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# **Report Name:** Biofuels Annual

**Country:** Colombia

**Post:** Bogota

**Report Category:** Biofuels

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**Report Highlights:**

Colombia's ethanol consumption in 2024 is projected to increase to 728 million liters, mainly owing to the government's restored 10 percent ethanol mandate (E10). Heightened ethanol demand is expected to be met through imports, primarily from the United States, despite the countervailing duty on U.S. fuel ethanol. Colombia's ethanol production is anticipated to decline in 2024 due to unfavorable weather conditions that will stagnate cane yields as well as the sugar industry's continued prioritization of cane sugar production over ethanol due to favorable market prices. Biodiesel consumption will continue its upward trajectory in 2024, reaching 801 million liters and supplied solely by local production. The Colombian government removed gasoline fuel subsidies in September 2022. Diesel subventions have remained but gradual removal will start in August 2024. The Colombian government is expected to continue its ethanol and biodiesel blend mandates at 10 percent levels.

## Section I. Executive Summary

Colombia established ambitious climate change mitigation targets, including a 51 percent reduction in greenhouse gas emissions (GHG) by 2030 and carbon neutrality by 2050, taking the 2010 national emissions inventory as a starting point. Despite the potential of biofuels as a tool to help achieve its climate commitments and facilitate energy transition, Colombia's 2022-2026 National Development Plan continues the longstanding biofuels policy with no significant modifications to further raise existing blend rates. Additionally, Colombia's current biofuels policy does not include requirements to lower GHG emissions of current or future marketed fuels, or the introduction of new fuels like renewable diesel which have no blend restrictions. Despite the initiative of Colombia's Civil Aviation Authority to establish a working group to regulate advanced biofuels including sustainable aviation fuel (SAF), no new policy or programs have been established. The fuel ethanol sector remains tightly regulated with a blend rate limited to no more than 10 percent, and foreign suppliers of biodiesel and biodiesel feedstocks are excluded, which limits the program to only using domestic feedstocks.

Established over 20 years ago, Colombia's biofuels policy intends to boost rural economic growth, diversify energy sources and thus reduce dependence on fossil fuels, and lower greenhouse gas emissions. However, there have been no major changes or modernization efforts in its environmental regulations related to biofuels. Nevertheless, opportunities exist to expand biofuel use through increased imports and technological advancements in sustainable biofuel production practices.

The Colombian government maintains significant regulations in its biofuels sector. Biofuels usage benefits from various tax incentives, including value added tax (VAT) exemptions and a carbon tax. The government regulates fuel and biofuel prices and sets biofuel blend mandates, which have fluctuated over the years due to varying domestic feedstock supplies. For 2024, ethanol blend mandates have swayed between E8 and E10, while Colombia's biodiesel mandate remains at B10. Some studies are being conducted to evaluate increasing biofuel blend mandates through voluntary programs.

In 2024, FAS Bogota (Post) forecasts Colombia's fuel ethanol consumption to rise to 728 million liters, primarily driven by the reinstatement of the E10 mandate. Despite continued countervailing duties on U.S. ethanol, ethanol demand will continue to be complemented through U.S. ethanol imports. Colombia has pursued a fuel ethanol policy that permits imports to play some role in meeting mandates although that role has varied considerably at times and mandates setting is flexible in response to domestic feedstock supply and inflationary pressures. The anticipated decline in domestic ethanol production from adverse weather conditions, and the sugar industry's preference for producing cane sugar over ethanol further underscores the importance ethanol imports can play in the supply chain.

In 2024, biodiesel consumption is forecasted to rise slightly to 801 million liters, driven by a stable blend mandate and increasing fuel demand from cargo vehicles. Colombia neither imports nor exports biodiesel. The domestic market relies entirely on local palm oil production, with current market dynamics supporting blending rates largely unchanged over the past 2-3 years.

## Section II. Policy and Programs

Despite President Petro's public advocacy to transition Colombia from fossil fuels to clean energy sources, the Administration's National Development Plan 2022–2026 contains no significant modifications to existing biofuels policy. Colombia's biofuels strategies, first established over 20 years ago by Law 693 (2001) for ethanol and Law 939 (2004) for biodiesel, were designed to boost the rural

economy by providing additional revenue streams for the sugarcane and palm oil industries. These laws aimed to diversify Colombia's energy sources, reduce dependence on fossil fuels, and lower GHG emissions. Despite these long-standing biofuels policies, the Colombian government has not evolved fundamental components that would expand their use, including blend mandates, price systems, and carbon intensity requirements specific to fuel ethanol. No new biofuels commercialized elsewhere (most importantly renewable diesel and SAF) have found footing under existing programs.

The Ministry of Mines and Energy (MME) is the principal regulatory authority overseeing Colombia's biofuels policies, including price administration and blend mandates. The MME collaborates with other ministries to develop biofuel policies. Decree 2328 (2008) establishes an interagency commission regulating biofuels, which includes MME, as well as the Ministries of Agriculture, Environment, Transportation, Commerce and more recently, the Ministry of Finance and the National Planning Department (DNP).[1] Colombia manages its biofuels market through a system of mandates, taxes, environmental regulations (primarily targeting ethanol), and price controls. While tax incentives have been in place since 2002, Colombia's blending mandate implementation strategy has varied over time and on many occasions have not been applied uniformly throughout the country.

