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Biofuels Sector

Invest in Colombia
Work Commitment Creativity

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Preface

The development of the biofuels industry in Colombia is a state policy, and is grounded in Colombia's physical, social, technological, legal and geographical characteristics. These factors are what make Colombia a world class powerhouse in bioenergy and one of the most attractive markets in the world for investors interested in biofuels.

Some of the characteristics that make Colombia an attractive market for biofuel investment are:

Significant Land Availability:

- ✓ 7.3 million hectares suitable for biofuel crop cultivation. Colombia has five times the amount of land available for agriculture than Malaysia, the world's second largest producer of palm oil.
- ✓ The government's goal is to increase the country's cultivated area from today's 548,388 hectares dedicated to sugarcane and palm oil cultivation to more than 3,000,000 hectares of land devoted to biofuel crop cultivation in the next decade.
- ✓ Currently it is possible to access these vast amounts of land without affecting or compromising ecologically sensitive areas such as forests and national parks.
- ✓ Colombia currently has 114,999 hectares of palm oil under cultivation. 92,777 of these are in production and 22,222 in development.

High Productivity:

- ✓ Colombia has centered its ethanol and biodiesel production on the most energetically efficient crops available on the market: sugarcane and palm oil, and is dedicating public and private resources to exploring second and third generation biofuels.
- ✓ Colombia's sugar industry has the highest productivity levels in the world, producing nearly 9,000 liters of ethanol per hectare/year, thereby surpassing Brazil's by 50% and Ecuador's by 55%.
- ✓ Colombia is currently the fifth largest producer of palm oil in the world and the biggest producer in Latin America, maintaining production levels of 4,200 liters of biodiesel per hectare/year. Colombia's biodiesel productivity is double that of Ecuador's and surpasses Brazil's by 50%.

High Internal Demand and Market Dynamism:

- ✓ All gasoline and diesel sold in Colombia must be mixed with biofuels. Currently the amount is 10% of ethanol for gasoline (E10) and 10% of biodiesel for diesel (B10).
- ✓ Currently, Colombia's ethanol production only meets 82% of internal demand generated from the E10 mandatory mix.
- ✓ By 2012, 60% of automobiles up to 2,000 cubic centimeters of capacity must be flex fuel and handle gas/ethanol mixes of up to E85. By 2016 100% of automobiles up to 2,000 cm3 must handle E85 mixes. By 2013 all automobiles greater than 2,000 cm3 must handle E85.
- ✓ By 2012, all new automobiles that run on diesel must be able to run on mixes of up to B20.

Tax Incentives:

- ✓ Biofuel projects can be established under the Single Enterprise Free Trade Zone regime. This regime offers a 15% income tax rate verse the general 33% income tax rate, customs duties exemption on imported capital goods, and the possibility to export using Colombia as the country of origin.
- ✓ Between 2003 and 2013, all new late yield crops will be exempt from paying income tax for 10 years from the moment the crops are planted.

Current Industry Panorama

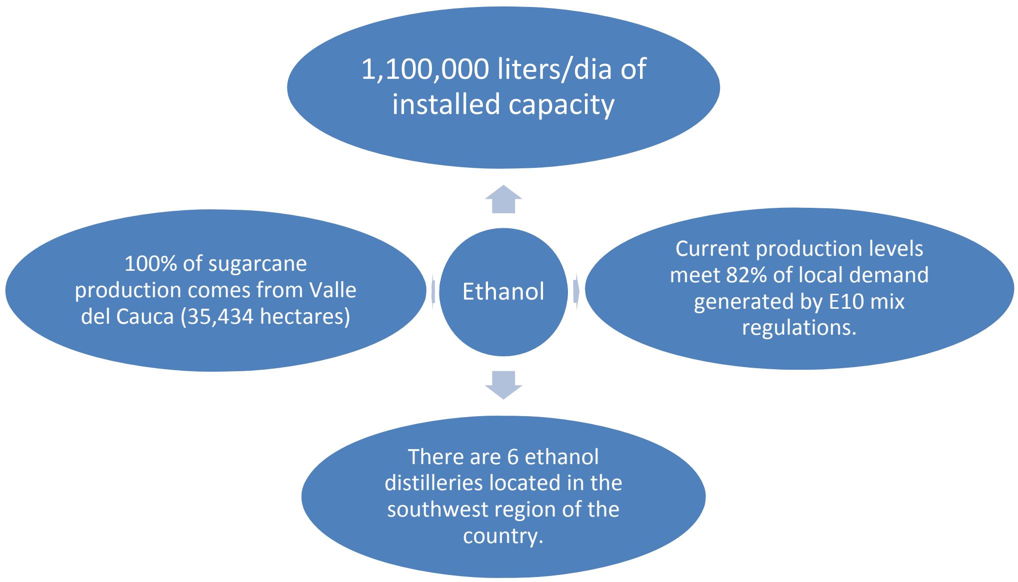
Seven years ago Colombia made a commitment to move toward massive biofuel production and use, and took steps to diversify its energy matrix. In the last few years the industrialization of this sector has made enormous progress, as well as the legal framework that allows for the industry's consolidation and growth.

