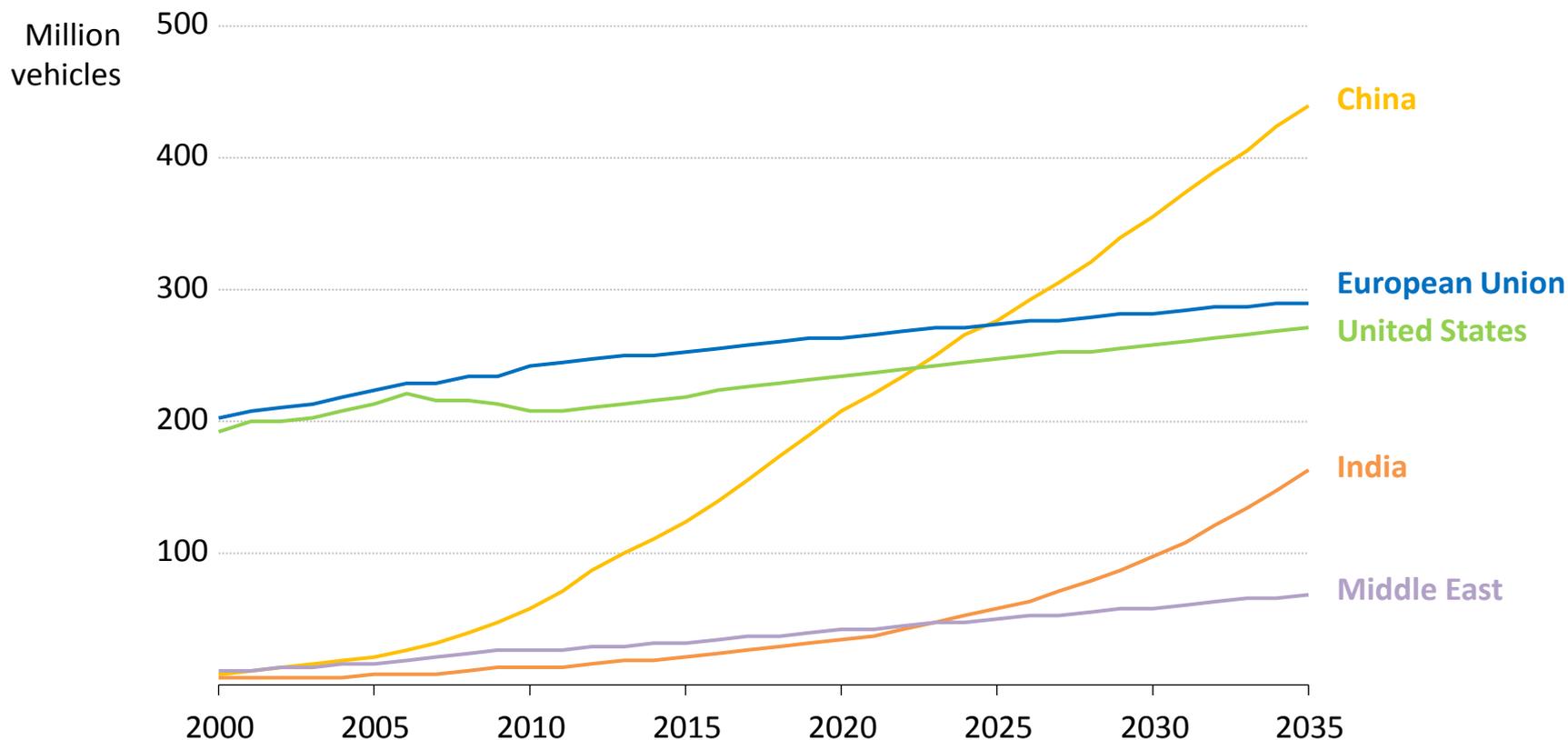


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The need for mobility

Passenger light-duty vehicle fleet growth by region



Fleet worldwide is projected to expand from around 900 million in 2012 to over 1.7 billion in 2035, with most of this growth coming from non-OECD countries