***Renewable Energy and Greenhouse Gas Emissions Policy***

Colombia's Energy Transition Law, enacted in July 2021, established the government's commitment toward achieving its climate change migration objectives and a net-zero national energy goal. The law establishes green (fully renewable) hydrogen and blue hydrogen (hydrogen produced from fossil natural gas with a somewhat lower GHG emissions profile compared to using crude oil)) as non-conventional renewable energy and maintains and extends existing tax incentives for projects generating energy from such sources. Article 20 of the Energy Transition Law regulates that the MME may support research and development on energy change from organic sources (animal or vegetable origin), thus allowing Colombia to promote biofuels in its national energy mix and support consumption via liquid fuel distribution chains. According to DNP, since 2023, the MME must set a roadmap to consolidate the use of first-generation biofuels, but to date, no major developments have been announced.[2]

On December 22, 2021, then-President Ivan Duque signed the Climate Action Law that institutionalized Colombia's Nationally Determined Contribution[3] target of reducing GHG emissions by 51 percent by 2030, defined measures to achieve carbon neutrality by 2050, taking the 2010's national emissions inventory as base year, and outlined steps to build climate resilience. The law contains nearly 200 specific climate actions, which, among other charges, includes goals to achieve net zero deforestation by 2030, increase the number of electric vehicles in circulation to at least 600,000 by 2030,[4] reduce GHG

[1] In Spanish, known as the *Departamento Nacional de Planeación*, or DNP.
[2] See: Organization for Economic Cooperation and Development, "Competition in Energy Markets – Note by Colombia." Published November 3, 2022. Retrieved from: Document CONPES 4075 – "Política de Transición Energética," 2022.
[3] See: Nationally Determined Contribution (NDC) to the Paris Agreement: Colombia. The 21st session of the Conference of the Parties (COP 21) of the United Nations Framework Convention on Climate Change, 2016.
[4] In 2022, Colombia had 21,579 electric vehicles and hybrid electric vehicles. See: National Association of Sustainable Mobility (ANDEMOS); 2022 Yearbook of the Automotive Sector, published 2023.

emissions from agricultural activities, increase GHG absorption through the promotion of "agro-energy crops," and use biomass to produce biofuels and bioenergy.

*Carbon Intensity Values*

For carbon footprint regulations, in 2017, the Ministry of Environment and Sustainable Development introduced Resolution 1962, which established a maximum carbon intensity (CI) value linked to the GHG inventory of fuel ethanol. The Colombian sugar-ethanol industry pledged to achieve a 20 percent reduction of GHG emissions from its 2016 base year, when the carbon intensity value associated with the GHG inventory of sugarcane-based ethanol fuel was calculated at 52.8 $gCO_2e/MJ$.[5] By 2021, this commitment meant that the calculation for the biofuel index quotient reached approximately 42.3 $gCO_2e/MJ$ (or 780 kilograms [kg] of $CO2e/m^3$), representing an approximate 61 percent reduction in GHG emissions of ethanol compared to gasoline.[6] However, according to a 2020 study from the Colombian Sugarcane Research Center (Cenicaña), the average CI value for Colombian sugarcane-based ethanol is calculated at 31.5 $gCO_2e/MJ$ (or 580.88 kg of $CO_2eq/m^3$), which would fall below the current, mandatory CI value threshold.[7]

While there is no equivalent carbon footprint regulation for biodiesel, some biodiesel manufacturers have voluntarily pursued carbon neutrality certification. In late 2023, the first biodiesel plant achieved carbon neutrality certification from a local third-party certifier.[8] A 2012 study conducted by the Inter-American Development Bank, in collaboration with the Colombian government found that Colombia's palm oil-based biodiesel cultivation practices and technologies can reduce greenhouse gas emissions by approximately 83 percent (per vehicle kilometer) when compared to conventional diesel.[9] According to a recent study, Colombia has the potential to produce sustainable biobased products from palm oil through appropriate measures to reduce deforestation.[10] However, realized GHG emissions for Colombian palm oil-based biodiesel have not yet been effectively reported at the national level.

### *Biofuel Blend Mandates*

Due to irregular domestic sugarcane and palm oil feedstock supplies, Colombia has routinely changed its biofuel blending mandates (Table 1). Low stocks have frequently led to ethanol and biodiesel market stagnation and in the case of ethanol some notable backtracking.

[5] The CI score is measured by grams of $CO_{2e}$ per megajoule (g/MJ).
[6] Both locally produced and imported ethanol must comply with third-party certifications that follow ISO Standard 14064-3.
[7] Source: Cenicaña, "Ethanol helps reduce greenhouse gas levels;" published October 28, 2020.
[8] Source: Vanguardia, "The first carbon neutral certified biodiesel company in Colombia is from Santander;" published November 27, 2023.
[9] Source: Interamerican Development Bank, Colombian Government "Assessment of the life cycle of the biofuels production chain in Colombia;" published January 2012
[10] Source: Ramirez, Munar, Garcia, Mosquera, Faaij, "The GHG emissions and economic performance of the Colombian palm oil sector; current status and long-term perspectives." Journal of Cleaner Production, published June 10, 2020.

**Table 1. Colombia: Biofuel Blend Mandates, 2016-2024**

| Year | Ethanol Blend | Biodiesel Blend |
|---|---|---|
| **2016** | E8 | B8 - B10 |
| **2017** | E6 - E8 | B9 - B10 |
| **2018** | E10 | B10 |
| **2019** | E10 | B12 - B6 - B8 - B10 |
| **2020** | E10 | B10 |
| **2021** | E10 - E4 - E7 - E4 | B12 - B10 |
| **2022** | E6 | B11 - B10 |
| **2023** | E4 - E5 - E4 - E7 | B10 |
| **2024** | E8 - E10 | B10 |

**Data source**: Ministry of Mines and Energy, National Biofuels Producers Association.

In 2019, Colombia introduced its highest ethanol and biodiesel blend mandates to date at E10 and B12, respectively, with the established goals to reduce pollution in metropolitan cities and contribute to its global climate change commitments. However, the Colombian government has removed blending mandates during periods of low domestic production, while not emphasizing biofuel imports to meet its targets.