Colombia is endowed with an abundance of agriculture products for biofuel production. There is a history and tradition of sugarcane and palm oil cultivation in Colombia, which has accelerated the development of a biofuels industry. The country is currently expanding its installed capacity to produce ethanol and biodiesel for the purpose of increasing its gasoline/biofuel mixtures levels to above 20% in the medium-range timeframe. Investment in the agricultural and industrial phases of biofuel development is needed to ensure that long-term biofuel production in Colombia can significantly diversify the energy matrix of the country away from fossil fuels.

Ethanol in Colombia

Ethanol production in Colombia has been promoted by large-scale sugar producers located in the southwestern region of the country. These companies use part of their sugarcane cultivation to produce alcohol that is later sold to wholesale fuel companies. As a result, ethanol distribution in Colombia is carried out from south to north.

Topographic and climactic conditions in the Valle del Cauca Department make sugarcane an ideal crop for producing ethanol. In the last few years, however, other crops such as cassava and sugar beet have been explored for use in ethanol production. Furthermore, other areas of the country are beginning to cultivate sugarcane in order to produce alcohol. The regions that are farthest along in this sense are located in the Atlantic Coast and the eastern lowland plains. These two regions, along with segments of the Pacific Coast, have an estimated 3 million hectares of arable land that could be used to develop new plantations of biofuel crops such as sugarcane, oil palm and jatropha. These areas receive ample amounts of sun and rainfall and are below 600 meters above sea level, optimal conditions for growing biofuels.



Operating Ethanol Projects

Region	Investor	Capacity in liters/day	Cultivated Area (hectares)	Employees
Cauca	Incauca	300,000	10,681	1,941
Valle del Cauca	Providencia	300,000	6,989	1,294
Valle del Cauca	Manuelita	250,000	8,984	1,617
Valle del Cauca	Mayagüez	150,000	5,290	970
Risaralda	Risaralda	100,000	3,493	647
Total	-	1,100,000	35,434	6,469

Ethanol Projects in Development

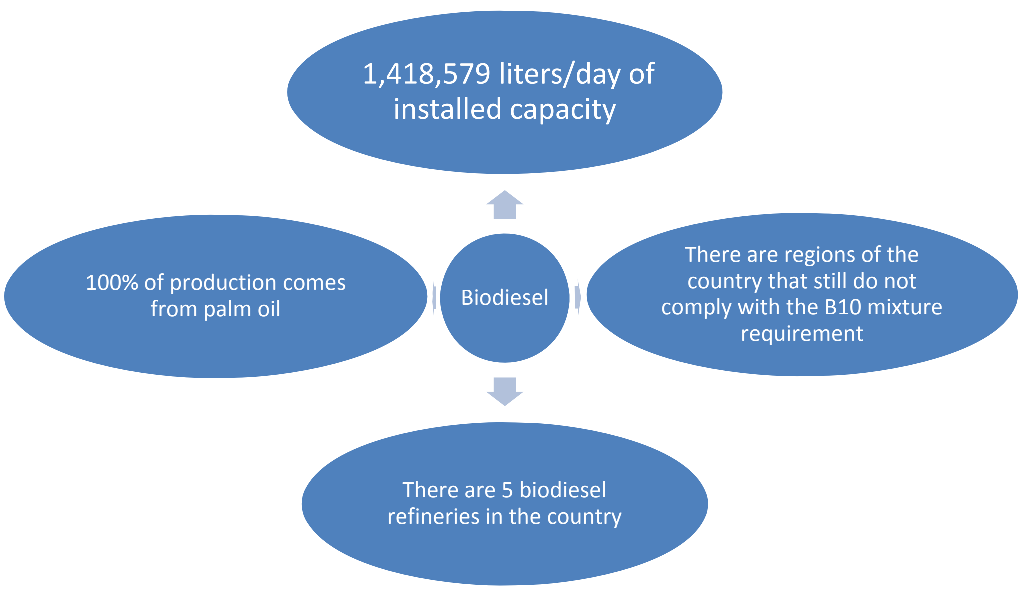
Project	Region	Production liters/day	Crop	Date of Entry
Petrotesting	Meta	20,000	Cassava	2010
Riopaila	Valle del Cauca	300,000	Sugarcane	-
Mayagüez	Valle del Cauca	100,000	Sugarcane	-
Maquiltec	Boyacá	300,000	Sugar Beet	-
Consortium S.A.	Bolívar	900,000	Sugarcane	-
Bioenergy	Meta	300,000	Sugarcane	2011
Alcolombia, S.A.	Meta	100,000	Sugarcane	2011
Merhav S.A.	Magdalena	300,000	Sugarcane	2011
Río Suarez	Santander	300,000	Sugarcane	2011