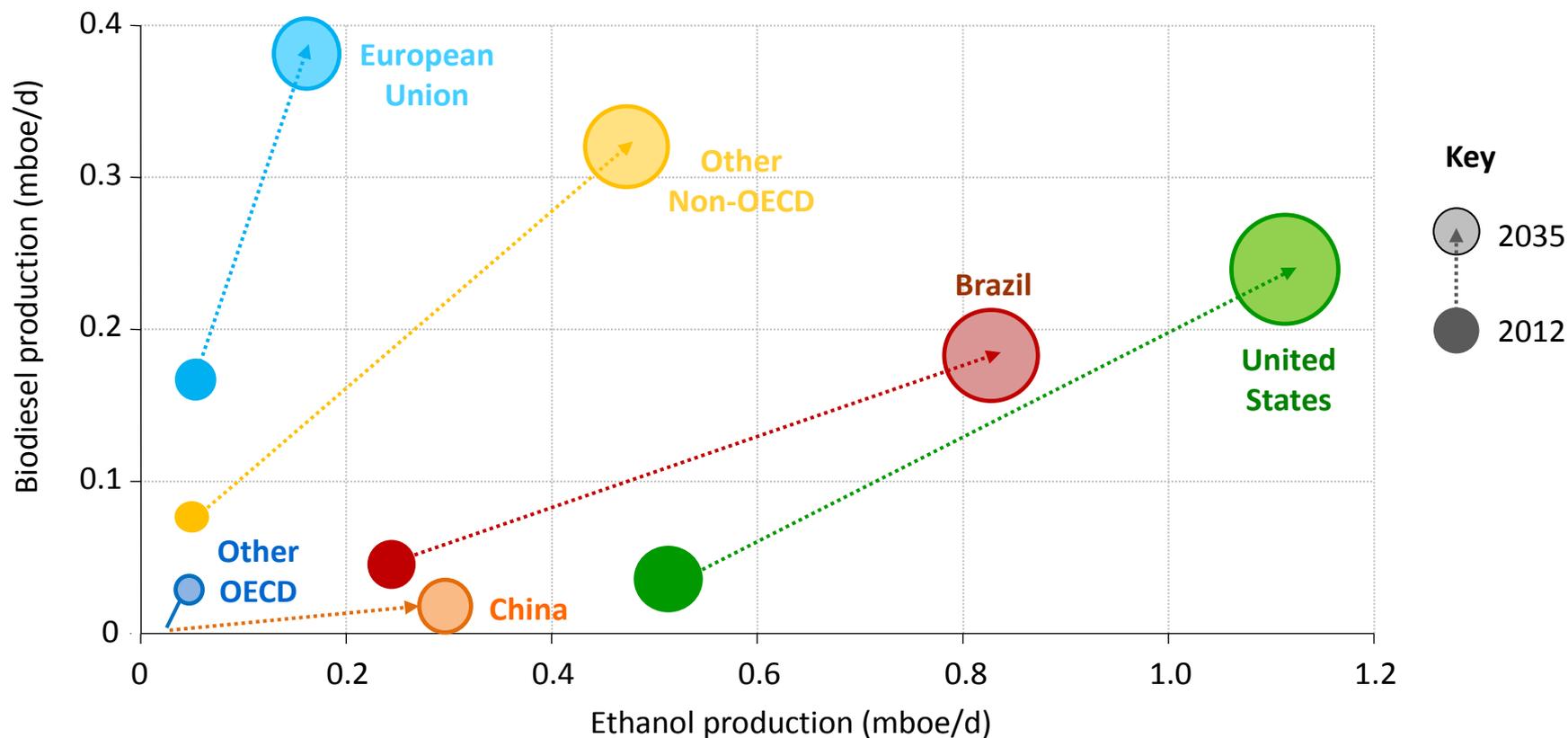
How is LAC doing on biofuels?

TABLE R4. BIOFUELS GLOBAL PRODUCTION, TOP 16 COUNTRIES AND EU-27, 2013

COUNTRY	FUEL ETHANOL	BIODIESEL	HVO	TOTAL	COMPARISON WITH TOTAL VOLUMES PRODUCED IN 2012
	billion litres				
United States	50.3	4.8	0.3	55.4	+1.2
Brazil	25.5	2.9		28.4	+4.1
Germany	0.8	3.1		3.9	+0.2
France	1.0	2.0		3.0	+0.1
Argentina	0.5	2.3		2.7	-0.3
The Netherlands	0.3	0.4	1.7	2.5	no change
China	2.0	0.2		2.2	-0.1
Indonesia	0.0	2.0		2.0	+0.2
Thailand	1.0	1.1		2.0	+0.5
Canada	1.8	0.2		2.0	+0.1
Singapore	0	0.93	0.9	1.8	+0.9
Poland	0.2	0.9		1.2	+0.3
Colombia	0.4	0.6		0.9	no change
Belgium	0.4	0.4		0.8	no change
Spain	0.4	0.3		0.7	-0.2
Australia	0.3	0.4		0.6	no change
EU-27	4.5	10.5	1.8	16.8	1.3
World	87.2	26.3	3.0	116.6	7.7