In March 2021, the Colombian government issued an emergency resolution to decrease its ethanol blend mandate from E10 to E4. These measures attributed the blend mandate change to inclement weather that impacted domestic production and increasing U.S. ethanol prices that discouraged imports, although Colombia also continued its countervailing duty on imports of U.S. ethanol. However, through Resolution 40447 (2022), Colombia increased ethanol blending back to E10. This renewed mandate, which went into effect on February 23, 2024, follows three years of reduced, fluctuating blend levels that led to market instability and impeded clean energy transition. Presently, the private sector has called for the Colombian government to review its current regulations and permit voluntary higher ethanol blending up to E14.[11] Additionally, some automobile companies are conducting tests on flex fuel vehicles in Colombia.

Biodiesel blending has widely fluctuated in the past five years. In mid-September 2019, due to low domestic palm oil production, MME established a resolution that Colombia's biodiesel blend mandate would decrease to B2 through September 2019 and gradually increase again to B10 by the end of the year.[12] On April 9, 2021, the Colombian government issued another resolution to increase minimum blending from B10 to B12. However, beginning in January 2022, the blend rate fell to B11, and further lowered to B10 by March 2022. Since then, Colombia's biodiesel blend mandate has remained at 10 percent, although some actors are blending above this level.

[11] Source: Economic Report: Liquid fuels sector in Colombia," Colombian Petroleum and Gas Association (ACP); published February 2024.
[12] The September 2019 resolution that dropped blending to B2, came following a previous blending mandate resolution that increased biodiesel blending to B12 but lasted only 20 days.

The Ministry of Mines and Energy has issued various regulations to promote biodiesel use in other sectors such as the mining and maritime sectors. Through Resolution 40188 (2019), the MME established a B5 biodiesel rate for transportation cars used for mining activities. Resolution 40111 (2021) instituted a voluntary biodiesel blend rate up to 2 percent with marine diesel. Further, a pilot program through Resolution 40178 (2020) allows voluntary blend rates at or above B20 for use in cargo transportation fleets. Utilized primarily in Antioquia department and other central Colombian departments, the Colombian National Biofuels Producers Association (*Fedebiocombustibles*) estimates that nearly 1,200 trucks are part of this program.

***Tax Policy***

Since 2002, the Colombian government has promoted biofuel production and consumption through various means including eliminating the biofuels VAT and providing exemptions to a global carbon tax on fossil fuels (Table 2). Additionally, ethanol blended with gasoline is exempt from local surcharge fees. Colombia's 2022 tax reform extended the national carbon tax to include coal, which was not covered in the previous 2016 tax reform that pertained to other fossil fuels. The tax rate for each fuel unit depends on its greenhouse gas emissions and its volume or weight.

**Table 2. Colombia: Current Fuel and Biofuel Tax Rates and Fees**

| Tax | Gasoline | Diesel | Biofuels | Regulation |
|---|---|---|---|---|
| Global Tax | COP $724.70 per gallon of gasoline (regular) (~USD $0.18) | COP $693.65 per gallon (~USD $0.17) | Exempt | Art. 167,168,173 - Law 1607 of 2012<br>Art. 218,219,220 - Law 1819 of 2016 |
| VAT | 19 percent | 19 percent | Exempt | Art. 183 - Law 1819 of 2016<br>Art. 477 - Estatuto Tributario |
| Carbon Tax | COP $186 per gallon (~USD $0.05) | COP $211 per gallon (~USD $0.05) | Exempt | Dec. 926 of 2017<br>Art. 221, 222, 223 - Law 1819 of 2016 |
| Local Surcharge Fee | 25 percent reference price Reference price for June 2024: COP $10,305 per gallon (~USD $2.54) | 6 percent reference price Reference price June 2024: COP $4,855 per gallon (~USD $1.20) | Exempt on ethanol blended with gasoline. No surcharge tax relief on biodiesel | Art. 117 to 121 - Law 488 of 1998 |

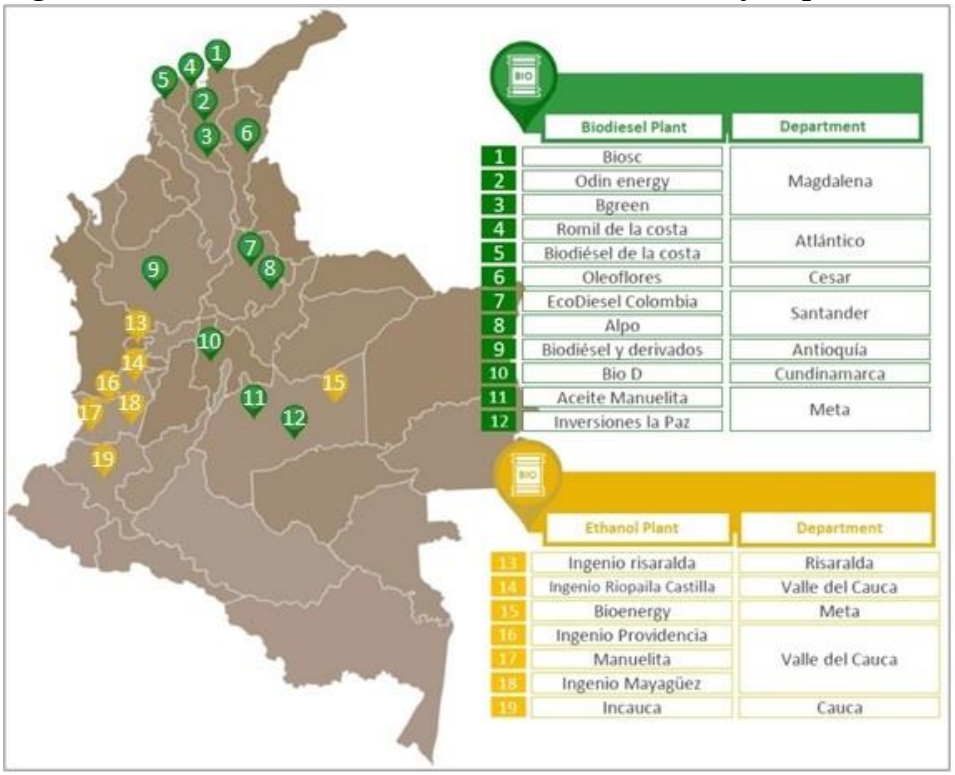
**Note:** Values in both Colombian Peso (COP) and U.S. Dollar (USD). Specific tariffs valid for 2024 and updated on an annual basis. For purposes of this report: $1 USD=4,055 COP (average exchange rate in June 2024).