AQA S.A.	Quindío	150,000	Sugarcane	2010
Total	-	2,770,000	-	-

Biodiesel in Colombia

Biodiesel production in Colombia is new and the first plant opened its doors in 2008. Palm oil is the input crop used to produce biodiesel due to its high energetic efficiency and the experience that farmers and businesses already have cultivating the crop. The industry's development is located in the Atlantic coast close to large palm plantations in the Bolívar and Cesar Departments.

Biodiesel distribution in Colombia is carried out from north to south. Palm cultivation projects have recently been established in the eastern plains for the purpose of meeting biodiesel demand in the central and southern regions of the country. Other projects also exist that seek to produce biodiesel from jatropha oil. This plant has a promising future in Colombia and could become a motor of agricultural expansion and development in the high eastern plains of the Vichada and Meta Departments.



Operating Biodiesel Projects

Region	Investor	Capacity in liters/day	Cultivated Area (hectares)	Date of Entry
Codazzi	Oleoflores	168,719	11,111	2008
Santa Marta	Odin Energy	121,477	8,000	2008
Santa Marta	Biocombustibles sostenibles del Caribe S.A.	337,437	22,222	2009
Faca	Bio D	337,437	22,222	2009
Meta	Aceites Manuelita	337,437	22,222	2009
Barranquilla	Clean Energy	116,000	7,000	2009
Total	-	1,418,579	92,777	-

Biodiesel Projects in Development

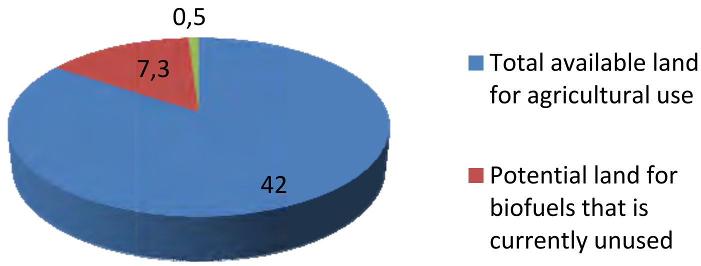
Region	Investor	Capacity in liters/day	Cultivated Area (hectares)	Date of Entry
B/bermeja	Ecodiesel	337,437	22,222	2010
Total	-	337,437	22,222	-

Why Invest in Colombia's Biofuels Sector?

Because there are 7.3 million hectares of available land suitable for large-scale projects

Colombia is endowed with 7.3 million hectares of currently available. This land does not compromise Colombia's forests or nature reserves.

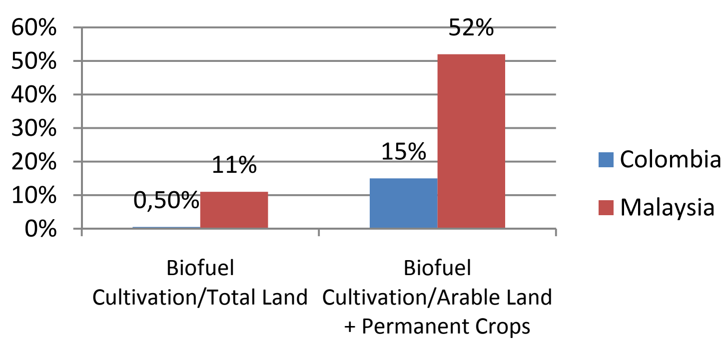
Available Land in Millions of Hectares



Source: Ministry of Agriculture (2009) and United Nations FAO Statistics (2008)

Colombia has five times the amount of land available for agriculture than Malaysia (the world's second largest producer of palm oil). The scarcity of land in this Asian country halts the development of new projects and greatly increases initial start up costs. Currently, Malaysia destines 11% of its total land area and 52% of arable land to palm oil plantations.