Long-term prospects: Brazil remains world's 2nd-largest producer



Brazil's production of biofuels expands more than three-fold to 1 mboe/d in 2035, with sugarcane ethanol continuing to dominate supply





Press Release

July 23, 2008

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IDB lends \$269 million for three Brazilian ethanol plants

The Inter-American Development Bank will lend \$269 million for three new ethanol plants in south-central Brazil, in the **largest biofuel investment ever made by a development bank**. The Board of the Bank unanimously approved the financing today. The three plants are being developed by Companhia Nacional de Açúcar e Alcool (CNAA), a joint venture formed by Brazilian sugar producer **Santelisa** Vale, U.S. private equity firms and **Global Foods**, a holding company registered in the Netherlands Antilles.

The **three new plants** are being built in the states of **Minas Gerais** and **Goiás**, far from the Amazon or any protected areas. Instead of purchasing land outright, CNAA will lease it from owners of medium to small-sized plots who decide they can earn a better return from sugar cane than they can from low-intensity pasture—the area's predominant land use at present.

The new plants will use **mechanized harvesting** for more than 90 percent of their acreage, and they will provide some 4500 high-quality permanent jobs. The plants will produce up to **420 million liters of ethanol** for the domestic market each year, and will generate their own electricity by burning bagasse (**56 MW each**).





Press Release



December 15, 2009

Peru Biofuel project to receive loan from the IDB

Combined ethanol refinery, sugar plantation and electricity plant will generate 500 permanent jobs for local communities in the Department of Piura, Peru.

An initiative of Maple Energy Plc, an energy company that has focused solely on [Peru](#) since 1994, listed on the London Stock Exchange's Alternative Investment Market and on the Lima Stock Exchange. The project is known as Maple Etanol, requires a **total investment of \$245.5 million** and will receive assistance from Netherlands development agency SNV, with extensive experience in developing inclusive businesses.

The project includes construction of a **130 million liters per year** sugarcane ethanol distillery. It includes 7,800 hectares of sugarcane on a 14,000-hectare property that Maple Energy purchased from the government of Piura and private individuals. The land comprises desert and/or arid areas that Maple Etanol will convert into highly productive land,

Mechanization, along with the use of efficient drip irrigation, will enable Maple Etanol to achieve yields of up to 153 tons of sugarcane per hectare. The project will also include a **37MW cogeneration plant** selling excess electricity to Peru's interconnected power system. In addition to the \$25 million from the IDB, Maple Etanol will receive cofinancing from other multilateral agencies and a private commercial bank. The Andean Development Corporation (CAF) will finance \$65 million, the Entrepreneurial Development Bank of the Netherlands (FMO) will finance \$25 million and Interbank \$25 million. The IDB loan will **have a term of 12.5 years with a 2.5-year grace period.**

Announcements

Jan 28, 2014

IDB approves green line for key financial institution in Brazil

Loans of up to \$125 million to expand access to credit for green projects

The IDB approved a Green Line Partnership with Banco Pine S.A. in [Brazil](#) to expand access to financing for environmentally sustainable projects, particularly biofuels and [renewable energy](#) projects.

The IDB will provide an unsecured A/B loan of approximately \$125 million to Banco Pine for working capital and long-term loans in these sectors, and to finance capital expenditures.

The partnership is expected to increase Pine's green portfolio by \$600 million in the next five years, which in turn will contribute toward achieving the government's goal of refocusing Brazil's energy matrix on more environmentally friendly sources by 2021.