Data source: Colombian Oil and Gas Information System (SIMEC), MME.

*Geography of Biofuels Production*

Most of Colombia's ethanol facilities are highly concentrated in the Cauca River Valley (Figure 1) where sugarcane production is concentrated. For biodiesel, production facilities are in mostly the northern departments and located close to palm oil plantations.

**Figure 1. Colombia: Ethanol and Biodiesel Facilities by Department**




**Data source:** Fedebiocombustibles.

### *Regulated Biofuel Prices*

Colombian wholesale fossil fuel and biofuel prices are regulated by the government. Since 2007, Colombia has managed fossil fuel prices through the Fund for Stabilization of Fuel Prices to mitigate the impact of international price fluctuations on the domestic market. This policy shielded consumers from rising international fuel prices in recent years, including near the end of the COVID-19 pandemic when Colombian gasoline and diesel demand increased. However, due to high oil prices, the fuel subsidy fund accrued a significant deficit, which in September 2022 prompted the President Petro Administration to gradually elevate gasoline prices for consumers.[13] Recently, a decline in international oil prices and a slight COP appreciation against the U.S. dollar have supported the government's long-term goal of aligning domestic and international gasoline prices.

The Colombian government has been cautious about increasing diesel prices due potentially higher inflation, as most cargo in Colombia is transported by diesel-powered trucks. However, phasing out diesel subsidies was deemed necessary by the government as part of its energy transition strategy. On June 18, 2024, President Petro issued Decree 0763, which introduces a new pricing mechanism for large diesel users that consumer an average of more than 20,000 gallons per month. These targeted sectors, which include oil, mining, and cement companies, will now pay prices equivalent to international parity rates. This measure will take effect on August 8, 2024.

[13] President Petro began his four-year term in August 2022.

Periodically, the MME sets the wholesale prices for gasoline and diesel, which encompass the cost that fuel distributors or blenders must pay to domestic biofuel producers, which are typically calculated using a formula established by MME regulations. Reference fuel prices vary across the country due to variable transportation and distribution costs in each department.

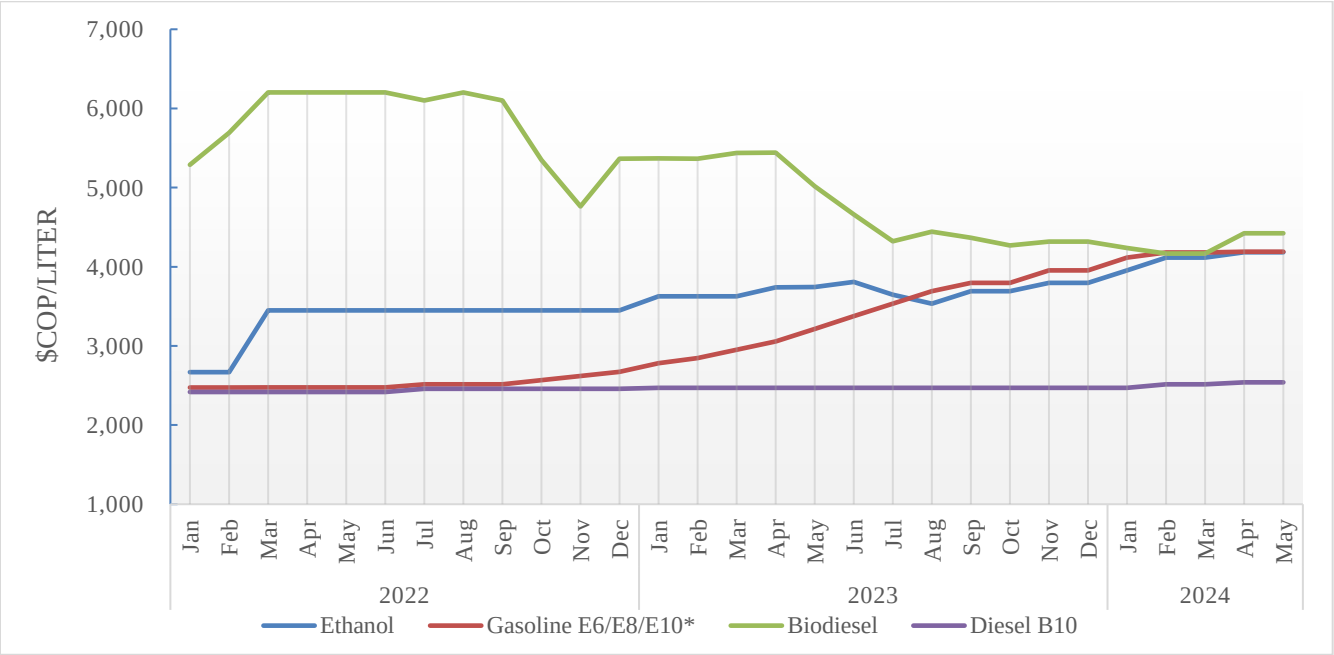
Fuel ethanol price procedures are outlined in MME's resolution 180643 (2012). According to the formula, the ethanol price should be the higher rate between the opportunity cost calculation of using refined sugar to produce ethanol and the international price for gasoline, adjusting for technical factors. This resolution sets a ceiling value which is the average gasoline price in Bogota, the capital city. However, due to rising sugar and ethanol prices, in August 2021, MME issued a resolution to temporarily eliminate the ethanol price ceiling aimed to incentivize local production and imports, allowing for a lower ethanol blend mandate. Currently, the ethanol administered price follows MME's ethanol price resolution and does not exceed the Bogota gasoline price, as fuel prices have matched international rates. This administered price has created significant market opportunities for imported ethanol due to price decreases in international ethanol and a slight Colombian peso revaluation.