Land Use Comparison - Colombia and Malaysia



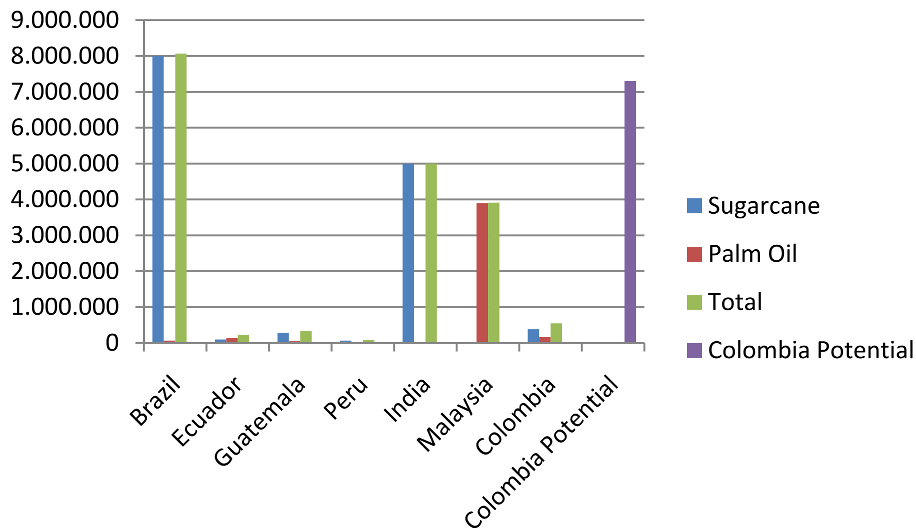
Source: Food and Agriculture Organization of the United Nations (FAO) Statistics[1]

Colombia's biofuel land use potential is equal to 90% of the total land area destined today in Brazil for ethanol and biodiesel derived from palm oil. Colombia has the potential to become a leading country in terms of large land extensions devoted to planting and harvesting crops for biofuels. The 7.3 million

[1] At the time of publication of this Biofuels Sector Profile, FAO Statistics' most recent data published for land use and availability was for 2007.

hectares currently available surpass the land extensions currently devoted to crop cultivation for biofuels in large scale producers such as Malaysia, Indonesia and India.

Land Used for Cultivating Biofuel Crops (hectares)



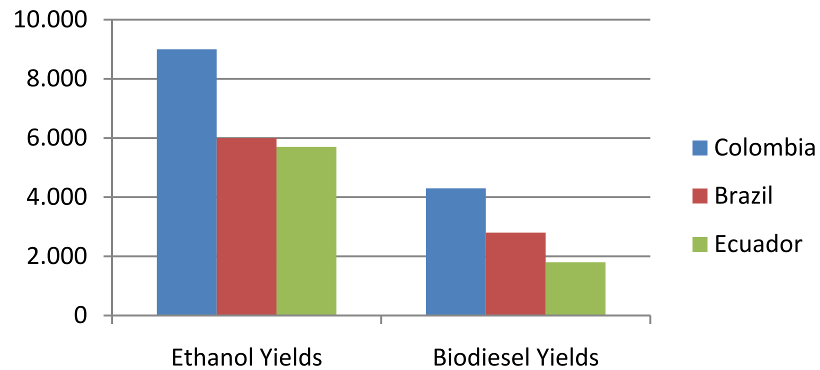
Source: United Nations FAO Statistics (2008) and Colombian Ministry of Agriculture (2009)

Because Colombia's sugar industry is the most productive in the world and its palm oil industry is the most productive in Latin America

Colombian sugar productivity surpasses Brazil's by 50% and Ecuador's by 55%. Colombia's sugar industry is the most productive in the world, producing 8,960 liters of ethanol per year/hectare.