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More information

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Topic

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IDB Scorecard for Sustainable Biofuels

ENVIRONMENTAL

General

Yield (liters oil/ethanol per ha)

above 6000

above 4500

between 1500 and 4500

below 1500

Yield (GJ per hectare per year)

above 100

between 50 and 100

below 50

Cultivation

Former land use

No land area (algae and waste)

Degraded land

Under-utilized land or husbandry

Marginal land

Displaced cultivation or husbandry

Rainforest, primary forest

Peat land

Wetland

Ecological sensitive/protected area
- Biological corridors

Crop Lifecycle

Replant greater than 3 years

Replant every year, no-till

Replant every year, low till

Replant, 1-3 years

Replant every year

Crop rotation/Crop mix

Nitrogen fixing crops used in rotation

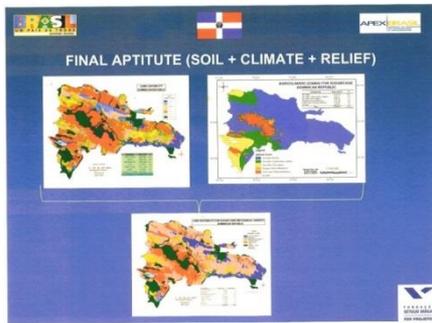
Inter-cropping

No crop rotation

www.iadb.org/biofuelsscorecard



Examples of grant support to biofuels



- El Salvador (APEX-funded)
- Dominican Republic - DR (APEX-funded)
- Haiti, Guatemala and Honduras (IDB-funded)
- DR Phase II to evaluate specific projects (IDB-funded)
- Followed by other 5 specific technical assistance programs



Proyecto:

"Estrategias de energía sostenible y biocombustibles para Colombia ATN/JC-10826-CO y ATN/JF-10827-CO"

"Evaluación del ciclo de vida de la cadena de producción de biocombustibles en Colombia".