The biodiesel price methodology is established through MME's resolution 40400 (2019), which is based on the import parity price of biodiesel. Colombian biodiesel maintains both a ceiling and floor price that depends on current crude palm oil prices.

The most recent MME mandated price for ethanol (effective June 2024) is approximately USD $1.10/liter (USD $4.12 per gallon), a 31 percent increase from the same period last year (Figure 2).[14] For biodiesel, the MME mandated price for June 2024 is approximately USD $1.15/liter ($4.35 per gallon), a 4 percent increase year-over-year. Figure 2 illustrates fossil fuel prices with certain referenced biofuel blends and biofuel administered prices.

[14] See: MME Resolution 40124 (2024).

**Figure 2. Colombia: Monthly Fuel and Biofuel Administered Prices, 2022-2024 ($COP/Liter)**




**Data source:** Fedebiocombustibles and MME.
**Note**: *Gasoline price describes average reference price at actual blend levels of 6, 8, and 10 percent.

***Import Policy***

Under the U.S. Colombia Trade Promotion Agreement, Colombia's import duties for un-denatured ethanol (HS 2207.10) were eliminated in 2012 immediately when the agreement entered into force. For denatured ethanol (HS 2207.20), the 15 percent base rate duty was gradually removed in five equal annual stages beginning in 2012. Since 2016, U.S. denatured ethanol (for fuel ethanol imports) has zero duty.

In January 2019, Colombia's Ministry of Commerce, Industry and Tourism (MINCIT) initiated a countervailing duty (CVD) investigation on U.S. fuel ethanol (HS 2207.20.00.10) at the request of Fedebiocombustibles. On May 7, 2020, MINCIT issued a final ruling in its CVD investigation and placed a USD $0.0665/kg duty (or $0.0526/liter) on imports of U.S. denatured ethanol through May 7, 2022. However, through a separate Fedebiocombustibles petition to review the existing CVD against U.S. ethanol imports, MINCIT on May 4, 2022, determined that there was further merit to justify launching a formal review. On March 15, 2023, MINCIT issued its final ruling on the CVD expiry review investigation and extended the original $0.0665/kg duty on imported U.S. ethanol through the next five years (2028), with a potential review after three years (2026).

There is no specific biodiesel import policy. The Colombian market is open to import biodiesel without any regulatory restrictions, except for the compliance with quality standards and MME authorization to receive an import license. As of June 2024, there is only one authorized biodiesel importer.