Colombian biodiesel productivity is double that of Ecuador's and surpasses Brazil's by 50%. Colombia produces 4,200 liters of biodiesel per year/hectare.

Biofuel Yields in Liters per Hectare

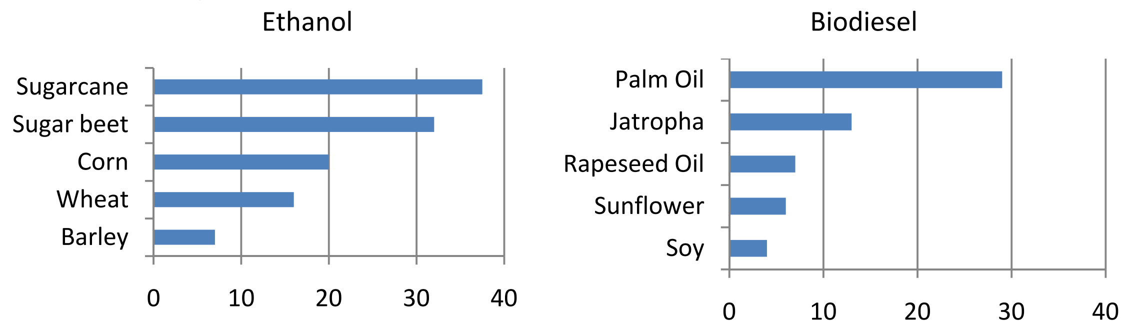


Source: UPME – ''Desarrollo y Consolidación del Mercado de Biocombustibles en Colombia'' (2007)

Colombia has the highest productivity levels in the two most productive biocrops available on the market. This is due to the country's geographic location and physical characteristics. Other producers of biofuels such as the United States and Germany must use less energy efficient crops such as corn and rapeseed to produce ethanol and biodiesel.

Colombia has centered its biofuel production on sugarcane and palm oil; these two crops are the most energy efficient crops that are commercially viable.

Energy efficiency of biomass used in the production of ethanol and biodiesel (barrels/hectare/year)



Source: Colombian Department of National Planning CONPES Document 3510 (2008)

Because Colombia´s internal demand is not fully covered by local production of biofuels, as well as the existence of a law that requires the mix of biofuels with fossil fuels

Production of ethanol meets only 82% of demand. Current production levels stand at approximately 260-300 million liters per year and are not enough to satisfy the level of ethanol necessary to meet the obligatory E10 mix nationwide.

Internal demand for biodiesel due to the raised mandatory mixture level of B10 is not covered by national production. In January 2010, the national mandatory mixture level was raised from B5 to B10, and will be implemented gradually throughout the year. Under the B10 mix, national demand for biodiesel will reach approximately 448,000 tons. In 2009 biodiesel production reached 150,000 tons annually, which is equal to 34% of the demand created by the B10 nationwide mix.

By 2012 the government has mandated that 60% of all new automobiles up to 2,000 cubic centimeters in capacity that run on gasoline must be flex fuel (E85), with 100% mandatory by 2016, and new automobiles that run on diesel must run on mixtures of up to B20. These regulations will increase biofuel demand, as well as consolidate and mature the ethanol and biodiesel markets in Colombia. The flex fuel regulation guarantees that in the medium and long term the country can count on an automobile fleet capable of using high levels of ethanol.

Because Colombia offers investors a progressive legal framework for biofuels

Single Enterprise Free Trade Zone: In Colombia, new agro-industrial projects for biofuels can be recognized as free trade zones and established in any part of the national territory under the Single Enterprise Free Trade Zone Regime. Under this regime companies are entitled to a 15% income tax rate for 30 years, sales tax (IVA) exemptions, exemptions on customs tariffs on the importation of capital goods, and the possibility of selling their products within Colombia and exporting using Colombia as their country of origin.

To Access the benefits of the Single Enterprise Free Trade Zone regime, one of the following conditions must be met:[2]

Investment Total	or	Jobs Created (direct/indirect)
USD$19.3 million		500

Income Tax Exemption for 10 years: Colombia offers income tax exemption for all new late yield crops, such as African Palm, that are planted between 2003 and 2013. These cultivations will not pay income tax for 10 years starting the moment they are planted.

Legal Stability Contracts for up to 20 years: Colombia offers new investors the opportunity to sign Legal Stability Contracts for a duration of up to 20 years. This mechanism allows the investor to ensure that the laws and their interpretation will be applicable for up to 20 years, thereby protecting the profitability of their investment in Colombia.