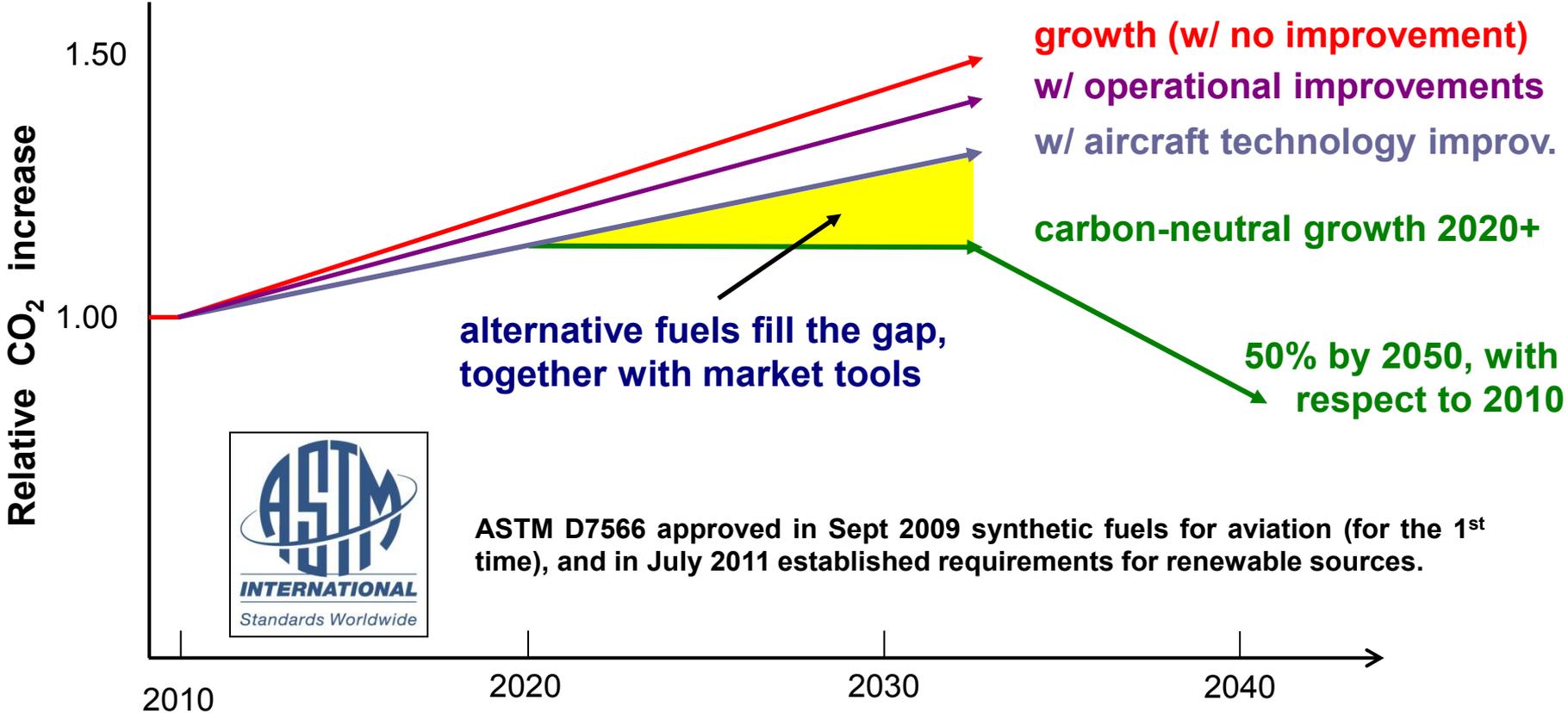
Resumen Ejecutivo

Sostenibilidad de biocombustibles en Colombia
SBC



PREPARADO PARA: Banco Interamericano de Desarrollo (BID) – Ministerio de Minas y Energía
ELABORADO POR: Consorcio CUE
FECHA: Enero 2012
CIUDAD: Medellín

Aviation committed to carbon-neutral growth



ASTM D7566 approved in Sept 2009 synthetic fuels for aviation (for the 1st time), and in July 2011 established requirements for renewable sources.



IDB Initiative for Sustainable Aviation Biofuels

- ✓ Study on Camelina in **Argentina**: feasibility of cultivation in marginal areas in south of the country, includes analysis of economic, social and environmental issues.



- ✓ Feasibility study of the 1st commercial plant for production of biojet fuel for **Mexico** (2,000 and 6,500 bpsd of vegetable oil)



Aeropuertos y
Servicios
Auxiliares



uop
A Honeywell Company

BIO
turbosina
Aeropuertos y Servicios Auxiliares





RIO+20
 Conferência das Nações Unidas
 sobre Desenvolvimento Sustentável



Sustainable Aviation Biofuels
 Espaço das Ideias Circulantes, Humanidade 2012



**Life Cycle Carbon Emission and Sustainability
 Analysis**

Andre Nassar
 ICONE





Brazil's first commercial biojet fuel flight, CGH-BSB on October 24th, 2013, following approval of *Resolução ANP Nº 20*; DOU 25 June 2013 for HEFA



200 bio jetfuel flights during 2014 FIFA World Cup between host cities





Voando Verde

VOO COM BIOCOMBUSTÍVEL

Starting on July 30th, 2014, GOL will make its first international commercial flights from Florida to Sao Paulo with farnesane at 10% blend rate, a newly approved Amyris-Total renewable jet fuel. Farnesane, produced from sugarcane in Brotas (São Paulo, Brazil), can reduce greenhouse-gas emissions by up to 80% on a lifecycle basis compared to traditional petroleum fuels.

SPONSORS:  AMYRIS  TOTAL  BOEING  IBID

1st commercial flight using sugarcane-derived biofuel: Orlando-Santo Domingo- São Paulo
July 30, 2014



Voando Verde
VOO COM BIOCOMBUSTÍVEL



Linhas aéreas inteligentes

PATROCINADORES:



Plataforma Brasileira de Bioquerosene, biocombustível para o Brasil





SUSTAINABLE
ENERGY FOR ALL

LATIN AMERICA
AND THE CARIBBEAN

Next grant activities:

- ✓ Support to **UN SE4ALL** Initiative (doubling renewables worldwide pillar): HIO on biofuels for LAC including aviation, with Novozymes and FAO: events, studies, investment projects promotion - 1st activity to be in Mexico
- ✓ Support to **ANAC** (Brazilian Agência Nacional de Aviação Civil): development of a software/algorithm within the FAA's Aviation Environmental Design Tool 2a (AEDT 2a) to compute GHG emissions related to flights using biojet fuels, particularly those based on sugarcane
- ✓ Studies on **value chains** for the following technologies:
 - Direct Sugar to Hydrocarbon (DSHC) - Sugarcane; enzymes
 - Hydroprocessing of Esters and Fatty Acids (HEFA) - Camelina, Jatropha, sugarcane, Hydro-cracking and microalgae
 - Alcohol oligomerization to jet-fuel (TKA) - Ethanol from sugarcane; Hydrolysis





THANK YOU



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