## Section III. Fuel Ethanol

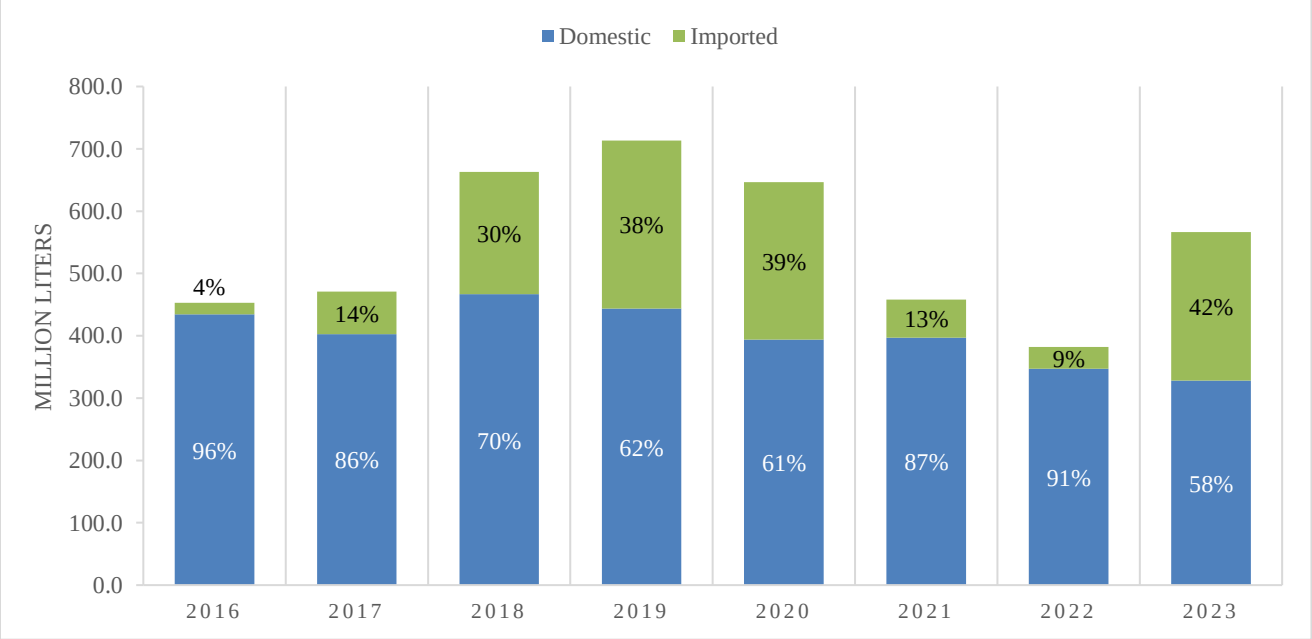
### *Consumption*

For 2024, Post forecasts Colombia's fuel ethanol consumption to reach 728 million liters (ML) a 31 percent increase year-over-year from the revised 2023 estimate of 555 million liters. Assuming a stable E10 blend mandate, this upturn in 2024 is supported by an expected slight increase in gasoline demand, modest economic growth, and continued consumer adaptation to higher gasoline prices.[15]

Fuel ethanol consumption surged to 555 ML in 2023, a 43 percent increase from 2022. This increase is attributed to the Colombian government's decision to increase its ethanol blend mandate to E7 from June to December 2023. Resolution 40447, which established gradual ethanol blending expansion, initially set the blend rate from E4 between July-November to E6 in December, but a temporary MME measure allowed higher blends up to E7. These blending increases come despite the U.S. ethanol CVD, as favorable market conditions including competitive pricing allowed for significant ethanol imports.

Post estimates that Colombia's realized ethanol blend rate is expected to rise to 9.2 percent in 2024, owing to increased imports and accounting for the estimated gasoline fuel pool and domestic ethanol production (Figure 3).

**Figure 3. Colombia: Annual Ethanol Demand, Domestic Production vs. Imports, 2016-2023 (ML)**




**Data source**: Biofuels Producers Association and Trade Data Monitor.

[15] The Central Bank of Colombia's January 2024 predictions suggest a more sustainable level of economic activity, with inflation rates expected to decrease to 5.5 percent in 2024. Projected economic growth is anticipated to reach 1.5 percent in 2024.

***Production***

Colombia's ethanol production for 2024 is estimated at 310 ML, a 5.5 percent decrease from 2023 due to an anticipated La Niña phenomenon (heavy rainfall) in the second half of 2024 that will impact sugarcane yields. Despite being one of the most globally productive sugarcane sectors, Colombia's sugar industry has been underperforming in recent years due to erratic weather conditions, including a strengthened Southern Oscillation which has impacted cultivation and production. Although warmer weather conditions were beneficial in the first quarter of 2024, sugarcane production recovery was insufficient to significantly boost ethanol production.[16] The Colombian dual sugar and ethanol industry is projected to reduce its sugarcane utilization for alcohol to maintain pace with refined sugar demand, including higher exports. With insufficient sugarcane production, Colombia in 2024 is likely to remain heavily reliant on ethanol imports to meet its mandatory blending mandates, despite the continued countervailing duties on U.S. ethanol.

For 2023, Post revises ethanol production down 5 percent from 2022 to 328 ML, attributed to reduced sugarcane crush (reduced sucrose content per hectare) because of adverse weather conditions in the main sugarcane-producing regions, including excessive precipitation and diminished sunlight. Given unfavorable weather and high sugar prices, sugar mills opted to prioritize sugar production over ethanol.

Currently, Colombia's domestic ethanol production is supplied by seven distilleries with a combined production capacity of 660 ML, all utilizing sugarcane as the feedstock. Among the 14 sugar mills in Colombia, six establishments also operate complementary ethanol refineries with an annual capacity of 540 ML, all primarily located near the city of Cali in southwest Colombia. The mills operate almost year-round, except for a brief 30–40-day period for technical maintenance. There is little land available in this region (Valle del Cauca department) to expand sugarcane cultivation.

Located in the eastern plains of Meta department, Bioenergy is the lone ethanol manufacturer without a complementary sugar mill in its operations. Bioenergy sources sugarcane from 20,000 hectares cultivated near its facilities. However, due to unfavorable climate conditions, sugarcane harvesting is limited to eight months of the year in this region.[17] There is ample land available to expand sugarcane cultivation in this less-than-optimal growing region.

***Trade***

In 2024, Colombian fuel ethanol imports are forecast at 420 ML, an 83 percent increase year-on-year. Despite the continuing CVD on U.S. ethanol, imports will continue their growth given the stable E10 mandate, low international prices, Colombian peso appreciation, and a high domestic ethanol administered price compared to import prices. The United States is expected to continue as the main supplier to Colombia.

[16] USDA's Colombia Sugar Annual Report, April 18, 2024.

[17] In 2020, Bioenergy initiated a liquidation process due to financial challenges. Nonetheless, a new company assumed ownership and secured resources to continue operations.

In 2023, fuel ethanol imports jumped nearly seven-fold to 230 ML due to a higher and more stable blending mandate and competitive U.S. ethanol prices. Colombia became the sixth largest market for U.S. ethanol exports in 2023, and most U.S. product used to supply the Colombian north coast. However, with favorable international prices, importers are now procuring larger volumes to supply additional cities within central Colombia. Typically, domestic ethanol production supplies Colombia's the southern and central regions.

***Stocks***

Gasoline and diesel fuel regulations require sufficient stocks to supply the market for 10 days of maximum fuel demand. In 2024, ethanol ending stocks are estimated to increase to 20 ML, which represents 10 days of total ethanol estimated demand, and assumes Colombia will maintain E10 in most parts of the country.