[2] It is important to note that investment totals required to access Free Trade Zone benefits are calculated in current legal minimum salaries (S.M.M.L.V.) and the figures expressed in dollars have been calculated based on an Exchange Rate of COP 2000 = US $ 1, and the legal minimum salary for 2010 is $ 515.000. The S.M.M.L.V. is adjusted annually and the Exchange rate varies daily according to market demand.

Objective	Guarantees legislation for investment and its administrative interpretation
Conditions	Minimum investment of USD 1,840,000[3] required Premium payment equivalent to 1% of investment made
Period	Up to 20 years

New Free Trade Zones in the South: In order to promote the economic development of the southern regions of the country, the Colombian government has implemented a regime of temporary free trade zones in certain departments. The required investment amount for a Single Enterprise Free Trade Zone in this regime is only USD 1 million provided the investment occurs in one of the following southern departments: Nariño, Cauca, Huila, Caquetá, or Putumayo.

Second Generation Biofuels

Second generation biofuels are those made from crops and residues that do not compete or interfere with the food chain.

There is opportunity in Colombia to pursue projects of this type and various state agencies are developing scientific studies to determine the specifications for cultivating these crops for biofuel use. In addition to the competitive advantages previously mentioned, Colombia is an attractive environment for investors interested in second generation projects due to the following reasons:

- High availability of erroded land included in the 7.3 million hectares available for biofuel development with a soil profile unsuitable for other types of crops. These expanses of land can be rehabilitated and put to productive use through the cultivation of second generation biofuels.
- Nearly 7 million tons of bagasse from sugarcane were produced in 2009, an optimal residue for second generation biofuel production. 4 million tons of sugarcane residues other than bagasse have also been identified in annual production estimates that could be used for second generation biofuel use.
- Various crops residues represent opportunities for producing second generation biofuels in Colombia. CENICAFE, the national association of coffee growers, has calculated that the coffee industry can produce 24 million gallons of ethanol from all of the industry's export crop residues. In terms of the banana industry, roughly 250,000 tons of fruit/year do not fulfill export

[3] Investment of at least 150.000 tax value units "UVT", with a unit value of COP$ 24.555 for 2010 and an applicable exchange rate of COP$ 2000 per USD.

requirements, and after export quotas and internal demand are met, there are 6.5-10.8 tons/hectare/year of rejected bananas that could be used for second generation biofuels.

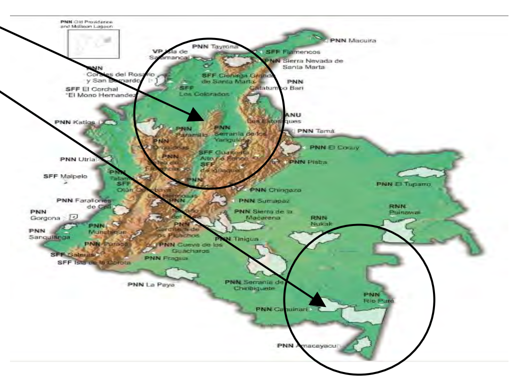
- Possibility of creating jobs in marginal areas of the country, thereby helping in the social and economic development of poorer regions of the country, which is something that can be communicated in a social corporate responsibility campaign.
- Government entities, such as Corpoica in conjunction with Colciencias,[4] are developing studies on second generation biofuels to generate trustworthy and verifiable information about the behavior of the different types of crops in various climates throughout Colombia. These studies are part of a government-funded project called Plan Biocom aimed at increasing the amount of R&D activity in Colombia's biofuel industry.

Examples of recent public and private sector activities in second generation biofuels:

- Ecopetrol has invested $4,700 million pesos (approximately US$ 2.35 million) in investigating alternative crops for biodiesel production.
- Bioenergy, an affiliate of Ecopetrol, and the Universidad Nacional have partnered together to explore the energetic potential of various parts of the sugarcane plant in order to maximize ethanol production from plant fibers.
- 194 research projects were conducted in 2008 alone by Colciencias focused on enhancing and optimizing biofuel production in Colombia. 44% of these studies were focused on ethanol and 42% on biodiesel, with the remaining 14% dedicated to general biofuel studies.
- In terms of Colciencia's ethanol research, 26% of its research activities are dedicated to second generation biofuels.