**Table 3. Colombia: Ethanol Production, Supply and Distribution (Years 2015-2024)**

| Ethanol Used as Fuel and Other Industrial Chemicals (Million Liters) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Calendar Year | **2015** | **2016** | **2017** | **2018** | **2019** | **2020** | **2021** | **2022** | **2023** | **2024*f*** |
| **Beginning Stocks** | 11 | 10 | 10 | 13 | 16 | 20 | 40 | 20 | 15 | 18 |
| Fuel Begin Stocks | 11 | 10 | 10 | 13 | 16 | 20 | 40 | 20 | 15 | 18 |
| **Production** | 456 | 434 | 403 | 467 | 444 | 395 | 397 | 347 | 328 | 310 |
| Fuel Production | 456 | 434 | 403 | 467 | 444 | 395 | 397 | 347 | 328 | 310 |
| **Imports** | 7 | 23 | 72 | 201 | 274 | 257 | 65 | 38 | 241 | 440 |
| Fuel Imports | 2 | 19 | 68 | 196 | 269 | 252 | 61 | 35 | 230 | 420 |
| **Exports** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fuel Exports | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Consumption** | 464 | 457 | 472 | 665 | 714 | 632 | 482 | 390 | 566 | 748 |
| Fuel Consumption | 459 | 453 | 468 | 660 | 709 | 627 | 478 | 387 | 555 | 728 |
| **Ending Stocks** | 10 | 10 | 13 | 16 | 20 | 40 | 20 | 15 | 18 | 20 |
| Fuel Ending Stocks | 10 | 10 | 13 | 16 | 20 | 40 | 20 | 15 | 18 | 20 |
| **Refineries Producing Fuel Ethanol (Million Liters)** | | | | | | | | | | |
| No. of Refineries | 6 | 6 | 7 | 7 | 7 | 6 | 7 | 7 | 7 | 7 |
| Nameplate Capacity | 465 | 540 | 600 | 660 | 660 | 540 | 660 | 660 | 660 | 660 |
| Capacity Use (%) | 98.1% | 80.4% | 67.2% | 70.8% | 67.3% | 73.1% | 60.2% | 52.6% | 49.7% | 47.7% |
| **Co-product Production (1,000 MT)** | | | | | | | | | | |
| Bagasse | 1,540 | 1,464 | 1,376 | 1,595 | 1,516 | 1,347 | 1,352 | 1,188 | 1,142 | 1,058 |
| **Feedstock Use for Fuel Ethanol (1,000 MT)** | | | | | | | | | | |
| Sugarcane | 5,499 | 5,229 | 4,915 | 5,695 | 5,415 | 4,812 | 4,830 | 4,242 | 4,080 | 3,780 |
| **Market Penetration (Million Liters)** | | | | | | | | | | |
| Fuel Ethanol Use | 459 | 453 | 468 | 660 | 709 | 627 | 478 | 387 | 555 | 728 |
| Gasoline Pool (1) | 6,161 | 6,810 | 6,891 | 7,147 | 7,725 | 6,383 | 7,662 | 8,005 | 8,080 | 8,160 |
| Blend Rate (%) | 7.5% | 6.7% | 6.8% | 9.2% | 9.2% | 9.8% | 6.2% | 4.8% | 6.9% | 8.9% |

(1) Gasoline pool data sourced from the IEA June 2024 Oil Market Report, 2015-23. Data for 2024 are estimates based on Colombian Petroleum and Gas Association Economic Report, February 2024.[18]
*f*: Post forecast for 2024.
Conversions: 1 metric ton (MT) sugarcane equals approximately 80-83 liters of ethanol; Bagasse production ratio: 28 MT/100 MT of sugarcane.

[18] Source: Economic Report: Liquid fuels sector in Colombia;" Colombian Petroleum and Gas Association (ACP), published February 2024.

## Section IV. Biodiesel

### *Consumption*

Post forecasts Colombia's biodiesel total consumption for 2024 to marginally increase to 801 ML, driven by increased demand from cargo vehicles voluntarily using blends above the B10 mandate that has not changed. Colombian biodiesel consumption is entirely dependent on local palm oil production. Given current market dynamics, Colombia's realized biodiesel blend rate is estimated to reach 12.5 percent in 2024 with a slight increase in diesel pool size. Higher blending is supported by voluntary programs that allow up to 20 percent biodiesel in cargo vehicles. From 2020, Post estimates that approximately 1 to 2 percent of biodiesel production has been destined for off-road use such as mining (see: Biofuel Blend Mandate section). In prior years, all biodiesel was used for on-road transport only.

In 2023, biodiesel demand increased to 794 million liters as diesel demand continued to grow with economic growth that led to increased cargo and passenger movements supported government fuel price subsidies while the blend mandate remained stable.

### *Production*

In 2024, Colombian biodiesel production is forecast to increase to 802 ML, responsive to stronger demand and palm oil production being expected to remain high with favorable weather conditions in certain oil palm producing regions (Table 4). Last year, higher than expected palm oil production supported biodiesel production increasing to 794 million liters and demand rose. Favorable climatic conditions, increased cultivation and maturing palm oil plantations kept prices lower and helped limit government budgetary exposure on price supports.

There are 12 operational biodiesel plants in Colombia (up from eight plants in 2016) using palm oil as the feedstock. One biodiesel manufacturer produces small quantities of biodiesel from used cooking oil. Six of the 12 plants are in Colombia's north coast departments, while the remaining six are in Meta (2), Santander (2), and one each in Cundinamarca and Antioquia (see Figure 1).

### *Trade*

Colombia neither imports nor exports biodiesel. While there is one biodiesel importer authorized since July 2017, to date, there have been no biodiesel imports registered under HS 382600 (biodiesel-diesel blends above B30 by volume to B100 (pure biodiesel)) or HS 271020 (petroleum oils containing up to 30 percent biodiesel by volume). International biodiesel prices have remained unfavorable for imports.

The biodiesel industry operates under capacity, but there are aspirations to export in the future employing full capacity operating facilities. However, prospects are bearish for palm oil-based produced biodiesel from Colombia with little opportunity for sales in the two largest biodiesel markets – Europe and the United States, due to regulatory and environmental restrictions. Palm oil biodiesel is presently not approved for use in the United States as Colombia does not currently meet obligations under the U.S. Renewable Fuel Standard. Thus, the Colombian biodiesel industry cannot access Renewable Identification Numbers that would permit exports into the U.S. market.

### *Stocks*

Gasoline and diesel fuel regulations require stocks to adequately supply the market at 10 days of total fuel demand. In 2024, biodiesel ending stocks are estimated at 23 ML, assuming a stable B10 mandate and the diesel fuel pool growing as expected.

**Table 4. Colombia: Biodiesel Production, Supply and Distribution (Years 2015-2024)**

| Biodiesel (Million Liters) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Calendar Year** | **2015** | **2016** | **2017** | **2018** | **2019** | **2020** | **2021** | **2022** | **2023** | **2024*f*** |
| **Beginning Stocks** | 15 | 15 | 16 | 16 | 18 | 18 | 18 | 20 | 22 | 22 |
| **Production** | 595 | 576 | 583 | 627 | 605 | 583 | 720 | 779 | 794 | 802 |
| **Imports** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Exports** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Consumption** | 595 | 575 | 583 | 625 | 605 | 583 | 718 | 777 | 794 | 801 |
| **Ending Stocks** | 15 | 16 | 16 | 18 | 18 | 18 | 20 | 22 | 22 | 23 |
| **Production Capacity (Million Liters)** | | | | | | | | | | |
| Number of Biorefineries | 6 | 6 | 8 | 8 | 12 | 12 | 12 | 12 | 12 | 12 |
| Nameplate Capacity | 600 | 600 | 700 | 700 | 900 | 900 | 900 | 900 | 900 | 900 |
| Capacity Use (%) | 99.1% | 96.0% | 83.3% | 89.5% | 67.3% | 64.7% | 80.0% | 86.5% | 88.2% | 89.9% |
| **Feedstock Use (1,000 MT)** | | | | | | | | | | |
| Crude Palm Oil | 547 | 508 | 512 | 551 | 528 | 507 | 629 | 683 | 697 | 704 |
| Used Cooking Oil | 0 | 22 | 25 | 26 | 30 | 30 | 35 | 35 | 35 | 35 |
| **Market Penetration (Million Liters)** | | | | | | | | | | |
| Biodiesel, On-road use | 595 | 575 | 583 | 625 | 605 | 577 | 704 | 761 | 778 | 785 |
| Diesel Pool, On-road use | 6,296 | 6,315 | 5,583 | 5,787 | 5,922 | 5,494 | 5,869 | 6,033 | 6,202 | 6,295 |
| Blend Rate (%) | 9.5% | 9.1% | 10.4% | 10.8% | 10.2% | 10.5% | 12.0% | 12.6% | 12.5% | 12.5% |
| Diesel Pool (1) | 8,447 | 8,541 | 7,318 | 7,936 | 8,023 | 7,603 | 7,999 | 8,187 | 8,273 | 8,397 |

(1) Total Diesel pool data sourced from the IEA June 2024 Oil Market Report, 2015-23. Data estimates for 2024 are based on the ACP Economic Report from February 2024.
Note: Diesel pool, on-road use is an estimate based on information from the MME.
*f*: Post forecast for 2024.
Conversions: 1 MT crude palm oil = 1,087 liters biodiesel; 1 MT used cooking oil = 1,060 liters biodiesel.

## Section V. Advanced Biofuels

In late 2023, MME and the Civil Aviation Authority of Colombia (Aerocivil) established a working group to develop a "Sustainable Aviation Fuel Roadmap" to produce and regulate advanced biofuels including sustainable aviation fuel (SAF). This initiative aligns with the Colombian government's commitment to energy transition. Various ministries, including Transportation, Agriculture, Defense, Science, Finance, and Environment, as well as the National Planning Department, state-owned Ecopetrol (oil marketing company), Aerocivil, and Fedebiocombustibles, among others, are involved in this effort to decarbonize air transportation sector. According to the Colombian Petroleum Association, some refineries are conducting research on SAF and renewable diesel, but there is not market penetration yet.[19]

[19] Source: Economic Report: Liquid fuels sector in Colombia," Colombian Petroleum and Gas Association (ACP), February 2024.

**Section VI. Notes on Statistical Data**

Biofuels production data is sourced from Fedebiocombustibles, which gathers information from the Colombian National Association of Sugar Producers (Asocaña) for ethanol and the National Federation of Palm Oil Growers (Fedepalma) for both palm oil and biodiesel. The Colombian Customs Authority (DIAN) and Trade Data Monitor are the primary trade data sources for denatured ethyl alcohol (HS 220720) Gasoline and Total Diesel Pool consumption statistics through 2023 are sourced from the IEA "June 2024 Oil Market Report." Gasoline and diesel pool consumption estimates for 2024 are based on Colombian Petroleum Association growth projections. Diesel pool on-road use is an estimate from the MME historical data. Diesel stocks are estimated by an average of 10-day fuel supply according to Colombian fuel regulations. In 2024, biofuel consumption is based on Post's fuel pool projections and assumed, mandated blend rates.

**Attachments:**

No Attachments