The following zones could be considered by investors for these types of projects:

- Altillanura
- Baja Guajira



[4] Corpoica: government organization dedicated to agribusiness research, certification, and training.
Colciencias: government institution responsible for promoting science and technological research.

Third Generation Biofuels

Colombia needs to find innovative technologies in order to ensure the sustainability of energy use in the country. Development of projects in cellulosic ethanol and advanced alcohols such as biobutanol would position Colombia in the vanguard of biofuel development worldwide.

Colombia wants to compete for these types of projects and offers the following competitive advantages:

- A domestic market that demands biofuel production. This market opportunity could ensure investment profitability.
- Colombia is an ideal export platform for advanced biofuels to the rest of Latin America, the United States, Europe, and Asia.
- The country has a trained workforce and 2000 professionals graduated in fields such as chemical engineering and biotechnology.
- Colombia has a national center for learning, called SENA, that is capable of designing programs should the need arise to provide specific training to the workforce.
- The free trade zone regime in Colombia is highly competitive and can reduce export costs for exports to numerous countries with which Colombia has signed commercial agreements.

14% of Colciencias ethanol research is focused on microorganisms and exploring third generation biofuels.

Frequently Asked Questions

Is it possible to export biofuels from Colombia?

It is possible to export ethanol once local demand is met, there are no restrictions on exporting biodiesel. Due to the fact that demand for ethanol is larger than local production, it is necessary to close this gap before exploring foreign markets. Nonetheless, sometime between 2010 and 2012, there should be a biofuel surplus which will be exportable to other countries while benefiting from Free Trade Zone incentives and Free Trade Agreements.

Are biofuel prices regulated in Colombia?

Yes, biofuel prices are regulated by the Ministry of Mines and Energy. The aim of regulation is to guarantee the financial viability of biofuel projects and minimize the volatility that would arise from unregulated prices. Due to the international biofuel market's lack of liquidity, the government sets the price by taking into account the opportunity costs of the agricultural raw materials used and alternate uses and/or buyers for the raw materials.

Is it possible for crop cultivations used for biofuels to be covered under the Free Trade Zone regime?

Free Trade Zone regime benefits apply only to the industrial phase of biofuel production. The extensions of land used for cultivations cannot be free trade zones.

Does some type of certification in Colombia exist for maintaining environmental standards during biofuel production?

The Colombian government recognized the importance of being able to count on international support that guarantees environmental and social best practices during biofuel production. At this time the Ministry of Environmental Protection is leading a project to create the regulatory framework for this issue. The timetable establishes that Colombian specifications and guidelines must be certified by ICONTEC,[5] which must then be guaranteed by entities such as RSPO[6] in 2010.

Key Facts

Liters of biodiesel produced per hectare/year	4,200
Liters of ethanol produced per hectare/year	8,960
Installed capacity for ethanol (liters)	1,100,000 (2010)
Installed capacity for biodiesel (liters)	1,418,579 (2010)
Price of 1 gallon of ethanol	US$3.58 (February 2010)
Price of 1 gallon of biodiesel	US$4.00 (February 2010)

Note: Prices calculated at approximate exchange rate of US$1=Col$2000.

Related Entities

Description	Institution	Link
National Association for Biofuels	Fedebiocombustibles	www.fedebiocombustibles.com
National Association of Palm Cultivators	Fedepalma	www.fedepalma.org
Sugar Industry Research Center	Cenicaña	www.cenicana.org
Palm Industry Research Center	Cenipalma	www.cenipalma.org
Energy Planning Agency	UPME	www.upme.gov.co
National Center for Research and Development	Colciencias	www.colciencias.gov.co

[5] ICONTEC: Colombian Institute for Technical Norms and Certifications, which represents Colombia before the International Organization for Standardization.
[6] RSPO: Roundtable on Sustainable Palm Oil.

Proexport Services

The Colombian government places special emphasis on creating favorable conditions and offering the best support possible to investors. Proexport ranked 16th among the best agencies for promoting investment in the world, and offers services to foreign investors that include:

- Answering information requests (economic, legal, and logistical information about a specific sector or issue, etc.)
- Public and private sector contacts
- Organizing agendas when investors decide to visit Colombia
- Follow-up client services once an investor is established in the country
- Constant evaluation and improvement of the business environment

These services are offered free of charge. The purpose behind them is to achieve new business development through efficient and friendly processes. All information provided is handled with the utmost discretion.

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